Scotts Corners, Pound Ridge, NY Wastewater Management & Water Supply Engineering Plan

June 25, 2019 - FINAL

Pio Lombardo, P.E.
NYS PE # 056900

Prepared by:

Environmental Engineers/Consultants

LOMBARDO ASSOCIATES, INC.

188 Church Street, Newton, Massachusetts 02458

TABLE OF CONTENTS

List of Figures

List of Tables

EXECUTIVE SUMMARY

This Engineering Plan has been prepared for Wastewater Management and Water Supply Systems for Scotts Corner, Pound Ridge, New York to address the needs for the Scotts Corner three (3) Planned Business Districts, which consists of 41 parcels. Figure ES-1 presents a Scotts Corner Location Map, with Figure ES-2 illustrating the Scotts Corner area and candidate wastewater treatment and disposal sites. The Scotts Corner wastewater and water supply difficulties/challenges have been documented by numerous engineering studies since 1992 and were summarized by the Scotts Corner Water / Wastewater Task Force, whose report is attached as Appendix A.

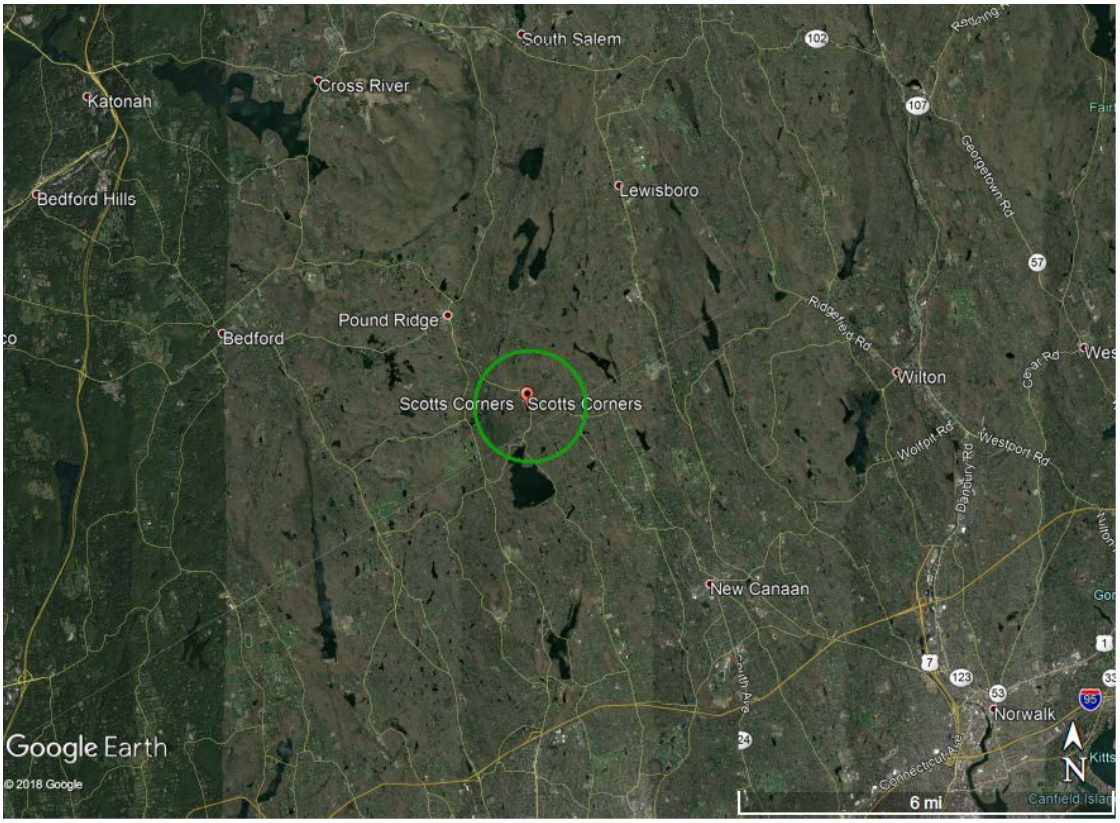


Figure ES-1 Scotts Corner Location Map

This Engineering Plan reviewed the previous studies and performed its own independent analysis and concluded that due to the small lot sizes and shallow depth to rock/groundwater, on-site solutions are not viable and off-site wastewater solutions are required. Small cluster solutions were examined and it was determined that insufficient land exists for small cluster solutions. Consequently, a Scotts Corner study area wide wastewater system is required.

Due to shallow depth to rock/groundwater in the study area, the septic tank – effluent collection system was selected due to its lower cost and overall wastewater system simplicity. As the project location is in a NYSDEC designated AA-S watershed, which is a source of potable water supply, wastewater disposal must be via subsurface disposal. Eight (8) candidate sites for a Scotts Corner wastewater treatment and disposal facility were identified and evaluated based upon existing information. The following four sites were identified as being the most technically promising and cost-effective for a Scotts Corner wastewater treatment and disposal facility.

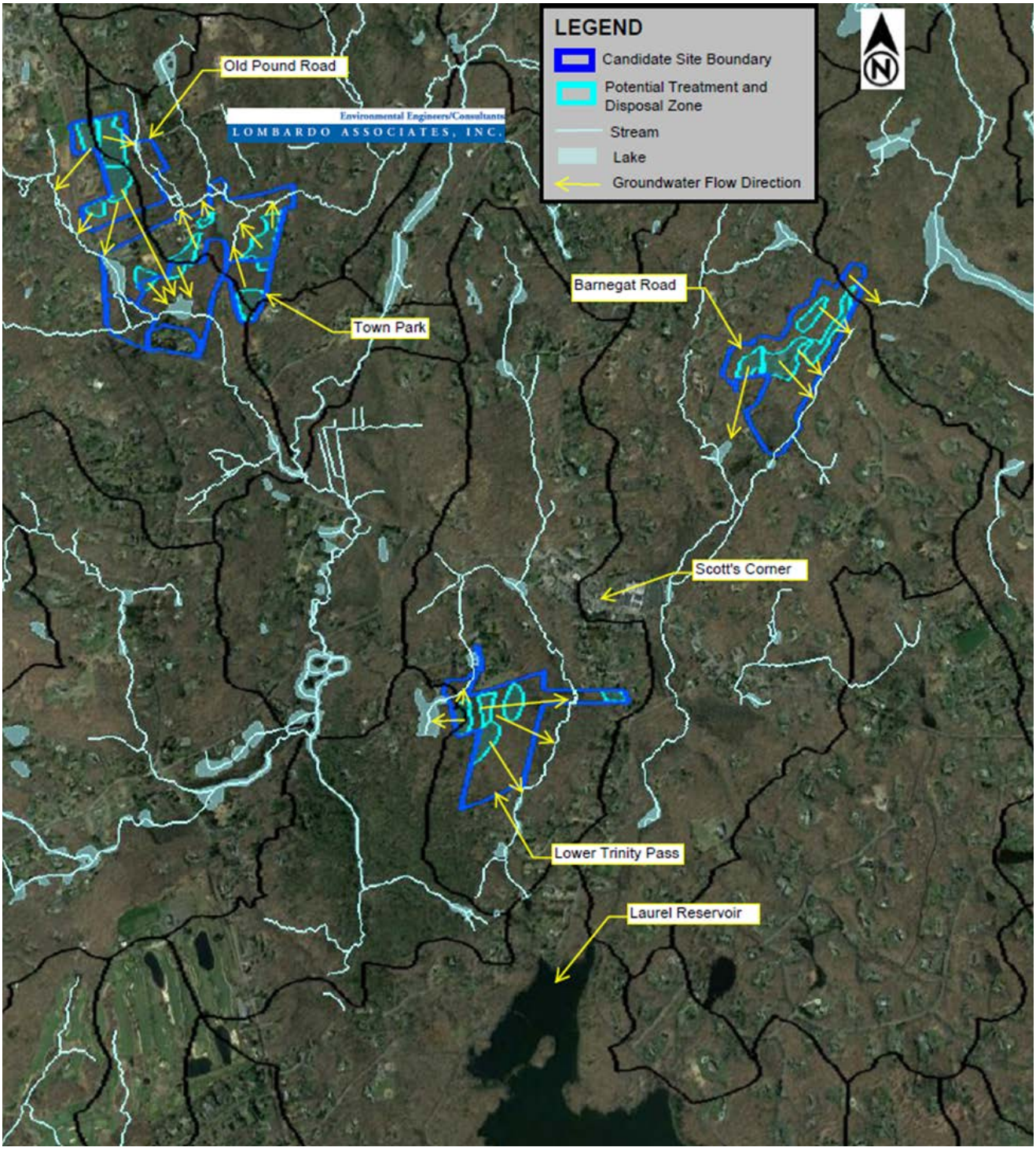


Figure ES-2 Scotts Corner Study Area Aerial Photo with Candidate Wastewater Treatment & Disposal Sites

- ✓ Pine Drive – Lower Trinity Road
- ✓ Town Park
- ✓ Old Pound Road
- ✓ 169 Barnegat Road

As an order of magnitude estimate of the disposal capacity of each site, Darcy's law estimates were prepared and are presented on Table ES-1. For a variety of technical hydrogeologic reasons and data limitations, Darcy's Law estimates are insufficient for determining the disposal capacity of a site. Groundwater modeling, which is beyond the scope of this Report, needs to be performed to finalize a site's disposal capacity.

Candidate Disposal Sites Summary		
Site #	Site Name	Flow - Darcy's (GPD)
1	Town Park	69,031
2	Old Pound Ridge Rd	42,897
3	Lower Trinity Pass	55,976
4	Barnegat Rd	18,007
5	Oceanus	29,428

Table ES-1 Darcy Law Estimates of Candidate Sites Disposal Capacity

Test pits and soil testing at the Barnegat and Lower Pound Ridge sites is scheduled to be completed in July 2019. Due to the relatively shallow soil mantle, groundwater modeling of disposal at the preferred site(s) is necessary to determine the site's capacity for final site selection.

Due to the environmentally sensitive potable water supply watershed in which the candidate sites are located and Class AA-S watersheds that the Study Area is within, a tertiary wastewater treatment system with disinfection is proposed. The treatment and disposal/reuse system's process flow diagram is shown on Figure ES-3.

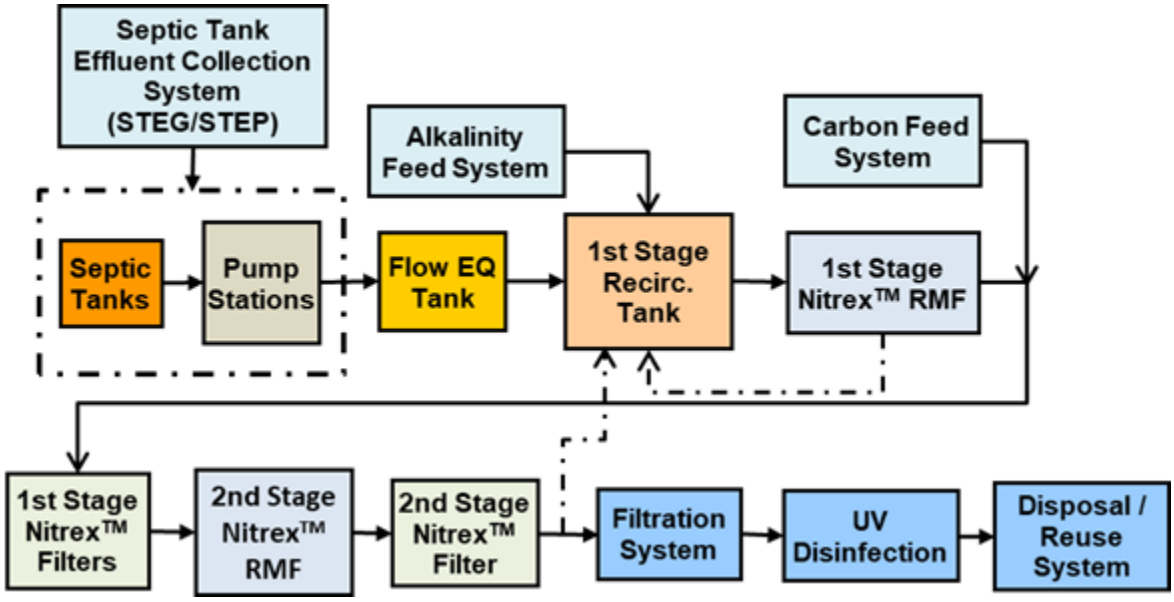


Figure ES-3 Scotts Corner Wastewater Treatment System Process Flow Diagram

The treatment process has been selected due to its demonstrated ability to reliably achieve Tertiary Treatment with Disinfection with low Operations and Maintenance (O&M) requirements. Wastewater treatment effluent quality requirements are proposed as follows:

pH	6.5 – 8.5
BOD/TSS	< 10 mg/L
Oil & Grease	< 15 mg/L
Total Nitrogen (TN)	< 10 mg/L
Fecal Coliform	Average < 24 & Maximum < 200 MPN / 100 ml
Enterococcus	Average < 24 & Maximum < 104 MPN / 100 ml

The treatment process has been approved in Suffolk County NY since 2011, has been permitted and was operational in Malibu CA for 10 years, and was approved by the CA Department of Public Health to achieve CA Title 22 Standards for Unrestricted Water Reuse for Non-Potable purposes.

WATER SUPPLY

The Scotts Corner water supply options are:

- ✓ Connection to Aquarion Water Company water supply system – which has a Water Tank at the Pound Ridge Golf Course, and is the only location from which Aquarion can supply Scotts Corner.

- ✓ Scotts Corner Water Supply Treatment System – According to the December 21, 1973 Agreement, Section 13) between the Town and Stamford Water Company (now Aquarion), the Town has "the right, privilege and priority to draw water from the Siscowit Reservoir…..For that limited purpose the Town shall be deemed to have a perpetual easement over the Water Company property to locate pump house, pipes and other equipment…"

Pending negotiations between Aquarion and the Town of Pound Ridge to tap into the Aquarion water supply system at / near the Water Tank, the proposed water supply system would be fed from the Aquarion water tank, then north along High Ridge Road to Upper Shad Road east to Westchester Avenue and then south to end at 21 Westchester Avenue. Table ES-2 presents water supply and wastewater system capital cost estimates.

Table ES-2 Wastewater & Water Supply Systems Capital Cost Estimates

Scotts Corner Water Supply & Wastewater System Capital Costs	
Wastewater Treatment & Disposal System w/o Interceptor & site costs	$16,476,000
Interceptor & Site Costs	$2,068,750
Water Supply System	$9,251,000
Contingency	$4,000,000
Total Capital Cost	$31,795,750

Table ES-3 presents projected user charges assuming various levels of funding and amortization of the local share for 30 years at 4%.

Legal / Financing

It is proposed that Water Supply and Wastewater Districts (individually or combined) would be established by the Town for the Study Area under Town Law Article 12. The Districts are proposed to be Enterprise Funds in which the users pay all costs and the District is a separate legal and financial entity. At this time the District does not exist and no financials exist.

Table ES-3 Wastewater & Water Supply Systems User Charge Estimates

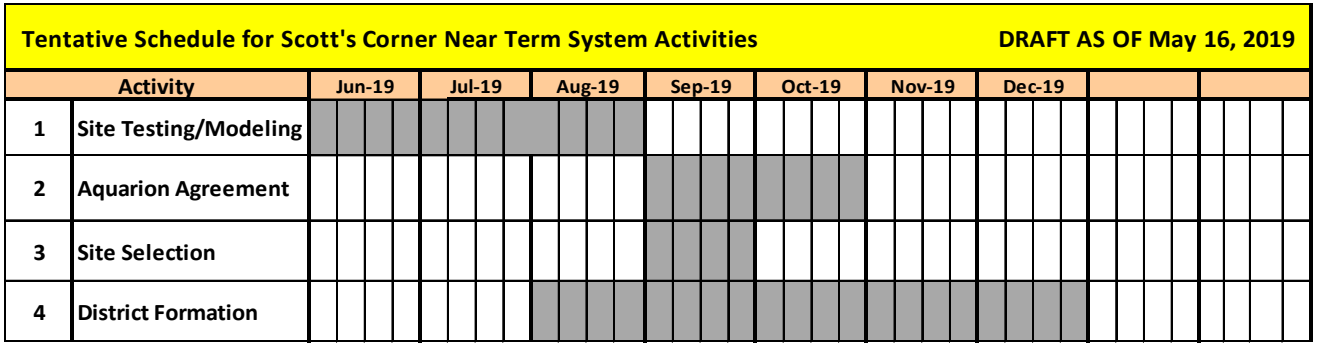
Parcel #	Property Address	Tenant	Use	Final WW Design Flow (gpd)	Final Water Design Flow (gpd)	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
								No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9454-36	89 Westchester Ave	PR Ambulance Corps	community facility	130	65	0.43	$734	$66,496	$49,872	$33,248	$16,624	**$4,580**	**$3,620**	**$2,660**	**$1,690**
9454-5	87 Westchester Ave	Avant Garden	retail	144	72	0.48	$818	$74,089	$55,567	$37,045	$18,522	**$5,100**	**$4,030**	**$2,960**	**$1,890**
9454-6	85 Westchester Ave	North Star	restaurant	1750	875	5.83	$9,917	$897,898	$673,423	$448,949	$224,474	**$61,840**	**$48,870**	**$35,880**	**$22,890**
9454-6	85 Westchester Ave	North Star	office	136	68	0.45	$771	$69,793	$52,345	$34,896	$17,448	**$4,810**	**$3,800**	**$2,790**	**$1,780**
9454-7	83 Westchester Ave	Albano Appliance	retail	614	307	2.05	$3,478	$314,925	$236,193	$157,462	$78,731	**$21,690**	**$17,140**	**$12,580**	**$8,040**
9454-7	83A,&B Westchester Ave	Above Albano Appliance	apartments	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9454-7	83C&D Westchester Ave	Albano Appliance	office	229	115	0.76	$1,298	$117,509	$88,132	$58,755	$29,377	**$8,090**	**$6,400**	**$4,690**	**$2,990**
9454-8	79 Westchester Ave	Dynax	office	187	94	0.62	$1,061	$96,049	$72,037	$48,025	$24,012	**$6,610**	**$5,230**	**$3,840**	**$2,450**
9454-9	77 Westchester Ave	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-9	77A Westchester Ave	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-35	NA	Parking	Parking	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-10	73 Westchester Ave	Healthy Home Foods	Retail / Food Prep	420	210	1.40	$2,380	$215,495	$161,622	$107,748	$53,874	**$14,840**	**$11,730**	**$8,610**	**$5,490**
9454-10	73 Westchester Ave	Pound Ridge Dentistry	Medical Office	250	125	0.83	$1,417	$128,271	$96,203	$64,136	$32,068	**$8,830**	**$6,980**	**$5,120**	**$3,270**
9454-11	71 Westchester Ave	Kitchen Table	restaurant	875	438	2.92	$4,958	$448,949	$336,712	$224,474	$112,237	**$30,920**	**$24,430**	**$17,930**	**$11,450**
9454-11	71 Westchester Ave	Wine Store	retail	194	97	0.65	$1,099	$99,487	$74,615	$49,744	$24,872	**$6,860**	**$5,410**	**$3,980**	**$2,530**
9454-11	69 Westchester Ave	La Familia	restaurant	1400	700	4.67	$7,933	$718,318	$538,739	$359,159	$179,580	**$49,470**	**$39,090**	**$28,710**	**$18,320**
9454-11	69 Westchester Ave	Martin House	Office	307	154	1.02	$1,740	$157,581	$118,186	$78,791	$39,395	**$10,850**	**$8,570**	**$6,300**	**$4,010**
9454-12	69 Westchester Ave	Summit Company	Office	307	154	1.02	$1,740	$157,581	$118,186	$78,791	$39,395	**$10,850**	**$8,570**	**$6,300**	**$4,010**
9454-13	67 Westchester Ave	Above Retail	apartments	220	110	0.73	$1,247	$112,879	$84,659	$56,439	$28,220	**$7,770**	**$6,150**	**$4,510**	**$2,880**
9454-13	67 Westchester Ave	The Cottage / Booksy	retail	282	141	0.94	$1,596	$144,485	$108,363	$72,242	$36,121	**$9,950**	**$7,860**	**$5,770**	**$3,690**
9454-14	4 Trinity Pass Rd.	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-15	65A,B Westchester Ave	Kahlo	retail	117	59	0.39	$665	$60,210	$45,158	$30,105	$15,053	**$4,150**	**$3,280**	**$2,400**	**$1,540**
9454-15	65A,B Westchester Ave	Above Kahlo	apartments	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9320-56	Westchester Ave	Parking	parking w/2 shed	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-58	80 Westchester Ave	Fire Department	community facility	708	354	2.36	$4,010	$363,059	$272,294	$181,529	$90,765	**$25,010**	**$19,750**	**$14,510**	**$9,260**
9320-59	78 Westchester Ave	123 Dough	Food Prep	223	112	0.74	$1,266	$114,636	$85,977	$57,318	$28,659	**$7,900**	**$6,230**	**$4,580**	**$2,930**
			Employees	60	30	0.20	$340	$30,785	$23,089	$15,393	$7,696	**$2,120**	**$1,670**	**$1,230**	**$780**
9320-59	78 Westchester Ave	Miller's Landscape	office	74	37	0.25	$422	$38,212	$28,659	$19,106	$9,553	**$2,630**	**$2,070**	**$1,530**	**$980**
9320-60	76 Westchester Ave	Dinardos	restaurant	2100	1,050	7.00	$11,900	$1,077,477	$808,108	$538,739	$269,369	**$74,210**	**$58,630**	**$43,050**	**$27,480**
9320-60	76 Westchester Ave	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-60	76 Westchester Ave	above Dinardos	apartments	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9320-61	74 Westchester Ave	Blind Charlies	restaurant	1750	875	5.83	$9,917	$897,898	$673,423	$448,949	$224,474	**$61,840**	**$48,870**	**$35,880**	**$22,890**
9320-61	74 Westchester Ave	Jacob Allen	Spa	200	100	0.67	$1,133	$102,617	$76,963	$51,308	$25,654	**$7,060**	**$5,580**	**$4,110**	**$2,620**
9320-61	74 Westchester Ave	O'Donnell	Retail	199	100	0.66	$1,129	$102,232	$76,674	$51,116	$25,558	**$7,040**	**$5,560**	**$4,080**	**$2,610**
9320-61	74 A,B,C,&D Westchester Ave	above Blind Charlies	apartments	660	330	2.20	$3,740	$338,636	$253,977	$169,318	$84,659	**$23,320**	**$18,430**	**$13,530**	**$8,630**
9320-62	72 Westchester Ave	PR Dry Cleaners	retail	238	119	0.79	$1,346	$121,858	$91,393	$60,929	$30,464	**$8,390**	**$6,630**	**$4,870**	**$3,110**
9320-62	72 Westchester Ave	Plum Plum's	Food Prep	119	59	0.40	$673	$60,929	$45,697	$30,464	$15,232	**$4,200**	**$3,310**	**$2,430**	**$1,550**
			Employees	60	30	0.20	$340	$30,785	$23,089	$15,393	$7,696	**$2,120**	**$1,670**	**$1,230**	**$780**
9320-62	72 Westchester Ave	Nephawa	retail	119	59	0.40	$673	$60,929	$45,697	$30,464	$15,232	**$4,200**	**$3,310**	**$2,430**	**$1,550**
9320-62	72 A & B Westchester Ave	above PR Dry Cleaners	apartment	220	110	0.73	$1,247	$112,879	$84,659	$56,439	$28,220	**$7,770**	**$6,150**	**$4,510**	**$2,880**
9320-63	70 Westchester Ave	above retail	apartments	220	110	0.73	$1,247	$112,879	$84,659	$56,439	$28,220	**$7,770**	**$6,150**	**$4,510**	**$2,880**
9320-63	70 Westchester Ave	Barber	Barber	250	125	0.83	$1,417	$128,271	$96,203	$64,136	$32,068	**$8,830**	**$6,980**	**$5,120**	**$3,270**
9320-63	70 Westchester Ave	P. Queens, Avalon Ins, Hedg., PR Home	retail / Office	103	51	0.34	$583	$52,827	$39,620	$26,414	$13,207	**$3,640**	**$2,880**	**$2,110**	**$1,340**

Table ES-3, Continued

Parcel #	Property Address	Tenant	Use	Final WW Design Flow (gpd)	Final Water Design Flow (gpd)	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
								No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9320-64	68 Westchester Ave	Chubby's	retail	346	173	1.15	$1,962	$177,604	$133,203	$88,802	$44,401	**$12,240**	**$9,670**	**$7,100**	**$4,530**
9320-64	68 A,B,C,&D Westchester Ave	above Chubby's	apartments	660	330	2.20	$3,740	$338,636	$253,977	$169,318	$84,659	**$23,320**	**$18,430**	**$13,530**	**$8,630**
9320-65	66 Westchester Ave	gas station	auto repair	800	400	2.67	$4,533	$410,468	$307,851	$205,234	$102,617	**$28,270**	**$22,340**	**$16,400**	**$10,460**
9455-18.9	26 Lower Trinity Pass	Joiquim Felice	Home	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9455-20	32 Westchester Ave	Wine Connection	retail	444	222	1.48	$2,517	$227,861	$170,896	$113,930	$56,965	**$15,700**	**$12,400**	**$9,100**	**$5,810**
9455-20	32 Westchester Ave	Above Wine Connection	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-21	34 Westchester Ave	above Antique	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-21	34 Westchester Ave	Antique	retail	196	98	0.65	$1,113	$100,795	$75,597	$50,398	$25,199	**$6,940**	**$5,480**	**$4,020**	**$2,580**
9455-27	38 Westchester Ave	Future Value Assoc	office	176	88	0.59	$997	$90,303	$67,727	$45,151	$22,576	**$6,220**	**$4,910**	**$3,610**	**$2,300**
9455-28	40, 40A Westchester Ave	Wittus	retail	270	135	0.90	$1,530	$138,533	$103,900	$69,266	$34,633	**$9,540**	**$7,540**	**$5,540**	**$3,540**
9455-28	40, 40A Westchester Ave	Helen Famulare Spa	Spa	400	200	1.33	$2,267	$205,234	$153,925	$102,617	$51,308	**$14,140**	**$11,170**	**$8,200**	**$5,230**
9455-28	40, 40A Westchester Ave	Private	apartment	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9455-26	46 Westchester Ave	Roeco	office	184	92	0.61	$1,041	$94,252	$70,689	$47,126	$23,563	**$6,490**	**$5,130**	**$3,760**	**$2,410**
9455-25	54 Westchester Ave	Asia Hamachi	restaurant	875	438	2.92	$4,958	$448,949	$336,712	$224,474	$112,237	**$30,920**	**$24,430**	**$17,930**	**$11,450**
9455-25	54 Westchester Ave	Dragon Martial Arts	Health Club	300	150	1.00	$1,700	$153,925	$115,444	$76,963	$38,481	**$10,610**	**$8,370**	**$6,150**	**$3,920**
9455-25	54 Westchester Ave	Curry & Hovis	retail	120	60	0.40	$680	$61,570	$46,178	$30,785	$15,393	**$4,240**	**$3,350**	**$2,460**	**$1,570**
9455-25	54 Westchester Ave	above Curry & Hovis	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-24	56, 60 Westchester Ave	above retail	apartments	770	385	2.57	$4,363	$395,075	$296,306	$197,537	$98,769	**$27,210**	**$21,500**	**$15,790**	**$10,080**
9455-24	56, 60 Westchester Ave	Key Bank, Toy Store	retail / Office	779	390	2.60	$4,415	$399,744	$299,808	$199,872	$99,936	**$27,530**	**$21,760**	**$15,970**	**$10,190**
9456-4	39 Westchester Ave	private	residential	660	330	2.20	$3,740	$338,636	$253,977	$169,318	$84,659	**$23,320**	**$18,430**	**$13,530**	**$8,630**
9456-1.9	55, 57 Westchester Ave	Market, post office, 5 Retail Stores, Office	retail / office	5414	2,707	18.05	$30,679	$2,777,787	$2,083,341	$1,388,894	$694,447	**$191,310**	**$151,160**	**$111,000**	**$70,840**
9455-10	22, 24 Westchester Ave	PR Organics	Retail	478	239	1.59	$2,709	$245,306	$183,979	$122,653	$61,326	**$16,890**	**$13,350**	**$9,800**	**$6,250**
9455-13	26 Westchester Ave	Above Educators Alley	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-13	26 Westchester Ave	Qualities	retail	55	27	0.18	$311	$28,181	$21,136	$14,091	$7,045	**$1,940**	**$1,530**	**$1,130**	**$720**
9455-13	26 Westchester Ave	Educators Alley	office	110	55	0.37	$622	$56,362	$42,272	$28,181	$14,091	**$3,890**	**$3,060**	**$2,250**	**$1,430**
9455-14	30 Westchester Ave	private	residential	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9456-8	21 Westchester Ave	private	residential	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9456-7	23,23A,B Westchester Ave	Kende & London Joiner	retail	306	153	1.02	$1,735	$157,106	$117,830	$78,553	$39,277	**$10,830**	**$8,550**	**$6,280**	**$4,010**
9456-6	27 Westchester Ave	above Lion Heart	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9456-6	27 Westchester Ave	Di Biase Filkoff Architects	Office	152	76	0.51	$860	$77,886	$58,415	$38,943	$19,472	**$5,370**	**$4,240**	**$3,110**	**$1,980**
9456-5	29 Westchester Ave	A Home	residential	1760	880	5.87	$9,973	$903,029	$677,271	$451,514	$225,757	**$62,200**	**$49,140**	**$36,080**	**$23,030**
9456-55	35 Westchester Ave	PR Vet Center	retail	214	107	0.71	$1,215	$110,045	$82,534	$55,023	$27,511	**$7,580**	**$5,980**	**$4,390**	**$2,810**
	IN-FILL			6365	3,183	21.22	$36,071	$3,265,989	$2,449,492	$1,632,994	$816,497	**$224,940**	**$177,720**	**$130,510**	**$83,290**
	PM&G		CURRY & HOVIS	20000	10,000	66.67	$113,333	$10,261,688	$7,696,266	$5,130,844	$2,565,422	**$706,760**	**$558,410**	**$410,050**	**$261,690**
	SCOTT'S CORNER MARKET		Market & Post Office	20000	10,000	66.67	$113,333	$10,261,688	$7,696,266	$5,130,844	$2,565,422	**$706,760**	**$558,410**	**$410,050**	**$261,690**
				80,000	**40,000**	**267**	**$453,333**	**$41,046,750**	**$30,785,063**	**$20,523,375**	**$10,261,688**	**$2,827,060**	**$2,233,590**	**$1,640,160**	**$1,046,670**

Implementation Schedule

Figure ES-4 presents the project's proposed Implementation Schedule.



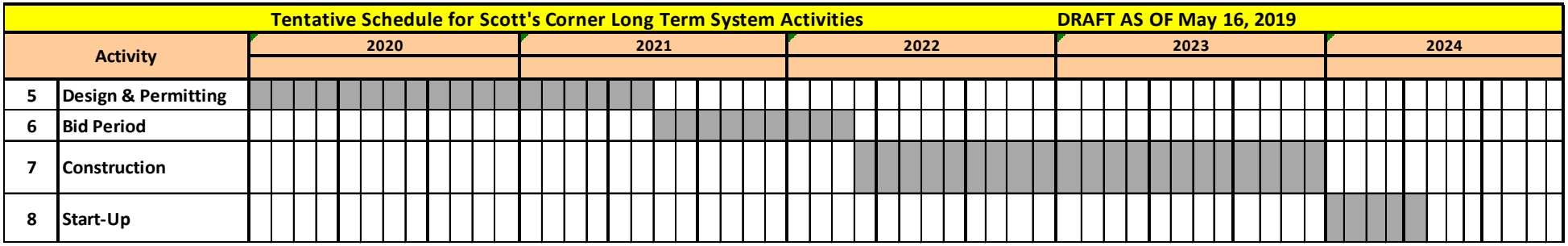


Figure ES-4 Scotts Corner Wastewater + Water Supply Implementation Schedule

Acknowledgements

The valuable support of the Town Board, its staff and Water-Wastewater Task Force members is greatly appreciated.

Town Board

Kevin Hansan, Supervisor
Daniel S. Paschkes
Jody Sullivan
David Dow
Diane Briggs

Pound Ridge Water-Wastewater Task Force

Ellen Ivens, Co-chair
Alison Boak, Deputy Supervisor & Co-chair
Jim Perry
Jim Best
Stacy French
David Dow
Peter Marchetti
Paul Sears
Peter Vogel
Mark Mosolino
Tom Smith
Kevin Hansan , Supervisor
Sherene DePalma

ENGINEERING REPORT CERTIFICATION

During the preparation of this Engineering Report, I have studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is being sought from the New York State Clean Water State Revolving Fund. In my professional opinion, I have recommended for selection, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account the cost of constructing the project or activity, the cost of operating and maintaining the project or activity over the life of the project or activity, and the cost of replacing the project and activity.

This Engineering Report has been prepared in accordance with the NYSDEC New York State Design Standards for Intermediate Sized Wastewater Treatment Systems dated March 5, 2014 https://www.dec.ny.gov/docs/water_pdf/2014designstd.pdf

Title of Engineering Report:	**Scotts Corner, Pound Ridge, NY Wastewater and Water Supply Engineering Report**
Date of Report:	**June 25, 2019**
Professional Engineer's Name:	**Pio S. Lombardo, P.E., NYS PE # 056900**

Signature:

Date: June 25, 2019

1. PROJECT OBJECTIVES & STUDY AREA CONDITIONS

1.1 PROJECT OBJECTIVES

Per the December 29, 2018 Agreement between the Town of Pound Ridge (Town), NY and Lombardo Associates, Inc. (LAI), LAI is to prepare a Scotts Corner, Pound Ridge, NY Wastewater Management & Water Supply Study (Study) that consists of the following Tasks:

Task No.	Description
1	Assess Flow Requirements for a Wastewater Disposal System
2	Identify Possible Location(s) for Wastewater Disposal
3	Preliminary Design(s) for a Comprehensive Wastewater Solution
4	Preliminary Design for Comprehensive Water Supply
5	Meetings
6	Final Report
7	Preliminary Financing Plan, User Charges & Implementation Plan

The primary objectives of the engineering efforts associated with the Study are:

- ✓ Prepare an Engineering Plan that would comply with NY State DEC Water Quality Improvement Program (WQIP) grant requirements by July 20, 2019

- ✓ Prepare a Preliminary Engineering Plan that would be the basis for preparation of the Map and Plan that would be required associated with the Town establishing Wastewater Management and Water Supply Management Districts.

1.2 STUDY AREA - CENSUS

Scotts Corner is the project study area and the main commercial area of Pound Ridge with three (3) planned business zones of PB-A, PB-B and PB-C, Figures 1-1 through 1-3. The Scotts Corners business districts encompass approximately 40 acres and 40 properties across blocks 9454, 9455, 9456, 9320, 9820, and 9816. Table 1-1 presents a list of District properties and their current use.

Water supply and wastewater management difficulties/challenges have existed since 1990s as documented in the December 2017 Scotts Corner Water Wastewater Task Force Existing Conditions Report (TF Report). That Report concluded:

- **Wastewater Management.** Due to lot sizes, site conditions, wastewater systems/practices and use of individual water supply wells, a long-term, sustainable Scotts Corner wide wastewater management system is needed for current and Town zoning allowed property uses. Also, the current configuration of individual wells and septic systems do not meet regulatory separation requirements. As Scotts Corner is in the Stamford, CT water supply watershed, treatment/disposal systems will need to address that environmental sensitivity. All wastewater discharges have to be subsurface disposal systems (SSDS).

- **Water Supply.** Due to legacy MTBE groundwater contamination and new wells requiring extensive water filtration systems, a Scotts Corner public water supply system is also needed. The TF noted that a 1973 contract between the Stamford Water Company and Pound Ridge for the construction of the Siscowit or other Reservoir to provide water to Scotts Corner.

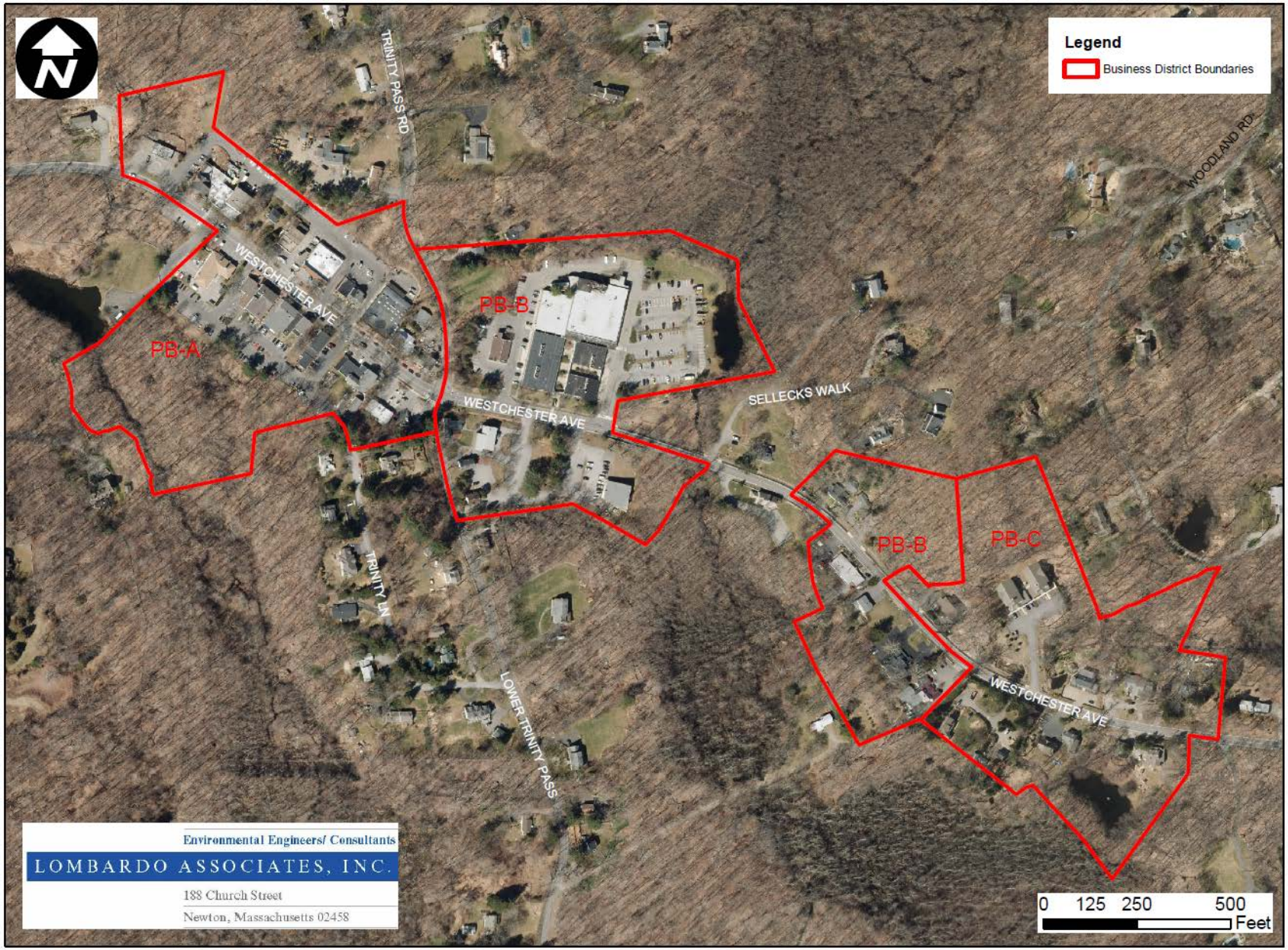


Figure 1-1 Scotts Corner Aerial Photograph with Business District Boundaries

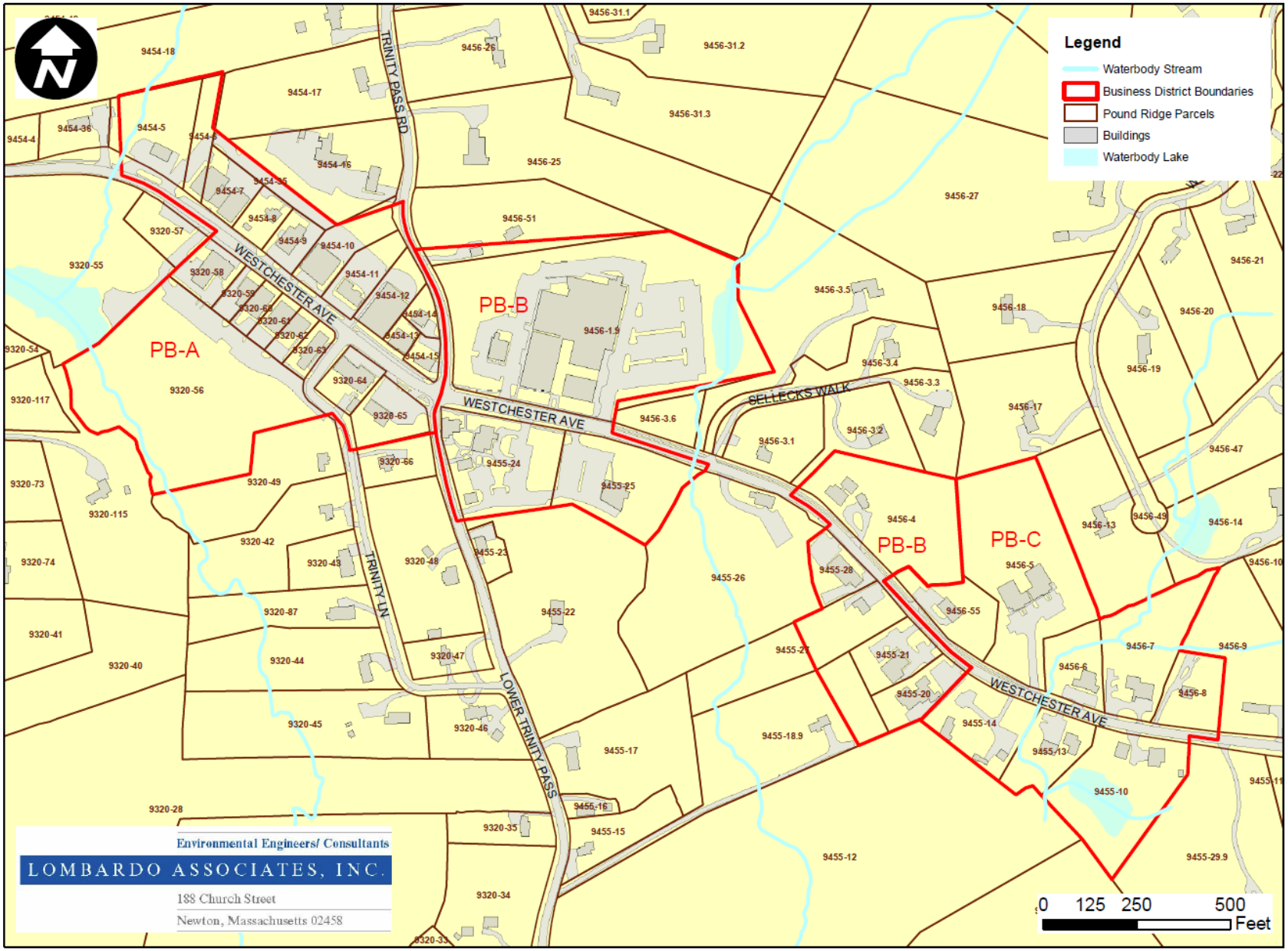


Figure 1-2 Scotts Corner Parcel Map – with PID

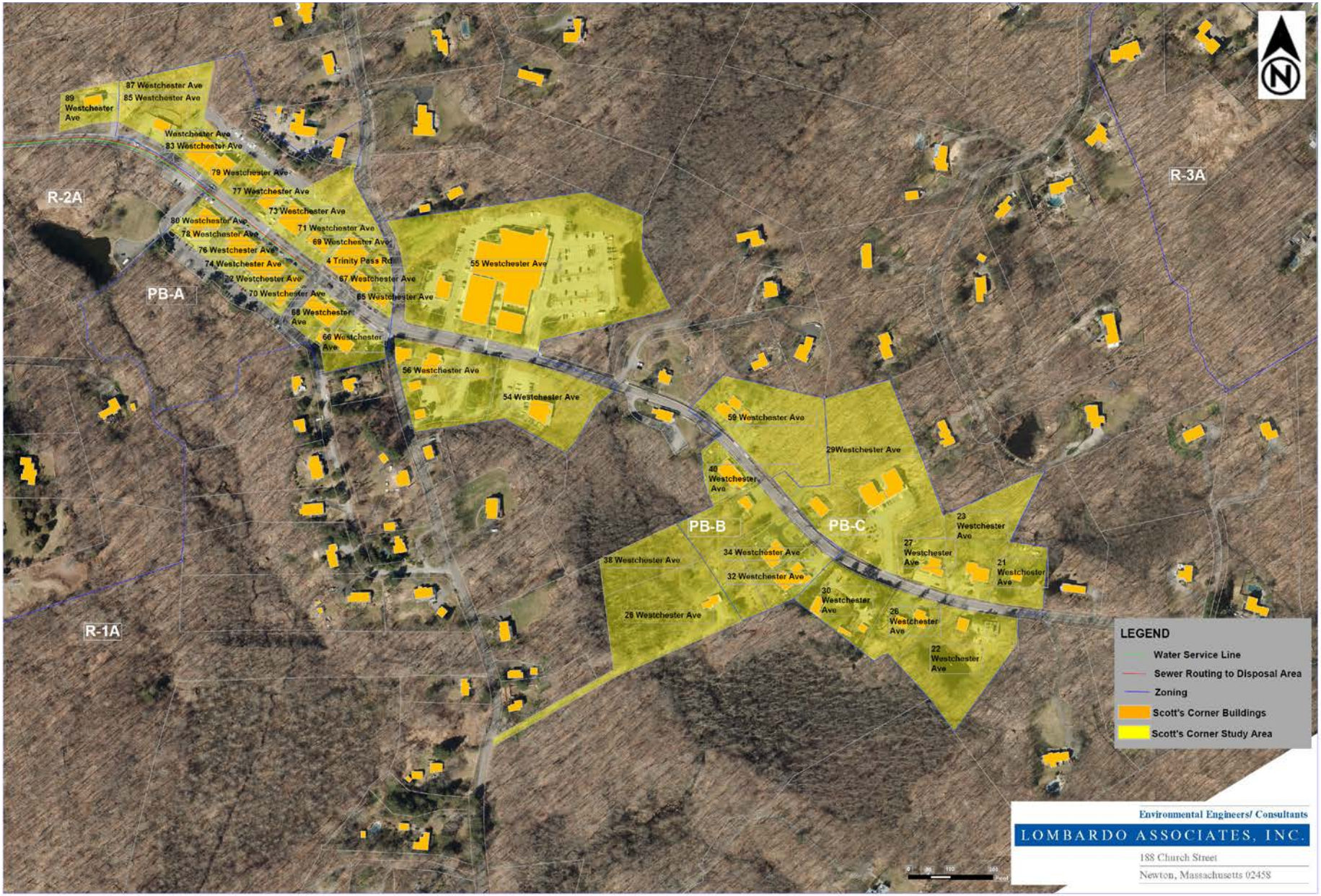


Figure 1-2a Scotts Corner Parcel Map – with addresses

Figure 1-3 Streams and Water Bodies in Scotts Corner

Table 1-1 Scotts Corner Property Data & Wastewater Design Flow

Property Address	Tenant	Use	Acreage	Building Square Footage	Use Quantity	Use Unit	Usage Rate (gpd/unit)	WW Design Flow (gpd)	Project Flow
89 Westchester Ave	PR Ambulance Corps	community facility	0.530	1,296	1,296	sq. ft.	0.1	129.6	129.6
87 Westchester Ave	Avant Garden	retail	1.131	1,444	1,444	sq. ft.	0.1	144.4	144.4
85 Westchester Ave	North Star	restaurant	0.415	4,122	50	seats	35.0	1,750.0	1,886.0
85 Westchester Ave	North Star	office	0.473		1,360	sq. ft.	0.1	136.0	
83 Westchester Ave	Albano Appliance	retail	0.473	9,161	6,138	sq. ft.	0.1	613.8	1,282.8
83, A, & B Westchester Ave	Albano Appliance	apartments			4	bedrooms	110.0	440.0	
83 C & D Westchester Ave	Albano Appliance	office			2,290	sq. ft.	0.1	229.0	
79 Westchester Ave	Dynax	office	0.345	1,872	1,872	sq. ft.	0.1	187.2	187.2
77 Westchester Ave	Vacant	Vacant	0.342	4,864	0	toilets	400.0	0.0	0.0
77A Westchester Ave	Vacant	Vacant			0	bedrooms	110.0		
NA	Parking	Parking	0.356	0	0	1	0.0	0.0	0.0
73 Westchester Ave	Healthy Home Foods	Retail / Food Prep	0.670	5,600	4,200	sq. ft.	0.1	420.0	670.0
73 Westchester Ave	Pound Ridge Dentistry	Medical Office			1	Chairs	250.0	250.0	
71 Westchester Ave	Kitchen Table	restaurant	0.631	3,878	25	seats	35.0	875.0	1,068.9
71 Westchester Ave	Wine Store	retail			1,939	sq. ft.	0.1	193.9	
69 Westchester Ave	La Familia	restaurant	0.493	12,285	40	seats	35.0	1,400.0	2,014.3
69 Westchester Ave	Martin House	Office			3,071	sq. ft.	0.1	307.1	
69 Westchester Ave	Summit Company	Office			3,071	sq. ft.	0.1	307.1	
67 Westchester Ave	Above Retail	apartments	0.147	3,368	2	bedrooms	110.0	220.0	501.6
67 Westchester Ave	The Cottage / Booksy	retail			2,816	sq. ft.	0.1	281.6	
4 Trinity Pass Rd.	Vacant	Vacant	0.181	1,012	0	sq. ft.	0.1	0.0	0.0
65A,B Westchester Ave	Kahlo	retail	0.185	65	1,174	sq. ft.	0.1	117.4	557.4
65A,B Westchester Ave	Above Kahlo	apartments	0.185		4	bedrooms	110.0	440.0	
Westchester Ave	Parking	parking w/2 shed	5.084	0	0	NA	0.0	0.0	0.0
80 Westchester Ave	Fire Department	community facility	0.449	7,076	7,076	sq. ft.	0.1	707.6	707.6
78 Westchester Ave	123 Dough	Food Prep	0.207	2,979	2,234	sq. ft.	0.1	223.4	357.9
		Employees			4	employees	15.0	60.0	
78 Westchester Ave	Miller's Landscape	office			745	sq. ft.	0.1	74.5	
76 Westchester Ave	Dinardos	restaurant	0.207	8,910	60	seats	35.0	2,100.0	2,540.0
76 Westchester Ave	Vacant	Vacant			0	sq. ft.	0.1	0.0	
76 Westchester Ave	above Dinardos	apartments			4	bedrooms	110.0	440.0	
74 Westchester Ave	Blind Charlies	restaurant	0.207	7,970	50	seats	35.0	1,750.0	2,809.3
74 Westchester Ave	Jacob Allen	Spa			10	Member	20.0	200.0	
74 Westchester Ave	O'Donnell	Retail			1,993	sq. ft.	0.1	199.3	
74 A, B, C, & D Westchester Ave	above Blind Charlies	apartments			6	bedrooms	110.0	660.0	
72 Westchester Ave	PR Dry Cleaners	retail	0.207	4,750	2,375	sq. ft.	0.1	237.5	755.0
72 Westchester Ave	Plum Plum's	Food Prep			1,188	sq. ft.	0.1	118.8	
					4	employees	15.0	60.0	
72 Westchester Ave	Nephawa	retail			1,188	sq. ft.	0.1	118.8	
72 A & B Westchester Ave	above PR Dry Cleaners	apartment			2	bedrooms	110.0	220.0	
70 Westchester Ave	above retail	apartments	0.207	3,120	2	bedrooms	110.0	220.0	573.0
70 Westchester Ave	Barber	Barber			1	Chair	250.0	250.0	
70 Westchester Ave	P. Queens, Avalon Ins, Hedg., PR Home	retail / Office			1,030	sq. ft.	0.1	103.0	
68 Westchester Ave	Chubby's	retail	0.418	6,923	3,462	sq. ft.	0.1	346.2	1,006.2
68 A, B, C, & D Westchester Ave	above Chubby's	apartments			6	bedrooms	110.0	660.0	
66 Westchester Ave	gas station	auto repair	0.642	2,130	2	toilets	400.0	800.0	800.0
		PB-A Subtotal	**14.185**	**92,825**	**NA**	NA	**NA**	**17,991**	

Table 1-1, Continued

Property Address	Tenant	Use	Acreage	Building Square Footage	Use Quantity	Use Unit	Usage Rate (gpd/unit)	WW Design Flow (gpd)	Project Flow
26 Lower Trinity Pass	Joiquim Felice	Home	0.615	n/a	4	bedrooms	110.0	440	440.0
32 Westchester Ave	Wine Connection	retail	0.656	3,800	4,441	sq. ft.	0.1	444	554.1
32 Westchester Ave	Above Wine Connection	apartments		641	1	bedrooms	110.0	110	
34 Westchester Ave	above Antique	apartments	0.652	3,929	1	bedrooms	110.0	110	306.5
34 Westchester Ave	Antique	retail			1,965	sq. ft.	0.1	196	
38 Westchester Ave	Future Value Assoc	office	0.717	1,760	1,760	sq. ft.	0.1	176	176.0
40, 40A Westchester Ave	Wittus	retail	0.495	3,870	2,700	sq. ft.	0.1	270	1,110.0
40, 40A Westchester Ave	Helen Famulare Spa	Spa			20	Member	20.0	400	
40, 40A Westchester Ave	Private	apartment			4	bedrooms	110.0	440	
46 Westchester Ave	Roeco	office	4.589	1,837	1,837	sq. ft.	0.1	184	183.7
54 Westchester Ave	Asia Hamachi	restaurant	1.632	5,355	25	seats	35.0	875	1,405.0
54 Westchester Ave	Dragon Martial Arts	Health Club			15	Member	20.0	300	
54 Westchester Ave	Curry & Hovis	retail			1,200	sq. ft.	0.1	120	
54 Westchester Ave	above Curry & Hovis	apartments			1	bedrooms	110.0	110	
56, 60 Westchester Ave	above retail	apartments	1.698	10,388	7	bedrooms	110.0	770	1,549.1
56, 60 Westchester Ave	Key Bank, Toy Store	retail / Office	1.698		7,791	sq. ft.	0.1	779	
39 Westchester Ave	private	residential	2.196	0	6	bedrooms	110.0	660	660.0
55, 57 Westchester Ave	Market & post office, 5 Retail Stores, Office	retail / office	7.71	54,138	54,139	sq. ft.	0.1	5,414	5,413.9
		PB-B Subtotal	**22.655**	**85,718**	**NA**	NA	**NA**	**11,798**	
22, 24 Westchester Ave	PR Organics	Retail	2.005	4,781	4,781	sq. ft.	0.1	478	478.1
26 Westchester Ave	Above Educators Alley	apartments	0.781	2,197	1	bedrooms	110.0	110	274.8
26 Westchester Ave	Qualities	retail			549	sq. ft.	0.1	55	
26 Westchester Ave	Educators Alley	office			1,099	sq. ft.	0.1	110	
30 Westchester Ave	private	residential	1.002	1,708	1	bedrooms	110.0	110	110.0
21 Westchester Ave	private	residential	0.656	2,342	4	bedrooms	110.0	440	440.0
23, 23 A, B Westchester Ave	Kende & London Joiner	retail	1.537	3,062	3,062	sq. ft.	0.1	306	306.2
27 Westchester Ave	above Lion Heart	apartments	0.693	3,036	1	bedrooms	110.0	110	261.8
27 Westchester Ave	Di Biase Filkoff Architects	Office			1,518	sq. ft.	0.1	152	
29 Westchester Ave	A Home	residential	3.195	11,018	16	bedrooms	110.0	1,760	1,760.0
35 Westchester Ave	PR Vet Center	retail	0.764	2,145	2,145	sq. ft.	0.1	214	214.5
		PB-C Subtotal	**10.633**	**30,289**	**NA**	NA	**NA**	**3,845**	**3,845**
		PB Total	**32.525**	**177,252**				**33,635**	**33,635**

- Stamford also includes a provision (item 13 in the contract) for Pound Ridge to access this water supply.

Previous Reports on Scotts Corner water/wastewater as described in the TF Report are briefly summarized as follows.

1992 Folchetti Report
Two areas for subsurface disposal near the point of generation in the Scotts Corners Business area were studied and neither was determined to be suitable. Pumping the effluent to the Town Park area (Parcel 9820-86), a distance of 6,300 or 9,000 feet depending on the selected route, was proposed as a potential solution.

1998 – 2000 Malcolm Pirnie
Alternatives examined with test pits dug and percolation tests performed behind lots 60, 61, 62.

2002 Folchetti Report
Town Park site is addressed and challenges for its use for wastewater disposal are presented. This report also discusses potable water solutions, water from Stamford, drilling wells and getting water from the golf course area. Table 1-2 presents the Folchetti 1992 Report estimated buildout flows based upon the 1990 Clark Associates Planning Study and zoning.

Table 1-2 Scotts Corner 1992 Buildout Estimated Flows

Folchetti 1992 Report Estimated Flows				
	1992 Existing	Add'l Build Out (Saturation)	Build Out (Saturation)	% of Total
Commercial	20,393	10,919	31,312	49%
Residential	4,250	28,500	32,750	51%
Total	24,643	39,419	64,062	

1.2 WASTEWATER FLOW ESTIMATES

LAI developed wastewater design flow estimates for each property, Table 1-1, based upon the TF Report data on property use characteristics, i.e. # restaurant seats, office sf, etc., and NYSDEC design criteria per 2014 New York State Design Standards for Intermediate Sized Wastewater Treatment Systems.

1.3 WATER USE DATA

Based upon a FOIL request, the Westchester County Department of Health provided monthly water use records for the period 2018-2019 for the 10 properties within Scotts Corner that are required to report their water use. Table 1-3 presents the average annual water use data for the ten properties.

Table 1-3 Annual Water Use Data for Scotts Corner

Location	Scott's Corner Water Use Summary - Annual Data			
	Ave. Daily Flow (GPD)	Max. Daily Flow (GPD)	Min. Daily Flow (GPD)	Buildout WW Flow (GPD)
83 Westchester Ave.	792	2,132	340	1,283
78 Westchester Ave.	33	55	20	298
76 Westchester Ave.	308	582	78	2,718
74 Westchester Ave.	447	2,790	0	2,609
73 Westchester Ave.	254	470	40	560
71 Westchester Ave.	77	100	50	1,651
69 Westchester Ave.	404	842	0	2,629
55/57 Westchester Ave.	1,600	12,200	100	5,414
54 Westchester Ave.	664	910	380	1,146

1.4 Summary of Scotts Corner Business District Zoning Regulations

Planned Business A (PB-A) District

A. Intent
   - The Planned Business A "District" is intended to be limited primarily to businesses serving the ordinary shopping needs of the residents. "Building" areas and "parking areas" are established in this "district", see Figure 1-4. Site plan approval by the Planning Board, and conformance to the approved site plan, are mandatory requirements of this "district."

B. Building Use
   - All buildings or pedestrian use areas will be located within the 'building use' area located on each parcel and in conformance with Building Use Schedule, Table 1-4.

C. Permitted uses in Parking Area
   - No building or structure shall be located within a parking area as well as no storage of vehicles
   - Temporary Building - Zoning Board of Appeals may grant a variance permitting erection of a temporary building in the parking area.

D. Required Open Spaces
   - No setbacks to the limits of the building area are required, except for the following case: if two separate buildings are built within one parcel's building area, minimum distance between buildings shall be no less than 6' or ½ height of tallest building, whichever is greater.

E. Off-street parking and loading
   - Individual requirements to provide off-street parking shall be considered satisfied in PB-A, provided all parking space located on site has been improved for public parking use. Otherwise, off-street parking will be required.
   - One off-street loading space shall be provided for the first 4,000 square feet of non-residential floor area, with an additional loading zone everyone 10,000 sq. ft.

F. Site plan approval

- For any change in building dimensions or use that increases water use, sewage generation, traffic or parking, a Planning Board Site Plan approval is required, in accordance with Article IX of the Town's Chapter 113 Zoning Code.
- Any open space not required for pedestrian or vehicle traffic or for off-street parking or loading shall be permanently maintained with grass, trees or suitable plantings and maintained per § 113-24.

G. Service Wires
   - All power, telephone and other service wires shall be placed underground within the boundaries of any PB-A District Lot.

Planned Business B (PB-B) District

A. Intent
   - Primary use in District PB-B is retail servicing residents of Pound Ridge and shall be limited primarily to businesses.

B. Required Open Space
   - Building locations shall follow all minimum setbacks as written in the following sections. The Planning Board reserves the right to increases these setbacks to match the character and development of PB-B on a case by case basis.

C. Minimum Building Separation
   - Buildings shall have at least 10 feet or ½ the average height of the buildings between them, whichever is greater.

D. Landscaping
   - All areas of PB-B not covered by buildings, driveways, parking areas or walks will be suitably planted per provisions § 113-24.
     - Landscaped area abutting residential parcels shall be a landscape buffer, using evergreen plantings to provide privacy to each abutting parcel. Landscape buffer shall be needed along any lot line or portion directing across the street from a residential district, and shall be 15 feet in width. Non-evergreen plantings, or structures shall as walls or fences may be used as appropriate per Planning Board approval.
   - Internal Landscaping within parking areas
     - For off-street parking areas containing 25 or more spaces, at least 10% of parking area space shall be used for landscaping. This area will contain at least one 3" caliper, 4' tall tree per 10 parking spaces.
     - Planning Board may require addition of 4" caliper, 4' tall trees along property lines bordering streets.
   - Street Trees – may be required as determined by the Planning Board

E. Off street parking and loading
   - All parking and loading req's in PB-B shall meet standards of Off-Street Parking and Loading requirements as stated in Article X of Chapter 113, Zoning.

F. Site Plan Approval
   - Site plan approval, per Article IX of Chapter 113, by Planning Board is mandatory for new, expanded or changed building development.

Planned Business C (PB-C) District

A. Intent
   - Primary use in District PB-C is retail servicing residents of Pound Ridge (same as PB-B), and due to a variety of factors as stated in the Code, shall have a lesser intensity of use. As stated on Table 1-4, restaurant use is prohibited in the PB-C District.

B. Green spaces
   - Areas denoted as 'green space areas' in PB-C shall be reserved as buffer zones. No building or structures, improvements or parking areas are permitted in green space buffer zones, unless acting for a subsurface septic system for new, existing or residential structures. In this case, no more than 20% of green space shall be used to meet area requirements for a subsurface septic system.

Figure 1-5 presents the Zoning Map for PB-A, PB-B & PB-C Districts.

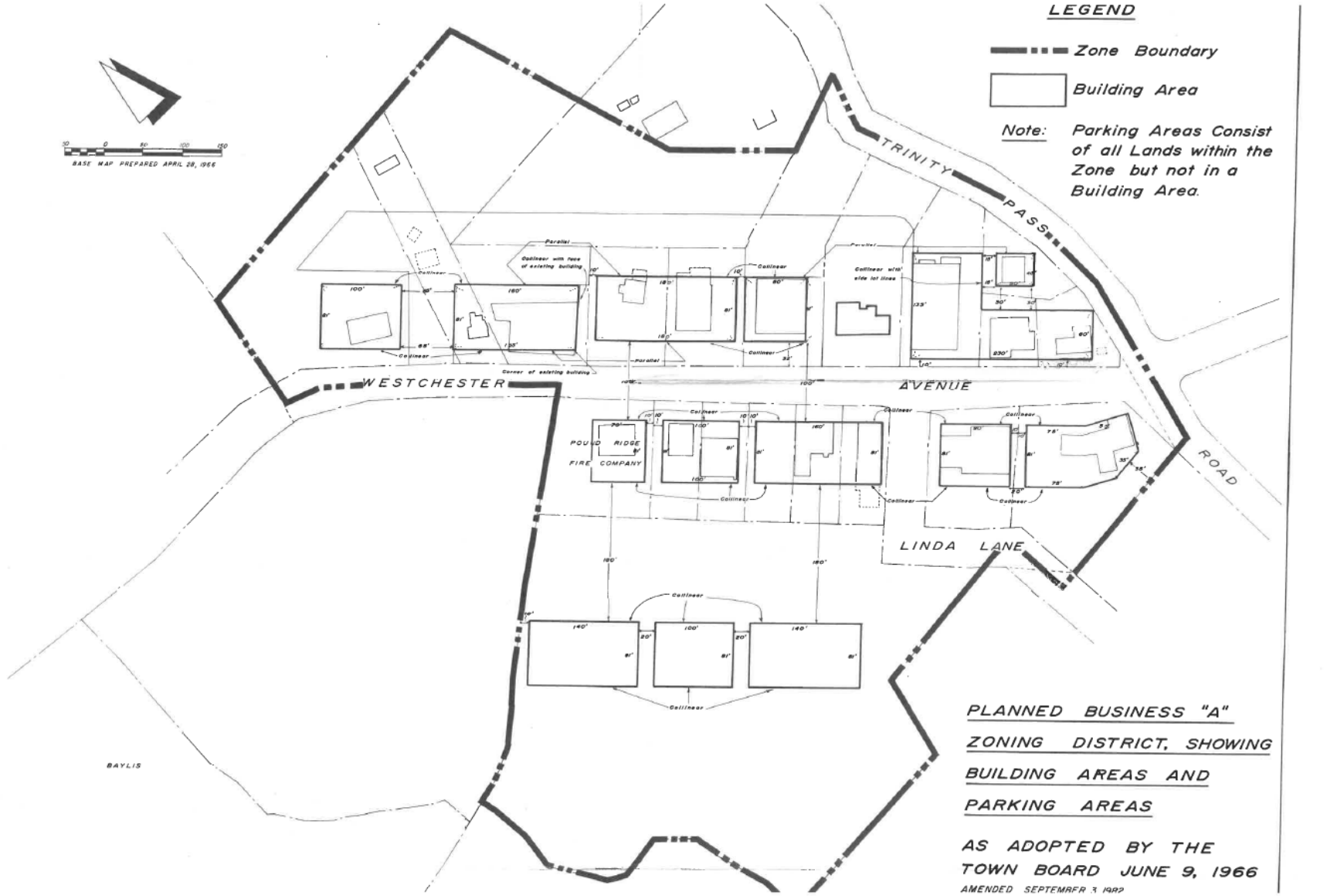


Figure 1-4 Zoning Map PB-A District

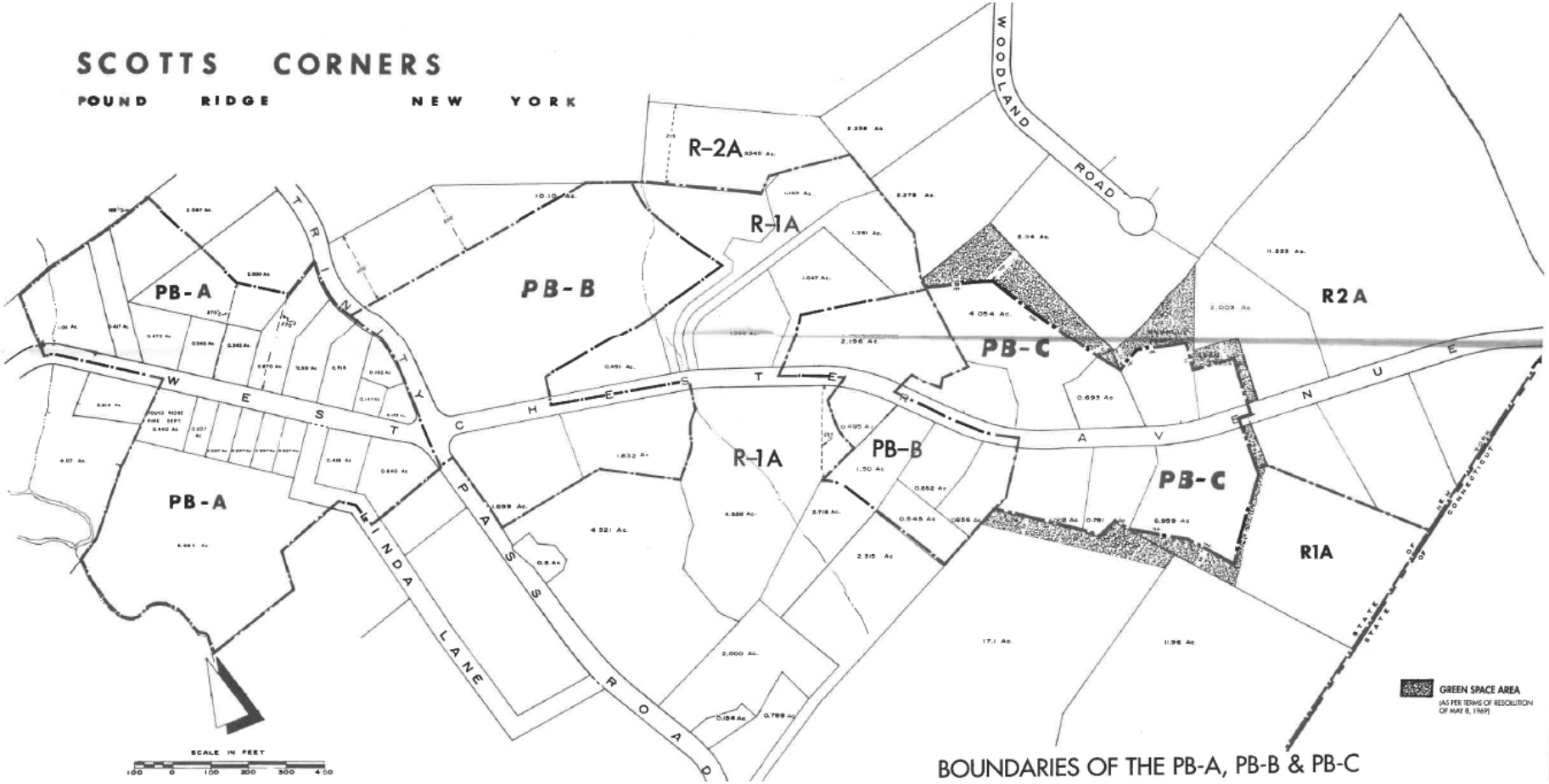


Figure 1-5 Zoning Map PB-A, PB-B & PB-C Districts

Table 1-4 PB-A, PB-B and PB-C Zoning Schedule of Use Regulations

ZONING

113 Attachment 3

SCHEDULE OF USE REGULATIONS
Nonresidential Districts
§ 113-41
Town of Pound Ridge, New York
[Amended 8-13-1998 by L.L. No. 7-1998]

In any "nonresidence district," no "building" or "premises" shall be "used," and no "building" or group of "buildings" or part of a "building" or "structure" shall be erected, constructed, enlarged, "altered," arranged, "used," in whole or in part, except for one or more of the "uses" set forth below. "Uses" in the PB-B and PB-C zoning "districts" may include a coordinated group of stores designed as a unit. Only those "uses" specifically listed shall be permitted, and any "use" not listed shall be deemed to be prohibited. No "use" shall be permitted which is noxious or offensive by reason of odor, dust, smoke, vibration, radiation, danger of explosion, flashing or excessive light or harmful discharge of waste materials. The "use" of an internal combustion engine shall not be permitted unless objectionable noise and vibration is eliminated and unless it is equipped and "used" with an effective muffler or silencer.

District	**Permitted Principal Uses**	**Special Permit Uses** (Subject to conformance with additional standards as provided in Article VIII)	**Permitted Accessory Uses**
PB-A	A. Stores, other than "restaurants," for the sale of goods at retail or performance of customary personal services or services clearly incident to retail sales. No fabrication or manufacturing shall be permitted, except that which is incident to, and on the same "premises" with, such retail sales, and further provided that such incidental fabrication or manufacturing is conducted entirely within a "building" and does not occupy more than 25% of such store's floor area. B. Business, professional or banking offices. C. Sit-down "restaurants." D. Telephone exchanges, not including outdoor service or storage yards. E. Churches and other places of worship. F. Governmental "buildings" and "uses," including water supply facilities. G. Residential "dwelling units," except not at the first floor level within 150 linear feet of Westchester Avenue. H. "Health, exercise or fitness clubs."	A. "Public utility" substations, transmission lines and facilities serving the area of the Town of Pound Ridge and/or immediately adjacent communities, provided that a compelling public need is demonstrated based upon preparation of an area service plan which minimizes the number of such facilities, maximizes collocation and shared "use" of said facilities, and which study analyzes alternatives to minimize the visual impacts and exposure levels. Where possible, such facilities shall be located on town-owned lands, then lands with commercial or nonresidential "uses," before locating on lands used exclusively for residential purposes. B. Automotive service stations, automotive "garages," automobile repair shops. C. The operation of a new or "used" automobile sales business, provided that all vehicles shall be kept or stored within completely enclosed "buildings." D. "Take-out food establishments," "bakeries," "delicatessens," "sandwich shops" E. "Wireless telecommunication services facilities."	See § 113-46C regarding permitted "uses" in "parking areas." A. "Dish antennas," subject to the requirements of § 113-20.

	In any "nonresidence district," no "building" or "premises" shall be "used," and no "building" or group of "buildings" or part of a "building" or "structure" shall be erected, constructed, enlarged, "altered," arranged, "used," in whole or in part, except for one or more of the "uses" set forth below. "Uses" in the PB-B and PB-C zoning "districts" may include a coordinated group of stores designed as a unit. Only those "uses" specifically listed shall be permitted, and any "use" not listed shall be deemed to be prohibited. No "use" shall be permitted which is noxious or offensive by reason of odor, dust, smoke, vibration, radiation, danger of explosion, flashing or excessive light or harmful discharge of waste materials. The "use" of an internal combustion engine shall not be permitted unless objectionable noise and vibration is eliminated and unless it is equipped and "used" with an effective muffler or silencer.		
District	**Permitted Principal Uses**	**Special Permit Uses** (Subject to conformance with additional standards as provided in Article VIII)	**Permitted Accessory Uses**
PB-B	A. Stores, other than "restaurants," for the sale of goods at retail or performance of customary personal services or services clearly incident to retail sales, except no automobile sales, service stations, "garages," auto repair shops or car washes. No fabrication or manufacturing shall be permitted, except that which is incident to and on the same "premises" with such retail sale, and further provided that such incidental fabrication or manufacturing is conducted entirely within a "building" and does not occupy more than 25% of such store's floor area. B. Business, professional or banking offices. C. Sit-down "restaurants." D. Telephone exchanges, not including outdoor service or storage yards. E. Places of worship. F. Governmental "buildings" or "uses." G. Residential "dwelling units" on the second and third floor levels only. H. "Health, exercise or fitness clubs."	A. Sewage treatment plants or water supply facilities. B. "Public utility" substations and transmission lines and facilities serving the area of the Town of Pound Ridge and/or immediately adjacent communities, as permitted and regulated in the PB-A "District." C. "Take-out food establishments," "bakeries," "delicatessens," "sandwich shops." D. "Wireless telecommunication services facilities."	A. Off-"street" parking and loading in accordance with Article X, which shall not be construed to include the storage, display, servicing or dismantling of automobiles or other vehicles. B. Signs as permitted by the Town Sign Law (Chapter 88). C. Fully enclosed refuse-storage facilities. D. Other "uses" customarily incidental and accessory to a permitted principal "use" in this "district" and located on the same "lot" therewith. E. "Dish antennas" subject to the requirements of § 113-20.
PB-C	As permitted and regulated in the PB-B "District, "except that land in the PB-C "District" shall not be "used" for "restaurant" purposes.	As permitted and regulated in the PB-B "District," except that land in the PB-C "District" shall not be "used" for "restaurant," "take-out food establishment," "bakery," "delicatessen" or "sandwich shop" purposes.	As permitted and regulated in the PB-B "District."

1.5 AGENCIES WITH JURISDICTIONS AND ASSOCIATED REGULATIONS

The regulatory agencies that have jurisdiction for wastewater management in Pound Ridge are:

- ✓ Westchester County Department of Health (WC DoH),
- ✓ New York State Department of Environmental Conservation (NYSDEC).

Westchester County Department of Health (WC DoH)
WC DoH's jurisdiction is based on Article VIII of the Laws of Westchester County which states in part that its purpose "relies upon requiring all onsite wastewater treatment systems constructed or installed in Westchester County conform to the standards established in the New York State Public Health Law, by the Board of Health and/or the Commissioner of Health. Per Chapter 873, Article XXII, Section 873.2202 of the Laws of Westchester County, permits are required from WC DoH for all, regardless of size, treatment and subsurface disposal systems.

On-site Systems
Westchester County Health Department's Rules and Regulations for the Design and Construction of Residential Subsurface Sewage Treatment System, last issued effective January 1, 2002, govern small flow wastewater systems. WC DoH may consider Advanced Alternative designs for the complete replacement of an Onsite Wastewater System (OWTS) on difficult sites that will not support conventional OWTS designs currently. Per Section 873.740 of Article VIII, Enhanced Treatment Units (ETUs), Aerobic Treatment Units (ATUs) and Other Equipment are required to be maintained by a service professional or contractor acceptable to WC DoH and have a Declaration prescribed by WC DoH recorded by the property owner in the office of the Westchester County Clerk, Division of Land Records.

Larger Flow Systems
WC DoH relies on NYSDEC New York State Design Standards for Intermediate Sized Wastewater Treatment Systems dated March 5, 2014 for permitting of commercial wastewater systems of all sizes and large residential systems.

Inspection & Septage Pumping
Westchester County and NYSDEC developed an ordinance effective May 2011 that requires all septic systems be pumped and inspected at least once every five (5) years by a Westchester County licensed service provider. The contractor is required to file a Septic System Data Form with the County.

The **NYS Department of Health** issued Wastewater Treatment Standards, via Appendix 75-A, https://www.health.ny.gov/regulations/nycrr/title_10/part_75/appendix_75-a.htm, effective March 16, 2016 for "on-site wastewater treatment systems serving residential properties and receiving sewage without the admixture of industrial wastes or other wastes, as defined in Environmental Conservation Law, Section 17-0701, in quantities of less than 1,000 gallons per day (gpd)." "The Appendix establishes the minimum standards acceptable in New York State. The local health departments may establish more stringent standards."

New York State Department of Environmental Conservation (NYSDEC)

NYSDEC issues permits for all wastewater systems greater than 1,000 gpd. For wastewater systems between 1,000 and 30,000 gpd, depending on the County, the County DoH may be

delegated to act as DEC's agent. In WC, NYSDEC has delegated its permitting of wastewater systems with subsurface discharge with flows <= 30,000 gpd to WC DoH.

For larger flows, NYSDEC issues the permit.

Summary of Regulatory setbacks

Westchester County Department of Health (<1,000 GPD)

Design Flow

- Residential (1-3 family) = 200 GPD/bedroom + 25% for each additional kitchen.
- Commercial = Rely upon NYS DoH 75-A or NYSDEC New York State Design Standards for Intermediate Sized Wastewater Treatment Systems dated March 5, 2014

Table 1-5 presents WC DoH code required separation distances for Subsurface Treatment Systems (SSTS).

Table 1-5 Westchester County DHS Minimum SSTS Separation

Westchester County DHS - Required Separation from WW Sources						
Wastewater Source	Drilled Well (Higher Elev.)	Drilled Well (Lower Elev.)	Wetland / Stream / Lake / Watercourse	Dwelling	Prop. Line	Decks
House Sewer (Watertight) (CIP or similar)	25'	25'	25'	-	10'	-
Septic Tank	50'	50'	50'	10'	10'	5'
Effluent Line to D-Box	50'	50'	50'	10'	10'	-
D-Box	100'	100'	100'	20'	10'	-
Absorption Field	100'	200'	100'	20'	10'	10'
Seepage Pit	150'	200'	100'	20'	10'	10'
Dry Well (Roof/Footing)	50'	50'	25'	20'	10'	-

- No trees within 10' of absorption system
- Additional Setbacks from SSTS:
  - Dry Well: 50' (horizontal & vertical)
  - Piped Drainage: 25'
  - Open Channel Drainage: 50'
  - Upgrade Curtain Drain: 15'
  - Downgrade Curtain Drain: 50'
  - Upgrade Swimming Pool: 20'
  - Downgrade Swimming Pool: 50'

Area Usability Standards

- Twice proposed system area
- 5' min. separation to groundwater
- >60 min./in. perc rate unsuitable for septic system design

Table 1-6 presents WC DoH code required absorption trench lengths for various percolation rates and number of bedrooms.

Table 1-6 WC DoH SSTS Required Absorption Trench Lengths

Westchester County DHS - Required Absorption Trench Length						
Perc. Rate (min./in.)	Appl. Rate (GPD/ft^2)	# of Bedrooms (200 GPD/BR)				
		1	2	3	4	5
1-5	1.2	84	168	252	336	420
6-7	1	100	200	300	400	500
8-10	0.9	112	224	336	448	560*
11-15	0.8	125	250	375	500	625*
16-20	0.7	144	288	432	576*	720*
21-30	0.6	168	336	504*	672*	840*
31-45	0.5	200	400	600*	800*	1000**
45-60	0.45	222	444	666*	888*	1110**

* requires one pressure dosing device

** requires multiple alternating pressure dosing devices (1/500')

- Absorption Trench Construction
  - Trench width = 24". No allowance shall be made for wider trenches. Distance between trenches shall be no less than 5'.
  - Center to center spacing shall be 7'.
  - Stone bed shall be 12-18" in depth. This includes pipe diameter and 2" of stone above pipe.
  - Overall trench depth shall be 18-30". This includes 4" of topsoil, and trench cover, which shall measure 6-12".

NYS DEC

NYS DEC's aerial separation requirements for wastewater treatment facilities are presented on Table 1-7. Table 1-8 presents NYS DEC's Septic System Minimum Horizontal Setbacks

Table 1-7 NYS DEC WWTP Separation Requirements

NYS DEC - Minimum Aerial Separation from WWTF		
Wastewater Source	Radial Distance from Downwind Dwellings (ft)	Distance to Property Line (ft)
Enclosed WWTP (Facility Building, Buried Sand Filters)	200[1]	150

[1]: NYSDEC will consider proposed site specific setbacks.

Table 1-8 NYS DEC SSTS Minimum Horizontal Setbacks

NYS DEC - Minimum Horizontal Separation from Septic System Fields					
Feature	**Watertight Septic Tank**	**Sewer Line**	**Absorp. Field / Unlined Sand Filter (w/ Reserve Area)**	**Absorp. Field in Gravel Soils (w/ Reserve Area)**	**Seepage Pits (w/ Reserve Area)**
Required Minimum Separation per Public Health Law					
Drilled Well - Public	100'	50'	200'	200'	200'
Drilled Well - Private	50'	50'	100'	200'	150'
Water Line (Pressure)	10'	10'	10'	10'	10'
Recommended Minimum Horizontal Separation Distances					
Water Line (Suction)	50'	50'	100'	100'	150'
Dug Well/Spring	75'	50'	150'	200'	150'
Surface Water	50'	25'	100'	100'	100'
Water Supply Reservoir - Private	50'	50'	100'	100'	100'
Water Supply Reservoir - Public	100'	100'	200'	200'	200'
Interceptor/Open drainage Diversion to GW	25'	25'	50'	50'	50'
Stormwater Infiltration Mgmt. Practive	25'	25'	50'	50'	50'
Stormwater Mgmt. Practice Discharging to GW	50'	25'	100'	100'	100'
Culvert (Tight Pipe)	25'	10'	35'	35'	35'
Culvert Opening	25'	25'	50'	50'	50'
Catch Basin	25'	N/A	50'	50'	50'
Swimming Pool (In-Ground)	20'	10'	35'	35'	50'
Foundation	10'	N/A	20'	20'	20'
Property Line	10'	10'	10'	10'	10'
Top of Embankment	25'	25'	50'	50'	50'
Wetland	100'	100'	100'	100'	100'

1.6 PERMITTING REQUIREMENTS

Permitting of a Study Area wide wastewater system is performed by NYSDEC. Permitting of a Study Area wide water system is performed by NYSDoH. Figure 1-6 presents the NYSDEC stream classifications in the Study Area. As can be seen, all streams are classified as AA-S, which means it is a water body best usage for a source of drinking water, swimming and other recreation, and fishing. No direct discharges are allowed in these streams and no waivers are allowed. Consequently, it is proposed that the wastewater treatment system achieve Tertiary Treatment with Disinfection effluent quality prior to subsurface disposal.

The ***Tertiary Treatment with Disinfection Standard*** has the following effluent quality.

pH	6.5 – 8.5
BOD/TSS	< 10 mg/L
Oil & Grease	< 15 mg/L
Total Nitrogen (TN)	< 10 mg/L
Fecal Coliform	Average < 24 & Maximum < 200 MPN / 100 ml
Enterococcus	Average < 24 & Maximum < 104 MPN / 100 ml

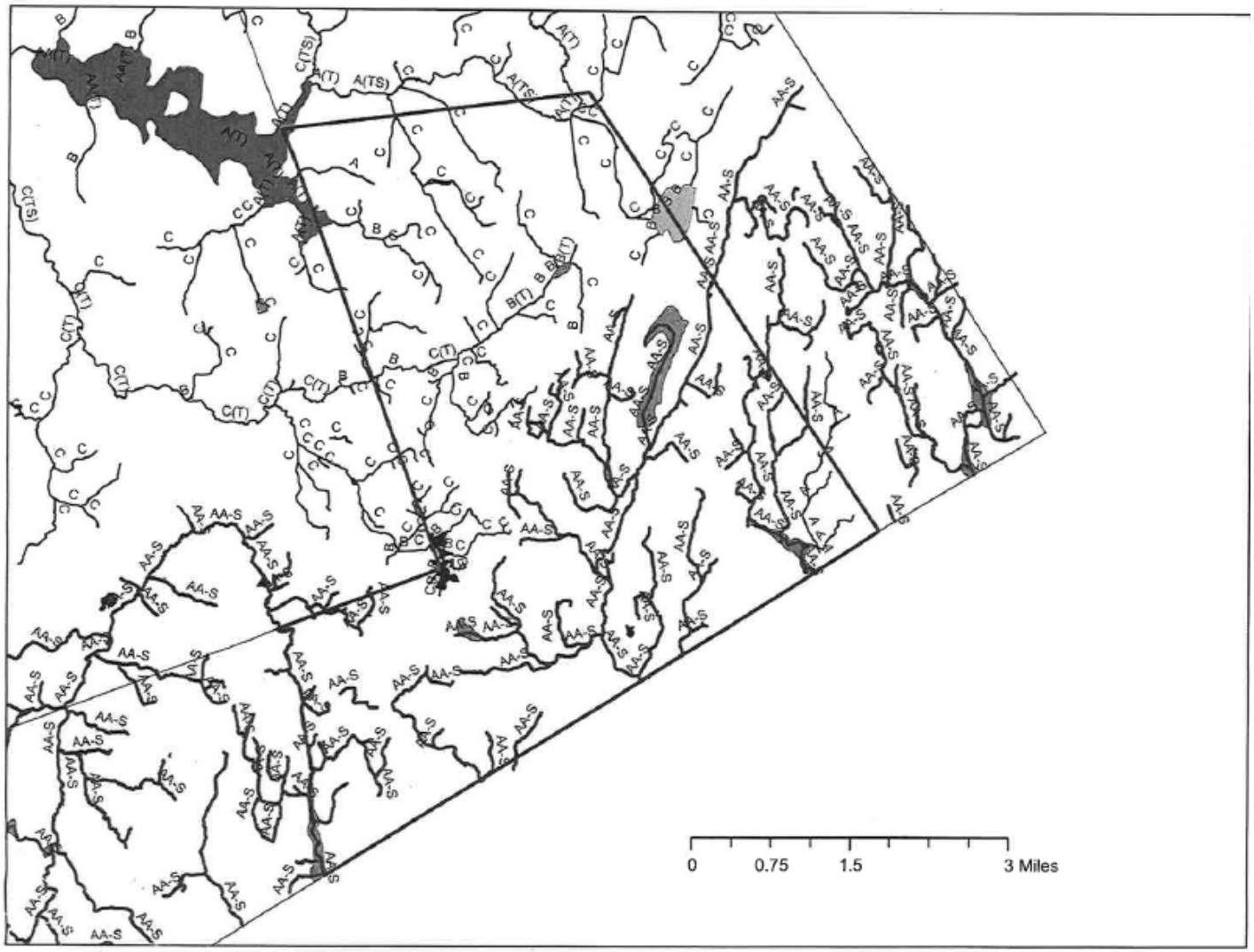


Figure 1-6 NYSDEC Stream Classification in Pound Ridge

2. WASTEWATER MANAGEMENT OPTIONS

2.1 ON-SITE TECHNOLOGIES

In Westchester County, only conventional septic tank – absorption trench designs are allowed for new construction. For sites with a failing system where the site will not support a conventional OWTS design currently specified in the 2002 Rules, WCDoH will consider an alternate design on a case by case basis per Section 7.0 of the 2002 Rules and Nov. 7, 2008 OWTS Remediations and Repairs Rule. Due to the evolution of viable technologies, WC DoH addresses these matters on a case by case basis.

As demonstrated in Chapter 3, the on-site approach is not technically viable in the Study Area. Consequently, on-site technologies are not relevant.

2.2 CLUSTER/SMALL & LARGE NEIGHBORHOOD SYSTEMS

Cluster/Small neighborhood wastewater systems are defined as systems that serve a small number of properties with localized treatment and disposal. In many applications, small neighborhood systems are used in conjunction with on-site systems to address a community's wastewater needs. As demonstrated in Chapter 3, small neighborhood wastewater systems are not technically viable in the study area.

Large neighborhood wastewater systems are similar to small ones with scale being the difference.

Small and large neighborhood systems consist of the following components:

- ✓ Collection
- ✓ Treatment
- ✓ Dispersal / reuse

The collection system options are:

- Conventional, minimum 8" gravity sewer with pump stations as needed
- Grinder pump (GP)– low pressure
- Septic tank effluent (STE) with pump (STEP) as needed. Typical minimum pipe size for STE systems is 4' and 2" for STEP
- Vacuum sewer

Treatment systems consist of:

- Activated Sludge (AS) – with various types
- Fixed Film (FF) systems
- Integrated Fixed Film-Activated Sludge (IFAS)

Nutrient removal – Nitrogen

- Biological removal
- Denitrification filters

Nutrient removal – Phosphorus

- Chemical precipitation
- Biological removal

Disposal / Reuse

- Subsurface
- Direct discharge
- Reuse for non-potable purposes, such as landscape irrigation

The various technologies are described in numerous public documents, including:

- USEPA On-Site Wastewater Management Design Manual, 2002 https://www.epa.gov/sites/production/files/2015-06/documents/2004_07_07_septics_septic_2002_osdm_all.pdf

- USEPA, "It's Your Choice, A Guidebook for Local Officials on Small Community Wastewater Management Options", (EPA-625/9-87-006)

- Cluster Wastewater Systems Planning Handbook. Project No. WU-HT-01-45. Prepared for the National Decentralized Water Resources Capacity Development Project, Washington University, St. Louis, MO, by Lombardo Associates, Inc., Newton, MA, 2004

- Alternative Sewer Systems Manual of Practice FD-12, 2008, Water Environment Federation https://www.e-wef.org/Default.aspx?TabID=251&productId=6930

Information on the various technical options is available from the following national organizations:

- ✓ US EPA (https://www.epa.gov/septic)
- ✓ Water Environment Federation https://www.wef.org/resources/publications/books/
- ✓ Water Environment Research Foundation http://www.ndwrcdp.org/research.asp
- ✓ Water Research Foundation http://www.werf.org/i/c/DecentralizedCost/Decentralized_Cost.aspx

Over the years numerous States have published technology evaluation documents including:

- Review of Technologies for the Onsite Treatment of Wastewater in California, 2002 https://www.waterboards.ca.gov/sandiego/water_issues/programs/wine_country/docs/updates081910/owts_review.pdf

A review of wastewater management technologies prepared by Lombardo Associates for the Town of East Hampton NY in 2015 can be found at http://www.ehamptonny.gov/DocumentCenter/View/1744/East-Hampton-Town-Wide-Wastewater-Management-Plan?bidId=

Table 2-1 lists the types of treatment systems that are typically applicable at various wastewater flow ranges. Figure 2-1 illustrates the components and options for wastewater collection, treatment and disposal / reuse.

Table 2-1 Typical Wastewater Treatment Technologies Used for Various Flow Rates

Pretreatment Needed	Technology*	Design Flows (gpd)			
		<2,000	2,000–10,000	10,000–20,000	20,000–50,000+
	Pretreatment				
	Septic Tank++	✓	✓	✓	✓
✓	Anaerobic Upflow Filter	✓	✓	✓	✓
	Secondary Treatment				
	Fixed Film Growth				
	Rotating Biological Contactor		✓	✓	✓
	Trickling Filter +++	✓	✓	✓	✓
✓	Subsuface Wetlands—Vegetated Submerged Beds	✓	✓	✓	✓
✓	Constructed Wetlands (FWS)			✓	✓
✓	Recirculating Media Filters	✓	✓	✓	✓
✓	Intermittent Media Filters	✓	✓	✓	
	Suspended Film Growth				
	Oxidation Ditch				✓
	Activated Sludge Systems	✓	✓	✓	✓
	Sequencing Batch Reactor	✓	✓	✓	✓
	Membrane Bioreactor			✓	✓
	Integrated Fixed Film-Suspended Growth	✓	✓	✓	✓
	Advanced Treatment				
✓	Nitrogen Removal	✓	✓	✓	✓
✓	Phosphorus Removal	✓	✓	✓	✓

Notes:

+ Depending on method of dispersal, disinfection systems may or may not be required.

++ Tank may be part of collection system or located at treatment site.

+++ Various media, usually with recirculation.

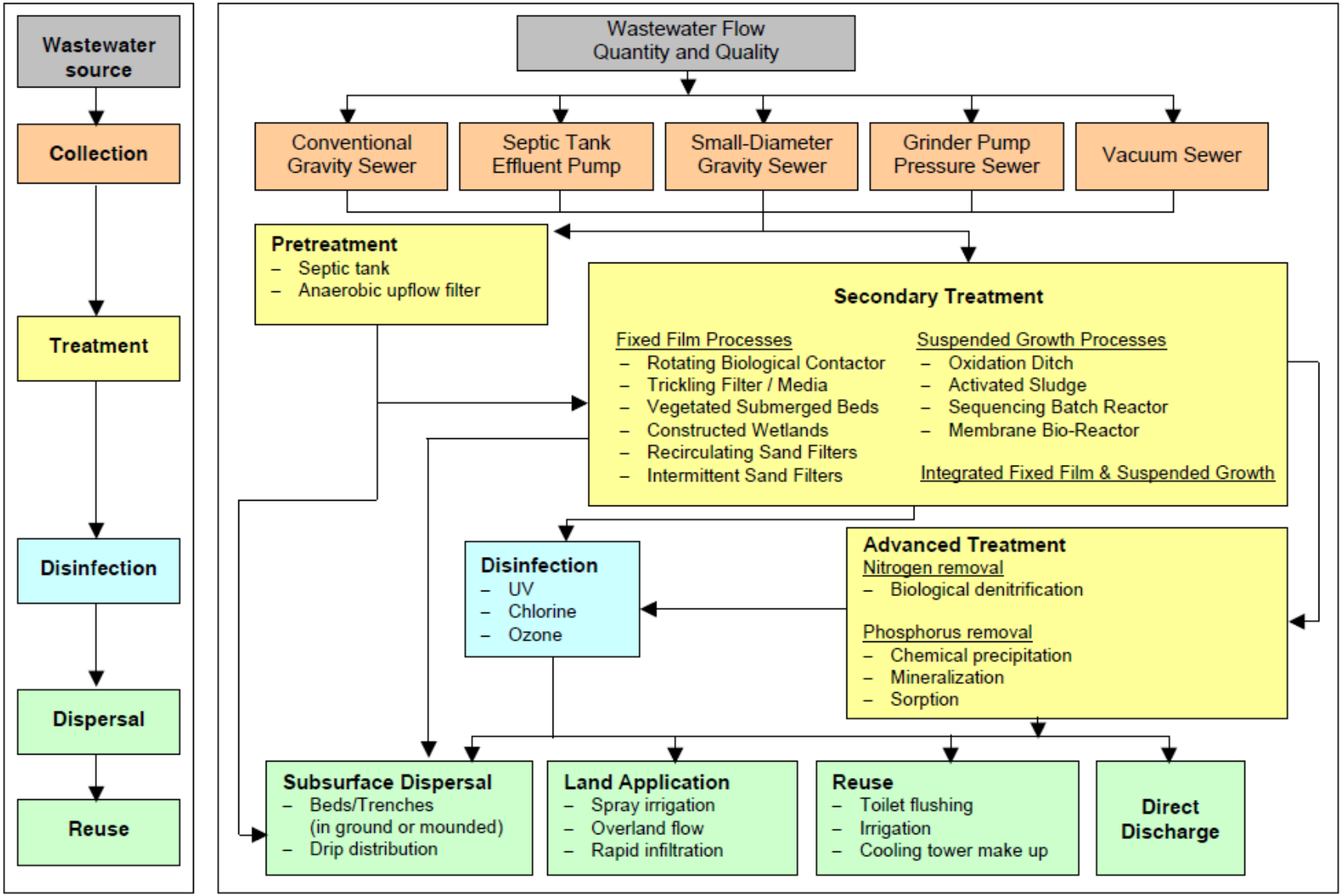


Figure 2-1 Overview of Neighborhood Wastewater Collection, Treatment, and Dispersal / Reuse Technologies

3 EVALUATION OF ON-SITE & NEIGHBORHOOD OPTIONS

3.1 METHODOLOGY AND EXISTING DATA

The area in which an on-site wastewater system can be located on any given parcel is the area that does not fall within:

- 100-ft of a wetland
- 10-ft from a property line
- 10-ft from a building
- 100-ft from an upgradient well, 200-ft from a downgradient well
- Areas with slopes >20%. *It is noted that published slope information designates areas as < 15%, 15% - 25% and > 25% slopes. Consequently areas < 15% are noted as being viable, recognizing that this is being conservative and is taken into account when a detailed site analysis is performed.*

For the purposes of this report, the remaining area on a parcel, after all the above areas have been subtracted out, is termed the "**Available Area**". Figure 3-1 and Table 3-1 present the available area for the Scotts Corner Study Area parcels. Figures 3-2 through 3-4 illustrate the location of existing septic systems and water supply wells.

For an on-site wastewater solution to be viable, the required area (treatment + disposal + reserve area) must be less than the available area. Once available space has been determined, NCRS soils data and available test pit data are used to estimate if the available area is suitable for use for wastewater treatment and disposal. If determined positive for on-site systems, then footprint requirements for each parcel's wastewater flow as determined in Section 1.3 are developed. Parcels that have insufficient space and / or inadequate subsurface conditions are labeled as "Off-Site Solution Required".

Soils test pit and percolation rate data are presented on Tables 3-2 through 3-4, with locations shown on Figures 3-5 and 3-6.

3.2 ON-SITE OPTION

25 of the 40 parcels listed in the study area, or 63% of all Scotts Corner Parcels, have no available area due primarily to wetlands and water supply well setbacks. 7 parcels, or 18% of parcels, have 5,000 or less sq. ft. of area available for treatment and disposal systems. The remaining 8 parcels possess 5,000 or more sq. ft.

With more than half of all parcels possessing no available area for treatment and disposal, the on-site option for Scotts Corner is not viable.

3.3 CLUSTER OPTION

The Cluster wastewater treatment option relies on large Available Areas within or near the Study Area to host the treatment and disposal system for, at a minimum, the parcels requiring an Off-Site Solution. A sewer system to pipe the effluent from the neighborhood parcels to the treatment area will be needed.

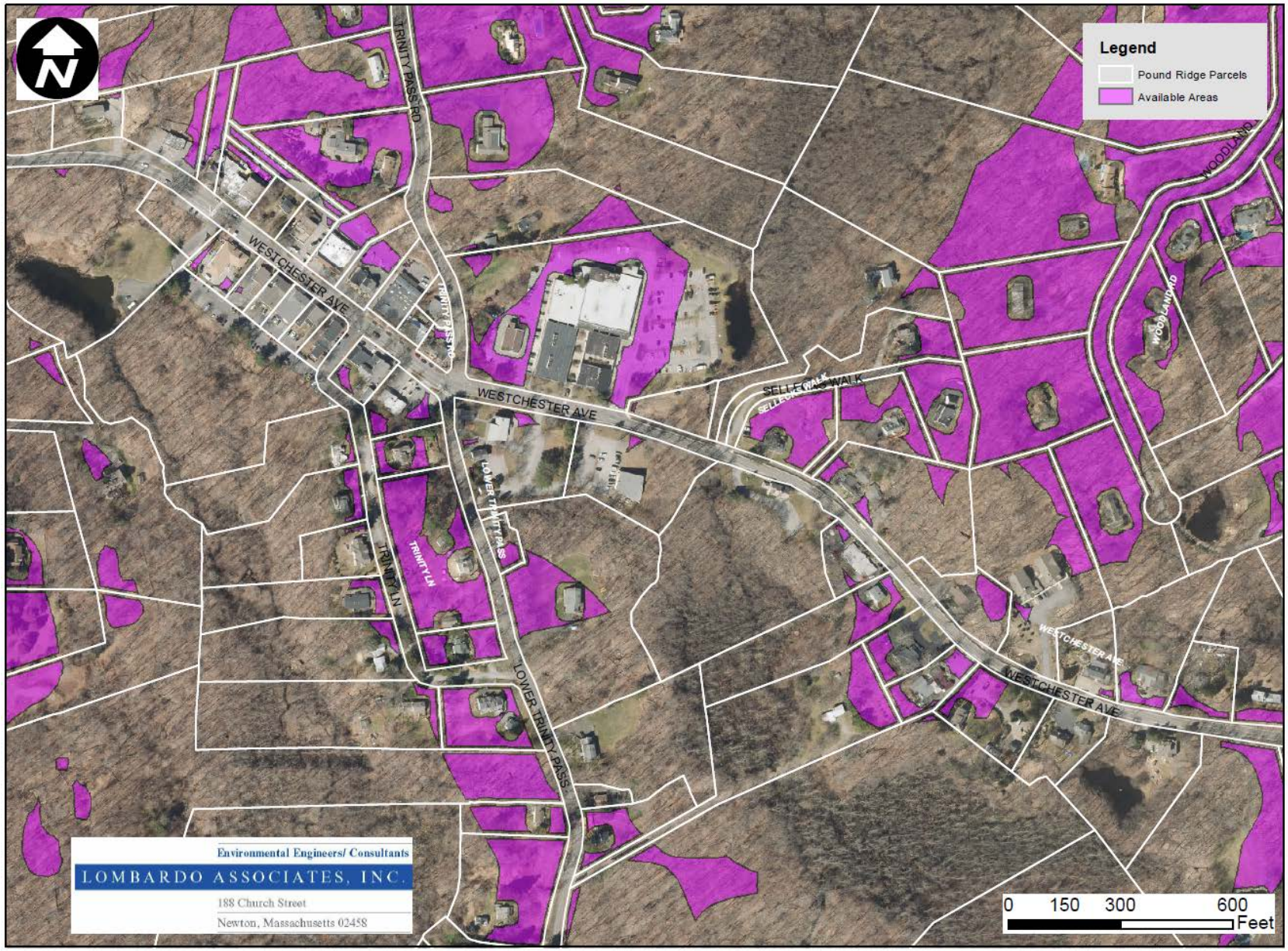


Figure 3-1 Available Area Map – Scotts Corner Study Area

Table 3-1 Scotts Corner Available Area Summary

Scott's Corner Available Area Analysis			
#	Address	District	Avail. Area (SF)
1	89 Westchester Ave	PB-A	0
2	87 Westchester Ave	PB-A	6,120
3	85 Westchester Ave	PB-A	8,130
4	83Westchester Ave	PB-A	2,480
5	79 Westchester Ave	PB-A	0
6	77 Westchester Ave	PB-A	0
7	Westchester Ave	PB-A	0
8	73 Westchester Ave	PB-A	
9	71 Westchester Ave	PB-A	5,090
10	69 Westchester Ave	PB-A	0
11	67 Westchester Ave	PB-A	0
12	4 Trinity Pass Road	PB-A	0
13	65 A & B Westchester Ave	PB-A	0
14	Westchester Ave	PB-A	0
15	80 Westchester Ave	PB-A	1,850
16	78 Westchester Ave	PB-A	0
17	76 Westchester Ave	PB-A	0
18	74 Westchester Ave	PB-A	0
19	72 Westchester Ave	PB-A	0
20	70 Westchester Ave	PB-A	0
21	68 Westchester Ave	PB-A	0
22	66 Westchester Ave	PB-A	0
23	26 Lower Trinity Pass Road	PB-B	14,775
24	32 Westchester Ave (& 32A/B)	PB_B	2,465
25	34 Westchester Ave	PB-B	2,875
26	46 Westchester Ave	PB-B	0
27	38 Westchester Ave	PB-B, R-1A	0
28	40 Westchester Ave (& 40A)	PB-B	0
29	54 Westchester Ave	PB-B	0
30	56 Westchester Ave	PB-B	0
31	39 Westchester Ave	PB-B	3,715
32	55 Westchester Ave	PB-B	
33	22 Westchester Ave	PB-C	0
34	26 Westchester Ave (& 28)	PB-C	0
35	21 Westchester Ave	PB-C	
36	23 Westchester Ave (& 23A/B)	PB-C	
37	30 Westchester Ave	PB-C	11,020
38	27 Westchester Ave	PB-C	0
39	29 Westchester Ave	PB-C	18,840
40	35 Westchester Ave	PB-C	2,550

Figure 3-2 Scotts Corner Study Area Existing Septic and Well Locations – Northeast

Figure 3-3 Scotts Corner Study Area Existing Septic and Well Locations – Center

Figure 3-4 Scotts Corner Study Area Existing Septic and Well Locations – Southwest

Table 3-2 Pound Ridge Task Force Records – Scotts Corner Percolation Test and Test Pit Summary

Pound Ridge Task Force - Scott's Corner Perc. Test Results			
Prop. #	Property	Perc. Test #	Perc. Rate (min./in.)
3	85 Westchester	-	N/A
4	83 Westchester	-	N/A
5	79 Westchester	-	N/A
8	73 Westchester	1	5
		2	5
9	71 Westchester	-	N/A
10	69 Westchester	-	N/A
15	80 Westchester	1	4
16	78 Westchester	-	N/A
17	76 Westchester	-	N/A
18	74 Westchester	-	N/A
19	70 Westchester	-	N/A
25	34 Westchester	1	4
		2	4
27	38 Westchester	1	8.33
		2	8.67
		3	8.67
29	54 Westchester	1	20
30	56 Westchester	1	12
		2	13
32	55 Westchester	-	N/A
33	22 Westchester	1	10
36	29 Westchester	1	17.1
		2	15
		3	7.3
		4	9.6
37	27 Westchester	-	N/A
38	23 Westchester	-	N/A
40	35 Westchester	1	6.2
		2	4.1
		3	6.6

Pound Ridge Task Force - Scott's Corner Test Pit Results			
Prop. #	Property	Test Pit #	Depth to Bedrock/GW
3	85 Westchester	-	N/A
4	83 Westchester	-	N/A
5	79 Westchester	-	N/A
8	73 Westchester	DH 1	No Bedrock/GW
		DH 2	No Bedrock/GW
9	71 Westchester	-	N/A
10	69 Westchester	-	N/A
15	80 Westchester	DH 1	No Bedrock/GW
16	78 Westchester	-	N/A
17	76 Westchester	-	N/A
18	74 Westchester	-	N/A
19	70 Westchester	-	N/A
25	34 Westchester	DH 1	No Bedrock/GW
27	38 Westchester	DH 1	GW @ 72"
		DH 2	GW @ 72"
		DH 3	GW @ 72"
29	54 Westchester	DH1	No Bedrock/GW
30	56 Westchester	DH1	GW @ 108"
32	55 Westchester	-	No Bedrock/GW
33	22 Westchester	DH 1	No Bedrock/GW
		DH 2	GW @ 48"
		DH 3	Hard Packed Clay @ 27"
36	29 Westchester	DH 1	Rock @ 72"
		DH 2	Mottling @ 60", GW @ 78"
		DH 3	Mottling @ 78"
		DH 4	No Bedrock/GW
		DH 5	No Bedrock/GW
		DH 6	No Bedrock/GW
		DH 7	No Bedrock/GW
		DH 8	No Bedrock/GW
37	27 Westchester	-	N/A
38	23 Westchester	-	N/A
40	35 Westchester	P 1	No Bedrock/GW
		P 2	No Bedrock/GW
		P 3	No Bedrock/GW
		DH 1	No Bedrock/GW

Table 3-3 Pound Ridge Task Force – Scotts Corner Test Pit Records 1

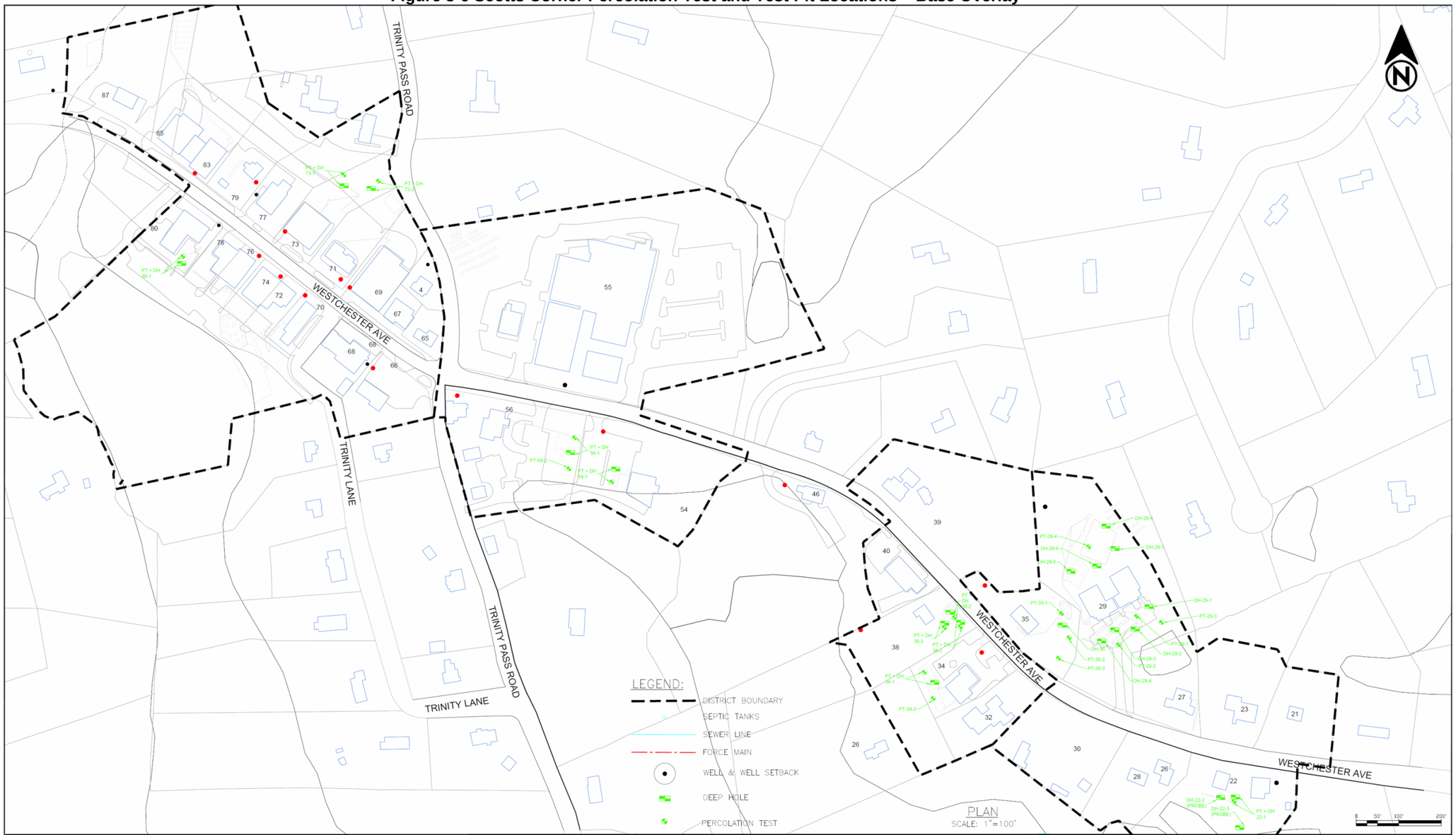
	Pound Ridge Task Force - Scott's Corner Test Pit Records											
Hole Depth	80 Westchester	73 Westchester		56 Westchester	54 Westchester	38 Westchester			35 Westchester			
	DH 1	DH 1	DH 2	DH 1	DH 1	DH 1	DH 2	DH 3	P1	P2	P3	DH 1
G.L.	Black Top	Top Soil	Top Soil	Top Soil	6" Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil
6"				Sandy Loam	Yellow Sub Soil							
12"		Sandy Loam	Sandy Loam			Sandy Loam	Sandy Loam	Sandy Loam	Sand Clay Mix	Sand Clay Mix	Sand Clay Mix	Sand Clay Mix
18"	Sand & Gravel	Sandy Loam	Sandy Loam									
24"		Sandy Loam & Gravel	Sandy Loam & Gravel									
30"		Sand & Gravel; Pit Bottom	Sand & Gravel; Pit Bottom		Compact Sand & Gravel	Fine Graded Sand w/ small to medium stones	Fine Graded Sand w/ small to medium stones	Fine Graded Sand w/ small to medium stones				
36"									Sand, Some Stone	Sand, Some Stone	Sand, Some Stone	Sand, Some Stone
42"												
48"												
54"				Sandy Loam w/ Clay					Pit Bottom	Pit Bottom	Pit Bottom	
60"												
66"												
72"					Pit Bottom	GW	GW	GW				
78"												
84"	Pit Bottom			GW @ 108"								Pit Bottom

Table 3-4 Pound Ridge Task Force – Scotts Corner Test Pit Records 2

Pound Ridge Task Force - Scott's Corner Test Pit Records												
Hole Depth	34 Westchester	29 Westchester								22 Westchester		
	DH 1	DH 1	DH 2	DH 3	DH 4	DH 5	DH 6	DH 7	DH 8	DH 1	DH 2	DH 3
G.L.	Top Soil	Old PKG Lot	Old PKG Lot	Old PKG Lot	Old PKG Lot	Light Woods	Light Woods	Light Woods	Light Woods	Sod	Probed to 54"	Probed to 27"
6"	Bank Run Gravel	Subbase Gravel	Subbase Gravel	Subbase Gravel	Subbase Gravel	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil		
12"		Gravelly Loam Fill	Gravelly Loam Fill; Mottling @ 60"; GW / Seepage @ 78"	Gravelly Sand	Sandy Loam	Sandy Loam, Some Silts	Sandy Loam, Some Silts	Sandy Loam, Some Silts	Sandy Loam, Some Silts	Loam		
18"												27" Hard Packed Clay
24"		Very Rocky		Large Boulders		Sands / Gravel	Sands / Gravel		Sands / Gravel	Loam / Clay Mix.		
30"					Fine Sand			Medium Sands, Gravelly	Fine Sand			
36"							Very Rocky, Gravelly					
42"					Large Stones	Very Rocky			Large Stones			
48"						Gravelly					GW	
54"											Pit Bottom	
60"								Very Rocky				
66"		Rock										
72"	Pit Bottom	Rock		Fine Dense Sand								
78"				Mottling								
84"			Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom		

Figure 3-5 Scotts Corner Percolation Test and Test Pit Locations – Aerial Overlay

Figure 3-6 Scotts Corner Percolation Test and Test Pit Locations – Base Overlay



REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

NOTE:
Under N.Y.S. Education Law Sec. 7209 Sub.2, it is illegal for any person, unless acting under the direction of a LICENSED Professional Engineer, to alter any item on this material in any way. If any item is so altered, the Professional Engineer who so alters or who directs another to so alter, shall affix to the items his seal and the notation "altered by" followed by his signature, the date of alteration and a specific description of the alteration.

LOMBARDO ASSOCIATES, INC.
Environmental Engineers/Consultants
188 Church St
Newton, Massachusetts 02467
(617) 964-2924 Fax: (617) 332-5477
E-mail: pio@Lombardoassociates.com
Web Site: www.Lombardoassociates.com

SCALE: AS NOTED | DPW #: | DHS #: | DATE: MARCH 26, 2019
PROJECT: SCOTT'S CORNER, POUND RIDGE, NEW YORK | PROJECT NO.: 6682
DESIGNED BY: JJC | DRAWN BY: JJC | APPROVED BY: PSL

1
SHEET 1 OF 2

SCOTT'S CORNER
POUND RIDGE TASK FORCE
PERC. TEST AND TEST PIT LOCATIONS

PREPARED FOR:
TOWN OF POUND RIDGE

While 55 Westchester Avenue, possesses 81,840 sq. ft. of “available area”, the private site has plans for expansion and due to environmental (i.e. flood plain, etc.), considerations is not viable for use for treatment and disposal. This is all prior to consideration of soils, depth to groundwater, etc. that affect the viability of sites.

Therefore, with a wastewater management demand of a minimum of 40,000 gpd and buildout of 80,000 gpd, the small neighborhood/cluster option is also not technically feasible.

Since both the on-site option and small neighborhood / cluster option are not viable, a Scotts Corner Study Area wide wastewater treatment option is required. Section 4 presents candidate sites and a preliminary screening on Available Area and soil conditions. Section 5 presents engineering layouts for 4 candidate sites deemed most favorable.

4. CANDIDATE SITES FOR WASTEWATER TREATMENT / DISPOSAL

4.0 OVERVIEW

As stated in Section 1.3, the following three wastewater design flow scenarios are being evaluated:

I. 40,000 gpd – existing conditions maximum use with some intensity of use increases
II. 60,000 gpd – Scenario I plus 20,000 gpd at Parcel or
III. 80,000 gpd -- Scenario II plus 20,000 gpd at Parcel or

Table 4.0-1 lists the properties that have been identified as candidates for wastewater treatment and/or disposal for the above scenarios. Near Study Area Town owned properties and private parcels known by the Town to be willing to be considered for the project are listed on Table 4.0-1.

Table 4.0-1 Candidate Properties for Scotts Corner Wastewater Treatment / Disposal

Status as of March 28, 2019				
Candidate Disposal Site		Soils Data	Comments	Parcel IDs
1	Town Park	Yes		9820-1, 9820-2.2, 9820-8, 9820-86
2	Pine Drive -Lower Trinity Rd	Yes, partial		9320-28
3	Oceanus	Yes		9320-13.9-12, 9320-13.9-13 & 9320-13.9-15
4	Old Pound Rd	Qualitative		9820-16
5	Elementary School	Yes		9816-46 & 9816-47
6	Town Land adjacent to School	No data exists		9816-64
7	Golf Course	No		9316-18.9
8	169 Barnegat Road	Yes	27.17 acres	9457-12
Wastewater Treatment System Site(s)				
1	Clark - 12 & 16 Trinity Pass Rd	No data known to exist	WWTP site	9454-16 & 9454-17
2	169 Barnegat Road		27.17 acres	9457-12

Figures 4.0-1a and 4.0-1b illustrate the location of the candidate parcels and the watershed within which they are located. The available area (defined in Section 3) on each property that could be used for treatment and/or wastewater disposal is presented on Figures 4.0-2 and 4.0-3.

Available Area was calculated for each Parcel and soils suitability examined. The following setbacks were considered:

- 100-ft from wetland
- 10-ft from a property line
- 20-ft from a building
- 200-ft from public wells, 100-ft from private wells

- 200-ft from public water supply reservoir, 100-ft from private water supply reservoir
- Areas with slopes >20%

For each candidate site, Tables and maps of the following features are provided, when data is available:

- ✓ Soils / Percolation Rate Data
- ✓ Slope
- ✓ Wetlands & Setbacks
- ✓ Floodplains

Table 4.0-2 provides a list of existing data for each Table 4.0-1 candidate site.

Table 4.0-2 Candidate Sites Existing Information Summary

Candidate Site Existing Information Summary*						
Candidate Site Name		Soils Map	Test Pit Results	Slope / Elevations	Wetlands & Setbacks	Flood Plains
1	Town Park	Yes	Yes	Yes	Yes	Yes
2	Lower Trinity Pass	Yes	Yes	Yes	Yes	Yes
3	Oceanus	Yes	Yes	Yes	Yes	Yes
4	Old Pound Road	Yes	Yes	Yes	Yes	Yes
5	Elementary School	Yes	Yes	Yes	Yes	Yes
6	School Adjacent Land	Yes	None	Yes	Yes	Yes
7	Golf Course	Yes	TBD	Yes	Yes	Yes
8	Clark - 12 & 16 Trinity Pass Road	Yes	None	Yes	Yes	Yes
9	169 Barnegat Road	Yes	Yes	Yes	Yes	Yes

**TBD = To Be Determined.*

It is noted that published slope information designates areas as < 15%, 15% - 25% and > 25% slopes. Consequently areas < 15% are designated as being viable, recognizing that this is being conservative and is taken into account when a detailed site analysis is performed.

Explanation of soil types is presented in Appendix B.

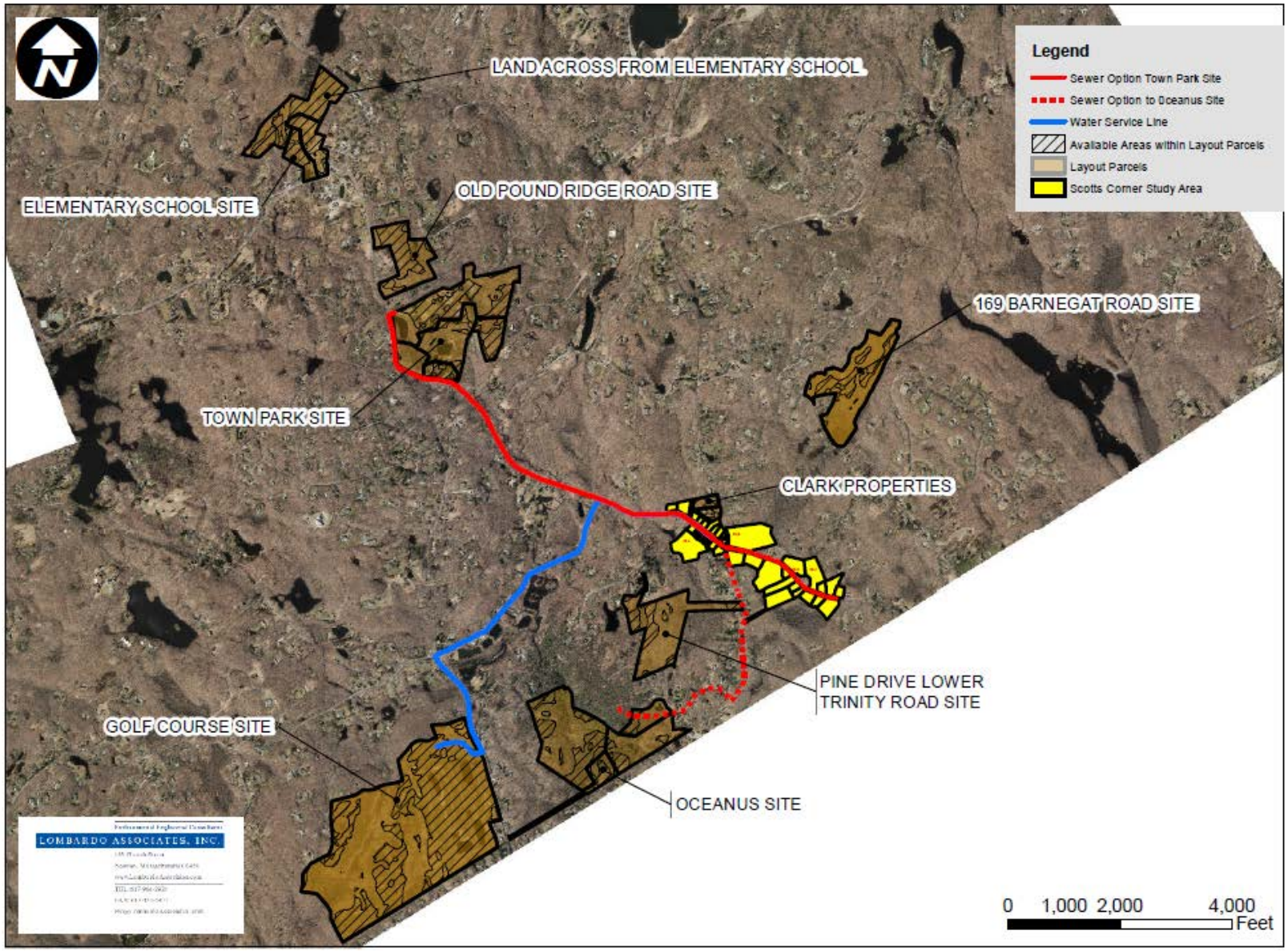


Figure 4.0-1a Candidate Sites – Location Map

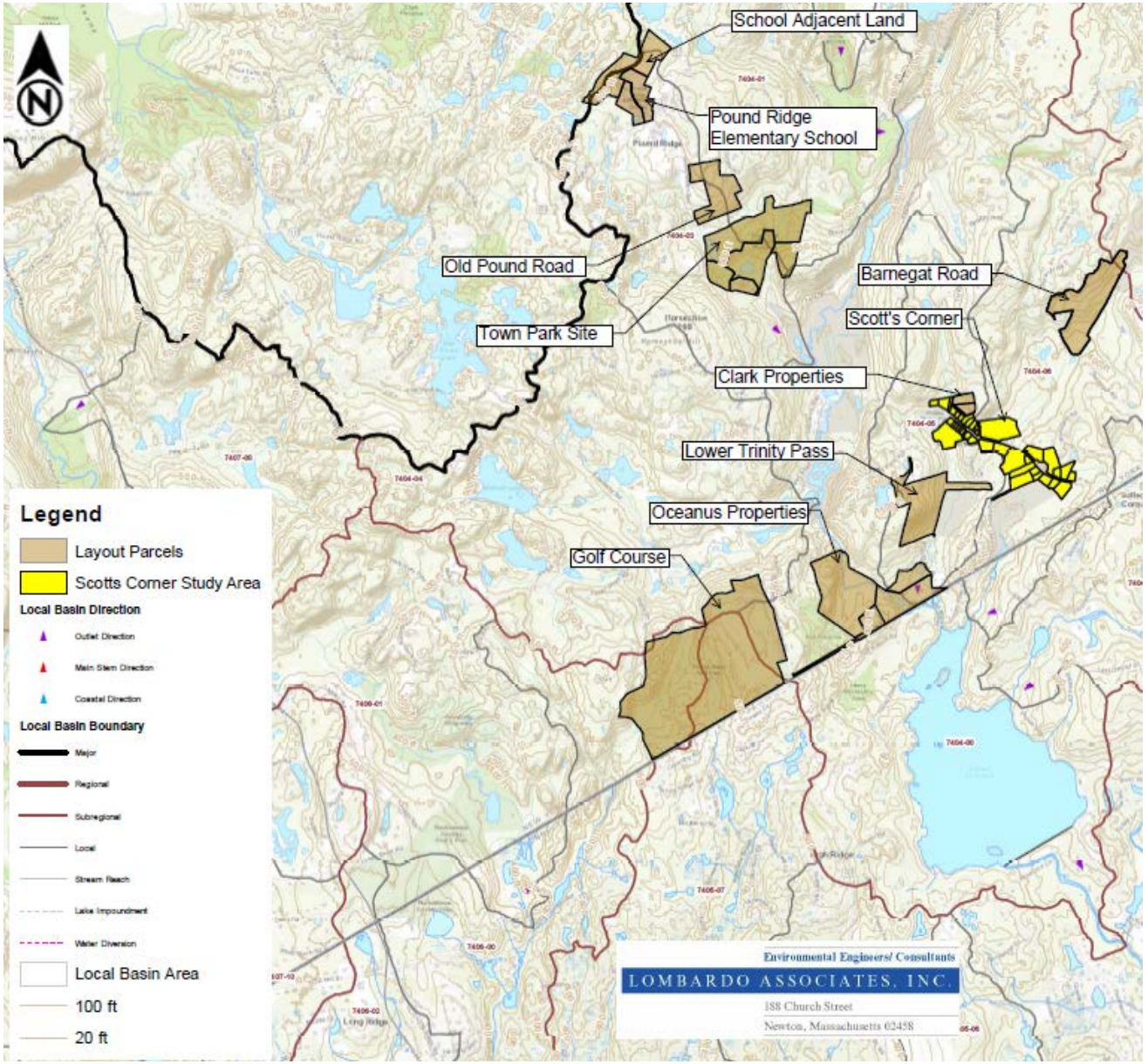


Figure 4.0-1b Candidate Sites – Location Map with Watershed Boundaries

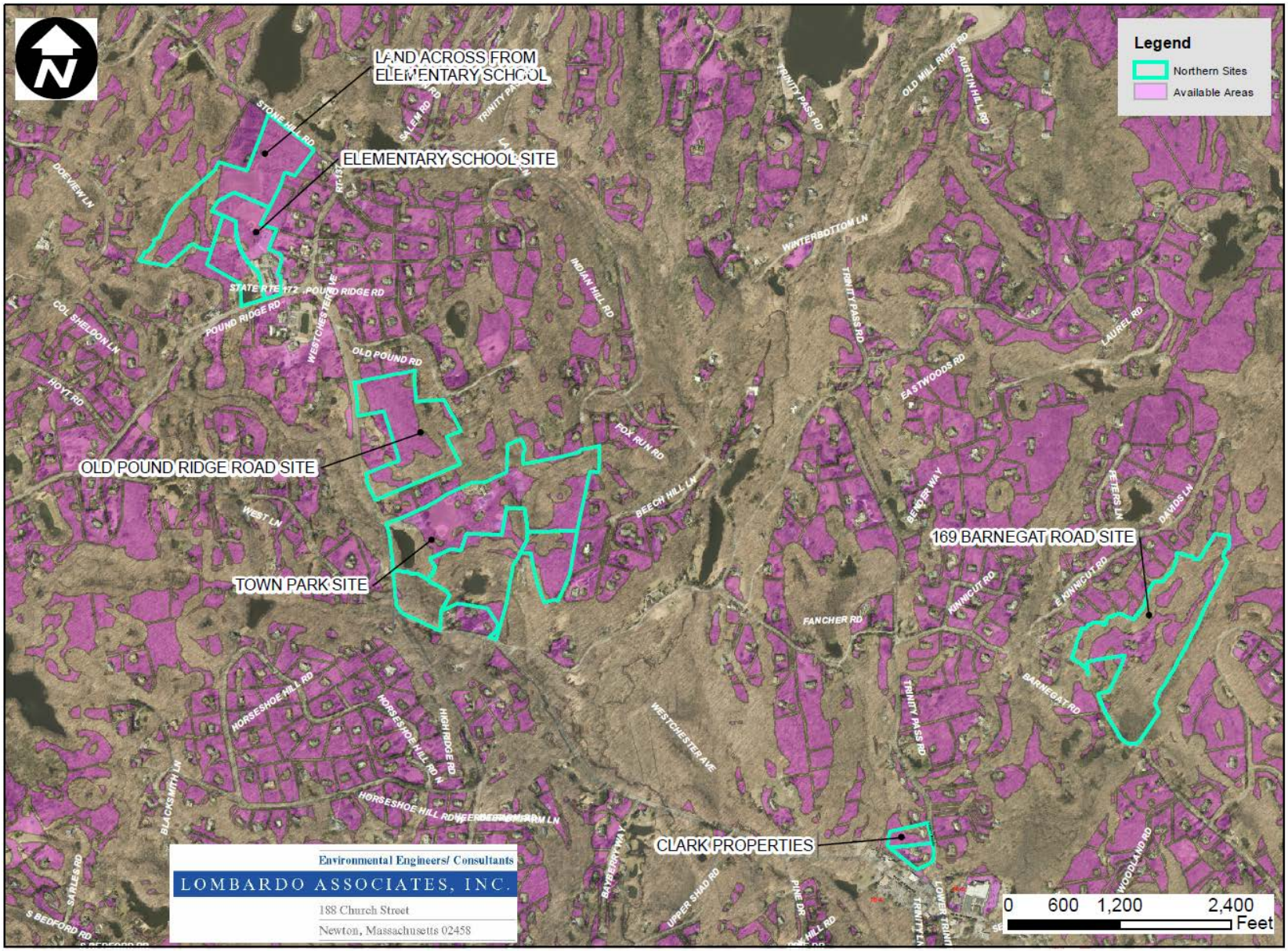


Figure 4.0-2 Available Area Map – Northern Sites

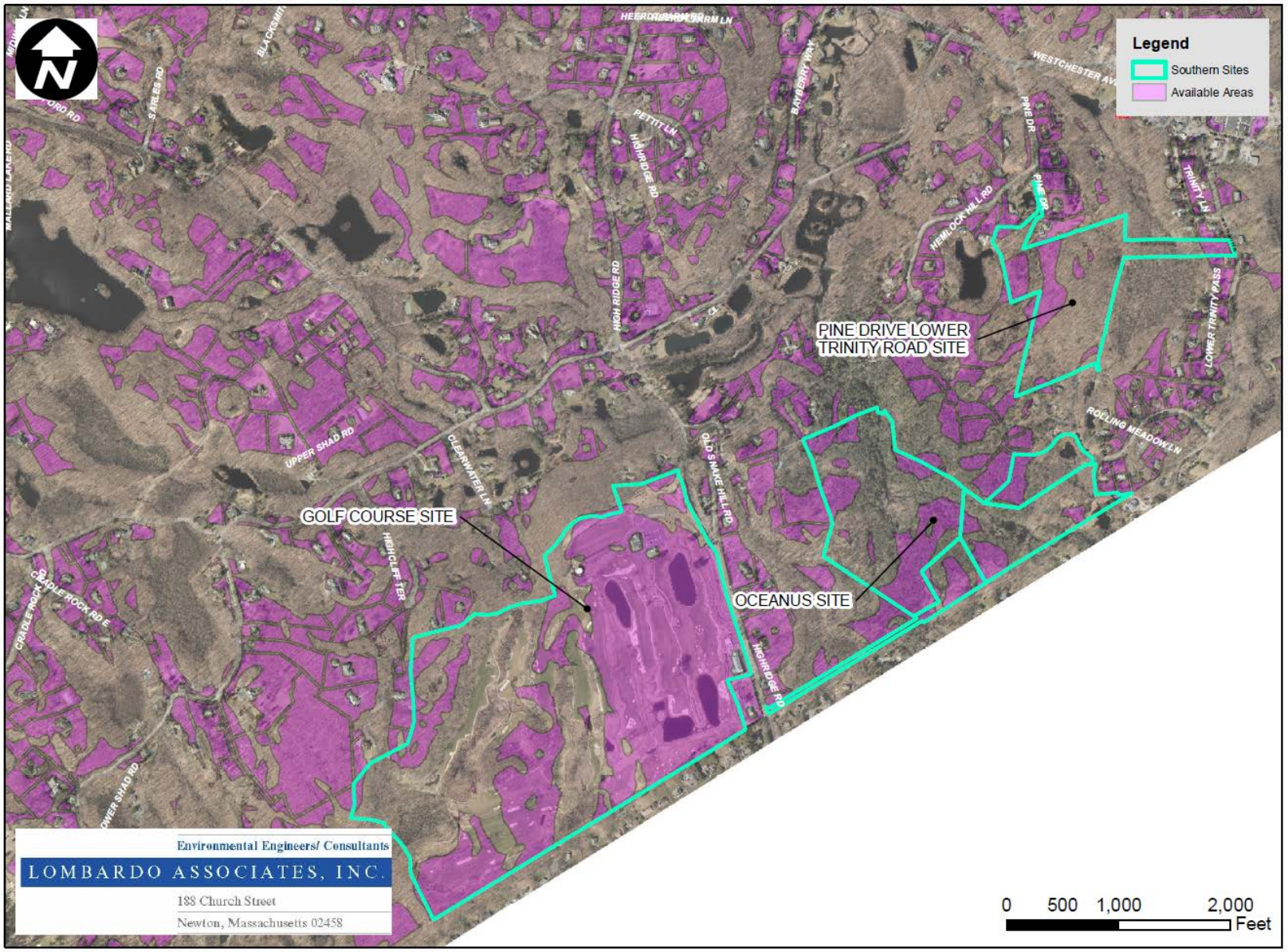


Figure 4.0-3 Available Area Map – Southern Sites

4.1 TOWN PARK SITE

The Town Park site consists of six parcels, listed below, located off Westchester Avenue just north of Town offices. The parcels are owned by the Town of Pound Ridge, and serve as a municipal park and recreation area, with swimming pools, tennis and basketball courts, and walking trails. The Town Recreation Department is located on the Town Park site. Parcel information according to the town of Pound Ridge is as follows:

- Parcel #: 9820-1
- Parcel #: 9820-2.2
- Parcel #: 9820-8
- Parcel #: 9820-147
- Parcel #: 9820-153

Table 4.1-1 presents the Town Park Site percolation test and Test Pit results that were provided by the WC DoH.

Table 4.1-1 Town Park Perc Test & Depth to Bedrock / GW Data

Pound Ridge Town Park Perc. Test Results	
Perc. Test #	Perc. Rate (min./in.)
A	DNP
B	DNP
C	0.33
D	24
E	8.7
G	3.3
H	5.7
I	3.3
J	8
K	10
L	30
M	4.9
N	20
O	4.7
P	4.7
Q	6.3

Pound Ridge Town Park Test Pit Summary	
Test Pit #	Depth to Bedrock/GW
DH 1	84" Seepage
DH 2	-
DH 3	72" Seepage
DH 4	57" Seepage
DH 5	45" Seepage
DH 6	-
DH 7	80" Shale
DH 8	-
DH 9	44" Seepage
DH 10	55" Seepage
DH 11	-
DH 12	-
DH 13	36" Seepage
DH 14	71" Seepage

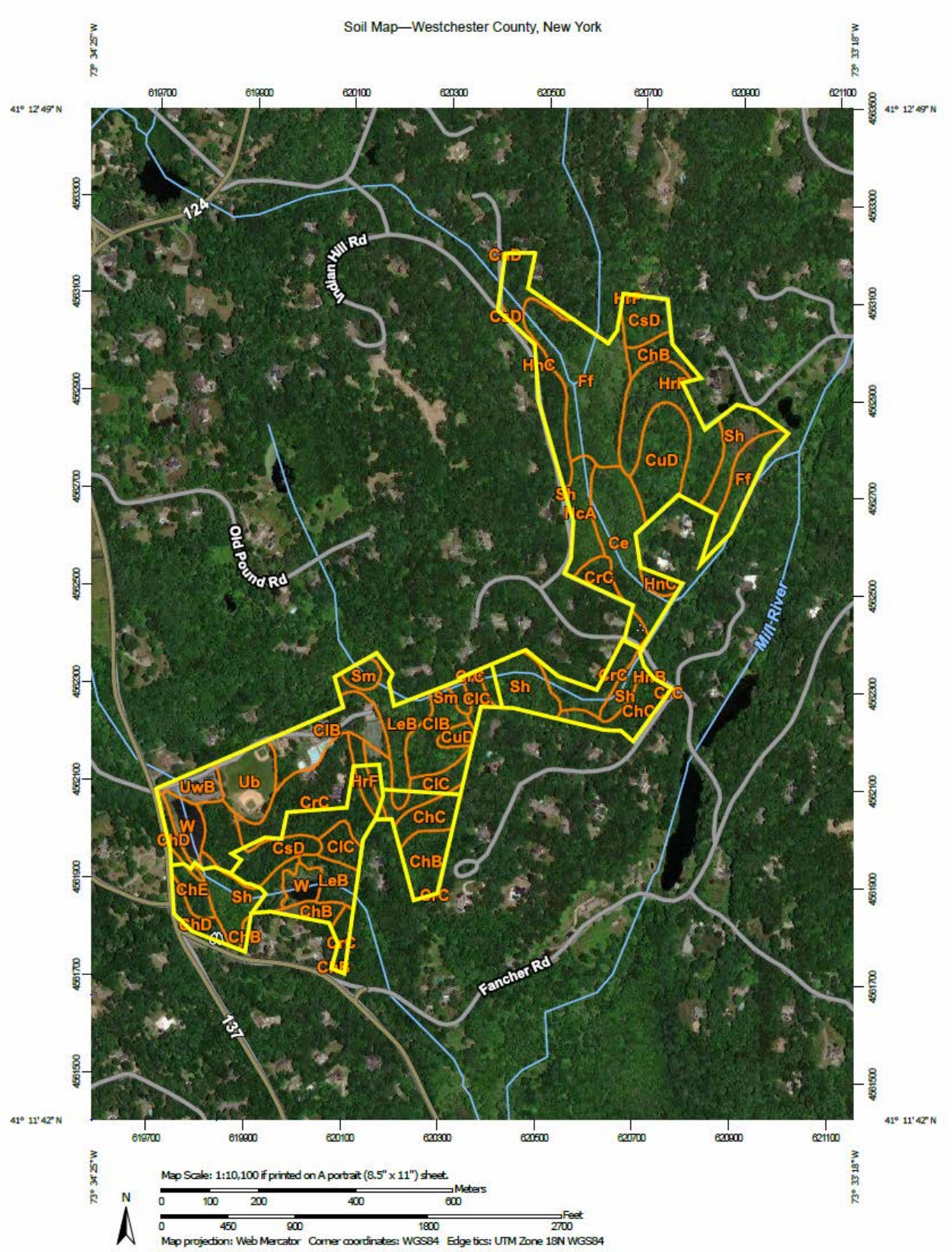


Figure 4.1-1 Town Park Soils Map

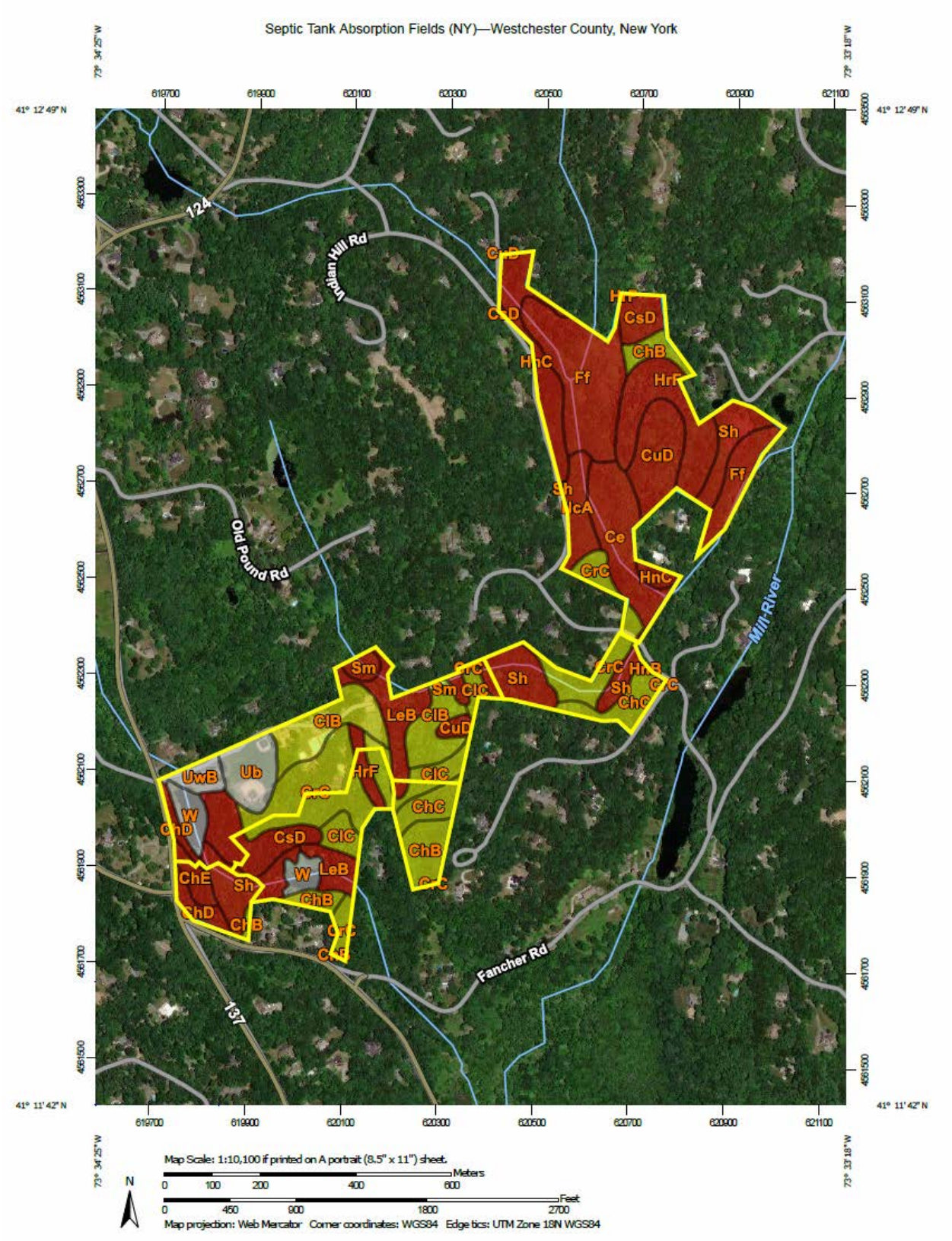


Figure 4.1-2 Town Park Soils Rating Map

Soils Description

- ChB – Charlton Fine Sandy Loamy, 3 to 8 percent slopes
- ChC – Charlton Fine Sandy Loam, 8 to 15 percent slopes
- ClB - Charlton Fine Sandy Loamy, 3 to 8 percent slopes, very stony
- ClC - Charlton Fine Sandy Loamy, 3 to 15 percent slopes, very stony
- CrC – Charlton-Chatfield complex, 0 to 15 percent slopes, very stony

Charlton fine sandy loam

1. Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

2. Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

Charlton-Chatfield complex

1. Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

2. **Properties and qualities**

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity most limiting layer to transmit water (Ksat):Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

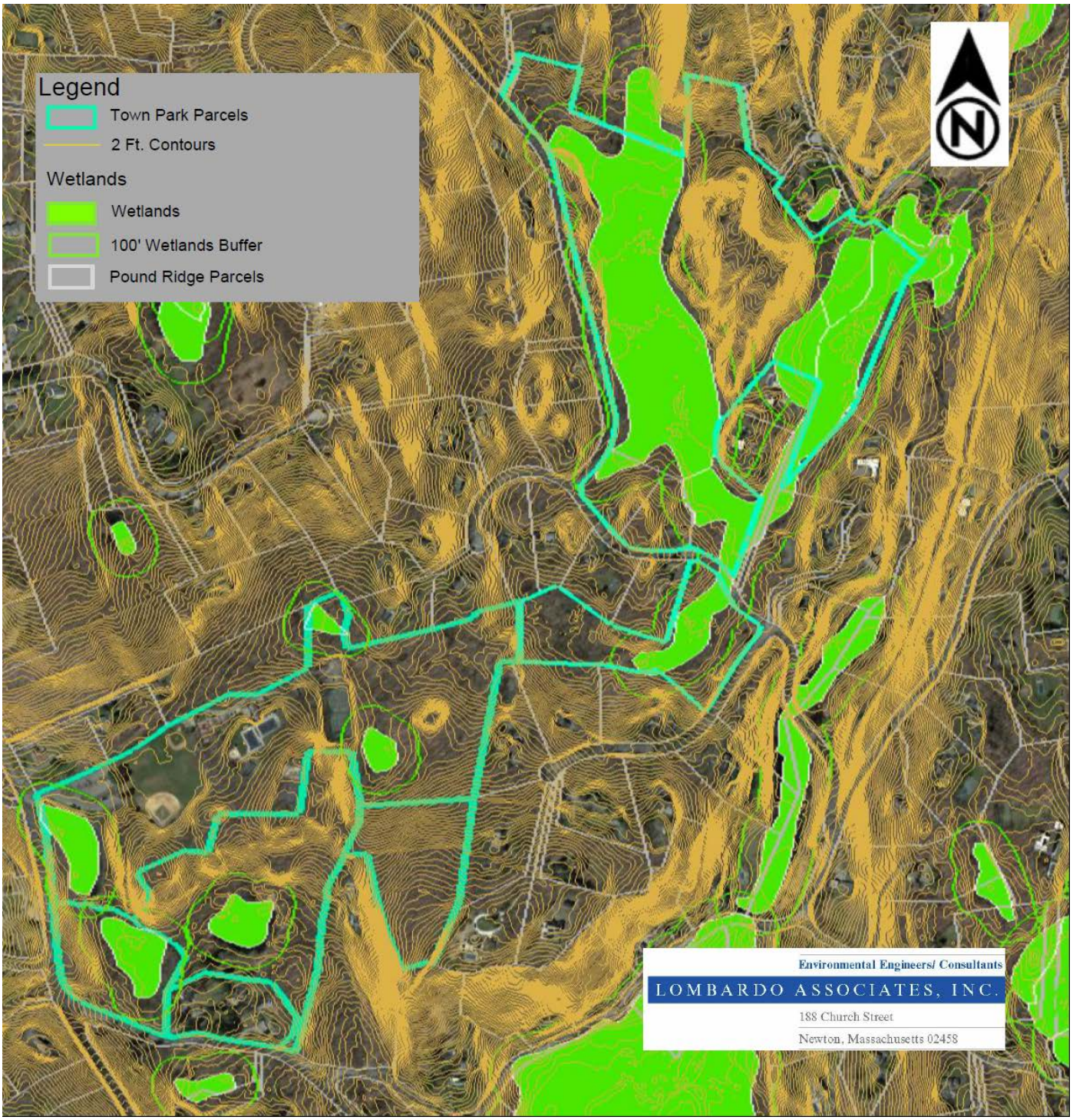


Figure 4.1-3 Town Park Wetlands Map

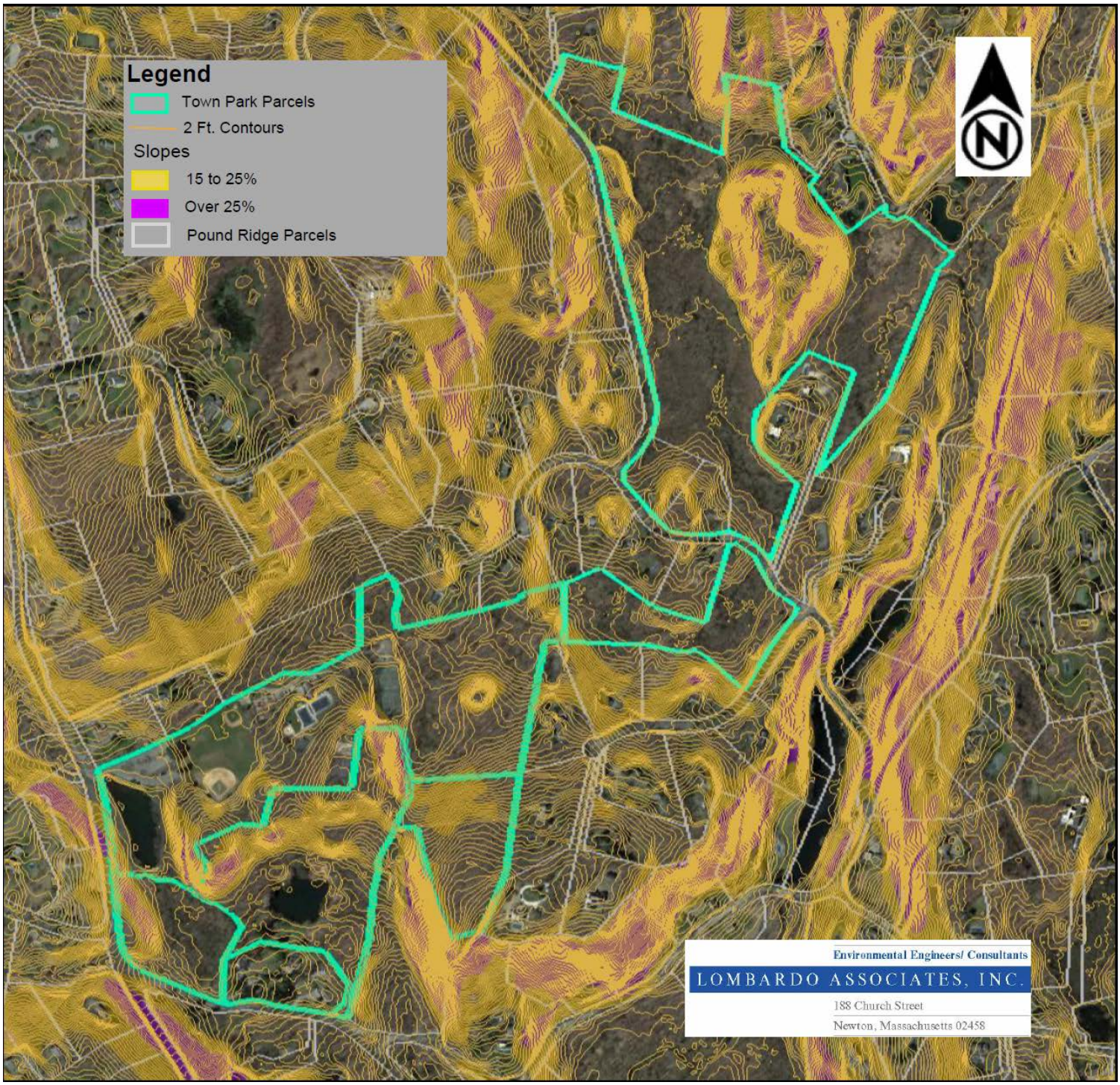


Figure 4.1-4 Town Park Slopes Map

Table 4-1-2 Town Park Test Pit Records

Pound Ridge Town Park Test Pit Records														
TP Depth	TP 1	TP 2	TP 3	TP 4	TP 5	TP 6	TP 7	TP 8	TP 9	TP 10	TP 11	TP 12	TP 13	TP 14
G.L.	4" Top Soil	4" Top Soil	4" Top Soil	6"	4" Top Soil	4" Top Soil	4" Top Soil	4" Top Soil	10" Top Soil	10" Top Soil	4" Top Soil	10" Top Soil	10" Top Soil	4" Top Soil
6"	Sandy Loam	Sandy Loam	Fine Sandy Loam	Sandy Loam	Wet Sandy Loam w/ Cobbles; 45" Seepage	Sandy Loam; 50" Roots	Sandy Loam	Sandy Loam	Sandy Loam; 44" Seepage	Sandy Loam; 55" Seepage	Fine Sandy Loam	Sandy Loam; 30" Roots	Sandy Loam; Seepage @ 36" to 48"	Sandy Loam w/ decayed rock
12"														
18"														
24"	Compact Sandy Loam	Mixed Sands w/ decayed rock						Mixed Sand pocket - runs 24"				Mixed Sands		
30"														
36"														
42"														
48"							Compact Coarse Sand w/ decayed rock	Sandly Loam	Silty Clay				Sandy Loam	71" Seepage
54"				57" Seepage - Mixed Sands w/ decayed rock										
60"														
66"														
72"			Seepage											
78"														
84"	Seepage			Pit Bottom			80" Shale		82" Sandy Loam					Pit Bottom
90"	Pit Bottom		Pit Bottom							Pit Bottom				
96"		94" Pit Bottom			Pit Bottom	92" Pit Bottom		92" Pit Bottom	92" Pit Bottom		Pit Bottom	Pit Bottom	Pit Bottom	

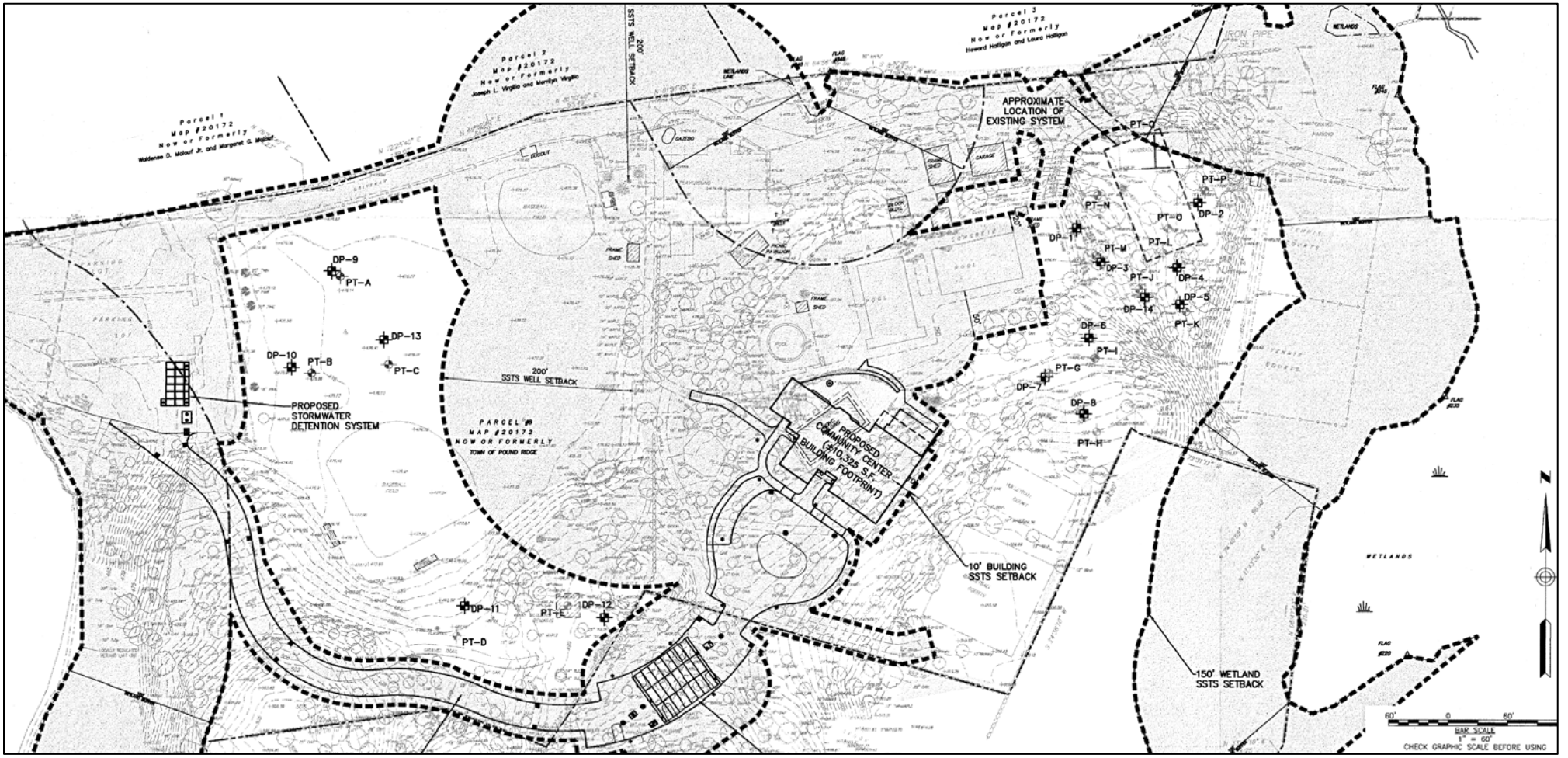


Figure 4.1-5 Town Park Test Boring Locations

4.2 PINE DRIVE – LOWER TRINITY PASS

The candidate site consists of one parcel, listed as 9320-28 according to the Pound Ridge Assessors Office. The parcel is a vacant, mostly wooded residential lot owned by CH State Holdings LLC, and is surrounded by occupied residential lots on Lower Trinity Pass and Hemlock Hill Road.

Table 4.2-1 presents the Lower Trinity Pass Site percolation test and Test Pit results that were provided by the Owner as performed by their engineer, Langan.

Table 4.2-1 Lower Trinity Pass Test Pit & Depth to Bedrock / GW Data

Lower Trinity Pass Test Pit Summary - Bibbo Associates		
Test Pit #	Test Pit Depth	Depth to Bedrock/GW
DH 2	36"	Ledge @ 36"
DH 3	126"	No BR/GW
DH 4	120"	Ledge @ 84"
DH 5	132"	GW @ 108"
DH 6	120"	No BR/GW
DH 7	126"	GW @ 120"
DH 8	144"	GW @ 144"
DH 9	144"	Seepage @ 48"
DH 10	120"	GW @ 108"
DH 11	78"	BR/GW @ 78"
DH 12	N/A	N/A
DH 13	120"	GW @ 114"
DH 14	120"	No BR/GW
DH 15	90"	BR @ 90"
DH 16	108"	No BR/GW
DH 17	132"	No BR/GW
DH 18	132"	No BR/GW

Lower Trinity Pass Test Pit Summary - Peak Construction	
Test Pit #	Depth to Bedrock/GW
TP-A	No BR/GW
TP-B	No BR/GW
TP-C	Mottles @ ~60"
TP-D	Mottles @ ~60"
TP-E	No BR/GW
TP-F	No BR/GW

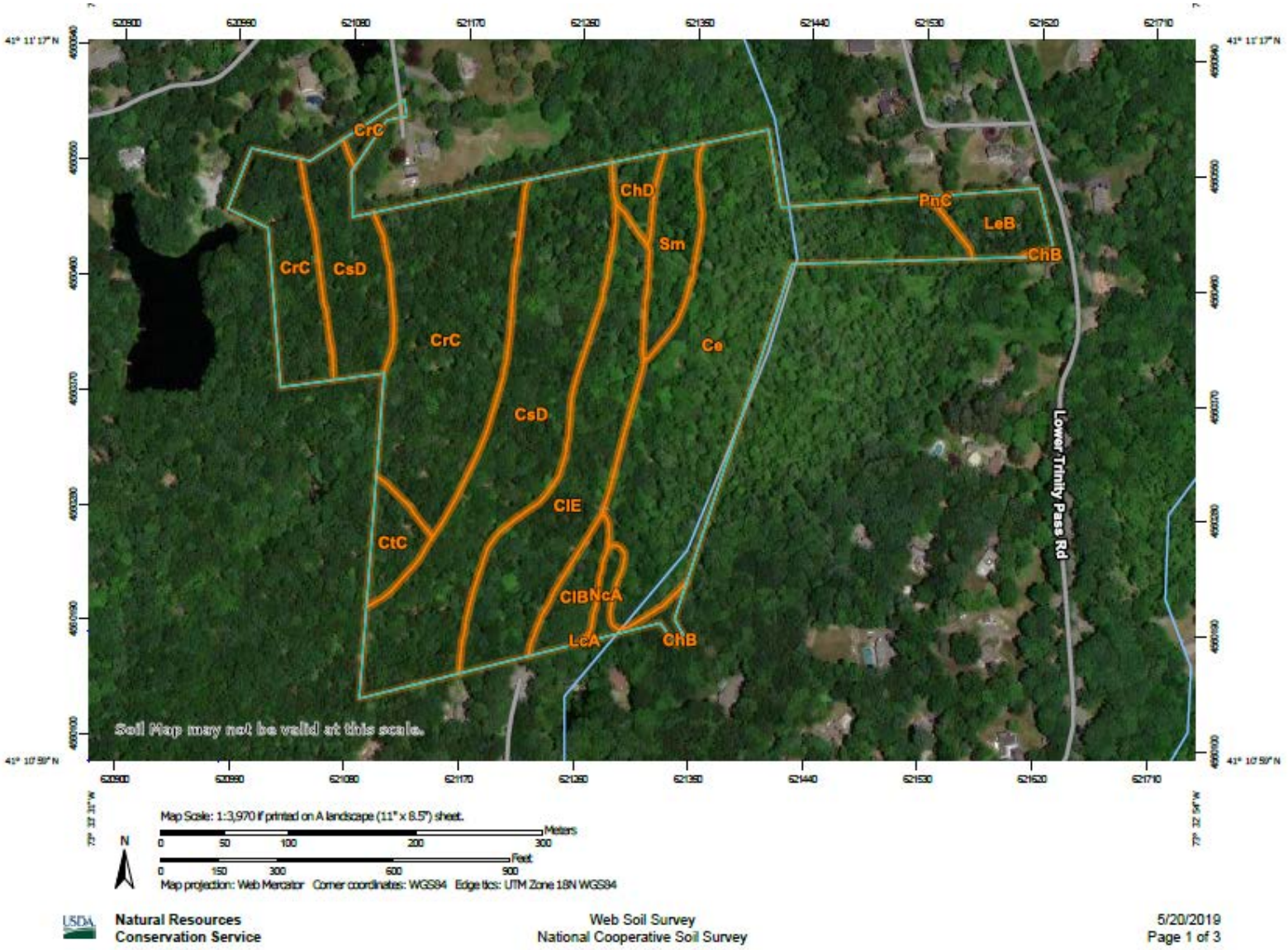


Figure 4.2-1 Lower Trinity Pass Soils Map

Figure 4.2-2 Lower Trinity Pass Soil Ratings Map

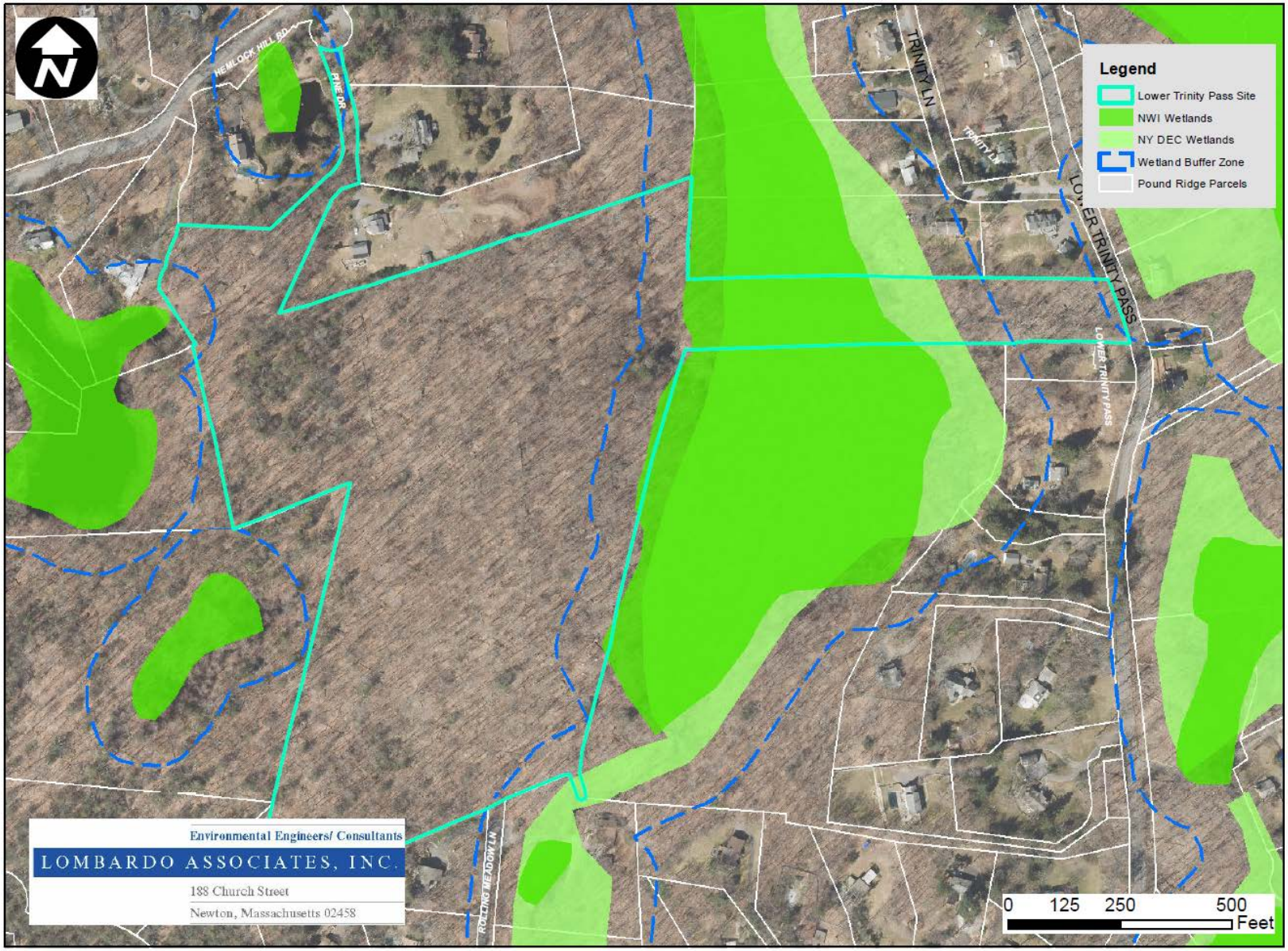


Figure 4.2-3 Lower Trinity Pass Wetlands Map

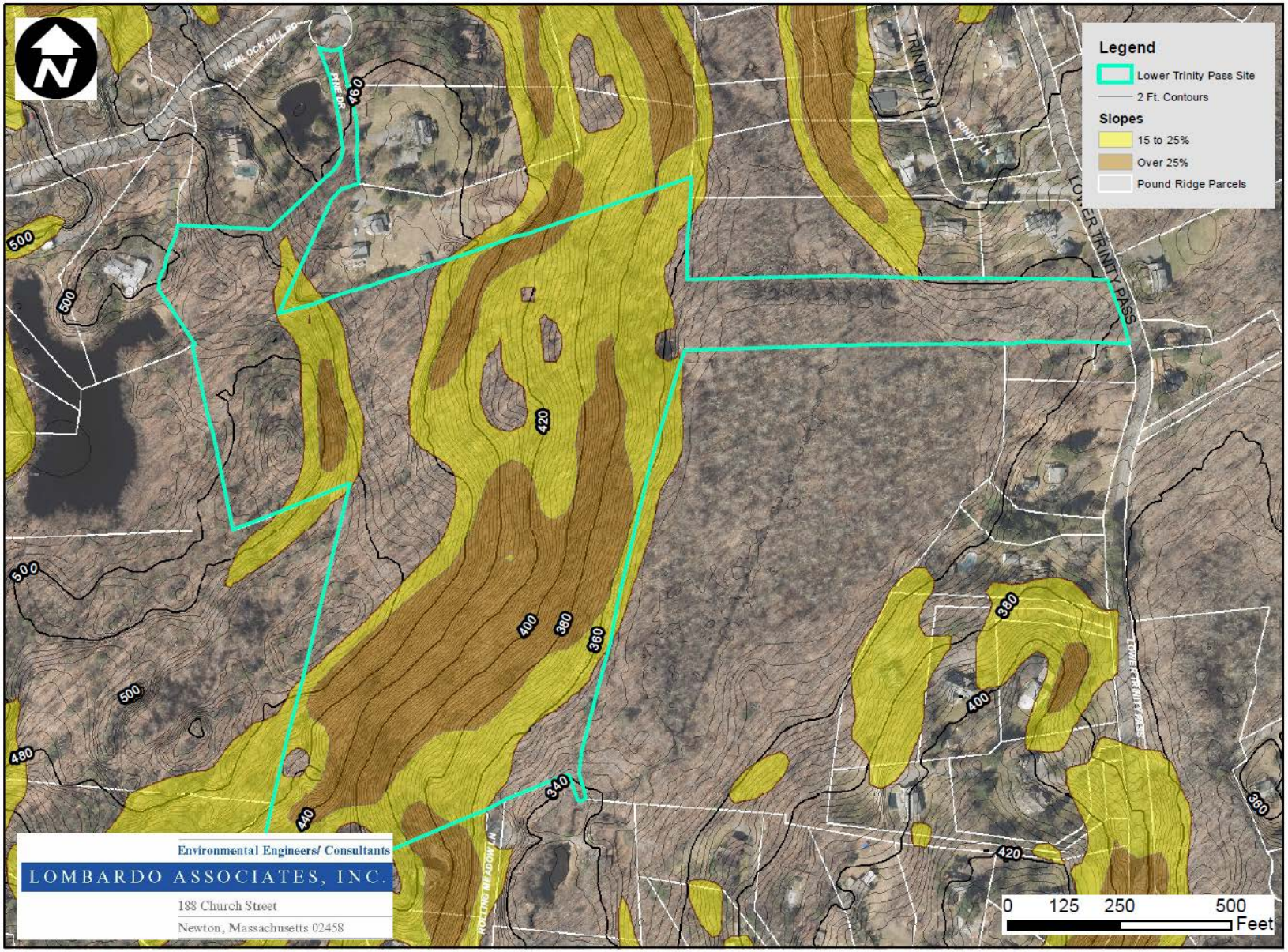


Figure 4.2-4 Lower Trinity Pass Slopes + Contours Map

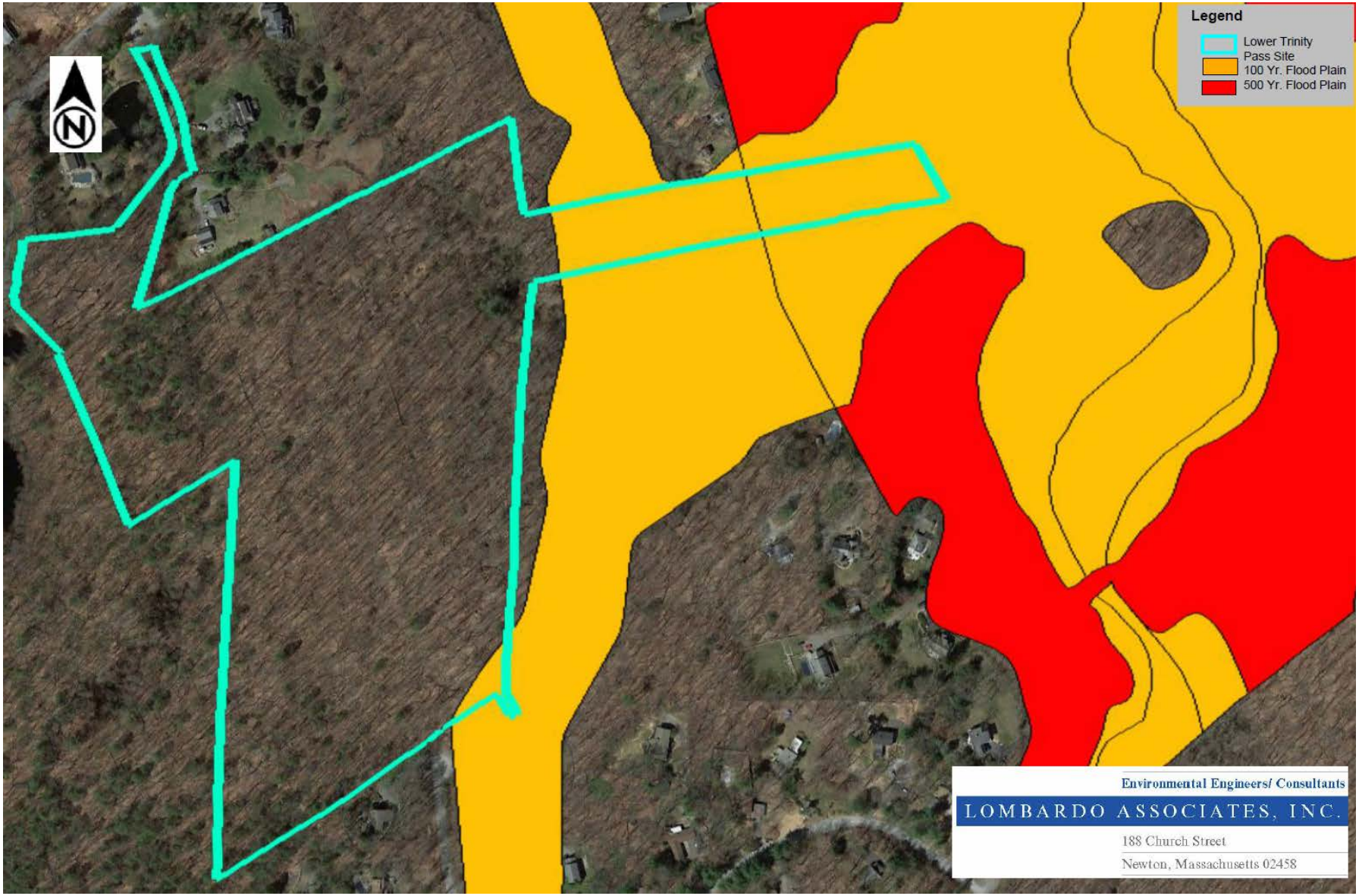


Figure 4.2-5 Lower Trinity Pass Floodplains Map

Table 4.2-2 Lower Trinity Pass Test Pit Records

Lower Trinity Pass Test Pit Records - Peak Construction						
TP Depth	**TP-A**	**TP-B**	**TP-C**	**TP-D**	**TP-E**	**TP-F**
G.L.	16" Loam (10YR 3/3); common fine roots	16" Loam (10YR 2/2); common fine roots; 25% cobbles and boulders	20" Loam (10YR 2/2); common fine roots; 15% cobbles and boulders	16" Loam (10YR 3/3); common fine roots; 30% boulders	20" Loam (10YR 2/2); common fine roots; 15% cobbles and boulders	20" Loam (10YR 3/3); common fine roots; 30% cobbles and boulders
6"						
12"						
18"	16"-36" sandy loam (10YR 4/6); 15% coarse gravel and cobbles	16"-40" sandy loam (10YR 3/6); 20% coarse gravel and cobbles		16"-36" sandy loam (10YR 5/8); 10% coarse gravel and cobbles		
24"			20-36" Sandy Loam (10YR 3/6); 20% coarse gravel and cobbles			20"-40" sandy loam (10YR 5/8); 10% coarse gravel and cobbles
30"						
36"						
42"	36-96" loamy sand (5 YR 5/2); 60% cobbles and boulders; Pit Bottom @ 96"	40"-96" Loamy Sand (5YR 6/2); 60% cobbles and boulders; Pit Bottom @ 96"	40"-90" Loamy Sand (5YR 6/2); 40% cobbles and boulders; Mottling @ ~60", Pit Bottom @ 90"	36-96" loamy sand (5 YR 5/2); 20% cobbles and boulders; Mottling @ ~60"; Pit Bottom @ 96"	16"-90" Loamy Sand (10YR 3/4); 40% cobbles and boulders; Pit Bottom @ 90"	40"-84" Loamy Sand (5YR 6/2); 75% cobbles and boulders; Pit Bottom @ 84"
48"						
54"						
60"						
66"						
72"						
78"						
84"						
90"						
96"						

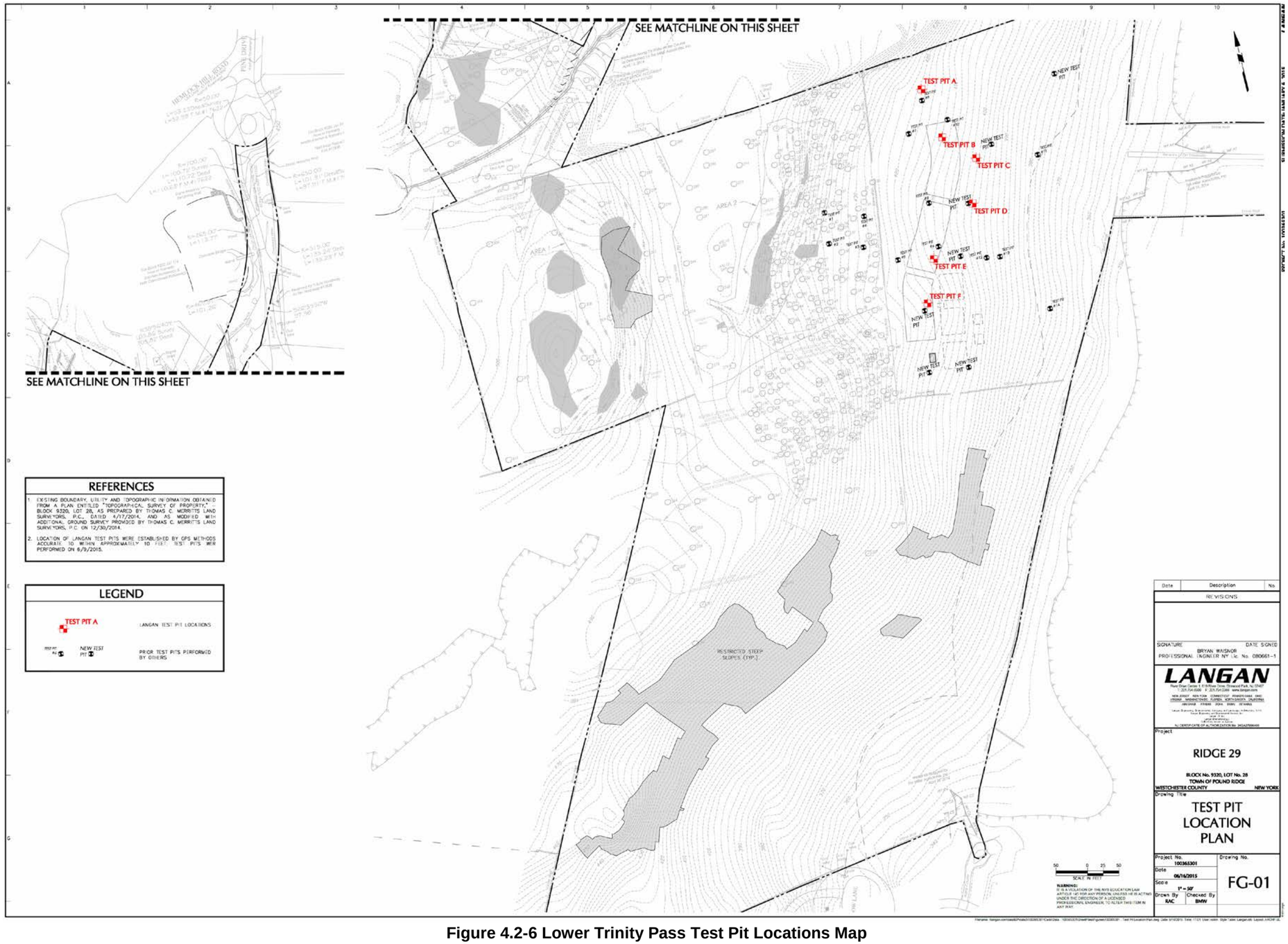


Figure 4.2-6 Lower Trinity Pass Test Pit Locations Map

4.3 OCEANUS

The candidate site consists of up to 11 parcels which are vacant and mostly wooded owned by Oceanus Navigation Corp Ltd, and is surrounded by occupied residential lots on Lower Trinity Pass and Rolling Meadows Road.

Table 4.3-1 presents the Oceanus Site percolation test and Test Pit results that are on the Site drawings that were submitted to the Pound Ridge Planning Board.

Table 4.3-1 Oceanus Site Percolation Test and Test Pit Summary

Pound Ridge - Oceanus Site Perc. Test Results	
Perc. Test #	Perc. Rate (min./in.)
TP-1-1	9
TP-1-2	15
TP-1-3	9.33
TP-2-1	15
TP-2-2	10.33
TP-2-3	15
TP-3-1	6.67
TP-3-2	11.67
TP-3-3	4.67
TP-5-1	15
TP-5-2	16.5
TP-5-3	6
TP-6-1	6
TP-6-2	5.33
TP-6-3	5.67
TP-7-1	8.33
TP-7-2	7
TP-7-3	6.33
TP-8-1	12.33
TP-8-2	6.33
TP-8-3	7
TP-9-1	4.33
TP-9-2	7
TP-9-3	16.5
TP-10-1	4
TP-10-2	13
TP-10-3	4
TP-12-1	4
TP-12-2	9.67
TP-12-3	8.67
TP-13-1	18
TP-13-2	10
TP-13-3	8.67
TP-14-1	6.33
TP-14-2	6.67
TP-14-3	6.33
TP-14-4	8.33

Pound Ridge - Oceanus Test Pit Results Summary	
Test Pit #	Depth to Bedrock/GW
DH 1-1	Bedrock @ 66"
DH 1-2	Bedrock @ 66"
DH 1-3	Bedrock @ 72"
DH 2-1	Bedrock @ 60"
DH 2-2	Bedrock @ 72"
DH 2-3	Bedrock @ 60"
DH 3-1	Bedrock @ 60"
DH 3-2	Bedrock @ 66"
DH 3-3	Bedrock @ 60"
DH 5-1	Bedrock @ 72"
DH 5-2	Bedrock @ 72"
DH 5-3	Bedrock @ 78"
DH 6-1	Bedrock @ 78"
DH 6-2	Bedrock @ 60"
DH 6-3	Bedrock @ 60"
DH 7-1	No Bedrock/GW
DH 7-2	No Bedrock/GW
DH 7-3	No Bedrock/GW
DH 8-1	Bedrock @ 60"
DH 8-2	Bedrock @ 66"
DH 8-3	Bedrock @ 66"
DH 9-1	Bedrock @ 66"
DH 9-2	Bedrock @ 72"
DH 9-3	Bedrock @ 72"
DH 10-1	No Bedrock/GW
DH 10-2	No Bedrock/GW
DH 10-3	No Bedrock/GW
DH 12-1	No Bedrock/GW
DH 12-2	No Bedrock/GW
DH 12-3	No Bedrock/GW
DH 13-1	Bedrock @ 60"
DH 13-2	Bedrock @ 60"
DH 13-3	Bedrock @ 60"
DH 14-1	Bedrock @ 60"
DH 14-2	Bedrock @ 66"
DH 14-3	Bedrock @ 54"

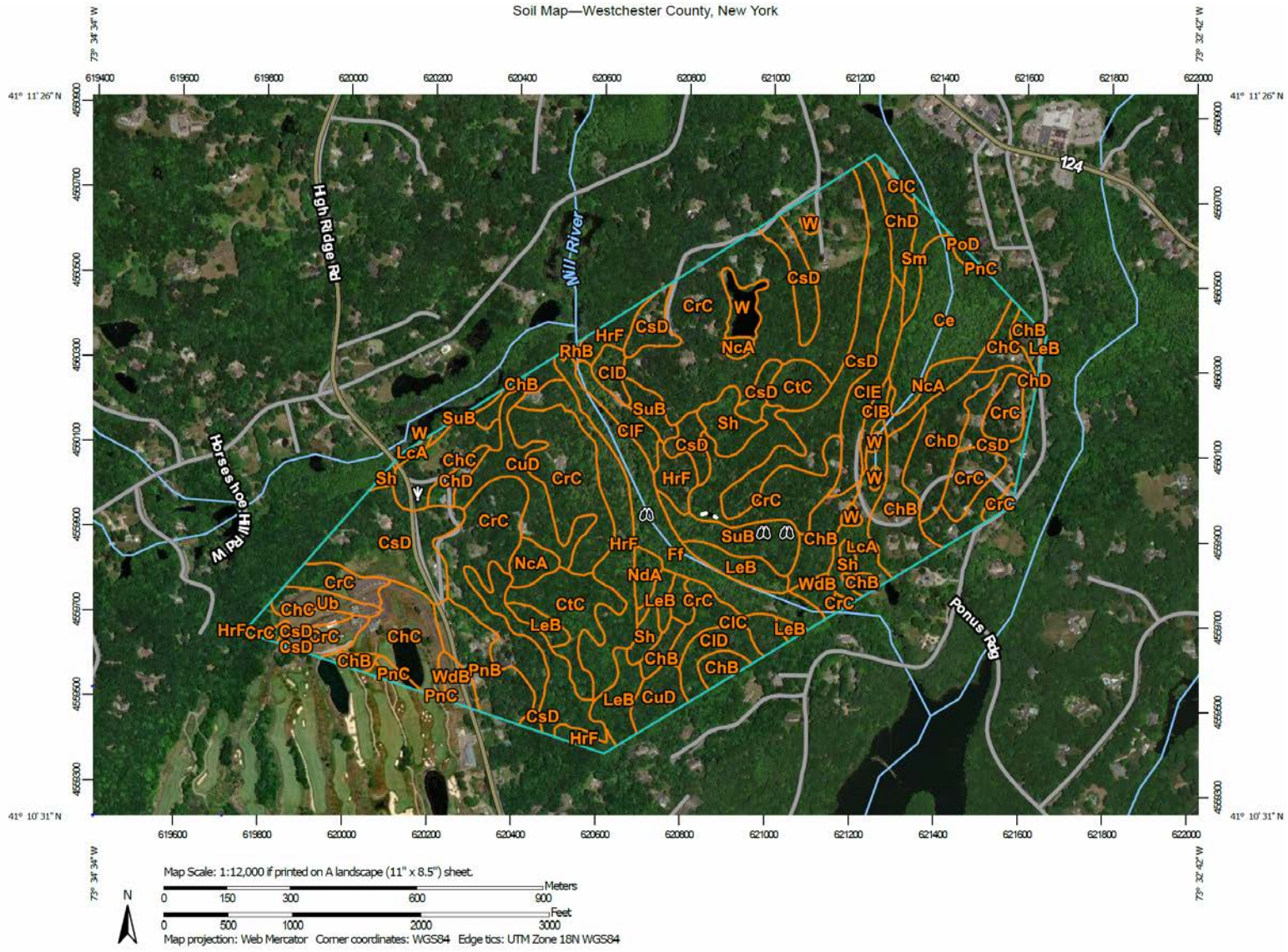


Figure 4.3-1 Oceanus Soils Map

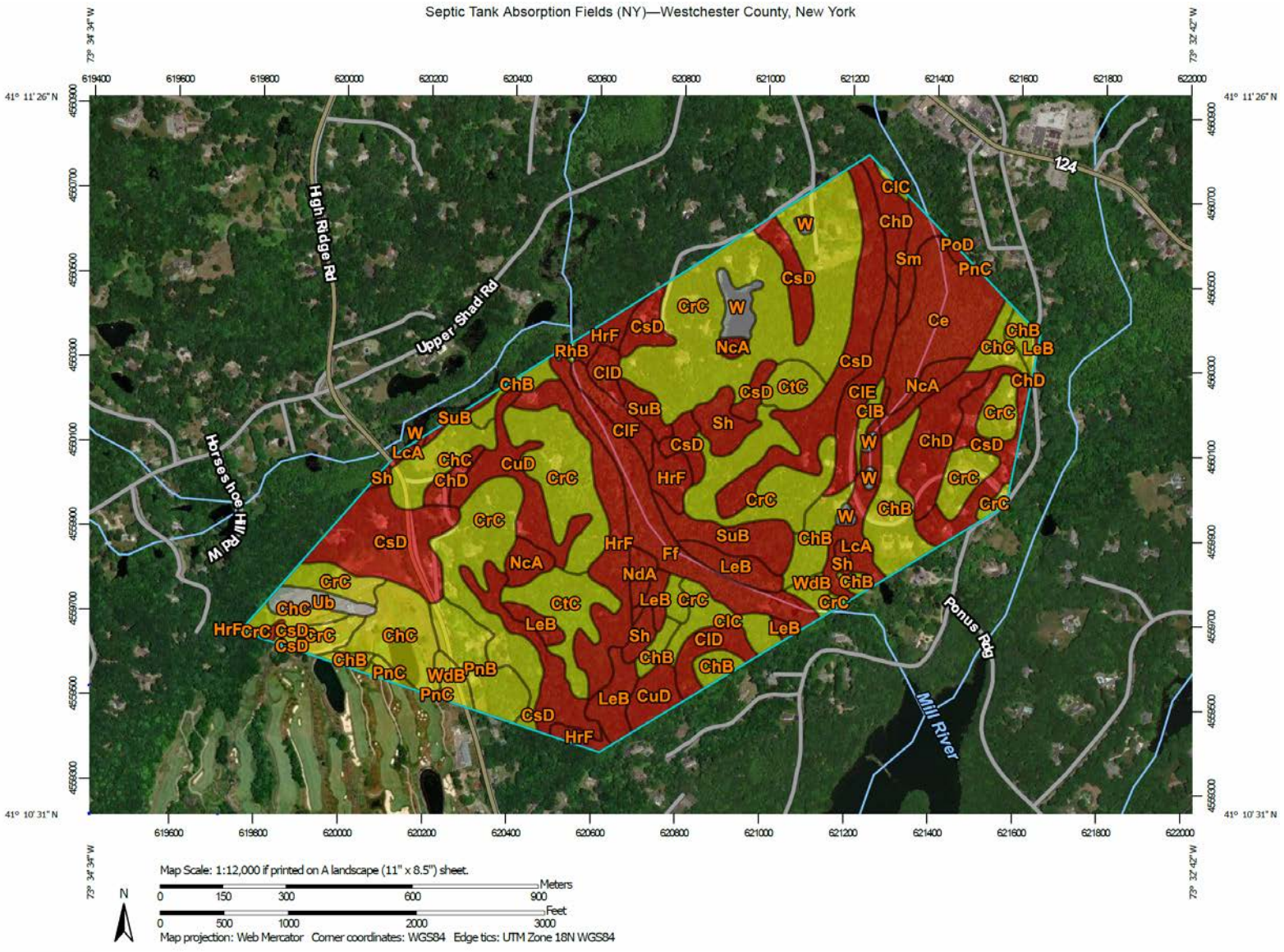


Figure 4.3-2 Oceanus Soil Ratings Map

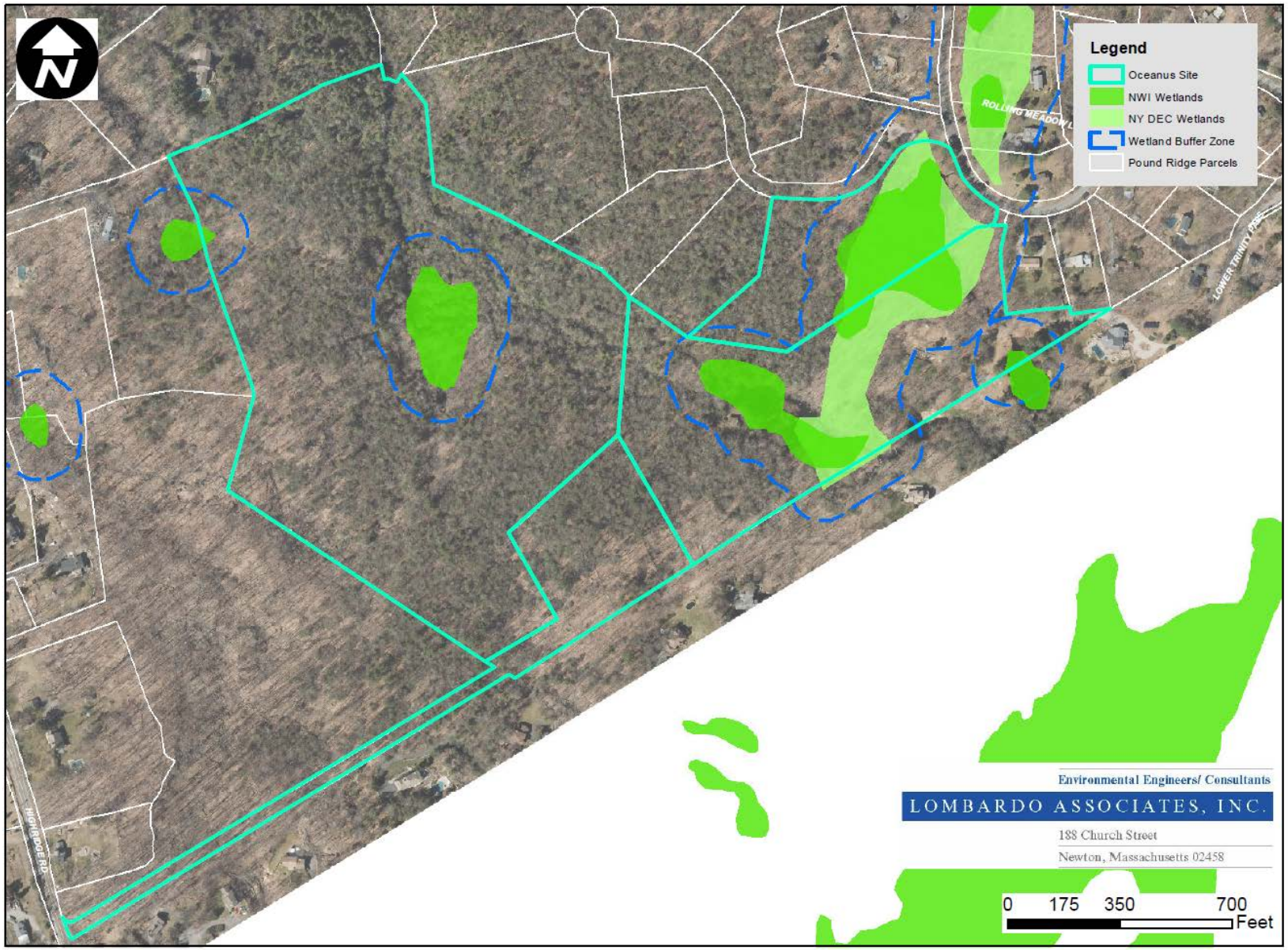


Figure 4.3-3 Oceanus Site Wetlands + Buffer Zones Map

Figure 4.3-4 Oceanus Site Slopes + Contours Map

Table 4.3-2 Oceanus Site Test Pit Summary 1

Pound Ridge Oceanus Site Test Pit Records												
Hole Depth	DH 1-1	DH 1-2	DH 1-3	DH 2-1	DH 2-2	DH 2-3	DH 3-1	DH 3-2	DH 3-3	DH 5-1	DH 5-2	DH 5-3
G.L.	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil
6"												
12"	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam
18"												
24"												
30"				Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands w/ Some Stone	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Sands w/ Stone	Moderately Compacted Coarse Sands w/ Some Gravel	Moderately Compacted Medium Coarse Sands w/ Stone			
36"	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands								Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands w/ Stones	Moderately Compacted Medium Fine Sands w/ Stones
42"												
48"			Moderately Compacted Medium Fine Sands									
54"												
60"				Rock / Pit Bottom		Rock / Pit Bottom	Rock / Pit Bottom		Rock / Pit Bottom			
66"	Rock / Pit Bottom	Rock / Pit Bottom						Rock / Pit Bottom				
72"			Rock / Pit Bottom		Rock / Pit Bottom					Rock / Pit Bottom	Rock / Pit Bottom	
78"												Rock / Pit Bottom
84"												

Table 4.3-3 Oceanus Site Test Pit Summary 2

Pound Ridge Oceanus Site Test Pit Records												
Hole Depth	**DH 6-1**	**DH 6-2**	**DH 6-3**	**DH 7-1**	**DH 7-2**	**DH 7-3**	**DH 8-1**	**DH 8-2**	**DH 8-3**	**DH 9-1**	**DH 9-2**	**DH 9-3**
G.L.	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil
6"												
12"	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam
18"												
24"												
30"				Moderately Compacted Coarse Sands w/ Gravel	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands
36"												
42"	Moderately Compacted Medium Sands	Moderately Compacted Medium Sands	Moderately Compacted Medium Fine Sands w/ Stones									
48"												
54"												
60"	Rock / Pit Bottom	Rock / Pit Bottom					Rock / Pit Bottom					
66"			Rock / Pit Bottom	Moderately Compacted Medium Sands				Rock / Pit Bottom	Rock / Pit Bottom	Rock / Pit Bottom		
72"											Rock / Pit Bottom	Rock / Pit Bottom
78"												
84"				Pit Bottom	Pit Bottom	Pit Bottom						

Table 4.3-4 Oceanus Site Test Pit Summary 3

Pound Ridge Oceanus Site Test Pit Records												
Hole Depth	DH 10-1	DH 10-2	DH 10-3	DH 12-1	DH 12-2	DH 12-3	DH 13-1	DH 13-2	DH 13-3	DH 14-1	DH 14-2	DH 14-3
G.L.	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil	Top Soil
6"												
12"	Moderately Compacted Sands w/ Some Stone	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Fine Sands w/ Some Stone	Moderately Compacted Sands w/ Some Cobbles	Moderately Compacted Medium Fine Sands w/ Some Cobbles	Moderately Compacted to Loose Compacted Medium Sands w/ Stones	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam	Moderately Compacted Medium Sandy Loam
18"												
24"		Moderately Compacted Medium Coarse Sands w/ Some Gravel					Moderate-Loose Compacted Medium Coarse Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands	Moderately Compacted Medium Fine Sands w/ Stone	Moderately Compacted Medium Fine Sands w/ Stone	Moderately Compacted Medium Fine Sands
30"												
36"												
42"												
48"	Moderately Compacted Medium Fine Sands		Moderately Compacted Medium Fine Sands w/ Some Silt		Moderately Compacted Medium Fine Sands							Rock / Pit Bottom
54"						Moderately Compacted Medium Fine Sands						
60"				Moderately Compacted Medium Fine Sands			Rock / Pit Bottom	Rock / Pit Bottom	Rock / Pit Bottom	Rock / Pit Bottom		
66"		Moderately Compacted Medium Fine Sands									Rock / Pit Bottom	
72"												
78"												
84"	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom	Pit Bottom						

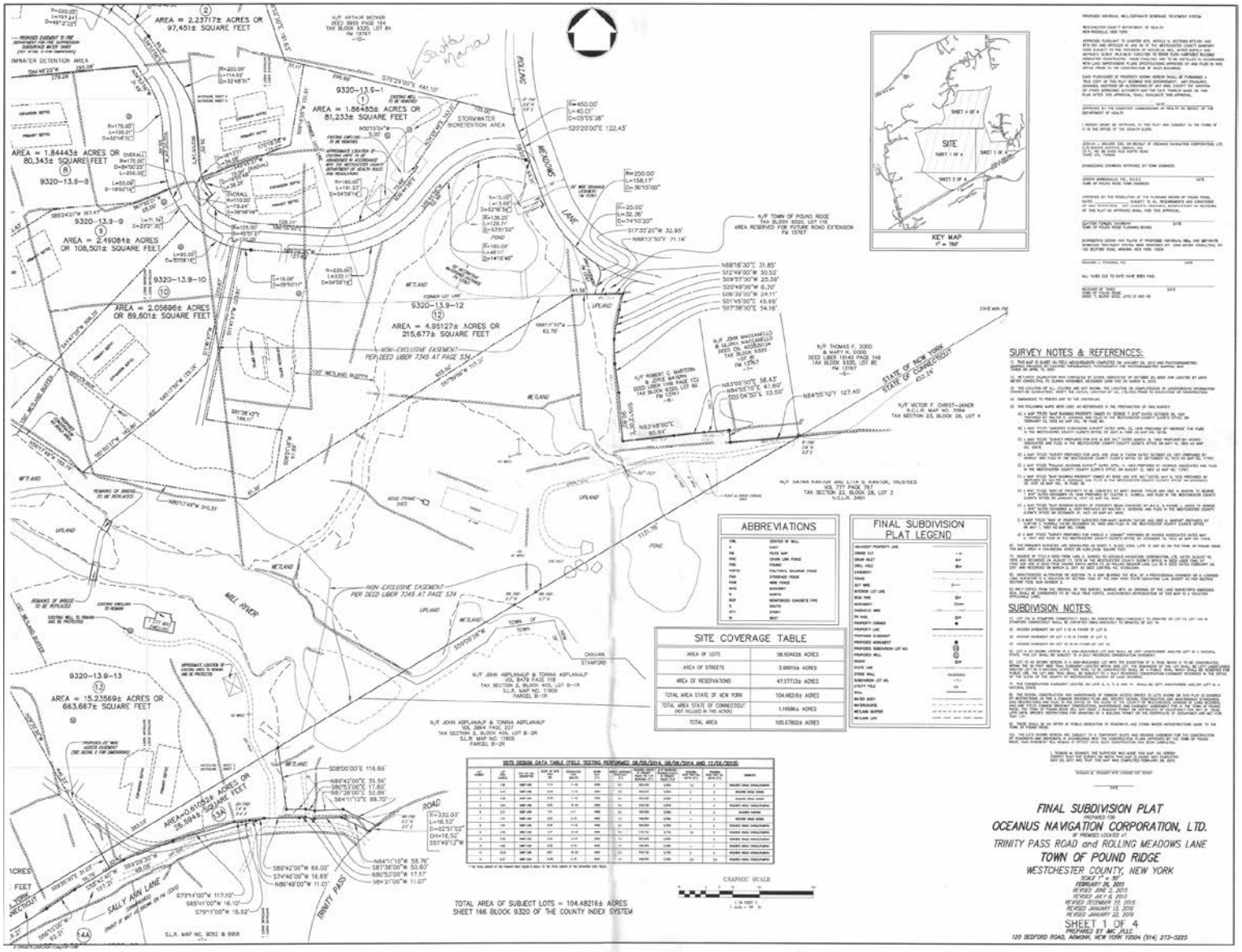


Figure 4.3-5 Oceanus Site Location Map 1

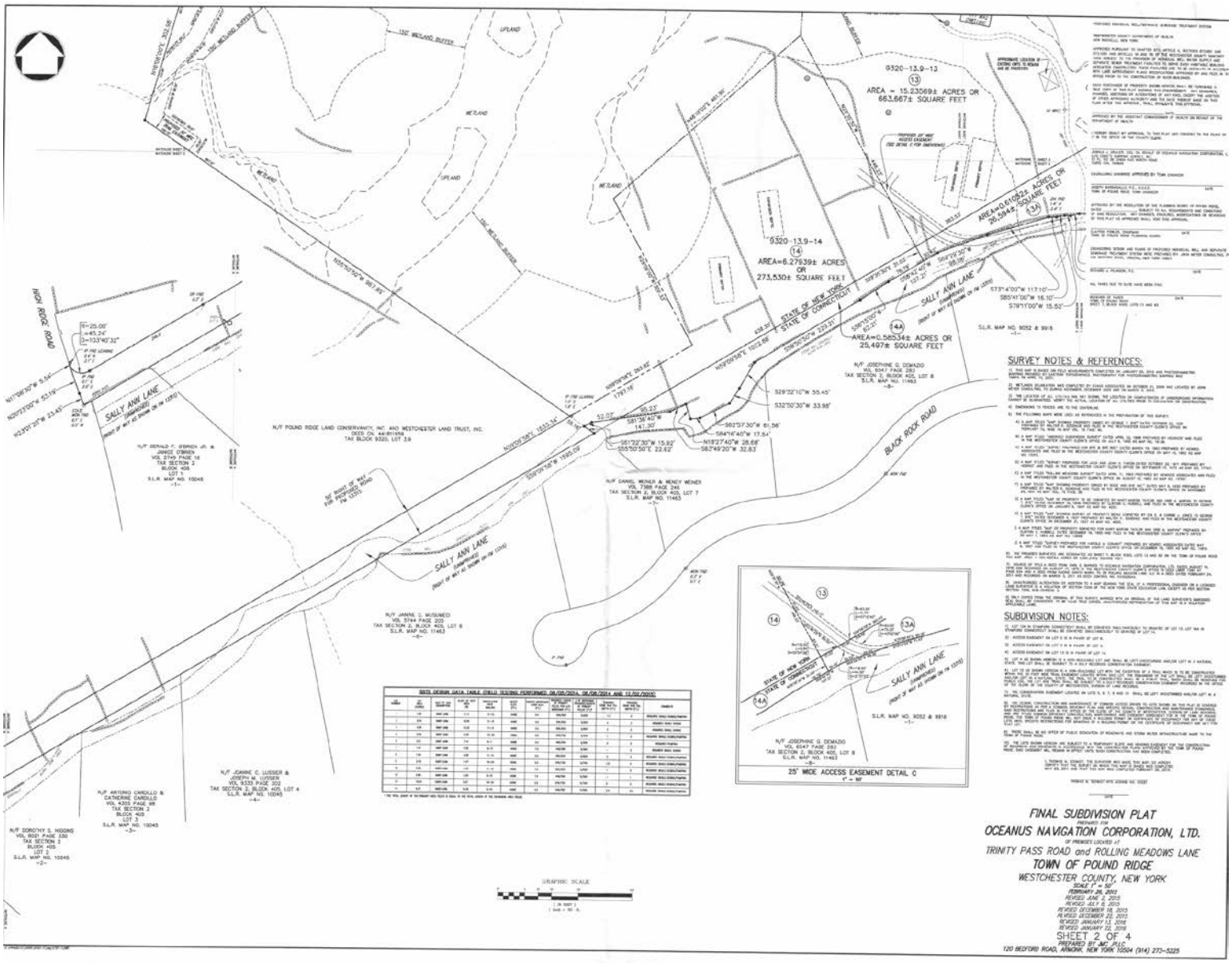


Figure 4.3-6 Oceanus Site Location Map 2

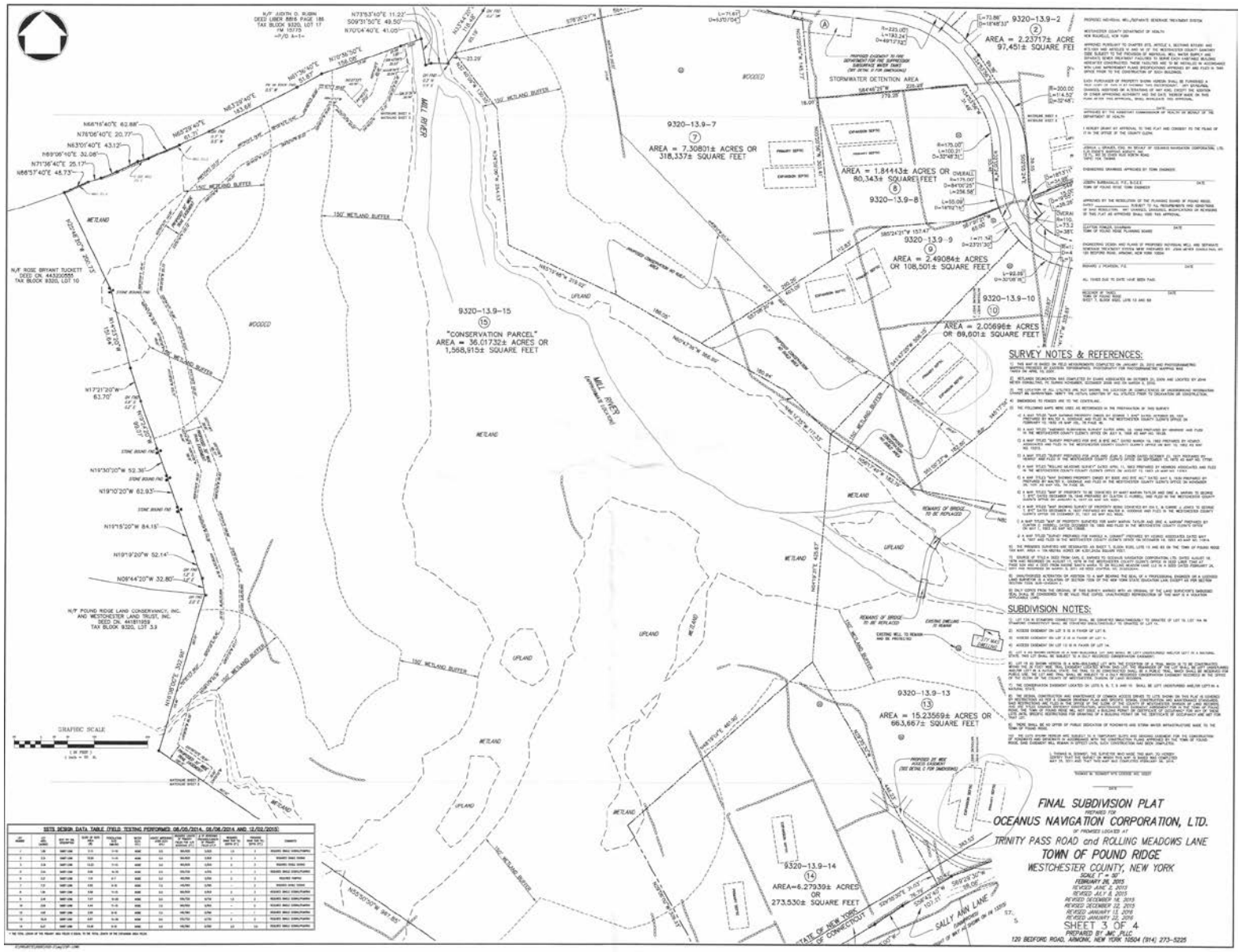


Figure 4.3-7 Oceanus Site Location Map 3

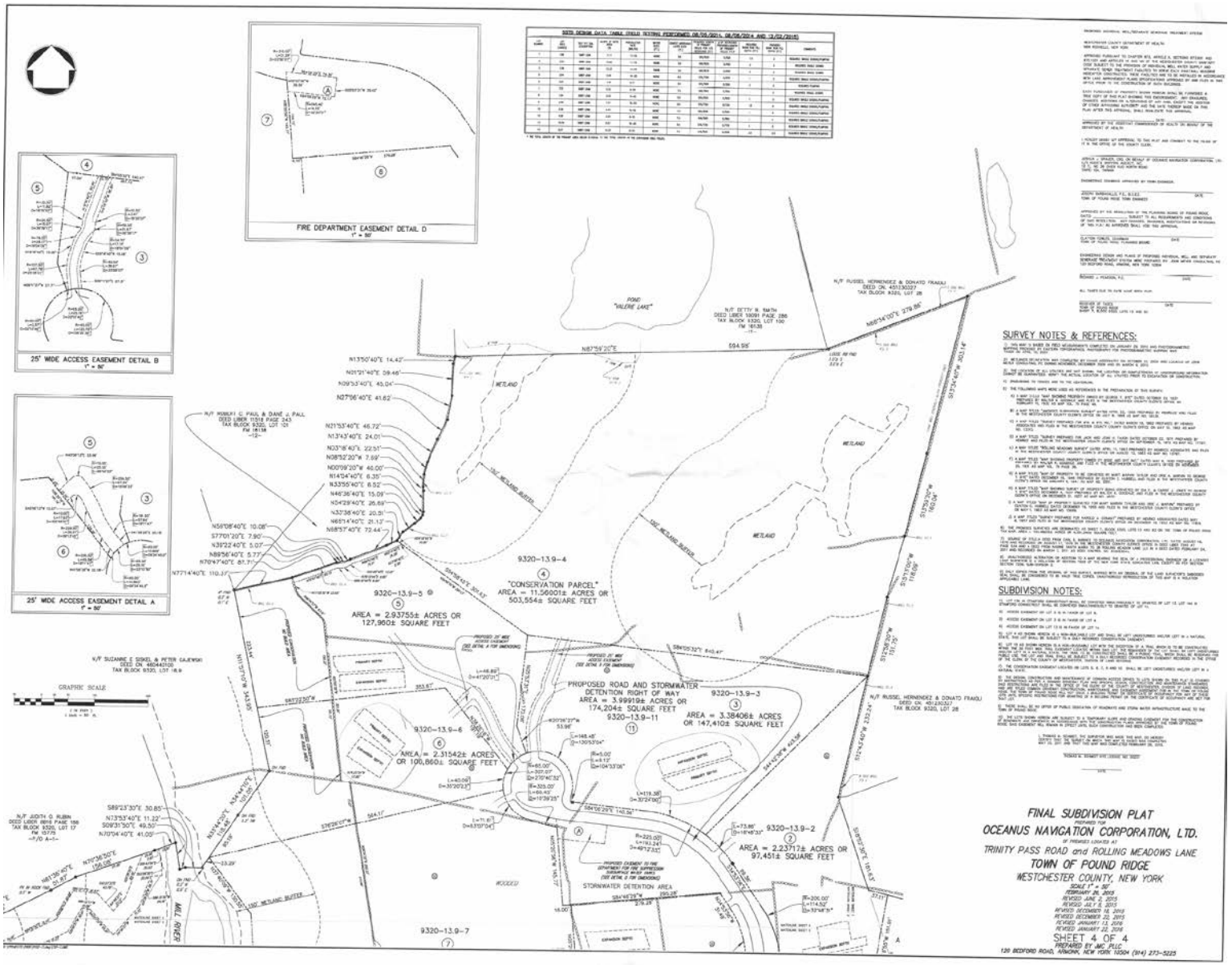


Figure 4.3-8 Oceanus Site Location Map 4

4.4 OLD POUND ROAD

The candidate site consists of one parcel, listed as 9820-16 according to the Pound Ridge Assessors Office and located adjacent to 7 Pound Road. The parcel is a vacant residential lot owned by David Kerr.

No portion of Old Pound Road lies within floodplain.

The following Test Pits and Percolation Test results were provided by the property Owner through their consultant Insite Engineering, Surveying & Landscape Architecture, P.C.

12 deep holes throughout the site and 6 preliminary percolation tests were performed. The majority of the deep test holes were 7' with no rock or groundwater encountered. Rock was encountered at 6' in a couple of the holes. The preliminary percolation tests indicated a perc rate at 10 min/in and under. Northern portion of the site was not tested.

Figure 4.4-1 Old Pound Road Soils Map

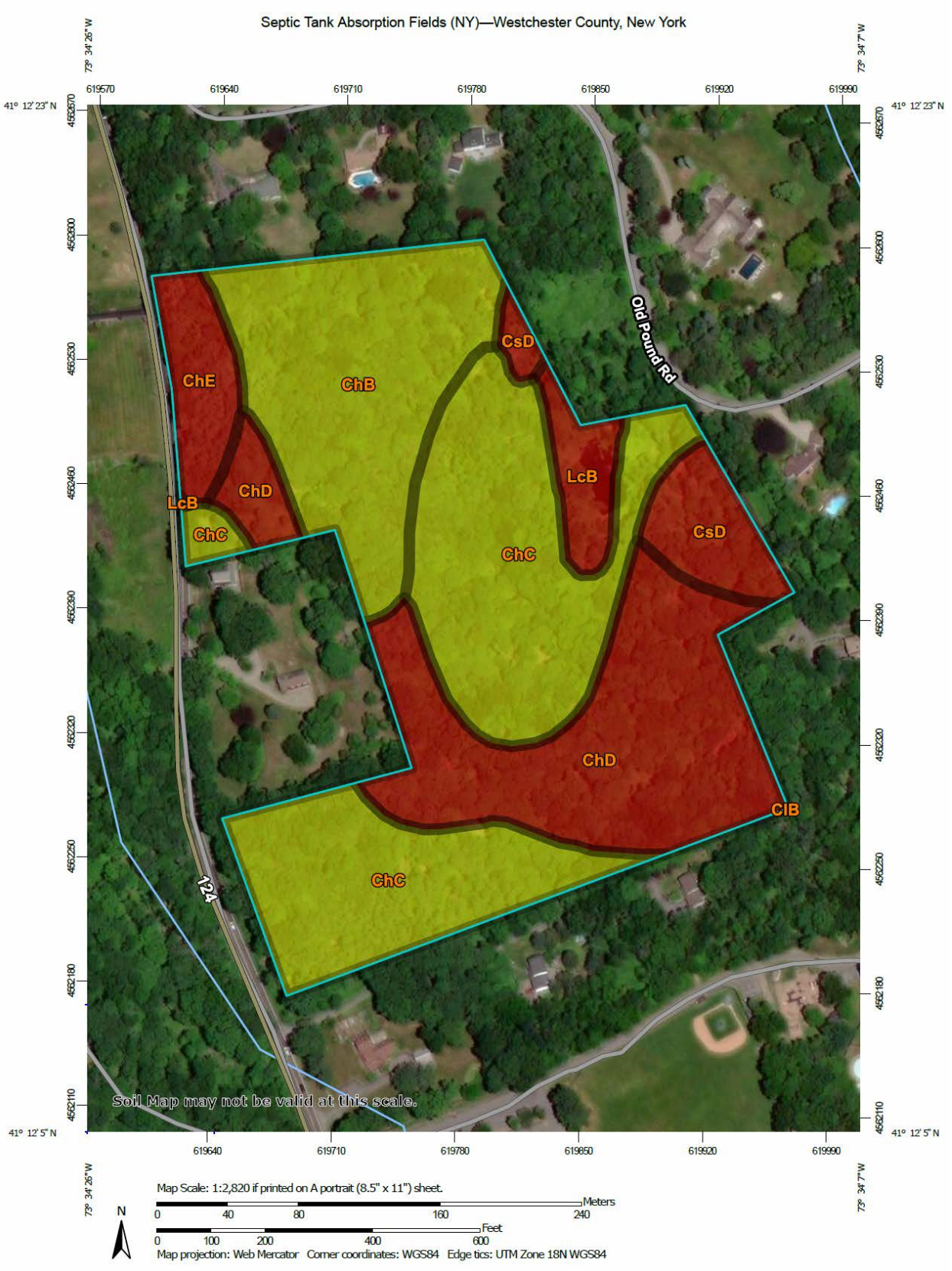


Figure 4.4-2 Old Pound Road Soils Rating Map

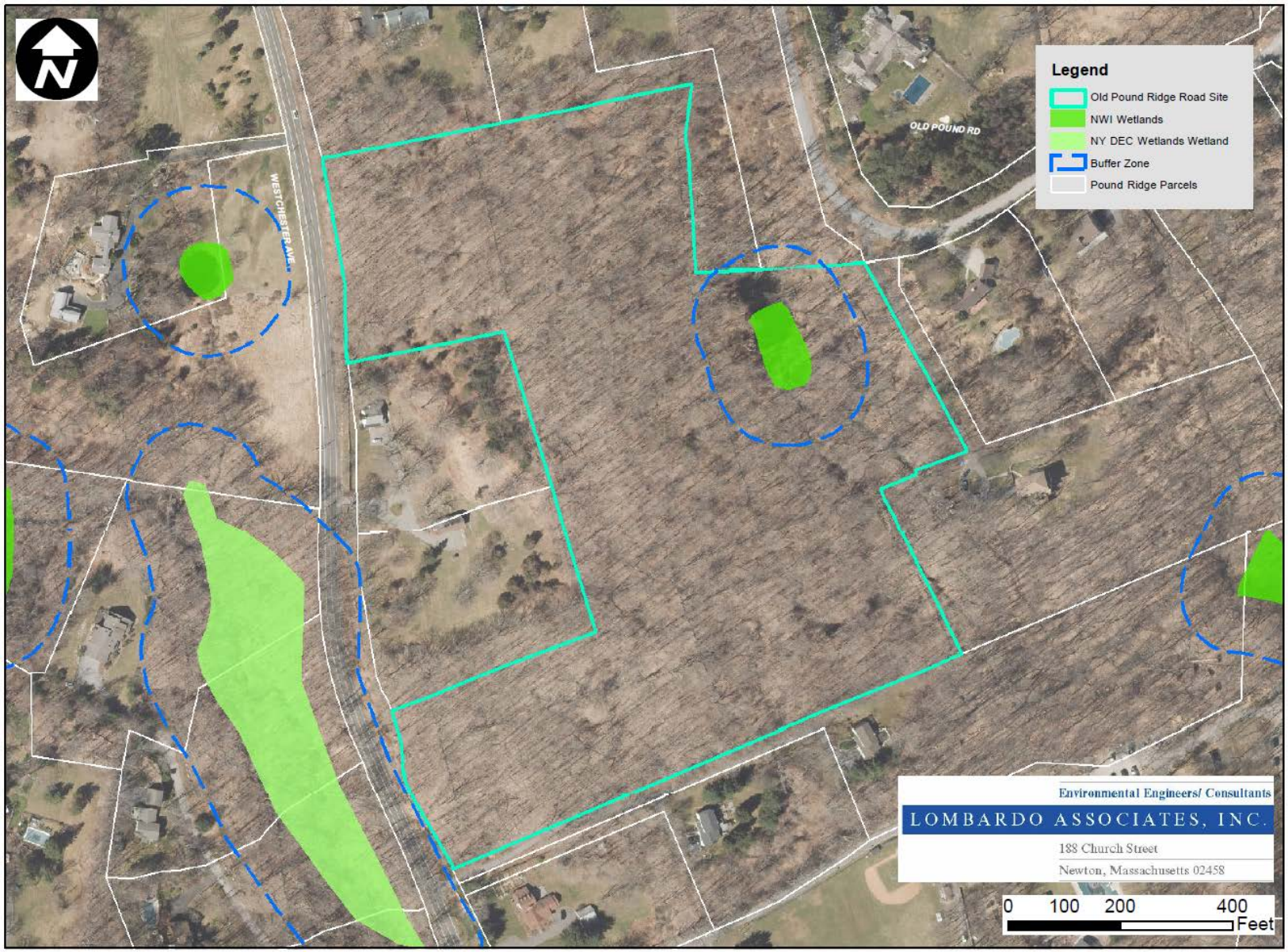


Figure 4.4-3 Old Pound Road Wetlands Map

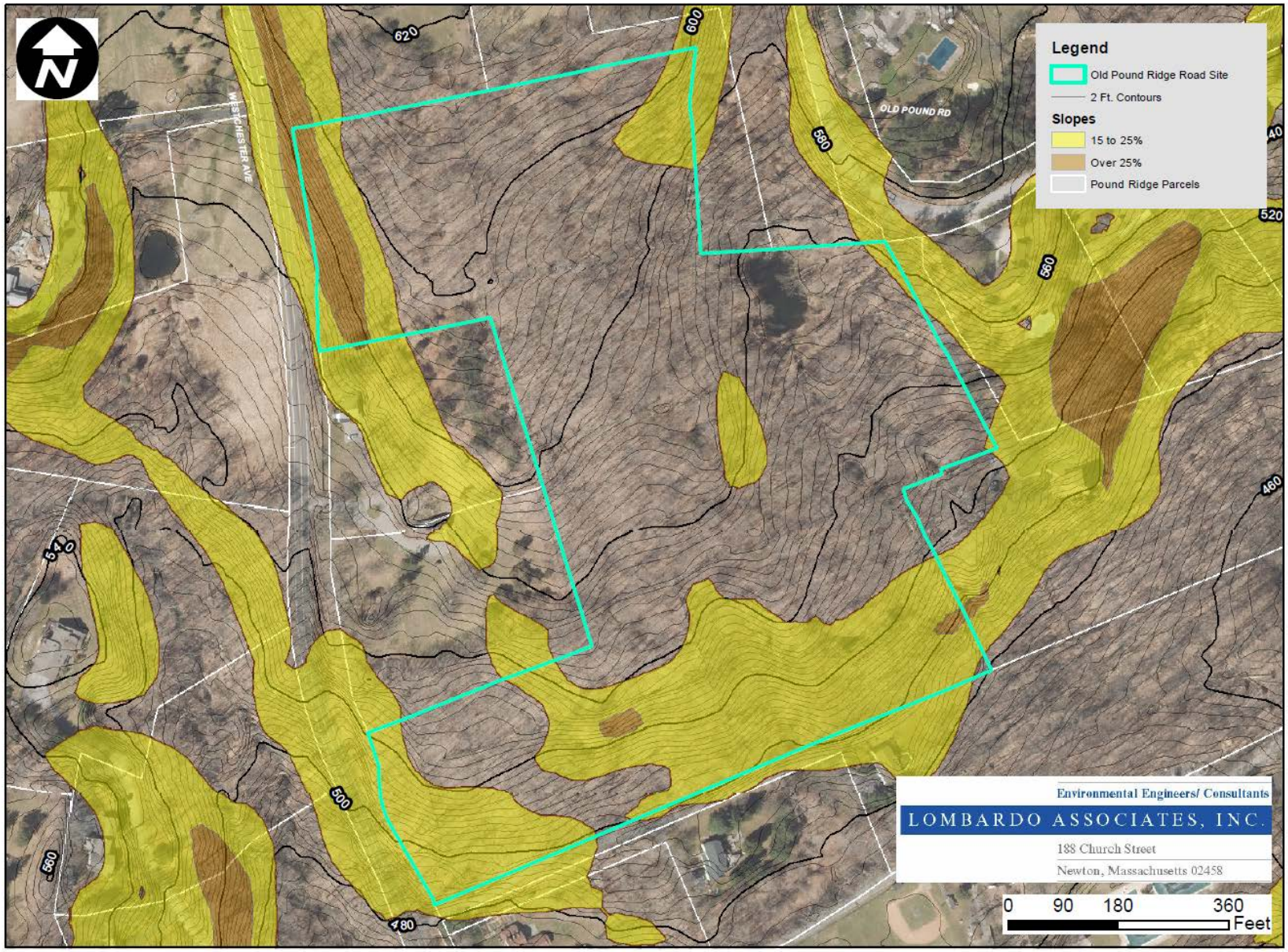


Figure 4.4-4 Old Pound Road Slopes Map

4.5 ELEMENTARY SCHOOL

The candidate site consists of two parcels, listed as 9816-46 & 9816-47 according to the Pound Assessors Office and located at 7 Pound Ridge Road. The parcel is the Pound Ridge Elementary School, owned by the Bedford Central School District. Information regarding the parcel has been collected below from Town of Pound Ridge Property Cards:

No portion of the Elementary School site lies within floodplain.

Table 4.5-1 Pound Ridge Elementary School Percolation Test and Test Pit Summary

Pound Ridge - Elementary School Site Perc. Test	
Perc. Test #	Perc. Rate (min./in.)
PT-1A	7.7
PT-2A	5.7
PT-3A	7
PT-4A	6.2
PT-1	3
PT-2	4
PT-3	4
PT-4	3
PT-5	3
PT-6	5
PT-7	4
PT-8	10

Pound Ridge Elementary School Test Pit Results	
Test Pit #	Depth to Bedrock/GW
TP-1A	Ledge @ 84"
TP-2A	Ledge @ 72"
TP-3A	No GW/Bedrock
TP-1	No GW/Bedrock
TP-2	No GW/Bedrock
TP-3	No GW/Bedrock
TP-4	GW @ 114"
TP-5	No GW/Bedrock
TP-6	GW @ 84"
TP-7	No GW/Bedrock
TP-8	GW & 96"
TP-9	No GW/Bedrock
TP-10	No GW/Bedrock
TP-11	No GW/Bedrock

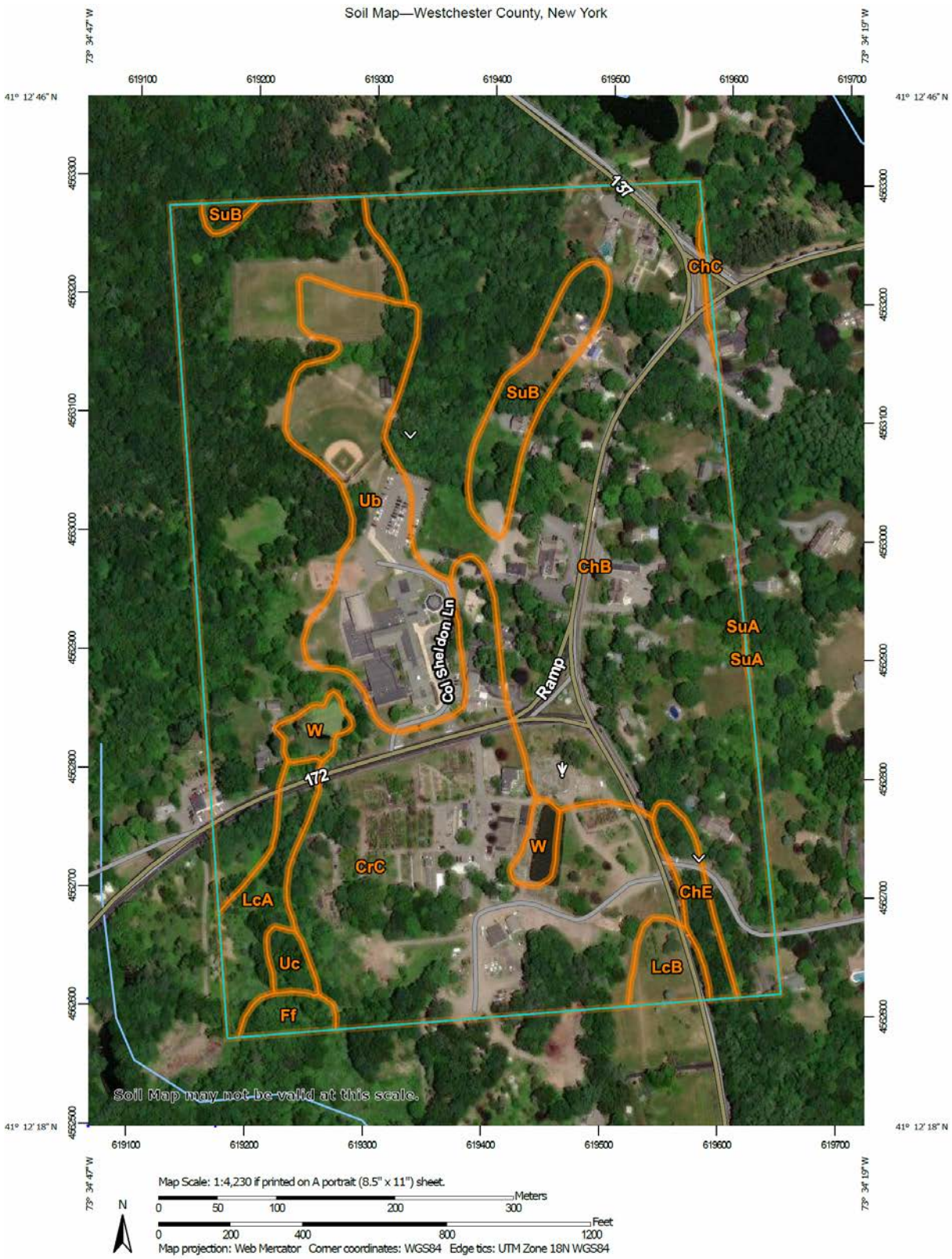


Figure 4.5-1 Elementary School Soils Map

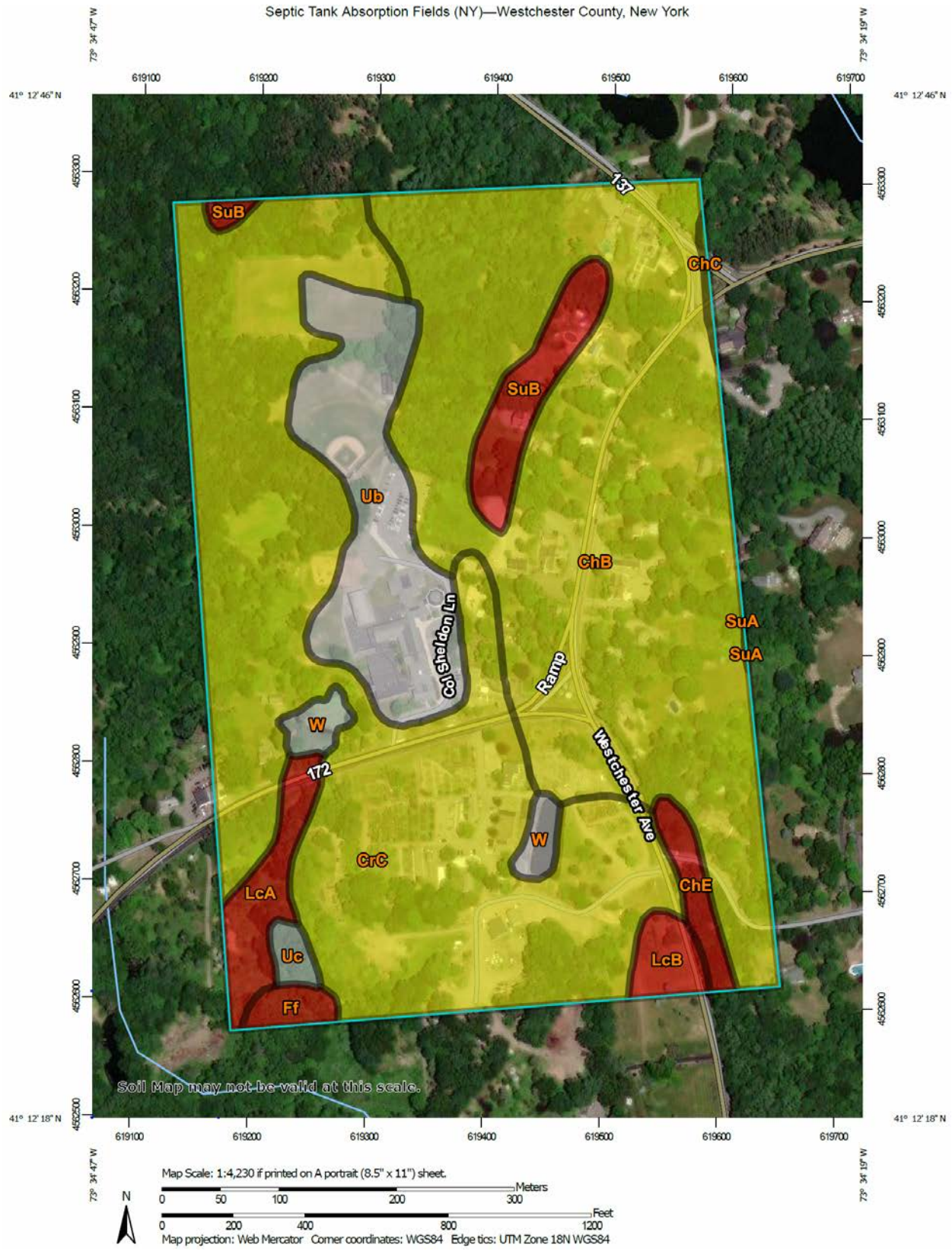


Figure 4.5-2 Elementary School Soil Ratings Map

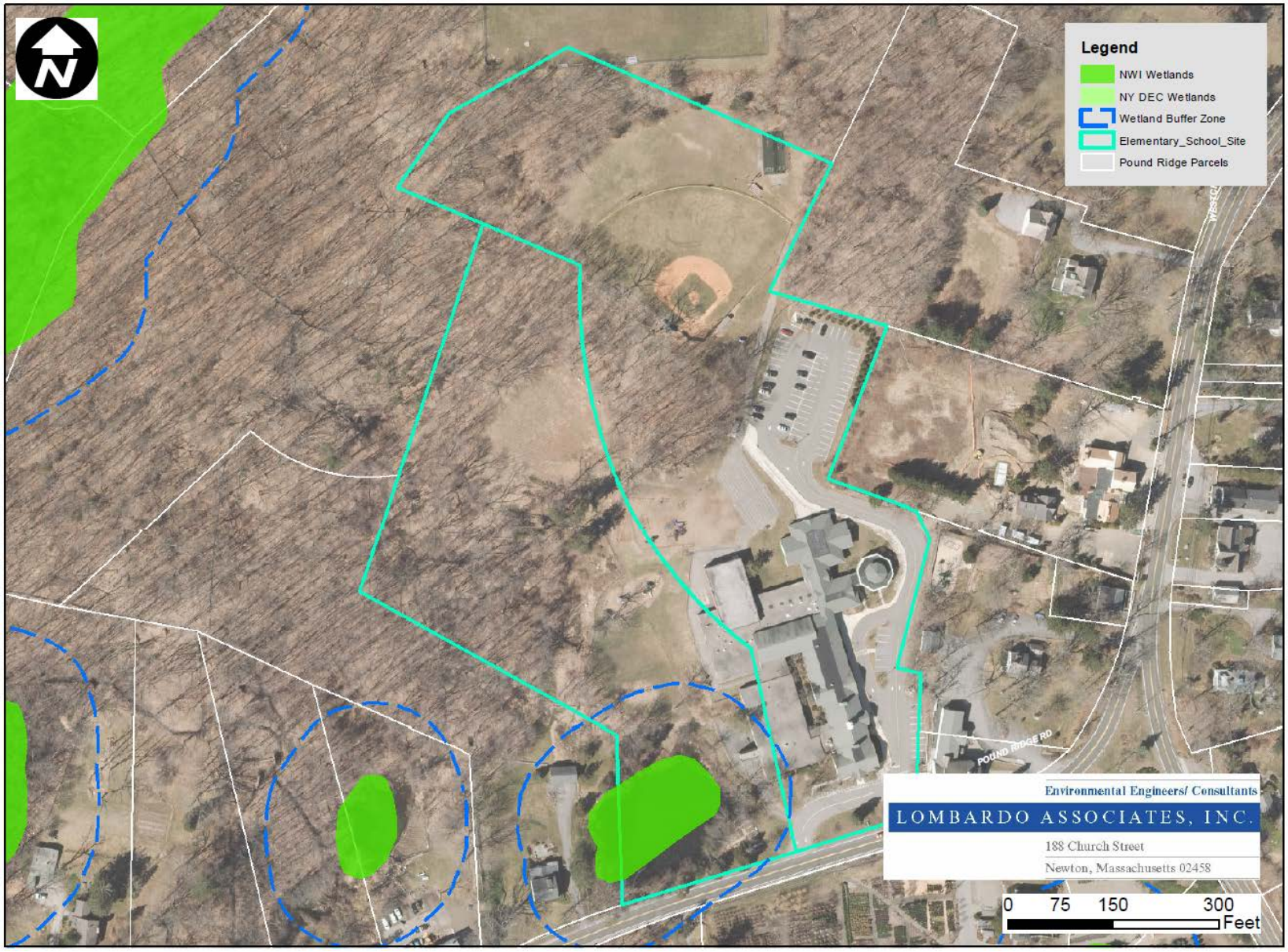


Figure 4.5-3 Elementary School Wetlands Map

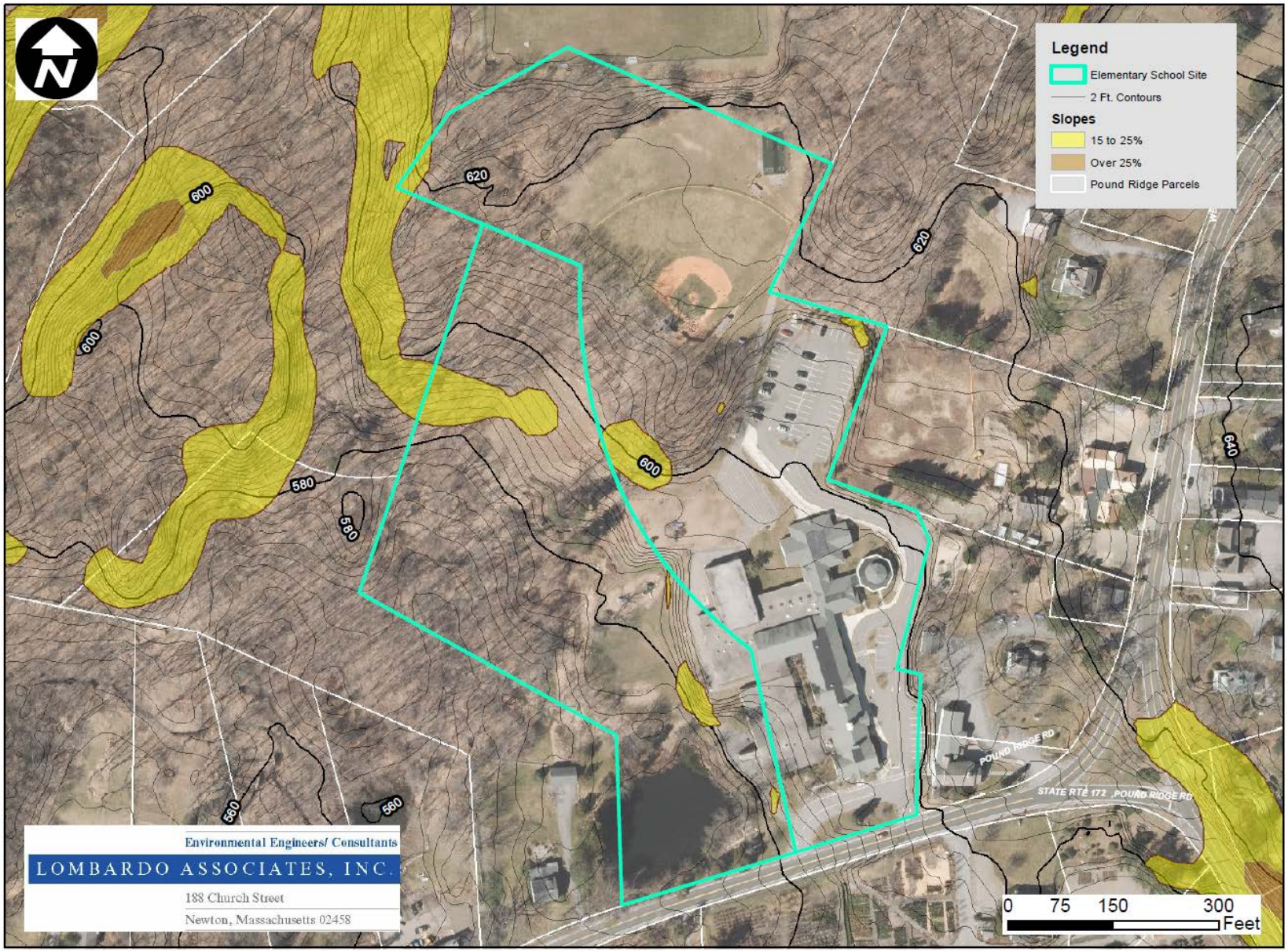


Figure 4.5-4 Elementary School Slope + Contours Map

Table 4.5-2 Pound Ridge Elementary School Test Pit Records

Pound Ridge Elementary School Test Pit Records														
Hole Depth	**TP-1**	**TP-2**	**TP-3**	**TP-4**	**TP-5**	**TP-6**	**TP-7**	**TP-8**	**TP-9**	**TP-10**	**TP-11**	**TP-1A**	**TP-2A**	**TP-3A**
G.L.	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots	Top Soil + Roots
6"														
12"	Brown f-c Sand, Some Silt	Brown f-c Sand and Silt, little f-c Gravel	Brown Silt, Some f-c Sand	Brown Silt, little f-c Sand	Brown Silt, little f-c Sand	Brown Silt, little f-c Sand	Brown Silt, little f-c Sand	Brown Silt, f-c Sand	Brown Silt, little f-c Sand	Brown Silt, little f-c Sand	Brown Silt, little f-c Sand	Brown f-c Sand, trace Silt	Brown f-c Sand, trace Silt	Brown f-c Sand, some Silt
18"														
24"														
30"														
36"														
42"	Brown / grey Sand, Some f-c Gravel, trace Silt		Brown / grey Sand, Some Silt, trace f-c Gravel			Brown/ grey Silt, Some f-c Sand, little f-c Gravel; 42" Mottling	Grey Decomp. Rock	Brown/ grey f-c Sand, some f-c Gravel, little Silt, cobbles	Brown/grey Sand, some f-c Gravel, litte Silt, Decomp. Rock	Brown Silt, little f-c Sand			Brown / grey Sand, Some f-c Gravel, trace Silt	
48"														
54"		Brown / grey Sand, little f-c Gravel, trace Silt		Brown / grey Sand, Some f-c Gravel, trace Silt, cobbles (decomp. rock)			Pit Bottom				Brown / grey Sand, some f-c Gravel, litte Silt, Decomp. Rock			Brown/ grey Sand, Some f-c Gravel, trace Silt
60"	Pit Bottom		Pit Bottom		Brown / grey Sand, Some Silt, little f-c Gravel									
66"														
72"													Pit Bottom, Ledge	
78"						Brown / grey Sand, some f-c Gravel, litte Silt, (dcomp rock)				Brown / grey Sand, Some Silt, little f-c Gravel		Brown / grey Sand, Some f-c Gravel, trace Silt		Decomp. Rock
84"		Pit Bottom		114" GW, 120" Pit Bottom	96" Pit Bottom	84" GW, 102" Pit Bottom		96" Decomp. Rock, 102" Pit Bottom	90" Decomp. Rock, 90" Pit Bottom	96" Pit Bottom	Pit Bottom	Pit Bottom, Ledge		Pit Bottom

4.6 TOWN LAND ADJACENT TO SCHOOL

The candidate site consists of one parcel, listed as 9816-142, according to the Pound Ridge Assessors Office and located behind the Pound Ridge Elementary School. The parcel is a vacant lot owned by the Town.

No portion of the School Adjacent site lies within Floodplain.

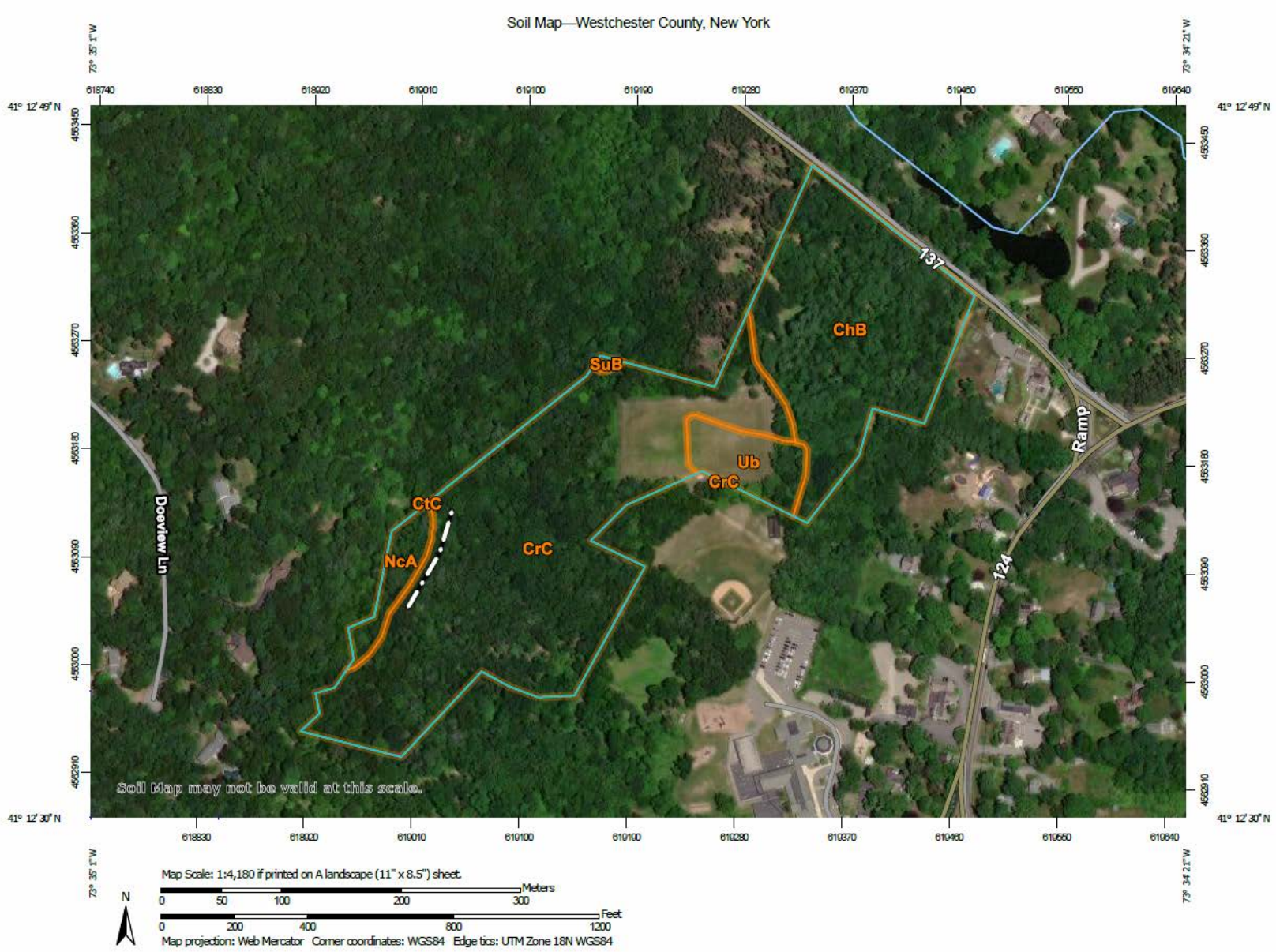


Figure 4.6-1 School Adjacent Land Soils Map

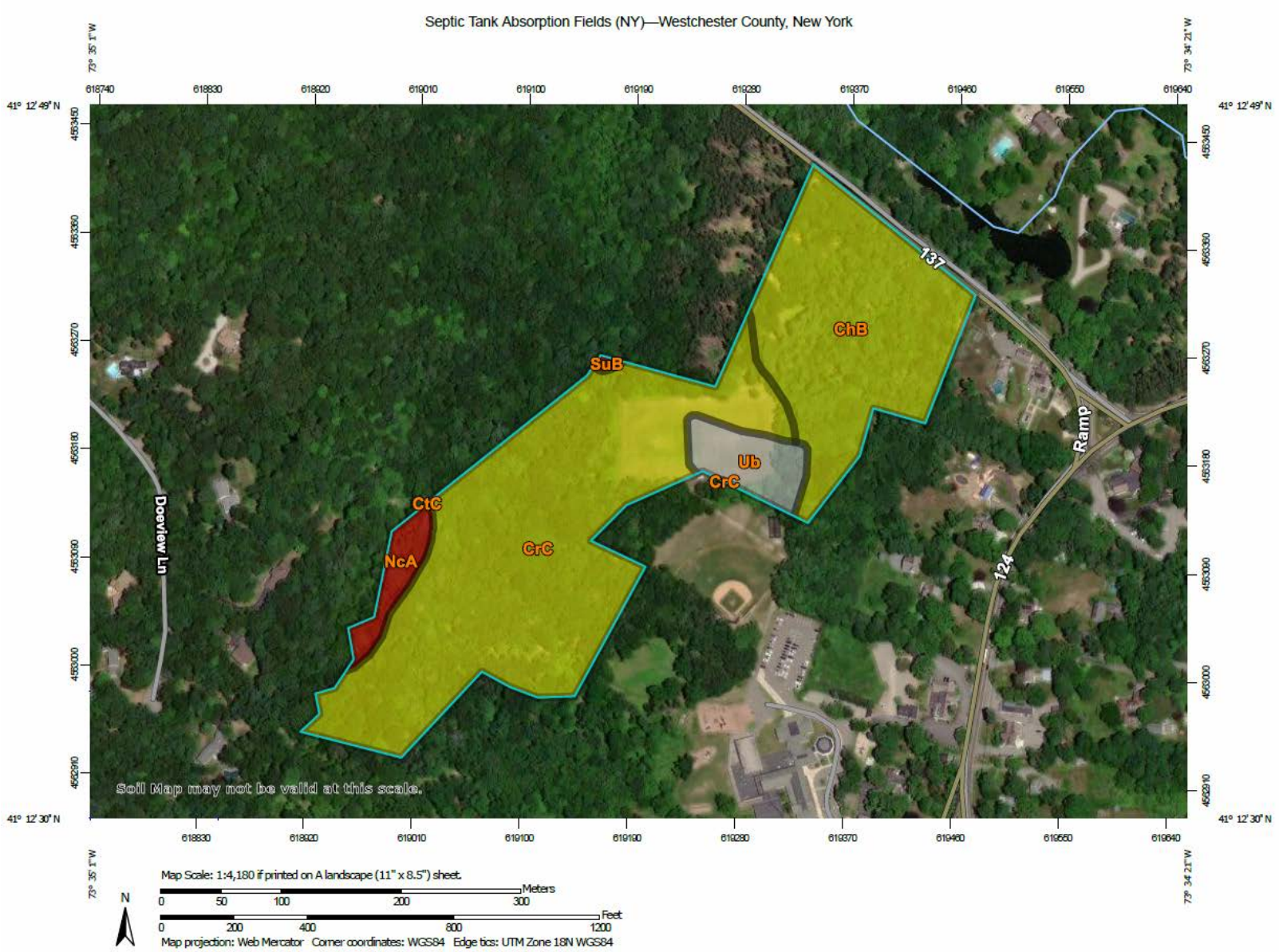


Figure 4.6-2 School Adjacent Land Soils Map

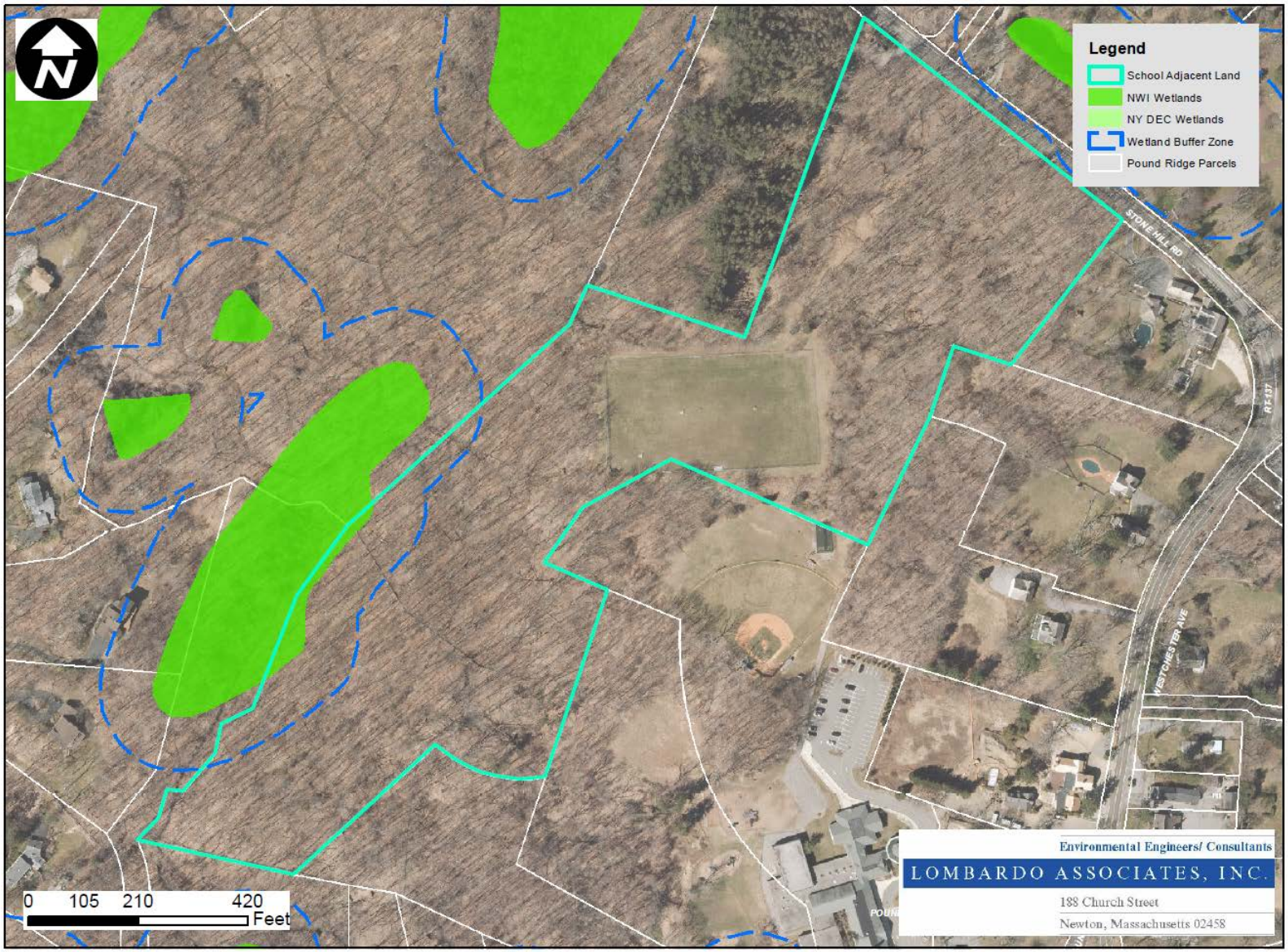


Figure 4.6-3 School Adjacent Land - Wetlands Map

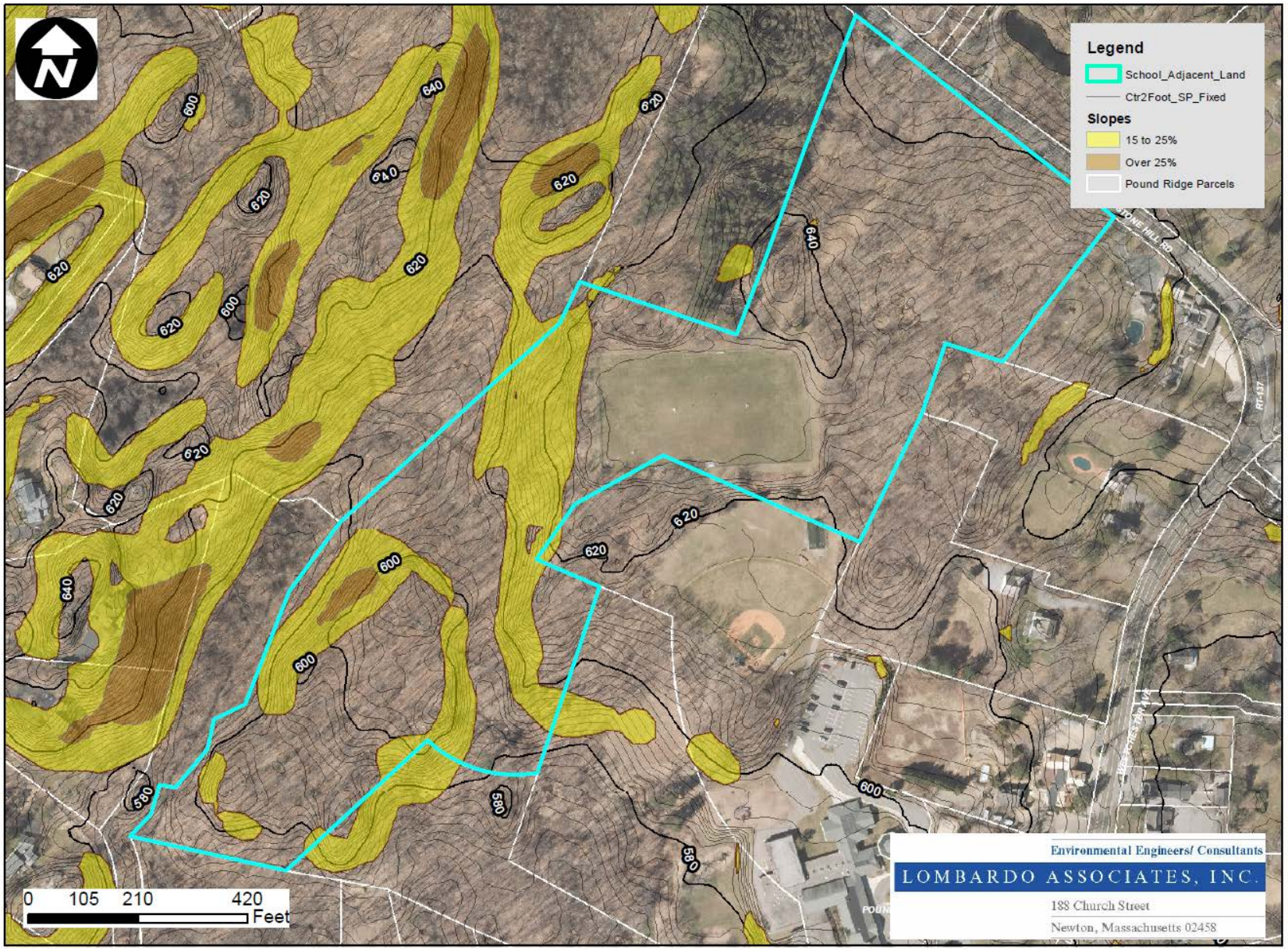


Figure 4.6-4 School Adjacent Land - Slopes + Contours Map

4.7 CLARK PROPERTY

The candidate site consists of two parcels, listed as 9454-16 & 9454-17 according to the Pound Ridge Assessors Office and located, respectively, at 12 (1.73 acres) and 16 (2.04 acres) Trinity Pass Road. The parcels are owned by Mary Clark.

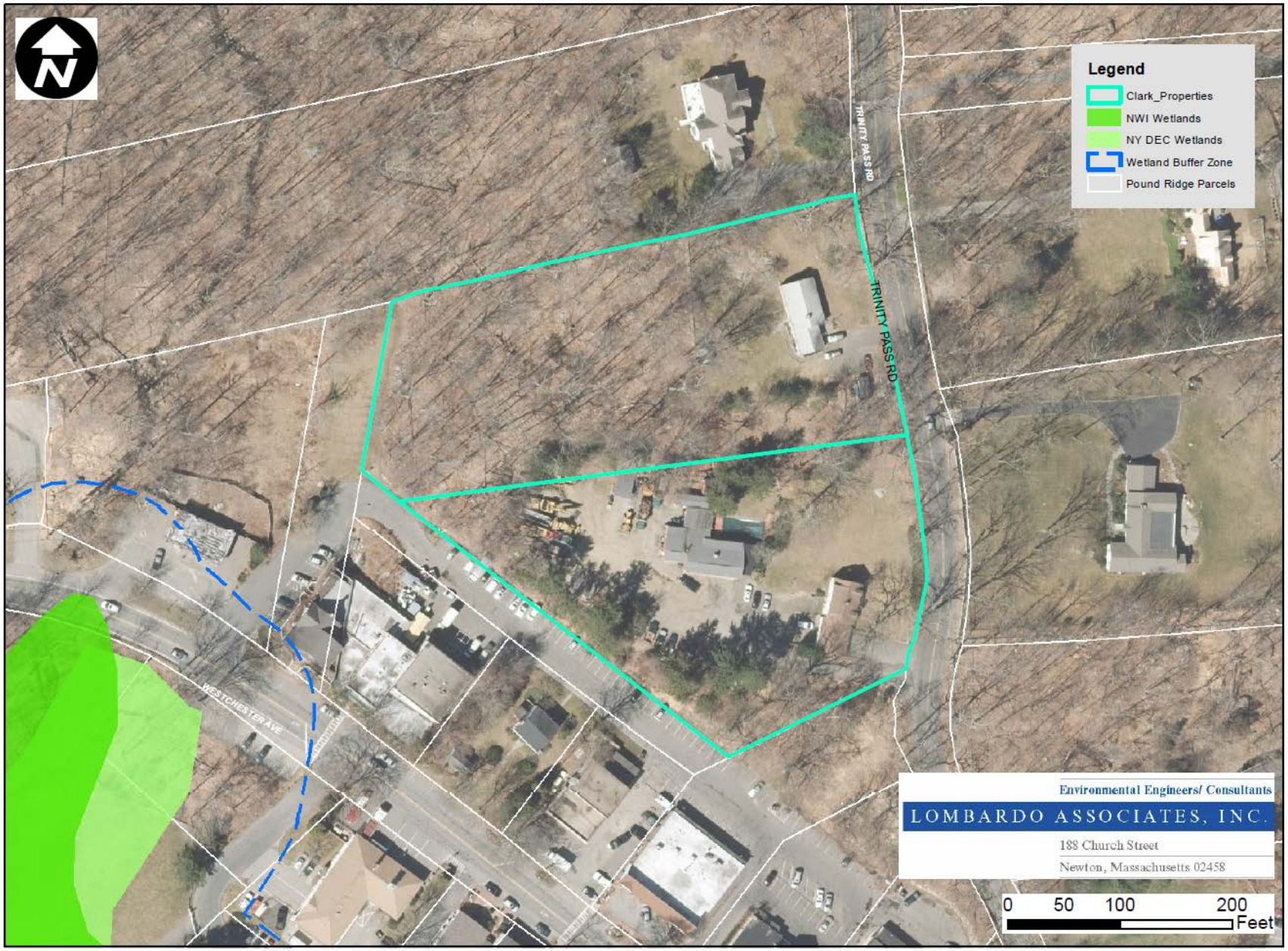


Figure 4.7-1 Clark Properties Wetlands Map

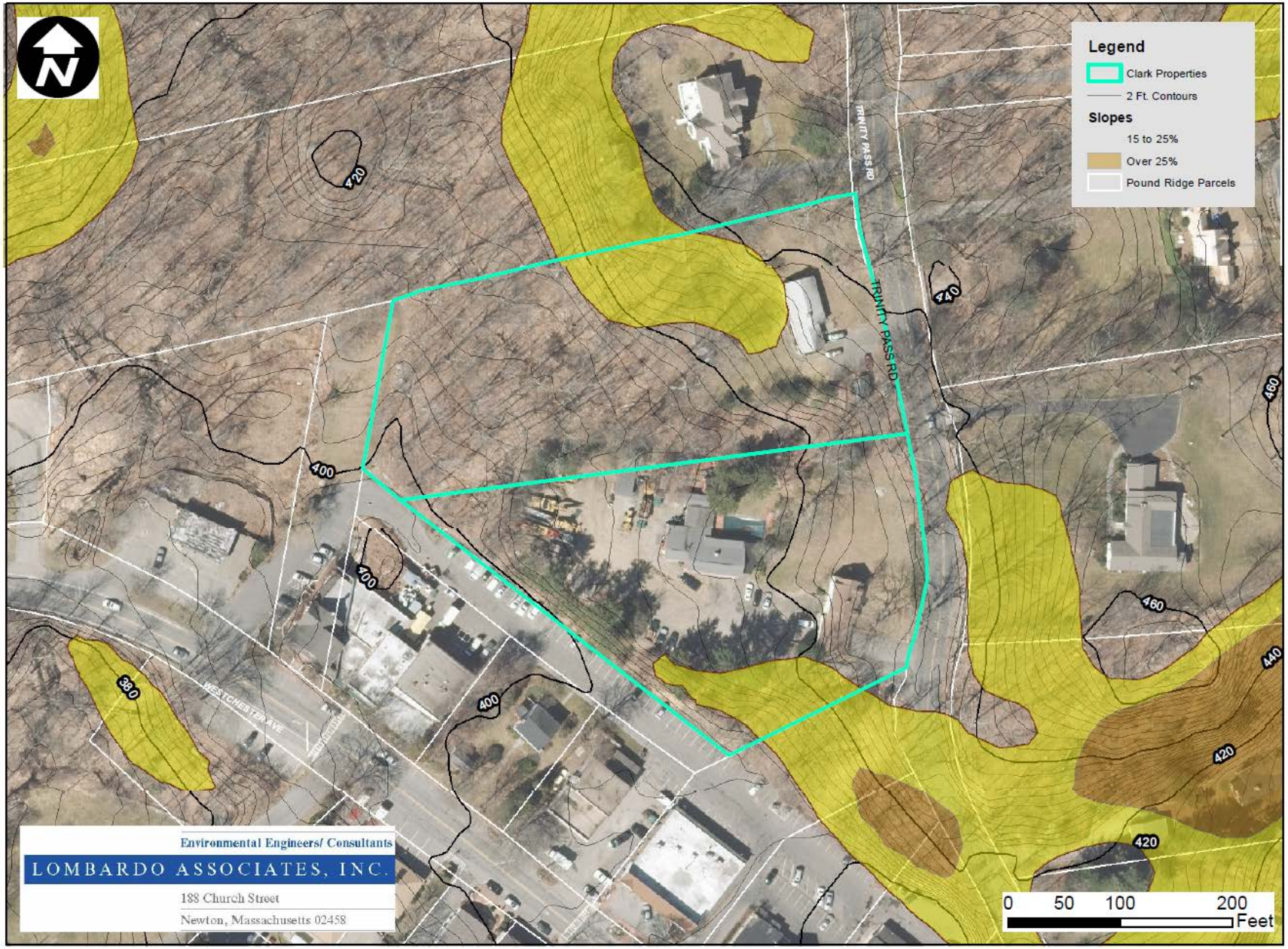


Figure 4.7-2 Clark Properties Slopes & Contours Map

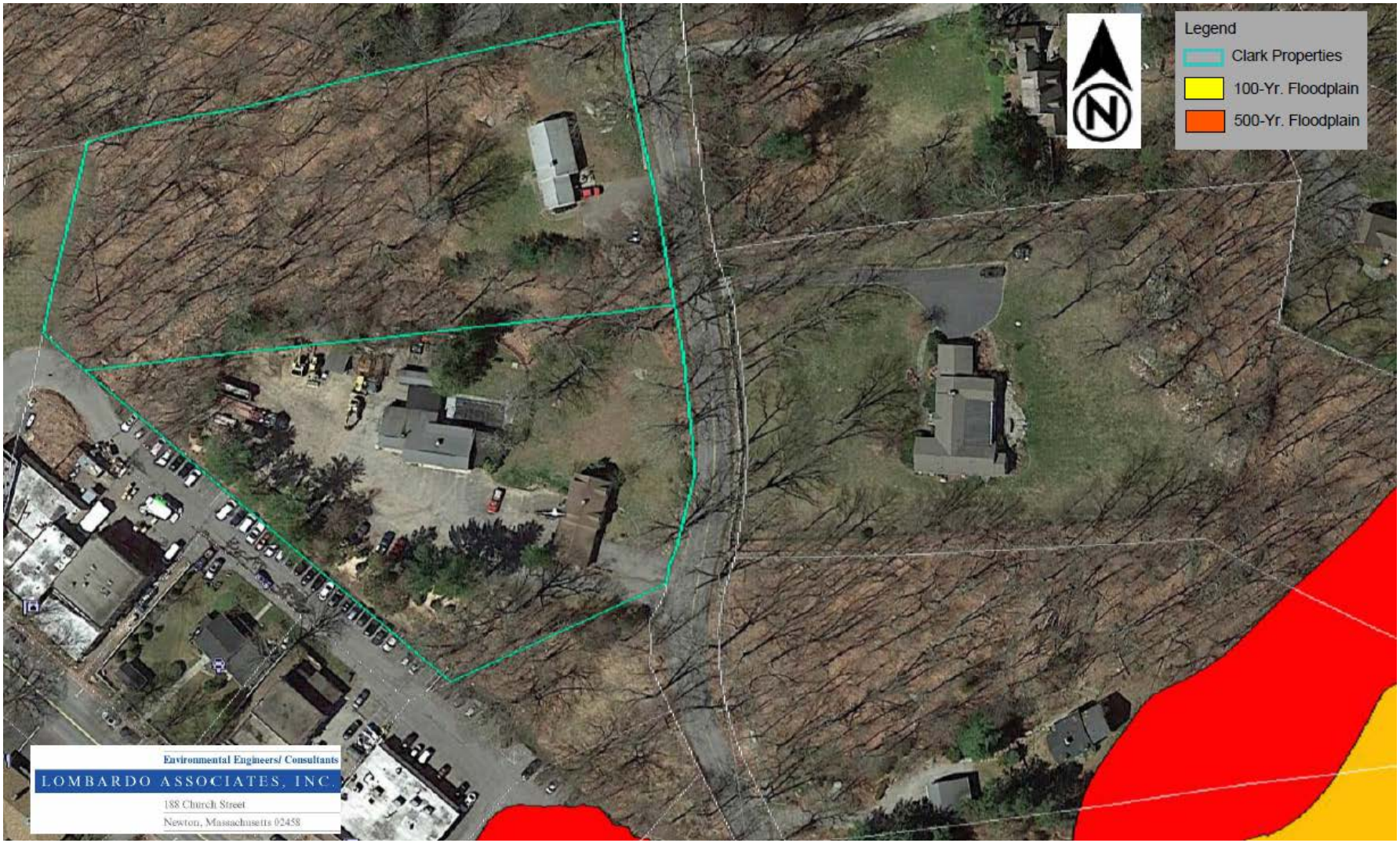


Figure 4.7-3 Clark Properties Floodplains Map

4.8 BARNEGAT ROAD SITE

The candidate site consists of one parcel, listed as 9457-12 according to the Pound Ridge Assessors Office and located at 169 (27.17 acres) Barnegat Road. The parcel is owned by Zinman Family LLC.

Table 4.8-1 presents Test Pits and Percolation Test results that was provided by the property Owner through their Engineer Kellard Sessions Consulting.

Table 4.8-1 Barnegat Road Test Pit Summary

Pound Ridge Barnegat Road Percolation Test Summary		
Percolation Test #	Percolation Test Depth	Percolation Rate (min./in.)
PT 1-1	28"	5.3
PT 1-2	28"	5.0
PT 1-3	29"	4.0
PT 1-4	28"	4.0
PT 1-6	28"	4.3
PT 2-2	30"	3.3
PT 2-3	27"	3.6
PT 2-4	28"	4.0
PT 2-6	27"	4.3
PT 2-7	28"	4.0
PT 2-8	28"	3.3
PT 2-9	29"	4

Pound Ridge Barnegat Road Test Pit Summary	
Test Pit #	Depth to Bedrock/GW
TP 1-1	Ledge @ 44"
TP 1-2	Ledge @ 44"
TP 1-3	Ledge @ 53"
TP 1-4	Ledge @ 45"
TP 1-6	Ledge @ 55"
TP 1-7	Ledge @ 44"
TP 1-8	Ledge @ 52"
TP 2-2	Ledge @ 50"
TP 2-3	Ledge @ 48"
TP 2-4	Ledge @ 57"
TP 2-5	Ledge @ 48"
TP 2-6	Ledge @ 46"
TP 2-7	Ledge @ 44"
TP 2-8	Ledge @ 50"
TP 2-9	Ledge @ 48"
TP 11	BR @ 44"
TP 12	BR @ 44"
TP 13	BR @ 53"
TP 16	BR @ 55"
TP 17	BR @ 44"
TP 18	BR @ 52"
TP 19	BR @ 44"
TP 22	BR @ 50"
TP 23	BR @ 42"
TP 24	BR @ 57"
TP 25	BR @ 47"
TP 26	BR @ 46"
TP 27	BR @ 47"
TP 28	BR @ 50"
TP 29	BR @ 45"

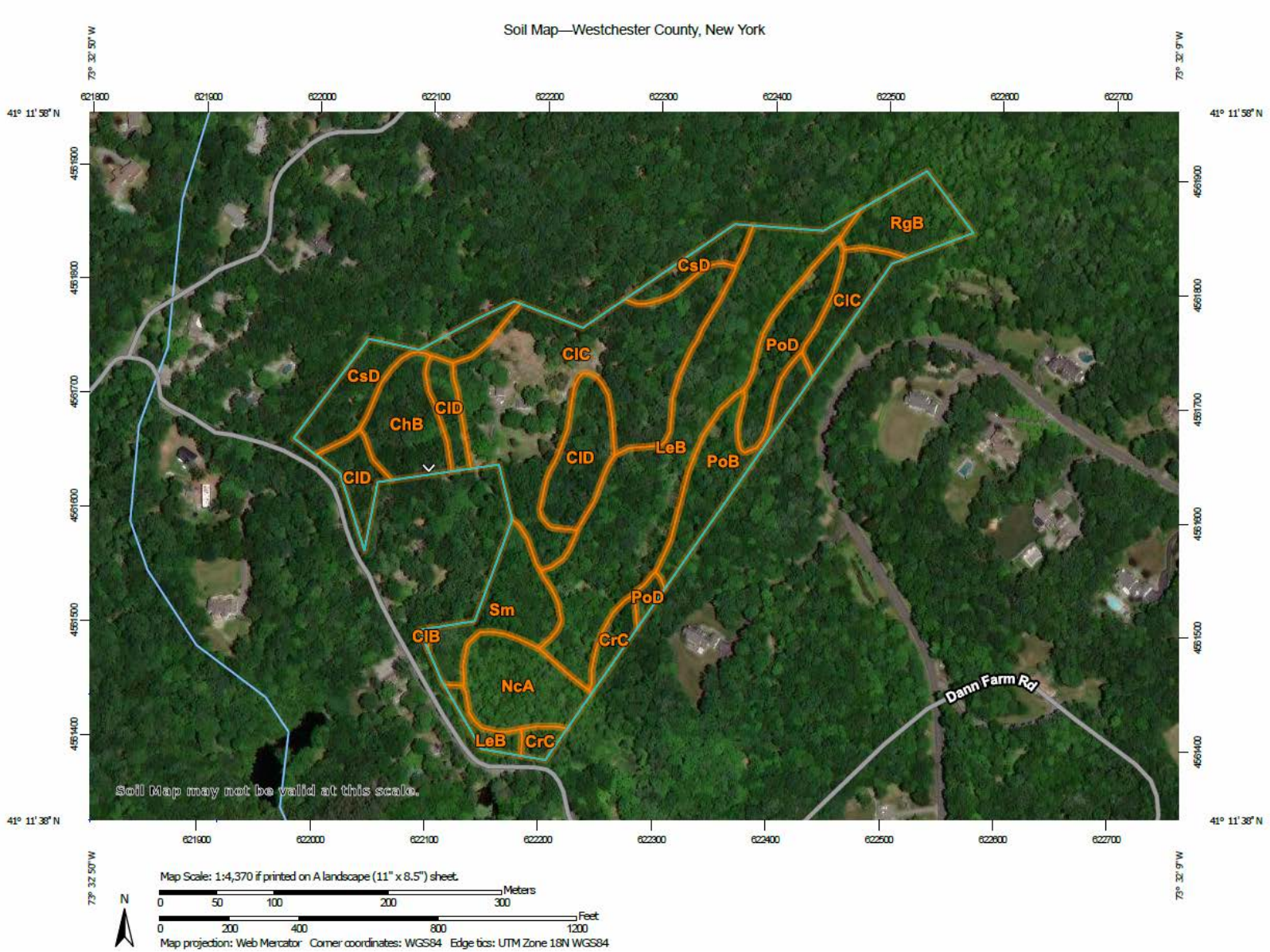


Figure 4.8-1 Barnegat Road Soils Map

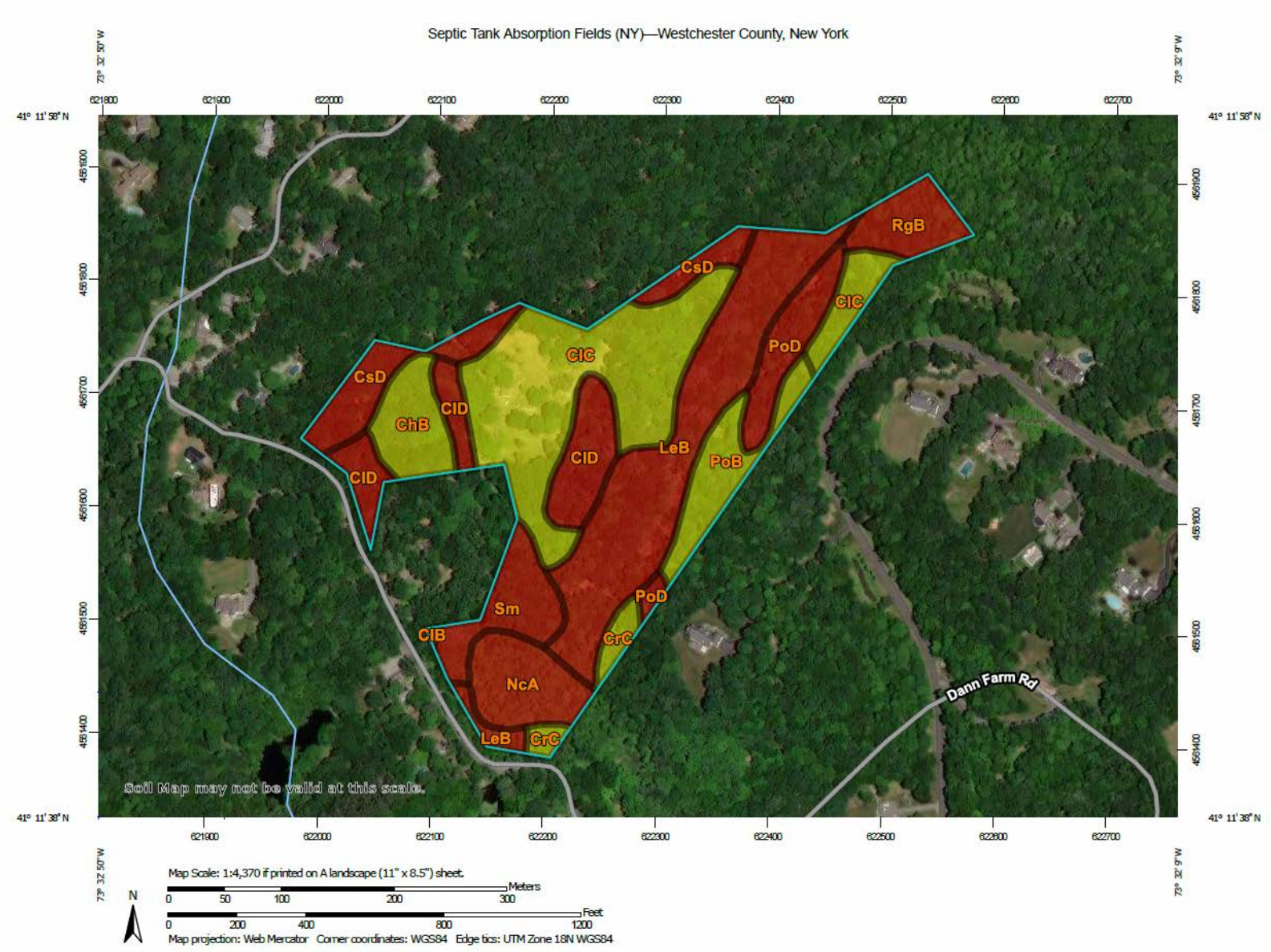


Figure 4.8-2 Barnegat Road Soils Map

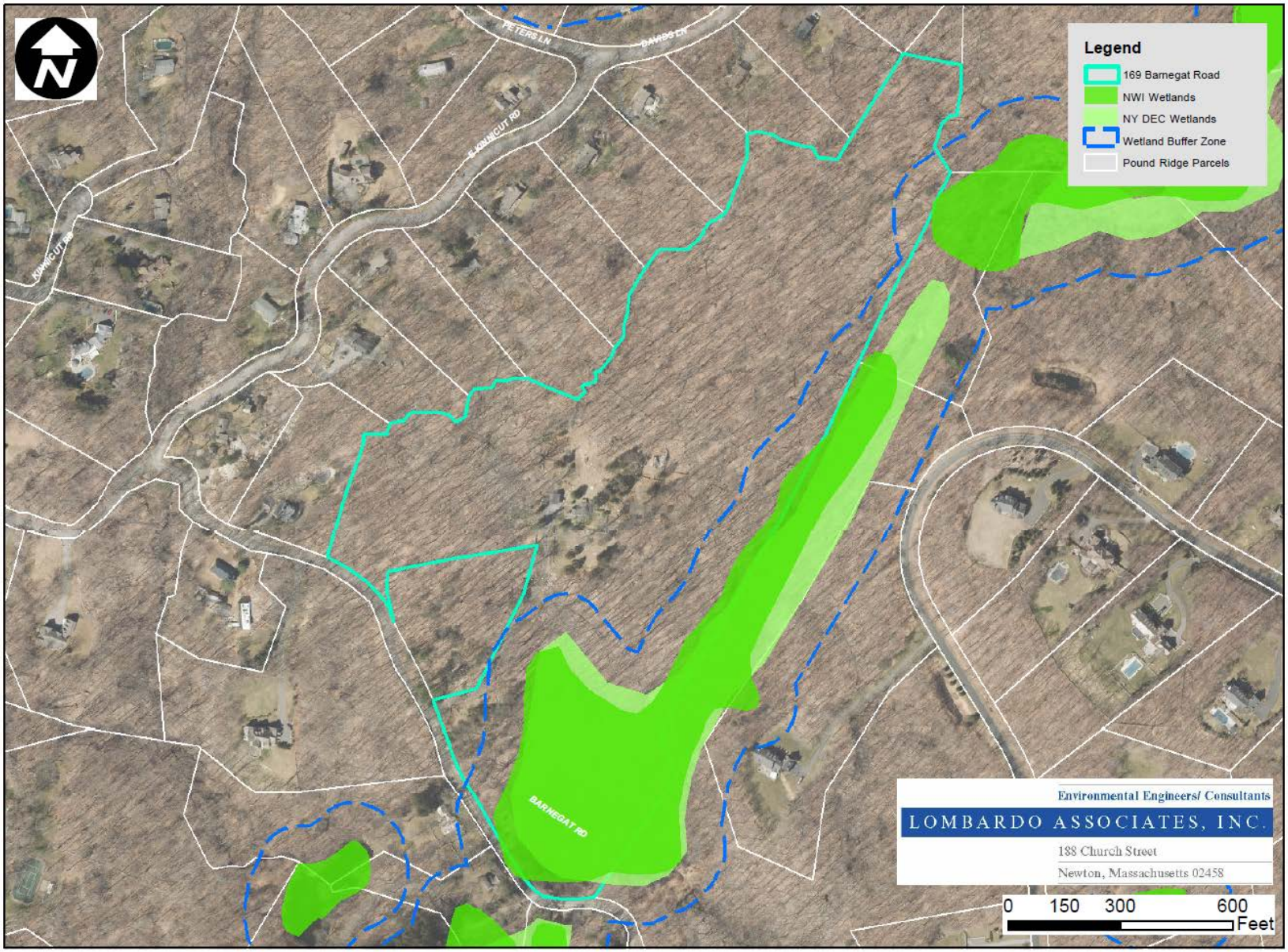


Figure 4.8-3 Barnegat Road Wetlands and Wetlands Buffer Map

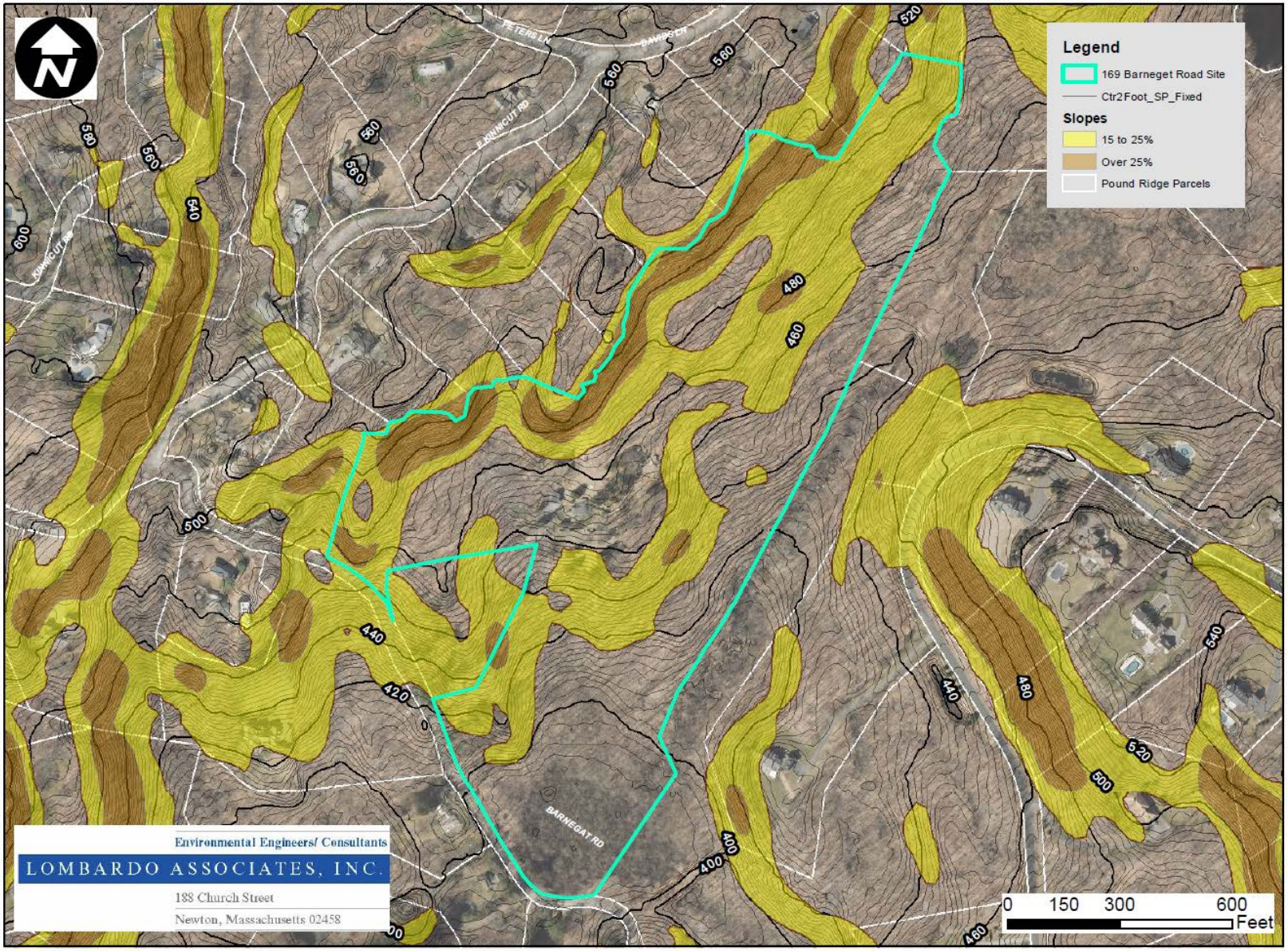


Figure 4.8-4 Barnegat Road Slopes and Contours Map

Table 4.8-2 Barnegat Road Test Pit Summary 1

Barnegat Road Test Pit Records															
TP Depth	TP 1-1	TP 1-2	TP 1-3	TP 1-4	TP 1-6	TP 1-7	TP 1-8	TP 2-2	TP 2-3	TP 2-4	TP 2-5	TP 2-6	TP 2-7	TP 2-8	TP 2-9
G.L.	6" Top Soil	8" Top Soil	6" Top Soil	8" Top Soil	6" Top Soil	8" Top Soil	8" Top Soil	6" Top Soil	6" Top Soil	6" Top Soil	6" Top Soil	6" Top Soil	2" Top Soil	2" Top Soil	2" Top Soil
6"	6-38" Silty Loam	8-27" Silty Loam	6-38" Silty Loam	8-45" Silty Loam; Ledge @ 45"	8-55" Silty Loam; Ledge @ 55"	8-34" Silty Loam	8-30" Silty Loam	6-29" Silty Loam w/ cobbles	6-36" Silty Loam w/ cobbles	6-44" Silty Loam w/ cobbles	6-36" Silty Loam w/ cobbles	6-40" Silty Loam w/ cobbles	2-44" Silty Loam w/ cobbles; Ledge @ 44"	2-24" Silty Loam w/ cobbles	2-24" Silty Loam w/ cobbles
12"															
18"															
24"															
30"														24-50" Sands; Ledge @ 50"	24-48" Silty Loam w/ cobbles; Ledge @ 48"
36"		27-44" Sands; Ledge @ 44"													
42"	38-44" Sands; Ledge at 44"		38-53" Sands; Ledge @ 53"			34-44" Sands; Ledge @ 44"	30-52" Sands; Ledge @ 52"	29-50" Sands; Ledge @ 50"	36-48" Sands; Ledge @ 48"		36-48" Sands; Ledge @ 48"	40-46" Sands; Ledge @ 46"			
48"										44-57" Sands; Ledge @ 57"					
54"															
60"															
66"															
72"															
78"															
84"															
90"															
96"															

Table 4.8-3 Barnegat Road Test Pit Summary 2

Barnegat Road Test Pit Records															
TP Depth	TP 11	TP 12	TP 13	TP 16	TP 17	TP 18	TP 19	TP 22	TP 23	TP 24	TP 25	TP 26	TP 27	TP 28	TP 29
G.L.	6" Top Soil / Organic	8" Top Soil / Organic	6" Top Soil / Organic	6" Top Soil / Organic	6" Top Soil / Organic	8" Top Soil / Organic	10" Top Soil / Organic	6" Top Soil	6" Top Soil	6" Top Soil	6" Top Soil	6" Top Soil	2" Top Soil	2" Top Soil	2" Top Soil
6"	6-38" Sand + Silts	8-27" Sands + Silts	6-38" Sand + Silts	6-55 Sand + Silts; BR @ 55"	6-34" Sand + Silts	8-30" Sand + Silts	10-30" Sand + Silts	6-24" Sand + Silts	6-36" Sand + Silts	6-44" Sand + Silts	6-36" Sand + Silts	6-40" Sand + Silts	2-47" Silty Loam; BR @ 47"	2-24" Silty Loam	2-45" Silty Loam
12"															
18"															
24"															
30"														24-50" Sands; BR @ 50"	
36"		27-44" Mixed Sands; BR @ 44"	38-53" Mixed Sands; BR @ 53"		34-44" Mixed Sands; BR @ 44"	30-52" Mixed Sands; BR @ 52"	30-44" Mixed Sands; Br @ 44"	24-50" Mixed Sands; BR @ 50"	36-42" Mixed Sands; BR @ 42"		36-47" Mixed Sands; BR @ 47"	40-46" Mixed Sands; BR @ 46"			
42"															
48"	38-44" Mixed Sands; BR @ 44"									44-57" Mixed Sands; BR @ 57"					
54"															
60"															
66"															
72"															
78"															
84"															
90"															
96"															

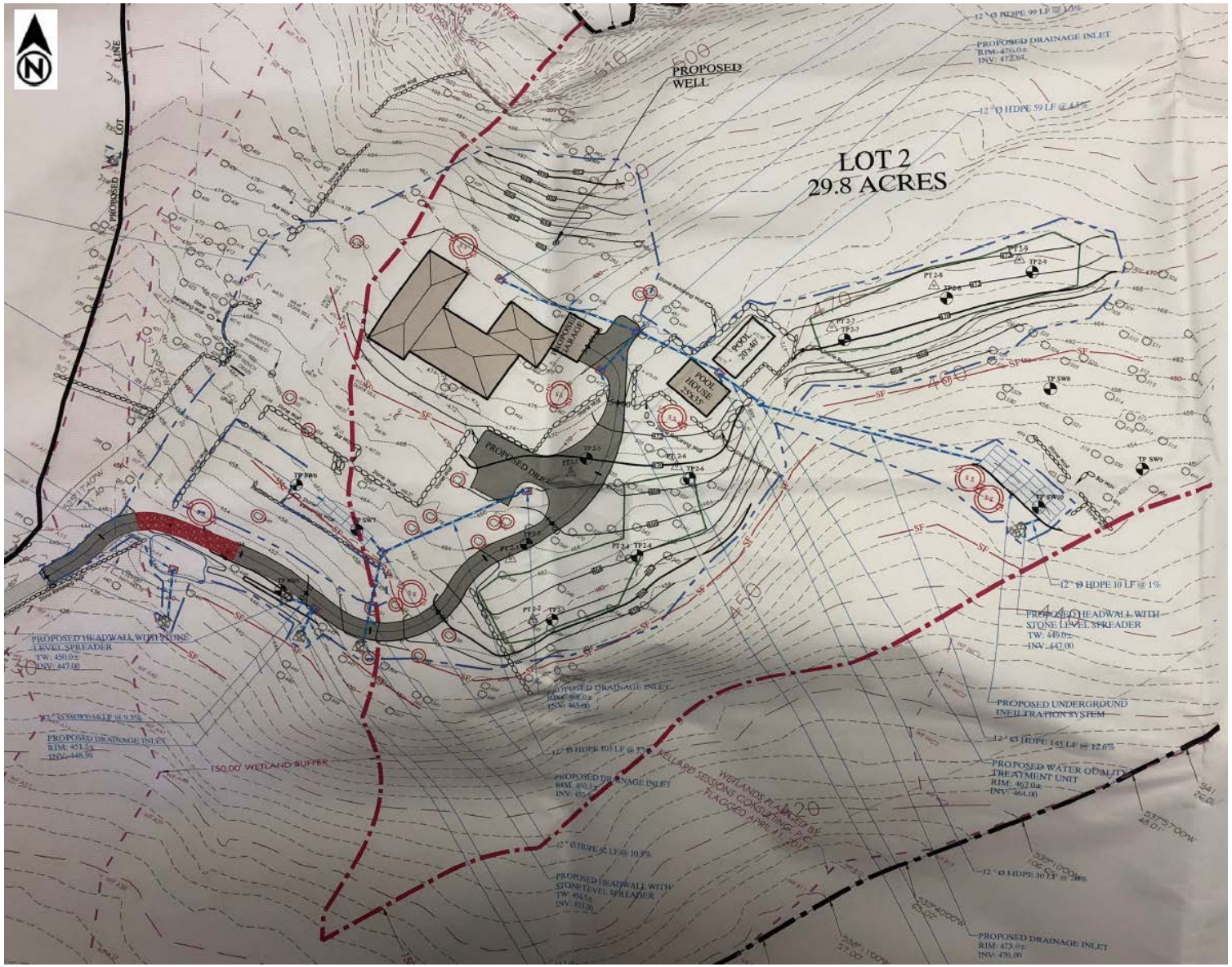


Figure 4.8-5 Barnegat Road Test Pit Locations Map 2

5. PRELIMINARY CANDIDATE SITES DISPOSAL CAPACITY ANALYSIS

Due to the additional distance and cost to the Elementary School and Town land adjacent to the School those two sites are not being further evaluated. Due to the lack of interest of property owners, the Golf Course and Clark properties are not being further evaluated. The Golf Course is also not attractive as disposal at that location would not recharge the Laurel Reservoir. Recharging the Laurel Reservoir is a critical aspect to secure the water supply commitment from Aquarion.

Disposal capacity of final preferred site(s) will be determined by use of the USGS Groundwater Flow computer model MODFLOW. For analytical purposes only, Darcy's Law capacity estimates are prepared in this chapter to provide initial insights to the disposal capacities of the candidate sites.

DARCY'S LAW CAPACITY ESTIMATES METHODOLOGY

The treated wastewater disposal capacity of candidate sites was estimated in the following manner:

1. Available Area determined as discussed in Section 4
2. Viable zones within the available area were identified based upon topography (work with contours) and preliminary disposal system layout considerations.
3. Darcy's Law disposal capacity of the drainfield zones was calculated at the downgradient face of the zone as follows, see Figures 5.0-1 through 5.0-3:

   Q = K*A*i, where Q = volumetric flow (cf/day),
   K = Hydraulic conductivity (ft/day) of unsaturated zone,
   A = cross sectional area (sf) of discharge cross sectional area
   i = groundwater slope

   i. Hydraulic conductivity (K) of soils estimated based upon NCRS soils data;
   ii. Test pit data (as presented in Section 4) reviewed to estimate depth to groundwater(GW)/bedrock,
   iii. Cross Sectional area computed by:
      - ✓ Length measured as the furthest downgradient face of zone
      - ✓ Depth calculated by subtracting from depth to GW/BR (ii above)
        1 foot separation between grade and bottom of drainfield;
        1 foot separation between drainfield bottom and max mounded GW elevation

4. Darcy's Law flow estimates calculated
5. Preliminary drainfield layouts prepared based upon NYS DEC and WC DoH code
6. Darcy's Law flow estimates calculations revised based upon drainfield layout loadings.

Depth to bedrock and/or groundwater was determined based on the following, in order of priority:

1. Nearby boring or test pit data
2. Table 18 from the Soil Survey of Putnam and Westchester Counties (1994) provides groundwater and bedrock depth below grade by soil types

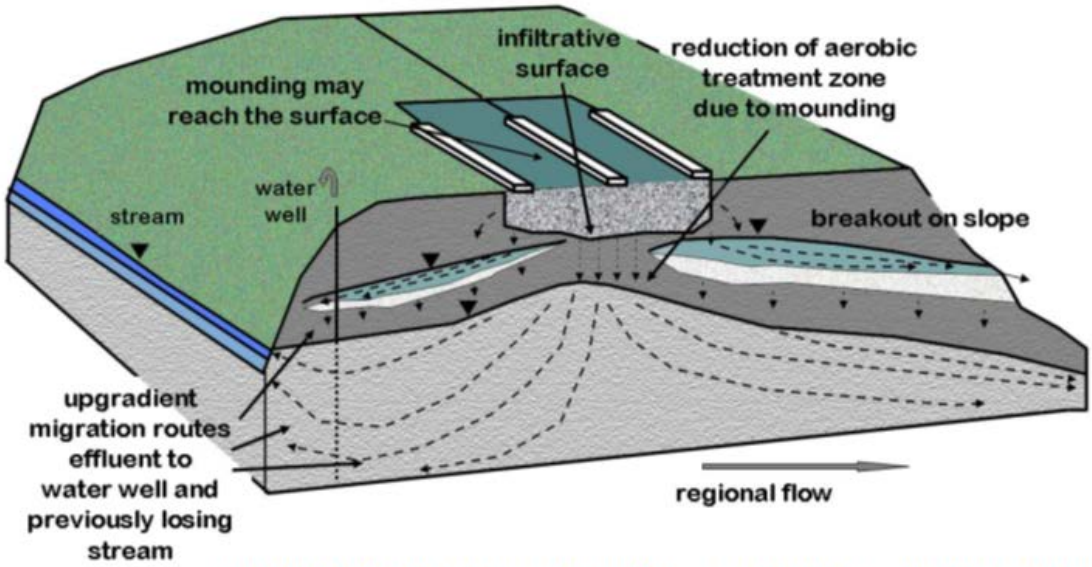
Where boring data was available, those values were used. If no nearby boring data was available, the Soil Survey data was used to assign depth to groundwater / bedrock.

Saturated hydraulic conductivity was estimated by taking the midpoint of the permeability range presented in Table 17 of the Soil Survey referenced above.

All calculations and preliminary drainfield layouts are presented in the following sections, with a summary presented on Table 5.0-1.

Table 5.0-1 Candidate Sites Preliminary Darcy's Law Capacity Estimates

Candidate Disposal site Summary		
Site #	Site Name	Flow - Darcy's (GPD)
1	Town Park	69,031
2	Old Pound Ridge Rd	42,897
3	Lower Trinity Pass	55,976
4	Barnegat Rd	18,007
5	Oceanus	29,428



NDWRCDP (2005) Guidance for Evaluation of Potential Groundwater Mounding

Figure 5.0-1 Mounding Schematic

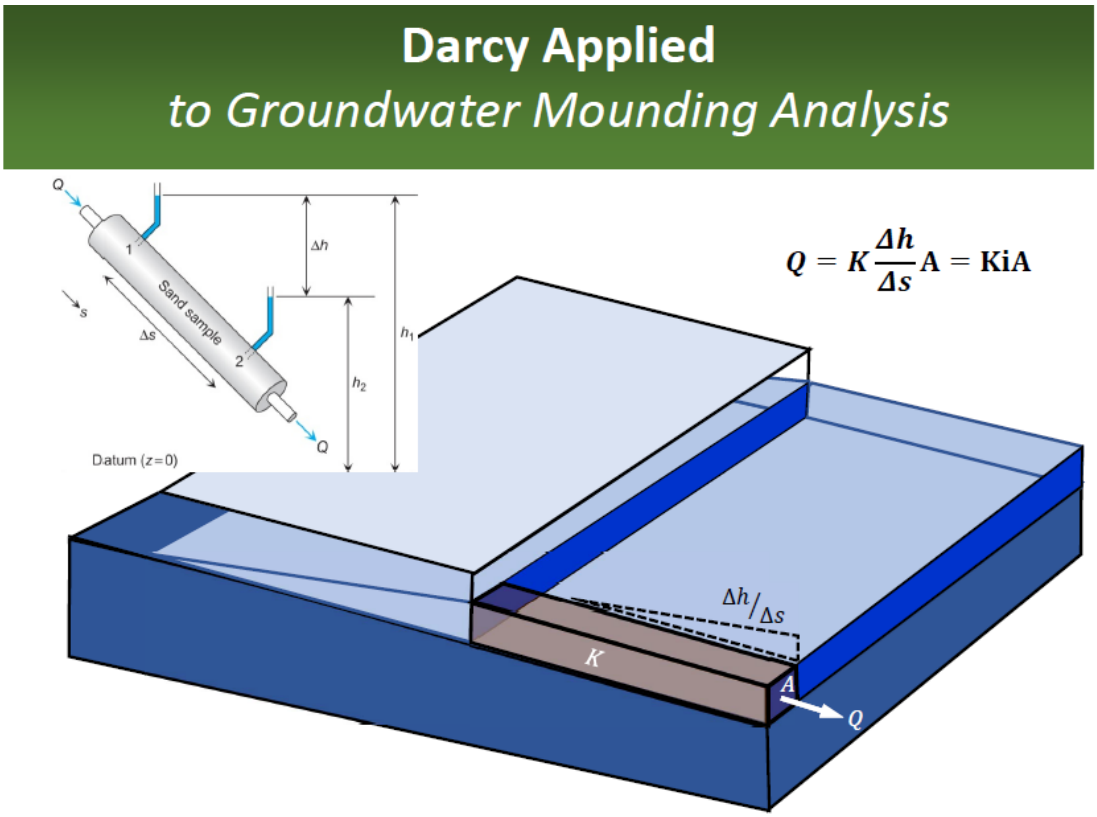


Figure 5.0-2 Simplified Darcy's Law Applied to Mounding Analysis

From Bradley et al, 2019

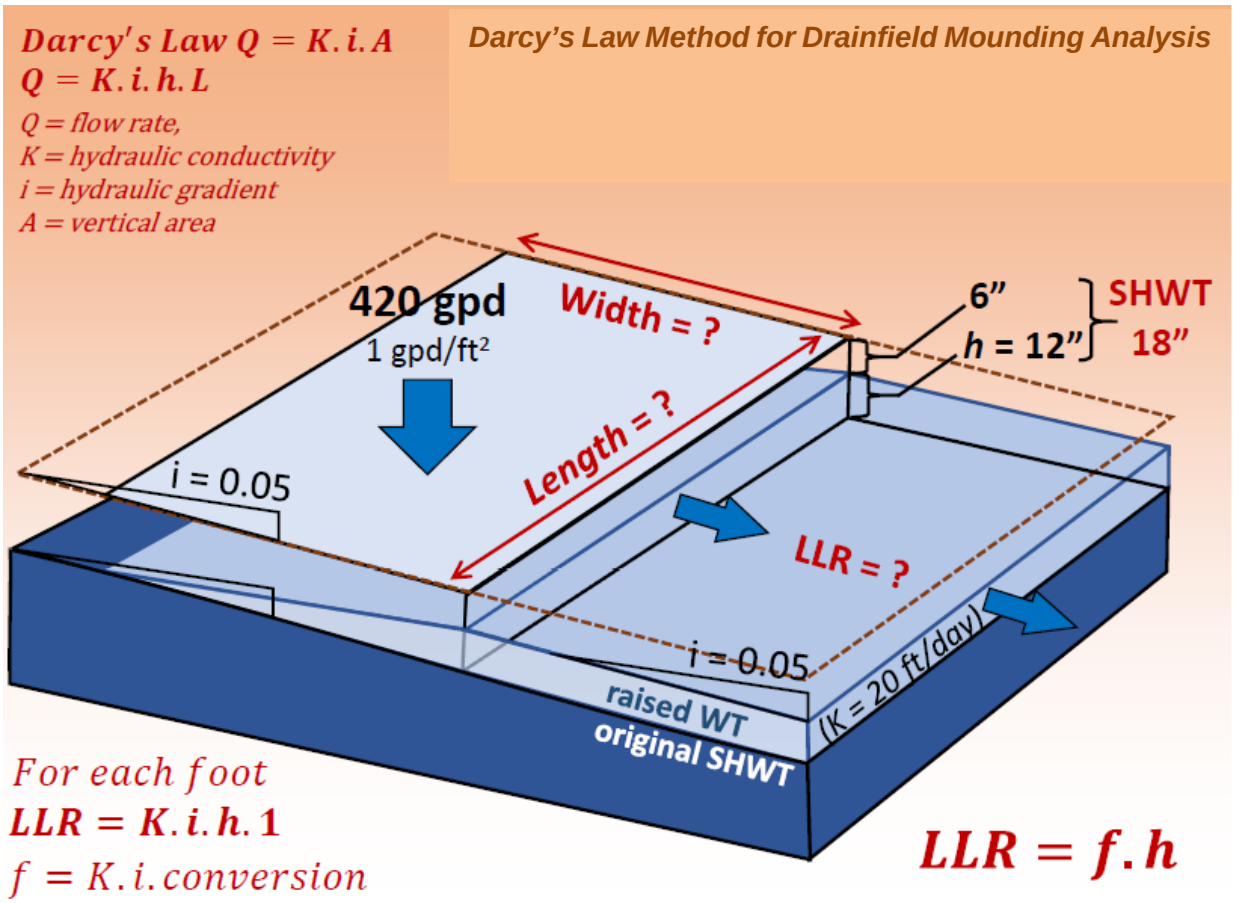


Figure 5.0-3 Simplified Darcy's Law Mounding Analysis-Example

From Bradley et al, 2019

5.1 TOWN PARK BALLFIELD SITE

Figure 5.1-1 presents the available areas and preliminary disposal zones within the Town-owned parcels at the ballfield site. Figure 5.1-2 presents the preliminary drainfield layout. Table 5.1-1 presents the Darcy's Law Disposal Capacity Analysis for Town Park.

Table 5.1-1 Darcy's Law Disposal Capacity Estimates – Town Park

Town Park Potential Drainfield Zones Capacity Analysis												
DF Zone #	GW Flux Length (ft)	Nearby Boring Data Depth to GW / BR (ft)	Soil Type	Soil Based Depth to GW / BR[1] (ft)	Assumed Depth to GW / BR (ft)	Disp. Sys. Depth Below Grade (ft)	Max. Mound Height[2] (ft)	Hyd. Cond.[3] (ft/d)	Slope (%)	Flux Area (ft^2)	Flow - Darcy	
											(ft^3/ day)	(gpd)
1	700	>8	CrC, CsD	>5	8.0	1.0	6.0	6.6	10.0%	4,200	2,772	**20,735**
2	375	>8	CrC	>5	8.0	1.0	6.0	6.6	7.0%	2,250	1,040	**7,775**
3	500	>7.7	CrC	>5	8.0	1.0	6.0	6.6	10.0%	3,000	1,980	**14,810**
4	220	6	ClB	>5	5.0	1.0	3.0	6.6	8.0%	660	348	**2,607**
5	900	None	ChB, CrC, ChC	>5	6.0	1.0	4.0	6.6	6.0%	3,600	1,426	**10,663**
6	700	None	ChB, CrC, ChC	>5	6.0	1.0	4.0	6.6	9.0%	2,800	1,663	**12,441**
												69,031

[1] From Table 18 - Westchester County Soil Survey

[2] Assumes drip disposal @ 1-ft below grade and 1-ft minimum separation from max mounded groundwater

[3] Average Value from Table 17 - Westchester County Soils Survey

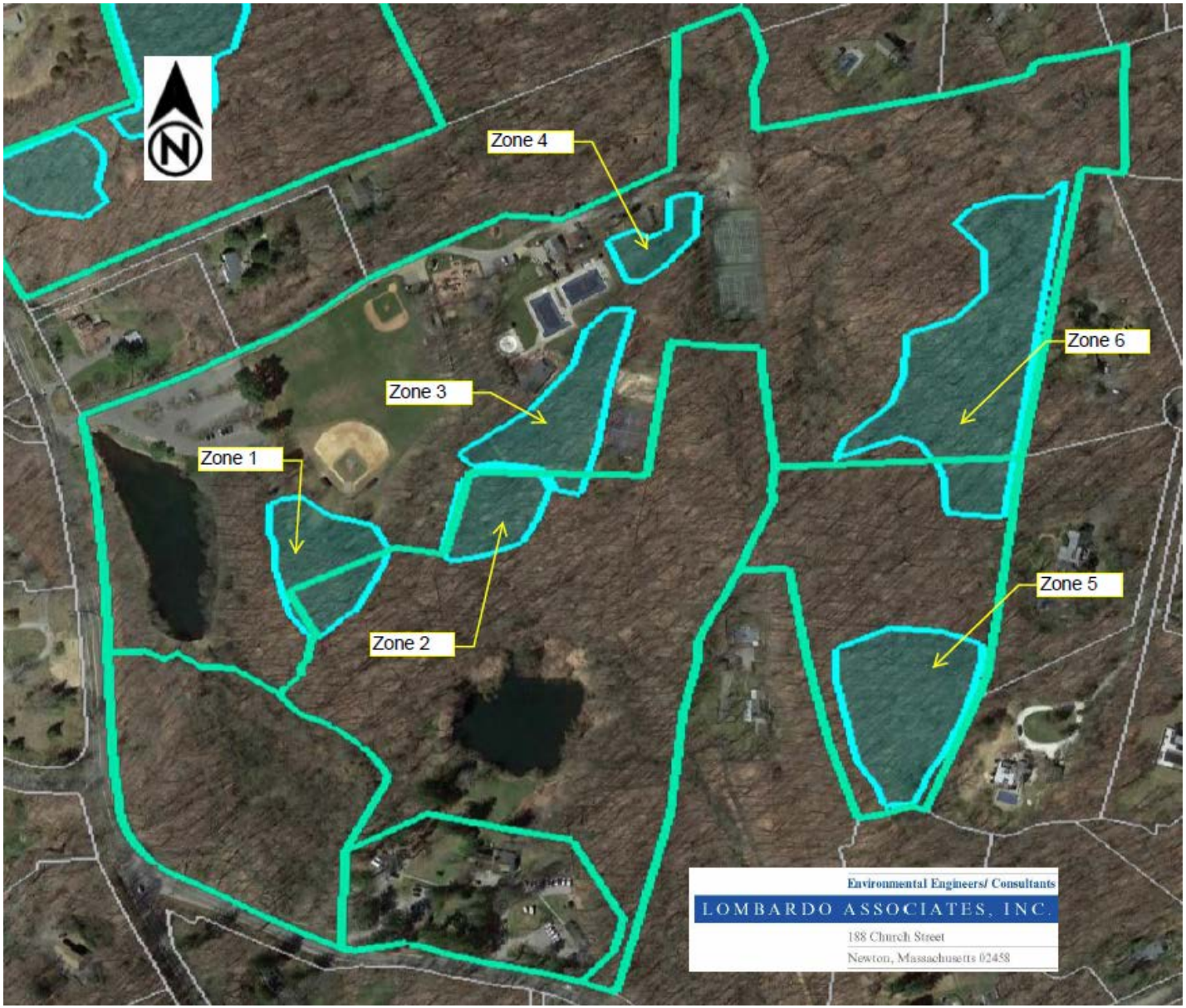


Figure 5.1-1 Town Park Available Areas and Potential Disposal Zones

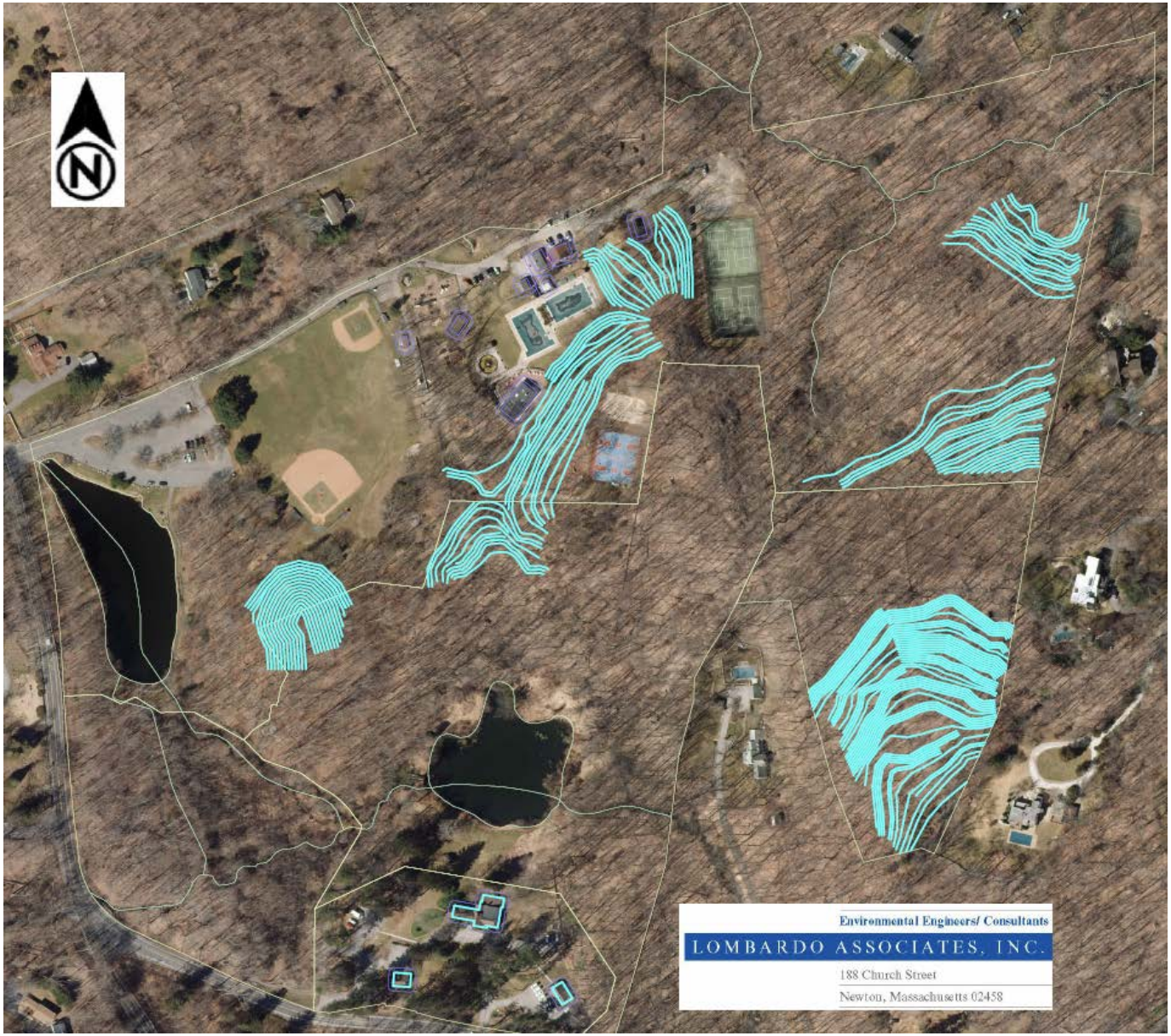


Figure 5.1-2 Example of Trench Layout – Town Park

5.2 OLD POUND ROAD SITE

Figure 5.2-1 presents the available areas and preliminary disposal zones within the Kerr property across from the ballfield site.

Table 5.2-1 presents the Darcy's Law Disposal Capacity Analysis for the Old Pound Road site.

Table 5.2-1 Disposal Capacity Estimates – Old Pound Road

Old Pound Road Potential Drainfield Zones Capacity Analysis												
DF Zone #	GW Flux Length (ft)	Nearby Boring Data Depth to GW / BR (ft)	Soil Type	Soil Based Depth to GW / BR[1] (ft)	Assumed Depth to GW / BR (ft)	Disp. Sys. Depth Below Grade (ft)	Max. Mound Height[2] (ft)	Hyd. Cond.[3] (ft/d)	Slope (%)	Flux Area (ft^2)	Flow - Darcy	
											(ft^3/ day)	(gpd)
1	430	None	ChB	>5	6.0	1.0	4.0	6.6	7.0%	1,720	795	**5,944**
2	450	None	ChB	>5	6.0	1.0	4.0	6.6	8.0%	1,800	950	**7,109**
3	650	None	ChC, ChD	>5	6.0	1.0	4.0	6.6	8.0%	2,600	1,373	**10,269**
4	330	None	ChD, ChC	>5	6.0	1.0	4.0	6.6	7.0%	1,320	610	**4,562**
												27,883

[1] From Table 18 - Westchester County Soil Survey

[2] Assumes drip disposal @ 1-ft below grade and 1-ft minimum separation from max mounded groundwater

[3] Average Value from Table 17 - Westchester County Soils Survey

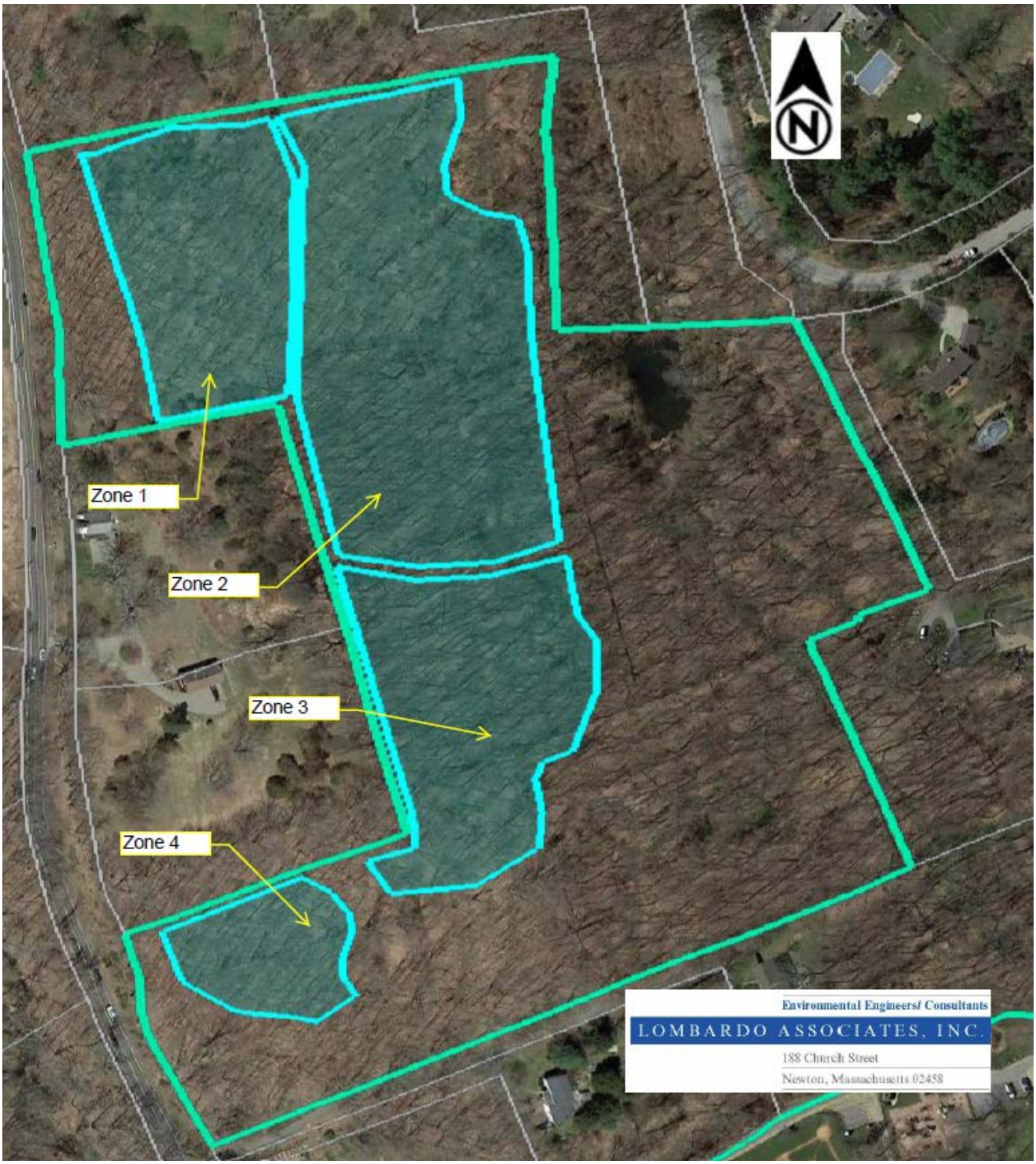


Figure 5.2-1 Old Pound Road Site Available Area and Potential Disposal Zones

5.3 LOWER TRINITY PASS ROAD SITE

Figure 5.3-1 presents the available areas and preliminary disposal zones for the Lower Trinity Pass Road site.

Table 5.3-1 presents the Darcy's Law Disposal Capacity Analysis for the Lower Trinity Pass Road site.

Table 5.3-1 Disposal Capacity Estimates –Lower Trinity Pass Road Site

Lower Trinity Pass Potential Drainfield Zones Capacity Analysis												
DF Zone #	GW Flux Length (ft)	Nearby Boring Data Depth to GW / BR (ft)	Soil Type	Soil Based Depth to GW / BR[1] (ft)	Assumed Depth to GW / BR (ft)	Disp. Sys. Depth Below Grade (ft)	Max. Mound Height[2] (ft)	Hyd. Cond.[3] (ft/d)	Slope (%)	Flux Area (ft^2)	Flow - Darcy	
											(ft^3/ day)	(gpd)
1	1,750	None	CrC, CsD	>5	5.5	1.0	3.5	6.6	5.0%	6,125	2,021	**15,119**
2	300	None	CrC	>5	5.5	1.0	3.5	6.6	4.0%	1,050	277	**2,073**
3	500	None	CrC	>5	5.5	1.0	3.5	6.6	10.0%	1,750	1,155	**8,639**
4	500	10	CsD	>5	10.0	1.0	8.0	6.6	15.0%	4,000	3,960	**29,621**
5	500	None	LeB	>5	3.0	1.0	1.0	2.0	7.0%	500	70	**524**
												55,976

[1] From Table 18 - Westchester County Soil Survey

[2] Assumes drip disposal @ 1-ft below grade and 1-ft minimum separation from max mounded groundwater

[3] Average Value from Table 17 - Westchester County Soils Survey

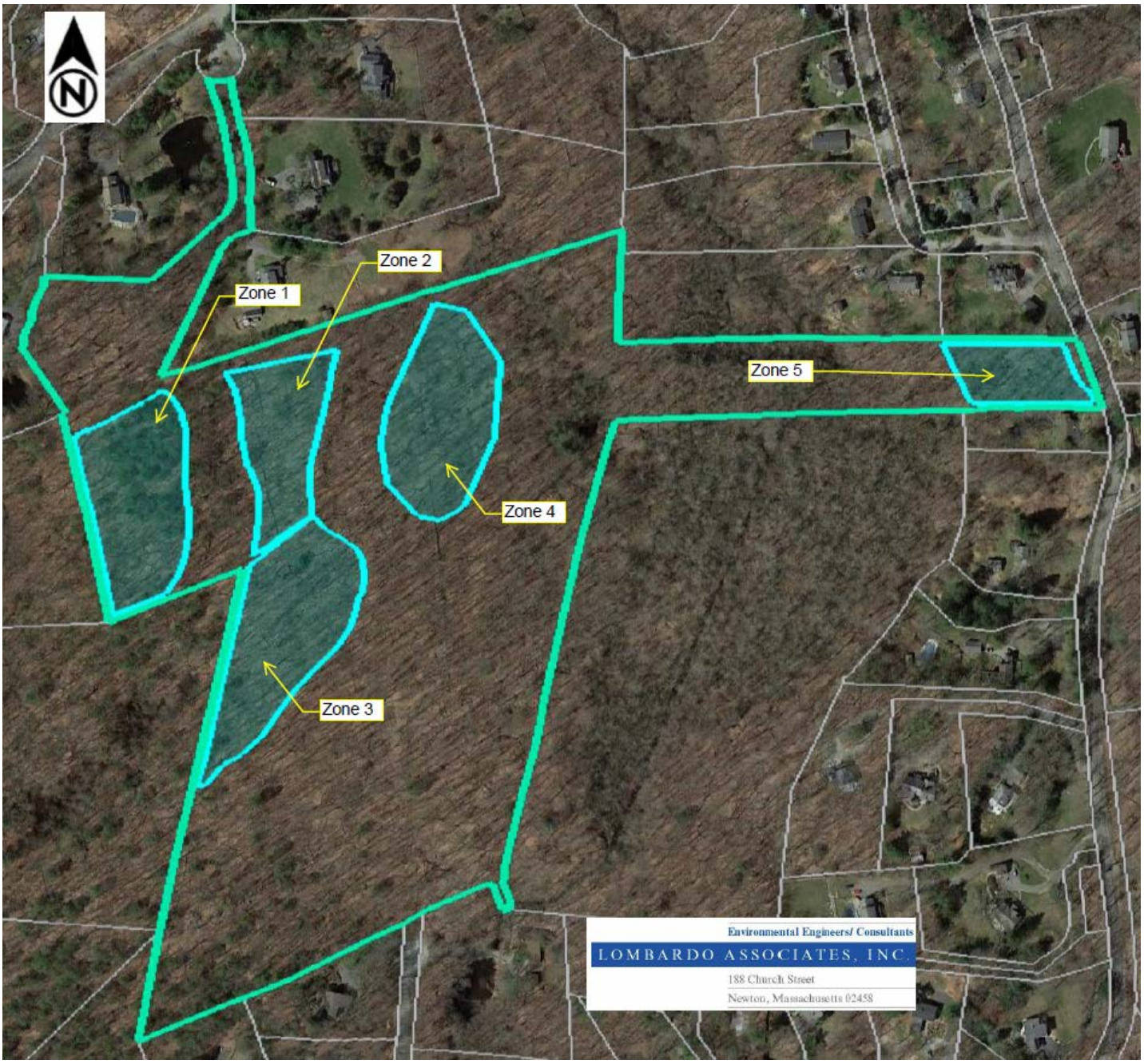


Figure 5.3-1 Lower Trinity Pass Road Site Available Area and Potential Disposal Zones

5.4 BARNEGAT ROAD SITE

Figure 5.4-1 presents the available areas and preliminary drainfield sites for the Barnegat Road site, located between the area of Scotts Corner and the Siscowit Reservoir.

Table 5.4-1 presents the Darcy's Law Disposal Capacity Analysis for the Barnegat Road site.

Table 5.4-1 Disposal Capacity Estimates – Barnegat Road Site

Barnegat Road Potential Drainfield Zones Capacity Analysis												
DF Zone #	GW Flux Length (ft)	Nearby Boring Data Depth to GW / BR (ft)	Soil Type	Soil Based Depth to GW / BR[1] (ft)	Assumed Depth to GW / BR (ft)	Disp. Sys. Depth Below Grade (ft)	Max. Mound Height[2] (ft)	Hyd. Cond.[3] (ft/d)	Slope (%)	Flux Area (ft^2)	Flow - Darcy	
											(ft^3/ day)	(gpd)
1	500	3.9	ChB, ClD	>5	3.9	1.0	1.9	6.6	6.0%	950	376	**2,814**
2	830	4	ClC	>5	3.9	1.0	1.9	6.6	8.0%	1,577	833	**6,228**
3	1,100	None	ClC, LeB	3	3.0	1.0	1.0	6.6	8.0%	1,100	581	**4,344**
4	520	None	CsD	>5	5.0	1.0	3.0	6.6	6.0%	1,560	618	**4,621**
												18,007

[1] From Table 18 - Westchester County Soil Survey

[2] Assumes drip disposal @ 1-ft below grade and 1-ft minimum separation from max mounded groundwater

[3] Average Value from Table 17 - Westchester County Soils Survey

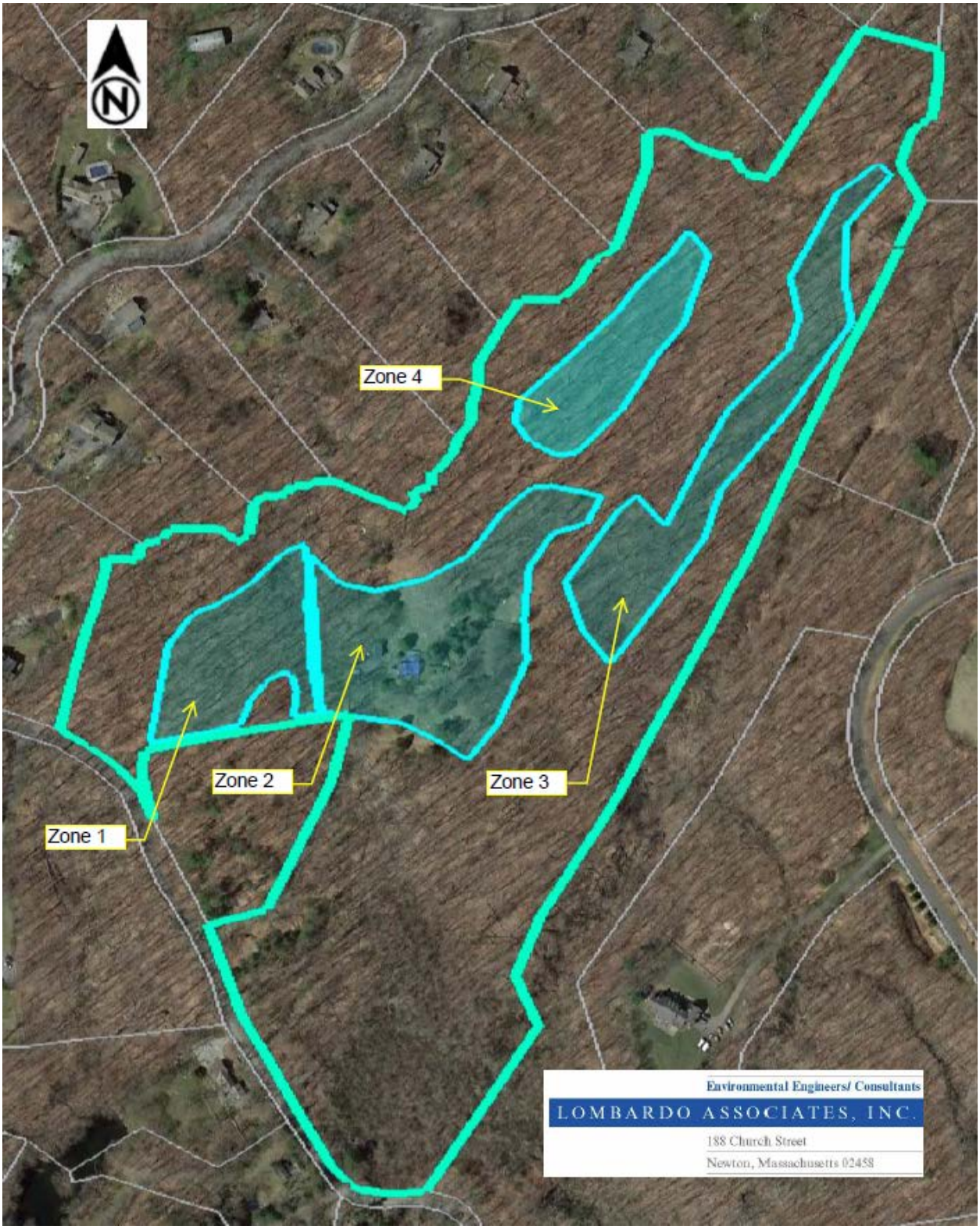


Figure 5.4-1 Barnegat Road Site Available Area and Potential Disposal Zones

5.5 OCEANUS SITE

Figure 5.5-1 presents the available areas and preliminary drainfield sites for the Oceanus site, located along the border between New York and Connecticut.

Table 5.5-1 presents the Darcy's Law Disposal Capacity Analysis for the Oceanus site.

Table 5.5-1 Disposal Capacity Estimates – Oceanus Site

Oceanus Potential Drainfield Zones Capacity Analysis												
DF Zone #	GW Flux Length (ft)	Nearby Boring Data Depth to GW / BR (ft)	Soil Type	Soil Based Depth to GW / BR[1] (ft)	Assumed Depth to GW / BR (ft)	Disp. Sys. Depth Below Grade (ft)	Max. Mound Height (ft)	Hyd. Cond.[2] (ft/d)	Slope (%)	Flux Area (ft^2)	Flow - Darcy	
											(ft^3/ day)	(gpd)
1	540	4.5	CuD, CiD	0-5+	4.5	2.0	2.5	6.6	6.0%	1,350	535	**3,999**
2	600	4.5	ChB	>5	5.0	2.0	3.0	6.6	6.0%	1,800	713	**5,332**
3	580	none	CiC, CrC	2-5+	5.0	2.0	3.0	6.6	8.0%	1,740	919	**6,872**
4	410	none	CiC, Ff	2-5+	5.0	2.0	3.0	6.6	4.0%	1,230	325	**2,429**
5	350	7.0	SuB, Ff	0.5-6	7.0	2.0	5.0	6.6	3.0%	1,750	347	**2,592**
6	560	none	CrC, HrF, CuD	1-5+	5.0	2.0	3.0	6.6	4.0%	1,680	444	**3,318**
7	660	none	CrC, HrF	1-5+	5.0	2.0	3.0	6.6	5.0%	1,980	653	**4,887**
												29,428

[1] From Table 18 - Westchester County Soil Survey

[2] Average Value from Table 17 - Westchester County Soils Survey

[3] Assumes drip disposal @ 1-ft below grade and 1-ft minimum separation from max mounded groundwater

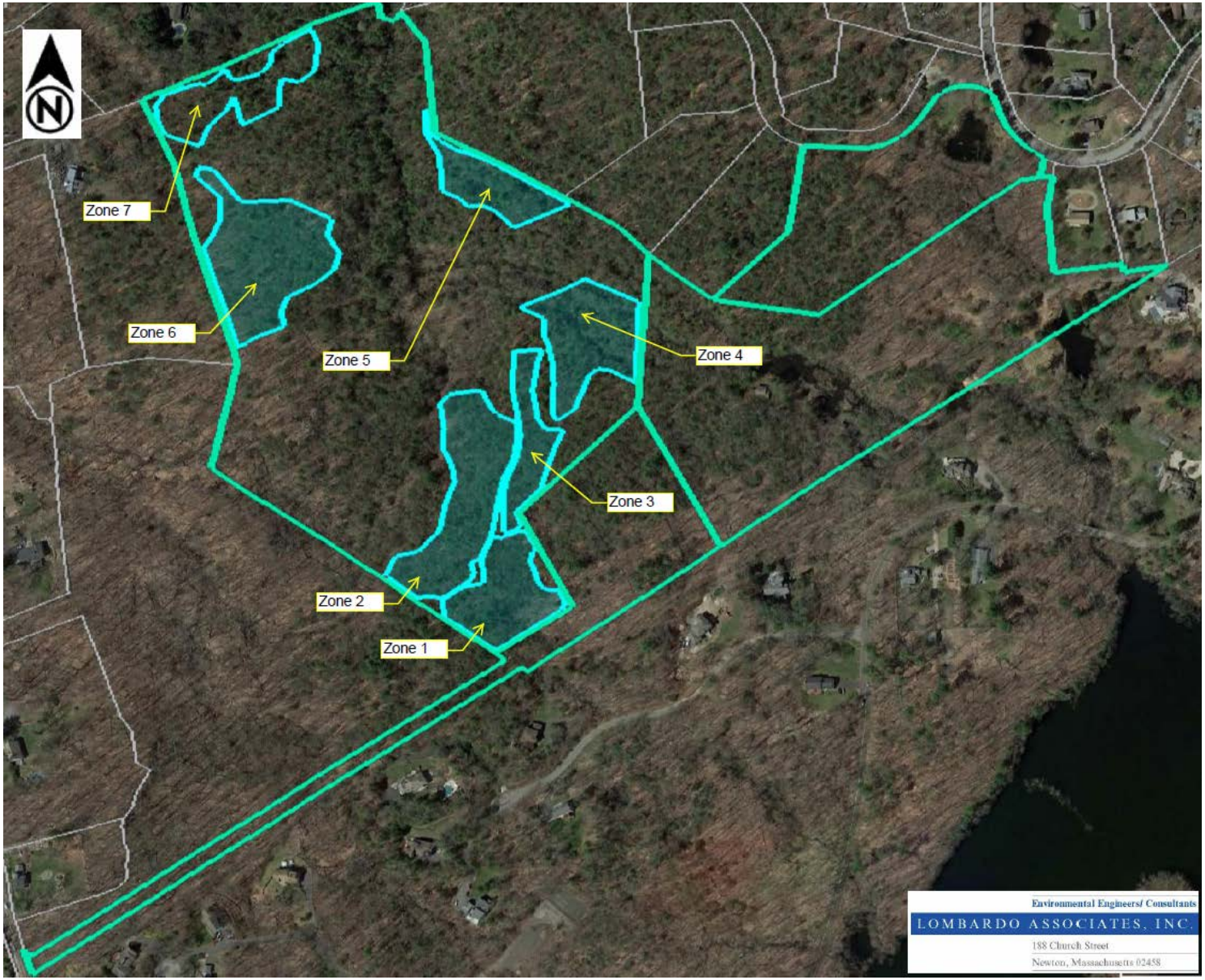


Figure 5.5-1 Oceanus Site Available Area and Potential Disposal Zones

6. SITE TESTING PLAN

6.1 SITE EVALUATION AND TESTING OVERVIEW

Of the five (s) sites examined in Section 5, LAI ranked the sites in terms of likely ability to have the groundwater disposal capacity and/or favorable costs into two Tiers of Highly Favorable and Favorable.

Highly Favorable

- ✓ Pine Drive – Lower Trinity Road
- ✓ 169 Barnegat Road

Favorable

- ✓ Town Park
- ✓ Old Pound Road

For a site to be deemed acceptable for project treated effluent disposal for a design flow of 40,000 gpd, 60,000 gpd or 80,000 gpd, computer modeling of the treated wastewater discharge will need to be performed using the USGS MODFLOW groundwater model computer program. Disposal capacity will be determined by the computer model demonstrating that the discharge will comply with the **Disposal Criteria** of:

- **Minimum 2 feet separation from the bottom of the disposal system to maximum groundwater elevation** – with the mound. Disposal system initially assumed to be drip irrigation, which would be 6" below ground surface thereby maximizing the depth of the unsaturated zone. Drip also would minimize tree removal.

  After initial computer modeling and if determined to be important for site selection, this requirement may be reviewed with WC DoH and NYSDEC.

- **Avoidance of disposal discharge surface breakout** prior to reaching surface water

This will be accomplished in the following order / manner:

Phase I Site Characterization

On the Highly Favorable Sites, Test Pits will be performed to define for the proposed disposal areas (i.e. defined as Zones on maps presented in Section 4), depth to groundwater and bedrock and soil samples taken for sieve analysis. The Town has authorized this work.

For site characterization results that are positive, a determination will be made if additional field data needs to be collected prior to MODFLOW model application.

Phase II Computer Modeling

For the Town selected site(s), a MODFLOW computer model of treated effluent groundwater flow will need to be performed to determine a site's capacity to accept the treated wastewater discharge.

The site characterization results will be published in an addendum to this Plan.

The primary objective of the Phase I is step is to eliminate non-viable sites which do not have the minimum soil mantle thickness required along the discharged treated wastewater flow path to prevent breakout. Soil thickness is a heavy determinant of site capacity.

The number of test pit locations at each site was determined by:

a. Feasibility of one full day of site testing with two machines – maximum number of test pit locations is 16 per site
b. Test pits not conducted in areas where previous test pit data exists
c. Bottom of slope (downgradient) areas were prioritized to maximize data in areas passing highest amounts of discharged effluent
d. Remaining test pits distributed throughout potential disposal areas to characterize entire areas as best as possible within the budget limitations.

For each of the 4 sites, maps of the following information are presented in the following subsections:

1. Test Pit Location Map with topography, zones delineated, subwatershed boundaries and estimated groundwater flow direction.

2. Area Watershed Map with estimated groundwater flow direction and streams illustrating where the effluent would likely emerge into a surface water and showing ultimate discharge to Laurel Reservoir. Figure 6-1-1 illustrates the 4 sites, their subwatershed and creeks that drain the sites and their flow paths.

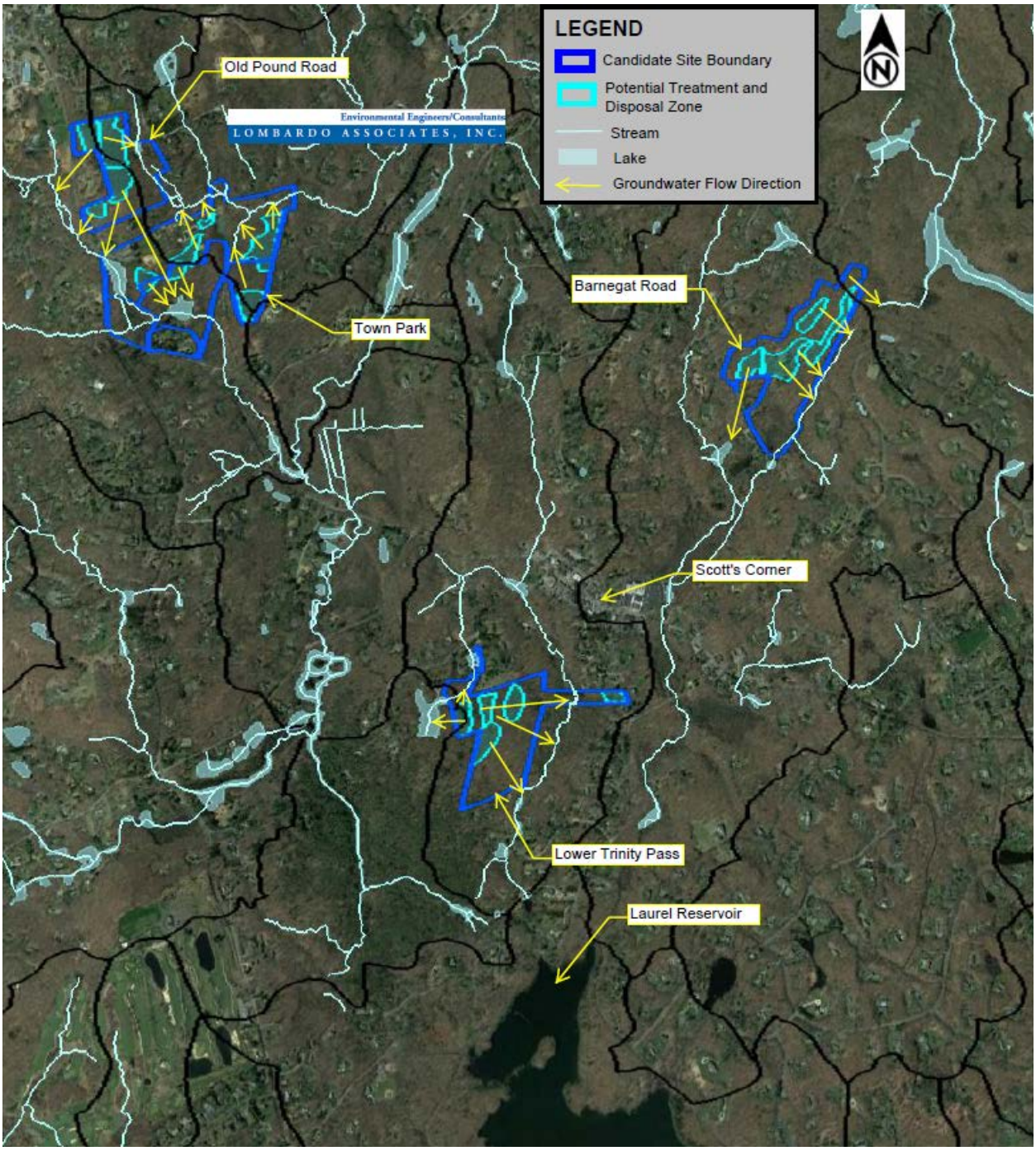


Figure 6-1-1 Candidate Sites, Subwatershed Locations and Creeks

6.2 PINE DRIVE – LOWER TRINITY ROAD

Test Pit Location Map is presented on Figure 6-2-1.
Area Watershed Map is presented on Figure 6-2-2.
Test Pits Locations and Form for Field Data is presented on Table 6-2-1.

Cross sections (see Figure 6-2-1) of the property illustrating test pit data previously collected are presented on Figures 6-2-3 through 6-2-5.

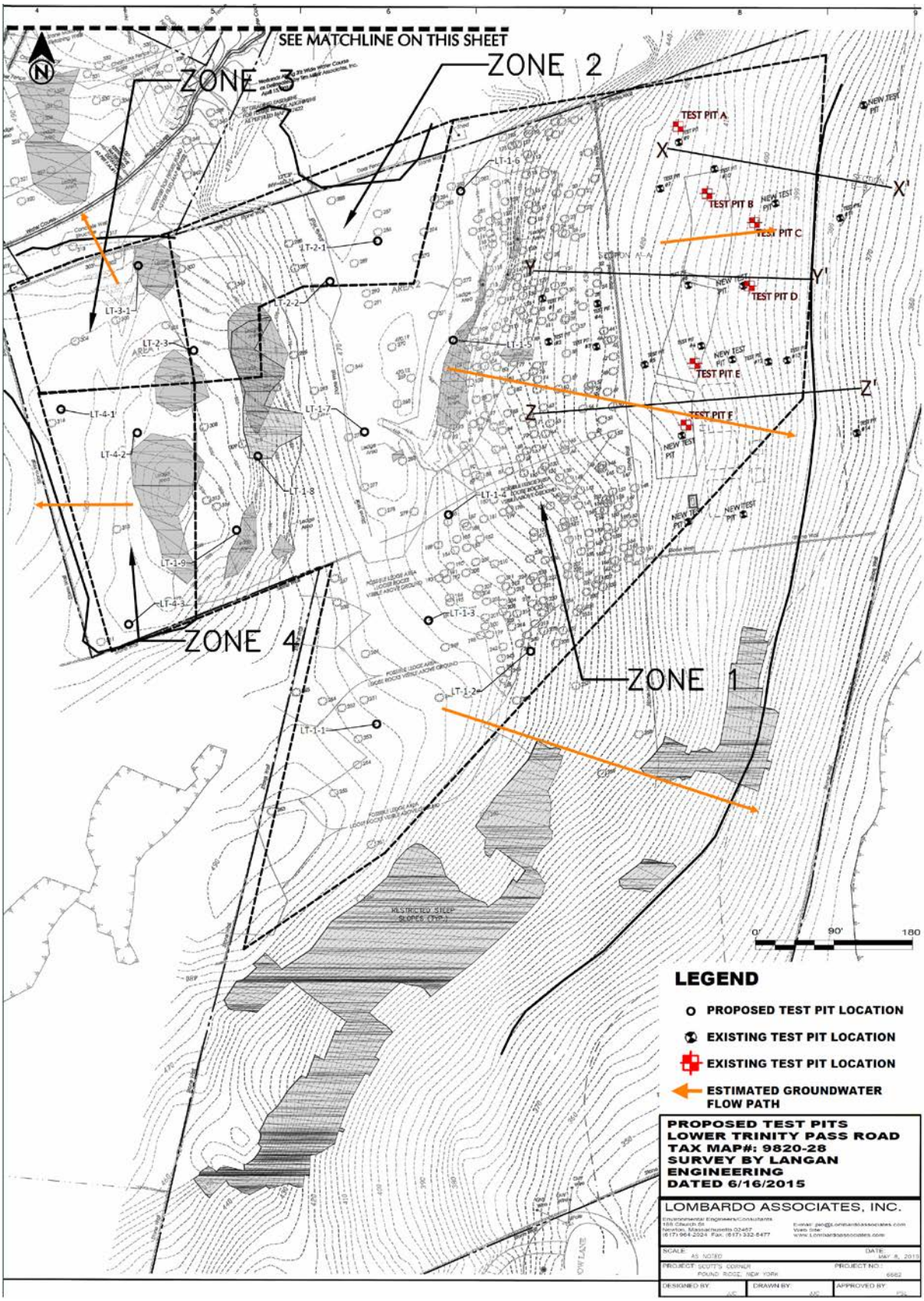


Figure 6-2-1 Lower Trinity Pass, Test Pit Locations Map

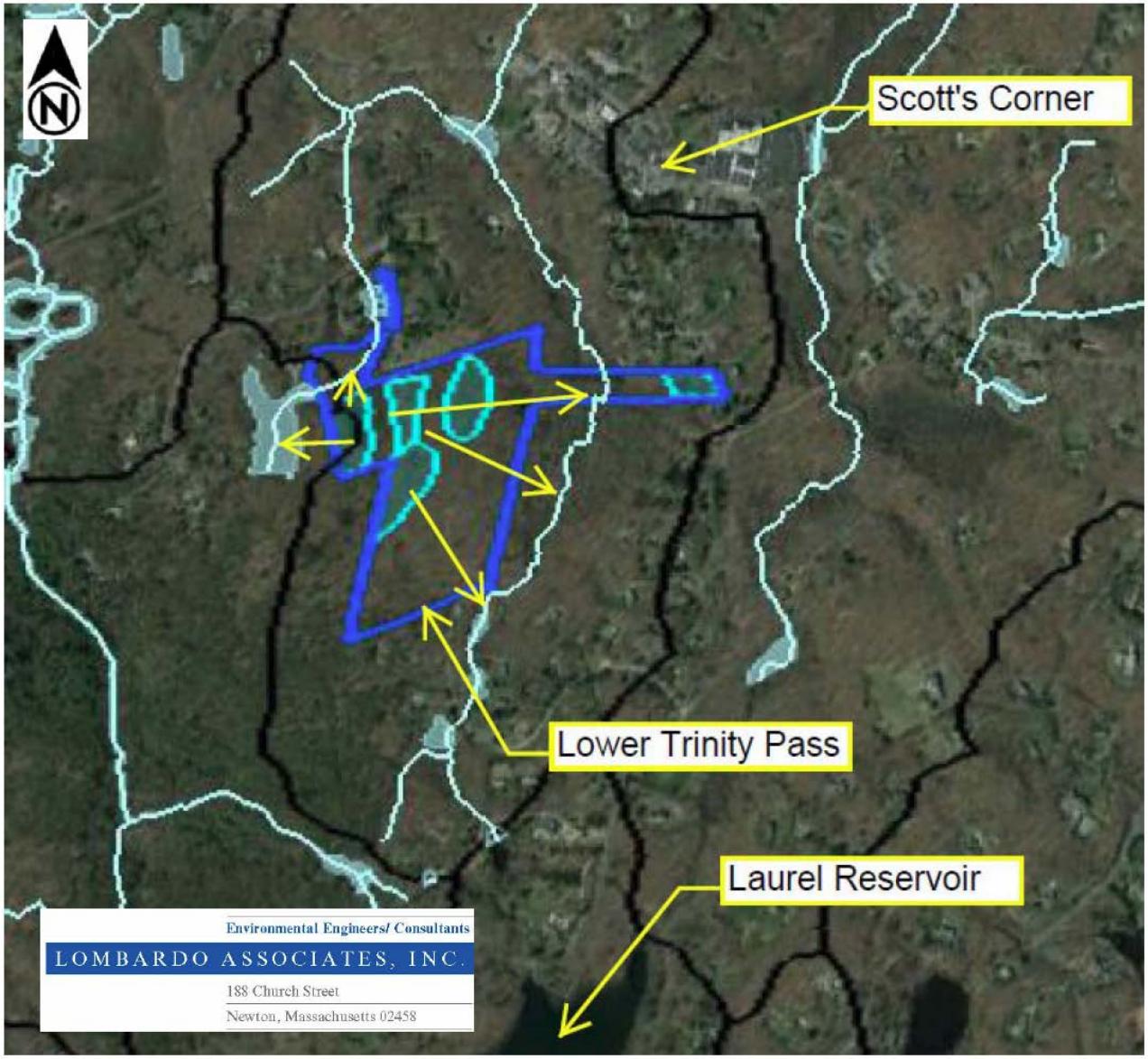


Figure 6-2-2 Lower Trinity Pass, Area Watershed Map

Table 6-2-1 Lower Trinity Pass, Test Pit Locations and Form for Field Data

Lower Trinity Road - New Test Pits by Zone							
Zone	TP #	GIS #	TP Location		Depth to		Soils Description
			Longitude	Latitude	BR	GW	
1	LT-1-1	19	-73.55564463	41.18528481			
	LT-1-2	16	-73.55500474	41.18550727			
	LT-1-3	18	-73.55542554	41.18560687			
	LT-1-4	17	-73.55533814	41.18593675			
	LT-1-5	13	-73.55531041	41.18648177			
	LT-1-6	14	-73.55527331	41.18694726			
	LT-1-7	20	-73.55568157	41.1861983			
	LT-1-8	27	-73.55612387	41.18612598			
	LT-1-9	28	-73.55621509	41.18589573			
2	LT-2-1	15	-73.55561873	41.18679428			
	LT-2-2	21	-73.55581771	41.18666947			
	LT-2-3	26	-73.55638451	41.18645849			
3	LT-3-1	24	-73.55661022	41.18672572			
4	LT-4-1	23	-73.55693585	41.18627887			
	LT-4-2	25	-73.55662131	41.18620317			
	LT-4-3	22	-73.55666576	41.18560507			
Total TPs	16						

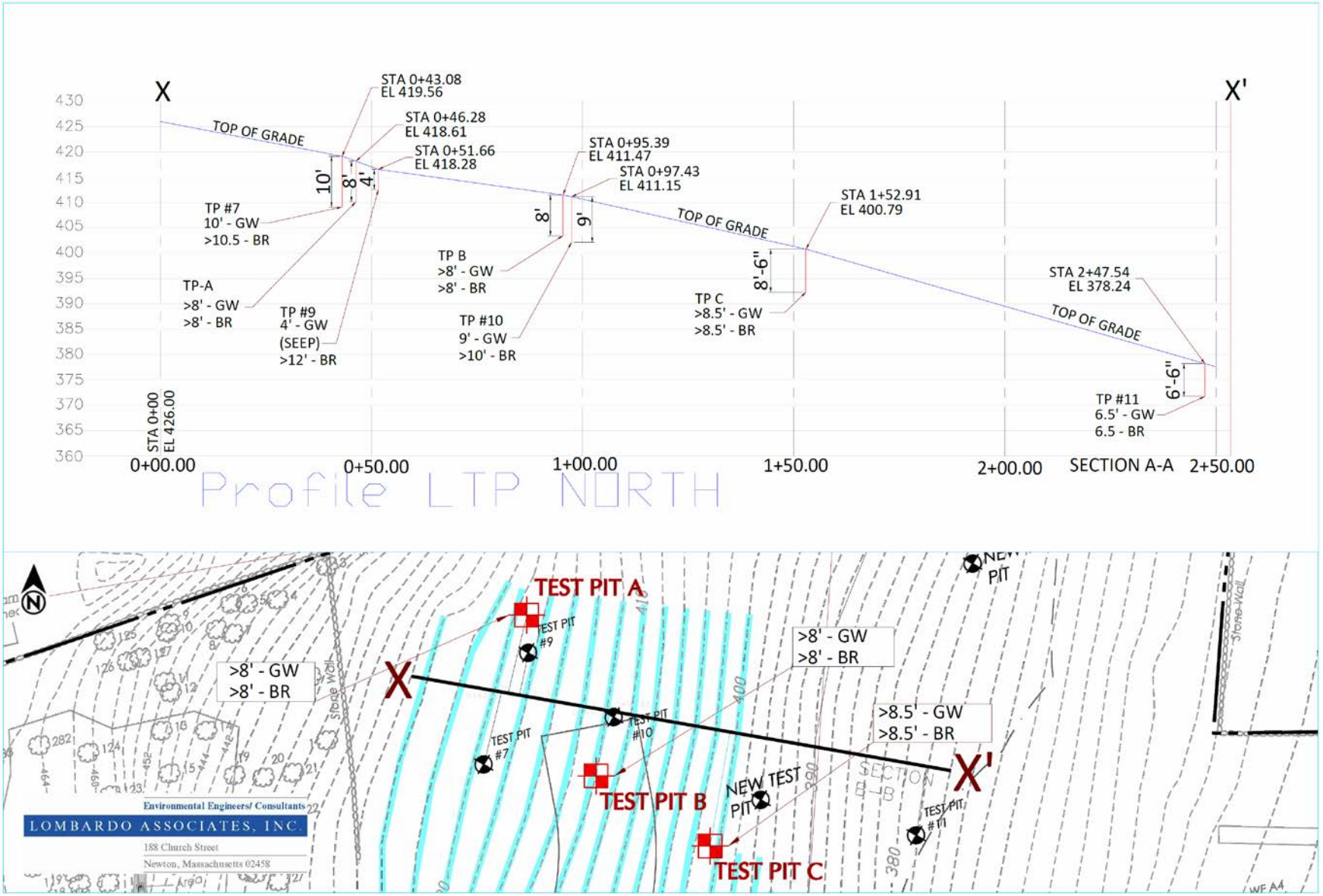


Figure 6-2-3 Lower Trinity Pass, North Test Pits Cross-Section

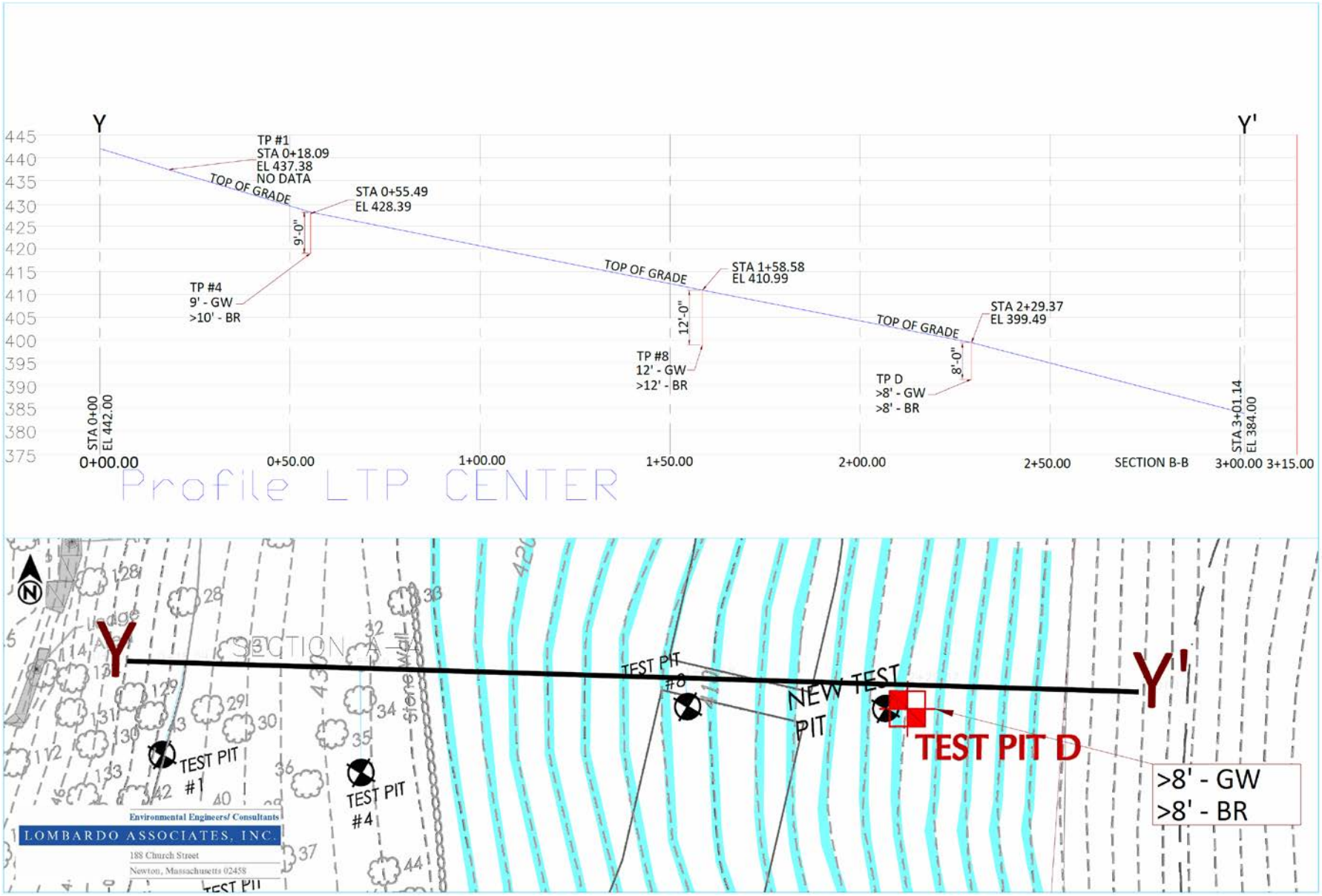


Figure 6-2-4 Lower Trinity Pass, Center Test Pits Cross-Section

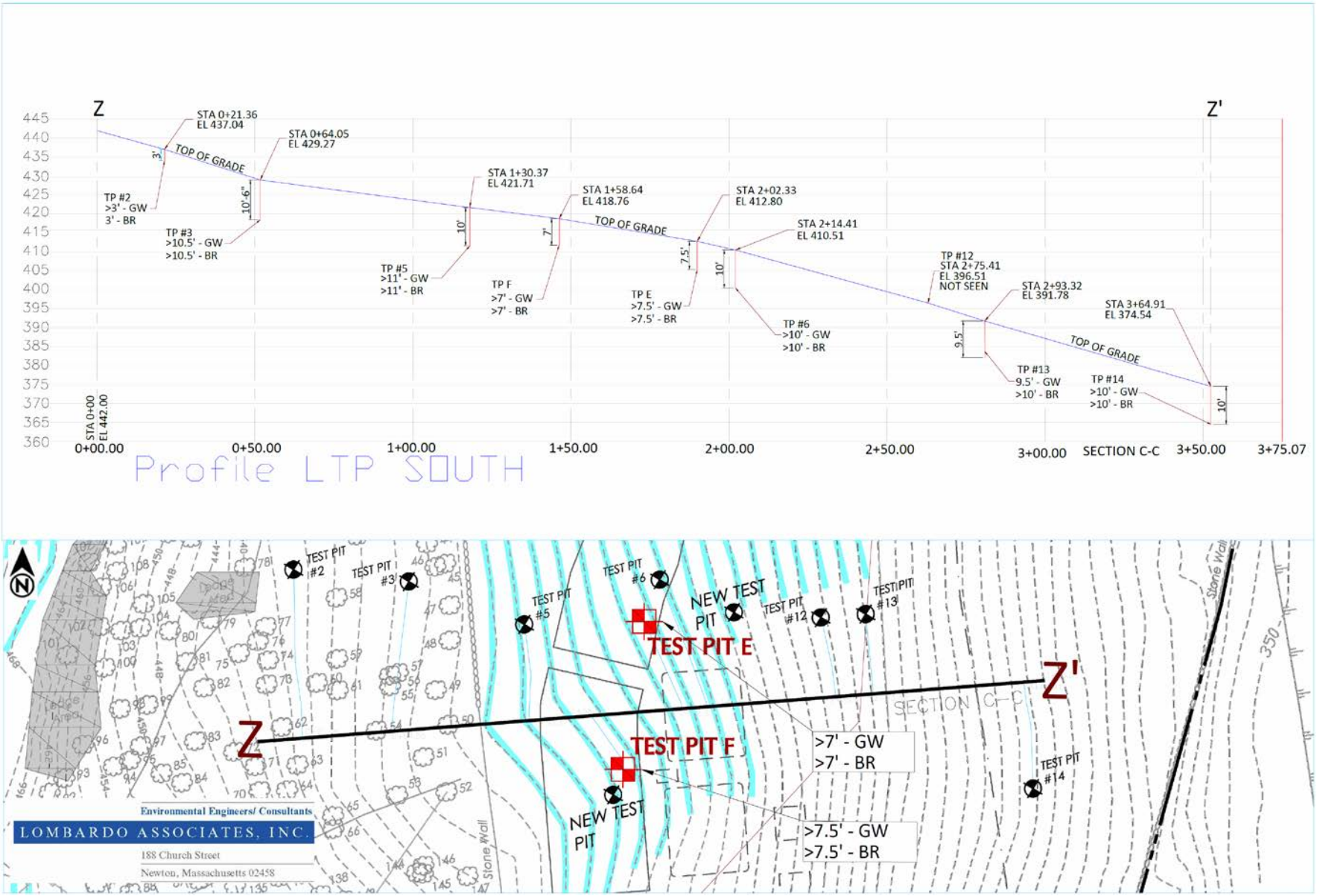


Figure 6-2-5 Lower Trinity Pass, South Test Pits Cross-Section

6.3 169 BARNEGAT ROAD

Test Pit Location Map is presented on Figure 6-3-1.
Area Watershed Map is presented on Figure 6-3-2.
Test Pits Locations and Form for Field Data is presented on Table 6-3-1.

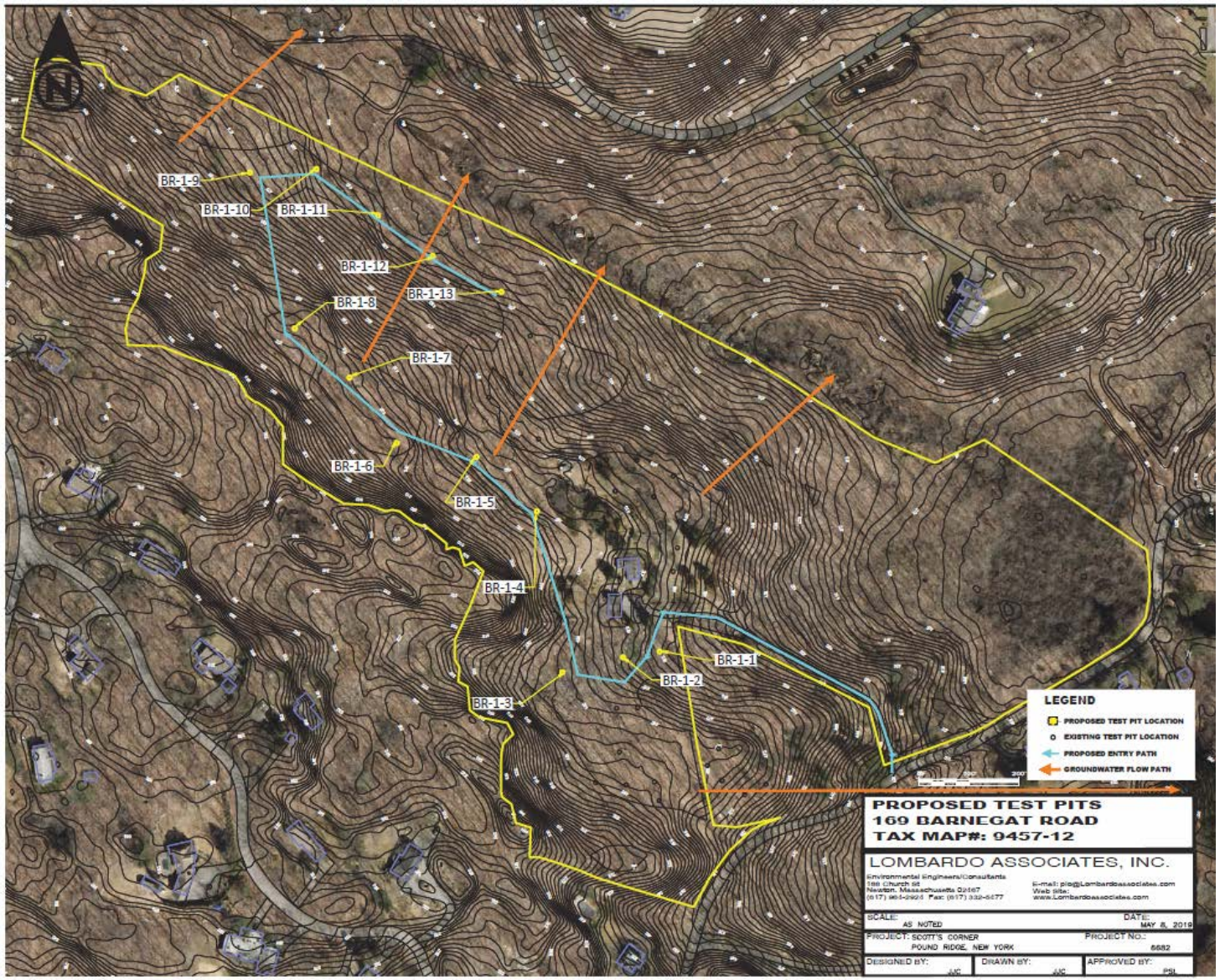


Figure 6-3-1 Barnegat Road, Test Pit Locations

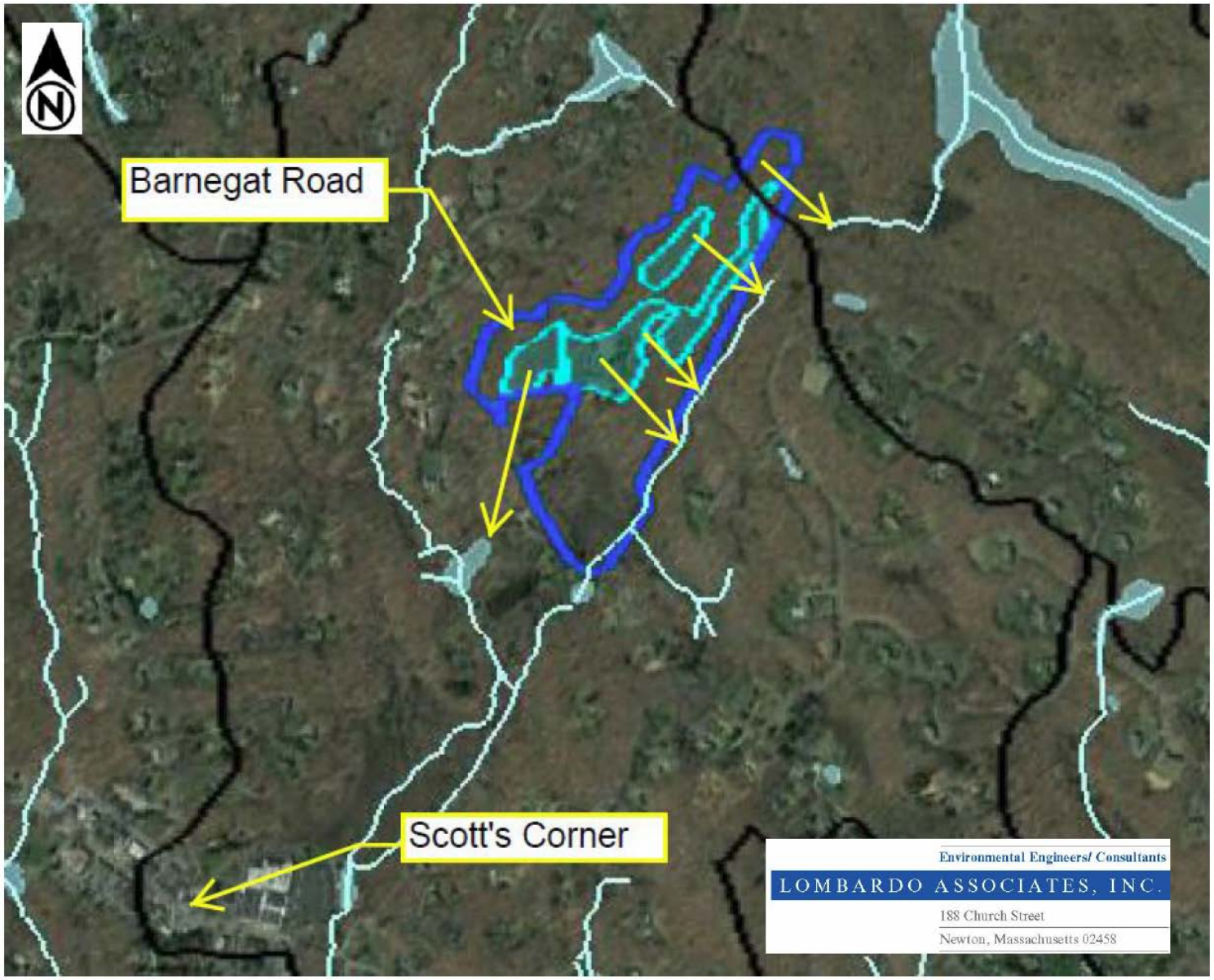


Figure 6-3-2 Barnegat Road, Area Watershed Map

Table 6-3-1 Barnegat Road, Test Pit Locations and Form for Field Data

Barnegat Road - New Test Pits by Zone							
Zone	TP #	GIS #	TP Location		Depth to		Soils Description
			Longitude	Latitude	BR	GW	
1	BR-1-1	12	-73.54352	41.197257			
	BR-1-2	11	-73.54356	41.197459			
	BR-1-3	10	-73.54367	41.197794			
	BR-1-4	9	-73.54249	41.197924			
	BR-1-5	8	-73.54209	41.198253			
	BR-1-6	7	-73.54198	41.198689			
	BR-1-7	6	-73.5415	41.198946			
	BR-1-8	5	-73.54114	41.199243			
	BR-1-9	4	-73.54	41.19948			
	BR-1-10	3	-73.53998	41.199115			
	BR-1-11	2	-73.54033	41.198779			
	BR-1-12	1	-73.54062	41.198481			
	BR-1-13	64	-73.54089	41.198105			
Total TPs	13						

6.4 TOWN PARK

Test Pit Location Map is presented on Figure 6-4-1.
Area Watershed Map is presented on Figure 6-4-2.
Test Pits Locations and Form for Field Data is presented on Table 6-4-1.

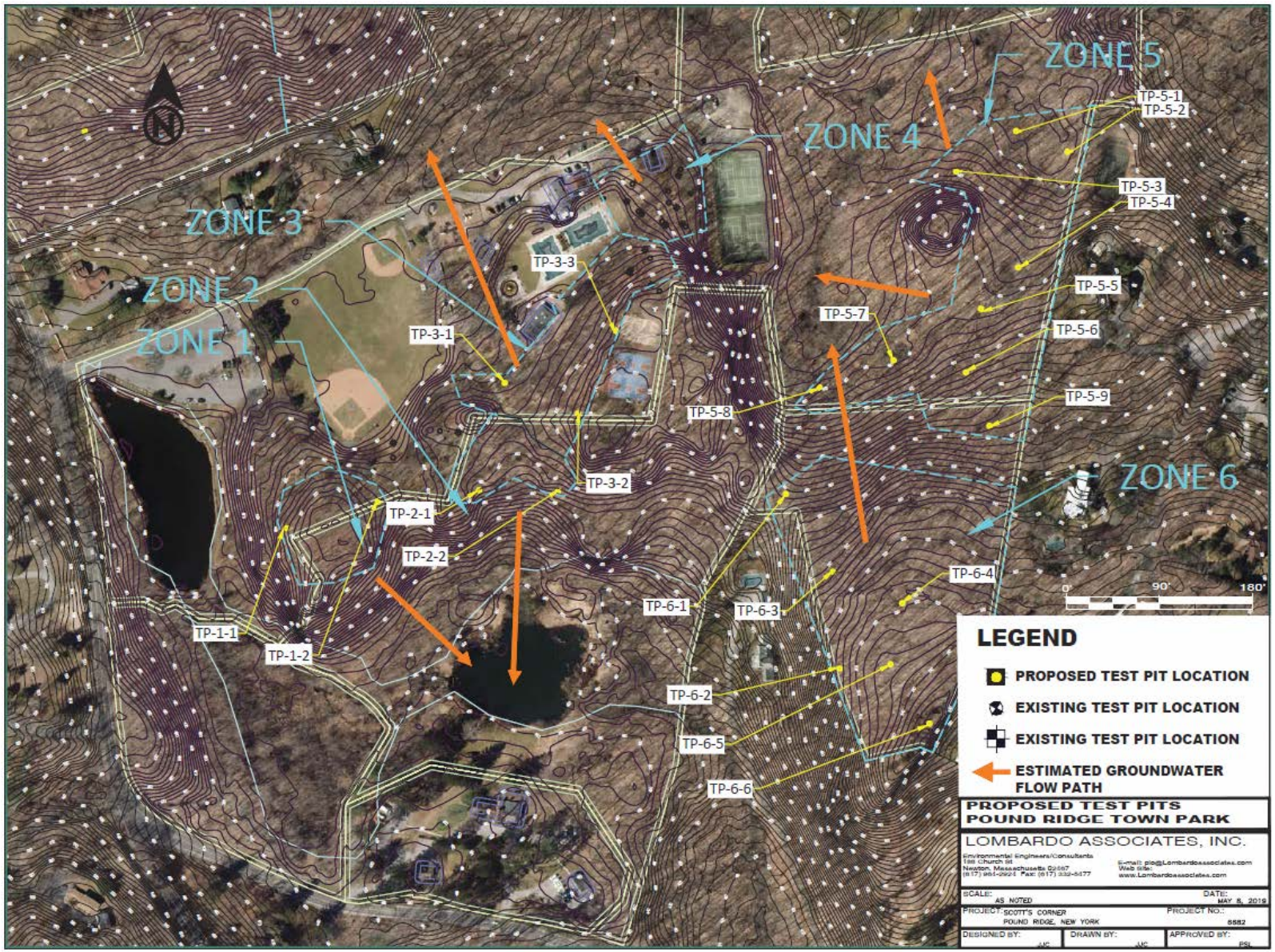


Figure 6-4-1 Town Park, Test Pit Locations

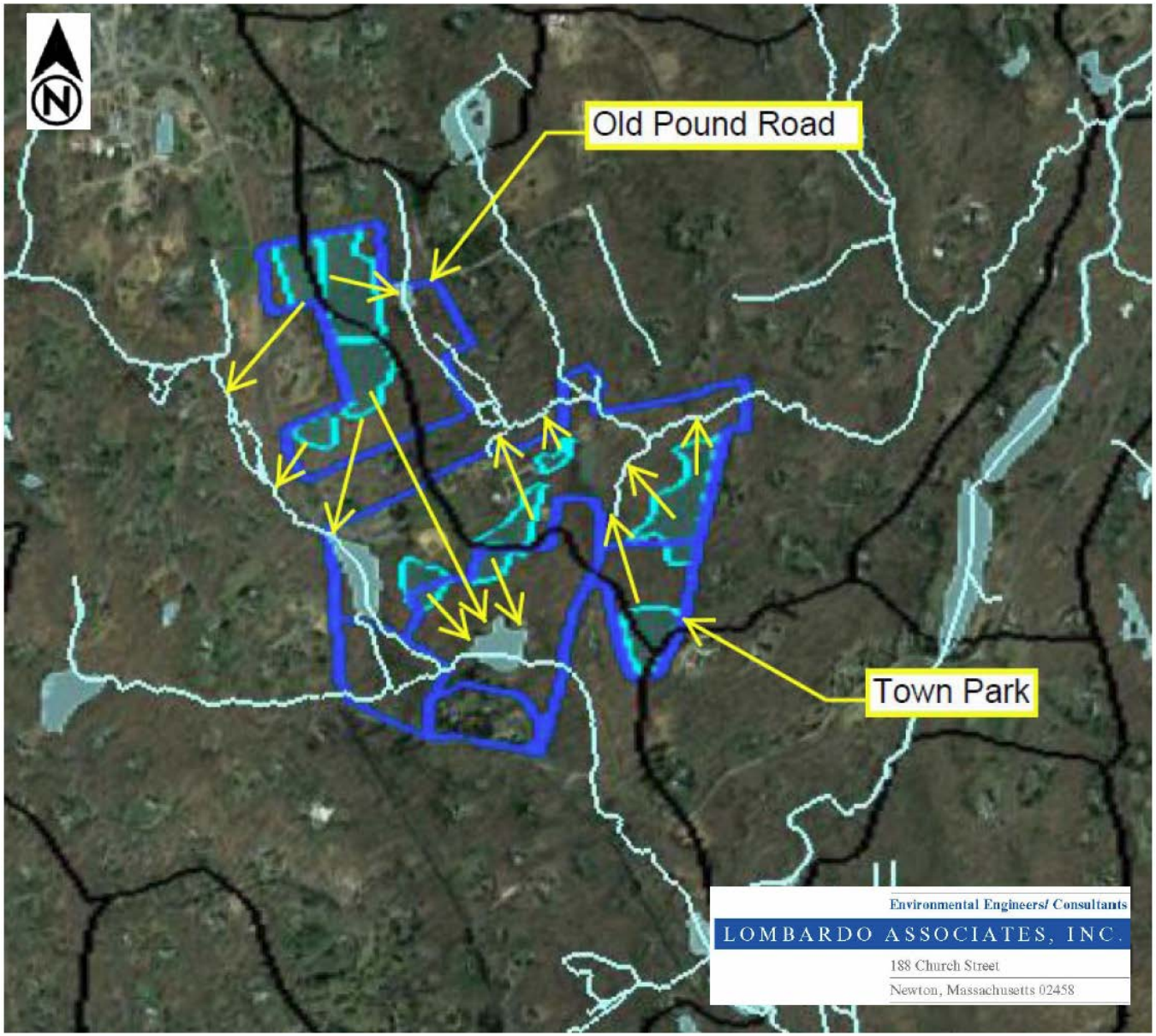


Figure 6-4-2 Town Park, Area Watershed Map

Table 6-4-1 Town Park, Test Pit Locations and Form for Field Data

Pound Ridge Town Park - New Test Pits by Zone							
Zone	TP #	GIS #	TP Location		Depth to		Soils Description
			Longitude	Latitude	BR	GW	
1	TP-1-1	42	-73.5704834	41.2003183			
	TP-1-2	43	-73.5697662	41.2004689			
2	TP-2-1	44	-73.568976	41.2005303			
	TP-2-2	45	-73.5683623	41.2005177			
3	TP-3-1	46	-73.5687679	41.2011606			
	TP-3-2	47	-73.5681984	41.200976			
	TP-3-3	48	-73.5678986	41.201462			
5	TP-5-1	50	-73.5647546	41.2026123			
	TP-5-2	49	-73.5643568	41.2024872			
	TP-5-3	51	-73.5652267	41.2023783			
	TP-5-4	52	-73.5647507	41.201809			
	TP-5-5	53	-73.5651674	41.201193			
	TP-5-6	56	-73.5650447	41.2015677			
	TP-5-7	54	-73.5657304	41.2012682			
	TP-5-8	55	-73.5663107	41.2011133			
	TP-5-9	57	-73.5649875	41.200876			
6	TP-6-1	58	-73.5665827	41.2004882			
	TP-6-2	62	-73.5662212	41.200027			
	TP-6-3	59	-73.5656835	41.1998373			
	TP-6-4	60	-73.5661764	41.1994562			
	TP-6-5	61	-73.5657809	41.1994786			
	TP-6-6	63	-73.5654811	41.1991267			
Total DHs	22						

6.5 OLD POUND ROAD

Test Pit Location Map is presented on Figure 6-5-1.
Area Watershed Map is presented on Figure 6-5-2.
Test Pits Locations and Form for Field Data is presented on Table 6-5-1.

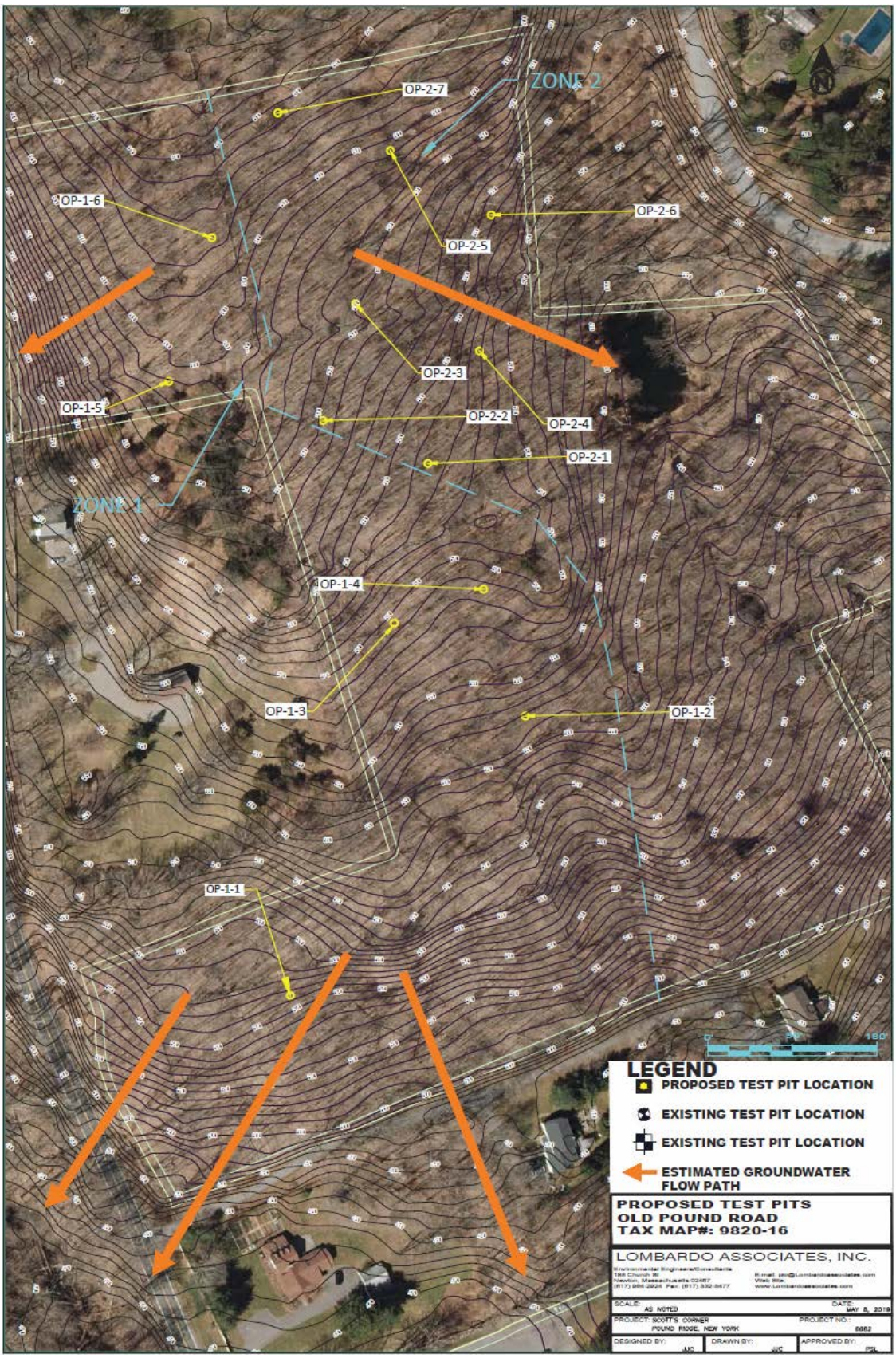


Figure 6-5-1 Old Pound Ridge, Test Pit Locations

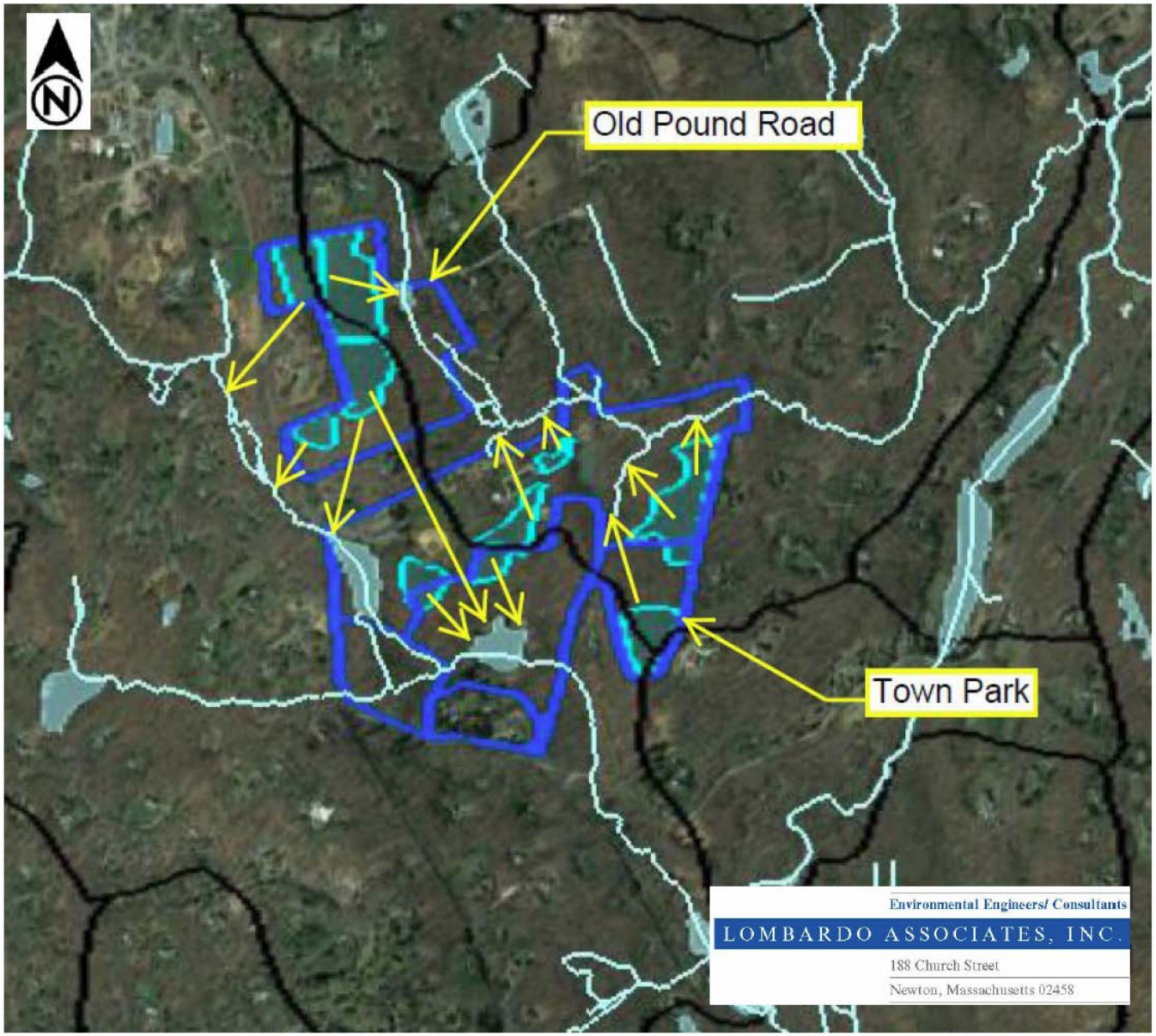


Figure 6-5-2 Old Pound Road, Area Watershed Map

Table 6-5-1 Old Pound Road, Test Pit Locations and Form for Field Data

Old Pound Road - New Test Pits by Zone							
Zone	TP #	GIS #	TP Location		Depth to		Soils Description
			Longitude	Latitude	BR	GW	
1	OP-1-1	29	-73.572025	41.2026706			
	OP-1-2	30	-73.571005	41.2035675			
	OP-1-3	32	-73.571562	41.203873			
	OP-1-4	31	-73.571178	41.2039795			
	OP-1-5	40	-73.572519	41.2046631			
	OP-1-6	41	-73.572327	41.2051266			
2	OP-2-1	33	-73.571411	41.2043884			
	OP-2-2	36	-73.571859	41.204531			
	OP-2-3	37	-73.571714	41.2049082			
	OP-2-4	34	-73.571185	41.2047505			
	OP-2-5	38	-73.571558	41.2054022			
	OP-2-6	35	-73.571128	41.2051909			
	OP-2-7	39	-73.572039	41.2055283			
Total TPs	13						

7. WASTEWATER SYSTEM – GROUNDWATER MODELING AND SITE SELECTION

To be completed after Town authorization of the work

8. WASTEWATER SYSTEM–PRELIMINARY ENGINEERING + OPINIONS ON COSTS

8.1 PRELIMINARY ENGINEERING

The process flow diagram for the proposed wastewater management system (WWMS), which consists of wastewater collection, treatment and disposal systems, is presented on Figure 8-1.

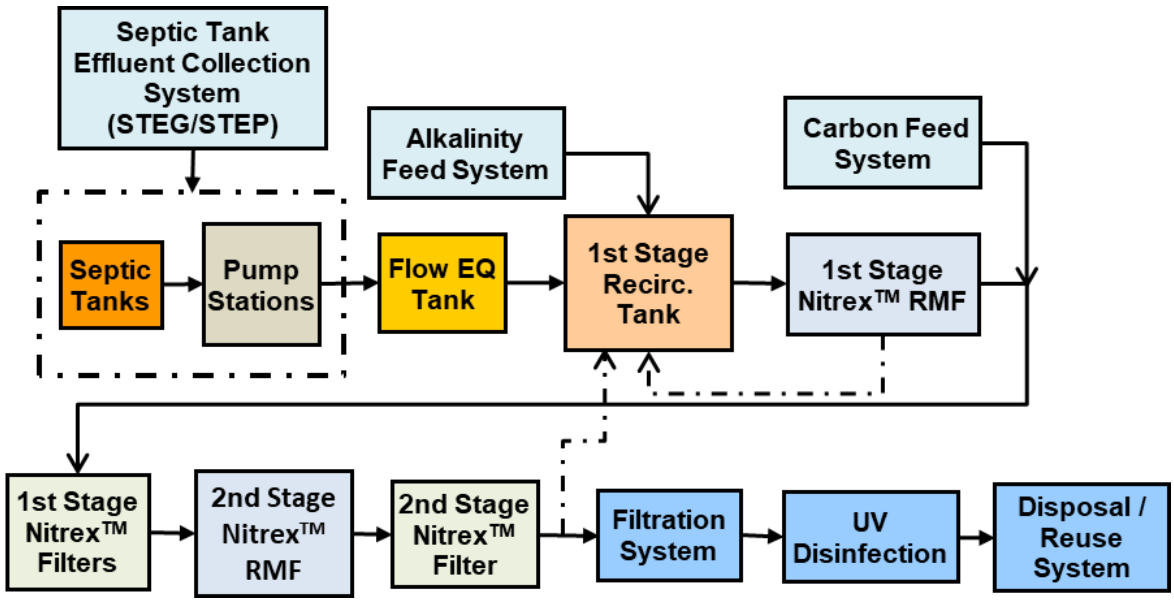


Figure 8-1 WWMS Process Flow Diagram

The treatment process has been selected as it can achieve Tertiary Disinfection Treatment, defined as the following effluent quality.

pH	6.5 – 8.5
BOD/TSS	< 10 mg/L
Oil & Grease	< 15 mg/L
Total Nitrogen (TN)	< 10 mg/L
Fecal Coliform	Average < 24 & Maximum < 200 MPN / 100 ml
Enterococcus	Average < 24 & Maximum < 104 MPN / 100 ml

The preliminary design and layouts for the Scotts Corner:

- ✓ Wastewater collection system. A septic tank effluent (STE) collection system, Figure 8-1, is proposed for Scotts Corner in which a new septic tank will serve each property, with grease trap as needed.

- ✓ Wastewater treatment and disposal system – initially located at Barnegat Road site

are presented on

Figure 8-2 Sewer Layout
Figure 8-3 Pump Station Plan Views
Figure 8-4 Transmission Line Layout

Figure 8-5 Wastewater Treatment and Disposal Site Layout at Barnegat Road Site
Figure 8-6 80,000-gpd Wastewater Treatment System Preliminary Layout

Due to Scotts Corner topography, a predominately gravity wastewater collection system is possible with drainage from northwest to the southeast boundaries of the proposed Service Area. Two pump stations are needed in the system:

- At the natural low point of the Service Area between 30 and 26 Westchester Avenue, which would discharge wastewater through a transmission pipe to the treatment and disposal site.
- At 80 Westchester Avenue to receive wastewater from the south side of Westchester Ave properties, 66 – 80 Westchester Avenue to avoid excessive deep installations due to a climb in elevation from 80 to 66 Westchester Avenue. Pump station would discharge to gravity line at 56 Westchester Avenue.

8.2 Project Capital Cost and Budget

Table 8-1 presents the capital costs of the conceptualized wastewater collection treatment and disposal system and the water supply system. Costs associated with the various candidate location options for treatment and disposal system are also presented on Table 8-1.

8.3 Annual O&M Costs

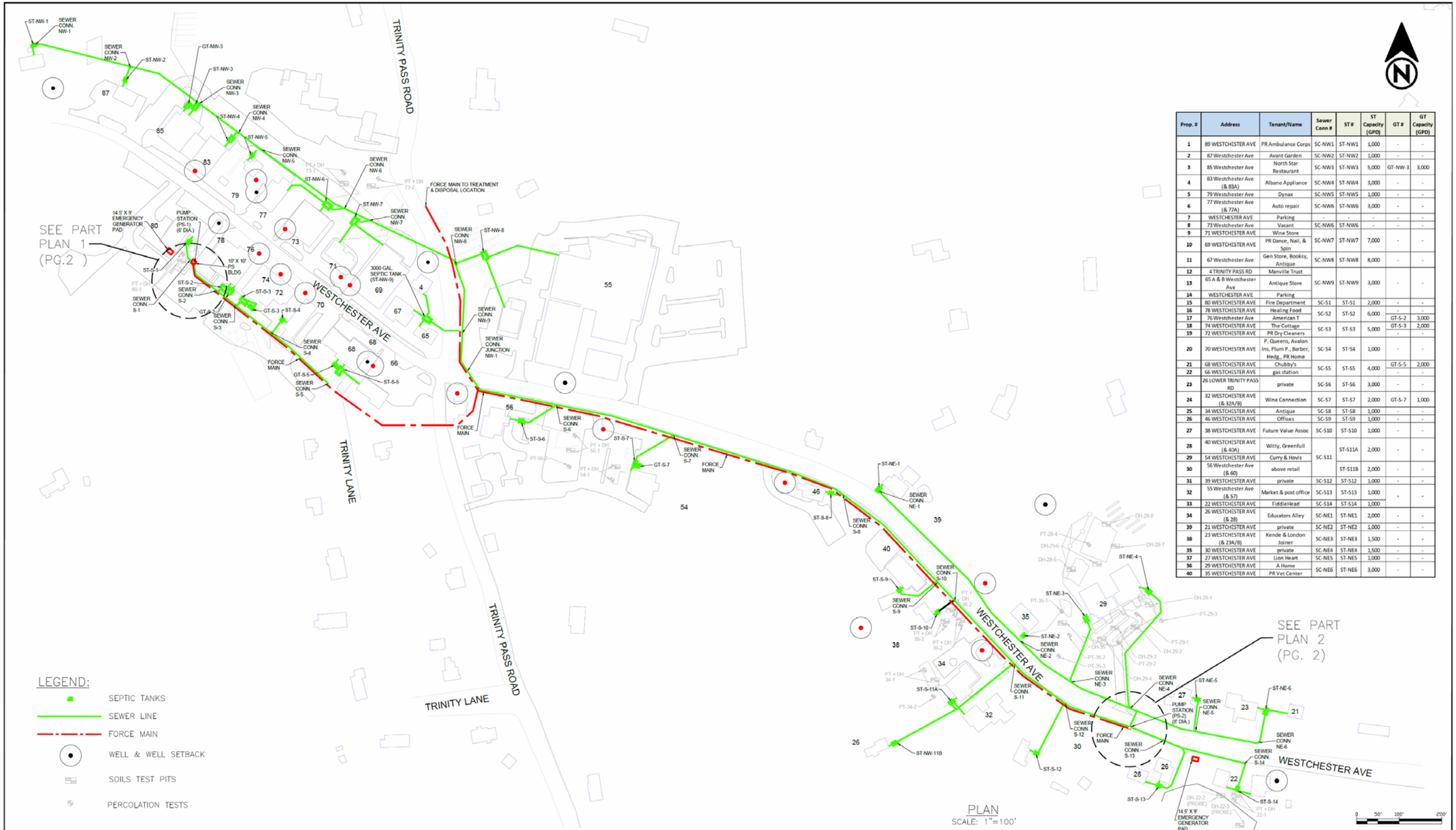
An Equivalent Dwelling Unit (EDU) is defined as a typical residential property with 300 gpd of wastewater flow. EDUs are used to normalize properties that have non-residential flows. Due to the significant variability associated with estimating O&M costs, Table 8-2 presents the probable revenue associated with assuming an annual O&M fee of $850/EDU – which is in the typical range for wastewater systems. The level of revenue would be sufficient, on a preliminary analysis for 2 operators and expected electricity, materials and annual equipment replacement costs.

Table 8-2 Scotts Corner Wastewater System Opinion of Probable O&M Revenue

Scott's Corner Annual O&M Revenue Estimate		
Cost/EDU	# EDUs	Total O&M Revenue
$850	261	$ 221,624

8.4 Wastewater and Water Supply Implementation / Connection Issues

Existing water supply and wastewater facilities will be abandoned in place in accordance with WCDoH and NYSDEC standards/requirements. A water supply and wastewater systems connection plan will be developed during design to ensure that properties have continuous service during construction. For instance, treatment plant/disposal system and transmission line is built first, then the common collection system, then property connections are made. When existing wastewater or water facilities will be affected, properties will be able to immediately connect to the sewer and water supply system.



Prop. #	Address	Tenant/Name	Sewer Conn #	ST #	ST Capacity (GPD)	GT #	GT Capacity (GPD)
1	89 WESTCHESTER AVE	PR Ambulance Corps	SC-NW1	ST-NW1	1,000	-	-
2	87 Westchester Ave	Avant Garden	SC-NW2	ST-NW2	1,000	-	-
3	85 Westchester Ave	North Star Restaurant	SC-NW3	ST-NW3	5,000	GT-NW-3	3,000
4	83 Westchster Ave (& 83A)	Albano Appliance	SC-NW4	ST-NW4	3,000	-	-
5	79 Westchester Ave	Dynax	SC-NW5	ST-NW5	1,000	-	-
6	77 Westchester Ave (& 77A)	Auto repair	SC-NW6	ST-NW6	3,000	-	-
7	WESTCHESTER AVE	Parking			-	-	-
8	73 Westchster Ave	Vacant	SC-NW6	ST-NW6	-	-	-
9	71 WESTCHESTER AVE	Wine Store					
10	69 WESTCHESTER AVE	PR Dance, Nail, & Spin	SC-NW7	ST-NW7	7,000	-	-
11	67 Westchester Ave	Gen Store, Booksy, Antique	SC-NW8	ST-NW8	8,000	-	-
12	4 TRINITY PASS RD	Manville Trust					
13	65 A & B Westchester Ave	Antique Store	SC-NW9	ST-NW9	3,000	-	-
14	WESTCHESTER AVE	Parking					
15	80 WESTCHESTER AVE	Fire Department	SC-S1	ST-S1	2,000	-	-
16	78 WESTCHESTER AVE	Healing Food	SC-S2	ST-S2	6,000	-	-
17	76 Westchester Ave	American T				GT-S-2	3,000
18	74 WESTCHESTER AVE	The Cottage	SC-S3	ST-S3	5,000	GT-S-3	2,000
19	72 WESTCHESTER AVE	PR Dry Cleaners				-	-
20	70 WESTCHESTER AVE	P. Queens, Avalon Ins, Plum P., Barber, Hedg., PR Home	SC-S4	ST-S4	1,000	-	-
21	68 WESTCHESTER AVE	Chubby's	SC-S5	ST-S5	4,000	GT-S-5	2,000
22	66 WESTCHESTER AVE	gas station				-	-
23	26 LOWER TRINITY PASS RD	private	SC-S6	ST-S6	3,000	-	-
24	32 WESTCHESTER AVE (& 32A/B)	Wine Connection	SC-S7	ST-S7	2,000	GT-S-7	1,000
25	34 WESTCHESTER AVE	Antique	SC-S8	ST-S8	1,000	-	-
26	46 WESTCHESTER AVE	Offices	SC-S9	ST-S9	1,000	-	-
27	38 WESTCHESTER AVE	Future Value Assoc	SC-S10	ST-S10	1,000	-	-
28	40 WESTCHESTER AVE (& 40A)	Witty, Greenfull	SC-S11	ST-S11A	2,000	-	-
29	54 WESTCHESTER AVE	Curry & Hovis					
30	56 Westchester Ave (& 60)	above retail		ST-S11B	2,000	-	-
31	39 WESTCHESTER AVE	private	SC-S12	ST-S12	1,000	-	-
32	55 Westchester Ave (& 57)	Market & post office	SC-S13	ST-S13	1,000	-	-
33	22 WESTCHESTER AVE	FiddleHead	SC-S14	ST-S14	1,000		
34	26 WESTCHESTER AVE (& 28)	Educators Alley	SC-NE1	ST-NE1	2,000	-	-
39	21 WESTCHESTER AVE	private	SC-NE2	ST-NE2	1,000	-	-
38	23 WESTCHESTER AVE (& 23A/B)	Kende & London Joiner	SC-NE3	ST-NE3	1,500	-	-
35	30 WESTCHESTER AVE	private	SC-NE4	ST-NE4	1,500	-	-
37	27 WESTCHESTER AVE	Lion Heart	SC-NE5	ST-NE5	1,000	-	-
36	29 WESTCHESTER AVE	A Home	SC-NE6	ST-NE6	3,000	-	-
40	35 WESTCHESTER AVE	PR Vet Center					

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

NOTE:
Under N.Y.S. Education Law Sec. 7209 Sub.2, it is illegal for any person, unless acting under the direction of a LICENSED Professional Engineer, to alter any item on this material in any way. If any item is so altered, the Professional Engineer who so alters or who directs another to so alter, shall affix to the items his seal and the notation "altered by" followed by his signature, the date of alteration and a specific description of the alteration.

LOMBARDO ASSOCIATES, INC.
Environmental Engineers/Consultants
188 Church St
Newton, Massachusetts 02467
(617) 964-2924 Fax: (617) 332-5477
E-mail: plo@Lombardoassociates.com
Web Site: www.Lombardoassociates.com

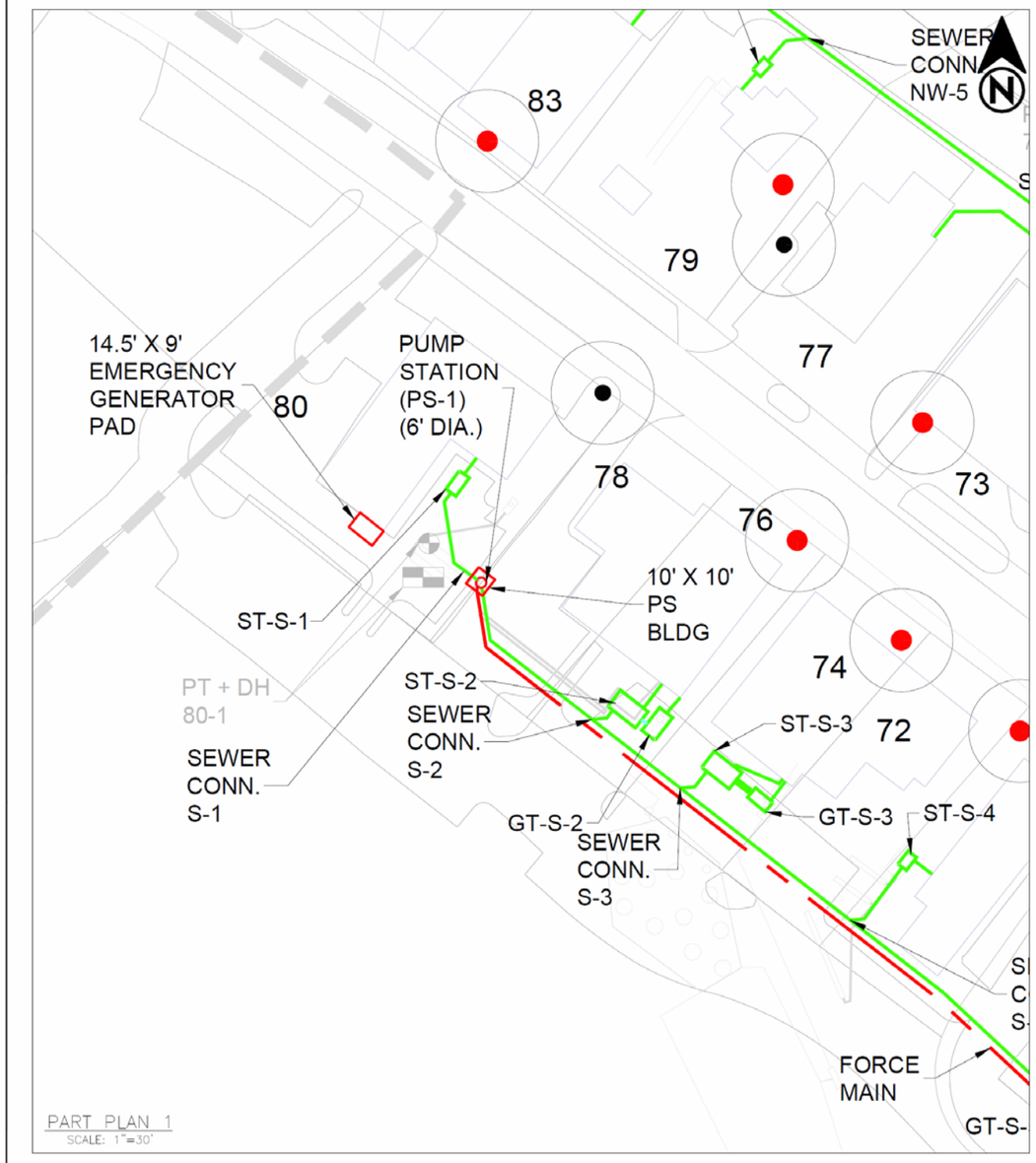
SCALE: AS NOTED | DPW #: | DHS #: | DATE: MARCH 29, 2019
PROJECT: SCOTT'S CORNER POUND RIDGE, NEW YORK | PROJECT NO.: 6682
DESIGNED BY: JJC | DRAWN BY: JJC | APPROVED BY: PSL

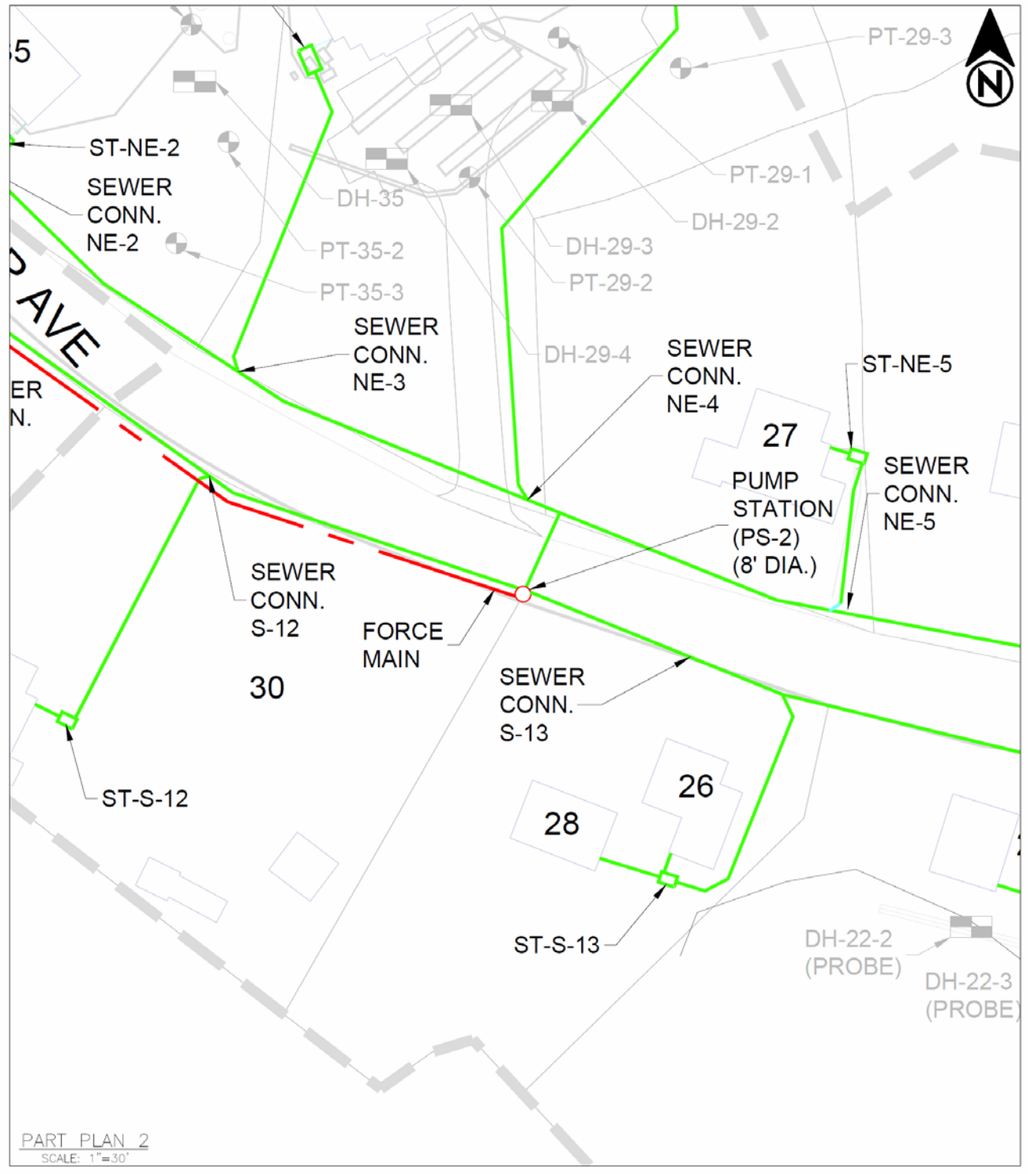
1
SHEET 1 OF 3

SCOTT'S CORNER
PRELIMINARY SEWER LAYOUT

PREPARED FOR:
TOWN OF POUND RIDGE

Figure 8-2 Scotts Corner Preliminary Sewer Layout Plan





REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

NOTE:
Under N.Y.S. Education Law Sec. 7209 Sub.2, it is illegal for any person, unless acting under the direction of a LICENSED Professional Engineer, to alter any item on this material in any way. If any item is so altered, the Professional Engineer who so alters or who directs another to so alter, shall affix to the items his seal and the notation "altered by" followed by his signature, the date of alteration and a specific description of the alteration.

LOMBARDO ASSOCIATES, INC.
Environmental Engineers/Consultants
188 Church St
Newton, Massachusetts 02467
(617) 964-2924 Fax: (617) 332-5477
E-mail: plo@Lombardoassociates.com
Web Site: www.Lombardoassociates.com

SCALE: AS NOTED | DPW #: | DHS #: | DATE: MARCH 29, 2019
PROJECT: SCOTT'S CORNER POUND RIDGE, NEW YORK | PROJECT NO.: 6682
DESIGNED BY: JJC | DRAWN BY: JJC | APPROVED BY: PSL

2
SHEET 2 OF 3

SCOTT'S CORNER
PUMP STATIONS PS-1
& PS-2 VIEWS

PREPARED FOR:
TOWN OF POUND RIDGE

Figure 8-3 Scotts Corner Pump Station Plan Views

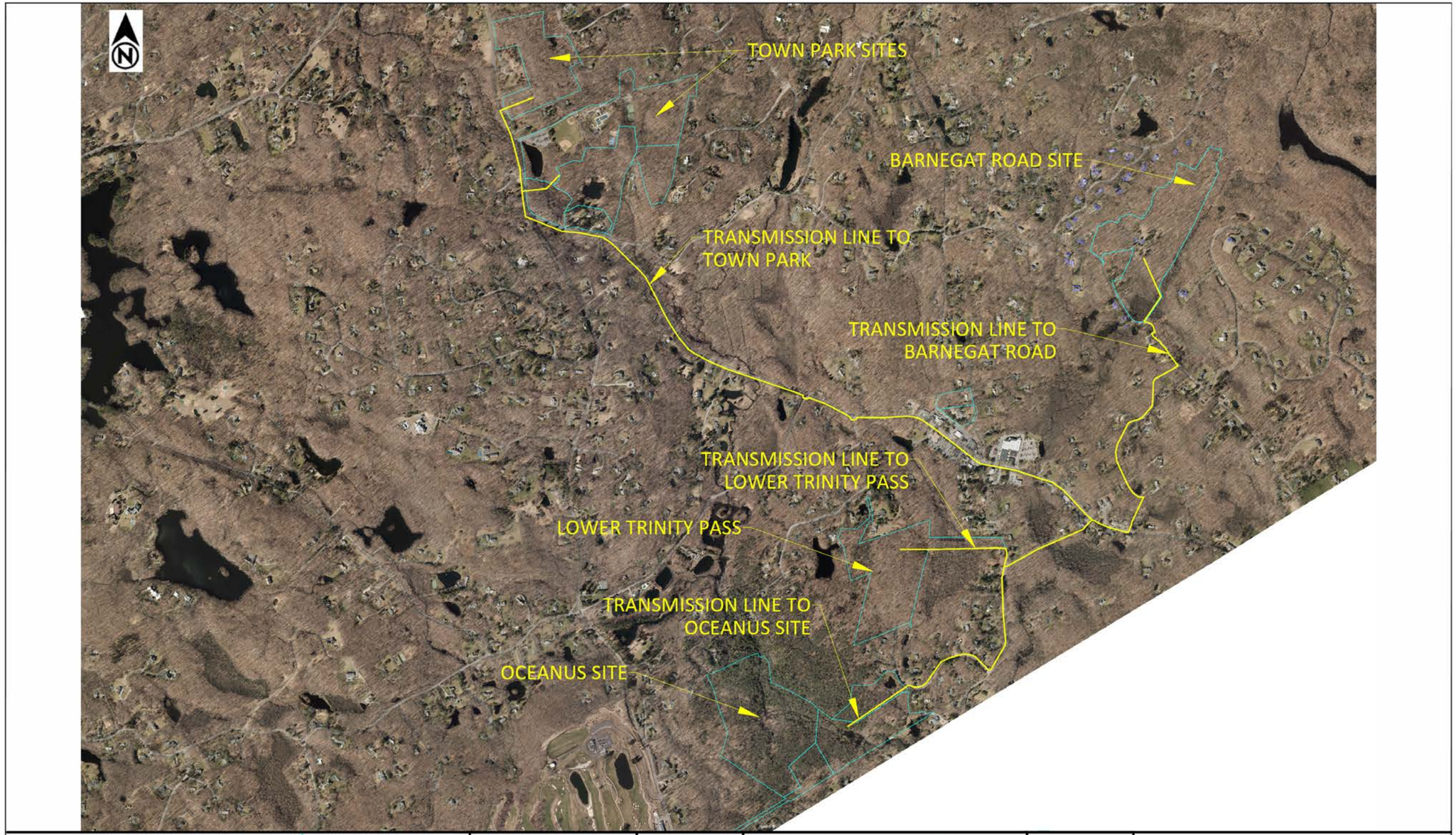


Figure 8-4 Scotts Corner Preliminary Transmission Line Layout

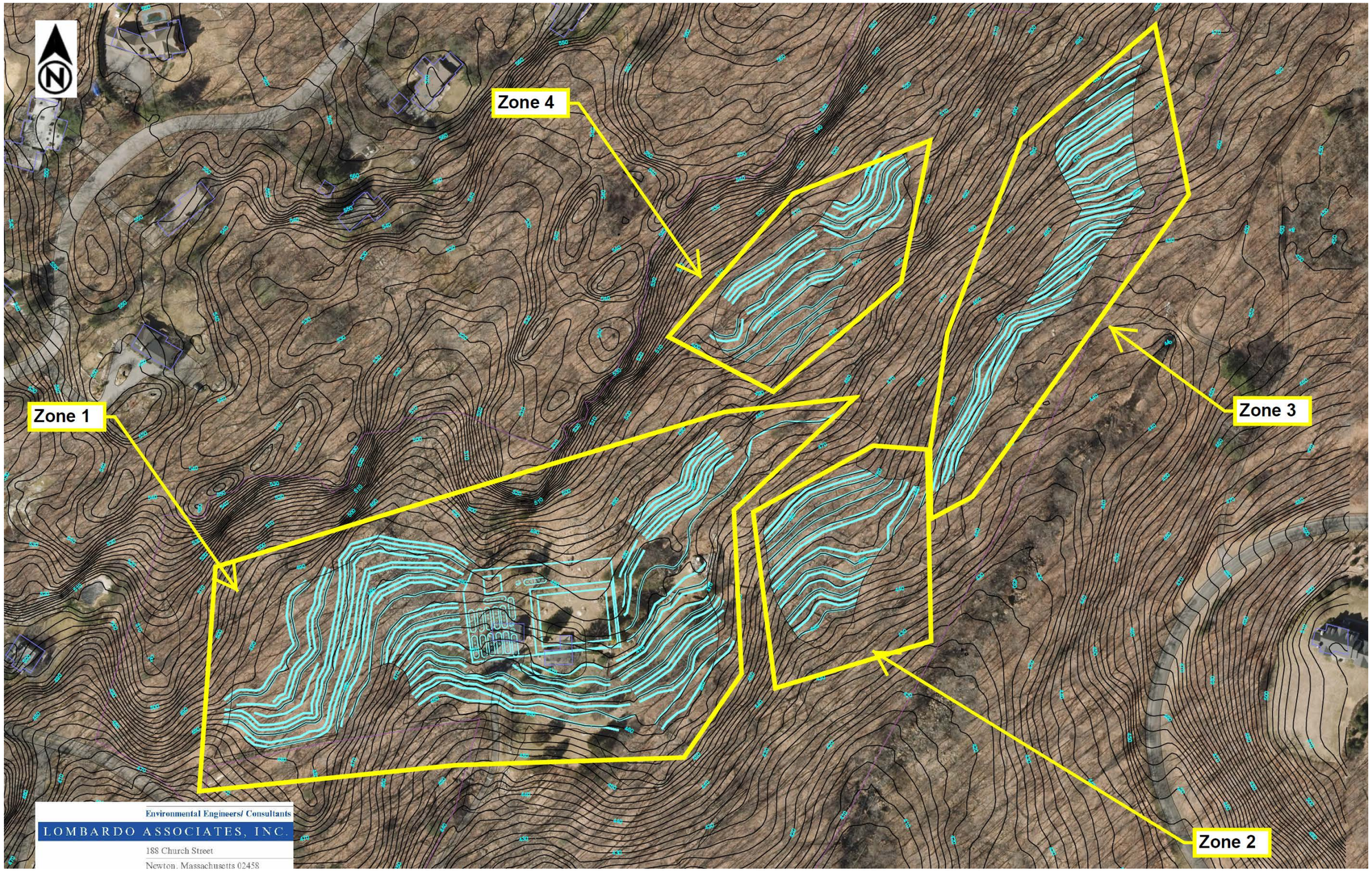


Figure 8-5 Barnegat Road Preliminary Wastewater Treatment and Disposal Site Layout

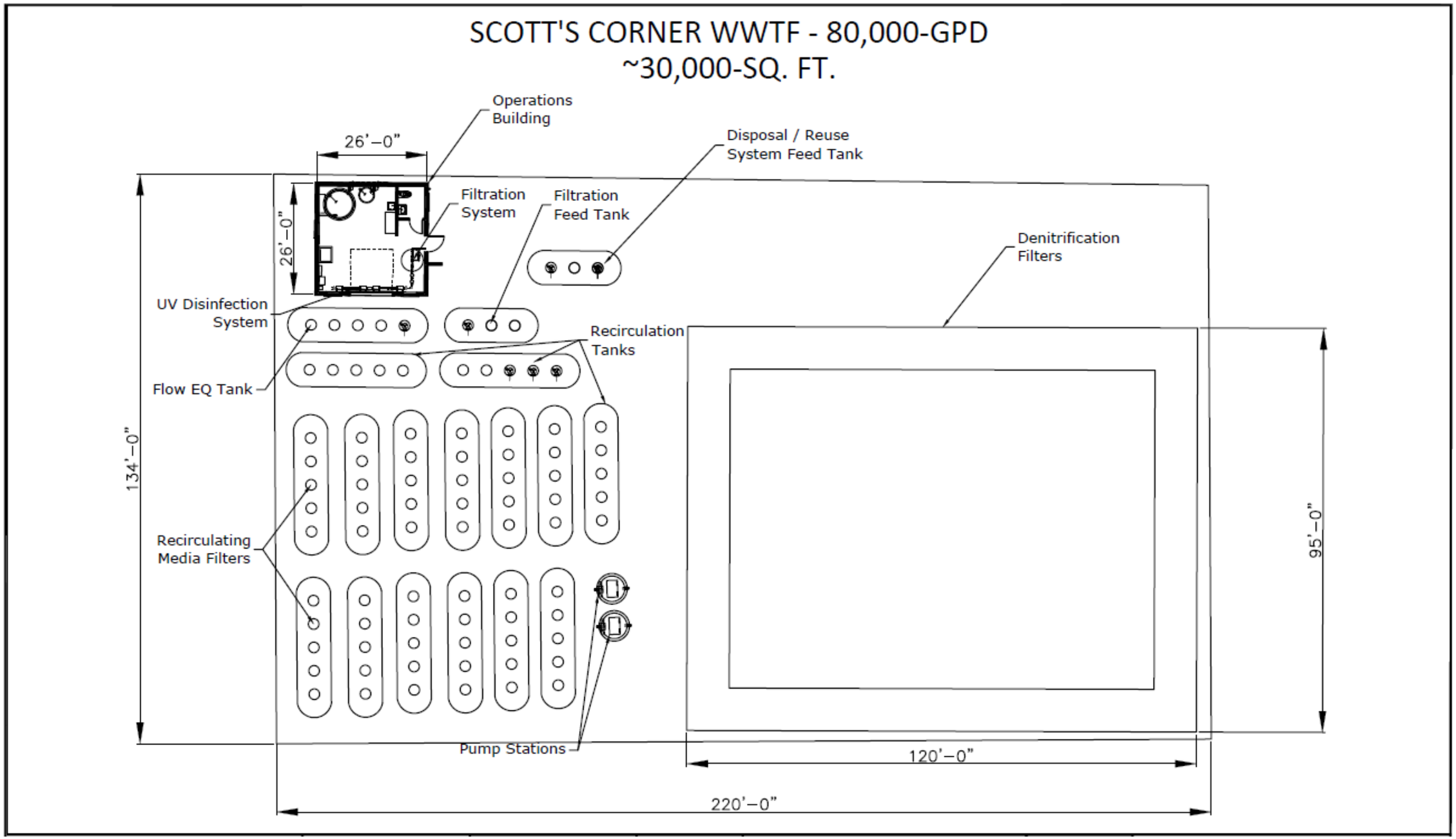


Figure 8-6 80,000-gpd Wastewater Treatment System Preliminary Layout

Table 8-1 Scotts Corner Wastewater System Opinion of Probable Cost

Scott's Corner Wastewater System Opinion on Probable Cost						
Study Area						
# of Dev. Prop.	40					
WW Design Flow (gpd)	80,000	1 EDU = 300 GPD				
Equivalent EDUs	267					
Item	**Size**		**Qty.**	**Unit**	**Unit Cost**	**Total Cost**
Septic Tanks			30	#		
Septic Tank Cost Subtotal			75,000	gallons	$4.00	$300,000
Grease Traps			5	#		
Grease Trap Cost Subtotal			11,000	gallons	$4.00	$44,000
Property Connections			1,005	LF	$40.00	$40,216
Property Laterals - UnPaved			1,187	LF	$40.00	$47,480
Property Laterals - Paved			679	LF	$55.00	$37,345
Main Sewer		4" gravity	3,253	LF	$60.00	$195,204
		6" gravity	1,820	LF	$70.00	$127,400
		2" FM	3,109	LF	$40.00	$124,376
STE Pumps			5	#	$15,000	$75,000
Cleanouts		1 per 200 ft sewer	71	#	$900	$63,900
STE Pump Station	PS-1 : 8,000 / PS-2: 80,000	gpd	2	#	$100,000	$200,000
Asphalt cut, remove and replace	2.5	ft wide	1,137	SF	$40.00	$45,500
Rock Excavation Quantity	Assumes 3' trench, 2' below surface[1]		3,531	CY	$200	$706,204
Collection System Construction Costs						$2,050,625
Treatment System	60	$/gpd	80,000	gpd	$65	$5,200,000
Disposal System	5	$/gpd	80,000	gpd	$7.00	$560,000
Basic System Construction Costs - Subtotal						$7,810,625
Misc					25%	$1,952,656
Contingency					35%	$3,417,149
Engineering / Special Services					25%	$3,295,108
Total Capital Costs						$16,476,000
Total Capital Cost / EDU					267	$61,790

Wastewater System - Location Options Cost Estimate with Water Supply Costs						
	Site Name	Barnegat	Oceanus	Town Park	Old Pound Rd	Lower Trinity
Item	Unit	9457-12	9320-13.9-12, 9320-13.9-13 & 9320-13.9-15	9820-1, 9820-2.2, 9820-8, 9820-86	9820-16	9320-28
Basic WW System Capital Cost (from above)	$	$16,476,000	$16,476,000	$16,476,000	$16,476,000	$16,476,000
Land Cost	$	$0	$0	$0	$0	$0
Land Area	acres					
Transmission Pipe Length	LF	5,000	4,200	10,500	11,000	2,800
Transmission Pipe Unit Cost	$/LF	$80	$80	$80	$80	$80
Transmission Pipe Cost	$	$400,000	$336,000	$840,000	$880,000	$224,000
Additional Route Unit Costs	$/LF	$30	$20	$30	$30	$20
Additional Route Costs	$	$150,000	$84,000	$315,000	$330,000	$56,000
Site Development	LS	$400,000	$300,000	$500,000	$400,000	$400,000
Contingency	25%	$237,500	$180,000	$413,750	$402,500	$170,000
WW Site Option Sub-Total	$	$1,187,500	$900,000	$2,068,750	$2,012,500	$850,000
Total WW Option Total	$	$17,663,500	$17,376,000	$18,544,750	$18,488,500	$17,326,000
Water Supply		$9,251,000	$9,251,000	$9,251,000	$9,251,000	$9,251,000
Uncertainty Allowance		$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000
Grand Total	$	$30,914,500	$30,627,000	$31,795,750	$31,739,500	$30,577,000
Increase above lowest Cost		$337,500	$50,000	$1,218,750	$1,162,500	$0
Change vs Town Park		-$881,250	-$1,168,750	$0	-$56,250	-$1,218,750
Total $ / EDU	$	$115,929	$114,851	$119,234	$119,023	$114,663

8.5 Energy Efficiency Considerations

The wastewater collection system is predominately a gravity collection system. The wastewater treatment system uses low energy – passive techniques for wastewater purification.

8.6 Impact of Climate Change / Resiliency

Climate change is not expected to impact the project as the properties are well above flood plain elevations and not near coastal areas.

8.7 Risk Considerations

As the proposed wastewater and water supply infrastructure will be new, there will be little risk to critical infrastructure. Existing facilities will be abandoned in place in accordance with County / State regulations. A wastewater and water supply connection plan will be developed so that properties have continuous service.

9. WATER SYSTEM – PRELIMINARY ENGINEERING AND COST ESTIMATES

9.1 PRELIMINARY ENGINEERING

This section presents the preliminary engineering design and layout for a water supply system to serve the Scotts Corner Study Area. The water supply options are:

- ✓ Connection to Aquarion Water Company system – which has a water tank at the Pound Ridge Golf Course. That is the only location that Aquarion can supply from.

- ✓ Scotts Corner Water Supply Treatment System – According to the December 21, 1973 Agreement, Section 13) between the Town and Stamford Water Company (now Aquarion), the Town has "the right, privilege and priority to draw water from the Siscowit Reservoir…..For that limited purpose the Town shall be deemed to have a perpetual easement over the Water Company property to locate pump house, pipes and other equipment…"

Pending negotiations with Aquarion for the Town to tap into the Aquarion water supply system at / near the water tank, the proposed water supply system would be fed from the Aquarion Water Company water tank located at the Pound Ridge Golf Course, then north along High Ridge Road to Upper Shad Road east to Westchester Avenue and then south to end at 21 Westchester Avenue.

Figure 9-1 presents the preliminary water system layout from the Pound Ridge Golf Course to the end of Scotts Corner. An 8" water supply line is assumed, pending information from Aquarion on supply pressure and ability to supply fire flows. Figure 9-2 is a magnified view of the water system layout within Scotts Corner, including all house connections and street crossings within Scotts Corner.

The Pound Ridge Volunteer Fire Department has indicated that it needs 5,000 gpm for two (2) hours for fire flow requirements. The degree to which this is addressed by the Aquarion connection at the Golf Course or a new Water Treatment Plant supplied by the Siscowit Reservoir or a Fire Flow Water Storage Facility or a combination of sources is to be determined during design.

Figure 9-1 Scotts Corner Preliminary Water System Layout

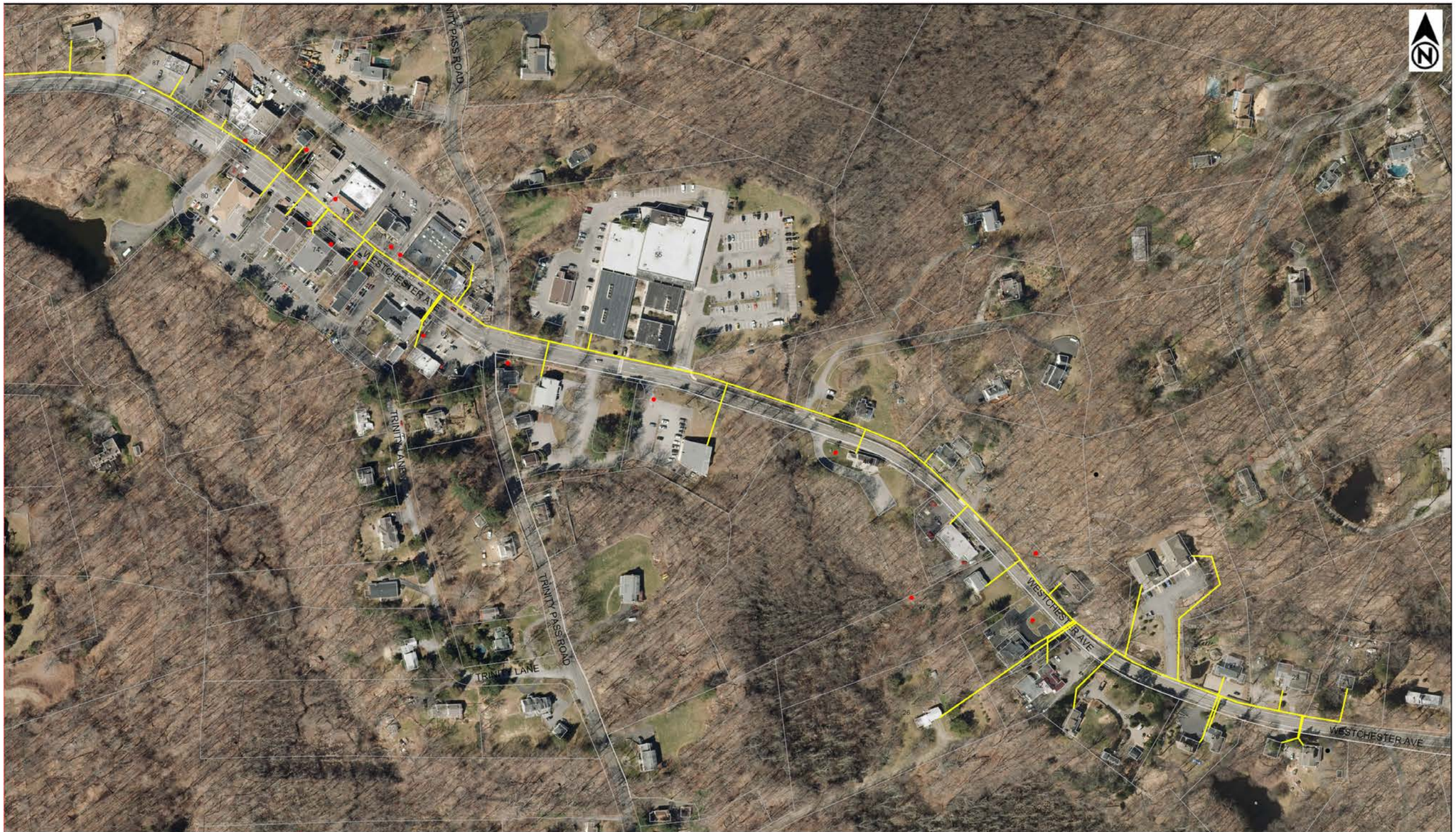


Figure 9-2 Scotts Corner Preliminary Water System Layout

9.2 System Capital Cost

Table 9-1 presents our opinion of capital cost for the water supply system.

Table 9-1 Scotts Corner Water System Opinion of Probable Capital Cost

Scott's Corner Water System Opinion of Probable Cost						
# of Dev. Prop.	40					
Average Water Demand (gpd)	40,000	150	per EDU			
Equivalent EDUs	267					
Item	**Size**		**Qty.**	**Unit**	**Unit Cost**	**Total Cost**
Hook Up Charge			1	LS	$100,000	$100,000
System Improvements			1	LS	$500,000	$500,000
Water Main	8" - 10"		12,000	ft.	$125	$1,500,000
Street Crossings			550	ft.	$200	$110,000
House Connections			3,100	ft.	$75	$232,500
Hydrants	1/200 ft.		60	hydrants	$10,000	$600,000
Pavement Removal and replacement	3' trench excavations		4,000	SY	$40	$160,000
Rock Excavation Quantity	Assumes 4' trench, 2' below surface[1]		5,333	CY	$200	$1,066,667
Start Up Cost			1	LS	$200,000	$200,000
				Misc	35%	$1,564,208
				Contingency	40%	$1,787,667
				Legal, Financing & Management / Admin	7%	$312,842
				Engineering / Special Services	25%	$1,117,292
				Total Capital Costs		$9,251,000
				Total Capital Cost / EDU	267	$34,690

[1]Results in 3' of rock excavation

9.3 Annual O&M Costs

Table 9-2 presents our opinion of annual O&M cost for the water supply system

Table 9-2 Scotts Corner Water Supply System Opinion of Probable Annual O&M Cost

Scott's Corner Annual O&M Estimate		
Cost/EDU	# EDUs	Total O&M Costs
$750	267	$ 200,000

10. FINANCING, USER CHARGES, PUBLIC PARTICIPATION & IMPLEMENTATION PLAN

10.1 LEGAL & FINANCING

It is proposed that Water Supply and Wastewater Districts (individually or combined) would be established by the Town for the Study Area under Town Law Article 12, Section 190-C for Water District and Town Law Article 12. While different options exist, pertinent Sections of the enabling law are presented below.

Town Law Section 190-C Preparation of maps and plans

Upon a petition signed, and acknowledged or proved in the same manner as a deed to be recorded, or authenticated in the manner provided by the election law for the authentication of nominating petitions, by at least twenty-five owners of taxable real property situated within each water district or water supply district proposed to be included in a water storage and distribution district or by five per centum of the owners of taxable real property situated within each such district, whichever shall be less, or, in the case of a water district governed by a separate board of commissioners, by a majority of such board, the town board shall, or on its own motion, after a public hearing, may, make a study of the proposal and for such purpose it may assemble data relating to the water resources available to the town and

Section 190-D Procedure for establishment of a sewage disposal district

All of the provisions of section one hundred ninety-c of this chapter, relating to the preparation of maps and plans and establishment of a water storage and distribution district, shall apply to the preparation of maps and plans and establishment of a sewage disposal district, except that in the case of a sewage disposal district, the map and plan shall show the mode of constructing the proposed sewer facilities and the location thereof, including trunk, interceptor and outfall sewers, pumping stations and sewage treatment and disposal works.

The Districts are proposed to be Enterprise Funds in which the users pay all costs and the District is a separate legal and financial entity. At this time there are no financials on the to be formed District(s).

As there are numerous financing options for the District(s), for simplicity purposes financing will be perceived as:

- ✓ Grants from outside of Service Areas Users.
- ✓ Bond financing of the balance and payment by users based upon their allocated capacity, using a 30 year bond at 4%, which results in an annual amortization factor of 0.0578

10.2 USER CHARGES

Table 10-1 presents, by property, the prorated (based upon flow capacity allocation) wastewater system capital costs and annual wastewater system user charges:

- Assuming various level of grant assistance from 0% to 75%
- No connect fees

- No variation to existing vs future flows

Table 10-2 presents typical user charges for several property use options, such as seats/restaurant, store floor area, and apartments.

Tables 10-3 presents the water system estimated capital costs and user charges by property at various grant levels.

Table 10-4 presents the estimated user charges of the combined water and wastewater systems by property at various grant levels.

10.3 IMPLEMENTATION PLAN & DRAFT SCHEDULE

The Project Implementation consists of the major activities, some of which are done concurrently, as listed and illustrated on Figure 10-5 Draft - Implementation Schedule.

10.4 PUBLIC PARTICIPATION

Throughout the preparation of the Engineering Plan, the Town's Water / Wastewater Task Force (WWTF) has interacted with the Lombardo Associates, Inc. Engineers preparing this Engineering Plan. In addition to meetings, the WWTF provided review comments on the draft April 15, 2019 and May 20, 2019 Reports.

Appendix C contains the Smart Growth and Sexual Harassment Forms.

Table 10-1 Property Wastewater System Capital Costs & User Charges By Address

Parcel #	Property Address	Tenant	Use	Usage Rate (gpd/unit)	WW Design Flow	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
								No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9454-36	89 Westchester Ave	PR Ambulance Corps	community facility	0.1	130	0.43	$367	$51,509	$38,632	$25,755	$12,877	**$3,350**	**$2,600**	**$1,860**	**$1,110**
9454-5	87 Westchester Ave	Avant Garden	retail	0.1	144	0.48	$409	$57,391	$43,043	$28,696	$14,348	**$3,730**	**$2,900**	**$2,070**	**$1,240**
9454-6	85 Westchester Ave	North Star	restaurant	35.0	1,750	5.83	$4,958	$695,532	$521,649	$347,766	$173,883	**$45,180**	**$35,130**	**$25,070**	**$15,010**
9454-6	85 Westchester Ave	North Star	office	0.1	136	0.45	$385	$54,063	$40,547	$27,032	$13,516	**$3,510**	**$2,730**	**$1,950**	**$1,170**
9454-7	83 Westchester Ave	Albano Appliance	retail	0.1	614	2.05	$1,739	$243,948	$182,961	$121,974	$60,987	**$15,850**	**$12,320**	**$8,790**	**$5,270**
9454-7	83A,&B Westchester Ave	Above Albano Appliance	apartments	110.0	440	1.47	$1,247	$174,877	$131,157	$87,438	$43,719	**$11,360**	**$8,830**	**$6,300**	**$3,770**
9454-7	83C&D Westchester Ave	Albano Appliance	office	0.1	229	0.76	$649	$91,025	$68,269	$45,513	$22,756	**$5,910**	**$4,600**	**$3,280**	**$1,960**
9454-8	79 Westchester Ave	Dynax	office	0.1	187	0.62	$530	$74,402	$55,802	$37,201	$18,601	**$4,830**	**$3,760**	**$2,680**	**$1,610**
9454-9	77 Westchester Ave	Vacant	Vacant	400.0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-9	77A Westchester Ave	Vacant	Vacant	110.0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-35	NA	Parking	Parking	0.0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-10	73 Westchester Ave	Healthy Home Foods	Retail / Food Prep	0.1	420	1.40	$1,190	$166,928	$125,196	$83,464	$41,732	**$10,840**	**$8,430**	**$6,020**	**$3,600**
9454-10	73 Westchester Ave	Pound Ridge Dentistry	Medical Office	250.0	250	0.83	$708	$99,362	$74,521	$49,681	$24,840	**$6,450**	**$5,020**	**$3,580**	**$2,140**
9454-11	71 Westchester Ave	Kitchen Table	restaurant	35.0	875	2.92	$2,479	$347,766	$260,825	$173,883	$86,942	**$22,590**	**$17,560**	**$12,530**	**$7,510**
9454-11	71 Westchester Ave	Wine Store	retail	0.1	194	0.65	$549	$77,065	$57,799	$38,532	$19,266	**$5,010**	**$3,890**	**$2,780**	**$1,660**
9454-11	69 Westchester Ave	La Familia	restaurant	35.0	1,400	4.67	$3,967	$556,426	$417,319	$278,213	$139,106	**$36,140**	**$28,100**	**$20,060**	**$12,010**
9454-11	69 Westchester Ave	Martin House	Office	0.1	307	1.02	$870	$122,066	$91,549	$61,033	$30,516	**$7,930**	**$6,160**	**$4,400**	**$2,630**
9454-12	69 Westchester Ave	Summit Company	Office	0.1	307	1.02	$870	$122,066	$91,549	$61,033	$30,516	**$7,930**	**$6,160**	**$4,400**	**$2,630**
9454-13	67 Westchester Ave	Above Retail	apartments	110.0	220	0.73	$623	$87,438	$65,579	$43,719	$21,860	**$5,680**	**$4,420**	**$3,150**	**$1,890**
9454-13	67 Westchester Ave	The Cottage / Booksy	retail	0.1	282	0.94	$798	$111,921	$83,941	$55,961	$27,980	**$7,270**	**$5,650**	**$4,030**	**$2,420**
9454-14	4 Trinity Pass Rd.	Vacant	Vacant	0.1	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-15	65A,B Westchester Ave	Kahlo	retail	0.1	117	0.39	$332	$46,640	$34,980	$23,320	$11,660	**$3,030**	**$2,360**	**$1,680**	**$1,010**
9454-15	65A,B Westchester Ave	Above Kahlo	apartments	110.0	440	1.47	$1,247	$174,877	$131,157	$87,438	$43,719	**$11,360**	**$8,830**	**$6,300**	**$3,770**
9320-56	Westchester Ave	Parking	parking w/2 shed	0.0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-58	80 Westchester Ave	Fire Department	community facility	0.1	708	2.36	$2,005	$281,233	$210,925	$140,617	$70,308	**$18,270**	**$14,200**	**$10,140**	**$6,070**
9320-59	78 Westchester Ave	123 Dough	Food Prep	0.1	223	0.74	$633	$88,800	$66,600	$44,400	$22,200	**$5,770**	**$4,480**	**$3,200**	**$1,920**
			Employees	15.0	60	0.20	$170	$23,847	$17,885	$11,923	$5,962	**$1,550**	**$1,200**	**$860**	**$510**
9320-59	78 Westchester Ave	Miller's Landscape	office	0.1	74	0.25	$211	$29,600	$22,200	$14,800	$7,400	**$1,920**	**$1,490**	**$1,070**	**$640**
9320-60	76 Westchester Ave	Dinardos	restaurant	35.0	2,100	7.00	$5,950	$834,638	$625,979	$417,319	$208,660	**$54,220**	**$42,150**	**$30,080**	**$18,020**
9320-60	76 Westchester Ave	Vacant	Vacant	0.1	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-60	76 Westchester Ave	above Dinardos	apartments	110.0	440	1.47	$1,247	$174,877	$131,157	$87,438	$43,719	**$11,360**	**$8,830**	**$6,300**	**$3,770**
9320-61	74 Westchester Ave	Blind Charlies	restaurant	35.0	1,750	5.83	$4,958	$695,532	$521,649	$347,766	$173,883	**$45,180**	**$35,130**	**$25,070**	**$15,010**
9320-61	74 Westchester Ave	Jacob Allen	Spa	20.0	200	0.67	$567	$79,489	$59,617	$39,745	$19,872	**$5,160**	**$4,010**	**$2,870**	**$1,720**
9320-61	74 Westchester Ave	O'Donnell	Retail	0.1	199	0.66	$565	$79,191	$59,393	$39,596	$19,798	**$5,140**	**$4,000**	**$2,850**	**$1,710**
9320-61	74 A,B,C,&D Westchester Ave	above Blind Charlies	apartments	110.0	660	2.20	$1,870	$262,315	$196,736	$131,157	$65,579	**$17,040**	**$13,250**	**$9,450**	**$5,660**
9320-62	72 Westchester Ave	PR Dry Cleaners	retail	0.1	238	0.79	$673	$94,394	$70,795	$47,197	$23,598	**$6,130**	**$4,770**	**$3,400**	**$2,040**
9320-62	72 Westchester Ave	Plum Plum's	Food Prep	0.1	119	0.40	$336	$47,197	$35,398	$23,598	$11,799	**$3,070**	**$2,380**	**$1,700**	**$1,020**
			Employees	15.0	60	0.20	$170	$23,847	$17,885	$11,923	$5,962	**$1,550**	**$1,200**	**$860**	**$510**
9320-62	72 Westchester Ave	Nephawa	retail	0.1	119	0.40	$336	$47,197	$35,398	$23,598	$11,799	**$3,070**	**$2,380**	**$1,700**	**$1,020**
9320-62	72 A & B Westchester Ave	above PR Dry Cleaners	apartment	110.0	220	0.73	$623	$87,438	$65,579	$43,719	$21,860	**$5,680**	**$4,420**	**$3,150**	**$1,890**

Table 10-1, Continued

Parcel #	Property Address	Tenant	Use	Usage Rate (gpd/unit)	WW Design Flow	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
								No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9320-63	70 Westchester Ave	above retail	apartments	110.0	220	0.73	$623	$87,438	$65,579	$43,719	$21,860	**$5,680**	**$4,420**	**$3,150**	**$1,890**
9320-63	70 Westchester Ave	Barber	Barber	250.0	250	0.83	$708	$99,362	$74,521	$49,681	$24,840	**$6,450**	**$5,020**	**$3,580**	**$2,140**
9320-63	70 Westchester Ave	P. Queens, Avalon Ins, Hedg., PR Home	retail / Office	0.1	103	0.34	$292	$40,921	$30,691	$20,461	$10,230	**$2,660**	**$2,070**	**$1,470**	**$880**
9320-64	68 Westchester Ave	Chubby's	retail	0.1	346	1.15	$981	$137,576	$103,182	$68,788	$34,394	**$8,940**	**$6,950**	**$4,960**	**$2,970**
9320-64	68 A,B,C,&D Westchester Ave	above Chubby's	apartments	110.0	660	2.20	$1,870	$262,315	$196,736	$131,157	$65,579	**$17,040**	**$13,250**	**$9,450**	**$5,660**
9320-65	66 Westchester Ave	gas station	auto repair	400.0	800	2.67	$2,267	$317,958	$238,468	$158,979	$79,489	**$20,650**	**$16,060**	**$11,460**	**$6,860**
9455-18.9	26 Lower Trinity Pass	Joiquim Felice	Home	110.0	440	1.47	$1,247	$174,877	$131,157	$87,438	$43,719	**$11,360**	**$8,830**	**$6,300**	**$3,770**
9455-20	32 Westchester Ave	Wine Connection	retail	0.1	444	1.48	$1,258	$176,506	$132,380	$88,253	$44,127	**$11,470**	**$8,910**	**$6,360**	**$3,810**
9455-20	32 Westchester Ave	Above Wine Connection	apartments	110.0	110	0.37	$312	$43,719	$32,789	$21,860	$10,930	**$2,840**	**$2,210**	**$1,580**	**$940**
9455-21	34 Westchester Ave	above Antique	apartments	110.0	110	0.37	$312	$43,719	$32,789	$21,860	$10,930	**$2,840**	**$2,210**	**$1,580**	**$940**
9455-21	34 Westchester Ave	Antique	retail	0.1	196	0.65	$557	$78,078	$58,559	$39,039	$19,520	**$5,070**	**$3,940**	**$2,810**	**$1,690**
9455-27	38 Westchester Ave	Future Value Assoc	office	0.1	176	0.59	$499	$69,951	$52,463	$34,975	$17,488	**$4,540**	**$3,530**	**$2,520**	**$1,510**
9455-28	40, 40A Westchester Ave	Wittus	retail	0.1	270	0.90	$765	$107,311	$80,483	$53,655	$26,828	**$6,970**	**$5,420**	**$3,870**	**$2,320**
9455-28	40, 40A Westchester Ave	Helen Famulare Spa	Spa	20.0	400	1.33	$1,133	$158,979	$119,234	$79,489	$39,745	**$10,330**	**$8,030**	**$5,730**	**$3,430**
9455-28	40, 40A Westchester Ave	Private	apartment	110.0	440	1.47	$1,247	$174,877	$131,157	$87,438	$43,719	**$11,360**	**$8,830**	**$6,300**	**$3,770**
9455-26	46 Westchester Ave	Roeco	office	0.1	184	0.61	$520	$73,010	$54,757	$36,505	$18,252	**$4,740**	**$3,690**	**$2,630**	**$1,580**
9455-25	54 Westchester Ave	Asia Hamachi	restaurant	35.0	875	2.92	$2,479	$347,766	$260,825	$173,883	$86,942	**$22,590**	**$17,560**	**$12,530**	**$7,510**
9455-25	54 Westchester Ave	Dragon Martial Arts	Health Club	20.0	300	1.00	$850	$119,234	$89,426	$59,617	$29,809	**$7,750**	**$6,020**	**$4,300**	**$2,570**
9455-25	54 Westchester Ave	Curry & Hovis	retail	0.1	120	0.40	$340	$47,694	$35,770	$23,847	$11,923	**$3,100**	**$2,410**	**$1,720**	**$1,030**
9455-25	54 Westchester Ave	above Curry & Hovis	apartments	110.0	110	0.37	$312	$43,719	$32,789	$21,860	$10,930	**$2,840**	**$2,210**	**$1,580**	**$940**
9455-24	56, 60 Westchester Ave	above retail	apartments	110.0	770	2.57	$2,182	$306,034	$229,526	$153,017	$76,509	**$19,880**	**$15,460**	**$11,030**	**$6,610**
9455-24	56, 60 Westchester Ave	Key Bank, Toy Store	retail / Office	0.1	779	2.60	$2,207	$309,651	$232,238	$154,825	$77,413	**$20,110**	**$15,640**	**$11,160**	**$6,680**
9456-4	39 Westchester Ave	private	residential	110.0	660	2.20	$1,870	$262,315	$196,736	$131,157	$65,579	**$17,040**	**$13,250**	**$9,450**	**$5,660**
9456-1.9	55, 57 Westchester Ave	Market, post office, 5 Retail Stores, Office	retail / office	0.1	5,414	18.0	$15,339	$2,151,738	$1,613,803	$1,075,869	$537,934	**$139,770**	**$108,670**	**$77,560**	**$46,450**
9455-10	22, 24 Westchester Ave	PR Organics	Retail	0.1	478	1.59	$1,355	$190,019	$142,515	$95,010	$47,505	**$12,340**	**$9,600**	**$6,850**	**$4,100**
9455-13	26 Westchester Ave	Above Educators Alley	apartments	110.0	110	0.37	$312	$43,719	$32,789	$21,860	$10,930	**$2,840**	**$2,210**	**$1,580**	**$940**
9455-13	26 Westchester Ave	Qualities	retail	0.1	55	0.18	$156	$21,830	$16,372	$10,915	$5,457	**$1,420**	**$1,100**	**$790**	**$470**
9455-13	26 Westchester Ave	Educators Alley	office	0.1	110	0.37	$311	$43,660	$32,745	$21,830	$10,915	**$2,840**	**$2,200**	**$1,570**	**$940**
9455-14	30 Westchester Ave	private	residential	110.0	110	0.37	$312	$43,719	$32,789	$21,860	$10,930	**$2,840**	**$2,210**	**$1,580**	**$940**
9456-8	21 Westchester Ave	private	residential	110.0	440	1.47	$1,247	$174,877	$131,157	$87,438	$43,719	**$11,360**	**$8,830**	**$6,300**	**$3,770**
9456-7	23,23A,B Westchester Ave	Kende & London Joiner	retail	0.1	306	1.02	$868	$121,698	$91,274	$60,849	$30,425	**$7,910**	**$6,150**	**$4,390**	**$2,630**
9456-6	27 Westchester Ave	above Lion Heart	apartments	110.0	110	0.37	$312	$43,719	$32,789	$21,860	$10,930	**$2,840**	**$2,210**	**$1,580**	**$940**
9456-6	27 Westchester Ave	Di Biase Filkoff Architects	Office	0.1	152	0.51	$430	$60,332	$45,249	$30,166	$15,083	**$3,920**	**$3,050**	**$2,170**	**$1,300**
9456-5	29 Westchester Ave	A Home	residential	110.0	1,760	5.87	$4,987	$699,507	$524,630	$349,753	$174,877	**$45,440**	**$35,330**	**$25,210**	**$15,100**
9456-55	35 Westchester Ave	PR Vet Center	retail	0.1	214	0.71	$608	$85,243	$63,933	$42,622	$21,311	**$5,540**	**$4,300**	**$3,070**	**$1,840**
	IN-FILL			1.1	6,365	21.22	$18,035	$2,529,910	$1,897,432	$1,264,955	$632,477	**$164,340**	**$127,760**	**$91,190**	**$54,610**
	PM&G		CURRY & HOVIS	2.1	20,000	66.67	$56,667	$7,948,938	$5,961,703	$3,974,469	$1,987,234	**$516,350**	**$401,430**	**$286,510**	**$171,590**
	SCOTT'S CORNER MARKET		Market & Post Office	3.1	20,000	66.67	$56,667	$7,948,938	$5,961,703	$3,974,469	$1,987,234	**$516,350**	**$401,430**	**$286,510**	**$171,590**
				3,914	**80,000**	**267**	**$226,667**	**$31,795,750**	**$23,846,813**	**$15,897,875**	**$7,948,938**	**$2,065,410**	**$1,605,740**	**$1,146,010**	**$686,290**

Table 10-2 Wastewater System Estimated User Charges by Use

Scott's Corner Wastewater System - Preliminary Cost Estimates & User Charge				No Grants		
267				Store Floor Area		
# of EDU in SubArea	Total	Per EDU 1 EDU = 300 gpd	Restaurant / seat	Wet Goods / 100 ft²	Dry Goods / 100 ft³	Per Apart. / condo 601 - 1,200 sf
Capital Costs	$ 31,795,750	$ 119,234	$ 11,923	$ 5,962	$ 1,192	$ 89,649
Annual O&M Costs	$ 226,668	$ 850	$ 85	$ 43	$ 9	$ 639
Combined Amortized Capital Costs (@30 yrs. & 4%) & Annual O&M	30 years	$ 7,745	$ 775	$ 387	$ 77	$ 5,824

Scott's Corner Wastewater System - Preliminary Cost Estimates & User Charge				25%	Grants	$ 7,948,938
267				Store Floor Area		
# of EDU in SubArea	Total	Per EDU 1 EDU = 300 gpd	Restaurant / seat	Wet Goods / 100 ft²	Dry Goods / 100 ft³	Per Apart. / condo 601 - 1,200 sf
Capital Costs	$ 23,846,813	$ 89,425	$ 8,943	$ 4,471	$ 894	$ 67,237
Annual O&M Costs	$ 226,668	$ 850	$ 85	$ 43	$ 9	$ 639
Combined Amortized Capital Costs (@30 yrs. & 4%) & Annual O&M	30 years	$ 6,021	$ 775	$ 387	$ 77	$ 5,824

Scott's Corner Wastewater System - Preliminary Cost Estimates & User Charge				50%	Grants	##########
267				Store Floor Area		
# of EDU in SubArea	Total	Per EDU 1 EDU = 300 gpd	Restaurant / seat	Wet Goods / 100 ft²	Dry Goods / 100 ft³	Per Apart. / condo 601 - 1,200 sf
Capital Costs	$ 15,897,875	$ 59,617	$ 5,962	$ 2,981	$ 596	$ 44,825
Annual O&M Costs	$ 226,668	$ 850	$ 85	$ 43	$ 9	$ 639
Combined Amortized Capital Costs (@30 yrs. & 4%) & Annual O&M	30 years	$ 4,298	$ 430	$ 215	$ 43	$ 3,231

Scott's Corner Wastewater System - Preliminary Cost Estimates & User Charge				75%	Grants	##########
267				Store Floor Area		
# of EDU in SubArea	Total	Per EDU 1 EDU = 300 gpd	Restaurant / seat	Wet Goods / 100 ft²	Dry Goods / 100 ft³	Per Apart. / condo 601 - 1,200 sf
Capital Costs	$ 7,948,938	$ 29,808	$ 2,981	$ 1,490	$ 298	$ 22,412
Annual O&M Costs	$ 226,668	$ 850	$ 85	$ 43	$ 9	$ 639
Combined Amortized Capital Costs (@30 yrs. & 4%) & Annual O&M	30 years	$ 2,574	$ 257	$ 129	$ 26	$ 1,935

Table 10-3 Property Water System Capital Costs and User Charges – By Address

Parcel #	Property Address	Tenant	Use	Final Water Design Flow (gpd)	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
							No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9454-36	89 Westchester Ave	PR Ambulance Corps	community facility	65	0.43	$367	$14,987	$11,240	$7,493	$3,747	**$1,230**	**$1,020**	**$800**	**$580**
9454-5	87 Westchester Ave	Avant Garden	retail	72	0.48	$409	$16,698	$12,524	$8,349	$4,175	**$1,370**	**$1,130**	**$890**	**$650**
9454-6	85 Westchester Ave	North Star	restaurant	875	5.83	$4,958	$202,366	$151,774	$101,183	$50,591	**$16,660**	**$13,740**	**$10,810**	**$7,880**
9454-6	85 Westchester Ave	North Star	office	68	0.45	$385	$15,730	$11,797	$7,865	$3,932	**$1,300**	**$1,070**	**$840**	**$610**
9454-7	83 Westchester Ave	Albano Appliance	retail	307	2.05	$1,739	$70,977	$53,233	$35,488	$17,744	**$5,840**	**$4,820**	**$3,790**	**$2,770**
9454-7	83A,&B Westchester Ave	Above Albano	apartments	220	1.47	$1,247	$50,881	$38,160	$25,440	$12,720	**$4,190**	**$3,450**	**$2,720**	**$1,980**
9454-7	83C&D Westchester Ave	Albano Appliance	office	115	0.76	$649	$26,484	$19,863	$13,242	$6,621	**$2,180**	**$1,800**	**$1,410**	**$1,030**
9454-8	79 Westchester Ave	Dynax	office	94	0.62	$530	$21,647	$16,236	$10,824	$5,412	**$1,780**	**$1,470**	**$1,160**	**$840**
9454-9	77 Westchester Ave	Vacant	Vacant	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-9	77A Westchester Ave	Vacant	Vacant	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-35	NA	Parking	Parking	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-10	73 Westchester Ave	Healthy Home Foods	Retail / Food Prep	210	1.40	$1,190	$48,568	$36,426	$24,284	$12,142	**$4,000**	**$3,300**	**$2,590**	**$1,890**
9454-10	73 Westchester Ave	Pound Ridge Dentistry	Medical Office	125	0.83	$708	$28,909	$21,682	$14,455	$7,227	**$2,380**	**$1,960**	**$1,540**	**$1,130**
9454-11	71 Westchester Ave	Kitchen Table	restaurant	438	2.92	$2,479	$101,183	$75,887	$50,591	$25,296	**$8,330**	**$6,870**	**$5,400**	**$3,940**
9454-11	71 Westchester Ave	Wine Store	retail	97	0.65	$549	$22,422	$16,817	$11,211	$5,606	**$1,850**	**$1,520**	**$1,200**	**$870**
9454-11	69 Westchester Ave	La Familia	restaurant	700	4.67	$3,967	$161,893	$121,419	$80,946	$40,473	**$13,330**	**$10,990**	**$8,650**	**$6,310**
9454-11	69 Westchester Ave	Martin House	Office	154	1.02	$870	$35,515	$26,636	$17,758	$8,879	**$2,920**	**$2,410**	**$1,900**	**$1,380**
9454-12	69 Westchester Ave	Summit Company	Office	154	1.02	$870	$35,515	$26,636	$17,758	$8,879	**$2,920**	**$2,410**	**$1,900**	**$1,380**
9454-13	67 Westchester Ave	Above Retail	apartments	110	0.73	$623	$25,440	$19,080	$12,720	$6,360	**$2,090**	**$1,730**	**$1,360**	**$990**
9454-13	67 Westchester Ave	The Cottage / Booksy	retail	141	0.94	$798	$32,564	$24,423	$16,282	$8,141	**$2,680**	**$2,210**	**$1,740**	**$1,270**
9454-14	4 Trinity Pass Rd.	Vacant	Vacant	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-15	65A,B Westchester Ave	Kahlo	retail	59	0.39	$332	$13,570	$10,178	$6,785	$3,393	**$1,120**	**$920**	**$720**	**$530**
9454-15	65A,B Westchester Ave	Above Kahlo	apartments	220	1.47	$1,247	$50,881	$38,160	$25,440	$12,720	**$4,190**	**$3,450**	**$2,720**	**$1,980**
9320-56	Westchester Ave	Parking	parking w/2 shed	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-58	80 Westchester Ave	Fire Department	community facility	354	2.36	$2,005	$81,825	$61,369	$40,913	$20,456	**$6,740**	**$5,550**	**$4,370**	**$3,190**
9320-59	78 Westchester Ave	123 Dough	Food Prep	112	0.74	$633	$25,836	$19,377	$12,918	$6,459	**$2,130**	**$1,750**	**$1,380**	**$1,010**
			Employees	30	0.20	$170	$6,938	$5,204	$3,469	$1,735	**$570**	**$470**	**$370**	**$270**
9320-59	78 Westchester Ave	Miller's Landscape	office	37	0.25	$211	$8,612	$6,459	$4,306	$2,153	**$710**	**$580**	**$460**	**$340**
9320-60	76 Westchester Ave	Dinardos	restaurant	1,050	7.00	$5,950	$242,839	$182,129	$121,419	$60,710	**$19,990**	**$16,480**	**$12,970**	**$9,460**
9320-60	76 Westchester Ave	Vacant	Vacant	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-60	76 Westchester Ave	above Dinardos	apartments	220	1.47	$1,247	$50,881	$38,160	$25,440	$12,720	**$4,190**	**$3,450**	**$2,720**	**$1,980**
9320-61	74 Westchester Ave	Blind Charlies	restaurant	875	5.83	$4,958	$202,366	$151,774	$101,183	$50,591	**$16,660**	**$13,740**	**$10,810**	**$7,880**
9320-61	74 Westchester Ave	Jacob Allen	Spa	100	0.67	$567	$23,128	$17,346	$11,564	$5,782	**$1,900**	**$1,570**	**$1,240**	**$900**
9320-61	74 Westchester Ave	O'Donnell	Retail	100	0.66	$565	$23,041	$17,281	$11,520	$5,760	**$1,900**	**$1,560**	**$1,230**	**$900**
9320-61	74 A,B,C,&D Westchester Ave	above Blind Charlies	apartments	330	2.20	$1,870	$76,321	$57,241	$38,160	$19,080	**$6,280**	**$5,180**	**$4,080**	**$2,970**
9320-62	72 Westchester Ave	PR Dry Cleaners	retail	119	0.79	$673	$27,464	$20,598	$13,732	$6,866	**$2,260**	**$1,860**	**$1,470**	**$1,070**
9320-62	72 Westchester Ave	Plum Plum's	Food Prep	59	0.40	$336	$13,732	$10,299	$6,866	$3,433	**$1,130**	**$930**	**$730**	**$530**
			Employees	30	0.20	$170	$6,938	$5,204	$3,469	$1,735	**$570**	**$470**	**$370**	**$270**
9320-62	72 Westchester Ave	Nephawa	retail	59	0.40	$336	$13,732	$10,299	$6,866	$3,433	**$1,130**	**$930**	**$730**	**$530**
9320-62	72 A & B Westchester Ave	above PR Dry Cleaners	apartment	110	0.73	$623	$25,440	$19,080	$12,720	$6,360	**$2,090**	**$1,730**	**$1,360**	**$990**

Table 10-4, Continued

Parcel #	Property Address	Tenant	Use	Final Water Design Flow (gpd)	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
							No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9320-63	70 Westchester Ave	above retail	apartments	110	0.73	$623	$25,440	$19,080	$12,720	$6,360	**$2,090**	**$1,730**	**$1,360**	**$990**
9320-63	70 Westchester Ave	Barber	Barber	125	0.83	$708	$28,909	$21,682	$14,455	$7,227	**$2,380**	**$1,960**	**$1,540**	**$1,130**
9320-63	70 Westchester Ave	P. Queens, Avalon Ins, Hedg., PR Home	retail / Office	51	0.34	$292	$11,906	$8,930	$5,953	$2,977	**$980**	**$810**	**$640**	**$460**
9320-64	68 Westchester Ave	Chubby's	retail	173	1.15	$981	$40,028	$30,021	$20,014	$10,007	**$3,300**	**$2,720**	**$2,140**	**$1,560**
9320-64	68 A,B,C,&D Westchester Ave	above Chubby's	apartments	330	2.20	$1,870	$76,321	$57,241	$38,160	$19,080	**$6,280**	**$5,180**	**$4,080**	**$2,970**
9320-65	66 Westchester Ave	gas station	auto repair	400	2.67	$2,267	$92,510	$69,383	$46,255	$23,128	**$7,620**	**$6,280**	**$4,940**	**$3,600**
9455-18.9	26 Lower Trinity Pass	Joiquim Felice	Home	220	1.47	$1,247	$50,881	$38,160	$25,440	$12,720	**$4,190**	**$3,450**	**$2,720**	**$1,980**
9455-20	32 Westchester Ave	Wine Connection	retail	222	1.48	$1,258	$51,355	$38,516	$25,677	$12,839	**$4,230**	**$3,490**	**$2,740**	**$2,000**
9455-20	32 Westchester Ave	Above Wine	apartments	55	0.37	$312	$12,720	$9,540	$6,360	$3,180	**$1,050**	**$860**	**$680**	**$500**
9455-21	34 Westchester Ave	above Antique	apartments	55	0.37	$312	$12,720	$9,540	$6,360	$3,180	**$1,050**	**$860**	**$680**	**$500**
9455-21	34 Westchester Ave	Antique	retail	98	0.65	$557	$22,717	$17,038	$11,358	$5,679	**$1,870**	**$1,540**	**$1,210**	**$890**
9455-27	38 Westchester Ave	Future Value Assoc	office	88	0.59	$499	$20,352	$15,264	$10,176	$5,088	**$1,680**	**$1,380**	**$1,090**	**$790**
9455-28	40, 40A Westchester Ave	Wittus	retail	135	0.90	$765	$31,222	$23,417	$15,611	$7,806	**$2,570**	**$2,120**	**$1,670**	**$1,220**
9455-28	40, 40A Westchester Ave	Helen Famulare Spa	Spa	200	1.33	$1,133	$46,255	$34,691	$23,128	$11,564	**$3,810**	**$3,140**	**$2,470**	**$1,800**
9455-28	40, 40A Westchester Ave	Private	apartment	220	1.47	$1,247	$50,881	$38,160	$25,440	$12,720	**$4,190**	**$3,450**	**$2,720**	**$1,980**
9455-26	46 Westchester Ave	Roeco	office	92	0.61	$520	$21,242	$15,932	$10,621	$5,311	**$1,750**	**$1,440**	**$1,130**	**$830**
9455-25	54 Westchester Ave	Asia Hamachi	restaurant	438	2.92	$2,479	$101,183	$75,887	$50,591	$25,296	**$8,330**	**$6,870**	**$5,400**	**$3,940**
9455-25	54 Westchester Ave	Dragon Martial Arts	Health Club	150	1.00	$850	$34,691	$26,018	$17,346	$8,673	**$2,860**	**$2,350**	**$1,850**	**$1,350**
9455-25	54 Westchester Ave	Curry & Hovis	retail	60	0.40	$340	$13,877	$10,407	$6,938	$3,469	**$1,140**	**$940**	**$740**	**$540**
9455-25	54 Westchester Ave	above Curry & Hovis	apartments	55	0.37	$312	$12,720	$9,540	$6,360	$3,180	**$1,050**	**$860**	**$680**	**$500**
9455-24	56, 60 Westchester Ave	above retail	apartments	385	2.57	$2,182	$89,041	$66,781	$44,520	$22,260	**$7,330**	**$6,040**	**$4,760**	**$3,470**
9455-24	56, 60 Westchester Ave	Key Bank, Toy Store	retail / Office	390	2.60	$2,207	$90,093	$67,570	$45,047	$22,523	**$7,420**	**$6,120**	**$4,810**	**$3,510**
9456-4	39 Westchester Ave	private	residential	330	2.20	$1,870	$76,321	$57,241	$38,160	$19,080	**$6,280**	**$5,180**	**$4,080**	**$2,970**
9456-1.9	55, 57 Westchester Ave	Market, post office, 5 Retail Stores, Office	retail / office	2,707	18.0	$15,339	$626,050	$469,537	$313,025	$156,512	**$51,540**	**$42,490**	**$33,440**	**$24,390**
9455-10	22, 24 Westchester Ave	PR Organics	Retail	239	1.59	$1,355	$55,286	$41,465	$27,643	$13,822	**$4,550**	**$3,750**	**$2,950**	**$2,150**
9455-13	26 Westchester Ave	Above Educators Alley	apartments	55	0.37	$312	$12,720	$9,540	$6,360	$3,180	**$1,050**	**$860**	**$680**	**$500**
9455-13	26 Westchester Ave	Qualities	retail	27	0.18	$156	$6,351	$4,764	$3,176	$1,588	**$520**	**$430**	**$340**	**$250**
9455-13	26 Westchester Ave	Educators Alley	office	55	0.37	$311	$12,703	$9,527	$6,351	$3,176	**$1,050**	**$860**	**$680**	**$490**
9455-14	30 Westchester Ave	private	residential	55	0.37	$312	$12,720	$9,540	$6,360	$3,180	**$1,050**	**$860**	**$680**	**$500**
9456-8	21 Westchester Ave	private	residential	220	1.47	$1,247	$50,881	$38,160	$25,440	$12,720	**$4,190**	**$3,450**	**$2,720**	**$1,980**
9456-7	23,23A,B Westchester Ave	Kende & London Joiner	retail	153	1.02	$868	$35,408	$26,556	$17,704	$8,852	**$2,920**	**$2,400**	**$1,890**	**$1,380**
9456-6	27 Westchester Ave	above Lion Heart	apartments	55	0.37	$312	$12,720	$9,540	$6,360	$3,180	**$1,050**	**$860**	**$680**	**$500**
9456-6	27 Westchester Ave	Di Biase Filkoff Architects	Office	76	0.51	$430	$17,554	$13,165	$8,777	$4,388	**$1,450**	**$1,190**	**$940**	**$680**
9456-5	29 Westchester Ave	A Home	residential	880	5.87	$4,987	$203,522	$152,642	$101,761	$50,881	**$16,760**	**$13,810**	**$10,870**	**$7,930**
9456-55	35 Westchester Ave	PR Vet Center	retail	107	0.71	$608	$24,802	$18,601	$12,401	$6,200	**$2,040**	**$1,680**	**$1,320**	**$970**
	IN-FILL			3,183	21.22	$18,035	$736,079	$552,059	$368,040	$184,020	**$60,600**	**$49,960**	**$39,320**	**$28,680**
	PM&G		CURRY & HOVIS	10,000	66.67	$56,667	$2,312,750	$1,734,563	$1,156,375	$578,188	**$190,410**	**$156,980**	**$123,540**	**$90,100**
	SCOTT'S CORNER MARKET		Market & Post Office	10,000	66.67	$56,667	$2,312,750	$1,734,563	$1,156,375	$578,188	**$190,410**	**$156,980**	**$123,540**	**$90,100**
				40,000	**267**	**$226,667**	**$9,251,000**	**$6,938,250**	**$4,625,500**	**$2,312,750**	**$761,650**	**$627,850**	**$494,150**	**$360,380**

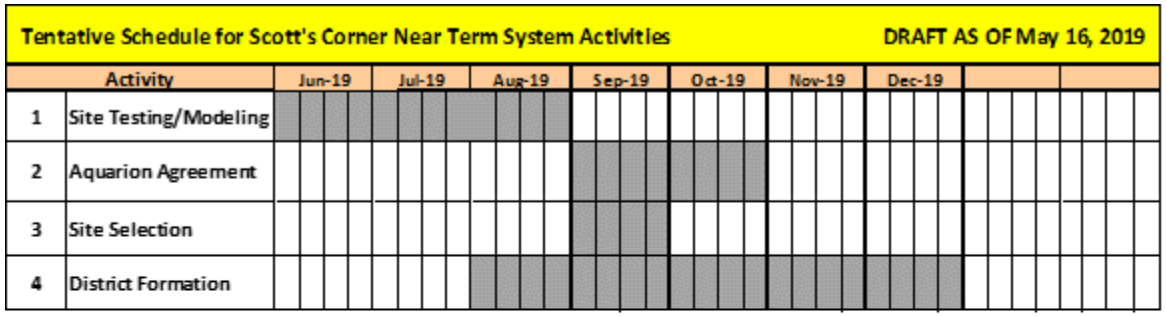
Table 10-4 Wastewater & Water Supply Systems User Charge Estimates

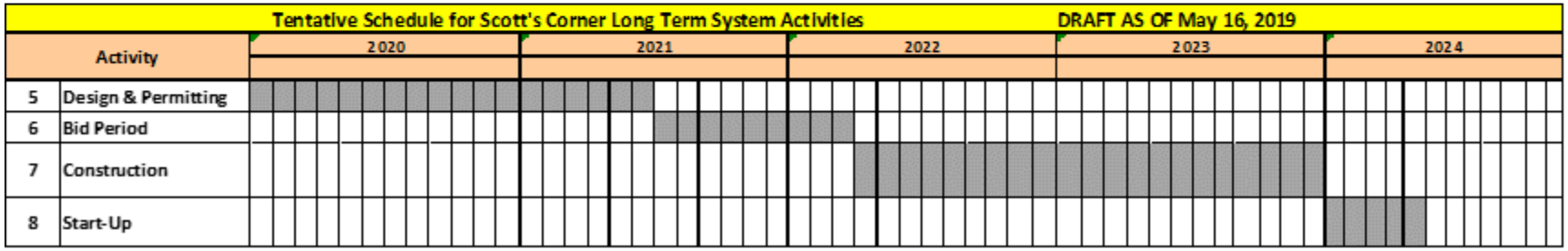
Parcel #	Property Address	Tenant	Use	Final WW Design Flow (gpd)	Final Water Design Flow (gpd)	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
								No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9454-36	89 Westchester Ave	PR Ambulance Corps	community facility	130	65	0.43	$734	$66,496	$49,872	$33,248	$16,624	**$4,580**	**$3,620**	**$2,660**	**$1,690**
9454-5	87 Westchester Ave	Avant Garden	retail	144	72	0.48	$818	$74,089	$55,567	$37,045	$18,522	**$5,100**	**$4,030**	**$2,960**	**$1,890**
9454-6	85 Westchester Ave	North Star	restaurant	1750	875	5.83	$9,917	$897,898	$673,423	$448,949	$224,474	**$61,840**	**$48,870**	**$35,880**	**$22,890**
9454-6	85 Westchester Ave	North Star	office	136	68	0.45	$771	$69,793	$52,345	$34,896	$17,448	**$4,810**	**$3,800**	**$2,790**	**$1,780**
9454-7	83 Westchester Ave	Albano Appliance	retail	614	307	2.05	$3,478	$314,925	$236,193	$157,462	$78,731	**$21,690**	**$17,140**	**$12,580**	**$8,040**
9454-7	83A,&B Westchester Ave	Above Albano Appliance	apartments	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9454-7	83C&D Westchester Ave	Albano Appliance	office	229	115	0.76	$1,298	$117,509	$88,132	$58,755	$29,377	**$8,090**	**$6,400**	**$4,690**	**$2,990**
9454-8	79 Westchester Ave	Dynax	office	187	94	0.62	$1,061	$96,049	$72,037	$48,025	$24,012	**$6,610**	**$5,230**	**$3,840**	**$2,450**
9454-9	77 Westchester Ave	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-9	77A Westchester Ave	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-35	NA	Parking	Parking	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-10	73 Westchester Ave	Healthy Home Foods	Retail / Food Prep	420	210	1.40	$2,380	$215,495	$161,622	$107,748	$53,874	**$14,840**	**$11,730**	**$8,610**	**$5,490**
9454-10	73 Westchester Ave	Pound Ridge Dentistry	Medical Office	250	125	0.83	$1,417	$128,271	$96,203	$64,136	$32,068	**$8,830**	**$6,980**	**$5,120**	**$3,270**
9454-11	71 Westchester Ave	Kitchen Table	restaurant	875	438	2.92	$4,958	$448,949	$336,712	$224,474	$112,237	**$30,920**	**$24,430**	**$17,930**	**$11,450**
9454-11	71 Westchester Ave	Wine Store	retail	194	97	0.65	$1,099	$99,487	$74,615	$49,744	$24,872	**$6,860**	**$5,410**	**$3,980**	**$2,530**
9454-11	69 Westchester Ave	La Familia	restaurant	1400	700	4.67	$7,933	$718,318	$538,739	$359,159	$179,580	**$49,470**	**$39,090**	**$28,710**	**$18,320**
9454-11	69 Westchester Ave	Martin House	Office	307	154	1.02	$1,740	$157,581	$118,186	$78,791	$39,395	**$10,850**	**$8,570**	**$6,300**	**$4,010**
9454-12	69 Westchester Ave	Summit Company	Office	307	154	1.02	$1,740	$157,581	$118,186	$78,791	$39,395	**$10,850**	**$8,570**	**$6,300**	**$4,010**
9454-13	67 Westchester Ave	Above Retail	apartments	220	110	0.73	$1,247	$112,879	$84,659	$56,439	$28,220	**$7,770**	**$6,150**	**$4,510**	**$2,880**
9454-13	67 Westchester Ave	The Cottage / Booksy	retail	282	141	0.94	$1,596	$144,485	$108,363	$72,242	$36,121	**$9,950**	**$7,860**	**$5,770**	**$3,690**
9454-14	4 Trinity Pass Rd.	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9454-15	65A,B Westchester Ave	Kahlo	retail	117	59	0.39	$665	$60,210	$45,158	$30,105	$15,053	**$4,150**	**$3,280**	**$2,400**	**$1,540**
9454-15	65A,B Westchester Ave	Above Kahlo	apartments	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9320-56	Westchester Ave	Parking	parking w/2 shed	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-58	80 Westchester Ave	Fire Department	community facility	708	354	2.36	$4,010	$363,059	$272,294	$181,529	$90,765	**$25,010**	**$19,750**	**$14,510**	**$9,260**
9320-59	78 Westchester Ave	123 Dough	Food Prep	223	112	0.74	$1,266	$114,636	$85,977	$57,318	$28,659	**$7,900**	**$6,230**	**$4,580**	**$2,930**
			Employees	60	30	0.20	$340	$30,785	$23,089	$15,393	$7,696	**$2,120**	**$1,670**	**$1,230**	**$780**
9320-59	78 Westchester Ave	Miller's Landscape	office	74	37	0.25	$422	$38,212	$28,659	$19,106	$9,553	**$2,630**	**$2,070**	**$1,530**	**$980**
9320-60	76 Westchester Ave	Dinardos	restaurant	2100	1,050	7.00	$11,900	$1,077,477	$808,108	$538,739	$269,369	**$74,210**	**$58,630**	**$43,050**	**$27,480**
9320-60	76 Westchester Ave	Vacant	Vacant	0	0	0.00	$0	$0	$0	$0	$0	**$0**	**$0**	**$0**	**$0**
9320-60	76 Westchester Ave	above Dinardos	apartments	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9320-61	74 Westchester Ave	Blind Charlies	restaurant	1750	875	5.83	$9,917	$897,898	$673,423	$448,949	$224,474	**$61,840**	**$48,870**	**$35,880**	**$22,890**
9320-61	74 Westchester Ave	Jacob Allen	Spa	200	100	0.67	$1,133	$102,617	$76,963	$51,308	$25,654	**$7,060**	**$5,580**	**$4,110**	**$2,620**
9320-61	74 Westchester Ave	O'Donnell	Retail	199	100	0.66	$1,129	$102,232	$76,674	$51,116	$25,558	**$7,040**	**$5,560**	**$4,080**	**$2,610**
9320-61	74 A,B,C,&D Westchester Ave	above Blind Charlies	apartments	660	330	2.20	$3,740	$338,636	$253,977	$169,318	$84,659	**$23,320**	**$18,430**	**$13,530**	**$8,630**
9320-62	72 Westchester Ave	PR Dry Cleaners	retail	238	119	0.79	$1,346	$121,858	$91,393	$60,929	$30,464	**$8,390**	**$6,630**	**$4,870**	**$3,110**
9320-62	72 Westchester Ave	Plum Plum's	Food Prep	119	59	0.40	$673	$60,929	$45,697	$30,464	$15,232	**$4,200**	**$3,310**	**$2,430**	**$1,550**
			Employees	60	30	0.20	$340	$30,785	$23,089	$15,393	$7,696	**$2,120**	**$1,670**	**$1,230**	**$780**
9320-62	72 Westchester Ave	Nephawa	retail	119	59	0.40	$673	$60,929	$45,697	$30,464	$15,232	**$4,200**	**$3,310**	**$2,430**	**$1,550**
9320-62	72 A & B Westchester Ave	above PR Dry Cleaners	apartment	220	110	0.73	$1,247	$112,879	$84,659	$56,439	$28,220	**$7,770**	**$6,150**	**$4,510**	**$2,880**
9320-63	70 Westchester Ave	above retail	apartments	220	110	0.73	$1,247	$112,879	$84,659	$56,439	$28,220	**$7,770**	**$6,150**	**$4,510**	**$2,880**
9320-63	70 Westchester Ave	Barber	Barber	250	125	0.83	$1,417	$128,271	$96,203	$64,136	$32,068	**$8,830**	**$6,980**	**$5,120**	**$3,270**
9320-63	70 Westchester Ave	P. Queens, Avalon Ins, Hedg., PR Home	retail / Office	103	51	0.34	$583	$52,827	$39,620	$26,414	$13,207	**$3,640**	**$2,880**	**$2,110**	**$1,340**

Table 10-4, Continued

Parcel #	Property Address	Tenant	Use	Final WW Design Flow (gpd)	Final Water Design Flow (gpd)	# of EDU's	Flow Based Annual O&M Cost	Total Capital Cost				Flow-Based Annual User Charge			
								No Grant	25% Grant	50% Grant	75% Grant	No Grants	25% Grant	50% Grant	75% Grant
9320-64	68 Westchester Ave	Chubby's	retail	346	173	1.15	$1,962	$177,604	$133,203	$88,802	$44,401	**$12,240**	**$9,670**	**$7,100**	**$4,530**
9320-64	68 A,B,C,&D Westchester Ave	above Chubby's	apartments	660	330	2.20	$3,740	$338,636	$253,977	$169,318	$84,659	**$23,320**	**$18,430**	**$13,530**	**$8,630**
9320-65	66 Westchester Ave	gas station	auto repair	800	400	2.67	$4,533	$410,468	$307,851	$205,234	$102,617	**$28,270**	**$22,340**	**$16,400**	**$10,460**
9455-18.9	26 Lower Trinity Pass	Joiquim Felice	Home	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9455-20	32 Westchester Ave	Wine Connection	retail	444	222	1.48	$2,517	$227,861	$170,896	$113,930	$56,965	**$15,700**	**$12,400**	**$9,100**	**$5,810**
9455-20	32 Westchester Ave	Above Wine Connection	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-21	34 Westchester Ave	above Antique	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-21	34 Westchester Ave	Antique	retail	196	98	0.65	$1,113	$100,795	$75,597	$50,398	$25,199	**$6,940**	**$5,480**	**$4,020**	**$2,580**
9455-27	38 Westchester Ave	Future Value Assoc	office	176	88	0.59	$997	$90,303	$67,727	$45,151	$22,576	**$6,220**	**$4,910**	**$3,610**	**$2,300**
9455-28	40, 40A Westchester Ave	Wittus	retail	270	135	0.90	$1,530	$138,533	$103,900	$69,266	$34,633	**$9,540**	**$7,540**	**$5,540**	**$3,540**
9455-28	40, 40A Westchester Ave	Helen Famulare Spa	Spa	400	200	1.33	$2,267	$205,234	$153,925	$102,617	$51,308	**$14,140**	**$11,170**	**$8,200**	**$5,230**
9455-28	40, 40A Westchester Ave	Private	apartment	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9455-26	46 Westchester Ave	Roeco	office	184	92	0.61	$1,041	$94,252	$70,689	$47,126	$23,563	**$6,490**	**$5,130**	**$3,760**	**$2,410**
9455-25	54 Westchester Ave	Asia Hamachi	restaurant	875	438	2.92	$4,958	$448,949	$336,712	$224,474	$112,237	**$30,920**	**$24,430**	**$17,930**	**$11,450**
9455-25	54 Westchester Ave	Dragon Martial Arts	Health Club	300	150	1.00	$1,700	$153,925	$115,444	$76,963	$38,481	**$10,610**	**$8,370**	**$6,150**	**$3,920**
9455-25	54 Westchester Ave	Curry & Hovis	retail	120	60	0.40	$680	$61,570	$46,178	$30,785	$15,393	**$4,240**	**$3,350**	**$2,460**	**$1,570**
9455-25	54 Westchester Ave	above Curry & Hovis	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-24	56, 60 Westchester Ave	above retail	apartments	770	385	2.57	$4,363	$395,075	$296,306	$197,537	$98,769	**$27,210**	**$21,500**	**$15,790**	**$10,080**
9455-24	56, 60 Westchester Ave	Key Bank, Toy Store	retail / Office	779	390	2.60	$4,415	$399,744	$299,808	$199,872	$99,936	**$27,530**	**$21,760**	**$15,970**	**$10,190**
9456-4	39 Westchester Ave	private	residential	660	330	2.20	$3,740	$338,636	$253,977	$169,318	$84,659	**$23,320**	**$18,430**	**$13,530**	**$8,630**
9456-1.9	55, 57 Westchester Ave	Market, post office, 5 Retail Stores, Office	retail / office	5414	2,707	18.05	$30,679	$2,777,787	$2,083,341	$1,388,894	$694,447	**$191,310**	**$151,160**	**$111,000**	**$70,840**
9455-10	22, 24 Westchester Ave	PR Organics	Retail	478	239	1.59	$2,709	$245,306	$183,979	$122,653	$61,326	**$16,890**	**$13,350**	**$9,800**	**$6,250**
9455-13	26 Westchester Ave	Above Educators Alley	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9455-13	26 Westchester Ave	Qualities	retail	55	27	0.18	$311	$28,181	$21,136	$14,091	$7,045	**$1,940**	**$1,530**	**$1,130**	**$720**
9455-13	26 Westchester Ave	Educators Alley	office	110	55	0.37	$622	$56,362	$42,272	$28,181	$14,091	**$3,890**	**$3,060**	**$2,250**	**$1,430**
9455-14	30 Westchester Ave	private	residential	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9456-8	21 Westchester Ave	private	residential	440	220	1.47	$2,493	$225,757	$169,318	$112,879	$56,439	**$15,550**	**$12,280**	**$9,020**	**$5,750**
9456-7	23,23A,B Westchester Ave	Kende & London Joiner	retail	306	153	1.02	$1,735	$157,106	$117,830	$78,553	$39,277	**$10,830**	**$8,550**	**$6,280**	**$4,010**
9456-6	27 Westchester Ave	above Lion Heart	apartments	110	55	0.37	$623	$56,439	$42,329	$28,220	$14,110	**$3,890**	**$3,070**	**$2,260**	**$1,440**
9456-6	27 Westchester Ave	Di Biase Filkoff Architects	Office	152	76	0.51	$860	$77,886	$58,415	$38,943	$19,472	**$5,370**	**$4,240**	**$3,110**	**$1,980**
9456-5	29 Westchester Ave	A Home	residential	1760	880	5.87	$9,973	$903,029	$677,271	$451,514	$225,757	**$62,200**	**$49,140**	**$36,080**	**$23,030**
9456-55	35 Westchester Ave	PR Vet Center	retail	214	107	0.71	$1,215	$110,045	$82,534	$55,023	$27,511	**$7,580**	**$5,980**	**$4,390**	**$2,810**
	IN-FILL			6365	3,183	21.22	$36,071	$3,265,989	$2,449,492	$1,632,994	$816,497	**$224,940**	**$177,720**	**$130,510**	**$83,290**
	PM&G		CURRY & HOVIS	20000	10,000	66.67	$113,333	$10,261,688	$7,696,266	$5,130,844	$2,565,422	**$706,760**	**$558,410**	**$410,050**	**$261,690**
	SCOTT'S CORNER MARKET		Market & Post Office	20000	10,000	66.67	$113,333	$10,261,688	$7,696,266	$5,130,844	$2,565,422	**$706,760**	**$558,410**	**$410,050**	**$261,690**
				80,000	**40,000**	**267**	**$453,333**	**$41,046,750**	**$30,785,063**	**$20,523,375**	**$10,261,688**	**$2,827,060**	**$2,233,590**	**$1,640,160**	**$1,046,670**

Table 10-5 Draft - Implementation Schedule





A Public Meeting on the draft Report was presented at the Town Board meeting of April 11, 2019.

REFERENCES

1. Pound Ridge Water/Waste Water Task Force, 2017. Existing Conditions Report, Baseline Conditions Workgroup, December.

2. Frederick P. Clark Associates, 1990. Scotts Corners Planning Study, October.

3. National Decentralized Water Resources Capacity Development Project (NDWRCDP) Research Project, Guidance for Evaluation of Potential Groundwater Mounding Associated with Cluster and High-Density Wastewater Soil Absorption System, 2005

4. Bradley, J. G. et al, Groundwater Mounding Analysis for Onsite Wastewater Discharge: From Simple to Innovative, presented at the 2019 NE Short Course, Groton, CT April 6, 2019

GLOSSARY

BOD – Biochemical Oxygen Demand. A laboratory measurement of wastewater that is one of the main indicators of the quantity of pollutants present; a parameter used to measure the amount of oxygen that will be consumed by microorganisms during the biological reaction of oxygen with organic material.

Drip Irrigation – A slow rate, shallow dispersal system where treated wastewater is dispersed through emitters into the root zone near the ground surface.

Effluent Tee Filter – Filtration device that installs directly into the outlet tee on the effluent end of the septic tank.

Fixed Film Treatment Systems – Secondary treatment achieved through percolating wastewater through media, typically sand, rock or a synthetic material.

gpd – gallons per day

gpm – gallons per minute

GIS – Geographic Information Systems

Grinder Pump System – A type of collection system that takes raw wastewater (no septic tank) and uses a small basin containing a grinder pump (the grinder pump station) to convey raw wastewater to the desired location.

I/I – Inflow/infiltration

MBR – Membrane Bio-Reactor. A type of suspended growth system that uses membrane filtration instead of final settling

MLSS – Mixed Liquor Suspended Solids

MPN – Most Probable Number

NWI – National Wetlands Inventory

NYSDEC – New York State Department of environmental Conservation

Primary Treatment – the first stage of wastewater treatment that removes settleable or floating solids only; generally removes 40% of the suspended solids and 30-40% of the BOD in the wastewater.

RMF – Recirculating Media Filter. A type of secondary, fixed-film process that recirculates wastewater over media and blends recirculated water with raw wastewater prior to discharging to the next treatment process.

RSF – Recirculating Sand Filter. The simplest type of RMF, where sand is used as the media.

SBR – Sequencing Batch Reactor

Secondary Treatment – a type of wastewater treatment used to remove dissolved and suspended pollutants through biological treatment processes. The basic categories of secondary treatment are suspended growth, fixed film and integrated fixed film – activated sludge. Effluent quality is BOD/TSS < 30 mg/L. Advanced secondary treatment achieves effluent quality of BOD/TSS < 30 mg/L and Ammonia < 3 mg/L.

STEP System – Septic Tank Effluent by Pump. A type of collection system that takes effluent from septic tanks and pumps the wastewater to the desired location.

STEG System – Septic Tank Effluent by Gravity. A type of collection system that takes effluent from septic tanks and drains by gravity to the desired location.

Suspended Growth Treatment Systems – Secondary treatment achieved through maintaining particles in suspension in an aerobic environment.

Tertiary Treatment with Disinfection – wastewater treatment system that achieves the following effluent quality.

pH	6.5 – 8.5
BOD/TSS	< 10 mg/L
Oil & Grease	< 15 mg/L
Total Nitrogen (TN)	< 10 mg/L
Fecal Coliform	Average < 24 & Maximum < 200 MPN / 100 ml
Enterococcus	Average < 24 & Maximum < 104 MPN / 100 ml

TSS – Total Suspended Solids. A measure of the amount of solid material in suspension within a waste stream.

USDA – U.S. Department of Agriculture

UV Disinfection – The use of ultraviolet radiation to inactivate pathogens in a treated waste stream.

WCDoH – Westchester County Department of Health

WWTF – Wastewater Treatment Facility

APPENDIX A POUND RIDGE WATER/WASTE WATER TASK FORCE, 2017, EXISTING CONDITIONS REPORT

Pound Ridge Water/Waste Water Task Force

Existing Conditions Report

Baseline Conditions Workgroup
December 2017

CONTENTS

TABLES

FIGURES

APPENDICES (ON CD)

POUND RIDGE WATER/WASTEWATER TASK FORCE
BASELINE CONDITIONS WORKGROUP REPORT

1.0 CHARGE

As given by the Town Board: "The mission of the Pound Ridge Water/Wastewater Task Force is to assist the Town of Pound Ridge in developing potential long-term wastewater treatment and disposal solutions for the Scotts Corners Business Districts" (**Figure 1**).

1.1 PROBLEM

Scotts Corners is the main commercial and retail area of Pound Ridge and has three planned business zones, PB-A, PB-B, and PB-C (**Figure 2**). Many of the lots have antiquated wastewater treatment systems that are still in use and have experienced health code violations. The present situation is not sustainable, limits any future growth in the Scotts Corner area and, if left unaddressed will lead to future waste water treatment systems failures.

The Pound Ridge Wastewater Task Force Baseline Conditions Work Group is tasked to assess the present situation and make recommendations to remedy the current situation.

1.2 BASELINE CONDITIONS WORKGROUP SCOPE AND METHODOLOGY

1.2.1 AREA OF RESPONSIBILITY

1. The Baseline Conditions Workgroup is tasked with surveying existing conditions, and compiling a baseline report.
2. The baseline report contains data on the location, and type of waste water systems in the PB-A, PB-B and PB-C zoning areas of Scotts Corners. An estimate of the flows generated is included.
3. A synopsis of the geological and groundwater constraints of the Scotts Corners area is presented as these factors impact any future solutions.
4. The regulatory constraints that impact the present and future waste water treatment options are presented. The location of Scotts Corners in the watershed of the Stamford water supply also impacts any future solutions to the current problems.

5. The Scotts Corners area is serviced by a series of privately owned wells that provide potable water to the residences and businesses. These wells are inventoried and locations presented. Any discussion of future waste water solutions to the current problems must include an analysis of the sustainability of the potable water supply.
6. A synopsis of the past studies is presented summarizing salient facts that are relevant to the understanding of current conditions and the development of future solutions. The historical waste water reports are included as Appendix A. The historical potable water studies are included as Appendix B.
7. A number of steps necessary to develop recommendations will be presented.
8. Tables and figures have been prepared to assist the reader in his or her review of the data.

1.3 METHODOLOGY

The following steps were taken to gather the data for this report.

- File review at the Pound Ridge Townhouse to identify available files.
- Submittal of Open Records Request to the Westchester County Department of Health See Appendix C, WCHD Property Information
- Preliminary review of records from the Town Building Department, County Health Department, and NYSDEC to identify existing records for well locations, septic systems, and underground storage tanks to the extent possible.
- Preliminary review of geographical information available through existing reports, PR GIS, Westchester County GIS, NYS State records, and USGS.
- Walking survey of Scotts Corners to visually identify commercial, retail, and residential use areas.
- Current and projected future water use was calculated based on data collected as part of the walking survey.

2.0 CURRENT CONDITIONS

The Scotts Corners business district encompasses approximately 40 acres and 40 properties across blocks 9454, 9455, 9456, 9320, 9820, and 9816. All properties are served by well water and depend on septic systems for wastewater disposals. The Baseline Task Force submitted a request for information to the Westchester County Department of Health in September 2016. The information included in this report is based on a review of records received as part of the information request, review of Town files, and conversations with town officials and property owners. A summary of the data is presented in **Table 1**. Information has not yet been located for 19 properties.

Based on a review of the data, 2012 was the most recent date for a septic system permit reviewed. The oldest permit reviewed was issued in 1942. Some existing systems were installed prior to 1942 but a permit was not available for review at this time. Many of the septic systems appear to have been installed in the 1940s and 1950s before any current regulations as to design, were in place.

Waste water disposal in Scotts Corners is constrained by several factors:

- Scotts Corners is situated near Class AA streams that feed reservoirs used for potable water supplies in Connecticut. Class AA streams are subject to New York State Protection of Waters Regulations.
- The areas available for traditional subsurface wastewater disposal systems are limited due to the following:
  - Topographical restrictions (**Figure 3**)
  - High groundwater tables
  - Presence of bedrock
  - Proximity to wetlands (**Figure 3**)
  - Regulatory constraints related to the treatment technologies that can be approved.
- The age of the existing subsurface disposal systems
- Potable water wells dot the area. Public health regulations require a separation of 50 to 150 feet between wells and various elements of septic systems.
- Public health laws and regulations have become more detailed and protective over time and many of the well and septic system installations do not comply with current

regulations. **Figure 4** provides an overview of the proximity of wells and the septic systems in the area.

- The land area required for the traditional subsurface disposal of the volume of wastewater estimated at 54,000 gallons per day (GPD) is not available in Scott's Corner.

The historical reports as they relate to **wastewater** disposal are summarized in **Section 3.** A summary of the problems and constraints identified and the proposed solutions have been included as **Table 2.**

3.0 SUMMARY OF PREVIOUS REPORTS

A review of town files produced a series of reports addressing water and wastewater conditions in Scotts Corners dating back to the early 1990s. A copy of the historical reports reviewed have been included in Appendix A for waste water and Appendix B for potable water.

A summary of historical reports follows:

3.1 WASTEWATER

1990 Clark Report

The study includes existing use and development levels and projections of future development potentials. Concern about future development exceeding capacity of existing parking. Includes: land and building use, parking and traffic, future development and trends from 1974-1990. In 1974 after a study the Zoning regulations were changed to provide the Floor Area Ratio (FAR) restrictions reducing the theoretical zoning potential by approx. one-half. A common sewage disposal system or expansion to the west would provide more parking in the northern lot. Alternatives for Development potential identified.

1992 Folchetti Report

This report studied a wastewater treatment plant for pre-treating waste water for a subsurface disposal system. Two areas for subsurface disposal near the point of generation in the Scotts Corners Business area were studied and neither were determined to be suitable. Pumping the effluent to the Town Park, a distance of 6,300 or 9,000 feet depending on the route, was proposed as a potential solution. This study was fairly comprehensive and included estimates of square footage of residential and commercial space and resulting waste water flows. Projections were made to 2012. The projected wastewater treatment plant was estimated to cost $1.5 million and have annual operating costs of $38,000 per year.

1998 Malcom Pirnie

The report evaluated pumping treated wastewater effluent into the bedrock. This was not considered a viable option.

1999 Malcolm Pirnie

The report established that certain wastewater systems were experiencing failures. The study reviewed three solutions. A wastewater treatment plant was deemed too expensive. On site wastewater disposal was not feasible as there is not enough space and DOH waivers would be required. Upgrading existing systems was discussed. The Town Park disposal solution would seem viable but faces some hurdles.

2000 June and July, Malcolm Pirnie

Test pits were dug and percolation tests performed behind lots 60, 61, 62 (see figure -). A solution was proposed but it did not address the needed flows and would require regulatory waivers.

2000 September, Malcom Pirnie

The study proposal discussed regulatory issues with potable water wells and the possibility of combining them into a Community Water Supply, but wanted to start over with a wastewater study.

2002 April, Folchetti

The study picks up from previous studies and addresses the lack of space in Town for wastewater disposal. The Town Park site is addressed and some challenges for the use of that site for wastewater disposal is addressed. This report also discusses potable water solutions, water from Stamford, drilling wells and getting water from the golf course.

2015 Ridge 29 Proposal

The OnSite Wastewater treatment system proposed for the Ridge 29 development was designed by Onsite Engineering PLLC and included Septic Tank Effluent Gravity System (STEG) for the forty-three proposed units and a constructed wetland treatment system. [1]

Opposition to the development was based in part on the site topography where approximately 80% of the 29 acre property consisted of slopes of more than 25% , the density of the proposed development, and the selection of an unconventional, technologically complex, on-site community sewage treatment and disposal system on a steep and environmentally sensitive site. The technology had previously been used to remediate failing septic systems but not as the primary septic treatment technology and it was the opinion of Aquarion, the Connecticut water utility who owns the watershed land in Pound Ridge, that the technology should not be applied to develop a marginal piece of property in a major watershed[2].

3.2 POTABLE WATER

Potable water is also an issue in Scott's Corners. New potable wells in Scott's Corners have been required to have extensive filtration systems and participate in regular monitoring. There are legacy MTBE issues in the ground water. Any replacement of the existing septic systems or addition of new wells run into regulatory issues as the present configuration of septic systems and wells do not meet regulatory separation requirements. These studies recognize the need to address present and future potable water supply challenges. See Appendix B Historical Potable Water Reports

[1] http://www.townofpoundridge.com/boardsandcommissions/ridge-29-llc
[2] May 11, 2015 letter from Aquarion to the Chairman of the Pound Ridge Planning Board.

The conclusions of the reports on the ability to provide **potable water** to Scott's Corners are summarized below.

A 1973 contract between the Stamford Water Company and Pound Ridge for the construction of the Siscowit or other Reservoir to provide water to Stamford also includes a provision for Pound Ridge to access this water supply.

In 1997 and 1998 plans were made to provide Scott's Corners with potable water either from three deep wells on property owned by the Bridgeport Hydraulic Company (BHC)[3] on Westchester Avenue, or from an interconnect in Connecticut. It would appear that the driving force was the MTBE contamination. An interconnect seems to have been stopped late in the process by New Canaan who would not issue street opening permits for the interconnection and the project was cancelled.

4.0 ENVIRONMENTAL CONDITIONS

4.1 GEOLOGY

Northern Westchester, including Pound Ridge, was included in a 1995 USGS report[4] as part of a water resources investigation. The report provides an overview of the geological and hydrogeological setting of northern Westchester. The major findings are summarized below.

BEDROCK

Pound Ridge "is underlain by a complex sequence of bedrock that varies greatly in age and composition… The rocks are extensively folded and faulted…The bedrock is mostly metamorphic with some igneous rock and ranges in age Precambrian to Upper Devonian…. Rock of Precambrian age are by far the most extensive in the study area and consist of three major groups-Fordham Gneiss, Pound Ridge Gneiss, and the Hudson Highlands

[3] Aquarion Water Company is the current owner of the Bridgewater Hydraulic properties.
[4] S. Wolcott and R. Snow. Computation of Bedrock-Aquifer Recharge in northern Westchester County, New York, and Chemical Quality of Water from Selected Bedrock Wells. Water Resources Investigation Report 92-4157, USGS 1995

complex…Cambro-Ordovician.-Bedford Gneiss, Hartland Formation, and the Inwood Marble are formations of an uncertain age. ”

SOILS

“Much of the bedrock is overlain by unconsolidated Pleistocene or Recent deposits, some of which are extensive. The Pleistocene deposits typically include a thin mantle of till on hilltops and valley sides and stratified sand, gravel, silt, and clay in the valley bottoms. Recent deposits consist of alluvium in stream valleys and organic rich sediments in swampy areas.” “Much of the Pleistocene material is till, which consists of unsorted materials ranging in size from clay to large boulders. Thicknesses range from less than 1 ft. to more than 100 ft. Stratified drift, unlike till, forms sorted deposits of either clay, silt , sand or gravel that can be interbedded amongst themselves or between till deposits. The extent and thickness of stratified drift…range from zero in areas of no stratified drift to more than 250 ft. Recent deposits are typically alluvium and fine-grained organic rich sediments in and near swamps and streams and are generally less than 10 ft. thick.

4.2 HYDROGEOLOGY

Scotts Corners is located in an area characterized by hydric soils, state regulated wetlands, class AA streams, and within certain FEMA flood zones. Groundwater is generally encountered within the first 4 feet in areas of the business district that are not characterized as steep slopes.

4.3 TOPOGRAPHY

STEEP SLOPES

The Town of Pound Ridge protection of steep slopes ordinance can be found in the Code Book Chapter 89. The ordinance was promulgated in 2007. Disturbance of steep slopes above 35% is prohibited. Disturbance of slopes of more than 15% requires a permit. Given the local topography where more than 2,000 acres[5] have slopes of more than 15%, steep slopes will have to be considered in any future proposed water and wastewater solution for Scotts Corners.

[5] Town of Pound Ridge Comprehensive Plan, 2010.

WETLANDS

The Pound Ridge Wetlands Ordinance (Chapter 63) was adopted in 1986. According to the Comprehensive Plan, the Town encompasses 8,300 acres of wetland, including wetlands regulated by federal, state and local laws and ordinances representing approximately 40% of the Town.

The Business District is located on or near wetlands that drain into the Laurel Reservoir. The Scott's Corner's shopping center located in PB-B was constructed on filled in wetlands

5. 0 APPLICABLE REGULATIONS

A network of regulations and agencies address septic tanks, wastewater treatment and discharges, surface water criteria, drinking water wells, distance requirements, steep slopes, and so forth. All of which will have to be considered as part of evaluation of Scotts Corners. A summary is presented below. A comprehensive discussion of the applicable regulations will be included in the Phase 2 technical report.

5.1 NEW YORK STATE DEPARTMENT HEALTH

The New York State Department of Health (NYSDOH) Bureau of Water Supply Protection issued the current *Onsite Residential Wastewater Treatment System Design Handbook* in 2012 The Design Handbook provides the current requirements and guidelines for the construction and operation of residential septic systems. The design standards were established in 10NYCRR Appendix 75A and 10NYCRR Part 75 and apply to residential septic systems with flows of 1000 gallons per day (gpd) or less. The standards for intermediate systems with a flow above 1000 gpd are regulated by the NY State Department of Environmental Conservation (NYSDEC) in 6NYCRR part 750.

The New York State Public Health Law has given counties, municipalities, and other agencies the authority to enact ordinances to protect public health. If more stringent regulations exist locally they will have to be met as well when new systems are designed.

5.2 WESTCHESTER COUNTY DEPARTMENT OF HEALTH

Article VIII of the Westchester County Sanitary Code regulates the construction and operation and maintenance of onsite wastewater treatment systems. This report will use the common term "septic system" instead of "onsite wastewater treatment systems". Article VII has been amended several times, most recently in 2008.

Construction of a new septic system or expansion of an existing system requires the approval of the Westchester County Department of Health.

The Town of Pound Ridge implemented Chapter 86 in 2011. The intent of the septic tank regulations according to §86.1 "The Town of Pound Ridge hereby finds that it is necessary to the health, safety, and welfare of the residents of the Town of Pound Ridge that separate sewage disposal systems operate and be maintained in a manner that will prevent, to the extent possible, hazards to the public health and to protect the drinking water supply of the Town of Pound Ridge and drinking water supplies which pass through the Town of Pound Ridge." Chapter 86 sets forth the inspection schedule for septic systems within the Town required to maintain compliance with the Westchester County Sanitary Code sect VIII.

5.3 POLICIES AND STANDARDS

The Public Health Law of New York Part 5 subpart 5-1 Appendix 5B sets the minimum standards for water wells used for drinking and food processing but not for public water supply. The minimum separation distance between a water well and a contamination source are outlined in a table format. Generally, a well should be located 150 ft upgradient of an underground storage tank (single wall), 50 ft upgradient of a septic tank with a water tight effluent line and 150 ft upgradient of a seepage pit. The distance requirement can increase 50% based on site specific soil and depth to groundwater conditions. The distance requirement for cesspools which have no septic tank pretreatment is 200 ft. **Figure 4** provides an overview of the distance requirements.

6.0 WASTEWATER FLOW

6.1 WASTEWATER FLOW ESTIMATES

The estimates of wastewater flows from the three business districts (PB-A, PB-B, and PB-C) were generated using wastewater generation rates developed by New York City Department of Environmental Protection (NYC DEP) and various architectural handbooks used for sizing water and wastewater systems in homes, offices, and other commercial uses. The rates are shown in **Table 3**. These are general rates and are not applicable in every individual situation. However, they have been developed over a number of decades of practice and do reflect conservative and generally accurate aggregate estimates.

6.2 CURRENT FLOWS

Using information from the Pound Ridge Assessors Office and supplemented with field land use surveys, the current wastewater flows from the PB-A, -B, and -C zoning districts were estimated and are summarized in **Table 4**. Based on United States Census Bureau data, the residential usage was based on 3 persons per apartment. The estimates are based on the observed occupancy of buildings at the end of May 2016.

6.3 FULL OCCUPANCY FLOWS

The full occupancy of all existing space in the three Planned Business Districts is based on "highest and best use" of the existing buildings. No new buildings or structures are assumed in this estimate. "Best and highest use" would be retail or restaurant on the street level first floor and residential or office on the second floor. The differentiation between office or residential on the second floor is based current usage of the second floor. The "highest and best use" is considered to the reasonable worst case without new building. The estimated are shown on **Table 5**. Detailed, use, by use wastewater flow estimates are contained in **Appendix D**.

6.4 COMPARISON OF CURRENT AND HISTORICAL FLOW ESTIMATES

Previous estimates of wastewater flows in Scotts Corner ranged from approximately 25,000 to 28,000 gallons per day, depending on the date of the study. Although the wastewater generation rates in the two estimates are similar, several assumptions contribute to the difference between the earlier historical estimates and the current estimates of 40,000 to 55,000 gallons per day developed for this report. The differences in assumptions between the historical data in the Folchetti Report (1992) and the current estimate are summarized in Table 6 and outlined below:

- The historical estimate included only 25 buildings, compared to the 41 buildings in the current wastewater flow estimates. The main reason for the difference in the number of buildings is the decision to include all three PB zoning districts in the present analysis. Folchetti only included PB-A.
- Folchetti estimated 20,400 gallons per day (gpd) from commercial use. The current estimate is about double that flow at approximately 40,300 gallons per day.
- The Folchetti Report does not present the number of residential units included in the estimate nor the generation rate use.
- Folchetti Report did not include A Home in its estimate. This report estimates daily flow generated by A-Home at approximately 3,600 gpd.

The current estimate for residential units in Scotts Corner is 45 units with a population of 135 people (3 persons per unit based on U.S. Census Bureau data) and a total wastewater flow of approximately 13,500 gpd. The Folchetti Report estimated 4,250 gpd for the residential population. These two factors increased the wastewater flow estimates by about 29,000 pgd. **Table 6** provides a summary of the flow estimate assumptions.

6.5 COMMUNITY WASTE WATER TREATMENT PLANTS IN WESTCHESTER

In Westchester County, 12 wastewater treatment plants are authorized to discharge treated wastewater under the State Pollution Discharge Elimination System (SPDES). Of these, 7 are owned and operated by Westchester County Department of Environmental Facilities, and are rated to treat volumes of wastewater in excess of millions of gallons per day, far more than wastewater generated in Scotts Corner. The largest plant is the Yonkers Joint Treatment Plant

and is rated for 145,000,000 million gallons per day. The Bedford Hills/Taconic Correctional Facility, which is close by, is rated to treat 500,000 GPD and normally treats 300,000 to 400,000 GPD.

Two wastewater treatment plants in Westchester County that treat a comparable volume to Scotts Corner are: (1) Wild Oaks Condominium Sewer District, Goldens Bridge rated to treat 60,000 GPD; and (2) Oakridge Condominium Treatment Plant, Vista, rated to treat 80,000 GPD. These plants are small with 1 or 2 employees. The plants are not staffed 24 hours per day.

6.6 CURRENT WATER SUPPLY CONDITIONS

Potable water is supplied by individual wells serving the properties in Scotts Corners. It is the Work Group's understanding that the wells serving restaurants and food preparation operations in the business districts participate in water quality monitoring programs overseen by the NYSDOH. The task force did not review any of the individual water treatment systems or the monitoring data. It may be required at a later date to include a review of the potable water data.

6.7 FUTURE DEVELOPMENTAL CONDITIONS

TEP AND EXPECTED CHANGES IN REGULATIONS AND USES

Several infrastructure related projects that could influence the business district wide wastewater treatment options are currently underway or planned. This includes the TEP project, the redevelopment of the Pound Ridge Square Shopping Center, future use decisions at 77 Westchester Avenue, and other development decisions, including a renewed application at 29 Acres.

7.0 UNDERGROUND STORAGE TANKS

7.1 LOCATION OF USTS

Heating oil underground storage tanks (USTs) were marked on many of the site plans reviewed as part of the septic system analysis. It is anticipated that every property in the three business district has at least one UST or above ground storage tank (AST) for heating oil storage.

7.2 POTENTIAL SOURCES

A review of the NYSDEC Environmental Site Remediation Database and NYSDEC Spills Database[6], was conducted in 2016 by Toxics Targeting Report (2016) prepared as part of the NRI project. Additional data was made available as a result of the recently completed site assessment at 77 Westchester Avenue the following spills and recognized environmental conditions have been identified in Scotts Corners.

Table 7 presents the site ID, address, site name, issue, and status of sites identified in the business district. A total of eighteen incidents in the business district have been identified in the NYS DEC spills database. The incidents were associated with tank test failures, tank overflow or equipment failures. Only three incidents have been classified as unknown or other. Work is currently continuing at 77 Westchester Avenue under a federal brownfields grant.

8.0 SUMMARY OF FINDINGS

The Scotts Corner's business district provides a challenging environment for wastewater treatment systems and potable water supply.

- There has never been an overall plan for wastewater treatment in the business district. Each property is served by an individual septic tank or cesspool.
- Some of the septic tanks or cesspools are old and do not meet current standards for septic system design or minimum separation distance requirements for water wells.
- Some systems are likely to fail and will not meet present standards for renovated or new systems.
- Based on estimates of current and projected flow and the use of currently accepted treatment technologies a minimum of 7 acres is required for a leachfield.
- Site conditions are not amendable to new septic systems.
    - Groundwater encountered at 4-5 feet bgs
    - Bedrock or boulders too large to move within 5 feet of surface on test plots

[6] The NYSDEC databases were last accessed June 17, 2017.

    - Close proximity to wetlands and Class AA streams severely limits the amount of land that is available for septic systems and drainage field in compliance with current requirements.
    - Steep slopes
- Because of the proximity to Class AA streams and the Laurel Reservoir which is part of the water supply system for Stamford, CT, all wastewater discharges have to be below ground which may limit the use of constructed wetlands.
- The properties in the business district are served by private wells. Continued additional filtration systems will be required in the future.
- Minimum separation distance requirements are not always met. Some properties are likely to fail if current standards are applied.
- Area required for seepage fields based on estimated future flow of 54,000 gpd and current technologies is not available in Scotts Corners.

9.0 NEXT STEPS

The Technical Committee will evaluate technical options and present its findings and recommendations to the public in a technical report as well as presentations at public meetings.

Funding opportunities will be evaluated concurrently.

Table 1

Property Data

Block	Lot	Zone	Property Address	Tenant	Use	Acreage	Year Built	Location of Well	Location of Septic	Property Owner	Owner Info	Original Owner
PB-A												
9454	36	R-2A	89 Westchester Ave	PR Ambulance Corps	community facility	0.530	1981	X		Pound Ridge Lions Ambulance Corps	914-764-8510 PO Box 237 Pound Ridge NY 10576	
9454	5	PB-A	87 Westchesterchester Ave	Avant Garden	retail	1.131	1950	X	X	Rex Realty of CT Inc.	1111 Summer St. Suite 603, Stamford CT 06905	Rex Oil Co.
9454	6	PB-A	85 Westchester Ave	Part of North Star	restaurant w/ office	0.415	1930	X	X	Westchester Ave LLP	100 S. Bedford Rd, Suite 340 Mt. Kisco NY 10549	Geraldine Ash
9454	7	PB-A	83 and 83A Westchester Ave	North Star, Albano Appliance & vacant	retail/office w/ apts	0.473	1950	X	X	Albano Realty Assoc. LLC	Kathy Albano 2 Orchard Dr, South Salem NY 10590	Alfred Albano
9454	8	PB-A	79 Westchester Ave	Dynax	office	0.345	1957	X	X	Edward K. Kleiner Family Truest	PO Box 285 Pound Ridge, NY 10576	Baring - Gould
9454	9	PB-A	77 and 77A Westchester Ave	Vacant auto repair	retail w/ apts.	0.342	1945			John and Gildo DiFulvio	77 Westchester Ave, Pound Ridge NY 10576	Anthony Pirone-Amerigo Prosio
9454	35	PB-A	NA	Parking & vacant	Vacant	0.356						
9454	10	PB-A	73 Westchester Ave	HHF - Dentist	office	0.670	1959	X	X	Atem Enterprises Inc.	297 Hayward St., Yonkers NY 10704	New Canaan Devel. Co.
9454	11	PB-A	71 Westchester Ave	Kitchen Table & wine store	resaurant/retail/office	0.631	1948	X	X	Gateway Management		Scotts Corners Market Inc.
9454	12	PB-A	69 Westchester Ave	Pizza, PR Dance, Nail/Spin	resaurant/retail/office	0.493	1950	X	X	Nicholas S. Vazzana	PO Box 390 Pound Ridge NY 10575	Norkin Bros.
9454	13	PB-A	67 Westchester Ave	Gen Store, Booksy, Antique	retail w/apts	0.147	1950	X	X	Jerome and Elinor Deutsch Trustee	PO Box 127 Pound Ridge NY 10576	Theodore & David Allen
9454	14	PB-A	4 Trinity Pass Rd.	Manville Trust	office	0.181	1940	X		Yudith Ita Schwartz	112 Round Hill Rd, Armonk NY 10504	Trinity Corners Corp.
9454	15	PB-A	65, 65A,B Westchester Ave	Antique Store	retail w/2 apts	0.185	1934			Yudith Ita Schwartz	112 Round Hill Rd, Armonk NY 10504. 237-3550	Trinity Corners Corp.
9320	56	PB-A	Westchester Ave	parking	parking w/2 shed	5.084				Pound Ridge Fire District	PO Box 129 Pound Ridge, NY 10576	Quade
9320	58	PB-A	80 Westchester Ave	Fire Department	community facility	0.449		X	X	Pound Ridge Fire District	PO Box 129 Pound Ridge, NY 10576	Quade
9320	59	PB-A	78 Westchester Ave	Vacant, World Ins	food prep/office w/apts	0.207	1952	X		Dail Metzger	Dail Metzger 320 Strawberry Hill Ave, Stamford CT 06902	John Ditore
9320	60	PB-A	76 Westchester Ave	Dinardos/American T	restaurant/retail w/apts	0.207	1955	X	X	76 Westchester Ave Realty Co. Ltd.	PO Box 36, Pound Ridge NY 10576	Quade & Roth
9320	61	PB-A	74 Westchester Ave	Blind Charlies/O'Donell	restaurant/retail w/apts	0.207	1968	X	X	Scott's Corner Market, Inc.	PO Box 180 Pound Ridge NY 10576	Quade & Clemons
9320	62	PB-A	72 Westchester Ave	PR Dry Cleaners, Plum Plums, Foxy	retail w/apts	0.207				Stephanie Degraff	4606 13th Place, Vero Beach, FL 32960	
9320	63	PB-A	70 Westchester Ave	Promo Queens, Avalon Ins,Barber, Hedgerow, PR Home	retail/office w/apts	0.207	1945		X	Trinity Lane Ltd.	Attn: Sally Siano 52 Babbitt Rd, Bedford Hills, NY 10507	Frank & Esther Beccaria
9320	64	PB-A	68 Westchester Ave	Chubby's	retail w/apts	0.418	1942	X		Joseph and Carmella DiPietro	129 Redmond Rd, Stamford CT 06903	Gustav & Lena Shutte
9320	65	PB-A	66 Westchester Ave	Gas Station	retail	0.642		X		Shaeffer Realty Ltd.	PO Box 380 Pound Ridge NY 10576	
					Subtotal	13.527						
PB-B												
9455	18.9	PB-B, R-1A	26 Lower Trinity Pass	no building	vacant	0.615	1940			Felice Joaquim		Bathrick
9455	20	PB-B	32 Westchester Ave	Wine Connection	retail	0.656	1910	X	X	Peter Desimini		Barker
9455	21	PB-B	34 Westchester Ave	Antique	retail	0.652	1965	X	X	Linda DiMattia		Frank Columbo & Girolamo Mastromauro
9455	26	RA-1	46 Westchester Ave	Offices	Office	4.589		X				
9455	27	PB-B, R-1A	38 Westchester Ave	Future Value Assoc	office	0.717	1932	X	X	TS Affiliates LLC	Ferrara/Becker	Evelyn Yalien
9455	28	PB-B	40, 40A Westchester Ave	Wittus, Greenfull	retail	0.495				Mastromoro Fam LP		
9455	25	PB-B	54 Westchester Ave	Hamachi, Curry & Hovis, Pound Ridge Painting	restaurant/retail w/ apt	1.632	1869	X	X	PMNG Management Inc.	PMNG Management LLC, 82 Grandview Blvd, Yonkers NY 10710	Pluto Properties, Inc.
9455	24	PB-B	56, 60 Westchester Ave	Toys & Sports, Salon, Key Bank, Eye Care	retail w/apts	1.698	1860			David Berman H.	PMNG Management LLC, 82 Grandview Blvd, Yonkers NY 10710	Seymour - Berman - Renovated 1970
9456	4	PB-B	39 Westchester Ave	Private	residential	2.196						
9456	1.9	PB-B	55, 57 Westchester Ave	Market, Post Office & vacant	retail	7.707	1976		X	Roe Scotts Corner LLC	Scott Solomon 46 Westchester Avenue, Pound Ridge, New York 10576	
					Subtotal	20.957						Evelyn & Benjamin Butterworth
PB-C												
9455	10	PB-C	22, 24 Westchester Ave	vacant PR Painting	office	2.005	1810	X	X	Stuart Simons		Kaufman
9455	13	PB-C	26 Westchester Ave	Educators Alley	office	0.781	1930			Pedani Realty Services	26 Westchester Ave 28, Pound Ridge, NY 10576	Scofield
9455	14	PB-C	30 Westchester Ave	private	residential	1.002	1934	X	X	Paterson		Scofield
9456	8	PB-C	21 Westchester Ave	private	residential	0.656	1930			James & Elaine Suda		Emily Suda
9456	7	PB-C	23, 23 A, B Westchester Ave	Kendal Studio & London Joiner	retail w/apt	1.537	1940	X	X	M. Byrne		McNally
9456	6	PB-C	27 Westchester Ave	Lionheart Gallery	retail w/apt	0.693	1949		X	Coleridge Spyder, LLC		Jackson
9456	5	PB-C	29 Westchester Ave	A Home	residential	3.195	2008	X	X	Scotts Ridge Housing Dev. Fund Corp.		Thomas Sefcik
9456	5.5	PB-C	35 Westchester Ave	PR Vet Center	retail w/apt	0.764	1974	X	X	35 Westchester Ave., Inc.		Dolensek
					Subtotal	10.633						
TOTAL					Total	45.117						

Waterwater Generation Rates from City Enviornmental Review Technical Manaul

retail	0.24 gallons per day per square foot
office	0.10 gallons per day per square foot
rest.	35 gallons per day per seat
Resident	100 gallons per day per person

Acreage for lots 9455-18.9 and 9455-27 are for PB-B section only and approximate

Table 2

Wastewater Issues and Solutions identified in historical reports

Potential Problem		Reference
Parking Lots 56, 58-64 Block 9320	Max. capacity 24,000 gpd	Folchetti, 2002
Construction subsurface disposal system@50,000 gpd not feasible	Variance for required separation distance between well and disposal system of less than 200 ft.	
	Groundwater within 4 ft. of surface	
	Proximity to wetlands and rocks too large to remove	
Lot 8, 86, 152 Block 9820 (Town Park)	Additional testing required to confirm early findings	
	No bedrock and no groundwater during original test	
	Meets wetland setback dependent on final design	
Treatment through golf course irrigation	slopes may interfere with design choice and require larger area	
	Potential legal issues regarding permitting	
	CT DEP prohibits surface water discharge within water supply basin	

Table 3

POUND RIDGE WATER/ WASTEWATER TASK FORCE

Wastewater Generation Rates

Use	Generation Rates
Residential	100 gallons per day per resident
Community Facilities	0.10 gallons per day per building square foot
Office	0.10 gallons per day per building square foot
Retail	0.24 gallons per day per building square foot
Restaurant	35 gallons per day per seat
Food Preparation	0.50 gallons per day per building square foot

Sources:

New York City Office of Sustainability CEQR

NYC DEP Bureau of Environmental Planning and Assessment

Metcalf and Eddy (1991) Wastewater Engineering. Treatment Disposal Reuse

Table 4

Wastewater Generation Estimate for Current Occupancy in Scotts Corner

Use	Number/Unit	Wastewater Generation Gallons per Day
Residential/Community Facility	39 Apartments/8,372 Square Feet	11,700/837
Office	15,108 square feet	1,511
Retail	92,588 square feet	15,021
Restaurant/Food Preparation	250 seats/5,041 square feet	8,750/2,521
Total	NA	40,340

Table 5

Wastewater Generation Estimate for Full Occupancy in Scotts Corner

Use	Number/Unit	Wastewater Generation Gallons per Day
Residential/Community Facility	45 apartments/8,372 square feet	13,500/837
Office	26,728 square feet	2,673
Retail	120,045 square feet	28,837
Restaurant/Food Preparation	250 seats/0 square feet	8,750
Total		54,597

Table 6

POUND RIDGE WATER/ WASTEWATER TASK FORCE

Flow Estimate Comparison

	Historic Wastewater Flow Estimates	Current Wastewater Flow Estimates
Buildings included in estimate	25	41
Estimated Commercial flow	20,400 gpd	40,300 gpd
Residential Units in estimate	unclear	45
A-Home	0	3,600 gpd
Estimated Residential Flow	4,250 gpd	13,400 gpd

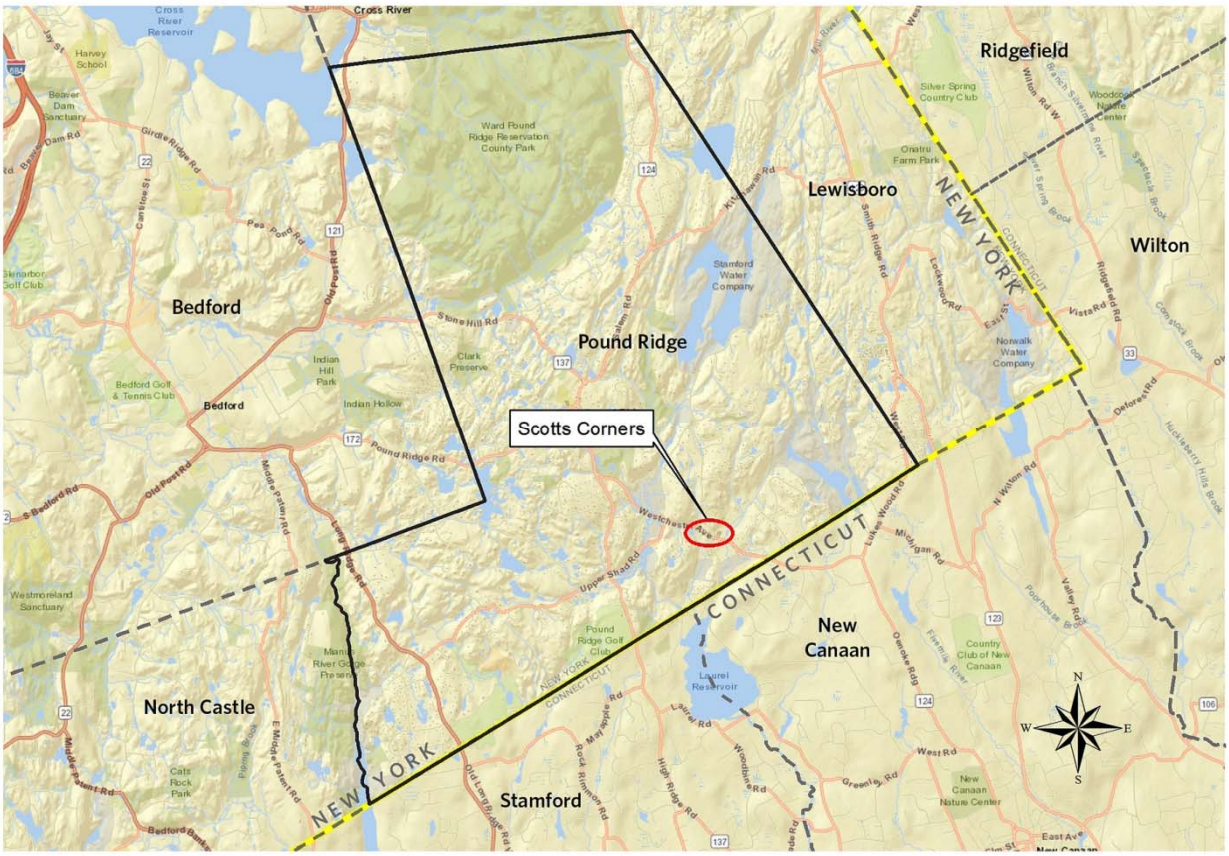
Table 7

Known Spill Sites

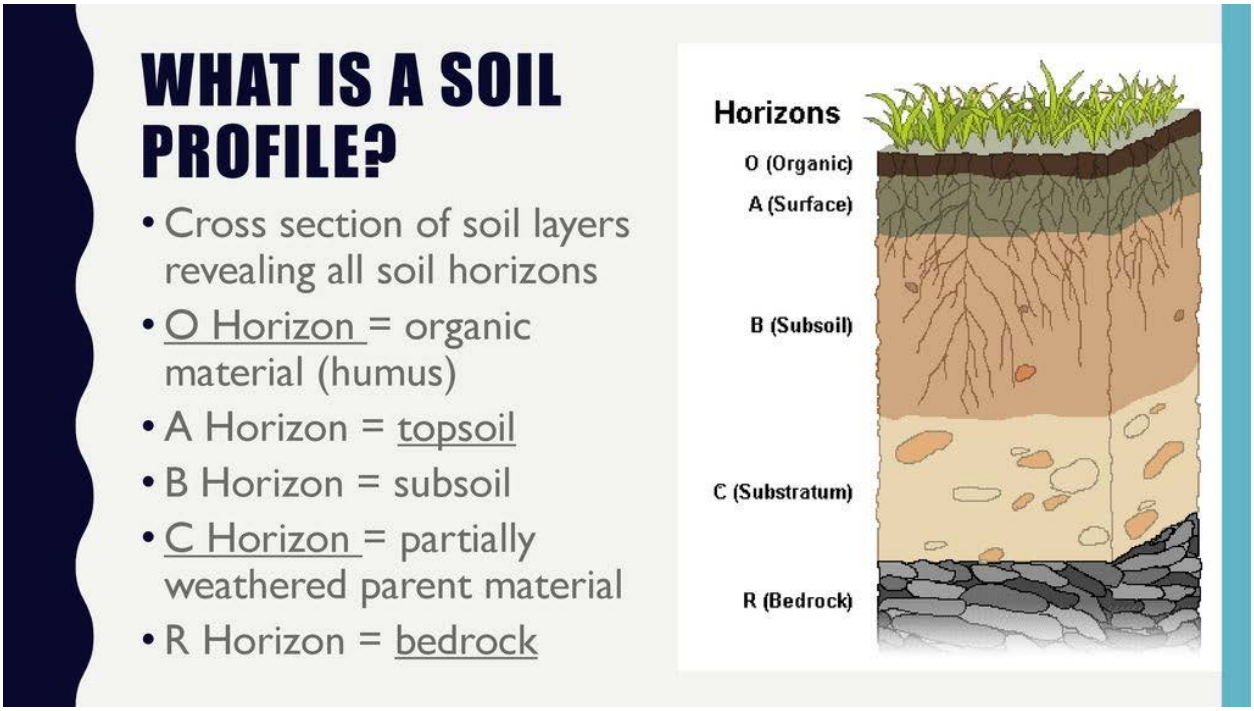
Facility Name	Address	City	Site ID	Description	Spill Date	Close Date
Abandon Site	55 Westchester Avenue	Pound Ridge	325964	Other	11/21/2000	12/28/2000
Value Clean Cleaners	55 Westchester Avenue	Pound Ridge	325965	Unknown	1/24/2002	3/29/2002
Trinity Corner Shopping Center	55 Westchester Avenue	Pound Ridge	399707	Equipment Failure	2/13/2002	3/5/2002
60-80 Westchester Avenue	60-80 Westchester Avenue	Pound Ridge	102411	Unknown	3/18/2002	4/5/2002
Spill Number 0111906	65 Westchester Avenue	Pound Ridge	173308	Tank Test Failure	8/9/2002	11/12/2002
New Media School House	69 Westchester Avenue	Pound Ridge	59404	Tank Test Failure	6/26/2006	2/24/2012
New Media School House	69 Westchester Avenue	Pound Ridge	305220	Tank Overfill	6/13/2008	6/16/2008
Sally & Joseph Siano Assoc.	70 Westchester Avenue	Pound Ridge	68318	Equipment Failure	3/22/2011	6/1/2011
Spill Number 0009626	74 Westchester Avenue	Pound Ridge	195220	Tank Test Failure	4/14/2011	6/2/2011
Spill Number 0110835	76 Westchester Avenue	Pound Ridge	209563	Tank Overfill	4/5/2016	
Town & Country Auto Inc.	77 Westchester Avenue	Pound Ridge	313756	Tank Failure	3/27/1991	3/10/1992
Texaco	77 Westchester Avenue	Pound Ridge	138800	Unknown	8/26/1994	9/14/1994
Pound Ridge Fire Department	80 Westchester Avenue	Pound Ridge	320739	Tank Failure	12/16/1994	2/18/2005
Albano Appliance	83 Westchester Avenue	Pound Ridge	446942	Equipment Failure	7/1/1993	
Pound Ridge Ambulance	89 Westchester Avenue	Pound Ridge	447921	Equipment Failure	8/8/1995	3/27/2013
Pound Ridge Post Office	57 Westchester Avenue	Pound Ridge	87798	Tank Failure	4/1/1998	4/17/1998
Pound Ridge Veterinary Clinic	35 Westchester Avenue	Pound Ridge	124053	Unknown	12/21/1999	6/1/2000
On Side of Road	Westchester / Salem	Pound Ridge	366006	Other	9/9/1999	2/26/2005

POUND RIDGE WASTEWATER TASK FORCE

Figure 1 - Scotts Corners Business District



APPENDIX B POUND RIDGE CANDIDATE SITES USDA NCRS SOILS DESCRIPTIONS



Horizon suffixes
a: Highly decomposed organic matter (used only with O)
e: Moderately decomposed organic matter (used only with O)
g: Strong gley.
i: Slightly decomposed organic matter (used only with O)
p: Plow layer or other artificial disturbance
w: Weak color or structure within B (used only with B)

See Soils Horizons for further details/descriptions.

Ce—Catden muck, 0 to 2 percent slopes

Typical profile

Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Hydrologic Soil Group: B/D

ChB—Charlton fine sandy loam, 3 to 8 percent slopes

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

ChC—Charlton fine sandy loam, 8 to 15 percent slopes

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

ChD—Charlton fine sandy loam, 15 to 25 percent slopes

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

CIB—Charlton fine sandy loam, 3 to 8 percent slopes, very stony

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

ClC—Charlton fine sandy loam, 8 to 15 percent slopes, very stony

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

ClD—Charlton loam, 15 to 25 percent slopes, very stony

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 24 inches: sandy loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

ClE—Charlton loam, 25 to 35 percent slopes, very stony

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 24 inches: sandy loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

ClF—Charlton loam, 35 to 45 percent slopes, very stony

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 24 inches: sandy loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

CrC—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Description of Chatfield, Very Stony

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

Description of Charlton, Very Stony

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

CsD—Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky

Description of Chatfield, Very Stony

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

Description of Charlton, Very Stony

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

CtC—Chatfield-Hollis-Rock outcrop complex, 0 to 15 percent slopes

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

CuD—Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes

Description of Chatfield, Extremely Stony

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

Description of Hollis, Extremely Stony

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
Bw - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches

Hydrologic Soil Group: D

Description of Rock Outcrop

Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Hydrologic Soil Group: D

Ff—Fluvaquents-Udifluvents complex, frequently flooded

Description of Fluvaquents

Typical profile

H1 - 0 to 5 inches: gravelly silt loam
H2 - 5 to 70 inches: very gravelly silt loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 0 inches
Hydrologic Soil Group: A/D

Description of Udifluvents

Typical profile

H1 - 0 to 4 inches: gravelly silt loam
H2 - 4 to 70 inches: very gravelly loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 24 to 72 inches
Hydrologic Soil Group: A

HrF—Hollis-Rock outcrop complex, 35 to 60 percent slopes

Description of Hollis, Very Stony

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
Bw - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: D

Description of Rock Outcrop

Typical Profile

R - 0 to 79 inches: bedrock

Properties and qualities

Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Hydrologic Soil Group: D

LeB—Leicester loam, 2 to 8 percent slopes, very stony

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 26 inches: sandy loam
C - 26 to 60 inches: sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Hydrologic Soil Group: A/D

LcA—Leicester loam, 0 to 3 percent slopes, stony

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 26 inches: sandy loam
C - 26 to 60 inches: sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Hydrologic Soil Group: A/D

LcB—Leicester loam, 3 to 8 percent slopes, stony

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 26 inches: sandy loam
C - 26 to 60 inches: sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Hydrologic Soil Group: A/D

NcA—Natchaug muck, 0 to 2 percent slopes

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 31 inches: muck
2Cg1 - 31 to 39 inches: silt loam
2Cg2 - 39 to 79 inches: fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.01 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Hydrologic Soil Group: B/D

NdA—Natchaug and Catden mucks, ponded, 0 to 2 percent slopes

Description of Natchaug

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 31 inches: muck
2Cg1 - 31 to 39 inches: silt loam
2Cg2 - 39 to 79 inches: fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.01 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Hydrologic Soil Group: B/D

Description of Catden

Typical profile

Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Hydrologic Soil Group: B/D

PnB—Paxton fine sandy loam, 3 to 8 percent slopes

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam
Properties and qualities
Depth to restrictive feature: 18 to 39 inches to densic material
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Hydrologic Soil Group: C

PnC—Paxton fine sandy loam, 8 to 15 percent slopes

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: 20 to 39 inches to densic material
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Hydrologic Soil Group: C

PoB—Paxton fine sandy loam, 0 to 8 percent slopes, very stony

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 10 inches: fine sandy loam
Bw1 - 10 to 17 inches: fine sandy loam
Bw2 - 17 to 28 inches: fine sandy loam
Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: 20 to 43 inches to densic material
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Hydrologic Soil Group: C

PoD—Paxton fine sandy loam, 15 to 25 percent slopes, very stony

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 10 inches: fine sandy loam
Bw1 - 10 to 17 inches: fine sandy loam
Bw2 - 17 to 28 inches: fine sandy loam
Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: 20 to 43 inches to densic material
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Hydrologic Soil Group: C

RgB—Ridgebury complex, 0 to 8 percent slopes, very stony

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: loam
Bw - 6 to 10 inches: gravelly fine sandy loam
Bg - 10 to 19 inches: gravelly fine sandy loam
Cd - 19 to 66 inches: gravelly loam

Properties and qualities

Depth to restrictive feature: 15 to 35 inches to densic material
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 0 to 6 inches
Hydrologic Soil Group: D

Sh—Sun loam

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 27 inches: loam
H3 - 27 to 60 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Hydrologic Soil Group: C/D

Sm—Sun loam, extremely stony

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 27 inches: loam
H3 - 27 to 60 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Hydrologic Soil Group: C/D

SuB—Sutton loam, 3 to 8 percent slopes

Typical profile

Ap - 0 to 9 inches: loam
Bw1 - 9 to 17 inches: fine sandy loam
Bw2 - 17 to 30 inches: sandy loam
C1 - 30 to 39 inches: sandy loam
C2 - 39 to 60 inches: sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 12 to 27 inches

Hydrologic Soil Group: B/D

Ub—Udorthents, smoothed

Typical profile

H1 - 0 to 4 inches: gravelly loam
H2 - 4 to 70 inches: very gravelly loam

Properties and qualities

Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Natural drainage class: Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 18 to 48 inches

Uf—Urban land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Depth to restrictive feature: 0 inches to manufactured layer

UhB—Urban land-Charlton complex, 3 to 8 percent slopes

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Hydrologic Soil Group: D

Description of Charlton

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low

*Capacity of the most limiting layer to transmit water (Ksat):*Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Hydrologic Soil Group: B

UrB—Urban land-Ridgebury complex, 0 to 8 percent slopes

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Hydrologic Soil Group: D

Description of Ridgebury, Somewhat Poorly Drained

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 7 inches: loam
Bw - 7 to 13 inches: loam
Bg - 13 to 21 inches: fine sandy loam
Cd - 21 to 60 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: 15 to 35 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 10 to 18 inches
Hydrologic Soil Group: D

UwB—Urban land-Woodbridge complex, 3 to 8 percent slopes

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Hydrologic Soil Group: D

Description of Woodbridge

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 30 inches: fine sandy loam
Cd - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Depth to restrictive feature: 20 to 39 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 30 inches
Hydrologic Soil Group: C/D

W—Water

WdB—Woodbridge loam, 3 to 8 percent slopes

Typical profile

Ap - 0 to 6 inches: loam
Bw1 - 6 to 18 inches: gravelly loam
Bw2 - 18 to 29 inches: gravelly loam
Cd - 29 to 65 inches: gravelly loam

Properties and qualities

Depth to restrictive feature: 20 to 39 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderatelylow (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 30 inches
Hydrologic Soil Group: C/D

APPENDIX C SMART GROWTH ASSESSMENT & SEXUAL HARRASSMENT FORMS

NEW YORK STATE OF OPPORTUNITY. | Department of Health | Environmental Facilities Corporation

Smart Growth Assessment Form

This form should be completed by the applicant's project engineer or other design professional.[1]

Applicant Information

Applicant: Town of Pound Ridge Project No.:

Project Name: Scotts Corner Wastewater Management and Water Supply Engineering Report

Is project construction complete? ☐ Yes, date: ☑ No

Project Summary: (provide a short project summary in plain language including the location of the area the project serves)

The Scotts Corner area is the commercial center of Pound Ridge and consists of 41, primarily commercial, properties that have individual wells and septic systems with a history of problems and inadequate separation. A Engineering Plan for Study Area wide wastewater management system has been prepared that consists of a septic tank effluent collection system and tertiary treatment with disinfection prior to

Section 1 – Screening Questions

1. Prior Approvals

1A. Has the project been previously approved for Environmental Facilities Corporation (EFC) financial assistance? ☐ Yes ☑ No

1B. If so, what was the project number(s) for the prior approval(s)? Project No.:

Is the scope of the project substantially the same as that which was approved? ☐ Yes ☐ No

IF THE PROJECT WAS PREVIOUSLY APPROVED BY EFC'S BOARD AND THE SCOPE OF THE PROJECT HAS NOT MATERIALLY CHANGED, THE PROJECT IS **NOT** SUBJECT TO SMART GROWTH REVIEW. SKIP TO SIGNATURE BLOCK.

2. New or Expanded Infrastructure

2A. Does the project add new wastewater collection/new water mains or a new wastewater treatment system/water treatment plant? ☑ Yes ☐ No

Note: A new infrastructure project adds wastewater collection/water mains or a wastewater treatment/water treatment plant where none existed previously

2B. Will the project result in either: ☐ Yes ☑ No

An increase of the State Pollutant Discharge Elimination System (SPDES) permitted flow capacity for an existing treatment system;

OR

An increase such that a Department of Environmental Conservation (DEC) water withdrawal permit will need to be obtained or modified, or result in the Department of Health (DOH) approving an increase in the capacity of the water treatment plant?

Note: An expanded infrastructure project results in an increase of the SPDES permitted flow capacity for the wastewater treatment system, or an increase of the permitted water withdrawal or the permitted flow capacity for the water treatment system.

[1] If project construction is complete and the project was not previously financed through EFC, an authorized municipal representative may complete and sign this assessment.

IF THE ANSWER IS "NO" TO BOTH "2A" and "2B" ON THE PREVIOUS PAGE, THE PROJECT IS NOT SUBJECT TO FURTHER SMART GROWTH REVIEW. SKIP TO SIGNATURE BLOCK.

3. Court or Administrative Consent Orders

3A. Is the project expressly required by a court or administrative consent order? ☐ Yes ☑ No

3B. If so, have you previously submitted the order to EFC or DOH? If not, please attach. ☐ Yes ☐ No

Section 2 – Additional Information Needed for Relevant Smart Growth Criteria

EFC has determined that the following smart growth criteria are relevant for EFC-funded projects and that projects must meet each of these criteria to the extent practicable:

1. Uses or Improves Existing Infrastructure

1A. Does the project use or improve existing infrastructure? ☑ Yes ☐ No

Please describe:

Project will replace existing septic systems and wells

2. Serves a Municipal Center

Projects must serve an area in either 2A, 2B or 2C to the extent practicable.

2A. Does the project serve an area **limited** to one or more of the following municipal centers?

i. A City or incorporated Village	☐Yes ☑No
ii. A central business district	☑Yes ☐No
iii. A main street	☑Yes ☐No
iv. A downtown area	☑Yes ☐No
v. A Brownfield Opportunity Area (for more information, go to www.dos.ny.gov & search "Brownfield")	☐Yes ☑No
vi. A downtown area of a Local Waterfront Revitalization Program Area (for more information, go to www.dos.ny.gov and search "Waterfront Revitalization")	☐Yes ☑No
vii. An area of transit-oriented development	☐Yes ☑No
viii. An Environmental Justice Area (for more information, go to www.dec.ny.gov/public/899.html)	☐Yes ☑No
ix. A Hardship/Poverty Area *Note: Projects that primarily serve census tracts and block numbering areas with a poverty rate of at least twenty percent according to the latest census data*	☐Yes ☑No

Please describe all selections:

The Scotts Corner area contains the Town's three (3) Business Districts with a Main Street and a Downtown area.

2B. If the project serves an area located outside of a municipal center, does it serve an area located adjacent to a municipal center which has clearly defined borders, designated for concentrated development in a municipal or regional comprehensive plan and exhibit strong land use, transportation, infrastructure and economic connections to an existing municipal center? ☐Yes ☐No

Please describe:

Not applicable

2C. If the project is not located in a municipal center as defined above, is the area designated by a comprehensive plan and identified in zoning ordinance as a future municipal center? ☐Yes ☐No

Please describe and reference applicable plans:

Not applicable

3. Resiliency Criteria

3A. Was there consideration of future physical climate risk due to sea-level rise, storm surge, and/or flooding during the planning of this project? ☑Yes ☐No

Please describe:

Wastewater treatment and disposal facilities are located above floodplains and areas that would be subject to storm suge of flooding. Location not affected by sea level rise.

Signature Block: By entering your name in the box below, you agree that you are authorized to act on behalf of the applicant and that the information contained in this Smart Growth Assessment is true, correct and complete to the best of your knowledge and belief.

Applicant: Town of Pound Ridge NY	Phone Number: 617-964-2924
Pio Lombardo, P.E.	
(Name & Title of Project Engineer or Design Professional or Authorized Municipal Representative)	
	May 20, 2019
(Signature)	(Date)

APPENDIX A

Sexual Harassment Prevention Certification Form

By submission of this application, each applicant and each person signing on behalf of the applicant certifies, and in the case of a partnering application each party thereto certifies as to its own organization, under penalty of perjury, that the applicant has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the labor law.

Grantee Name: Town of Pound Ridge

Signature: _____

Print Name and Title: Kevin Hansan, Supervisor

Date: 5/21/2019