

**SITE NOTES:**

- RECORD OWNER: ANDRZEJ P. & ALEKSANRA W. KOCIA  
0 APPLETON LANE  
BOXFORD, MA 01921  
BOOK 35068, PAGE 122
- RECORD PLANS: PROPERTY LINE INFORMATION COMPILED FROM "DEFINITIVE PLAN BOXFORD, MASS." PREPARED BY "HAYES ENGINEERING INC.", DATED "OCTOBER 6, 1982" RECORDED WITH THE ESSEX REGISTRY OF DEEDS, PLAN BOOK 189 PLAN 22.
- WETLANDS: WETLANDS DELINEATED BY DEROSA ENVIRONMENTAL CONSULTING, INC. 167 MAIN STREET, ROWLEY, MA. (978-948-7717) ON OCTOBER 20, 2020.
- WATER SUPPLY: THERE IS NO KNOWN DRINKING WATER SUPPLY ZONE II'S AND NO KNOWN INTERIM WELLHEAD PROTECTION ZONES ON THE SUBJECT PARCEL BASED ON THE DEPARTMENT OF ENVIRONMENTAL PROTECTION MAPS.
- FLOOD PLAIN: THE AREA OF WORK ON THE PROPERTY IS SITUATED IN A ZONE "X" AS ILLUSTRATED ON THE MOST RECENT FLOOD INSURANCE RATE MAP PANEL 25009C-0234-F WITH EFFECTIVE DATE OF JULY 3, 2012.
- DATUM: ELEVATIONS SHOWN HEREON ARE BASED ON AN ASSUMED VERTICAL DATUM.
- EXISTING CONDITIONS: EXISTING CONDITIONS INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY THE MORIN-CAMERON GROUP, INC. IN NOVEMBER 2020.

**SEPTIC SYSTEM DESIGN DATA:**

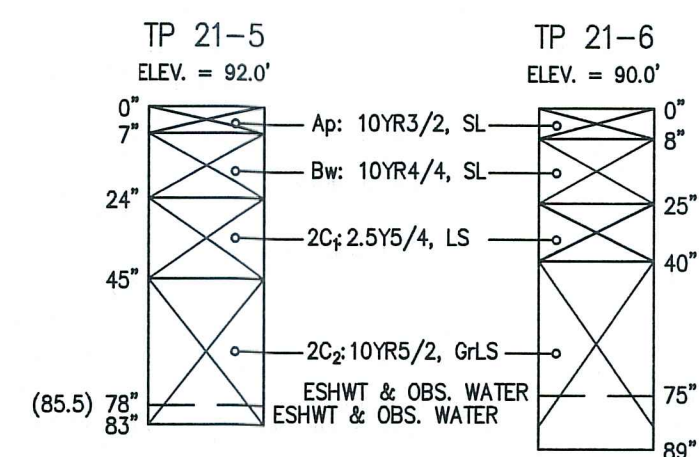
- BUILDING TYPE: SINGLE FAMILY DWELLING
- NO. OF BEDROOMS: 5 BEDROOMS TOTAL
- DESIGN FLOW(TITLE 5): 5 X 110 GPD/BEDROOM = 550 GPD
- DESIGN PERCOLATION RATE: CLASS I SOIL, <2 MPI, LTAR = 0.74 GPD/SF
- SOIL ABSORPTION REQUIREMENTS: (SYSTEM SHALL BE DESIGNED TO ACCOMMODATE A GARBAGE GRINDER PER BOXFORD BOH REGULATIONS) (550 GPD X 1.5) / (0.74 GPD/SF) = 1,115 SF (REQUIRED)
- SEPTIC TANK DESIGN REQUIREMENT: USE 2-COMPARTMENT SEPTIC TANK MIN. 200% DESIGN FLOW FOR FIRST COMPARTMENT = 2 X 550 GPD = 1,100 GAL. MIN. 100% DESIGN FLOW FOR SECOND COMPARTMENT = 550 GAL. TANK REQUIREMENT = 1,650 GAL. MIN. USE 2,000 GAL 2-COMPARTMENT (MONOLITHIC) SEPTIC TANK.
- LEACH BED CAPACITY: USE 15' X 75' = 1,125 SF X 0.74 GPD/SF = 832 GPD (OK)

**RIVERFRONT AREA CALCULATIONS:**

- TOTAL RIVERFRONT AREA ON LOT = 41,173 SF±
- RIVERFRONT AREA DISTURBANCE (WELL & WATER SERVICE) = 800 SF±
- RIVERFRONT AREA DISTURBANCE (SHED/RAMP) = 600 SF±
- RIVERFRONT AREA DISTURBANCE (TOTAL) = 1,400 SF±
- % RIVERFRONT AREA DISTURBANCE = 3.4%

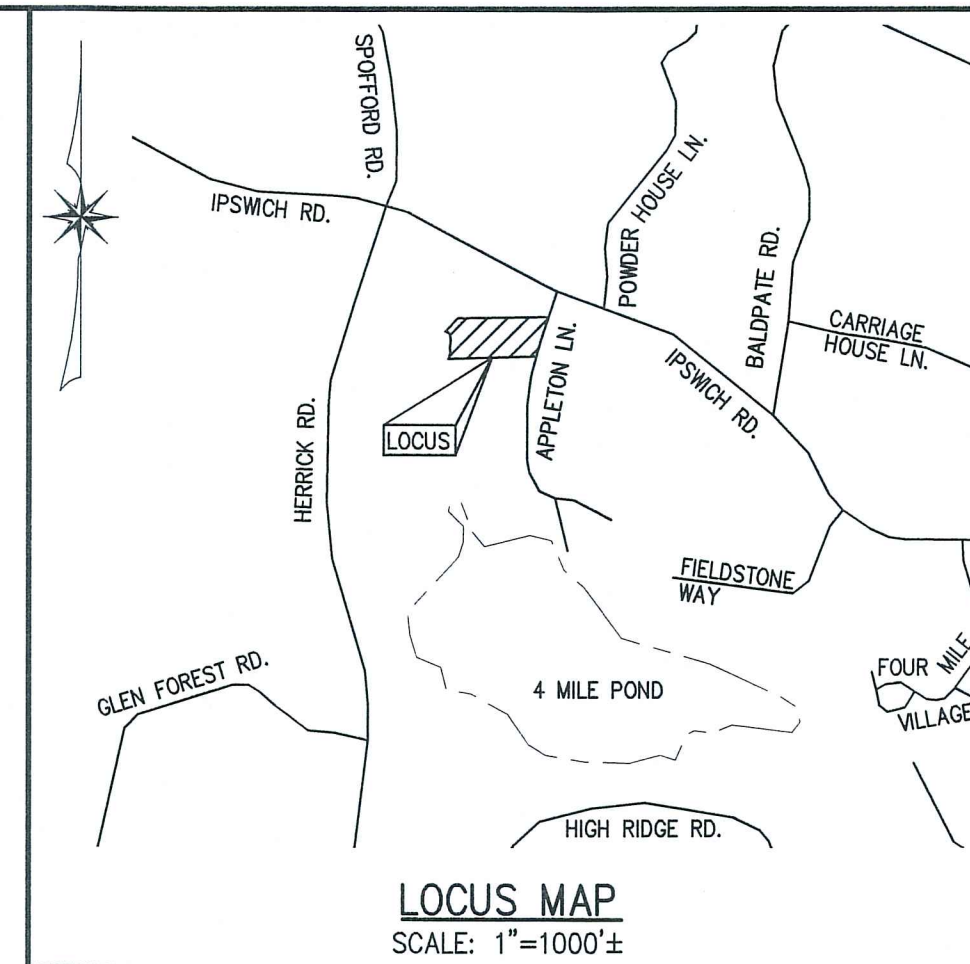
**SOIL LOGS TP 21-5 THROUGH TP 21-6**

DATE PERFORMED: 04/28/21  
PERFORMED BY: ALEXANDER F. PARKER, SE #1848  
WITNESSED BY: KENDALL LONGO, BOXFORD BOARD OF HEALTH DIRECTOR



**GENERAL NOTES:**

- THE MORIN-CAMERON GROUP SHALL PROVIDE HORIZONTAL CONTROL FOR ALL SYSTEM COMPONENTS PRIOR TO CONSTRUCTION.
- THIS PLAN IS TO SHOW THE DESIGN OF THE SUBSURFACE SEWAGE DISPOSAL SYSTEM ONLY. THE SYSTEM IS DESIGNED FOR FLOWS ESTIMATED UNDER DESIGN CRITERIA.
- SYSTEM IS DESIGNED ONLY TO ACCOMMODATE SANITARY SEWAGE ASSOCIATED WITH NORMAL DOMESTIC USAGE AND CONSISTING OF WATER-CARRIED PUTRESCIBLE WASTE.
- THE SYSTEM IS DESIGNED FOR A GARBAGE GRINDER, HOWEVER ONE IS NOT RECOMMENDED BY THE DESIGN ENGINEER.
- THE PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON DATE OF THE TOPOGRAPHY.
- THE INSTALLER OF THIS SYSTEM MUST BE LICENSED BY THE LOCAL BOARD OF HEALTH FOR INSTALLATION OF THE LEACHING FACILITY.
- THERE ARE NO KNOWN POTABLE WELLS WITHIN 150 FEET OF THE PROPOSED LEACHING FACILITY.
- DISPOSAL SYSTEM AREAS ARE TO BE RAKED (SCARIFIED) BEFORE INSTALLATION OF STONE. ALL STONES EXCEEDING 2 INCHES IN EXCAVATION ARE TO BE REMOVED FROM THE LEACHING AREA BED.
- FINISHED SURFACE OF THE LEACHING AREA SHALL BE GRADED TO ASSURE WATER RUNOFF (2% MINIMUM SLOPE).
- ALL DISTURBED AREAS TO BE LOAMED, SEEDED, AND MAINTAINED TO PREVENT EROSION.
- THE SEPTIC TANK SHOULD BE PERIODICALLY INSPECTED AND MAINTAINED AND SHOULD BE PUMPED WHEN THE SLUDGE IN THE BOTTOM EXCEEDS 1/4 OF THE DEPTH.
- ALTERNATE MANUFACTURES FOR CONCRETE STRUCTURES AND EQUIPMENT SHOWN ON THESE PLANS MAY BE USED UPON THE WRITTEN APPROVAL OF THE DESIGN ENGINEER. ALTERNATE MANUFACTURES WILL NOT BE USED IF THE USE OF THEIR EQUIPMENT REQUIRES DESIGN CHANGES.
- NO CHANGES ARE TO BE MADE IN THE FIELD WITHOUT THE APPROVAL OF THE BOARD OF HEALTH OR ITS DESIGNEE AND THE DESIGN ENGINEER.
- ALL WORK IS TO COMPLY WITH THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION AGENCY STATE SANITARY CODE, TITLE 5 AND ANY LOCAL BOARD OF HEALTH SUPPLEMENTARY REGULATIONS.
- THE LOCAL BOARD OF HEALTH AGENT WILL CONDUCT PERIODIC INSPECTIONS AS NEEDED.
- THESE PLANS AND SPECIFICATIONS ARE INTENDED TO BE EXPLANATORY OF THE WORK TO BE DONE AND OF EACH OTHER, BUT SHOULD ANY OMISSION, ERRORS, OR DISCREPANCIES APPEAR, THEY SHALL BE SUBJECT TO CORRECTION AND INTERPRETATION BY THE DESIGN ENGINEER THEREBY DEFINING AND FULFILLING THE INTENT OF THE PLANS. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO INSTALLATIONS.
- ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE IN ACCORDANCE WITH 310 CMR 15.221(12).
- THE PROPOSED PROJECT IS NOT LOCATED WITHIN A NITROGEN SENSITIVE AREA BASED ON THE DEPARTMENT OF ENVIRONMENTAL PROTECTION MAPS.
- UNDERGROUND UTILITY INFORMATION AND LOCATIONS WERE NOT AVAILABLE AT THE TIME OF SURVEY. LOCATIONS OF ALL UTILITIES SHOULD BE CONFIRMED WITH THE UTILITY PROVIDED PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
- FILL REQUIREMENT: REMOVE TOPSOIL AND SUBSOIL FOR A DISTANCE OF 5 FEET BEYOND THE LEACHING FACILITY. REPLACE WITH FILL AS SPECIFIED IN 310 CMR 15.000, "TITLE 5" SECTION 15.255 (3). FOR THE BOUNDARY OF THE SAND FILL REQUIREMENT, SEE PLAN VIEW, CROSS-HATCHED AREA ON SYSTEM PROFILE. A SIEVE ANALYSIS SHALL BE PERFORMED ON THE FILL MATERIAL TO BE USED. A COPY OF THE SIEVE ANALYSIS RESULTS SHALL BE SUBMITTED TO THE BOARD OF HEALTH.



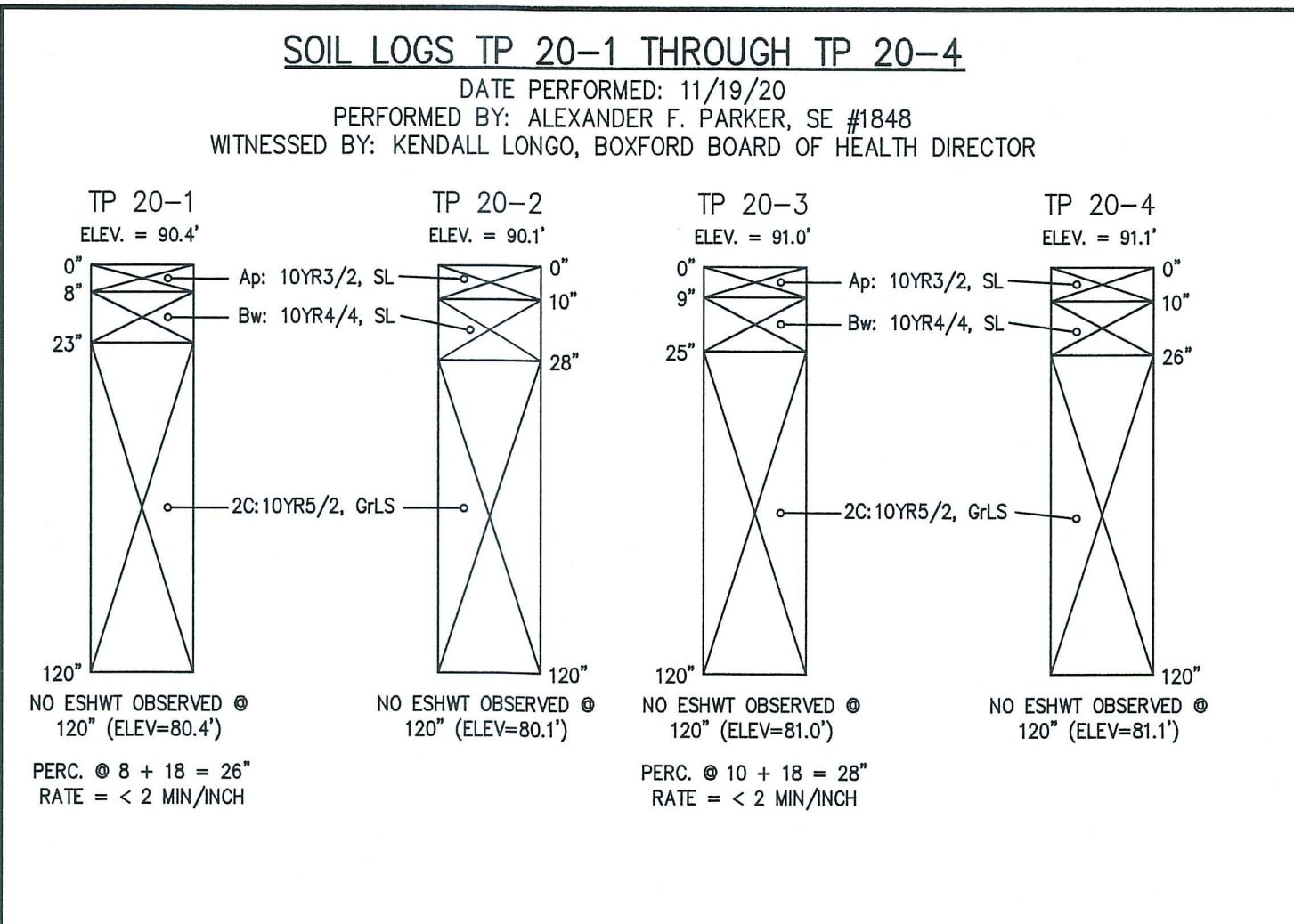
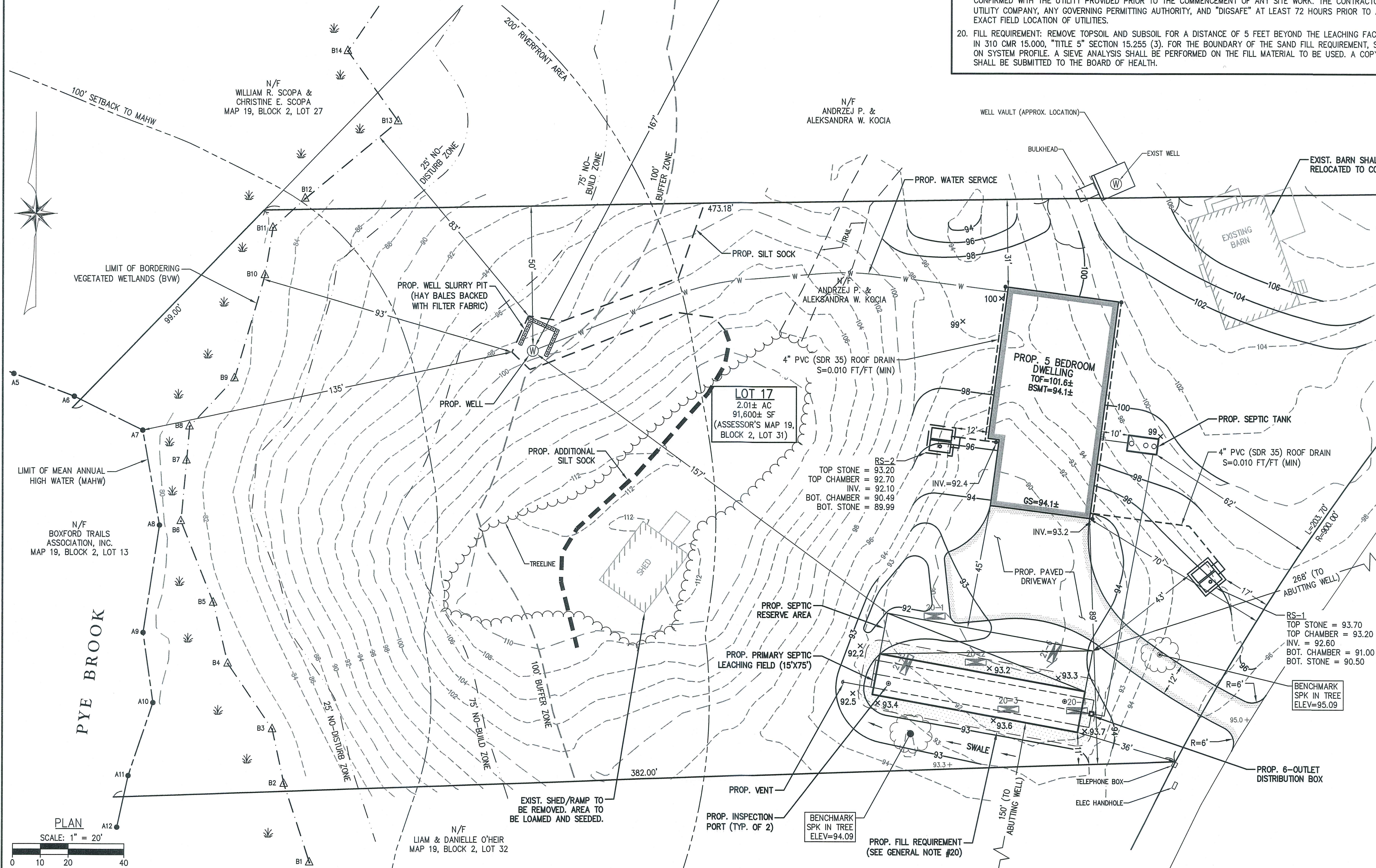
**The Morin-Cameron GROUP, INC.**  
CIVIL ENGINEERS / ENVIRONMENTAL CONSULTANTS  
LAND SURVEYORS / LAND USE PLANNERS  
66 STREET LANE, DANVERS, MASSACHUSETTS 01923  
P: 978-777-8888, F: 978-777-8888, WWW.MORINCAMERON.COM

**LEGEND:**

- WETLAND RESOURCE AREA
- 25' NO DISTURB
- 75' NO BUILD
- 100' BUFFER ZONE
- LIMIT OF MAHW
- 100' SETBACK TO MAHW
- 200' RIVERFRONT AREA
- EXISTING GRADE
- PROPOSED GRADE
- DECIDUOUS TREE
- TREE LINE
- PROP. SILT SOCK
- PROP. WATER SERVICE
- WELL
- SOIL TEST PIT

**ABBREVIATIONS:**

- AC APPROXIMATE ACRES
- APPROX APPROXIMATE
- BIT BITUMINOUS
- BVW BORDERING VEGETATED WETLAND
- BSMT BASEMENT
- CONC CONCRETE
- DIA DIAMETER
- ELEV ELEVATION
- ESHWT ESTIMATED SEASONAL HIGH WATER TABLE
- EXIST EXISTING
- FND FOUNDATION
- FT FOOT
- GS GARAGE SLAB
- INV INVERT
- L LENGTH
- MAHW MEAN ANNUAL HIGH WATER
- MAX MAXIMUM
- MIN MINIMUM
- N/F NOW OR FORMERLY
- PERF PERFORATED
- PROP PROPOSED
- PSI POUNDS PER SQUARE INCH
- PVC POLYVINYL CHLORIDE
- R RADIUS
- SF SQUARE FEET
- SPK SPIKE
- TOF TOP OF FOUNDATION
- TYP TYPICAL
- WF WETLAND FLAG



NO.	DESCRIPTION	DATE
1	MODIFY SEPTIC DESIGN BASED ON NEW TESTS, MODIFY GRADING & DRIVEWAY ACCORDINGLY, MODIFY SYSTEM PROFILE & DETAILS, ADD ROOF RECHARGE CHAMBERS	5/17/2021
2	SHOW SHED/RAMP TO BE REMOVED AND ADJUST RIVERFRONT CALCULATIONS	9/14/2022

**SANITARY DISPOSAL SYSTEM PLAN**  
PREPARED FOR: **ANDRZEJ KOCIA**  
**LOT 17 - 5 APPLETON LANE**  
**BOXFORD, MASSACHUSETTS**

DRAWING NO. **S - 4018**  
SHEET NO. **1 OF 2**