

I CERTIFY THAT I AM CURRENTLY APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION PURSUANT TO 310 CMR 15.017 TO CONDUCT SOIL EVALUATIONS AND THAT THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE, AND EXPERIENCE DESCRIBED IN 310 CMR 15.017. I FURTHER CERTIFY THAT THE RESULTS OF MY SOIL EVALUATION, AS INDICATED ON THE ATTACHED SOIL EVALUATION FORMS, ARE ACCURATE AND IN ACCORDANCE WITH 310 CMR 15.100, THROUGH 15.107.

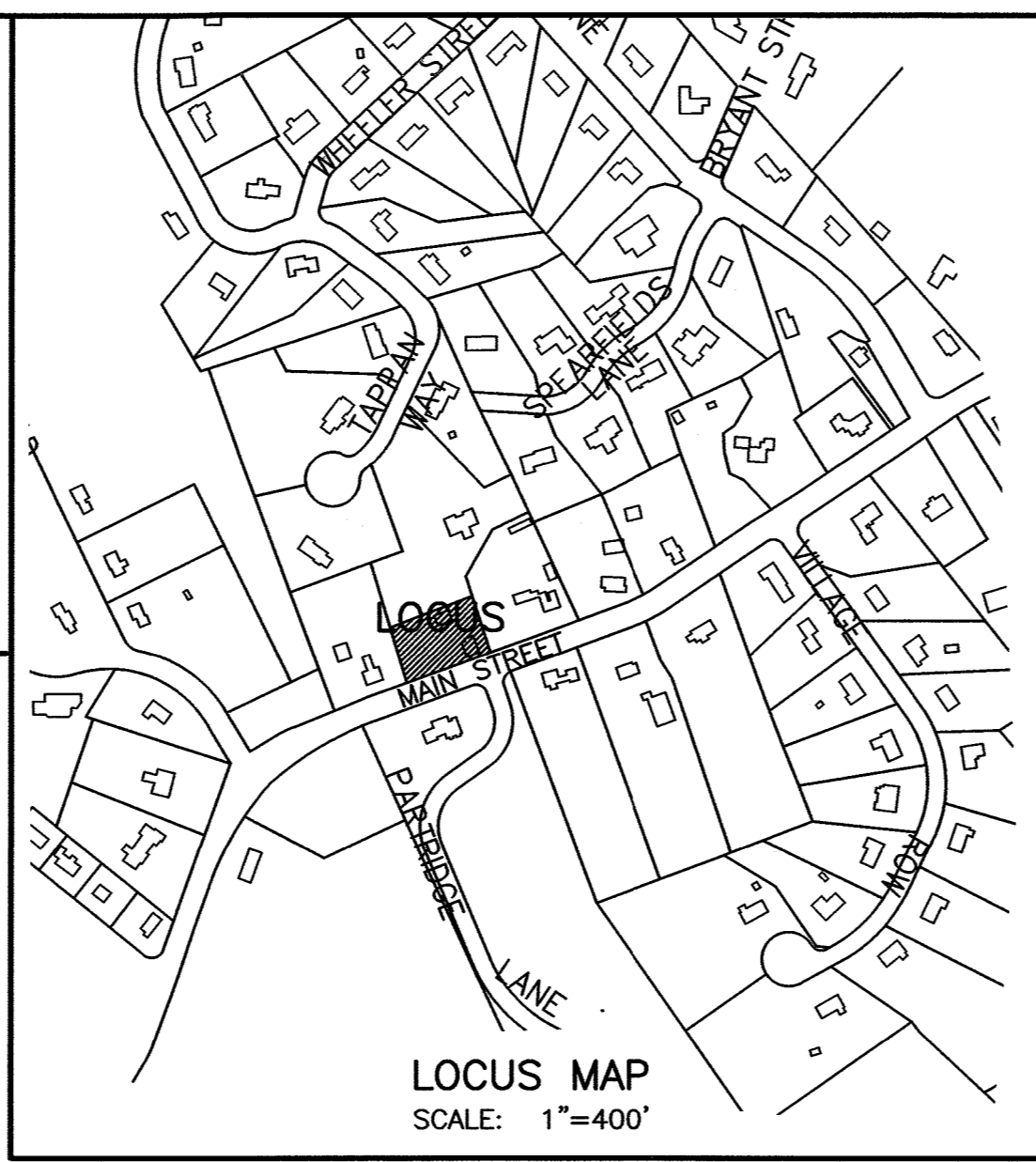
SIGNATURE: *[Signature]*
 DATE: *March 28, 2022*

LEGEND OF SYMBOLS & ABBREVIATIONS:

- 100.0 EXIST. SPOT ELEVATION
- 100 EXIST. CONTOUR
- 100.0 PROP. SPOT ELEVATIONS
- 100 PROP. CONTOURS
- PROP. WATER SUPPLY LINE
- MW PROP. INSPECTION PORT/MONITORING WELL
- ✕ EXISTING TREE TO BE REMOVED WITHIN TREE YARD
- TEST HOLE
- PERC TEST
- DRAIN MANHOLE
- CATCH BASIN

BENCHMARK REFERENCE DATUM: NGVD 1929

- TBM#1 TOP OF STONE BOUND ELEV.=99.75'
- TBM#2 TOP OF STONE BOUND ELEV.=99.33'
- TBM#3 TOP OF SPIKE IN ROOT ELEV.=99.85'



PROJECT NOTES:

- SITE DOES NOT LIE WITH THE TOWN OF LYNNFIELD'S FLOOD PLAIN DISTRICT.
 - SITE DOES NOT LIE WITH THE TOWN OF LYNNFIELD'S GROUNDWATER PROTECTION DISTRICT.
 - A PORTION OF THE SITE DOES LIE WITHIN THE TOWN OF LYNNFIELD'S WETLAND BUFFER ZONE.
 - SITE IS REFERENCED TO THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM 1983 (FEET).
 - ALL CLEARING, EXCAVATING, AND FILLING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 8.2.1 AND SECTION 7.5 OF THE RULES & REGULATIONS OF THE PLANNING BOARD GOVERNING THE SUBDIVISION OF LAND IN LYNNFIELD, MASSACHUSETTS (PB R&R #7.5 & PB R&R #8.2.1).
- THERE ARE NO WETLANDS WITHIN 50 FEET OF PROPOSED SOIL ABSORPTION SYSTEM.
 THERE ARE NO WELLS WITHIN 100 FEET OF PROPOSED LEACH FIELD.
 THERE ARE NO PUBLIC WATER SUPPLIES WITHIN 400 FEET OF PROPOSED LEACH FIELD.
 THERE ARE NO RESERVOIRS WITHIN 400 FEET OF PROPOSED LEACH FIELD.
- NO CHANGES ARE TO BE MADE IN THE FIELD WITHOUT THE APPROVAL OF THE LYNNFIELD BOARD OF HEALTH AND THE DESIGN ENGINEER.
- THIS PLAN IS DESIGNED IN CONFORMANCE WITH THE 310 CMR 15:00 (TITLE 5) AND THE LYNNFIELD BOARD OF HEALTH SUPPLEMENTAL REGULATIONS TO 310 CMR 15:00 TOPOGRAPHIC FEATURES FROM ACTUAL FIELD SURVEY BY HAYES ENGINEERING, INC
- SEPTIC AREA TO BE STAKED/DEMARKED TO AVOID TRAFFIC AND STOCKPILING OF MATERIAL AND SHOULD BE AVOIDED AT ALL TIMES PRIOR, DURING AND AFTER CONSTRUCTION OF SYSTEM
 EXISTING LEACH SYSTEM TO BE DECOMMISSIONED AND DISPOSED OF BY TITLE 5 REGULATIONS.

ZONE: RB
 MINIMUM SETBACKS:
 FRONT = 40'
 SIDE = 20'
 REAR = 20'
 MIN. FRONTAGE = 150'
 MIN. LOT AREA = 30,000 SF

Prepared For:
 Owner / Applicant
 Zapaj Development LLC
 78 Mill Street
 Middleton, Mass. 01949
 Map 33, Lot 176
 Area=30,101 sq. ft.

Prepared By:
 Hayes Engineering, Inc.
 603 Salem Street
 Waverfield, MA 01980
 P.O. Box 246
 Waverfield, MA 01980
 Phone: 781-246-2800
 Fax: 781-246-2801
 www.hayeseng.com

Design By: gr
 Drawn By: gr
 Checked By: pjo
 Project File: LYF1431
 Comp. No.: LYF40

Issued For Permit
 Issued For Review
 Issued For Bid
 Issued For Construction
 Not For Construction

No.	Revision	Date
10		
9		
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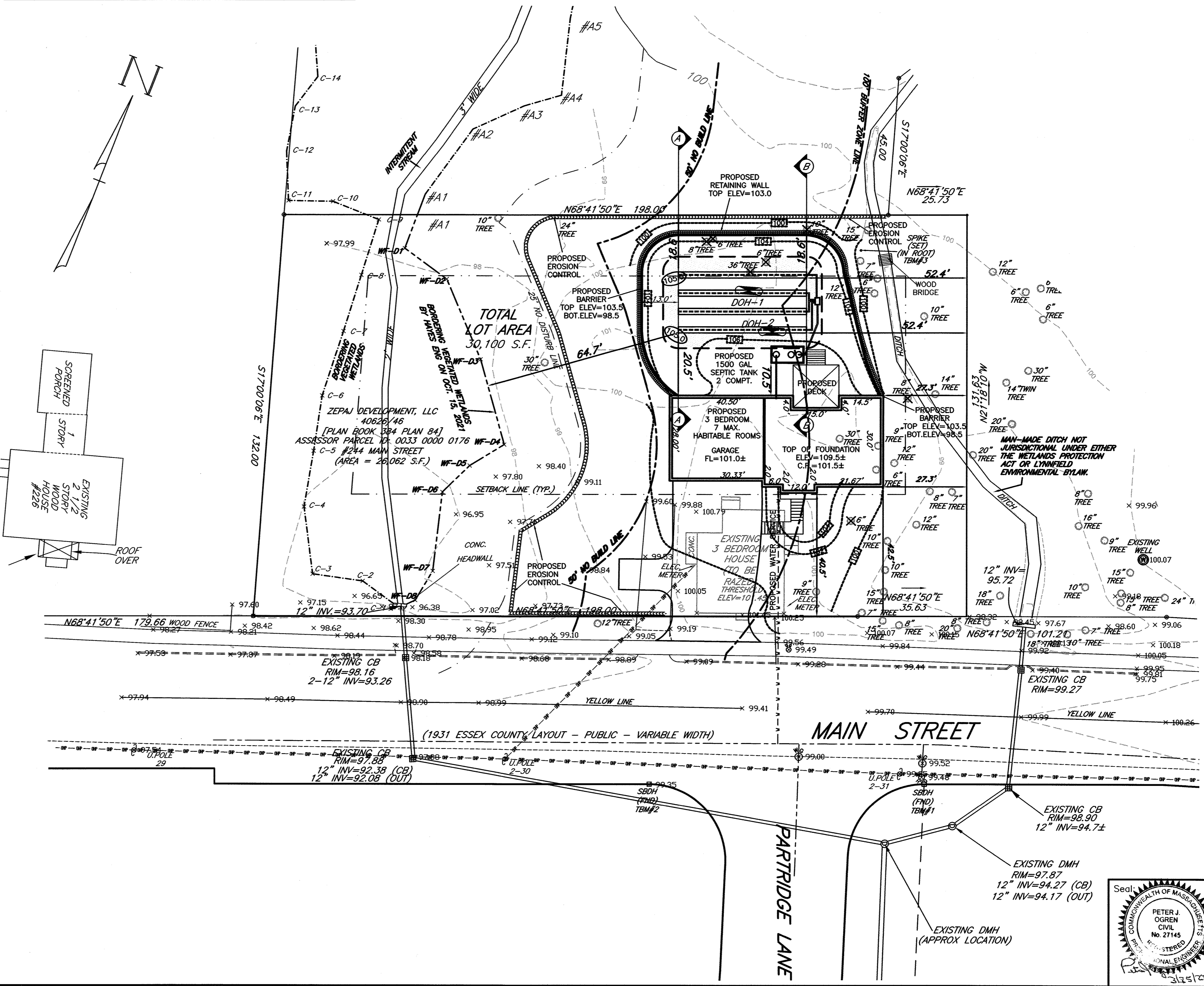
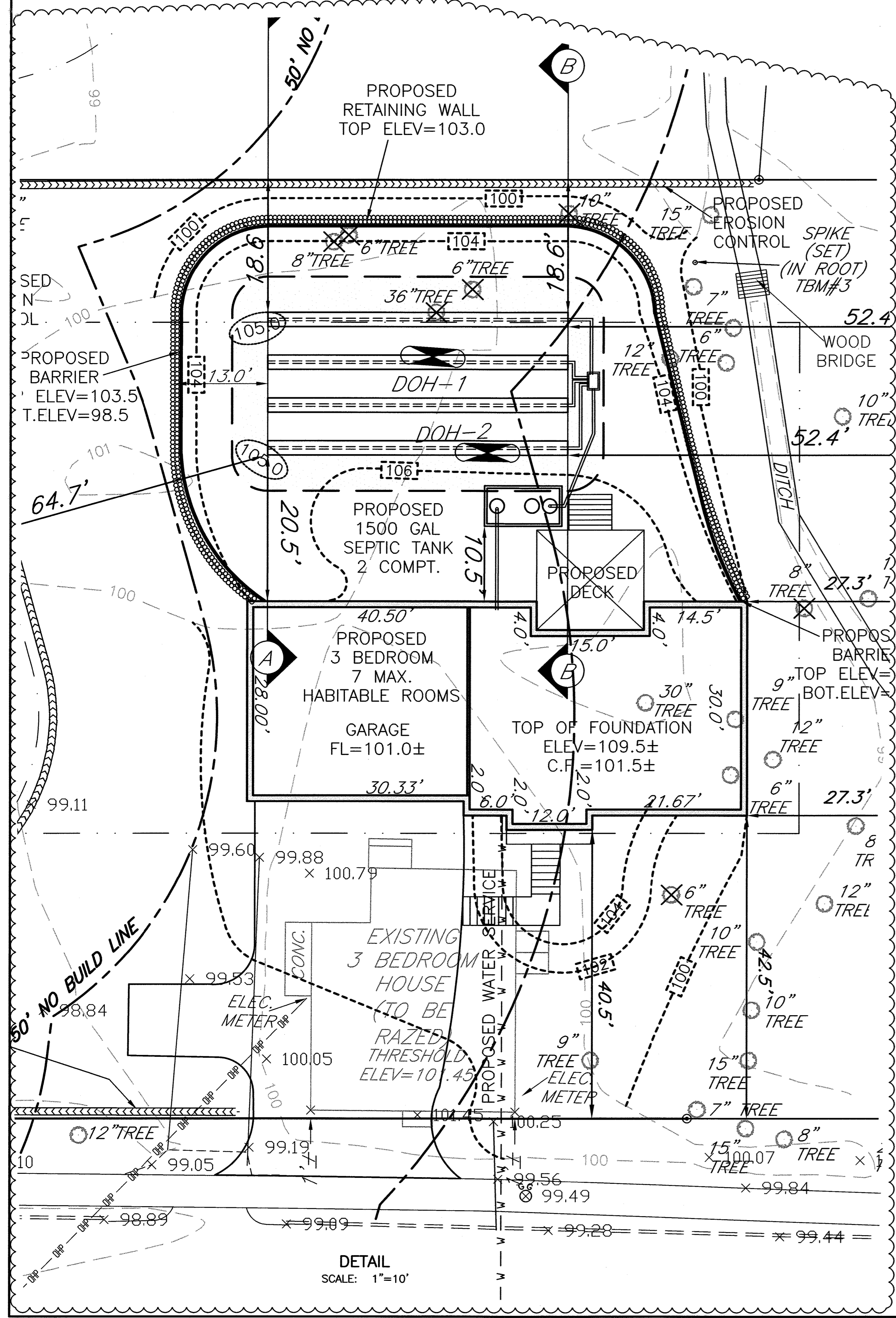
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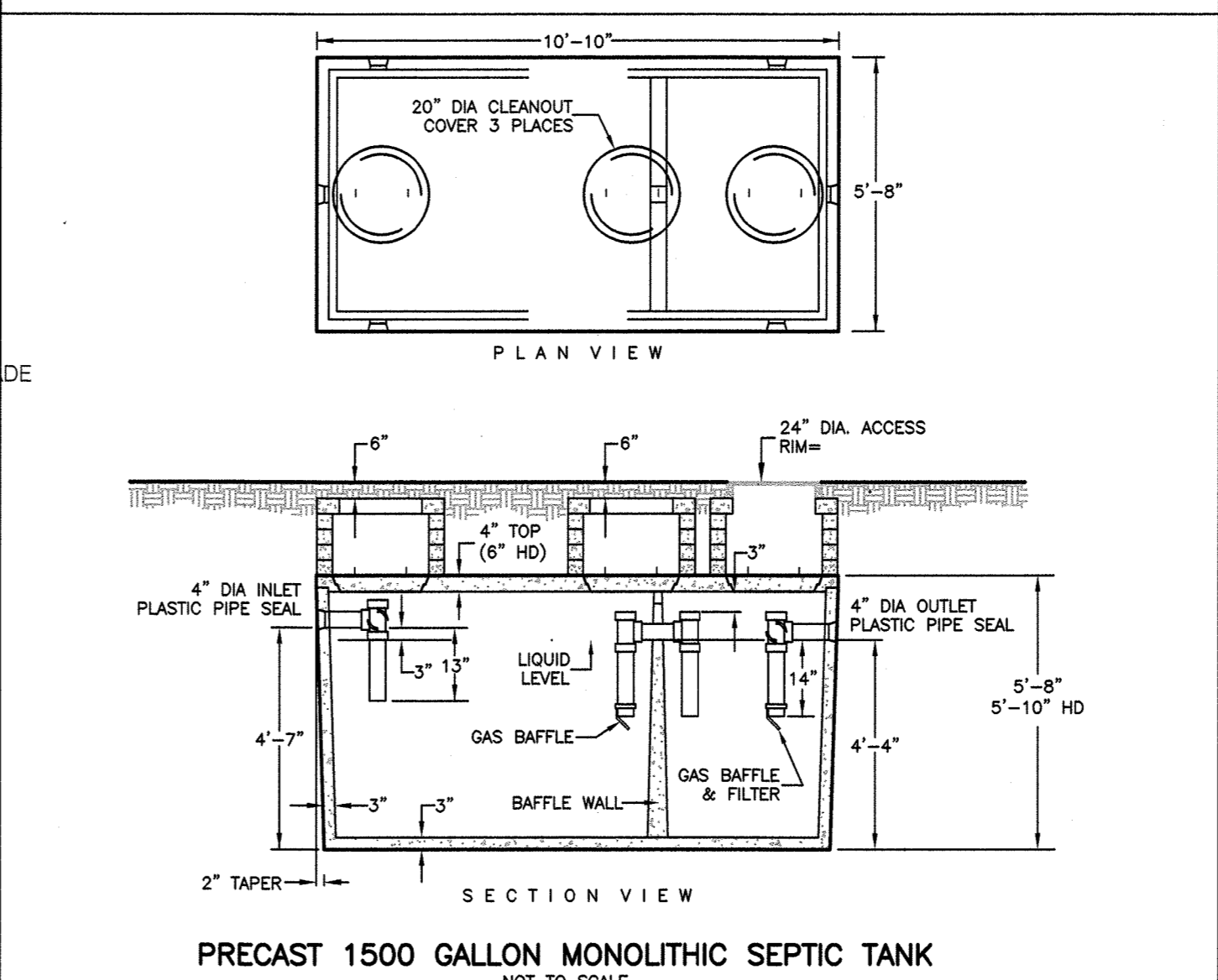
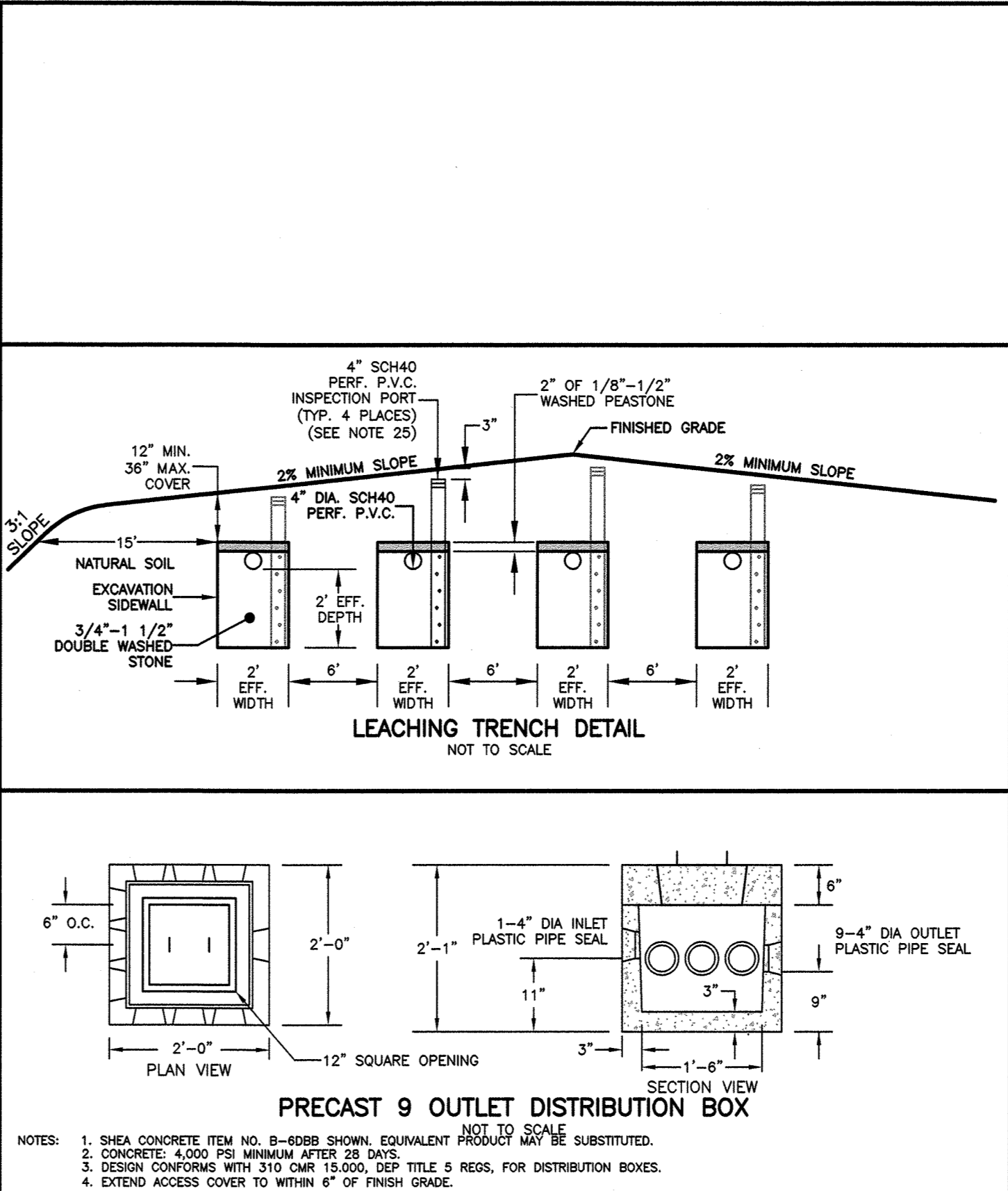
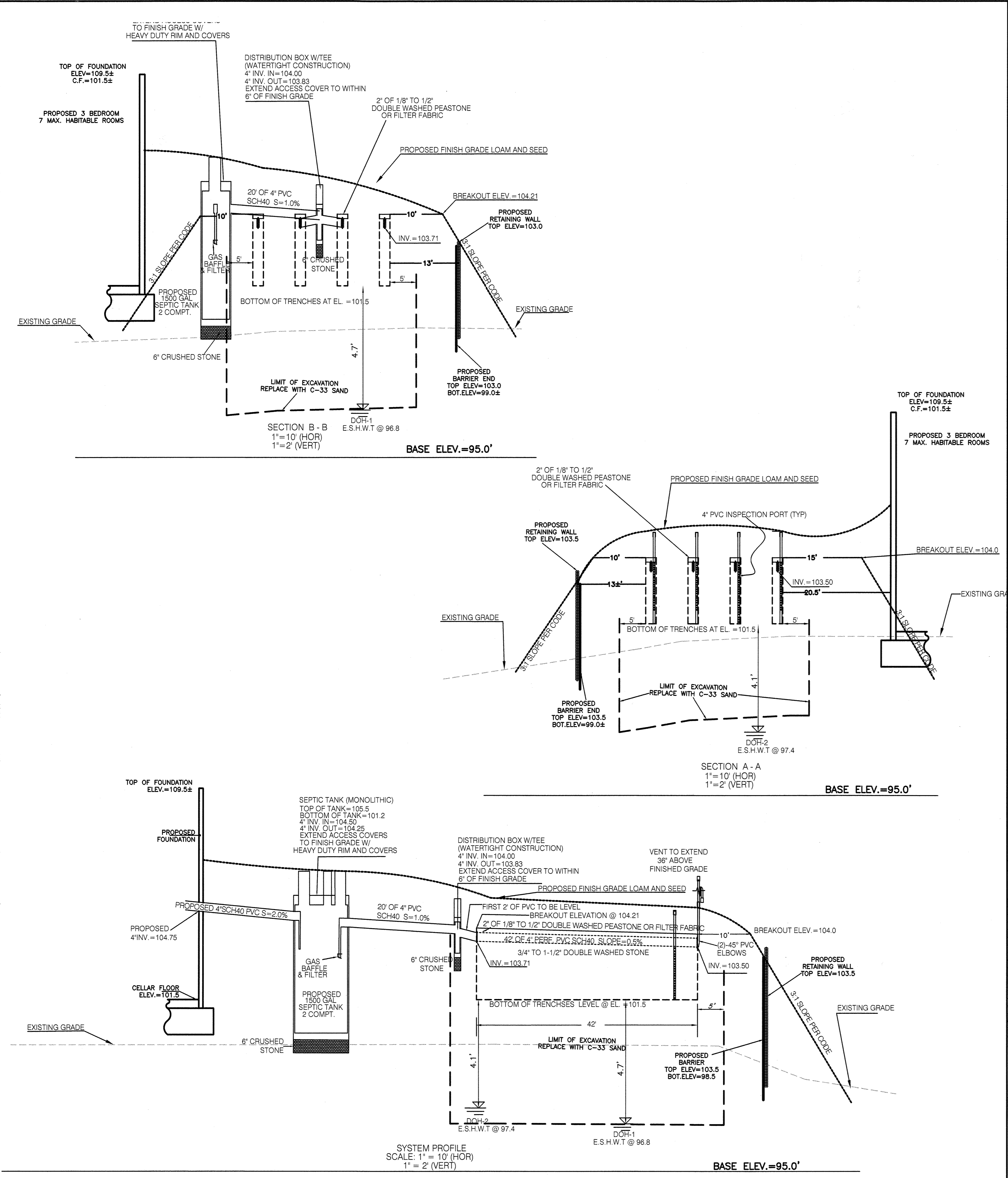
Date: March 23, 2022

Drawing Title:
Sanitary Disposal System Plan Upgrade
 244 Main Street
 Lynnfield, Ma. 01940

Drawing No.:
 PL

SHEET 1 OF 2





SOIL LOGS

DEPTH (ft.)	SOIL HORIZON/LAYER	SOIL MATRIX: COLOR-MOIST (MUSSELS)		REDOXIMORPHIC FEATURES		SOIL TEXTURE (USDA)		COARSE FRAGMENTS % BY VOLUME		SOIL STRUCTURE	SOIL CONSISTENCE (MOIST)
		DEPTH	COLOR	PERCENT	DEPTH	COLOR	PERCENT	GRAVEL	COBBLES & STONES		
DEEP HOLE NUMBER: DOH-1 ELEVATION=99.8'											
00'-20"	HTM	10R 3/2	tan	0	0	0	0	0	0	gr	mfr
20'-26"	Apb	10R 3/2	tan	0	0	0	0	0	0	m	mfr
26'-36"	Bwb	10R 4/6	36*	10R 6/8	tan	0	0	0	0	m	mfr
36'-90"	C	2.5Y 5/4	5Y 7/1							m	mfr
DEEP HOLE NUMBER: DOH-2 ELEVATION=99.9'											
00'-15"	Ap	10R 3/2	tan	0	0	0	0	0	0	gr	mfr
15'-30"	Bw	10R 4/6	tan	0	0	0	0	0	0	m	mfr
30'-90"	C	2.5Y 5/4	30*	10R 6/8	tan	0	0	0	0	m	mfr

LEACHING AREA CALCULATIONS:
 BOTTOM: (2'W)(42'L) = 84 S.F.
 SIDES: (2)(2'D)(42'L) = 168 S.F.
 LEACHING AREA PER TRENCH = 252 S.F.
 TOTAL LEACH AREA PROVIDED: (4 TRENCHES)(252 S.F./TRENCH) = 1008 S.F.

DESIGN DATA:
 NUMBER OF BEDROOMS: 3
 DESIGN FLOW: 110 G.P.D./B.R.
 DAILY FLOW: 3 x 110 = 330 G.P.D.
 SEPTIC TANK REQUIRED: 33 GAL.x2=660 GAL
 SEPTIC TANK USED: 1500 GAL. 2 COMPARTMENT
 LEACH AREA REQUIRED:
 CLASS II SOILS LTAR = 0.33 G.P.D./S.F.
 330 G.P.D./ 0.33 G.P.D./S.F. = 1000 S.F.
 LEACH AREA USED: 1008 S.F.
 NO GARBAGE DISPOSALS ALLOWED

GENERAL NOTES:
 HAYES ENGINEERING, INC. HAS BEEN RETAINED TO FURNISH A SEPTIC SYSTEM DESIGN PLAN TO THE CLIENT BUT HAS NOT BEEN RETAINED TO CONSTRUCT OR SUPERVISE CONSTRUCTION OF THE SYSTEM.
 IN VIEW OF SAME, NO GUARANTEE OR WARRANTY, EXPRESS OR IMPLIED, IS MADE TO THE CLIENT OR TO THE ULTIMATE USER RELATIVE TO ANY SYSTEM INSTALLED PURSUANT TO THE PLAN.
 HAYES ENGINEERING, INC. DOES REPRESENT THAT THE PLAN MEETS THE REQUIREMENTS OF THE STATE CODE, TITLE 5, EXCEPT WHERE VARIANCES ARE NOTED.
 1. The general contractor is responsible for horizontal and vertical control of all system components.
 2. This plan shows the design of the subsurface sewage disposal system only. The system is designed for flows estimated under design criteria.
 3. System is designed only to accommodate sanitary sewage associated with normal domestic usage and consisting of water-carried putrescible waste.
 4. The system is not designed for garbage grinders.
 5. The system shall be vented through building plumbing as required by building code.
 6. Property lines and building locations are graphic only. Property lines not having been verified, no representation as to the accuracy or certification of those shown is implied or intended.
 7. Applicable zoning by-laws or other local regulations shall be confirmed by the owner prior to construction.
 8. The plan shows only those features that were visually apparent on the date of topography and the absence of subsurface structures, utilities, etc. does not mean that they do not exist.
 9. The installer of this system must be licensed by the local board of health.
 10. There are no existing wells within 100 feet of the proposed sewage disposal system, to the best of our knowledge, unless otherwise indicated.
 11. Disposal system areas are to be raked (scarified) before installation of stone. All stones exceeding 2 inches in diameter and all foreign material encountered during excavation are to be removed from the leaching area bed surface.
 12. Finished surface of the leaching area shall be graded to assure water runoff (2% minimum slope).
 13. All disturbed areas to be loamed, seeded, and maintained to prevent erosion.
 14. The septic tank shall be periodically inspected and maintained and should be pumped when sludge in the bottom exceeds 1/4 of the depth.
 15. Alternate manufacturers for concrete structures and equipment shown on these plans may be used upon the written approval of the design engineer. Alternate manufacturers will not be used if the use of their equipment requires design changes.
 16. If any part of this design is to be altered in any way, the design engineer as well as the approving authorities shall be notified in writing before construction.
 17. All work is to comply with the Commonwealth of Massachusetts Department of Environmental Protection State Sanitary Code, title 5 and any local board of health supplementary regulations.
 18. The local board of health agent will conduct periodic inspections as needed.
 19. 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.
 20. Contractor to notify engineer of any site condition differing from those indicated.
 21. All work and materials shall conform to the applicable sections of Title 5 of the State Environmental Code.
 22. Designer to submit an as-built plan of system within two weeks from final inspection.
 23. General contractor to check between benchmarks shown on this plan.
 24. All system components shall be marked with magnetic marking tape or a comparable means in order to locate them once buried.
 The soil absorption system shall have a minimum of one (1) inspection port consisting of a perforated four (4) inch pipe placed vertically down into the stone to the naturally occurring soil or sand fill below the stone. The pipe shall be capped with a screw type cap and accessible to within three (3) inches of finish grade.

MATERIAL NOTES:
 Leach Bedding:
 1. Clean double washed stone shall be free of iron particles, fines and dust in place.
 2. Bottom stone in leach area shall be 3/4" to 1-1/2" double washed stone as indicated in note 1 above.
 3. Top stone in leach area shall be 1/8" to 1/2" double washed peastone as indicated in note 1 above. Geotextile fabric may be substituted for the minimum 2 inch layer of double washed peastone.

CONSTRUCTION NOTES:
 1. Excavate all topsoil, subsoil, and any other unsuitable material within the limits of excavation and replace to top of peastone elevation with select on-site or imported soil material, consisting of clean granular sand, free from organic matter and deleterious substances.
 2. Fill material shall not contain any material larger than two (2) inches. The fill material shall comply with Title 5, State Environmental Code 310 CMR 15.255 (3) as revised.
 3. Contractor to supply to the town a current sieve test analyses report at their own expense if required by the local approving authority.

DESCRIPTION OF HORIZONS

Symbol	TEXTURE		Symbol	STRUCTURE	
	Symbol	Description		Symbol	Description
g	g	gravely sandy loam	vf	very fine platy	
vc	vc	coarse loam	f	fine prismatic	
co	co	coarse gravelly loam	m	medium columnar	
s	s	stony loam	c	coarse blocky	
sl	sl	silt loam	vc	very coarse angular blocky	
vfs	vfs	very fine silt loam	sbk	subangular blocky	
lcs	lcs	loamy clay loam	gr	granular	
lcs	lcs	loamy clay loam	sg	single grain	
sls	sls	sandy clay loam	m	massive	
sl	sl	stony clay loam	l	loose	
sl	sl	sandy loam			
sl	sl	silty clay			
sl	sl	fine sandy loam			
vfl	vfl	very fine sand loam			

CONSIDENCE

Wet Soil:	Moist Soil:	Dry Soil:
nonsticky	wso	loose
slightly sticky	ws	mvfr
sticky	ws	mfr
firm	mfi	hard
nonplastic	wpo	mvfi
slightly plastic	wps	mvfi
plastic	wp	extremely hard

SOIL LOGS:
 DATE OF TESTING: OCT 26, 2021 (DOH-1)
 NOV. 2, 2021 (DOH-2)
 SOIL EVALUATOR: GORDON ROGERSON SE2074
 BOARD OF HEALTH: LEO F. CORMIER
 PERCOLATION RATE: P1: 30 min./in. @ USDA TEXTURAL CLASS II SANDY LOAM SOIL AND PLANT NUTRIENT TESTING LABORATORY @ U. MASS AMHERST, MA.

Prepared For:
 Hayes Engineering, Inc.
 78 Mill Street
 Middleton, Mass. 01949
 Map 33, Lot 176
 Area=30,101 s.f.

Owner / Applicant:
 Zapal Development LLC
 78 Mill Street
 Middleton, Mass. 01949
 Map 33, Lot 176
 Area=30,101 s.f.

Design By: gr
 Drawn By: pjo
 Checked By: pjo
 Project File: LYF431
 Comp. No: LYF40
 Issued For Permit
 Issued For Review
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