

**Bureau of Environmental Health**  
 8930 Stanford Boulevard, Columbia, MD 21045  
 Main: 410-313-2640 | Fax: 410-313-2648  
 TDD 410-313-2323 | Toll Free 1-866-313-6300  
[www.hchealth.org](http://www.hchealth.org)  
 Facebook: [www.facebook.com/hocohealth](http://www.facebook.com/hocohealth)

Maura J. Rossman, M.D., Health Officer

RECEIPT DATE: 11/7/23 **ONSITE SEWAGE DISPOSAL SYSTEM** P 575694  
 APPROVAL DATE: 7/9/2024 **PERMIT: New Construction** A \_\_\_\_\_  
 PROPERTY ADDRESS: 14510 Philadelphia Road  
 SUBDIVISION: \_\_\_\_\_ LOT: \_\_\_\_\_ TAX ID: \_\_\_\_\_  
 CONTRACTOR: Chris Enterprises Nathan Wimer EMAIL: \_\_\_\_\_  
 CONTRACTOR ADDRESS: 1044 Taylor Road Street MD 21151 PHONE: 443.686.2523  
 CONTRACTOR CERTIFIED FOR BAT INSTALLATION:  MDE  MANUFACTURER:  
 PROPERTY OWNER: Selo Musa EMAIL: \_\_\_\_\_  
 OWNER ADDRESS: 7330 Freebird Lane, Elkridge, MD 21075 PHONE: 443-742-0348

BAT UNIT MODEL: Norweco TNTLP 500-600 WE PUMP SIZE: 0311L PUMP TANK CAPACITY: 1500GAL  
 OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 9/11/23 DATE RECORDED: 9/12/23

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 4 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>150 (3@50')</u>	INLET DEPTH: <u>Trench 1: 4'</u> <u>Trench 2: 2.7'</u> <u>Trench 3: 2'</u>
	TRENCH WIDTH: <u>3'</u>	MAXIMUM BOTTOM DEPTH: <u>7'</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10'</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>3.5</u>
	LOCATION: <b>PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.</b>	
NOTES:	Trench inverts vary for balance of LPD design & should be thoroughly inspected. Pump and alarm, and electrical inspections are required for pump chamber. BAT start up required	

ISSUED BY: Wank Oswald ISSUE DATE: 11/7/23 EXPIRATION DATE: 11/7/24

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM  
 ELECTRICAL PERMIT ISSUED E 23006076
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.**

**PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.**

**CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

NOT TO SCALE

See Separate Sheet for As built

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'	2.5'-2'	7'
NUMBER OF TRENCHES		3
TOTAL LENGTH		155'
ABSORPTION AREA		465 ft <sup>2</sup>
DISTRIBUTION BOX LEVEL		---
DISTRIBUTION BOX BAFFLE		---
DISTRIBUTION BOX PORT		---

NORWECO

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL	yes
MANUFACTURER	Back River
CAPACITY	500 GAL
SEAM LOC	top
TANK LID DEPTH	3'
BAFFLES	-
BAFFLE FILTER	-
MANHOLE LOC	front/middle/back
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	-
DATE ON LID	10/25/2023
PUMP/SEPTIC TANK LEVEL	yes
MANUFACTURER	Back River
CAPACITY	1500 GAL
SEAM LOC	top
TANK LID DEPTH	---
BAFFLES	---
BAFFLE FILTER	---
MANHOLE LOC	front & back
6" PORT LOC	---
WATERTIGHT TEST	---
SLOTTED	---
DATE ON LID	10/20/2022

PRE-CONSTRUCTION:

11/13/2023 - Sewer stubbed out of house. Adequate fall w/ 3' of cover on tank. BAT + Pump tank started SPA + trenches staked. Trench 1 length @ 50', elevation has 0.5" difference. Distance between trench 1 + 2 16'-14". Trench 2 length @ 50', elevation has 2"-3" difference + 4" at west part of trench. Difference between trench 2 + 3 is 30'-14". Trench 3 length @ 50', elevation has 2"-3" difference. Well > 150' from septic components. OK to start work. Also measured 20' from tank to house + measured + graded 150'.

INSTALLATION: 11/14/23 - site insp w/ contractor onsite. ST's delivered, BAT tank in the ground and pump tank will be installed next before the completion of the sewer line. SHC made, the OSDS plan called for a 90° bend into the BAT tank, contractor will change that to two 45° fittings since it's the solids line. OK to continue - OK to backfill sewer line so contractor can get to SPA w/ equipment (RR 11/15/2023) -

Pump tank set, lines connecting sewer line to BAT to pump complete. OK to backfill all work.

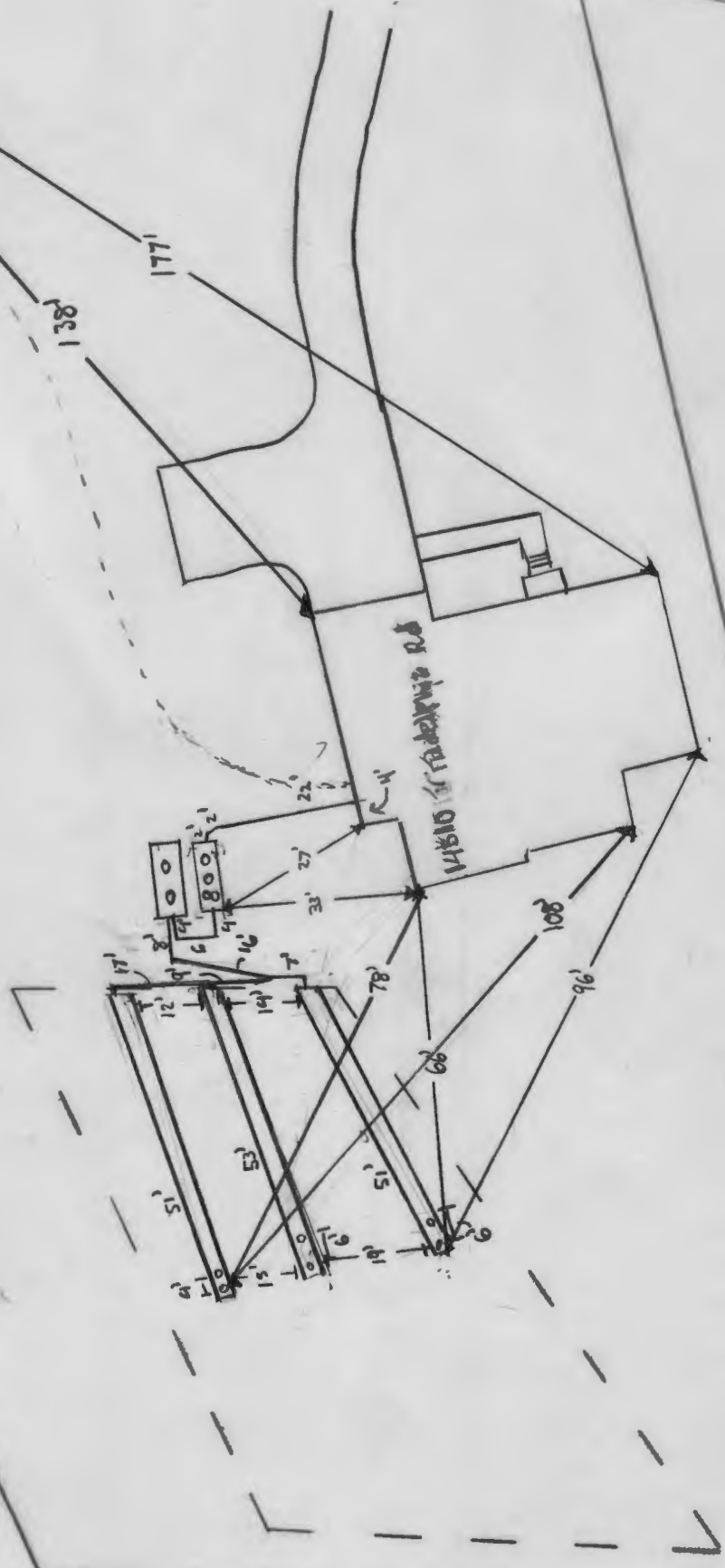
11/16/2023 - installer started install of some FM coming out of tank, angles subject to change. All FM 2" 280 PSI. 11/17/2023 - All 3 trenches dug w/ 12" x 24" stone, fabric, + abs ports installed. trench inlets @ 2.5'-2" width @ 3". OK to backfill. all work. Respect for P + A. + start up.

FINAL INSPECTOR S. Pace DATE OF APPROVAL 7/9/2024

7/9/2024 - VISUAL + audible alarm outside of house successful. Alarm heard for all 3 trenches > 3.5'. P + A successful. Received start up from installer.

NOT TO SCALE 1" = 30'

HO-20-0242





BACK RIVER PRE-CAST, LLC  
 PO BOX 329  
 GLYNDON, MD 21071  
 PH# 410-833-3394

**NORWECO CERTIFICATION**

PROPERTY OWNER: ??	INSTALLATION COMPANY: TAYLOR PRECISION EXCAVATING
ADDRESS: 14510 TRIADELPHIA RD	CERTIFIED INSTALLER: NATE WIMER
CITY, ZIPCODE & COUNTY: GLENELG, 21737, HOWARD	PERMIT#
SIZE OF SYSTEM INSTALLED:	DATE INSTALLED: 11-14-23
600 GPD CONCRETE	START-UP DATE: 6-27-24
NUMBER OF BEDROOMS:	DATE OF FINAL INSPECTION:
TYPE OF INSTALLATION: NEW	DATE OF ELECTRICAL INSPECTION:
ELECTRICAL WIRING PER ELECTRICAL INSTRUCTIONS: YES	TANK LEVEL: YES
HT. OF CONTROL PANEL ABOVE FINAL GRADE: 36"	BURIAL DEPTH OF TANK: 30"
SYSTEM WIRED ON A 15-AMP DEDICATED CIRCUIT WITH STD. BREAKER: YES	RISERS 4" - 6" ABOVE GRADE: YES
LENGTH(S) OF UF WIRE PAST LAST AERATION RISER(S): 30"	VENTED LID(S) ON AERATION CHAMBER(S): YES
FEMALE PLUG(S) WIRED TO UF WIRE: YES	ANY GROUND SETTLING AROUND TANK:
CONDUIT(S) ENTERING AERATION RISER MADE WITH A WATERTIGHT CONNECTION: YES	NO
ISTHE INSIDE OF THE CONDUIT ENTERING THE CONTROL PANEL(S) AND AERATION RISER(S) SEALED WITH DUCT SEAL: YES	

ON 2<sup>ND</sup> PAGE MAKE A ROUGH SKETCH OF THE HOUSE ,WHERE THE SYSTEM IS LOCATED, WHERE THE CONTROL PANEL IS  
 LOCATED , WHERE THE FRONT OF THE IS AND DIRECTIONS TO THE PROPERTY.

DIRECTIONS CAN START A FEW STREETS AWAY

EXAMPLE: RT. X LEFT ONTO XX STREET RIGHT ONTO PRIVATE DRIVEWAY 5<sup>TH</sup> HOUSE OF THE LEFT.

I certify that the Norweco Singulair TNT Wastewater Treatment System was installed according to the  
 manufacture's specifications.

\_\_\_\_\_

Matthew Geckle

June 27, 2024

Signature of BRP Representative

Vice-President

Date

14510 Tridelphia Road

Clerk of the Circuit Court for

Howard County

9250 Judicial Way,  
Ellicott City, MD 21043  
410-313-2111

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LR - Agreement Recording Fee  
1x 20.00 20.00

Name: musa  
Ref: 1

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LR - Agreement Surcharge  
1x 40.00 40.00

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SubTotal: 60.00  
Total: 60.00

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CRD-Credit 60.00  
Credit Card Confirmation : 009698

09/12/2023 10:04 CC13-LP  
\*17551203/497/4

~ Thank you for visiting us today ~

Maura J. Rossman, M.D., Health Officer

**OPERATION AND MAINTENANCE AGREEMENT  
FOR AN ON-SITE SEWAGE DISPOSAL SYSTEM  
HAVING AN ADVANCED PRE-TREATMENT SYSTEM**

THIS AGREEMENT is made this 8<sup>th</sup> day of September, among SELO K. MUSA and Wundayi Solani, hereinafter collectively referred to as "Owner", and the Howard County Health Department hereinafter referred to as the "County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at 14510 TRIADDELPHIA ROAD, in the 4<sup>th</sup> Election District of Howard County, Maryland, and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map #0021, Block #0023, Parcel #0040, Deed Reference #20117/367 and Tax Account # 322657 ("the Property").

WHEREAS, The Property is suitable for the installation of a conventional on-site sewage disposal system with an advanced pre-treatment system, utilizing best available technology to perform nitrogen reduction, in accordance with the Code of Maryland Regulations 26.04.02.07, effective November 24, 2016. The pre-treatment device being installed is NORWECO - MODEL #TNT 500

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the County the right to enter upon the Property at any reasonable time with prior notice for access to the system to make periodic inspections and the Owner agrees to provide any information and data in Owner's possession reasonably requested and needed by the County.
- B. Owner acknowledges and agrees that neither the County nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.
- C. The Owner will devote reasonable care and effort to the operation and maintenance of the system in perpetuity or until a public sewer connection is made so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.
- D. The Owner agrees to enter into a contract reasonably acceptable to the Owner and the County with a private entity to operate and maintain on a regularly scheduled basis an approved advanced pre-treatment system. The owner shall supply a copy of the contract to the County when it is renewed or altered.
- E. This agreement shall run with the land and upon Owner's taking title to the Property shall bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as long as

the property is in existence and after installation of the system. Owner further agrees that they shall inform in writing any subsequent purchaser or lessee of the Property that the system shall require maintenance or other attention. Upon taking title to the Property, the Owner agrees to cause this agreement to be recorded in the Land Records of Howard County and assure that it becomes part of the Deed for the subject property in order that prospective buyers may be aware of the special conditions affecting this property.

F. This agreement shall not be construed to limit any authority of the County to protect the public health, safety or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

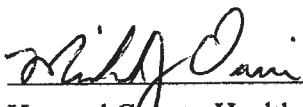
G. This agreement may be voided at any time at the discretion of the County.

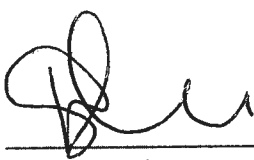
H. This agreement contains the entire agreement and understanding between the County and the Owner. There are no additional terms other than as contained in this agreement. This agreement may not be modified, except in writing signed by each of the parties or by their authorized representatives.

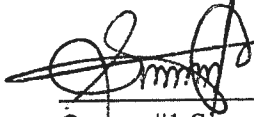
I. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

IN WITNESS WHEREOF, the parties have signed this agreement on the date indicated above.

 9/11/23  
Howard County Health Department

 9/8/2023  
Owner#2 Signature Date

 9/8/23  
Owner #1 Signature Date

Selo Musq  
Owner #1 Print Name

Wandayi Solan  
Owner #2 Print Name

\_\_\_\_\_  
Buyer #1 Signature Date

\_\_\_\_\_  
Buyer #2 Signature Date

\_\_\_\_\_  
Buyer #1 Print Name

\_\_\_\_\_  
Buyer #2 Print Name

## Oswald, Hank

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**From:** Oswald, Hank  
**Sent:** Thursday, November 21, 2019 11:51 AM  
**To:** Bruce Burton  
**Subject:** Perc Cert Plan Comments\_14510 Triadelphia Mill Road  
**Attachments:** PERC CERT Memo To LDE.pdf

Hi Bruce:

Attached, please find a memo with comments to the perc cert plan for 14510 Triadelphia Mill Road. Should you have any questions, please don't hesitate to ask.

Respectfully,

Hank

Hank Oswald  
Licensed Environmental Health Specialist  
Howard County Health Department  
Bureau of Environmental Health  
Well & Septic Program  
8930 Stanford Boulevard  
Columbia, MD 21045  
410.313.1786 (Office)  
[hoswald@howardcountymd.gov](mailto:hoswald@howardcountymd.gov)



### CONFIDENTIALITY NOTICE

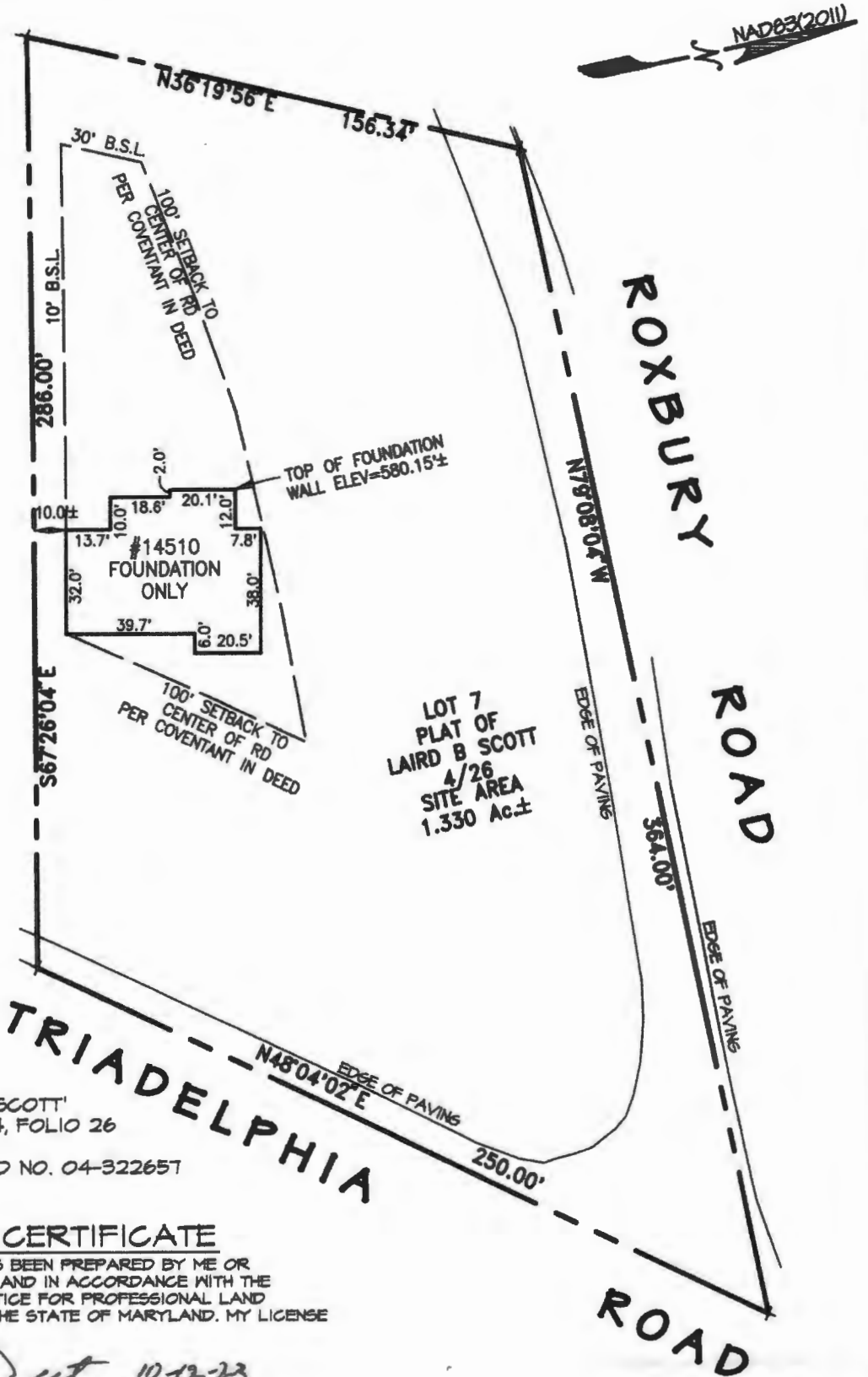
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**NOTES**

1. THIS DRAWING IS OF BENEFIT TO A CONSUMER ONLY INSOFAR AS IT IS REQUIRED BY A LENDER OR A TITLE INSURANCE COMPANY OR ITS AGENT IN CONNECTION WITH CONTEMPLATED TRANSFER, FINANCING OR REFINANCING.
2. THE DRAWING IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OR LOCATION OF FENCES, GARAGES, BUILDINGS, OR OTHER EXISTING OR FUTURE IMPROVEMENTS.
3. THE DRAWING DOES NOT PROVIDE FOR THE ACCURATE IDENTIFICATION OF PROPERTY BOUNDARY LINES, BUT SUCH IDENTIFICATION MAY NOT BE REQUIRED FOR THE TRANSFER OF TITLE OR SECURING FINANCING OR REFINANCING.
4. ALL BUILDINGS, STRUCTURES AND OTHER IMPROVEMENTS SHOWN HEREON ARE IN APPROXIMATE RELATION TO THE APPARENT BOUNDARY LINES.
5. THE PROPERTY SHOWN HEREON IS SUBJECT TO ANY EASEMENTS, RIGHTS OF WAY AND/OR COVENANTS OF RECORD.
6. LEVEL OF ACCURACY OF APPARENT SETBACK DISTANCES: ± 0.1'

Well?  
SPA?

11/7/23  
Well check  
okay.  
HO.



1. LOT 7, PLAT 'LAIRD B. SCOTT' PLAT BOOK M.W.B. No. 4, FOLIO 26
2. HOWARD COUNTY TAX ID NO. 04-322657

**SURVEYORS CERTIFICATE**

THIS FOUNDATION LOCATION HAS BEEN PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND IN ACCORDANCE WITH THE "MINIMUM STANDARDS OF PRACTICE FOR PROFESSIONAL LAND SURVEYORS" AS ADOPTED BY THE STATE OF MARYLAND. MY LICENSE EXPIRES ON 2-12-2025.

*Brian R. Dietz* 10-12-23  
**BRIAN R. DIETZ**  
 PROFESSIONAL LAND SURVEYOR NO. 21080



**DIETZ SURVEYING, INC.**  
 LAND SURVEYING AND LAND PLANNING  
 8119 OAKLEIGH ROAD  
 BALTIMORE MD. 21234  
 Ph 410-661-3160  
 Fax 410-661-3163

**FOUNDATION LOCATION**  
 of  
**14510 TRIADELPHIA ROAD**  
 HOWARD COUNTY, MD.

## Silvast, Zackary

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**From:** Silvast, Zackary  
**Sent:** Thursday, August 10, 2023 5:51 PM  
**To:** 'Dan Blevins'  
**Cc:** James Powell; Selo Musa; Williams, Jeffrey  
**Subject:** RE: 14510 Triadelphia Road

Good afternoon everyone,

I met with Jeff to discuss my comments and some of your rebuttals. We do recognize that this is your design and do appreciate you addressing most of my comments.

1. **We are fine with your perforation choice so as long as it brings balance to the LPD system. And it is accurate spacing along the entire lateral.**
2. **Regarding the dose, we are agreeing with your explanation and do not intend to pursue change. (again your design)**
3. **Regarding your rebuttal to comment 3, trench 3 is 85% of the trench 1 flow rate.**
  - a. **This will have to be corrected.**
4. **We recommend putting trench 1 invert deeper to lessen the elevation difference between trenches.**
  - a. **You should show three trench detail cross sections displaying the depths of gravel, invert elevations, effective depth and earth cover etc.**

If you have any other questions or concerns. Please let me know. I think I covered the biggest issues you all had. We look forward to your re-submittal. Thank you.

- Zack Silvast

**From:** Dan Blevins <dblevins@dev-designsolutions.com>  
**Sent:** Monday, July 31, 2023 9:47 AM  
**To:** Silvast, Zackary <zsilvast@howardcountymd.gov>  
**Cc:** James Powell <robpowell781@verizon.net>; Selo Musa <skingmusa1@yahoo.com>  
**Subject:** 14510 Triadelphia Road

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Zack,

We have a couple of questions/comments regarding your review of the lpd design proposal.

1. The topography shown was field run to 1' but the layout shown was shot with use of a laser level and the start and ending of each trench in the installation area was adjusted to be within 0.2' of each other. The topography in the installation area will be adjusted to reflect the laser elevation shots. **WE WILL NEED TO REVISE THE CONTOURS ACCORDINGLY IN THE INSTALLATION AREA**

**SITE GENERAL NOTES**

A. OWNER/DEVELOPER: SELO K MUSA  
7330 FREEBIRD LANE  
ELKRIDGE, MARYLAND 21075  
PHONE: (443) 742-0348

B. PLAN PREPARED BY: DEVELOPMENT & DESIGN SOLUTIONS, LLC.  
3202 ACTON ROAD  
BALTIMORE, MARYLAND 21234  
PHONE: (410) 905-0778

C. SITE LOCATION:  
STREET ADDRESS: 14510 TRIADELPHIA ROAD  
GLENELG, MD 21737

1. ELECTION DISTRICT: 4th  
2. COUNCIL DISTRICT: 5TH  
3. LEGISLATIVE TRACT: 9A  
4. CONGRESSIONAL DISTRICT: 7  
5. CENSUS TRACT: #6004002  
6. TAX ASSESSMENT DISTRICT: 81  
7. ADC MAP: MAP # 4812, GRID H10  
8. TAX MAP: MAP #0021, GRID 0023, PARCEL 0040  
9. MAJOR WATERSHED: 02131108  
10. TAX ACCOUNT #: 322657  
11. DEED REFERENCE: LIBER 20777, FOLIO 00367  
12. PLAT REFERENCE: (PLATTED) IN 1953 AT PLAT BOOK 4, PAGE 26

D. EXISTING SITE DATA AND ZONING:  
1. GROSS SITE AREA: 57,935± S.F. / 1.33 Ac.±  
EXISTING ZONING: RC-DEO  
EXISTING LAND USE: RURAL COMMUNITY

E. SCHOOL DISTRICT: ELEMENTARY SCHOOL DAYTON OAKS ELEMENTARY SCHOOL  
MIDDLE SCHOOL FOLLY QUARTER MIDDLE SCHOOL  
HIGH SCHOOL GLENELG HIGH SCHOOL

F. EXISTING SITE INFORMATION:  
1. TOPOGRAPHIC AND BOUNDARY SURVEY SHOWN ON THIS PLAN IS BASED ON FIELD-RUN SURVEY ON JUNE 30, 2021 AS PREPARED BY DIETZ SURVEYING COMPANY AND IS BASED ON THE MARYLAND STATE COORDINATE SYSTEM FOR HORIZONTAL - NAD 83/91 AND VERTICAL - NAVD83.  
2. SOILS INFORMATION WAS TAKEN FROM THE USDA SOIL SURVEY OF HOWARD COUNTY, MARYLAND.  
3. THERE ARE NO KNOWN WETLANDS, CRITICAL AREAS, ARCHEOLOGICAL SITES, ENDANGERED SPECIES, HABITATS OR HAZARDOUS MATERIALS ASSOCIATED WITH THIS PROPERTY.  
4. THERE ARE NO KNOWN UNDERGROUND STORAGE TANKS ON SITE.  
5. THERE ARE NO STEEP SLOPES ASSOCIATED WITH THE DEVELOPMENT OF THIS SITE.  
6. THIS PROPERTY IS NOT ASSOCIATED WITH THE CHESAPEAKE BAY CRITICAL AREA (CBA).  
7. THERE ARE NO FLOODPLAINS ASSOCIATED WITH THIS SITE IN ACCORDANCE WITH THE FEMA FLOODPLAIN MAP #24027C00450, DATED 11/06/2013.

G. PROPOSED DEVELOPMENT INFORMATION:  
PROPOSED DEVELOPMENT: SINGLE RESIDENTIAL LOT

SOILS CHART			
MAP SYMBOL	MAPPING UNIT	DRAINAGE	HYDROLOGIC SOIL GROUP
MoC	Manor Loom	Hell drained	B
GgB	Glenelg Loom	Hell drained	B

**TRENCH DESIGN CALCULATIONS FOR INITIAL SYSTEM AND TWO FUTURE REPAIR SYSTEMS**

• **INSTALLATION SYSTEM**

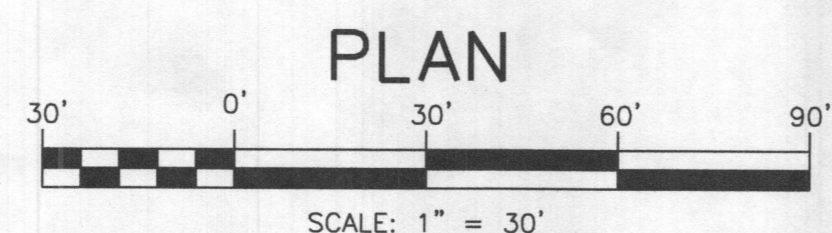
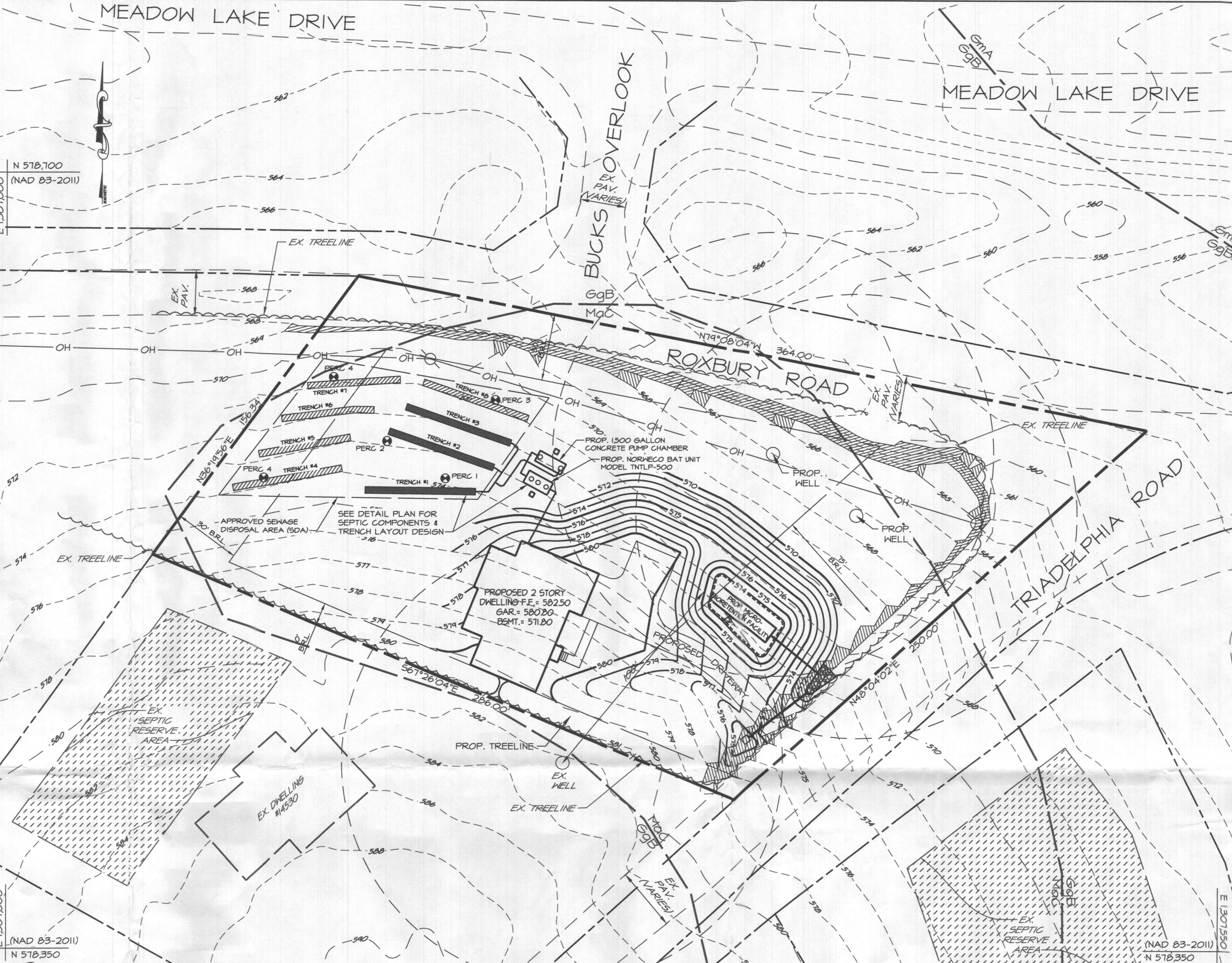
- The proposed dwelling will have four bedrooms and an advanced sewage pre-treatment unit (i.e.: BAT) will be utilized. A Norweco TINTLP 500 pre-treatment unit has been selected to be installed.
- The soil application rate (based on soil percolation infiltration tests) will be 1.2 gal./sq. ft./day and the effective sidewall area will start at 5' and extend to the bottom of the trenches (8'). Trenches will be 3' wide. Amount of vertical effective area is 3'. Trench separation will be 10' edge to edge minimum (13' on center).
- Calculations for trench length:
  - 4 bedrooms x 150 gal./bedroom/day 600 gpd
  - 600 gpd ÷ 1.2 gal./sq. ft./day soil application rate = 500 sq. ft. effective area
  - 500 sq. ft. effective area ÷ 3' wide trenches = 167' shallow 3' wide trenches
  - 167' shallow trench x deep trench conversion factor  $W + 2 + W + 1 + 2D - 3 + 2 + 3 + 1 + 6 - 5 = 84'$  of 3' wide, 8' deep trenches total.
- However, the Percolation Certification Plan notes that the trench design will consist of three trenches, each trench 3' wide and 50' long. Consequently, the design of the trench system for the installation will be three trenches (TRENCHES 1, 2 AND 3), each trench to be 3' wide, 8' deep, 50' long. The trenches will be pressure dosed and the lateral pipe invert will be 2' below grade, with 6' of stone below the lateral piping.

• **FIRST REPLACEMENT SYSTEM**

- The proposed dwelling will have four bedrooms and an advanced sewage pre-treatment unit (i.e.: BAT) will be utilized.
- The soil application rate (based on soil percolation infiltration tests) will be 1.2 gal./sq. ft./day and the effective sidewall area will start at 3.5' and extend to the bottom of the trenches (8'). Trenches will be 3' wide. Amount of vertical effective area is 4.5'.
- Calculations for trench length:
  - 4 bedrooms x 150 gal./bedroom/day 600 gpd
  - 600 gpd ÷ 1.2 gal./sq. ft./day soil application rate = 500 sq. ft. effective area
  - 500 sq. ft. effective area ÷ 3' wide trenches = 167' shallow 3' wide trenches
  - 167' shallow trench x deep trench conversion factor  $W + 2 + W + 1 + 2D - 3 + 2 + 3 + 1 + 9 - 385 = 65'$  of 3' wide, 8' deep trenches total.
- The Percolation Certification Plan notes that the trench design will consist of three trenches, each trench 3' wide and 50' long. However, due to contours, it is not possible to provide space for three 50' long trenches. There is however, sufficient room for two trenches totaling 92' (Trench 4 - 50' and Trench 5 - 42'). Consequently, the design of the trench system for the first replacement system will be two trenches; Trench 1 - 50' long and Trench 2 - 42' long. Each trench will be 3' wide, 8' deep, 50' long. The trenches will be pressure dosed and the lateral pipe invert will be 2' below grade, with 6' of stone below the lateral piping.

• **SECOND REPLACEMENT SYSTEM**

- The proposed dwelling will have four bedrooms and an advanced sewage pre-treatment unit (i.e.: BAT) will be utilized.
- The soil application rate (based on soil percolation infiltration tests) will be 1.2 gal./sq. ft./day and the effective sidewall area will start at 3.5' and extend to the bottom of the trenches (8'). Trenches will be 3' wide. Amount of vertical effective area is 4.5'.
- Calculations for trench length:
  - 4 bedrooms x 150 gal./bedroom/day 600 gpd
  - 600 gpd ÷ 1.2 gal./sq. ft./day soil application rate = 500 sq. ft. effective area
  - 500 sq. ft. effective area ÷ 3' wide trenches = 167' shallow 3' wide trenches
  - 167' shallow trench x deep trench conversion factor  $W + 2 + W + 1 + 2D - 3 + 2 + 3 + 1 + 9 - 385 = 65'$  of 3' wide, 8' deep trenches total.
- The Percolation Certification Plan notes that the trench design will consist of three trenches, each trench 3' wide and 50' long. However, due to contours, it is not possible to provide space for three 50' long trenches. There is however, sufficient room for three trenches totaling 134' (Trenches 6 and 7 - 42' each and Trench 8 - 50' long). Consequently, the design of the trench system for the second replacement system will be three trenches; Trenches 6 and 7 - 42' long each and Trench 8 - 50' long. Each trench will be 3' wide, 8' deep, 50' long. The trenches will be pressure dosed and the lateral pipe invert will be 2' below grade, with 6' of stone below the lateral piping.



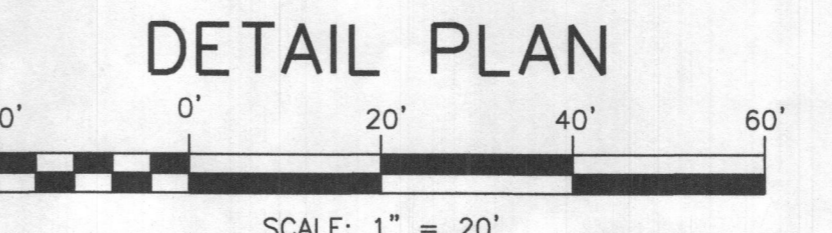
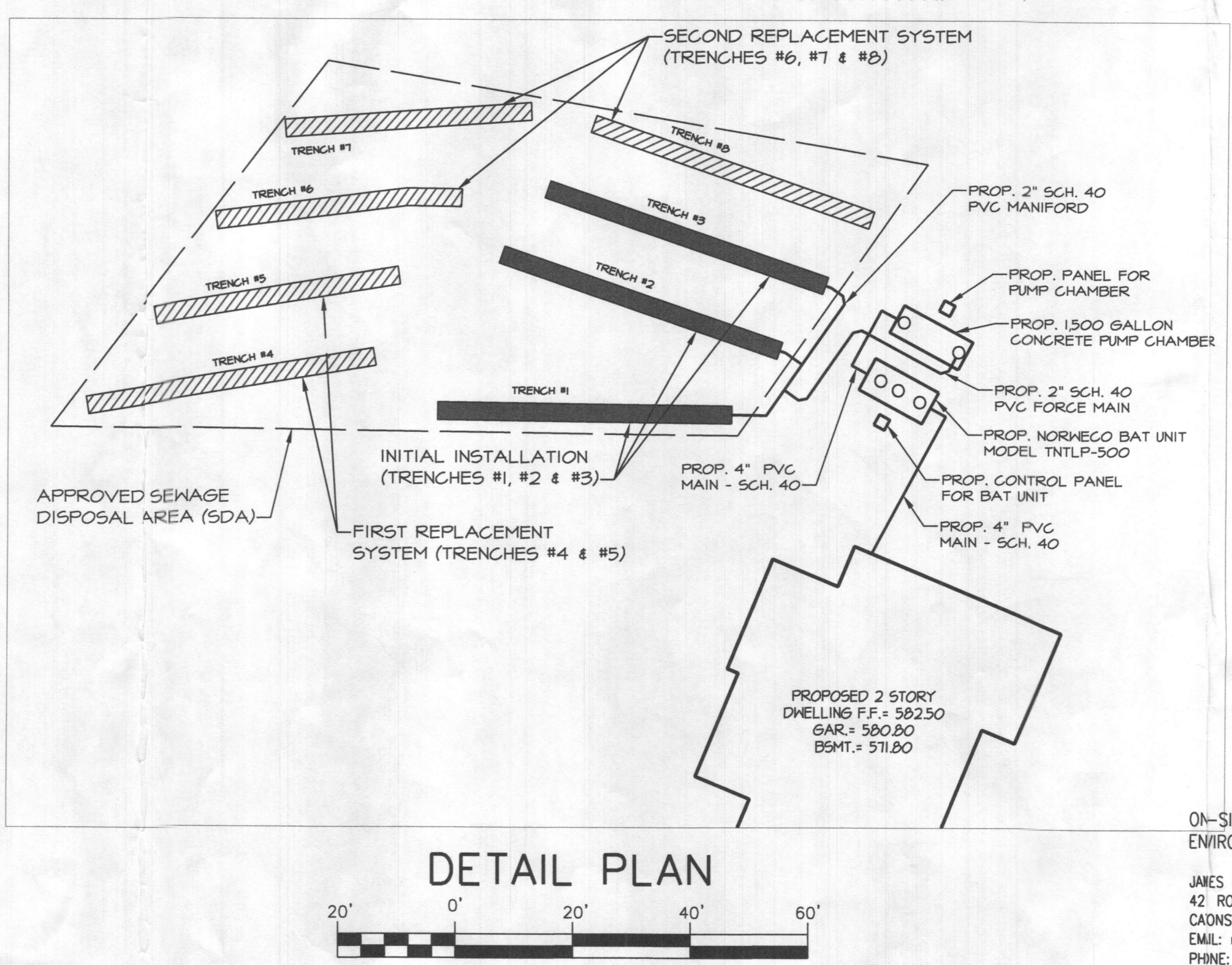
**CONSTRUCTION DETAIL**

- The proposed dwelling will have four bedrooms.
- The system will consist of a Norweco 5-gallon TINTLP 500 sewage pre-treatment unit (BAT), a single compartment 1,500-gallon concrete pump chamber; manufactured by Back River PreCast, Inc. and three deep trenches. Each trench shall be 50' long, 3' wide, 8' deep, with 6' of stone below the lateral piping. (Lateral piping will be 24" below surface grade).
- The minimum separation distance between trenches is 10 feet, measured edge to edge (13' on center).
- The well (TAG # ) has been field located and is accurately shown.
- The sewage disposal area is sufficient in size for one complete installation (Trenches 1-3). First Replacement system (Trenches 4 and 5) and Second Replacement system (Trenches 6-8). Consult "Trench Design Calculations" for more detail.
- The deep trench design for the installation system was based on 1.2 gal./sq. ft./day soil loading rate. Each trench will be 3' wide and 8' deep. The bottom of each trench will be filled with 6' of Maryland #2 stone.
- 1 1/2" diameter Sch. 40 pvc perforated lateral piping will be placed in the stone trench with perforations FACING DOWN. Two inches of stone will be placed on top of the 1 1/2" lateral pipe and covered with geotextile fabric and the remaining 20.5" to the ground surface will be backfilled with soil. Geotextile fabric to be used to cover the 2 inches of stone over the lateral piping and shall be spun, not woven.
- The force main and manifold will be 2" Sch. 40 pvc pipe. The laterals will be 1 1/2" Sch. 40 pvc pipe with 5/16" orifice sizing on the top lateral (Lateral #1) and 3/4" orifice sizing for the lower two laterals (Laterals 2nd & 3) at the specified spacing intervals noted elsewhere in this design. The design lead for the upper lateral will be 2'; as measured at the distal ends of the laterals.
- The high-water alarm will be wired to separate circuit breaker from that of the pump.
- An observation pipe, lateral turn-up (sweeping 90° bend) and tee connection for measuring head pressure at the distal ends of the lateral will be provided for all three trenches and shall be placed in a plastic box for protection as depicted in the schematic found on these plans.

**NOTES:**

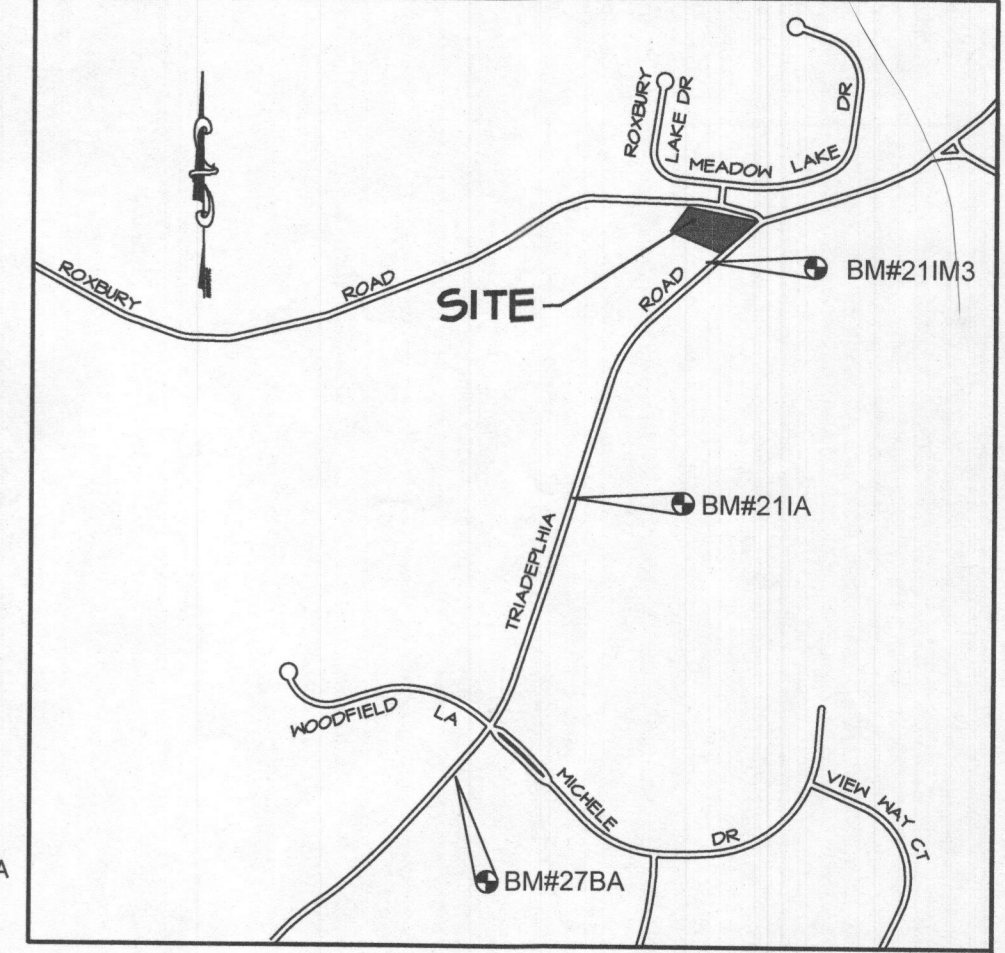
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM EARTH COVER OVER THE TANK IS THREE (3) FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
- ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- THE WELL (TAG # ) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.
- ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
- Contact Howard County Health Department (HCHD) prior to construction to verify trench layout is acceptable.
- Schedule a pre-construction meeting with HCHD personnel, the contractor and design consultant (Rob Powell) to be held onsite prior to initiating construction of the system.
- Locate and identify all proposed system components prior to commencing installation.
- Remove trees as necessary for installation of Trench system.
- Excavate and install the trenches, force main and manifold as shown on the approved plans.
- Install the Norweco TINTLP 500 BAT sewage pre-treatment unit, pump chamber, effluent pump and alarm system as shown.
- Seed and straw all disturbed surfaces.
- Conduct pressure test on system, adjusting head pressure so that the pressure at the distal end of the top lateral is as per design plans.
- Call HCHD for start-up inspection.

**CONSTRUCTION SEQUENCE**



**LEGEND**

	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
	RIGHT-OF-WAY BOUNDARY
	BUILDING RESTRICTION LINE
	EXISTING PAVING
	PROPOSED PAVING
	EXISTING BUILDING
	PROPOSED BUILDING
	EXISTING SEPTIC RESERVE AREA
	PROPOSED SEPTIC RESERVE AREA
	EXISTING WELL
	PROPOSED WELL



**VICINITY MAP**  
SCALE: 1"=1000'

**BENCHMARKS**

BM#21M3	ELEV. 588.026
3/4" REBAR SET TRIADELPHIA MILL RD 400' WEST OF ROXBURY RD.	
BM#21A	ELEV. 553.506
GEODETIC SURVEY CONTROL N 577,115.378 E 1,306,507.325	
BM#27BA	ELEV. 520.547
GEODETIC SURVEY CONTROL N 575,669.068 E 1,305,909.005	

*Revise*  
*gjb 7/18/23*

- NOTES:**
- THE MARYLAND DEPARTMENT OF THE ENVIRONMENT HAS APPROVED A VARIANCE TO ALLOW THE SEWAGE DISPOSAL AREA ON LARRO B SCOTT LOT 7 TO BE UPGRADE OF THE WELL AT 14306 ROXBURY LAKE DRIVE PURSUANT TO THE FOLLOWING CONDITIONS: THE ONGOING SEWAGE DISPOSAL SYSTEM (OSDS) ON LOT 7 MUST INCLUDE A BEST AVAILABLE TECHNOLOGY (BAT) UNIT, AND A PRESSURIZED DISTRIBUTION SYSTEM MUST BE EMPLOYED TO DISTRIBUTE THE BAT EFFLUENT. NO OSDS TRENCH ON LOT 7 CAN BE INSTALLED WITHIN 200 FEET OF THE WELL AT 14306 ROXBURY LAKE DRIVE.
  - THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THE AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENT TO THE PRIVATE SEWAGE DISPOSAL AREA, DUE TO SITE LIMITATIONS A SEWAGE DISPOSAL AREA OF 6,500 SF IS BEING PROPOSED BUT THE DESIGNATED AREA CAN STILL MEET THE MINIMUM REQUIREMENTS FOR AN INITIAL AND TWO RESERVE SEPTIC SYSTEMS.
  - THE WELL MUST BE INSTALLED AND THE WELL COMPLETION REPORT APPROVED BY A HEALTH DEPARTMENT ENVIRONMENTAL, SANITARIAN PRIOR TO APPROVAL OF A BUILDING PERMIT FOR THIS LOT, LARRO B SCOTT LOT 7.
  - ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  - THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
  - ALL EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND ALL WELLS THAT ARE 200' DOWN GRADIENT OF THE PROPOSED SEPTIC SYSTEM AND SEWAGE DISPOSAL AREA ARE SHOWN.
  - AN ONSITE SEWAGE DISPOSAL SYSTEM (OSDS) DESIGN PLAN MUST BE SUBMITTED TO THE BUREAU OF ENVIRONMENTAL HEALTH AND APPROVED PRIOR TO HEALTH DEPARTMENT APPROVAL OF A BUILDING PERMIT FOR THIS LOT. THE OSDS DESIGN PLAN CONTENT MUST INCLUDE ILLUSTRATION OF THREE (3) APPROPRIATELY-SIZED DRAINFIELD SYSTEMS WITHIN THE SDA. IF THREE DRAINFIELD SYSTEMS DO NOT FIT WITHIN THE APPROVED SDA, REVISION OF THE AREA MAY BE REQUIRED, OR THE HEALTH DEPARTMENT MAY ALLOW A WAIVER FOR ONLY AN INITIAL SYSTEM AND ONE REPLACEMENT SYSTEM IF A BAT UNIT IS INCLUDED AS A COMPONENT OF THE OSDS.
  - TRENCH LENGTHS FOR A 4 BEDROOM HOUSE ARE THREE 3' WIDE TRENCHES AT 50' LONG.
  - A BAT UNIT IS ALREADY BEING REQUIRED BY CODE THROUGH A VARIANCE, AND THAT THIS BEST AVAILABLE TECHNOLOGY WILL SIGNIFICANTLY AID IN THE PRE-TREATMENT OF ALL SEPTIC WASTE AT THE PROPERTY.

**APPROVED FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEM**

HEALTH OFFICER, HOWARD COUNTY HEALTH DEPT. \_\_\_\_\_ DATE \_\_\_\_\_

NO.	DATE	REVISIONS	BY

**ON-SITE SEWAGE DISPOSAL SYSTEM DESIGN NOTES AND DETAILS**

PROJECT: 14510 TRIADELPHIA ROAD  
GLENELG, MARYLAND 21737  
TAX MAP: 0021, GRID: 0023, PARCEL: 0040  
ZONING: RC-DEO

HOWARD COUNTY, MD 4th ELECTION DISTRICT

ENGINEER: **Development & Design Solutions, LLC**  
Consultants, Engineers and Planners  
3202 Acton Road - Baltimore, Maryland 21234  
Phone: (410)905-0778

DESIGNED:	DMB
DRAWN:	DMB
CHECKED:	JRP
DATE:	JUNE 28, 2023
SCALE:	AS SHOWN
DRAWING NO:	SDS-1
SHEET NO.	1 OF 2

ON-SITE SYSTEM DESIGNER  
ENVIRONMENTAL CONSULTANT:  
JAMES R. POWELL  
42 ROCKWAY ROAD  
CAONSVILLE, MARYLAND 21228  
EMAIL: ropowell781@verizon.net  
PHONE: (443) 900-3169



**SITE GENERAL NOTES**

A. OWNER/DEVELOPER: SELO K MUSA  
7330 FREEBIRD LANE  
ELK RIDGE, MARYLAND 21075  
PHONE: (443) 742-0348

B. PLAN PREPARED BY: DEVELOPMENT & DESIGN SOLUTIONS, LLC.  
3202 ACTON ROAD  
BALTIMORE, MARYLAND 21234  
PHONE: (410) 905-0778

C. SITE LOCATION:  
STREET ADDRESS: 14510 TRIADDELPHIA ROAD  
GLENELG, MD 21737

1. ELECTION DISTRICT: 4th  
2. COUNCIL DISTRICT: 5TH  
3. LEGISLATIVE TRACT: 9A  
4. CONGRESSIONAL DISTRICT: 7  
5. CENSUS TRACT: #6004002  
6. TAX ASSESSMENT DISTRICT: 81  
7. ADC MAP: MAP # 4812, GRID H10  
8. TAX MAP: MAP #0021, GRID 0023, PARCEL 0040  
9. MAJOR WATERSHED: 02131108  
10. TAX ACCOUNT #: 322657  
11. DEED REFERENCE: LIBER 20777, FOLIO 00367  
12. PLAT REFERENCE: (PLATTED) IN 1953 AT PLAT BOOK 4, PAGE 26

D. EXISTING SITE DATA AND ZONING:  
1. GROSS SITE AREA: 57,935± S.F. / 1.33 Ac.±  
EXISTING ZONING: RC-DEO  
EXISTING LAND USE: RURAL COMMUNITY

E. SCHOOL DISTRICT: ELEMENTARY SCHOOL DAYTON OAKS ELEMENTARY SCHOOL  
MIDDLE SCHOOL FOLLY QUARTER MIDDLE SCHOOL  
HIGH SCHOOL GLENELG HIGH SCHOOL

F. EXISTING SITE INFORMATION:  
1. TOPOGRAPHIC AND BOUNDARY SURVEY SHOWN ON THIS PLAN IS BASED ON FIELD-RUN SURVEY ON JUNE 30, 2021 AS PREPARED BY DIETZ SURVEYING COMPANY AND IS BASED ON THE MARYLAND STATE COORDINATE SYSTEM FOR HORIZONTAL - NAD 83/91 AND VERTICAL - NAVD88.  
2. SOILS INFORMATION WAS TAKEN FROM THE USDA SOIL SURVEY OF HOWARD COUNTY, MARYLAND.  
3. THERE ARE NO KNOWN WETLANDS, CRITICAL AREAS, ARCHEOLOGICAL SITES, ENDANGERED SPECIES, HABITATS OR HAZARDOUS MATERIALS ASSOCIATED WITH THIS PROPERTY.  
4. THERE ARE NO KNOWN UNDERGROUND STORAGE TANKS ON SITE.  
5. THERE ARE NO STEEP SLOPES ASSOCIATED WITH THE DEVELOPMENT OF THIS SITE.  
6. THIS PROPERTY IS NOT ASSOCIATED WITH THE CHESAPEAKE BAY CRITICAL AREA (CBCA).  
7. THERE ARE NO FLOODPLAINS ASSOCIATED WITH THIS SITE IN ACCORDANCE WITH THE FEMA FLOODPLAIN MAP #2402700450, DATED 11/06/2013.

G. PROPOSED DEVELOPMENT INFORMATION:  
PROPOSED DEVELOPMENT: SINGLE RESIDENTIAL LOT

SOILS CHART			
MAP SYMBOL	MAPPING UNIT	DRAINAGE	HYDROLOGIC SOIL GROUP
Mac	Manor Loom	Hell drained	B
EgB	Glenelg Loom	Hell drained	B

**TRENCH DESIGN CALCULATIONS FOR INITIAL SYSTEM AND TWO FUTURE REPAIR SYSTEMS**

**INSTALLATION SYSTEM**

- The proposed dwelling will have four bedrooms and an advanced sewage pre-treatment unit (i.e.: BAT) will be utilized. A Norweco TINTLP 500 pre-treatment unit has been selected to be installed.
- The soil application rate (based on soil percolation infiltration tests) will be 1.2 gal./sq. ft./day and the effective sidewall area will start at 3' and extend to the bottom of the trenches (8'). Trenches will be 3' wide. Amount of vertical effective area is 3'. Trench separation will be 12' edge to edge minimum (13' on center).
- Calculations for trench length:
  - 4 bedrooms x 150 gal./bedroom/day 600 gpd
  - 600 gpd ÷ 1.2 gal./sq. ft./day soil application rate = 500 sq. ft. effective area
  - 500 sq. ft. effective area ÷ 3' wide trenches = 167 shallow 3' wide trenches
  - 167 shallow trench x deep trench conversion factor:  $W + 2 + W + 1 + 2D - 3 + 2 + 3 + 1 + 6 - 5 = 84'$  of 3' wide, 8' deep trenches total.
- However, the Percolation Certification Plan notes that the trench design will consist of three trenches, each trench 3' wide and 50' long. Consequently, the design of the trench system for the installation will be three trenches (TRENCHES 1, 2 AND 3), each trench to be 3' wide, 8' deep, 50' long. The trenches will be pressure dosed and depth of the lateral pipe invert will be variable for each trench. Consult Profile Plans for Trenches 1, 2 and 3.

**FIRST REPLACEMENT SYSTEM**

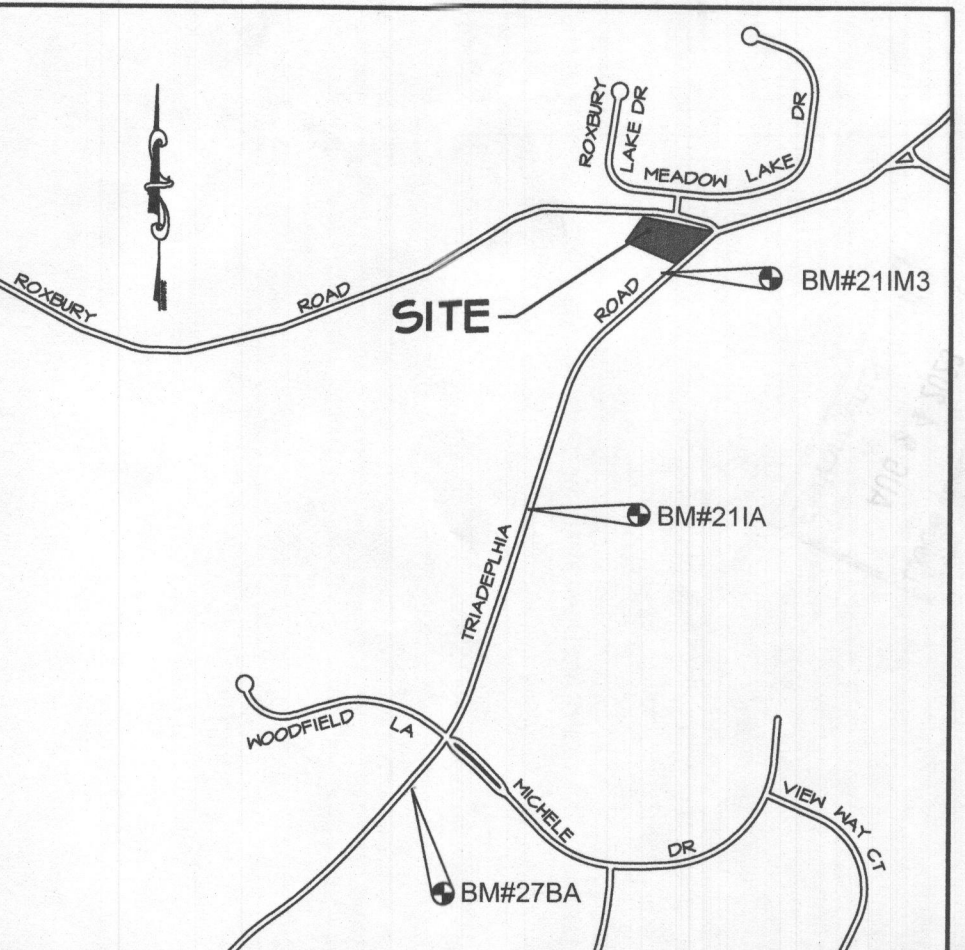
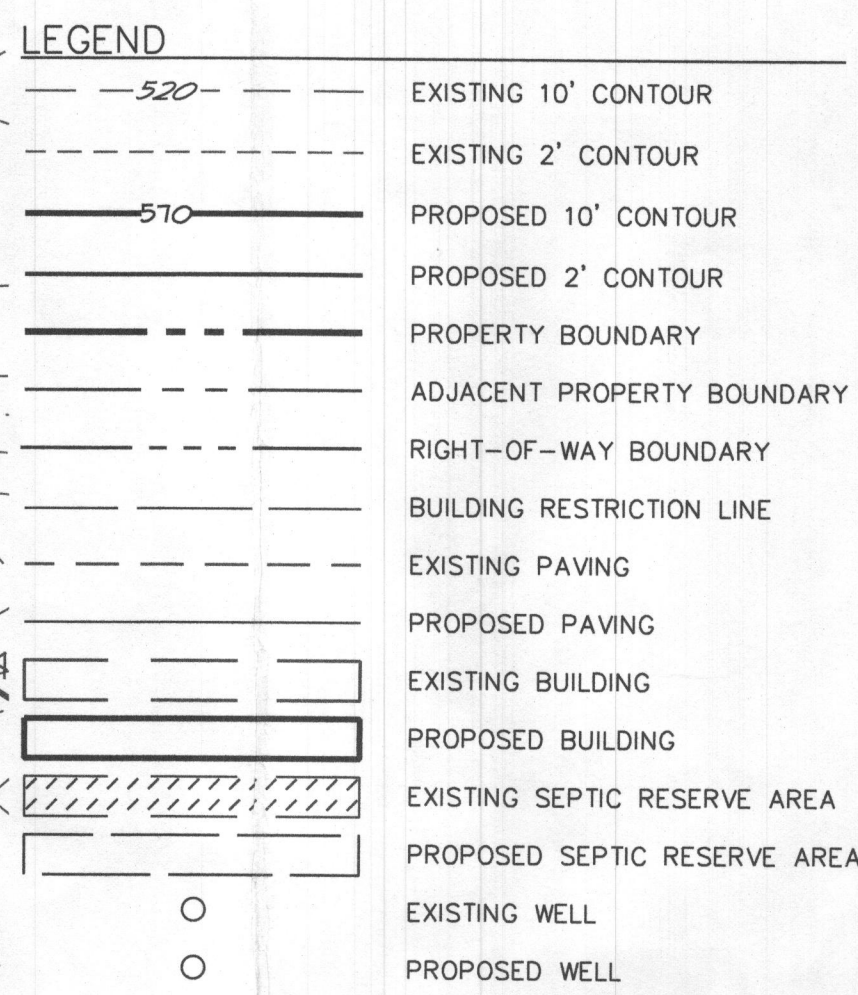
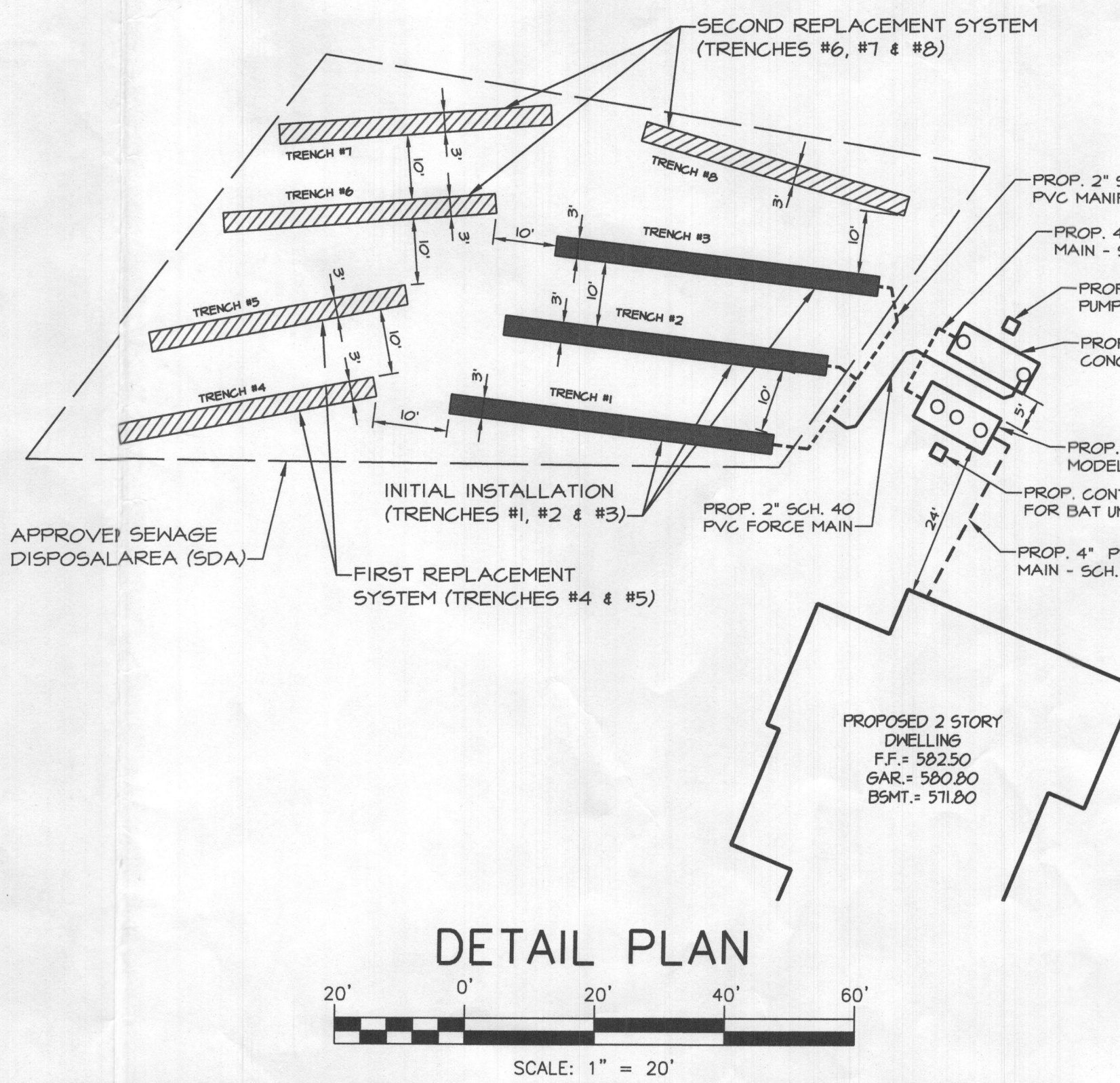
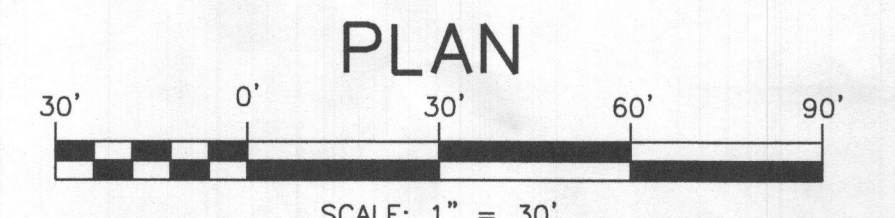
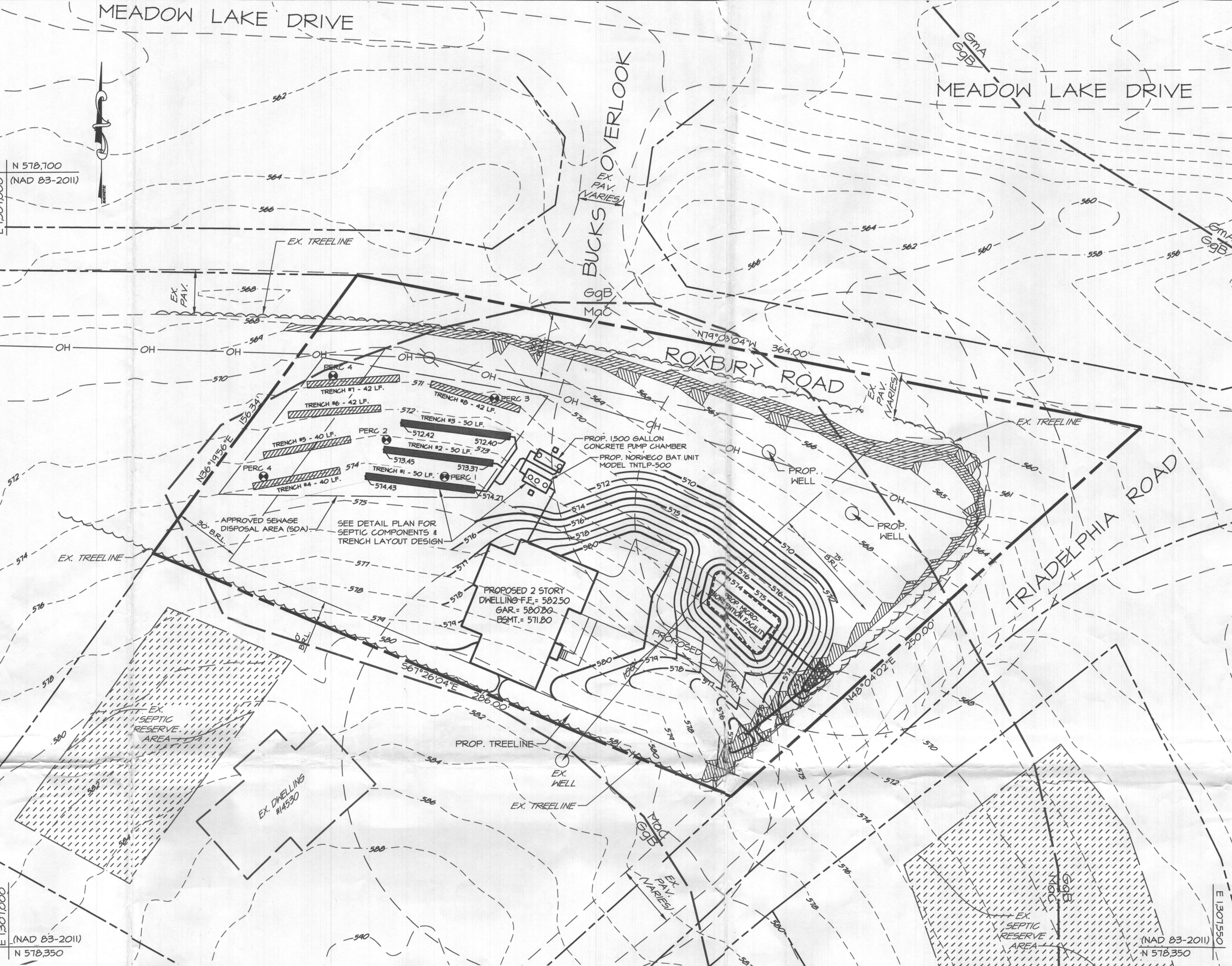
- The proposed dwelling will have four bedrooms and an advanced sewage pre-treatment unit (i.e.: BAT) will be utilized.
- The soil application rate (based on soil percolation infiltration tests) will be 1.2 gal./sq. ft./day and the effective sidewall area will start at 3' and extend to the bottom of the trenches (8'). Trenches will be 3' wide. Amount of vertical effective area is 4.5'.
- Calculations for trench length:
  - 4 bedrooms x 150 gal./bedroom/day 600 gpd
  - 600 gpd ÷ 1.2 gal./sq. ft./day soil application rate = 500 sq. ft. effective area
  - 500 sq. ft. effective area ÷ 3' wide trenches = 167 shallow 3' wide trenches
  - 167 shallow trench x deep trench conversion factor:  $W + 2 + W + 1 + 2D - 3 + 2 + 3 + 1 + 9 - 385 = 65'$  of 3' wide, 8' deep trenches total.
- There is sufficient room for three trenches totaling 120' (Trenches 4, 5 and 6 will be 42' each. Each trench will be 3' wide, 8' deep, 42' long. The trenches will be pressure dosed and the lateral pipe invert will be 2' below grade, with 6' of stone below the lateral piping.

**CONSTRUCTION SEQUENCE**

- Contact Howard County Health Department (HCHD) prior to construction to verify trench layout is acceptable.
- Schedule a pre-construction meeting with HCHD personnel, the contractor and design consultant (Rob Powell) to be held onsite prior to initiating construction of the system.
- Locate and identify all proposed system components prior to commencing installation.
- Remove trees as necessary for installation of Trench system.
- Excavate and install the trenches, force main and manifold as shown on the approved plans.
- Install the Norweco TINTLP 500 BAT sewage pre-treatment unit, pump chamber, effluent pump and alarm system as shown.
- Seed and straw all disturbed surfaces.
- Conduct pressure test on system, adjusting head pressure so that the pressure at the distal end of the top lateral is as per design plans.
- Call HCHD for start-up inspection.

**NOTES:**

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER MANUFACTURER'S SPECIFICATIONS IS THREE (3) FEET.
- THERE IS NO BLOWER ON THE NORWECO S00TNT BAT UNIT.
- THE BATSYSTEM SHALL BE MAINTAINED AND OPERATED FOR LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.



**BENCHMARKS**

BM#211M3	ELEV. 588.026
3/4" REBAR SET TRIADDELPHIA MILL RD 400' WEST OF ROXBURY RD.	
BM#211A	ELEV. 553.506
GEODETIC SURVEY CONTROL	
N 577,115.378 E 1,306,507.325	
BM#27BA	ELEV. 520.547
GEODETIC SURVEY CONTROL	
N 575,669.068 E 1,305,909.005	

- NOTES:**
- THE MARYLAND DEPARTMENT OF THE ENVIRONMENT HAS APPROVED A VARIANCE TO ALLOW THE SEWAGE DISPOSAL AREA ON LAIRD B SCOTT LOT 7 TO BE UPGRADE OF THE WELL AT 14306 ROXBURY LAKE DRIVE PURSUANT TO THE FOLLOWING CONDITIONS: THE ONSITE SEWAGE DISPOSAL SYSTEM (OSDS) ON LOT 7 MUST INCLUDE A BEST AVAILABLE TECHNOLOGY (BAT) UNIT, AND A PRESSURIZED DISTRIBUTION SYSTEM MUST BE EMPLOYED TO DISTRIBUTE THE BAT EFFLUENT. NO OSDS TRENCH ON LOT 7 CAN BE INSTALLED WITHIN 200 FEET OF THE WELL AT 14306 ROXBURY LAKE DRIVE.
  - THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THE AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENT TO THE PRIVATE SEWAGE DISPOSAL AREA. DUE TO SITE LIMITATIONS A SEWAGE DISPOSAL AREA OF 6,600 SF IS BEING PROPOSED BUT THE DESIGNATED AREA CAN STILL MEET THE MINIMUM REQUIREMENTS FOR AN INITIAL AND TWO RESERVE SYSTEMS.
  - THE WELL MUST BE INSTALLED AND THE WELL COMPLETION REPORT APPROVED BY A HEALTH DEPARTMENT ENVIRONMENTAL SANITARIAN PRIOR TO APPROVAL OF A BUILDING PERMIT FOR THIS LOT. LAIRD B SCOTT LOT 7.
  - ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  - THE LOT SHOWN HEREIN COMPLIES WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
  - ALL EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND ALL WELLS THAT ARE 200' DOWN GRADIENT OF THE PROPOSED SEPTIC SYSTEM AND SEWAGE DISPOSAL AREA ARE SHOWN.
  - AN ONSITE SEWAGE DISPOSAL SYSTEM (OSDS) DESIGN PLAN MUST BE SUBMITTED TO THE BUREAU OF ENVIRONMENTAL HEALTH AND APPROVED PRIOR TO HEALTH DEPARTMENT APPROVAL OF A BUILDING PERMIT FOR THIS LOT. THE OSDS DESIGN PLAN CONTENT MUST INCLUDE ILLUSTRATION OF THREE (3) APPROPRIATELY-SIZED DRAINFIELD SYSTEMS WITHIN THE SDA. IF THREE DRAINFIELD SYSTEMS DO NOT FIT WITHIN THE APPROVED SDA, REDUCTION OF THE AREA MAY BE REQUIRED, OR THE HEALTH DEPARTMENT MAY ALLOW A WAIVER FOR ONLY AN INITIAL SYSTEM AND ONE REPLACEMENT SYSTEM IF A BAT UNIT IS INCLUDED AS A COMPONENT OF THE OSDS.
  - TRENCH LENGTHS FOR A 4 BEDROOM HOUSE ARE: THREE 3' WIDE TRENCHES AT 50' LONG.
  - A BAT UNIT IS ALREADY BEING REQUIRED BY MDE THROUGH A VARIANCE, AND THAT THIS BEST AVAILABLE TECHNOLOGY WILL SIGNIFICANTLY AD IN THE PRE-TREATMENT OF ALL SEPTIC WASTE AT THE PROPERTY.

Approved Septic System Plan  
Howard County Health Department  
Date: 7/6/23  
Signature: [Signature]

NO.	DATE	REVISIONS	BY

**DRAWING: ON-SITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

**PROJECT: 14510 TRIADDELPHIA ROAD**  
GLENELG, MARYLAND 21737  
TAX MAP: 0021, GRID: 0023, PARCEL: 0040  
ZONING: RC-DEO

HOWARD COUNTY, MD 4th ELECTION DISTRICT

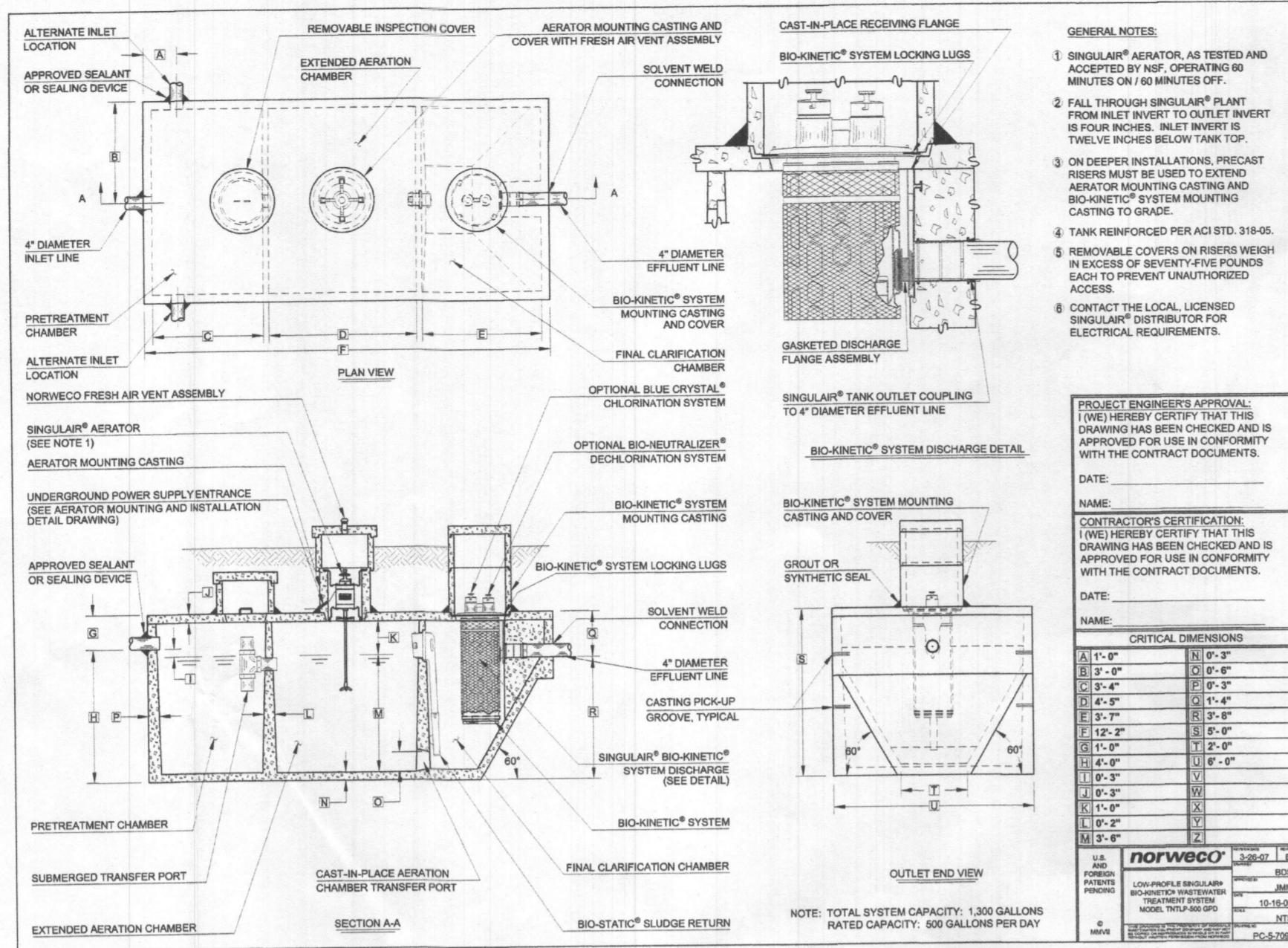
**ENGINEER: Development & Design Solutions, LLC**  
Consultants, Engineers and Planners  
3202 Acton Road - Baltimore, Maryland 21234  
Phone: (410)905-0778

DESIGNED:	DMB
DRAWN:	DMB
CHECKED:	JRP
DATE:	AUGUST 22, 2023
SCALE:	AS SHOWN
DRAWING NO:	SDS-1
SHEET NO.:	1 of 2

Aug. 24, 2023  
James R. Powell  
(N-SITE SYSTEM DESIGNER ENVIRONMENTAL CONSULTANT)  
JAMES R. POWELL  
421 ROCKWAY ROAD  
CATONSVILLE, MARYLAND 21228  
EMAIL: robpowell781@verizon.net  
PHONE: (443) 900-3169

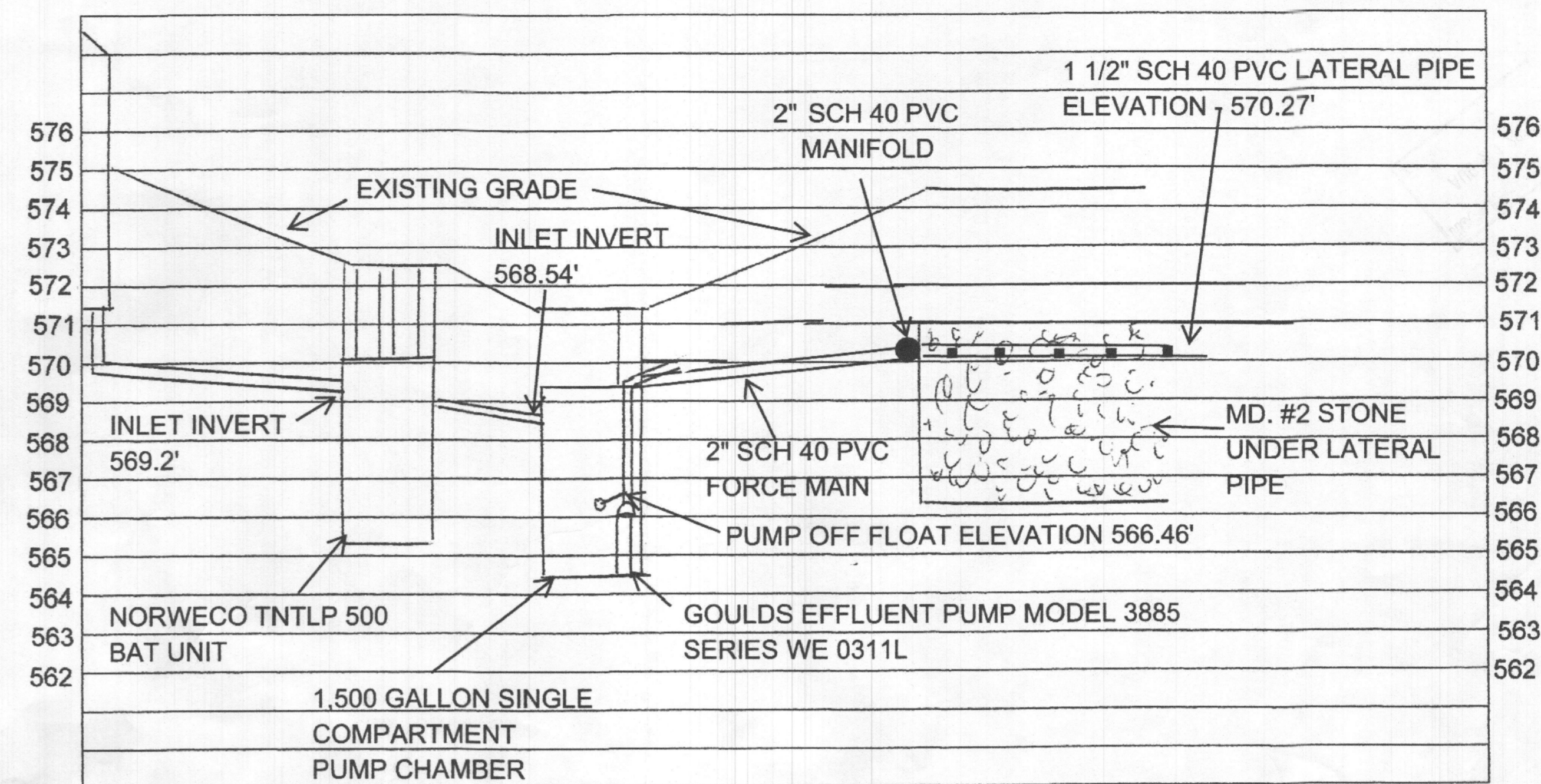
**TOTAL DYNAMIC HEAD CALCULATIONS**

- Existing grade at the proposed Norweco TNTLP 500 BAT unit will be 572.5'. The inlet elevation will be 569.2' and the top of the tank will be 570.2' (2.3' cover). The outlet invert will be 568.87'.
- Existing grade at the pump chamber is 571.5', inlet into tank will be 568.54' and the top of the chamber will be 569.37'; providing 2.13' cover.
- Pump off float will be 22" above the bottom of the pump chamber (25" below inlet invert). Consequently, the pump off float elevation is 566.46'.
- Existing grade at the highest trench (Trench 1) is 574.27' and the lateral piping will be 48" below grade; consequently, the distribution lateral will be at elevation 570.27'.
- Consequently, the static head is 3.81'.
- Design head of the top lateral (Lateral 1) system will be 3', as measured at the distal end of the lateral piping.
- Friction loss
  - Length of force main - 2" schedule 40 pipe - 36'
  - Equivalent length of fittings
    - 2 ea. 90° ells - 7' ea. - 14'
    - 2 ea. 45° ells - 4' ea. - 8'
    - 1 tee - 10'
  - Total equivalent pipe length - 32'
  - Total length of pipe - 68'
  - Friction loss for 2" schedule 40 plastic pipe with a flow of 34.32 gpm is 2.12'/100' length of pipe. Consequently, pipe friction loss is 1.44'
- Total Dynamic Head is therefore 3.81' + 3' + 1.44' = 8.25'
- Pump must be able to deliver a minimum of 34.32 gpm at a TDH of 8.25'
- Selected Goulds submersible effluent pump Model 3885, series WE0311L, 1/3 Hp, single phase, 115 volts.
- System Operational Curve
  - Using a 4.0' design head yields 36.24 gpm at 9.41' of TDH.
  - Using a 5.0' design head yields 40.40 gpm at 10.75' TDH.
  - The system operational point is estimated to be 55 gpm at 14' TDH.
  - The gate valve in the manhole riser on the pump chamber will be adjusted to provide 3.0' of design head at the distal end of the top lateral, providing a flow of 34.32 gpm. Estimated pump run time to provide 143.6 gallon dose is 4.18 minutes.



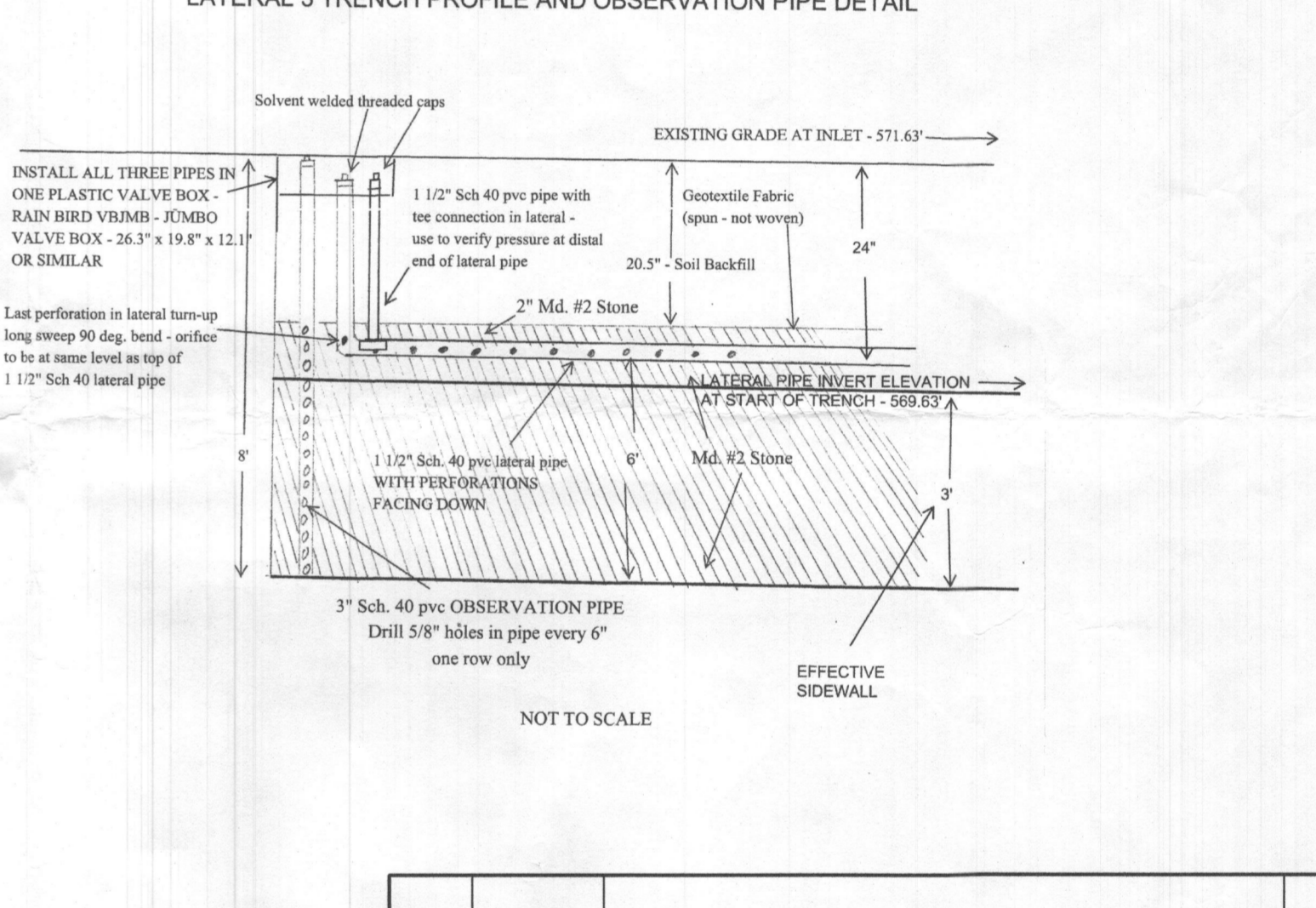
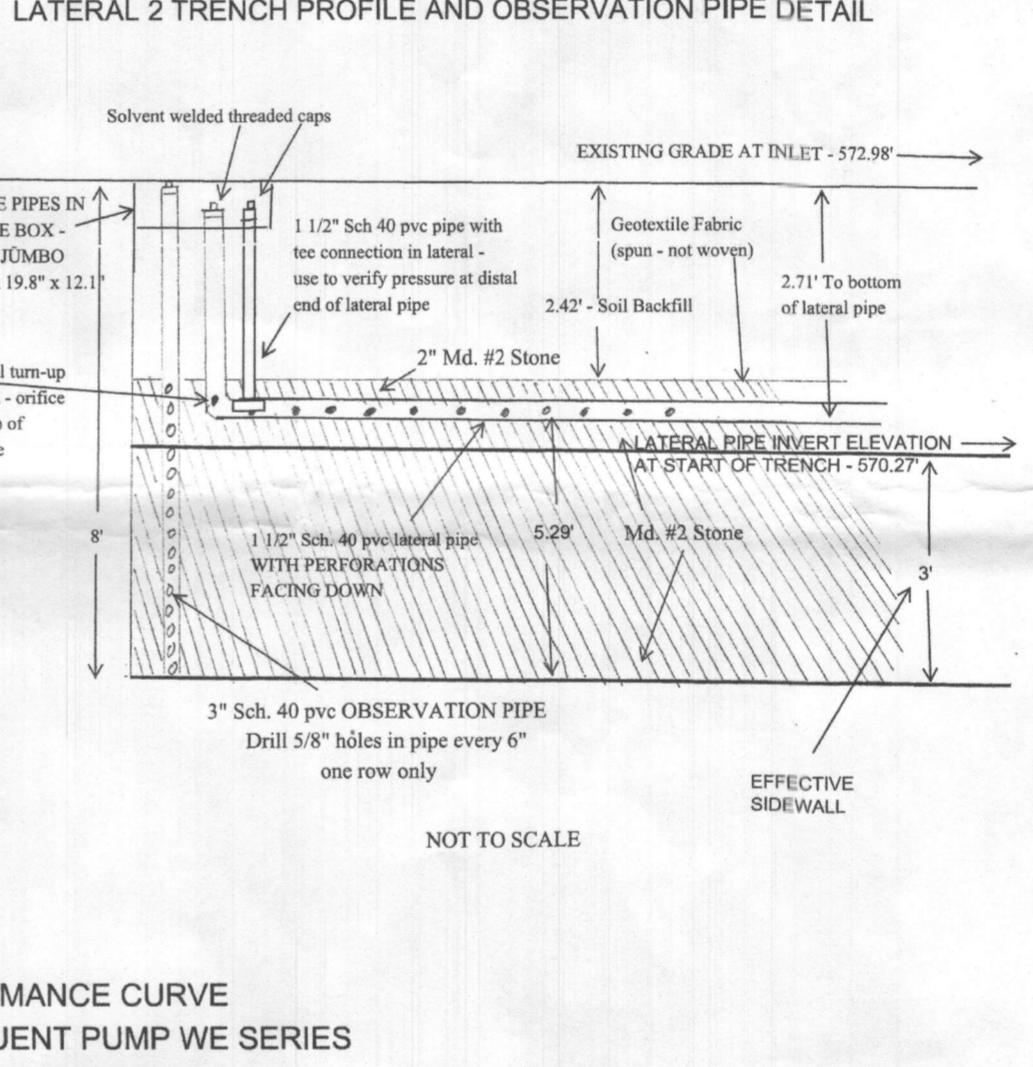
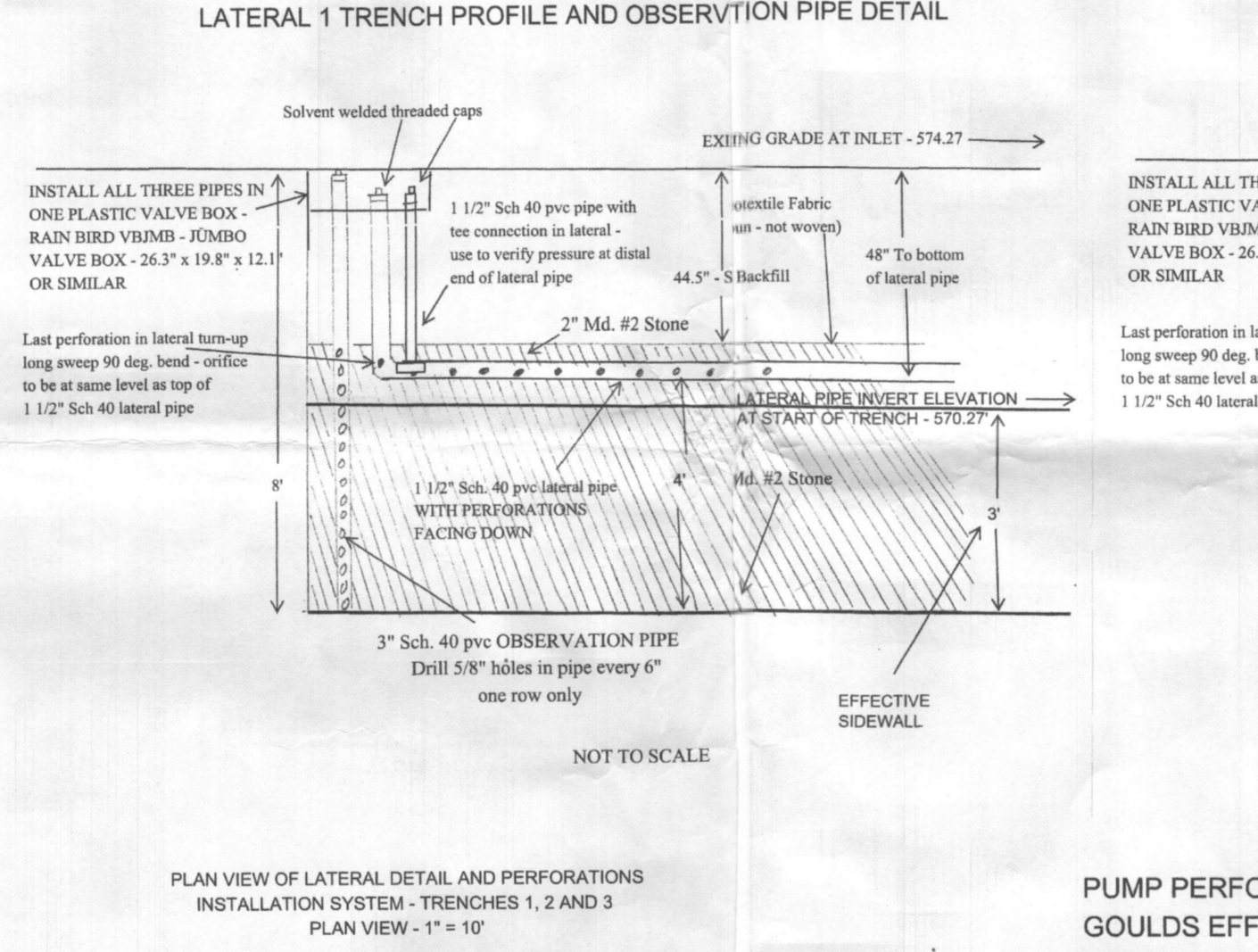
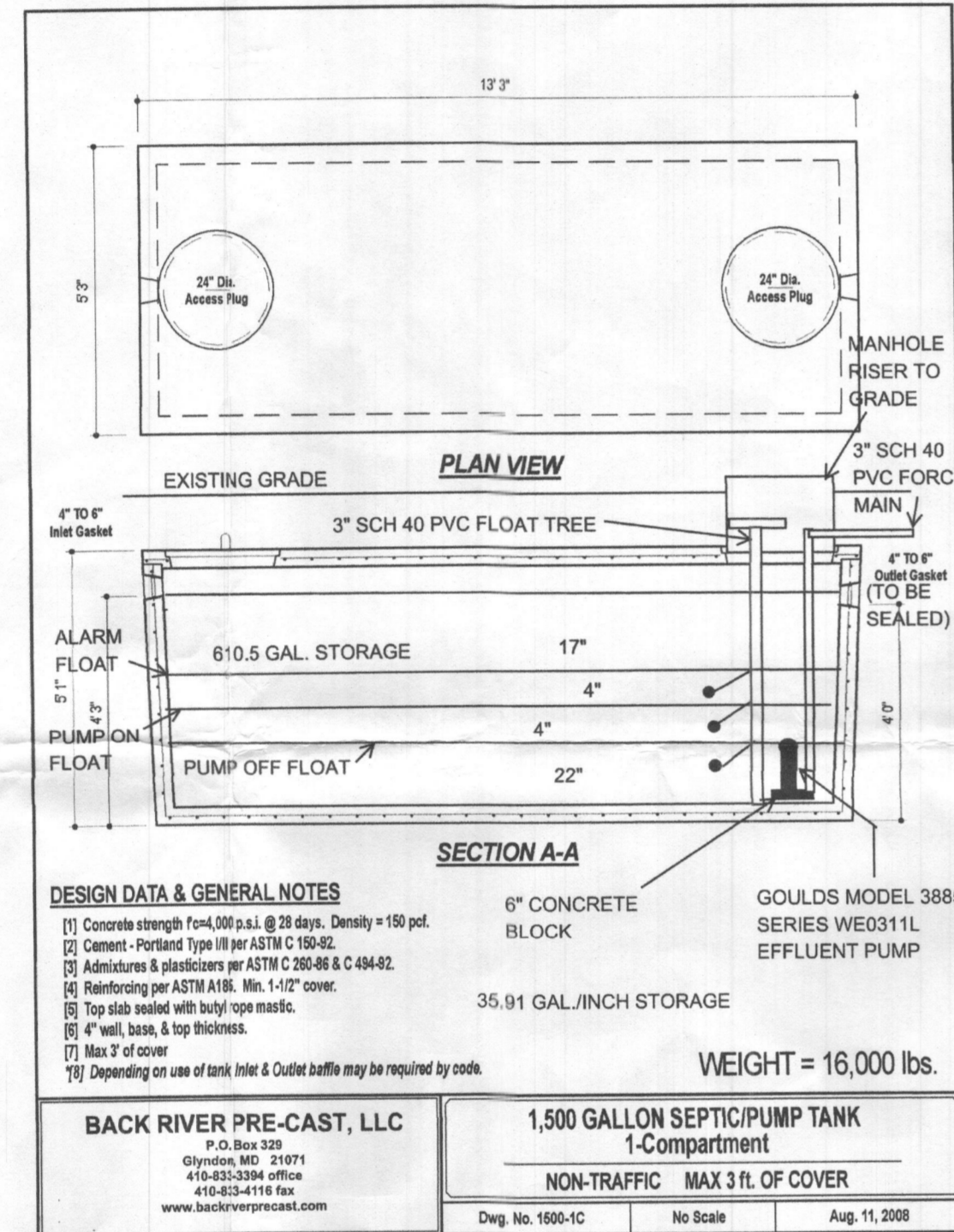
**PRESSURE DISTRIBUTION ON SLOPING SITS INSTALLATION SYSTEM**

TRENCH	LATERAL PIPE SURFACE ELEV.	GROUND SURFACE ELEV.	COVER ON LATERAL PIPE	HEAD PRESSURE	PERF. DIAMETER	GPM PER PERF.	PERF. SPACING	# OF PERF.	FLOW PER TRENCH
Trench 1	570.27	574.27	4	3	1/4"	1.28	6.25	8	11.52
Trench 2	570.27	572.98	2.71	3	1/4"	1.28	6.25	8	11.52
Trench 3	569.63	571.63	2	3.64	1/4"	1.41	6.25	8	11.28
									TOTAL: 34.32



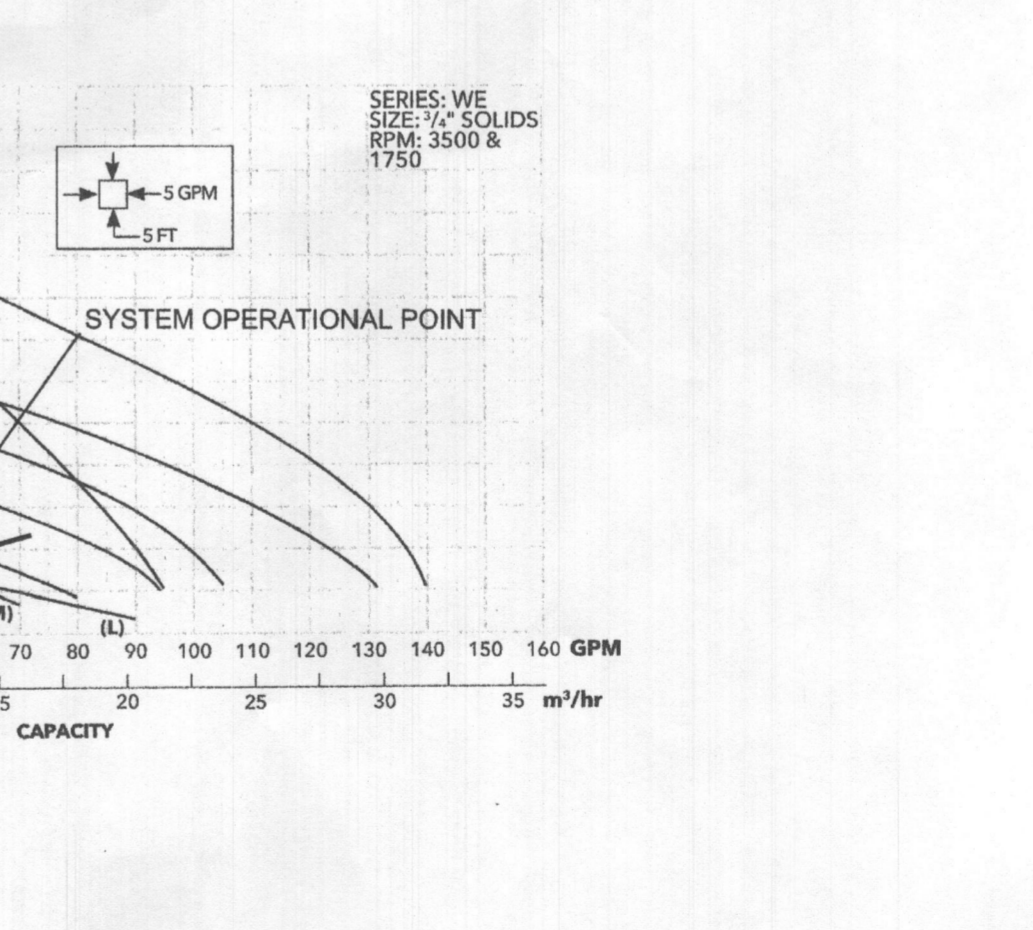
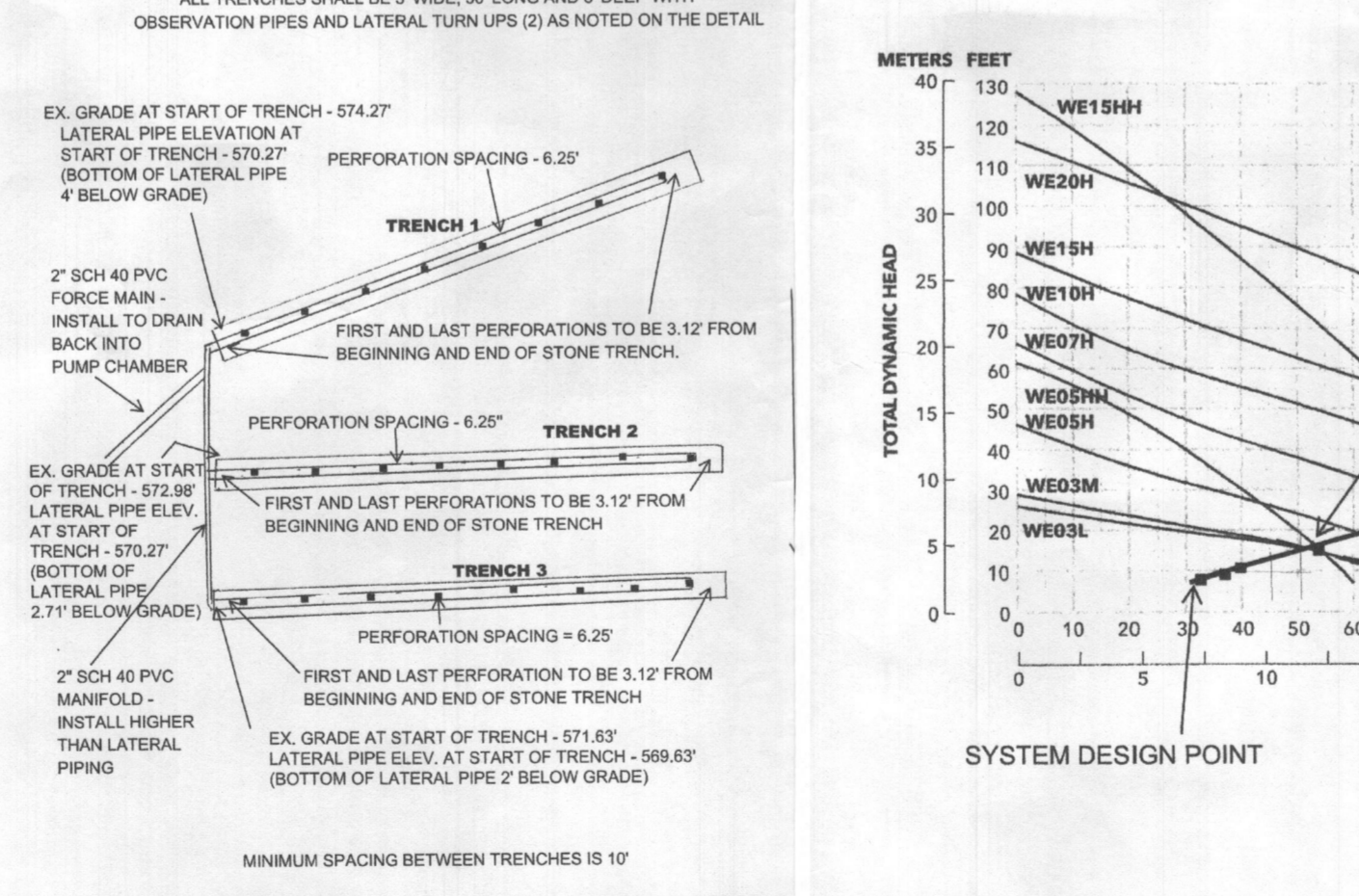
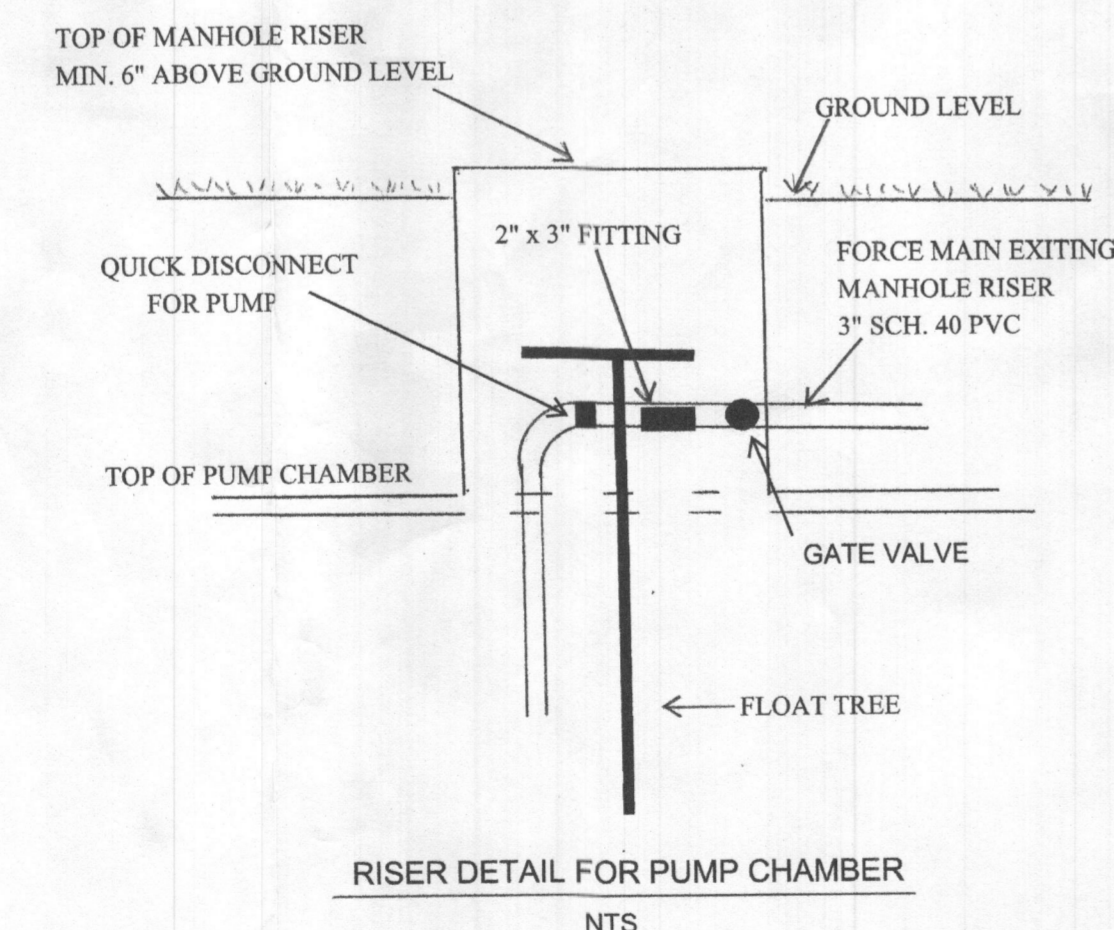
**CONTROL PANEL INFORMATION AND DOSE CALCULATIONS**

- Control panel will be an SJE Rhombus Installer Friendly Series (IFS), simplex pump, single phase, 115-volt, demand dose. The panel will include an event counter and an elapsed time meter for the pump run. Float system must include: Pump Off, Pump On and High-Water Alarm.
- The high-water alarm must be on a separate electrical circuit.
- Install quick disconnect for the pump (Goulds series 3885 WE 0311L, 1/3 Hp, single phase, 115 volts)
- Dose Calculations
  - Dose = volume of force main + volume of manifold + 5 x volume of laterals
  - Force main (36') and manifold (30') - 2" Sch. 40 pvc pipe - 17.4 gal. storage/100 ft. of pipe
  - Lateral - 1 1/2" Sch. 40 pvc pipe - 10.6 gal. storage/100 ft. of pipe
  - Dose = (36' x 100) x (17.4 gal/100') + (30' x 100') x (17.4 gal/100') + (140.5' x 100) x (10.6 gal/100') x 5
  - Minimum Dose = 6.26 + 5.22 + 74.47 = 85.95 gal./dose event (minimum)
  - A dose volume of 143.6 gallons was selected.
  - Subtract volume in force main draining back to pump chamber - trenches will receive 143.6 gal - 6.26 gal (storage in force main) = 137.3 gal. delivered to trenches each dose.
- The pump chamber is a single compartment, 1,500-gallon concrete tank, manufactured by Back River Precast.
  - Storage calculations - Inside dimensions of tank - 4.58' x 12.58' x 7.48 gal./cu. ft. = 430.97 gal./ft. of sewage in tank
  - 430.97 gal./ft. of sewage in tank + 12" = 35.91 gal./inch storage
  - Pump off float - 22" off bottom of tank
  - Pump on float - 26" off bottom of tank
  - Alarm on float - 30" off bottom of tank
- Storage capacity above the high-water alarm float
  - There is 17" of storage in the pump chamber between the high-water alarm float and the inlet invert. Using the calculation above there is 35.91 gal./inch of storage in the tank - providing 610.5 gal. storage.



**VARIABLE HEAD LPD and TRENCH SPECIFICATIONS INSTALLATION SYSTEM**

- LATERAL 1 - total stone trench length - 50'
  - Perforation diameter - 1/4"
  - End feed manifold
  - 8 perforations
  - Perforation spacing - 6.25' (6' 3")
  - Lateral diameter - 1 1/2" Sch. 40 pvc pipe
  - Distance from start of stone trench to first perforation - 3.12' (3' 1 1/2")
  - Distance from the last perforation (at lateral turn-up) to end of stone trench - 3.12' (3' 1 1/2")
  - Total length of lateral pipe - 46.88' (46' 10 1/2")
- LATERAL 2 - total stone trench length - 50'
  - Perforation diameter - 3/8"
  - End feed manifold
  - 8 perforations
  - Perforation spacing - 6.25' (6' 3")
  - Lateral diameter - 1 1/2" Sch. 40 pvc pipe
  - Distance from start of stone trench to first perforation - 3.12' (3' 1 1/2")
  - Distance from the last perforation (at lateral turn-up) to end of stone trench - 3.12' (3' 1 1/2")
  - Total length of lateral pipe - 46.88' (46' 10 1/2")
- LATERAL 3 - total stone trench length - 50'
  - Perforation diameter - 3/8"
  - End feed manifold
  - 8 perforations
  - Perforation spacing - 6.25'
  - Lateral diameter - 1 1/2" Sch. 40 pvc pipe
  - Distance from start of stone trench to first perforation - 3.12' (3' 1 1/2")
  - Distance from the last perforation (at lateral turn-up) to end of stone trench - 3.12' (3' 1 1/2")
  - Total length of lateral pipe - 46.88' (46' 10 1/2")



NO.	DATE	REVISIONS	BY
DRAWING:			
<b>ON-SITE SEWAGE DISPOSAL SYSTEM DESIGN NOTES AND DETAILS</b>			
PROJECT:			
<b>14510 TRIADELPHIA ROAD</b> GLENELG, MARYLAND 21737 TAX MAP: 0021, GRID: 0023, PARCEL: 0040 ZONING: RC-DEO			
HOWARD COUNTY, MD		4th ELECTION DISTRICT	
ENGINEER:			
<b>Development &amp; Design Solutions, LLC</b> Consultants, Engineers and Planners 3202 Acton Road - Baltimore, Maryland 21234 Phone: (410)905-0778			
DESIGNED:	DMB		
DRAWN:	DMB		
CHECKED:	JRP		
DATE:	AUGUST 22, 2023		
SCALE:	AS SHOWN		
DRAWING NO:	SHEET NO.		
SDS-2	2 OF 2		

~~no soil cuts~~

trench 3 is 85% of trench 1  
flow rate

~~why disc go much over 100 gpd  
which is 1/6 design flow?~~

- recommend putting trench 1 <sup>invert</sup> deeper to  
lessen elevation differences b/t  
trenches

## Silvast, Zackary

---

**From:** Dan Blevins <dblevins@dev-designsolutions.com>  
**Sent:** Wednesday, August 9, 2023 2:32 PM  
**To:** Silvast, Zackary; Williams, Jeffrey  
**Cc:** Selo Musa; James Powell  
**Subject:** FW: regarding 14510 Triadelphia Road revision comments

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Zack,

We have a couple of questions/comments regarding your review of the lpd design proposal as below. We have tried to reach out to you and hope we can receive your response shortly so we can resubmit for approval.

**From:** James Powell <robpowell781@verizon.net>  
**Sent:** Saturday, July 29, 2023 9:52 AM  
**To:** Dan Blevins <dblevins@dev-designsolutions.com>  
**Subject:** Re: regarding 14510 Triadelphia Road revision comments

Zack,

I have a couple of questions/comments regarding your review of the lpd design proposal.

1. The topography shown was field run to 1' but the layout shown was shot with use of a laser level and the start and ending of each trench in the installation area was adjusted to be within 0.2' of each other. The topography in the installation area will be adjusted to reflect the laser elevation shots. SAM - YOU WILL NEED TO REVISE THE CONTOURS ACCORDINGLY IN THE INSTALLATION AREA

c. There is only one trench that is not straight (#6) and it will be straightened out. Trenches lengths were revised to be the same length for each repair installation. SAM - I AM ATTACHING THE REVISED DESIGN OF THE SYSTEM TO BE PLACED ON THE PLAN IN PLACE OF WHAT IS CURRENTLY SHOWN. PLEASE REVISE THE TRENCH LENGTHS ACCORDINGLY FOR EACH OF THE REPAIR SYSTEMS AND STRAIGHTEN OUT TRENCH # 6.

3. The flow per lateral must be within 10% of any two laterals. ((July 3, 2014 Draft of Basic LPD Design). If I use 5/16" perforations for all three laterals, in order to keep the flow for each lateral within 10% of each other, the orifice spacing for Trench 2 will be 8.33' and the orifice spacing for Trench #3 will be at 10'. The draft LPD draft design document noted above permits orifice spacing between 2' and 10'. Using the same size orifices would provide a flow rate of 2.09 gpm for Trench #2 as it is 1.29' lower than Trench #1; consequently the head pressure and hence the flow rate would be greater. Trench #3 would have an orifice flow rate of 2.48 gpm due to it being 2.64' lower than Trench #1. Also, the design draft document noted above permits use of 1/4" orifices when a BAT unit is employed and the head pressure is greater than 3'; both of which apply here.

4. The Draft LPD Design document noted above permits orifice spacing between 2' and 10'. I generally try not to design systems with spacing greater than 8 - 9' for deep trench systems and less than 5' spacing for shallower systems say at 3' - 4' in depth. The design shown lies well within the

guidelines noted in the above document. Is there another design document Howard County is using for LPD design that I am not aware of? Please advise.

5. To design the flow with 100 gallons being delivered to the trenches provides for a difference in elevation of 2.75" between the pump off and pump on float. Floats can lose accuracy over their working lifespan and a difference in even one inch from what was originally designed would increase (or decrease) the flow by 36%. Using a 4" float separation distance (as shown) would provide for a greater buffer in case the float accuracy changes by even an inch (ie: 25% less flow for a dose of 143.6 gallons would send 101.44 gallons to the trenches/dose). Whereas using a dose flow of 100 gallons with 25% less flow would send 75 gallons to the trenches - which is less than necessary to fully charge the lateral piping. I strongly recommend using the dose flow shown.

6. Not sure what you are referring to. The "Trench Profile and Observation Pipe Detail" depicted on Sheet 2 would seem to provide the information you are requesting. Is there more information that needs to be added?

7. Trench 1- existing grade at inlet - 574.27' existing grade at end - 574.43'

Trench 2 - existing grade at inlet - 573.37' existing grade at end - 573.45'

Trench 3 - existing grade at inlet - 572.40 existing grade at end - 572.42'

SAM - PLEASE NOTE THESE ELEVATIONS ON THE PLAN VIEW OF TRENCHES

8 AND 9 - SAM - CAN YOU HANDLE THESE?

CALL ME IF YOU HAVE ANY QUESTIONS. YOU WILL NEED TO PREPARE THE DOCUMENT FOR OUR RESPONSE TO ZACK'S REVIEW COMMENTS

ROB

On Thursday, July 27, 2023 at 03:00:14 PM EDT, Silvast, Zackary <[zsilvast@howardcountymd.gov](mailto:zsilvast@howardcountymd.gov)> wrote:

To Whom It May Concern,

I have thoroughly reviewed your LPD/BAT OSDS Plan for 14510 Triadelphia Road and I have the following revision comments that need to addressed. (see below)

1. **Trenches for the initial septic system should be on contour and parallel with each other.**
  - a. **You could tilt trench #1 down on the left end, and re-adjust trench #2 and #3 by moving the right end down.**
  - b. **Want the trenches to be straight as possible.**
  - c. **There is not an issue of space, so we should keep all the trenches as straight as possible and the same length.**
  
2. **Maybe all the trenches should be 42' in length. That is still larger than what is required and may help with design.**

3. **The perforation diameter should stay the same through all systems and trenches.**
  - a. **Use 5/16”.**
  - b. **GPM Per Perforation rate should be 1.63 across the board.**
  
4. **Typical lateral perforation spacing, which makes the install a lot smoother, is usually constructed between 3.5’ – 5’.**
  - a. **Right now, I think we’re too large.**
  
5. **One dose is 1/6<sup>th</sup> the GPD (600 in this instance) and your calculations have come out to 30-35 Gallon flow required for how the laterals are designed right now. Yet we are sending 135-145 gallons to the system. This seems high for not a huge jump in elevation or distance.**
  
6. **Need a lateral trench detail/drawing showing a plane view of the trench wall.**
  - a. **A trench dissection showing lateral depth, depth of stone, earth cover, effective depth. (all properly labeled)**
  
7. **Need to show end to end topographic elevation points.**
  
8. **Need BAT O&M note.**
  
9. **Remove Health Officer Signature block. Only required for Perc Certs.**

We look forward to your resubmittal. Thank you.

- ZS

**Zack Silvast (LEHS)**

*Plan Review Supervisor - Water & Sewer Division*

410-313-1777

## Silvast, Zackary

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**From:** Silvast, Zackary  
**Sent:** Thursday, July 27, 2023 3:00 PM  
**To:** James Powell  
**Cc:** Williams, Jeffrey; wsolani@gmail.com; skinmusa1@yahoo.com  
**Subject:** regarding 14510 Triadelphia Road revision comments

To Whom It May Concern,

I have thoroughly reviewed your LPD/BAT OSDS Plan for 14510 Triadelphia Road and I have the following revision comments that need to be addressed. (see below)

1. Trenches for the initial septic system should be on contour and parallel with each other.
  - a. You could tilt trench #1 down on the left end, and re-adjust trench #2 and #3 by moving the right end down.
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  - c. There is not an issue of space, so we should keep all the trenches as straight as possible and the same length.
2. Maybe all the trenches should be 42' in length. That is still larger than what is required and may help with design.
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  - a. Use 5/16".
  - b. GPM Per Perforation rate should be 1.63 across the board.
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  - a. Right now, I think we're too large.
5. One dose is 1/6<sup>th</sup> the GPD (600 in this instance) and your calculations have come out to 30-35 Gallon flow required for how the laterals are designed right now. Yet we are sending 135-145 gallons to the system. This seems high for not a huge jump in elevation or distance.
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7. Need to show end to end topographic elevation points.
8. Need BAT O&M note.
9. Remove Health Officer Signature block. Only required for Perc Certs.

We look forward to your resubmittal. Thank you.

- ZS

**Zack Silvast (LEHS)**

*Plan Review Supervisor - Water & Sewer Division*

**410-313-1777**

Environmental Health Bureau

Howard County Health Department

## Williams, Jeffrey

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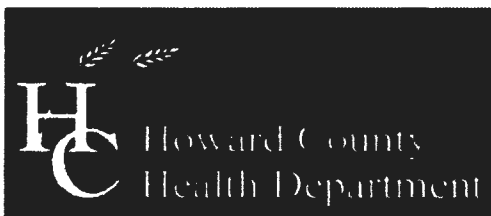
**From:** Williams, Jeffrey  
**Sent:** Monday, February 13, 2023 9:35 AM  
**To:** Dan Blevins  
**Subject:** 14510 Triadelphia  
**Attachments:** Sand Mound Manual.pdf

Hi Dan. As we discussed on the phone, attached is the sand mound manual. The sections discussing the low pressure dose design are applicable to subsurface low pressure dose systems. We look for the plan to show a diagram of the piping layout like the manual shows as well as cross sections of the lateral turnups as the manual shows.

Additionally, we will look for two charts. One is for the trenches describing the length, width, ground elevation, pipe elevation, bottom elevation of each trench. Second chart is for the lateral pipes in each trench describing their length, pipe diameter, hole spacing, number of holes, diameter of holes, total flow from each lateral and flow per linear foot. We will also need the tank details of the BAT system and pump tank including all pump info including pump curve from manufacturer and pump model chosen. The elevations of the pump floats and calculations for how you have 24 hours emergency storage above the high water alarm in the pump tank should be shown. You will also need to show on the plan the proposed location of the electrical panel, alarm, and blower motor if it is a BAT model with blower separate from tank. Details of the electrical panel chosen should be shown with notes indicating that pump and alarm are on separate circuits.

Jeff Williams  
Deputy Director  
Bureau of Environmental Health  
Howard County Health Dept.  
8930 Stanford Blvd. Columbia, MD 21045  
410-313-4261  
[www.hchealth.org](http://www.hchealth.org)

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Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

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www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

APPLICATION FOR VARIANCE TO COMAR ONSITE WATER/SEWER FOR MDE APPROVAL

Date Submitted

Triadelphia Road at Roxbury Road

Property Address

Laird B Scott

7

0021

0023

0040

04-322657

Subdivision

Lot

Tax Map

Grid

Parcel

Tax Account #

Provide a brief site history including previously submitted and active plans with the Health Department or the County (subdivision plans, perc test applications, Building Permit applications):

Percolation Certification Plan (active)

In the area below, list the specific section of the Code of Maryland Regulations (COMAR) to which a variance is being requested and provide a brief summary of the regulation and an explanation of why the variance is being requested (Attach a separate sheet if necessary).

Regulation Section

Summary and Explanation

1. COMAR 26.04.02.05.B.(2)

Specifies that on-site sewage disposal system is to be located downgradient from a private water well.

2.

Handwritten signature of property owner

Property Owner's Signature

Health Department Use Only

Reviewed by

HQHD Staff

Date

Recommendation:

[X] Recommended

[ ] Not Recommended

HCHD Supervisor

Date

Comments/Conditions:

Approved by:

MDE Representative

Date