

Baltimore County
Department of Environmental Protection and Sustainability
Ground Water Management Section



BUILDING WITH WELL AND SEPTIC

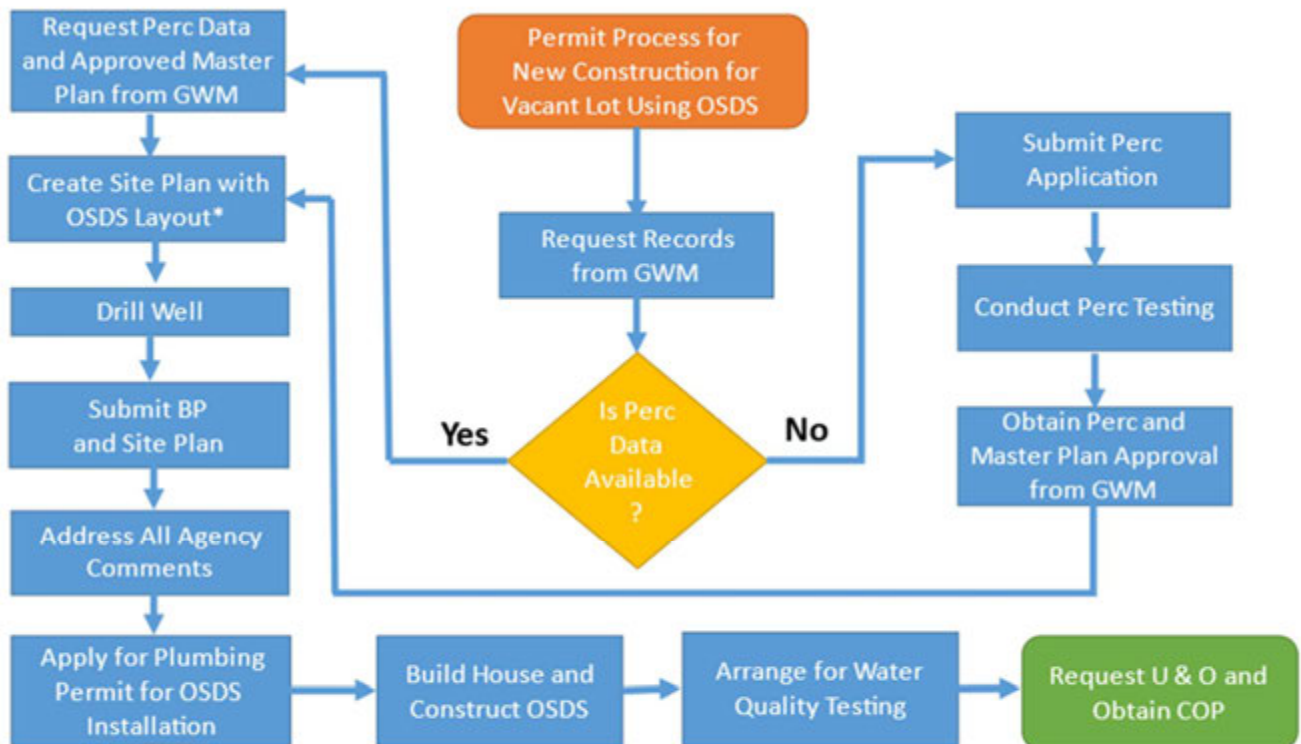
REVISED 3/15/24

GUIDANCE FOR BUILDING A HOUSE TO BE SERVED BY A PRIVATE WATER WELL & ONSITE SEWAGE DISPOSAL SYSTEM

This booklet is intended for use by people planning to develop an existing lot that will be served by a private water well and onsite sewage disposal system (OSDS), commonly referred to as a “septic system.” This booklet does not reflect requirements from other county review agencies, and is not intended for those planning to subdivide property or to develop commercial property.

New homes constructed outside the public water and sewerage service area in Baltimore County will require considerable site evaluation before a building permit can be approved. Before you begin construction, it is in your best interest to gain a thorough understanding of the requirements and process, and carefully plan how to proceed. The proper placement and construction of your well and septic system is extremely important in protecting water quality and public health. The Ground Water Management (GWM) section will review the permit to ensure that the proposed work is in compliance with well and OSDS regulations.

The flow chart below summarizes the building permit process for properties using private wells and septic systems.



* Site Plans must conform with GWM Site Plan Requirements

STEP 1: REQUEST RECORDS FROM GWM

When you are ready to begin the process of developing a vacant lot, you should first determine if soil percolation tests have already been conducted on the property and if a well has been drilled. If records exist, GWM may already have percolation test data and an approved “Master Plan” on file. This information can be conveniently requested through the Ground Water Management website (baltimorecountymd.gov/departments/environment/ground-water-management). Soil percolation tests are valid for a period of five years. If tests have expired, requests can also be made online to revalidate the percolation tests results.

For the purposes of this instructional booklet, we will continue as though no records of percolation testing exist for a given property. If data does exist, you may skip forward to Step 5.

STEP 2: PREPARE TO FILE FOR A PERCOLATION TEST

County certified soil percolation tests, or “perc” tests, are required to determine the sites’ suitability for the installation of a sewage disposal system on your property. To apply for perc testing, the applicant must submit a completed application form, four (4) copies of an acceptable site plan prepared by a Maryland licensed professional engineer, professional land surveyor, or landscape architect, along with payment to the Department. The fee for percolation testing is based on the total number of sewage disposal areas being proposed or established, including existing dwellings. The perc test application form is on the GWM website (resources.baltimorecountymd.gov/Documents/Environment/groundwatermanagement/forms/a1soilpercolationtests.pdf)

Consider the desired placement of the house on the property and then contact the County Zoning Office (410-887-3391) for guidance and setback requirements. Be advised that other regulations and policies from various county review agencies will also impact your site layout. It is strongly advised that you hire an experienced licensed surveyor, engineer, or consultant who is familiar with all of the requirements and procedures that will ultimately be needed to obtain a building permit in Baltimore County.

The proposed house, well drilling area, and septic reserve area (SRA) must be depicted on a site plan that is in conformance with the setbacks and restrictions. The siting restrictions are required by state and local codes to protect the well and ground water from contamination and to ensure a properly functioning OSDS. A reference sheet providing well and septic setback distances that comply with state and local regulation and policy is available on the County website. See Appendix A-23 of the GWM Policy Manual that is available on the GWM, Well and Septic Forms webpage (baltimorecountymd.gov/departments/environment/ground-water-management/forms).

The plan must include topographic lines, soil types and boundaries, and be drawn to a scale no greater than 1 inch = 60 feet. Features such as existing wells, OSDS, streams, and structures, which are within 200 feet of a property line must be shown on the plan. A thorough guide outlining site plan requirements is also available (see Appendix A-2, and A-24 of the GWM Policy Manual that are

available on the GWM, Well and Septic Forms page (baltimorecountymd.gov/departments/environment/ground-water-management/forms).

Once filed, your perc application will be reviewed by the Department of Planning and two Sections within the Department of Environmental Protection and Sustainability (EPS). The Department of Planning will review the proposed lots for conformance with lot size, house orientation, and growth tiers. The EPS, Ground Water Management (GWM) Section will review the application and plans for conformance with the well and septic siting criteria. The EPS, Environmental Impact Review (EIR) Section will review the application and plans for compliance with forest conservation, forest buffer, and wetland regulations.

Following their review, each agency will inform the applicant if the plan is approved or if any issues need to be addressed. Once all county agencies have approved the plan, you may coordinate directly with GWM to schedule perc testing. An example of an acceptable site plan for percolation testing is presented as Figure 1.

STEP 3: SCHEDULE THE PERCOLATION TESTS

Once authorization has been received from Planning and EIR, the contractor should contact GWM directly to make an appointment with one of the Licensed Environmental Health Specialists (LEHS). We recommend that the property owner/developer hire a sewage disposal contractor to dig the soil evaluation pits.

Typically, the pits are dug with a backhoe to a depth of up to 16 feet. Soil characteristics, ground water levels (if encountered), and depth to bedrock (if encountered) are noted. A water test to assess the soil permeability will be performed by the LEHS at a depth equivalent to where the soil absorption system will be installed (typically 4 to 6 feet).

Standard perc tests for a single lot can generally be completed in 2 – 4 hours. Sand mound testing or performing detailed soil profiles (for soils of slow permeability) may take up to 5 – 6 hours to complete for each lot.

Upon successful completion of percolation testing, GWM will issue a “perc approval letter” granting permission for the installation of an OSDS in the approved Septic Reserve Area (SRA) designated on the “Master Plan”.

Perc approval letters typically provide approval for a four-bedroom dwelling, but, depending on soil conditions, GWM may limit the number of bedrooms that will be permitted.

Occasionally, modifications must be made to the proposed plan prior to receiving a perc approval letter. The applicant will be notified in writing regarding the revisions necessary. These changes are the responsibility of the applicant and should be completed as soon as possible so that site development may progress.



Typical excavation for “perc” testing.



Example of a standard water test being performed to determine the soil permeability rate.

STEP 4: OBTAIN A WELL PERMIT TO DRILL THE WELL

Percolation testing and site plan approval are required prior to issuance of a well permit for a new building lot. Once perc testing is completed, arrangements should be made to drill a domestic water supply well. This work must be performed by a well driller who is licensed in the State of Maryland. It is recommended that the well driller visit the site and be provided with a copy of the approved Master Plan in order to properly evaluate the job.

The well driller will be responsible for obtaining the well permit, and submitting to GWM the well completion report and yield test results after completion.

Prior to drilling, the well driller must call GWM to request approval of the proposed well location area. You are responsible for accurately locating the property corners, house corners, and well area according to the approved Master Plan. A professional surveyor must be hired to stake the pertinent features on your property. If the well location is in conformance with the approved plan, a representative from GWM will sign the well stake and authorize the drilling to proceed.

The driller may only drill at the approved well stake or within an approved well area. If an unsuccessful well is drilled, the driller may move to another location within the approved well area without an additional inspection by GWM. If locations are proposed outside of the staked area, revised plans must be submitted to GWM for review and approval.

After drilling the well, the driller is required to perform a yield test to determine whether there is a sufficient quantity of water in the well.

The testing procedure takes either three or six hours, depending on the well yield. During yield testing, the well driller must record the water level and pumping rate every 15 minutes until the test is completed.

As stipulated in the MD State Well Construction Regulations (COMAR 26.04.04.26), a minimum yield of one gallon per minute for six hours is required. A building permit will not be issued for a property unless it has an individual water supply that meets the minimum yield requirements.

Upon verifying adequate yield, the well driller completes the well by sealing the casing into the bedrock with a procedure known as grouting. The grout seal prevents surface water from contaminating the ground water.

A cap is placed on the well and the well tag containing the State identification number is attached. It is recommended that the well cap be securely fastened to the casing to prevent vandalism.



Rotary well drilling rig with raised derrick.



Well casing with a properly sealed sanitary cap, electrical conduit, and state identification tag securely affixed.

STEP 5: HIRE AN OSDS DESIGNER AND INSTALLER

Once the sewage disposal area has been established and the well has been drilled, it is time to begin preparing for your Building Permit application. Due to recent regulatory changes and Maryland Department of the Environment (MDE) directives, all permit applications to install a new OSDS must be submitted by a licensed OSDS Installer and include a design by a licensed OSDS Designer. The MDE Onsite Systems Division website (mde.maryland.gov/programs/water/bayrestorationfund/onsitedisposalsystems/pages/onsitesystems.aspx) provides a complete list of licensed individuals. If the licensed OSDS Designer does not have the perc test data readily available, they can request this information through the GWM website (baltimorecountymd.gov/departments/environment/ground-water-management).

Baltimore County will continue to provide minimum design criteria, which can then be used by the licensed OSDS Designer to create a site plan showing the proposed OSDS layout. This information must be included on the site plan for your building permit application, and will help expedite approval by GWM.

STEP 6: APPLY FOR THE BUILDING PERMIT AND PLUMBING PERMIT

In Baltimore County, all applications for building, plumbing, electrical, and other construction permits must now be completed online. You can access the Permit Portal through the Permits, Approvals and Inspections (PAI) website (baltimorecountymd.gov/departments/pai/application), and view other available tutorials and helpful information about the application process.

Begin by submitting your “new dwelling” building permit application and attach/upload the necessary plans. After submission, PAI staff will conduct a preliminary review of the application and request payment from the applicant. After payment is received, the reviewing agencies will have an opportunity to review the application. GWM will review all permits for new construction for properties served by a private well and OSDS, to ensure there is an adequate yield and acceptable OSDS design and layout. Be advised that well yield tests are valid for 3 years. Any deficiencies with the site plan, well completion report, or well yield test will result in the issuance of comments from GWM which will require the application to go through another round of review. To avoid multiple rounds of review, it is strongly advised that you carefully review the site plan and related documents to ensure all of the required information is provided.

An example of an acceptable site plan for building permit submission is presented as Figure 2.

Once the site plan is deemed acceptable, the GWM reviewer will notify the applicant that the plumbing permit application for the OSDS should be submitted. The licensed OSDS Installer must complete the form entitled “Onsite Sewage Disposal System Installation Permit Application” in Appendix A-27, available on the GWM, Well and Septic Forms page (baltimorecountymd.gov/departments/environment/ground-water-management/forms).

Upload the form along with the approved building permit site plan that shows the proposed OSDS design and layout. If acceptable, the plumbing permit and building permit will be approved by GWM and a Building Permit Approval Letter will be issued, summarizing the OSDS system design, well information, and water testing requirements.

STEP 7: BUILD THE HOUSE

During construction of the house, care should be taken to ensure that the OSDS is installed in accordance with the approved plans and that the well and SRA are protected from damage. Vehicular traffic, storage of materials, or heavy equipment should not be allowed in the SRA. In addition, no trenching, or cutting and filling of soils should be performed within the SRA without GWM approval.

Unauthorized compaction, filling, or removal of soils in the SRA may result in severe modifications including additional perc testing, OSDS re-design, and possible revocation of the OSDS permit.



A recently installed, properly graded septic tank with manhole risers to grade.

STEP 8: ARRANGE FOR WATER QUALITY TESTING AND OBTAIN THE CERTIFICATE OF POTABILITY

While supervising the construction of your house, it is important to keep in mind that prior to obtaining your Use and Occupancy permit, water quality tests must be performed on the water supply. The Building Permit Approval Letter will detail what water quality parameters must be tested for on the well serving the property.

GWM may be contacted to arrange for the collection of water samples or you may elect to have a private Maryland State certified laboratory collect water samples for analysis.

Prior to bacteriological sampling, the entire house plumbing system should be disinfected for 12 – 24 hours. After the disinfection period, the water lines should be flushed through a garden hose to the ground (not to the septic system) until there is no chlorine residual. This disinfection should be performed by a licensed plumber, well pump installer, or well driller.

GWM will sign-off on the Use and Occupancy permit upon receipt of a satisfactory water analysis report.

In order to prevent delays, it is highly recommended that the water quality testing be performed well in advance of your anticipated occupancy date.

Approval of a Use and Occupancy Permit constitutes **preliminary** approval of a well water supply for potability (safe to drink). Maryland State regulations require that a second bacteriological sampling be made of the water supply within six months after the first sample in order to obtain the Full Certificate of Potability. The homeowner is responsible for arranging the second test. You may contact a private certified laboratory or GWM (410-887-2762) for these services.

Questions?

You may contact the EPS Ground Water Management Section by:

Phone: 410-887-2762

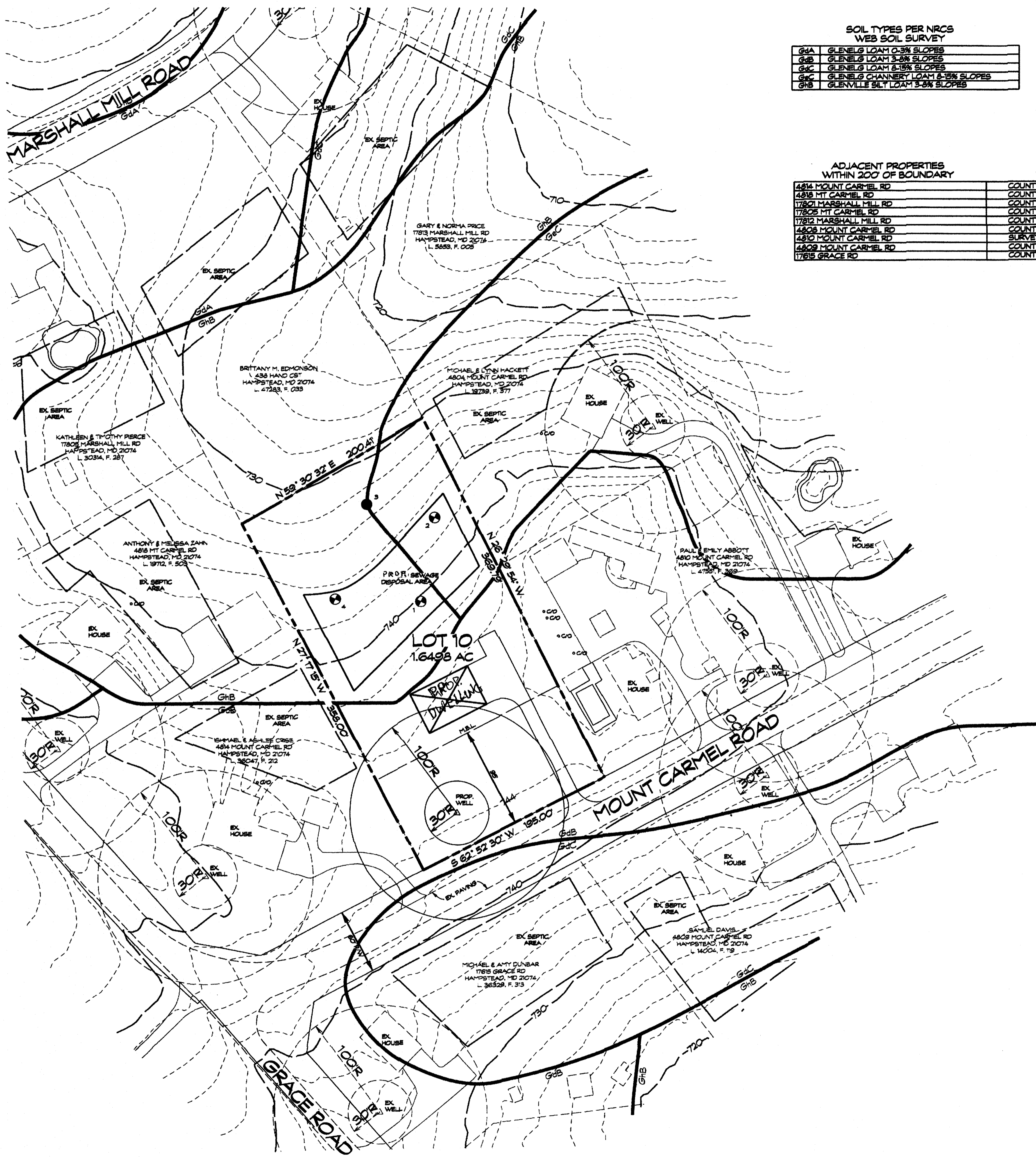
Email: groundwater@baltimorecountymd.gov

Or, you can visit us online at:

baltimorecountymd.gov/departments/environment/ground-water-management

For information regarding subdivision or commercial developments, contact the Development Coordination Section at 410-887-5859.

BOUNDARY PER PLAT PB 40, PG 56

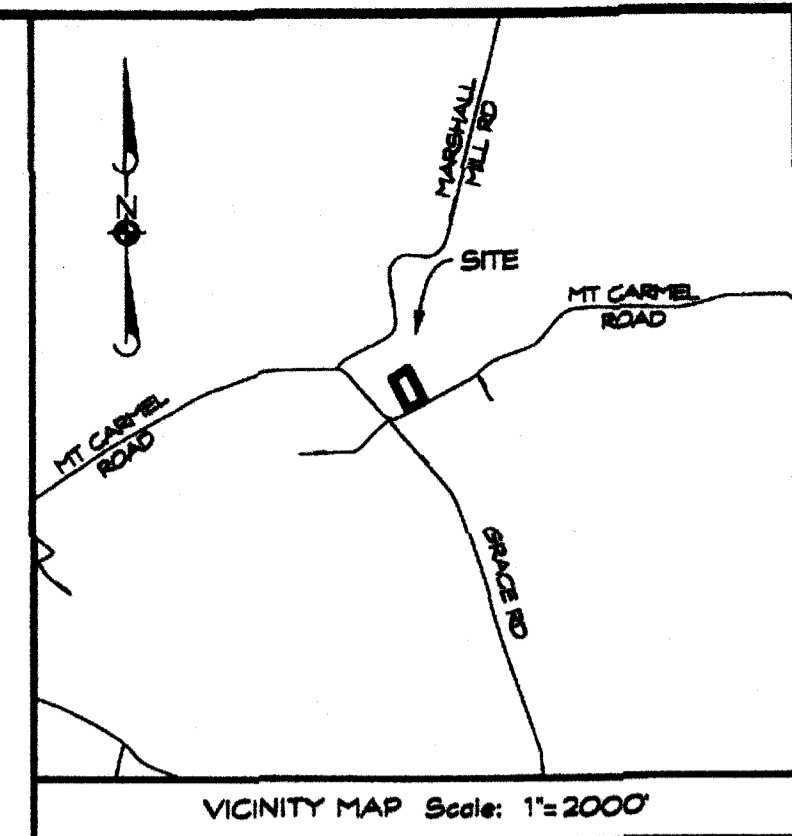


SOIL TYPES PER NRCS WEB SOIL SURVEY

G4A	GLENELG LOAM 0-3% SLOPES
G4B	GLENELG LOAM 3-8% SLOPES
G4C	GLENELG LOAM 8-15% SLOPES
G4C	GLENELG CHANNERY LOAM 8-15% SLOPES
G4B	GLENEVILLE SILTY LOAM 3-8% SLOPES

ADJACENT PROPERTIES WITHIN 200' OF BOUNDARY	SOURCE OF EXISTING WELL, SEPTIC, UST INFO
4814 MOUNT CARMEL RD	COUNTY FILES / SURVEY LOCATED
4818 MT CARMEL RD	COUNTY FILES / SURVEY LOCATED
17801 MARSHALL MILL RD	COUNTY FILES / SURVEY LOCATED
17805 MT CARMEL RD	COUNTY FILES / SURVEY LOCATED
17812 MARSHALL MILL RD	COUNTY FILES / SURVEY LOCATED
4808 MOUNT CARMEL RD	COUNTY FILES / SURVEY LOCATED
4810 MOUNT CARMEL RD	SURVEY LOCATED
4809 MOUNT CARMEL RD	COUNTY FILES
17816 GRACE RD	COUNTY FILES

Figure 1
Typical Site Plan
for a Perc Test Application



DATA TABULATIONS

- ZONING DISTRICT: RC-2
- GROWTH TIER: IV PRESERVATION/CONSERVATION
- SOILS MAP NO.: NRCS SOIL INFO
- MASTER WATER AND SEWERAGE PLAN: NO PLANNED SERVICE
- AREA OF LOTS: 1.6498 AC.
- TOTAL NET TRACT AREA OF PLAN: 1.6498 AC.

GENERAL NOTES

- CURRENT TITLE REFERENCE
OWNER: RUTH C MILLER
PLAT REFERENCE: PB 40, PG 56
- THE OUTLINE SHOWN HEREON IS BASED ON PLAT INFORMATION ONLY. NO BOUNDARY RETRACEMENT WAS PERFORMED BY CLSI.
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON BALTIMORE COUNTY GIS.

LEGEND

- PROPOSED DWELLING
- EXISTING DWELLING
- SOIL LINE / SOIL DESIGNATION
- PROPOSED SEPTIC AREA
- EXISTING SEPTIC AREA
- MINIMUM BUILDING LINE
- PROPOSED WELL
- EXISTING WELL
- EXISTING SEPTIC CLEAN OUT
- PASSING PERC TEST
- FAILED PERC TEST

OWNER/DEVELOPER
JUDY MILLER
118 STONE ROW COURT
COCKEYSVILLE, MD 21030

Subdivision Name, Lot #

Property Address

TAX ACCT. NO. 0800004898
ZONED: RC-2 - AGRICULTURE
TAX MAP: 19 GRID: 6 PARCEL 76
5TH ELECTION DISTRICT * 3RD COUNCILMANIC DISTRICT

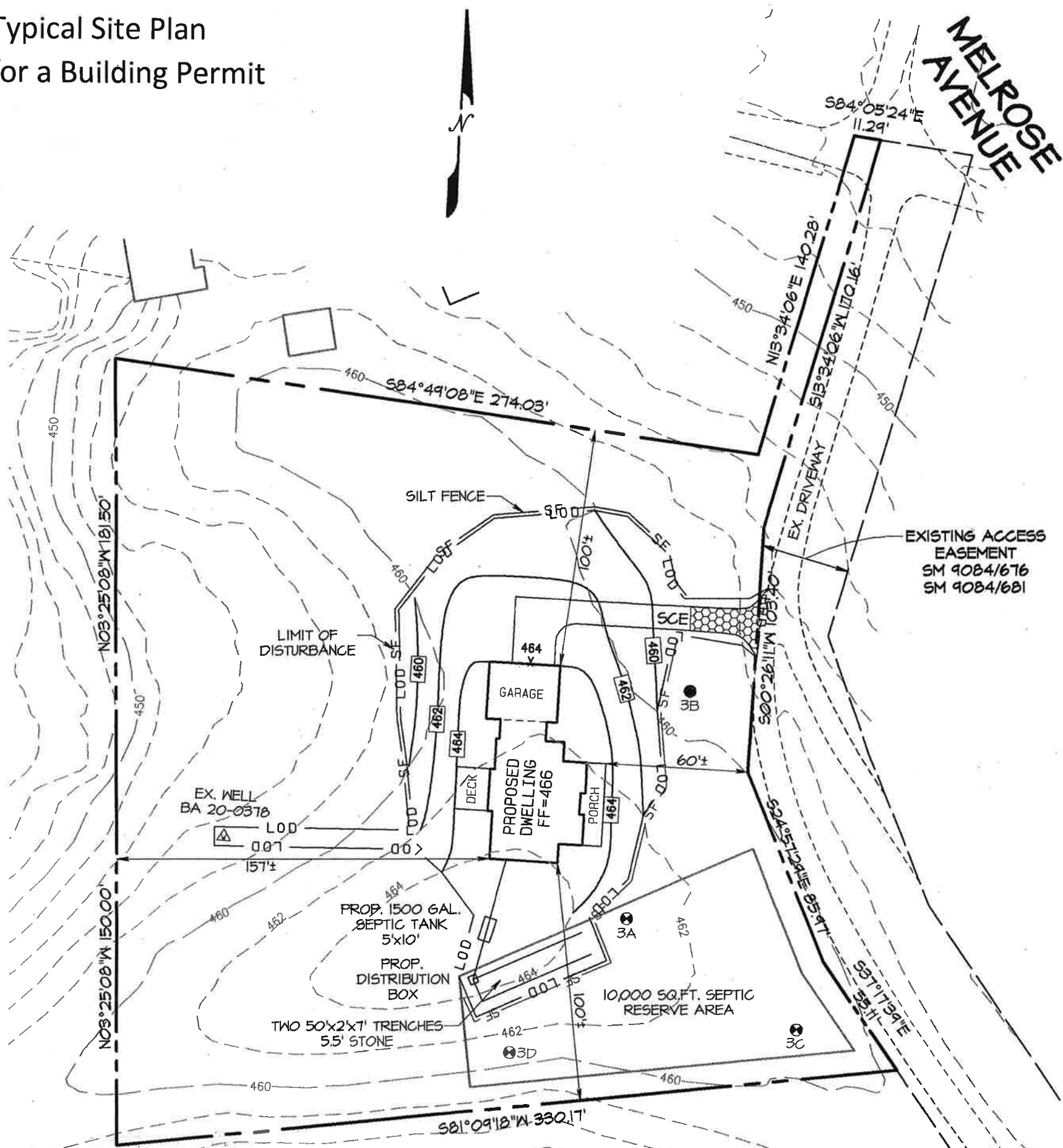


Company Name
Company address
Company Phone

Date	Revisions	Drawn By:
3/21/23	ADDRESS AGENCY COMMENTS RECEIVED 3/20/23	MB
		Designed By: MB
		Reviewed By:
		Date: DECEMBER, 2022
		Scale: 1" = 50'
		Job No.: 2022289
		Sheet: 1 OF 1

Figure 2

Typical Site Plan
for a Building Permit



Conventional OSDS Design Parameters

Number of Bedrooms: 4 Design Flow: 600 GPD
 Septic Tank Size: 1500 Gal Pump Chamber Size: N/A Gal (if applicable)
 Soil Loading Rate: 1.2 Gal/Ft²/Day Effective Sidewall Depth: 3-7 Ft
 Number of Trenches: 2 Trench Length: 50 Ft Trench Width: 2 Ft
 Trench Depth: 7 Ft Depth of #2 Stone: 5.5 Ft

Licensed OSDS Designer:

John Doe

License #:

12345

NOTES

1. BEING THE PROPERTY DESCRIBED IN DEED J.L.E. No. 48167, folio 389
2. ZONING: RC 2 & RC 5
3. LIMIT OF DISTURBANCE = 19,875 SQ.FT.

REV. 8-29-23 ADD SEPTIC TANK SIZE

John Doe



Company Name
 Company address
 Company Phone

SITE PLAN
 of
 Property Address
 BALTIMORE COUNTY, MD.

DRAWN: SAL

FIELD:

DATE: 8/23/23

JOB NO. 23264

SCALE: 1"=50'