HOWARD COUNTY HEALTH DEPARTMENT

Bureau of Environmental Health
8930 Stanford Blvd | Columbia, MD 21045
410.313.2640 - Voice/Relay
410.313.2648 - Fax
1.866.313.6300 - Toll Free

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

November 22nd, 2024

TO: Robert Vogel (Timmons-VEI) via E-mail: Rob.Vogel@timmons.com
Jeremiah.Reynolds (Timmons) via E-mail: Jeremiah.Reynolds@timmons.com

RE: OSDS Plan 6820 Koandah Gardens (McDaniel Prop. "Lot 9")

Mound/OSDS Revision Comments

1. It would be a much easier installation plan to execute if the mound & lateral design dimensions were rounded numbers.
   a. If the spacing requires more, just create the mound a little larger. For example, if you need 11.18 perforations, then just provide 12 perforations.
      1. Typical spacing from perforation to perforation on a lateral are 3.5, 4, and 5 feet.
      2. And the spacing between the first perforation and the manifold should be exactly half of that distance. (3.5 would be 1.75)
      3. Most mound designs utilize numbers like this: 1, 0.75, 0.5, 0.25 as it is way easier to install for contractors.
2. Spaces between laterals in a mound bed should be 3' and 1.5' from lateral to mound bed edges.
   a. Common spacing is usually a 6' or 9' wide bed. (Again whole numbers)
3. Need to install an effluent filter within a non BAT. septic tank for a sand mound.
   a. This should be shown in the internal tank diagram and a detail of the effluent filter provided on the plan.
4. Need to show the 25' no compaction zones.
   a. They should be clearly visible but should not interrupt key visual aspects of the mound sites. Also add to legend.
5. Missing some key mound construction notes.
   a. "The soil shall not be moist and should not coil. Etc etc."
   b. Add note about, "No heavy equipment, any backhoe or machinery should use track and not rubber tires."
   c. Note about "Geotextile fabric, spun not woven." And other materials, allowable gravel size…."3/4 inch to 2" sizing."
   d. Any trees in the SDA shall be cut flush to grade.
6. Need to show any trees within the mound sites and in close proximity of the mound sites on the plot plan. (roughly 1 -2 foot in diameter and larger)
   a. Also should not be invasive on the plan, but clear & legible.
   b. If trees are to be removed, should be added to general notes.
7. Should provide 5-6 elevation points at the toe of the sand mounds to show lateral equilibrium and minimal contour discrepancy. (no more than 4-inch difference, mounds should be as close to level as possible)
8. Do we really need gate valves for this mound system? Confused on why those are actually being utilized here, I thought they are important for systems utilizing two pumps or for very long force main runs.

9. **Need to show float tree in pump tank. And bring those numbers closer to the specific float they represent.**
10. **Removes notes #8,9, and 11.**
11. **What is the linear loading rate of this mound design? Should not exceed 10 gallons per day per square foot.**
12. **Should include "Mound" somewhere in title of plan.**

Thank you for your time and consideration.

Zack Silvast

Zack Silvast (LEHS)
Plan Review Supervisor - Water & Sewer Division
410-313-1777
Environmental Health BureauHoward County Health Department

HOWARD COUNTY HEALTH DEPARTMENT

87855

CODES	DATE
	11/4/94

- [ ] CASH
- [ ] CHECK

NO.

McDaniel

Received From: Vogels Eng.

For: Property Perc fee - [illegible] lot 9

Fourty-Six Dollars

$ 46 | 00

Received By: J King

VOGEL ENGINEERING + TIMMONS GROUP

3300 North Ridge Road, Suite 110, Ellicott City, MD 21043
P 410.461.7666 F 410.461.8961 **www.timmons.com**

Date: **November 4, 2024**
To: **Howard County Health Department**
Attn: **Hank Oswald**
Subject: **McDaniel Property Lot 9; 6820 Koandah Gardens**
Project Number: 08-43.00

ATTACHED:

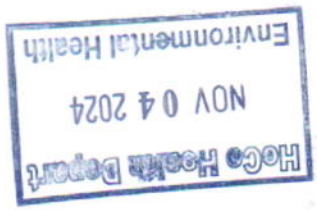
# Copies	Description
3	OSDS Design Plan 1st Submission

Remarks: $46 fee.

Please call 410-461-7666 with any questions or concerns you may have.

Thank you

Rob Vogel/Jeremiah Reynolds
Transmitted by: Kathleen Makusky



RECEIPT

Howard County, MD
HOWARD COUNTY HEALTH DEPARTMENT
ASCEND ONE BUILDING
Columbia, MD 21045
8930 STANFORD BLVD

Application: EH-PLANS-24-03222
Application Type: EnvHealth/Environmental Health/Plan Check/Application
Address: 6820 KOANDAH GARDENS, Highland, 20777

Receipt No. 11055

Payment Method	Ref Number	Amount Paid	Payment Date	Cashier ID	Received	Comments
Cash		$46.00	11/06/2024	SMARTIN		PREVIOUSLY PAID 11/4/24

Owner Info.: MCDANIEL JOHN P
13032 HIGHLAND ROAD
HIGHLAND, MD 20777

Work Description:

VOGEL ENGINEERING + TIMMONS GROUP

8407 Main Street Ellicott City, MD 21043
P 410.461.7666 F 410.461.8961 **www.timmons.com**

December 5, 2017

Mr. Robert Bricker, CPSS, REHS/RS
Howard County Health Department
Bureau of Environmental Health
8930 Stanford Boulevard
Columbia, Maryland 21045

RE: **McDaniel Property – Lot 9 and Non-Build. Pres. Parcel C**
A Resub. Pres. Parcel A
Koandah Gardens Estates
TM. 34 - P. 78 (F-16-053)

Dear Mr. Bricker:

Pursuant to your comment letter dated December 4, 2017; Vogel Engineering + Timmons Group offers the following response letter and revised Percolation Certification Plan for your review and signature approval.

1. Comment complied with. Previously approved SDA configuration of P-01-003 and F02-04 for previous Plat 15632 - Buildable Preservation Parcel A (new Lot 9) has been added to plan.

We note, we were instructed to remove this information from the plan as commented in the June 23, 2017 letter. Comment 11 read: "*The Well and Septic Program requests that the content for this Percolation Certification Plan be amended in the following ways: a.* ***Remove*** *the layer that illustrates the former configuration of sand mound footprints and SDA boundaries.*"

1.a. For clarity, a detail has been added to the plan to address this comment; i.e. area to be abandoned.
1.b. Comment Not applicable. The new Lot 9 SDA is smaller than the previously approved SDA.

2. Label amended.

3. Legend, Sheet 1
3.a. The hatching pattern for Proposed Sewage Disposal Area has been amended. In addition, the hatch pattern direction has been amended to exactly match that in plan view.
3.b. With regards to the 100-Year Floodplain "Legend Item", the LEGEND has been amended to accurately represent the platted easement (Plats 11868-11871).

4. An existing Intermittent Stream feeds the pond to the east of Lot 9 from the northwest (Top of Plan View). Legend symbol amended to match plan view.

5. Sheet 2
5.a. Label added.
5.b. Label added.
5.c. LEGEND amended to match plan view.

Should you have any questions, please do not hesitate to contact this office.

Sincerely,

VOGEL ENGINEERING+TIMMONS GROUP

Eric D. Salmi, Prof LS
Eric.Salmi@timmons.com

08-43es:Sanborn

Howard County Health Department

Bureau of Environmental Health
8930 Stanford Boulevard, Columbia, MD 21045
Main: 410-313-1771 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

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

December 4, 2017

To: Eric Salmi, P.L.S., Robert H. Vogel Engineering, Inc.

From: Robert Bricker, REHS/RS, L.E.H.S., Environmental Sanitarian II
Bureau of Environmental Health, Well and Septic Program

RE: McDaniel Property, proposed Lot 9 and Non-buildable Preservation Parcel 'C', Percolation Certification Plan; comments

The following edits are needed on the submitted Percolation Certification Plan:

1. On SHEET 1, illustrate the previously approved configuration (Plat 15632) of the sewage disposal area (SDA) proposed for proposed Lot 9.
    a. Using a different symbol, illustrate and label area (sq.ft.) that is being abandoned.
    b. Using another different symbol, illustrate and label area (sq.ft.) that is being added.
2. In the plan view, label the SEWAGE DISPOSAL AREA as such (not Septic Easement).
3. In LEGEND for SHEET 1,
    a. the direction of the crosshatching in the symbol for PROPOSED SEWAGE DISPOSAL AREA doesn't match the direction in the plan view.
    b. The 100-year flood plain symbol is not observed in the plan view
        i. Change the symbol in the plan view or in the LEGEND, OR
        ii. Delete the symbol from the LEGEND.
4. On SHEET 1, I do not see that a stream centerline is illustrated.
    a. Illustrate the stream centerline as it occurs, OR
    b. Delete the symbol from LEGEND.
5. On SHEET 2,
    a. Label LOT 9
    b. Label NON-BUILDABLE PRESERVATION PARCEL 'C'
    c. Match the LEGEND symbols top the plan view

Please resubmit at least three copies for review and potential signature. If you have questions related to the above content, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

Copy: file

VOGEL ENGINEERING + TIMMONS GROUP
8407 Main Street Ellicott City, MD 21043
P 410.461.7666 F 410.461.8961 www.timmons.com

Mr. Robert Bricker, CPSS, REHS/RS
Howard County Health Department
Bureau of Environmental Health
8930 Stanford Boulevard
Columbia, Maryland 21045

November 28, 2017

RE: **McDaniel Property – Lot 9 and Non-Build. Pres. Parcel C**
A Resub. Pres. Parcel A
Koandah Gardens Estates
TM. 34 - P. 78 (F-16-053)

Dear Mr. Bricker:

Pursuant to your email dated September 18, 2017; Vogel Engineering + Timmons Group offers the following response letter and revised Percolation Certification Plan for your review and signature approval.

Per the meeting discussion on November 28, 2017, the plan has been amended to:

- Shift the upper mound back into the SDA. Previous Comment 9 (June 23, 2107) allowed a shift closer than the property line, however, no closer than 5 feet.
- Designate the upper mound as the Primary System, as previously shown June 2017.
- Provide the required 25' DPA below the lowermost sand mound. (Previously shown)
- Mr. Bricker stated, mound separation between initial and replacement mounds is not required to be 25' (See Comment 1a below). A reduction of the separation between the mounds is acceptable, however, provide maximum spacing possible.
- Exhibit "A" from November 28, 2017 meeting is preferred layout+/-. See Attached.
- Exhibit "B" from November 28, 2017 meeting is a clean version of July 2017 plan. See Attached.
- Exhibit "C" from November 28, 2017 meeting shows the "Gravel Bed" at a common elevation for discussion. See Attached.
- Sand Mound elevations are required at next "design plan" stage.
- Amend the Final Plan (F-16-053) to reflect the approved Percolation Certification Plan.

Comment 1 - *The lowermost sand mound site must be adjusted so that the toe of the mound is on contour, i.e. has a common elevation all along its toe.*

a. *The required spacing between sand mounds is 25 feet, from the 'toe' of the sand mound to the gravel bed of the next sand mound at lower elevation. You may reduce the distance between sand mounds to somewhat less than the required separation distance in order to get all of the sand mounds within the SDA and on contour.*
b. *If the shape of the SDA changes on the Percolation Certification Plan, that change must be reflected in the boundaries of the SDA on the Final Plan.*

Response: -The lowermost sand mound site has been adjusted so the toe of slope is on contour (90.5+/-). Per meeting, the uppermost mound has been shifted to the SDA / BRL, which provides the 10-foot

setback from the property line. Overall SDA has been reduced in size. Spacing dimensions between mound systems have been added to this revised plan submission.

a. Based on meeting discussion of November 28, 2017, the spacing between the mounds has been reduced however the maximum spacing possible has been provided while meeting the "toe of mound along common contour" criteria.
   -Uppermost/Initial mound toe of slope is on the approximate 94.4 contour.
   -Middle/Replacement #1 mound toe of slope is on the approximate 92.6 contour.
   -Lowermost/Replacement#2 mound toe of slope is on the approximate 90.5 contour.
b. Comment noted.
   -Upon Percolation Certification Plan signature approval, the approved SDA shape will be reflected on the Final Plan (F-16-053) submitted for signature approval and recordation.

Comment 2 - *Delete Note #12. A GAP is not required.*

Response: Note 12 deleted, remaining notes renumbered.

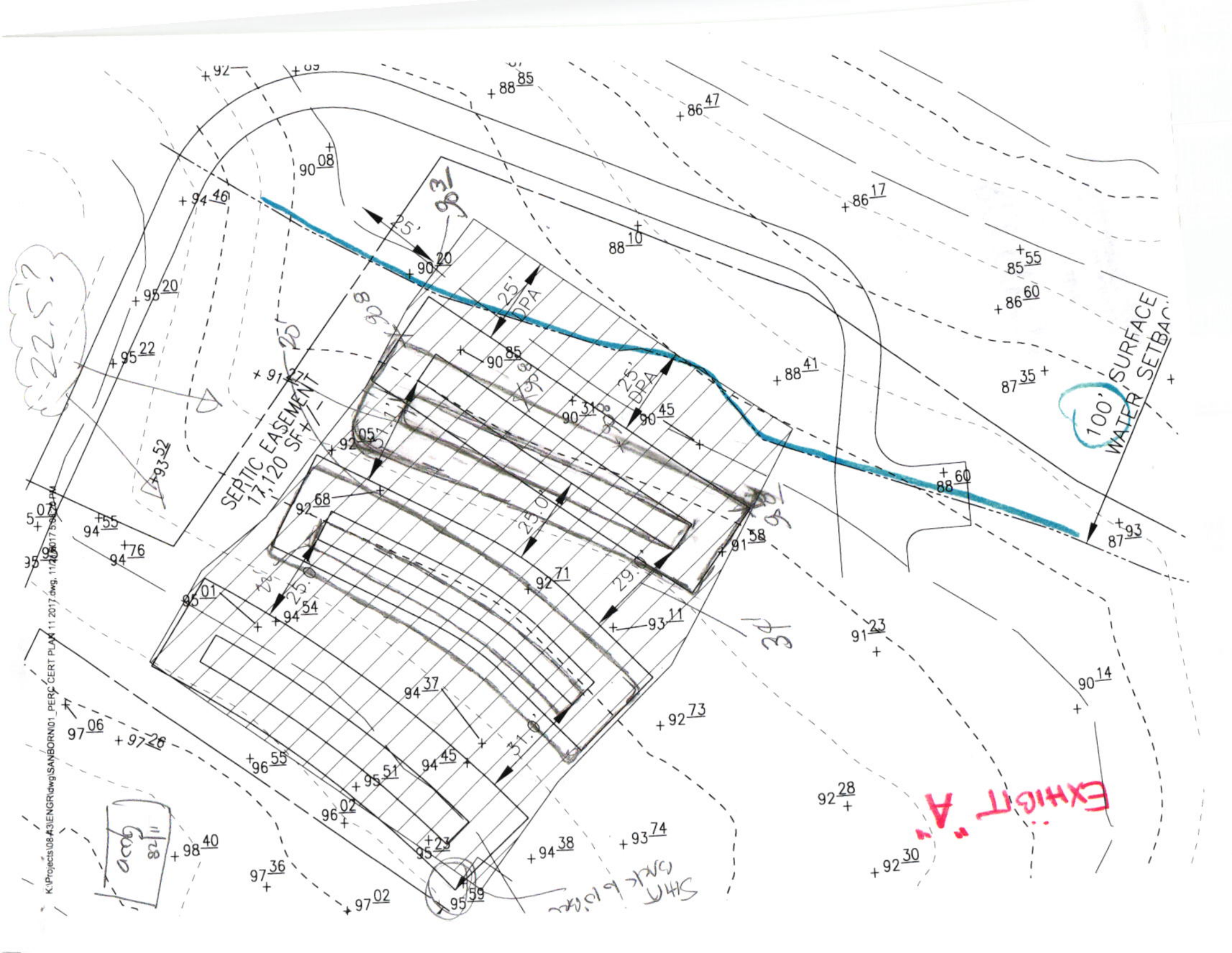
Should you have any questions, please do not hesitate to contact this office.

Sincerely,

VOGEL ENGINEERING+TIMMONS GROUP

Eric D. Salmi, Prof LS
Eric.Salmi@timmons.com

08-43es:Sanborn


SEPTIC EASEMENT
17,120 SF+/-
25' DPA
100' SURFACE WATER SETBACK
EXHIBIT "A"
K:\Projects\08.A3\ENGR\dwg\SANBORN\01_PERC CERT PLAN 11 2017.dwg, 11/2017 5:57:27 PM

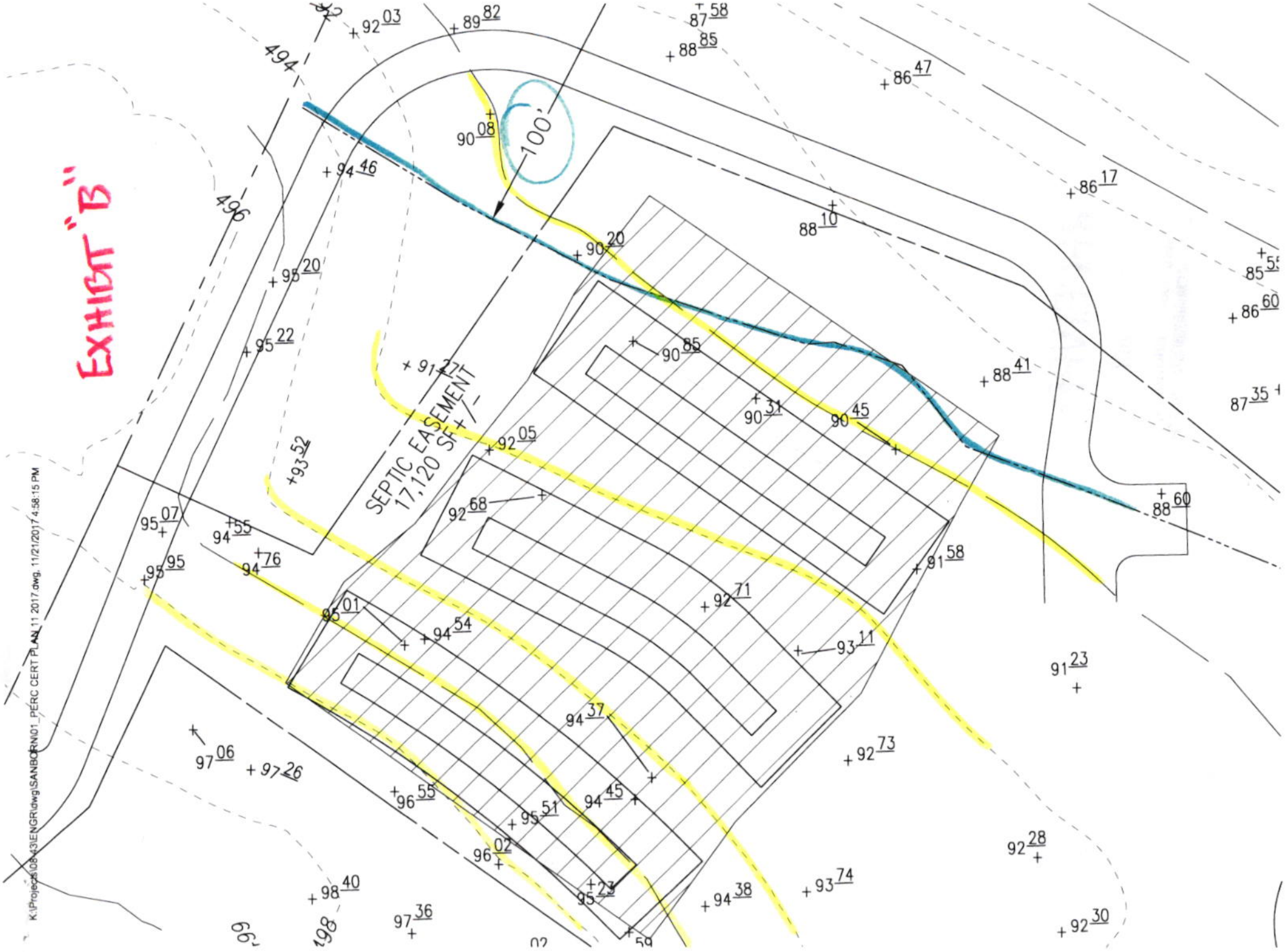
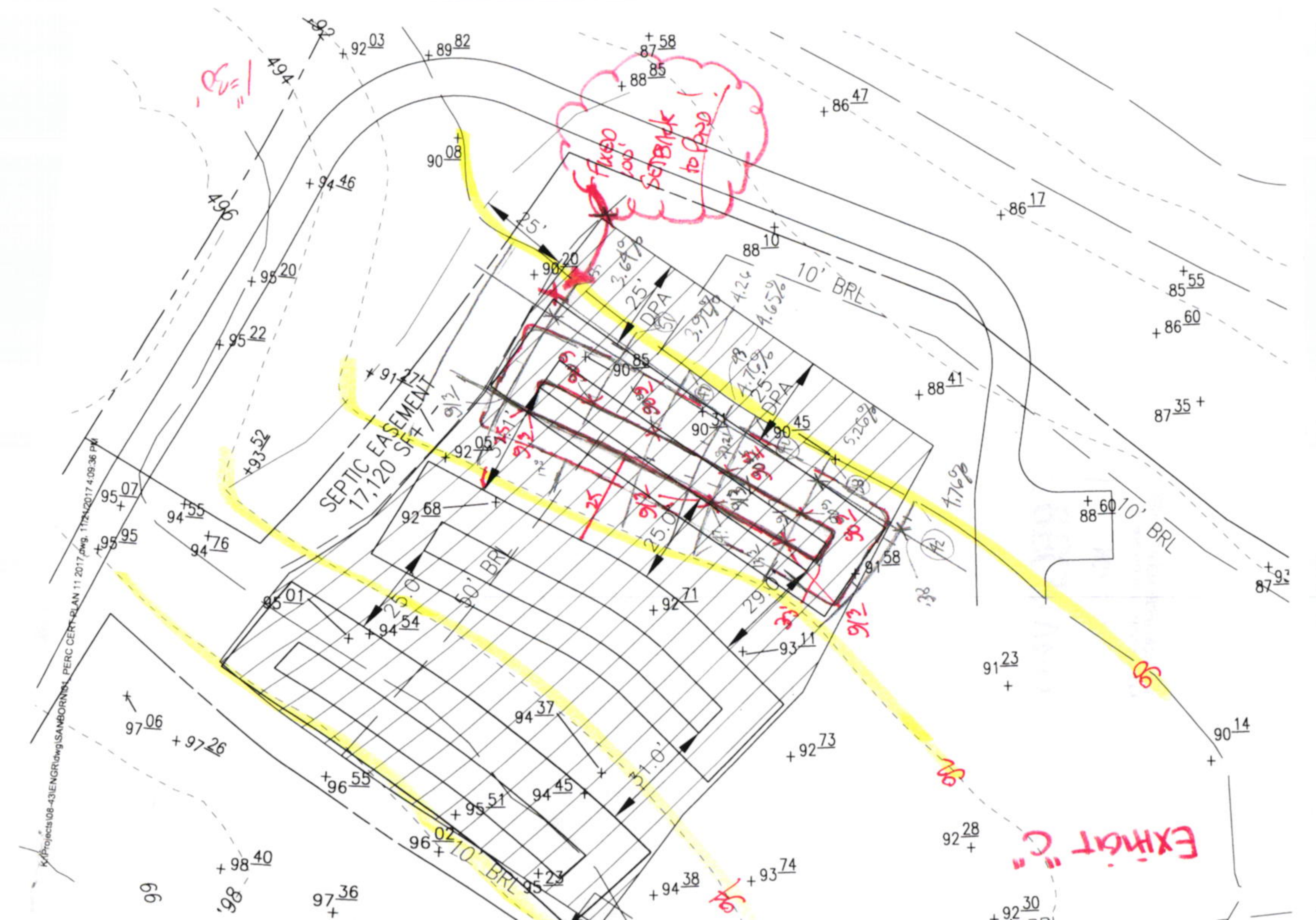


EXHIBIT "B"
SEPTIC EASEMENT
17,120 SF +/-
100'
K:\Projects\08-43\ENGR\dwg\SANBORN01_PERC CERT PLAN 11 2017.dwg, 11/21/2017 4:58:15 PM


SEPTIC EASEMENT
17,120 SF +/-
10' BRL
10' BRL
10' BRL
50' BRL
25' DPA
25' DPA
25'
25.0'
29.0'
31.0'
Exhibit "C"
K:\Projects\08-43\ENGR\dwg\SANBORN\01_PERC CERT PLAN 11 2017.dwg, 11/21/2017 4:09:36 PM

Bricker, Robert

From: Bricker, Robert
Sent: Friday, September 22, 2017 1:42 PM
To: 'Rob Vogel' (rvogel@vogeleng.com)
Subject: FW: McDaniel Property Percolation Certification Plan_comment

See September 18, 4:38 pm message in following string.

From: Bricker, Robert
Sent: Monday, September 18, 2017 4:46 PM
To: 'Rob Vogel' (rvogel@vogeleng.com); Eric Salmi (esalmi@vogeleng.com)
Subject: RE: McDaniel Property Percolation Certification Plan_comment

Please re-submit at least three copies of the perc cert for review and potential signature. The permit to install the well will not be issued until the perc cert is signed. As it follows the Final Plan will not be signed without the perc cert being signed.
Robert Bricker, REHS/RS, L.E.H.S.

From: Bricker, Robert
Sent: Monday, September 18, 2017 4:38 PM
To: 'Rob Vogel' (rvogel@vogeleng.com); Eric Salmi (esalmi@vogeleng.com)
Subject: McDaniel Property Percolation Certification Plan_comment

Rob, Eric,
We have a couple of comments concerning the content of **the Percolation Certification Plan** for the McDaniel Property, Lot 9 and Non-buildable Pres. Parcel 'C'. We believe that adjustment of the a sand mound sites can be achieved without greatly affecting the boundaries of the proposed sewage disposal area (SDA).

1. The lowermost sand mound site must be adjusted so that the toe of the mound is on contour, i.e. has a common elevation all along its toe.

    a. The required spacing between sand mounds is 25 feet, from the 'toe' of the sand mound to the gravel bed of the next sand mound at lower elevation. You may reduce the distance between sand mounds to somewhat less than the required separation distance in order to get all of the sand mounds within the SDA and on contour.
    b. If the shape of the SDA changes on the Percolation Certification Plan, that change must be reflected in the boundaries of the SDA on the Final Plan.

2. Delete Note #12. A GAP is not required.

*** I approved the F-16-053 proposal in Pdox today.**

ROBERT BRICKER, REHS/R.S., L.E.H.S.
ENVIRONMENTAL SANITARIAN II
BUREAU OF ENVIRONMENTAL HEALTH, WELL AND SEPTIC PROGRAM
8930 STANFORD BLVD., COLUMBIA, MD 21045

Phone: Desk, 410-313-2691; Program, 410-313-1771; Bureau, 410-313-1774
Fax: 410-313-2648

E-mail: rbricker@howardcountymd.gov

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS · SURVEYORS · PLANNERS

July 20, 2017

Mr. Robert Bricker, CPSS, REHS/RS
Howard County Health Department
Bureau of Environmental Health
8930 Stanford Boulevard
Columbia, Maryland 21045

RE: **McDaniel Property – Lot 9 and Non-Build. Pres. Parcel C**
A Resub. Pres. Parcel A
Koandah Gardens Estates
TM. 34 - P. 78 (F-16-053)

Dear Mr. Bricker:

Pursuant to your letter dated June 23, 2017; Robert H. Vogel Engineering, Inc. offers the following response letter and Percolation Certification Plan for your review and signature approval.

Comments noted regarding adjusting the three sand mounds, retesting and testing during times of adequate moisture in the upper 2 feet of the soil profile.

1. Note 5 amended.
2. Note 8 amended.
3. Note 9 amended
4. Note 11 amended.
5. Previous Note 13 deleted.
6. Note added, see new Note 13.
7. Purpose statement amended as requested.
8. Legend amended.
9. Sand mound layout has been re-worked based on the email response dated June 30, 2017 and the recent July 18, 2017 meeting discussion.

   We note, per the meting conversation,
   a. The initial (lower) sand mound is oriented straight and along the approx. 90.3 contour.
   b. The middle (1st replacement) sand mound has a bend to conform to the approx. 92.5 contour.
   c. The upper (2nd replacement) sand mound also has a bend which follows the approx. 94.4 contour. We note, per regulation, the sewage disposal area is located 10 feet from the property line, however as allowed per "Comment 9" the upslope of this 2nd replacement sand mound reaches out of the sewage disposal area but is no closer than 5 feet from the property line.
10. The 200' radius has been removed & replaced with 100' dimension.

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11. Requests complied with.
    a. Former mounds & SDA boundary removed from plan.
    b. Shrubs / trees removed rom plan
    c. The ground spot elevations, from the May 2016 topographic survey from which the one (1) foot contours were created, have been added to the plan and reflected within the plan Legend.

Should you have any questions, please do not hesitate to contact this office.

Sincerely,

ROBERT H. VOGEL ENGINEERING, INC.

Eric D. Salmi, Prof LS
esalmi@vogeleng.com

08-43es:Sanborn

Howard County Health Department

Bureau of Environmental Health
8930 Stanford Boulevard, Columbia, MD 21045
Main: 410-313-1771 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

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

June 23, 2017

To: Eric Salmi, Robert H. Vogel Engineering, Inc.

RE: McDaniel Property, proposed Lot 9 and Non-buildable Preservation Parcel 'C', Percolation Certification Plan; comments

Dear Mr. Salmi,

Please be advised that a field review of the proposed sand mound locations must be conducted by Bureau of Environmental Health personnel prior to signature approval of the Percolation Certification Plan. The following items must be staked for the Field Review: sand mound footprints including the gravel bed locations, the proposed SDA corners, and the proposed lot lines.

The following observations concern the Percolation Certification Plan content:

1. In Note 5 condition '1',
    a. replace the term "Septic Area" with 'Sewage Disposal Area'.
    b. Begin condition '3' with the phrase 'ILLUSTRATE PREVIOUSLY APPROVED' rather than "SHOWN CURRENT".
2. In Note 8, replace the terms "EASEMENT" with 'AREA'.
3. Begin Note 9 with the phrase 'PREVIOUSLY APPROVED SEWAGE DISPOSAL LOCATIONS', replacing "EXISTING SEPTIC LOCATIONS".
4. In Note 11, replace the terms "EASEMENT" and "EASEMENTS" with 'AREA' and 'AREAS', respectively
5. Delete Note 13.
6. Add this Note:

ON LOT 9, THE LIMITATIONS OF AVAILABLE AREA AND SOIL PROPERTIES ARE SUCH THAT A HOUSE WITH NO MORE THAN FIVE (5) BEDROOMS CAN BE SUPPORTED WITHIN THE ILLUSTRATED SEWAGE DISPOSAL AREA. THIS LIMITATION MAY BE RECONSIDERED IF A CERTIFIED PROFESSIONAL CAN PRESENT AN EXIHIBIT ILLUSTRATING THAT THE SAND MOUND AREAS CAN BE PROPERLY DESIGNED AND ACCOMMODATE THE ESTIMATED FLOW FROM A RESIDENCE HAVING MORE THAN FIVE BEDROOMS.

7. In PURPOSE STATEMENT,
    a. In condition '1', replace the term "Septic Area" with 'Sewage Disposal Area'.
    b. Begin condition '3' with the phrase 'ILLUSTRATE PREVIOUSLY APPROVED' rather than "SHOWN CURRENT".
    c. Correct the number sequence of the conditions.

8. In LEGEND,
    i. edit the label "EXISTING SEPTIC RESERVE AREA" replacing it with 'PRIOR APPROVED SEWAGE DISPOSAL AREA', and make the symbol more obvious as it currently indistinct.
    ii. Edit the entry "PROPOSED SEPTIC RESERVE AREA", replacing it with 'PROPOSED SEWAGE DISPOSAL AREA'.
9. Sand Mound S5-S6 does not appear to properly oriented with the elevation contours. All points along the lower boundary of a sand mound must be at a common elevation. Correction of this issue likely will affect the configurations of the proposed SDA, the Lot boundary, and the ingress-egress easement. The uppermost sand mound may be shifted closer to the property line, but cannot be less than 5 feet from the property line.
10. The 200-foot elliptical radius can be removed as the proposed well locations are determined to not be downgradient from the sand mounds.
11. The Well and Septic Program requests that the content for this Percolation Certification Plan be amended in the following ways:
    a. **Remove** the layer that illustrates the former configuration of sand mound footprints and SDA boundaries.
    b. **Remove** the layer illustrating shrubs or other plant growth or proposed landscape plantings.
    c. **INCLUDE** symbols with labels at locations utilized for determining the placement of elevation contours.

If you have questions related to the above content, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

Respectfully,

Robert Bricker, CPSS, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program, Bureau of Environmental Health
Howard County Health Department
8930 Stanford Boulevard
Columbia, MD 21045

Copy: Rob Vogel, Robert H. Vogel Engineering, Inc.
Jeffrey Williams, Program Manager, Well and Septic Program
file

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS · SURVEYORS · PLANNERS

Mr. Robert Bricker, CPSS, REHS/RS
Howard County Health Department
Bureau of Environmental Health
8930 Stanford Boulevard
Columbia, Maryland 21045

April 6, 2017

RE: **McDaniel Property – Lot 9 and Non-Build. Pres. Parcel C**
A Resub. Pres. Parcel A
Koandah Gardens Estates
TM. 34 - P. 78

Dear Mr. Bricker:

Pursuant to your letter dated August 3, 2016 and the comment letter dated June 9, 2016; Robert H. Vogel Engineering, Inc. offers the following response letter and Percolation Test Plans for your review signature approval.

Percolation Certification Plan has been amended and re-titled Percolation Test Plan.

Letter Dated June 9, 2016

Comments noted regarding adjusting the three sand mounds, retesting and testing during times of adequate moisture in the upper 2 feet of the soil profile.

1. - Comment noted regarding the middle mound area.
   - Comment noted regarding previous test locations 'B' & 'H' having steady / less than 60 min rates.
   -'H' is in a "swale" area
   -Comment noted regarding 'D', 'F', 'G' not reaching a steady state and 'G' having erratic results
   - The requirement of retesting is noted. Per meeting of April 5, 2017, tentative testing date of April 25 has been scheduled.
2. New test location have been added in accordance with this comment, see revised plan.
3. Drafting / "copy paste" error. Legend amended.
4. -As requested, mounds shifted southeastward, away from "graded swale".
   -As reflected on the revised plan, this pushes the house box and driveway further southeast.
5. Gravel Bed width adjusted to 8.8 feet (8.8' x 85'). We note making the mound longer and narrower helps with the "DPA" separation requirement. Well sites adjusted per the April 5, 2017 meeting discussion.

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Tel 410.461.7666 · Fax 410.461.8961

6. Comment noted. In accordance with the "Stacked Mound Spacing" sketch dated 5/ 2106 by Steve Krieg, the required 25 feet of separation has been met. This places the Sewage Disposal Area 10 feet from the southern property line at offsite Open Space 78 and approximately 8' from the 100' surface water setback line.
7. Advisory comment noted.
   a. Mounds adjusted per graphic provided. Dimensions added to plan.
   b. Complied with. SDA and lot lines adjusted.
   c. Complied with.
   d. Driveway has been shifted to honor the 10' setback.
   e. Noted. No setback required from "DPA" to property line, however, the per SDA requirements, 10' is provided.
   f. Complied with, the downslope footprint of the downslope mound is 10 feet+ from the northern property line and approximately 8' from the 100' surface water setback line.
8. Drafting amended, 2AF amended to be a failed test.
9. Drafting amended, 2AH deleted.
10. Well locations and associated well radii have been amended per the April 5, 2017 meeting discussion.
11. Note 3 amended. Field run topography was completed May 2016.
12. Existing conditions file amended, removing the "old" Sewage Disposal Area.
13. Note added.

Should you have any questions, please do not hesitate to contact this office.

Sincerely,

ROBERT H. VOGEL ENGINEERING, INC.

Eric D. Salmi, Prof LS
esalmi@vogeleng.com

08-43es:Sanborn

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
3430 Courthouse Drive ■ Ellicott City, Maryland 21043 ■ 410-313-2350
Voice/Relay

Valdis Lazdins, Director FAX 410-313-3467

August 12, 2016

Mr. John McDaniel
13032 Highland Road
Highland, MD. 20777

RE: F-16-053 (McDaniel property: Lot 9)
Amendment

Dear Mr. McDaniel:

Based on the Health Department's requirement to perform new wet season percolation testing to create a new septic system for Preservation Parcel 'A', the Subdivision Review Committee has determined that the above referenced plan does not conform with the objectives of the Howard County Subdivision and Land Development Regulations. The attached comments and plan markups must be addressed in a revised plan submission within 45 days from the date that the wet season percolation testing is completed by the Health Department. Please submit a point-by-point response letter with the revised plan submission that addresses each of the comments and plan markups from the agencies with confirmation as to how and specifically where on the plan the comments have been addressed.

If the revised plan submission is not received by that date, your plan submission will become null and void in accordance with Section 16.144 of the Howard County Subdivision and Land Development Regulations. After that date, the subdivision plan must be resubmitted as a new application.

You will be required to comply with all plan submission requirements and regulations in effect at the time of resubmission. This Department cannot consider requests for extensions of time for your project beyond the deadlines and milestones established by the Adequate Public Facilities Ordinance.

This is the fourth request for revised plans. It is strongly recommended that you meet with the Planning Director to discuss resolution of the plan inadequacies. Contact Carol Stirn, cstirn@howardcountymd.gov, to schedule this meeting. Failure to hold the recommended meeting may result in the need for additional revised plan submissions and the payment of additional fees.

This is the FOURTH request for revised plans. As such, a fee equivalent to 50% of the original filing fee is required to be paid with the submission of the above referenced revised plans. The fee is $635.00. Be advised that your revised plans will not be processed without this fee.

If you have any questions, please contact Tanya Krista-Maenhardt, AICP at (410) 313-2350 or email at tmaenhardt@howardcountymd.gov.

Sincerely,

Kent Sheubrooks, Chief
Division of Land Development

KS/TKM/ F-16-053 McDaniel Property file/ F-16-053 McDaniel Property F-16-053 revised plans 8-12-16
Changemarks: DLD, DEH
cc: Research, DED, SCD, DEH
Vogel Engineering

Howard County Health Department

Bureau of Environmental Health
8930 Stanford Boulevard, Columbia, MD 21045
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TDD 410-313-2323 | Toll Free 1-866-313-6300
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Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

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

DATE: May 10, 2016

TO: Kent Sheubrooks, Chief
Division of Land Development

FROM: Robert Bricker, Environmental Sanitarian II
Well and Septic Program

RE: F-16-053
Title: McDaniel Property, Lot 9 and NonBuildable Preservation Parcel 'C'

The Health Department cannot approve the re-subdivision of Buildable Preservation Parcel 'A' "Koandah Gardens Estates" and re-subdivision of Non-Buildable Preservation Parcel 'B' "McDaniel Property" as it is currently proposed. For Health Department consideration, the proposal must be reconfigured to satisfy the current requirements of Code of Maryland Annotated Regulations 26.04.02.05.

Please be advised that the 'Applicant' has included an unsigned (re: unapproved) Percolation Certification Plan as an 'Exhibit' in the Pdox submittal for F-16-053. The Health Department has substantial comments concerning the content of the unapproved Percolation Certification Plan. Those comments are attached hereto.

If you have questions related to these contents, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

Attachment: Health Department comment, McDaniel Property Percolation Certification Plan

Copy: file

Howard County Health Department

Bureau of Environmental Health
8930 Stanford Boulevard, Columbia, MD 21045
Main: 410-313-1771 | Fax: 410-313-2648
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Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

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

April 28, 2016

To: Rob Vogel, Robert H. Vogel Engineering, Inc.

RE: McDaniel Property, proposed Lot 9 and Non-buildable Preservation Parcel 'C', Percolation Certification Plan; comments

Dear Mr. Vogel,

The following issues have been identified in the submitted subdivision proposal. Please note that, for a buildable lot or parcel, three (3) distribution systems are required for approval of the Percolation Certification Plan.

1. Field-run elevation contours at 1-foot intervals must be illustrated in the area where the sand mounds are proposed.
2. The sand mounds are to be illustrated such that low corners of the respective mounds are at the same elevation.
3. The areas between the proposed sand mounds, and an area extending 25 feet downslope from the lowermost sand mound, are to be protected from disturbances, such as the area of a sewage disposal area (SDA) is protected. The SDA must meet all regulated setbacks, for example, 100 feet to surface water.
4. Illustrate the infiltrative stormwater management facility that is located in the northeastern portion of Open Space Lot 22, and any stormwater management facility that may be installed in the area of the utility easement (Plat 15632) on Open Space Lot 22.
5. The proposed well zone is within 200 feet of the proposed sand mounds and is considered to be downgradient of the uppermost sand mound site, a condition that is prohibited.
6. Differentiate symbols for infiltrometer tests, as the results indicate a wide range of rates that effect design.
    a. Infiltrometer test locations 'B', 'D', 'F', 'G', and 'H' have infiltration rates less than 60 minutes per inch.
    b. Infiltrometer test locations 'A', 'C' and 'E' have infiltration rates greater than 60 minutes per inch.
7. Note 3 indicates that topography is taken from Howard County GIS, a statement that reflects inadequate data was used to generate elevation data presented on this proposed Percolation Certification Plan. Field –run topography is required for Percolation Certification Plans.

8. The Percolation Certification Plan must include the area of Nonbuildable Preservation Parcel 'C' and
    a. Indicating with a unique symbol those areas that may have been approved for sand mound locations, and
    b. Labeling such areas to be abandoned by recordation of the Final Plat.
9. The Percolation Certification plan must include a note stating either
    a. that there are no wells in the area of proposed Nonbuildable Preservation Parcel 'C', or
    b. identifying a well in that area and stating that the well shall be abandoned prior to signature of the Final Plat for the proposed subdivision.

If you have questions related to the above content, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

Respectfully,

Robert Bricker, CPSS, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program, Bureau of Environmental Health
Howard County Health Department
8930 Stanford Boulevard
Columbia, MD 21045

Copy: Jeff Williams, Supervisor, Well and Septic Program
Chuck Zepp, representative of development team
file

Howard County Health Department

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

DATE: August 3, 2016

TO: Kent Sheubrooks, Chief
Division of Land Development

FROM: Robert Bricker, Environmental Sanitarian II
Well and Septic Program RB

RE: F-16-053
Title: McDaniel Property, Lot 9 and NonBuildable Preservation Parcel 'C'

The Health Department cannot approve the re-subdivision of Buildable Preservation Parcel 'A' "Koandah Gardens Estates" and re-subdivision of Non-Buildable Preservation Parcel 'B' "McDaniel Property" as it is currently proposed. For Health Department consideration, the proposal must be reconfigured to satisfy the current requirements of Code of Maryland Annotated Regulations 26.04.02.05.

The proposed configuration of Lot 9 in the consulting engineer's version 4 ('V4', June 23, 2016) of F-16-053 is the same as rejected by the Health Department on June 9 in comments regarding the associated Percolation Certification Plan. For the Health Department to approve this proposal, the configuration of the proposed new lots, and the configuration and properties of the sewage disposal area (SDA) and well locations to serve proposed Lot 9, must first be certified by the Approving Authority's signature approval of the Percolation Certification Plan. The three sand mound sites that comprise the SDA for proposed Lot 9 must be retested. The tests may be conducted only when there is adequate moisture in the upper two feet of the soil profile.

I have attached the Health Department's June 9 comments regarding the Percolation Certification Plan. As of this date, a response to the June 9 comments has not been received by the Health Department. The Health Department would consider an appropriate response as a proposed Percolation Test Plan, the content of which incorporates revisions cited in the June 9 comments.

If you have questions related to these contents, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

Attachment: Health Department comment, *McDaniel Property Lot 9 and Nonbuildable Pres Parcel C_perc cert comment_JUNE 9-2016* (5 pages)

Copy: Tanya Maenhardt, Division of Land Development
File

Howard County Health Department

Bureau of Environmental Health
8930 Stanford Boulevard, Columbia, MD 21045
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Maura J. Rossman, M.D., Health Officer

June 9, 2016

To: Rob Vogel, Robert H. Vogel Engineering, Inc.

RE: McDaniel Property, proposed Lot 9 and Non-buildable Preservation Parcel 'C', Percolation Certification Plan; comments

Dear Mr. Vogel,

Details for the three sand mound sites and the lot line need to be adjusted. Retesting for each of the three sand mound locations is required. Tests must be conducted at a time when there is adequate moisture in the upper two feet of the soil profile.

1. The middle sand mound site has no infiltrometer tests to support approval. In addition, only infiltrometer test locations 'B' and 'H' had infiltration rates that reached a steady state and were less than 60 minutes per inch, and location 'H' is in the area of the graded swale. Test locations 'D', 'F', and 'G' did not reach steady state, with location 'G' having very erratic results. Retests for all three of the sand mound sites are required.
2. Propose paired infiltrometer test locations for each sand mound location. These tests should be located 15 feet from each end of the proposed gravel bed and about 10 to 15 feet downslope from the proposed downhill edge of the gravel bed.
3. In the LEGEND, a 'X' symbol is described for locations "PASSED SAND MOUND TEST". The statement is not true as applied. The symbol is applied to locations 'A', 'C', and 'E' each of which have infiltration rates greater than 60 minutes per inch. These locations FAIL as the rate greater than 60 minutes per inch is not considered a conventional rate and therefore the locations cannot currently be used to approve sand mound locations in a new subdivision.
4. The middle and lower sand mound sites need to be shifted to the southeast, out of the area of the graded swale.
5. The maximum width for a sand mound gravel bed is 9 feet. Adjust gravel bed length and sand mound dimensions accordingly.
6. The required separation distance between 'stacked' sand mounds is 25 feet from the toe of the upper sand mound footprint-to-the uphill edge of the succeeding downslope sand mound's gravel bed. See attached graphic.
7. An advisory on the 25-ft 'Downslope Protection Area':
    a. Each sand mound has a 25-foot 'Downslope Protection Area' (DPA) that is measured from the toe of the sand mound (footprint) downslope and perpendicular to the contour.
    b. The DPA is to be included as part of the sewage disposal area (SDA).

c. The DPA must be contained within the boundaries of the lot/parcel.

d. The setback from the DPA to driveway is 10 feet.

e. There is no setback distance from the DPA to the property/lot line.

f. The setback distance to surface water is measured from the footprint of the sand mound.

8. Location '2AF' is a FAIL; correct symbol for that location.

9. Location '2AH' is to be deleted as there is no data in the 'Koandah Gardens Estates' file top support it.

10. Two of the proposed well locations are downgradient of the uppermost sand mound **only**, and they are both greater than 200 feet from the uppermost sand mound. As the middle sand mound and the lower sand mound should remain northwest of the failed infiltrometer locations neither sand mound would be considered upgradient of any of the proposed well locations.

11. Note 3 indicates that topography is taken from Howard County GIS, a statement that reflects inadequate data was used to generate elevation data presented on this proposed Percolation Certification Plan. After retests are completed, a Percolation Certification Plan will not be approved without the topography being verified by actual field-run data and field verification of the subsequent sand mound locations.

12. On Sheet 2, in the area of Non Buildable Preservation Parcel 'C' is a label indicating an "EXISTING SEPTIC EASEMENT TO BE ABANDONED". Delete this label, and delete the former easement (re: SDA) that the label references, which SDA was abandoned by Record Plat 23440.

13. Add this Note:

    THE SAND MOUNDS ON THIS PERCOLATION CERTIFICATION PLAN ARE DESIGNED FOR CONSTRUCTION WITH SAND MEETING SPECIFICATIONS OF CODE OF MARYLAND ANNOTATED REGULATIONS [COMAR] 26.04.02.05 U(4) (k)(ii) WHICH IS SAND HAVING AN EFFECTIVE SIZE OF 0.15 -0.3 MM WITH A UNIFORMITY COEFFICIENT BETWEEN 4 AND 6 AND CONTAIN LESS THAN 20 PERCENT OF MATERIAL LARGER THAN 2.0 MM AND LESS THAN 5 PERCENT OF MATERIAL LESS THAN 0.53 MM. SAND DELIVERED TO THE SUBJECT PROPERTY FOR THE PURPOSE OF CONSTRUCTING A SAND MOUND WILL BE SAMPLED AND ANALYZED FOR COMPLIANCE WITH COMAR 26.04.02.05 U(4) (k)(ii) SPECIFICATIONS. THIS ANALYSIS MUST BE COMPLETED PRIOR TO PREPARATION OF THE SAND MOUND SITE FOR APPLICATION OF THE SAND. SAND DELIVERED TO THE SUBJECT PROPERTY THAT DOES NOT MEET SPECIFICATIONS OF COMAR 26.04.02.05 U(4) (k)(ii) IS TO BE REMOVED IMMEDIATELY.

If you have questions related to the above content, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

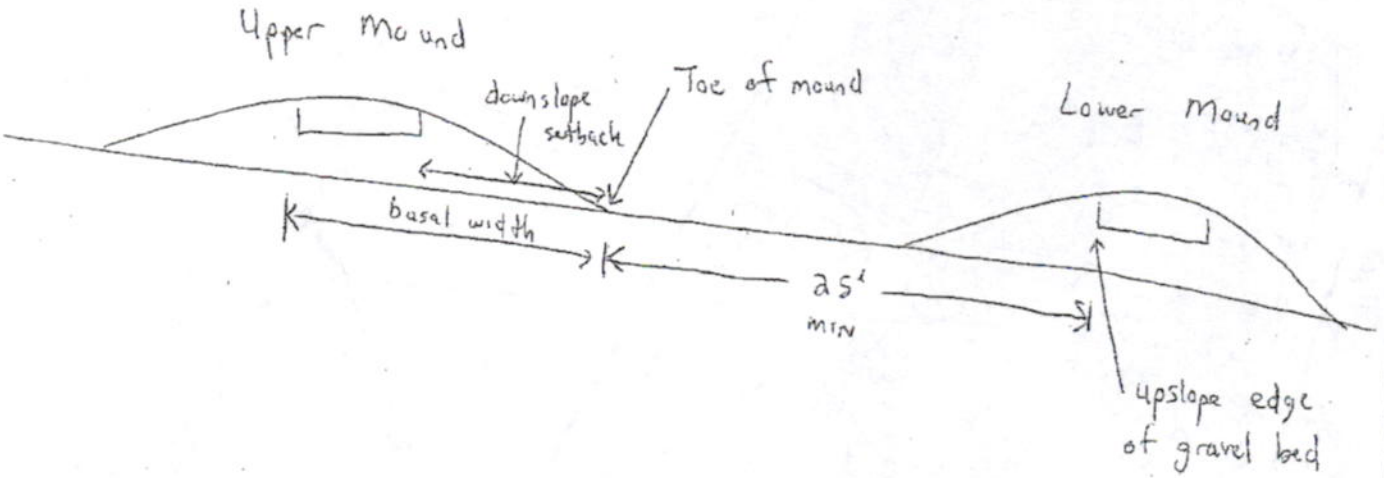
Respectfully,

Robert Bricker

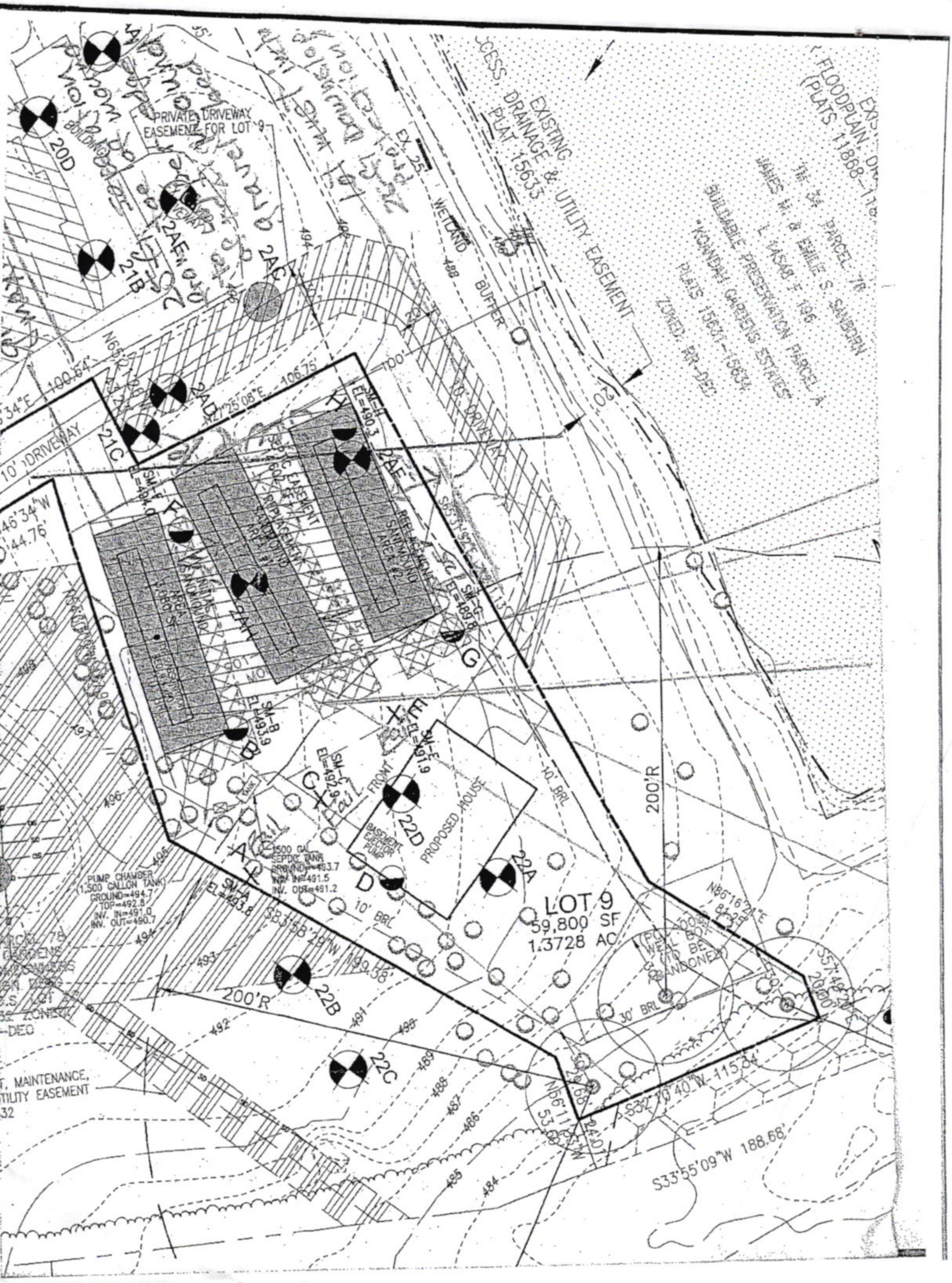
Robert Bricker, CPSS, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program, Bureau of Environmental Health
Howard County Health Department
8930 Stanford Boulevard
Columbia, MD 21045

Copy: Jeff Williams, Supervisor, Well and Septic Program
file

Stacked Mound Spacing



5/2016 Steven R. Krieg, LEHS, REHS/RS



PRIVATE DRIVEWAY EASEMENT FOR LOT 9
EXISTING ACCESS, DRAINAGE & UTILITY EASEMENT PLAT 15633
WETLAND BUFFER
10' DRIVEWAY
FLOODPLAIN (PLATS 11868–
JAMES W. & EMILE S. SANBORN
SUITABLE PRESERVATION PARCEL A
PLATS 15631-15634
ZONED: RR-DEO
REPLACEMENT SAND MOUND AREA #2
REPLACEMENT SAND MOUND AREA #1
INITIAL SAND MOUND AREA
PROPOSED HOUSE
FRONT
BASEMENT EJECTOR PUMP
1500 GAL SEPTIC TANK
PUMP CHAMBER (1,500 GALLON TANK)
GROUND=494.7
TOP=492.8
INV. IN=491.0
INV. OUT=490.7
LOT 9
59,800 SF
1.3728 AC
10' BRL
30' BRL
200'R
S83°58'29"W
S33°55'09"W 188.68'
S32°10'40"W 115.34'
N86°16'21"E
WELL BOX (TO BE ABANDONED)
SM-A EL=493.8
SM-B EL=493.9
SM-C EL=492.9
SM-E EL=491.9
SM-G EL=489.8
SM-H EL=490.3
SM-F EL=494.0
22A
22B
22C
22D
21B
21C
20D
2AC
2AD
2AE
2AH
EX-25
100.64'
106.75'
N27°25'08"E
MAINTENANCE, UTILITY EASEMENT

Howard County Health Department

Bureau of Environmental Health
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Maura J. Rossman, M.D., Health Officer

June 9, 2016

To: Rob Vogel, Robert H. Vogel Engineering, Inc.

RE: McDaniel Property, proposed Lot 9 and Non-buildable Preservation Parcel 'C', Percolation Certification Plan; comments

Dear Mr. Vogel,

Details for the three sand mound sites and the lot line need to be adjusted. Retesting for each of the three sand mound locations is required. Tests must be conducted at a time when there is adequate moisture in the upper two feet of the soil profile.

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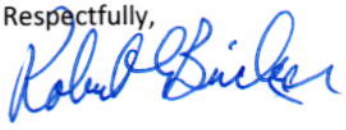
If you have questions related to the above content, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

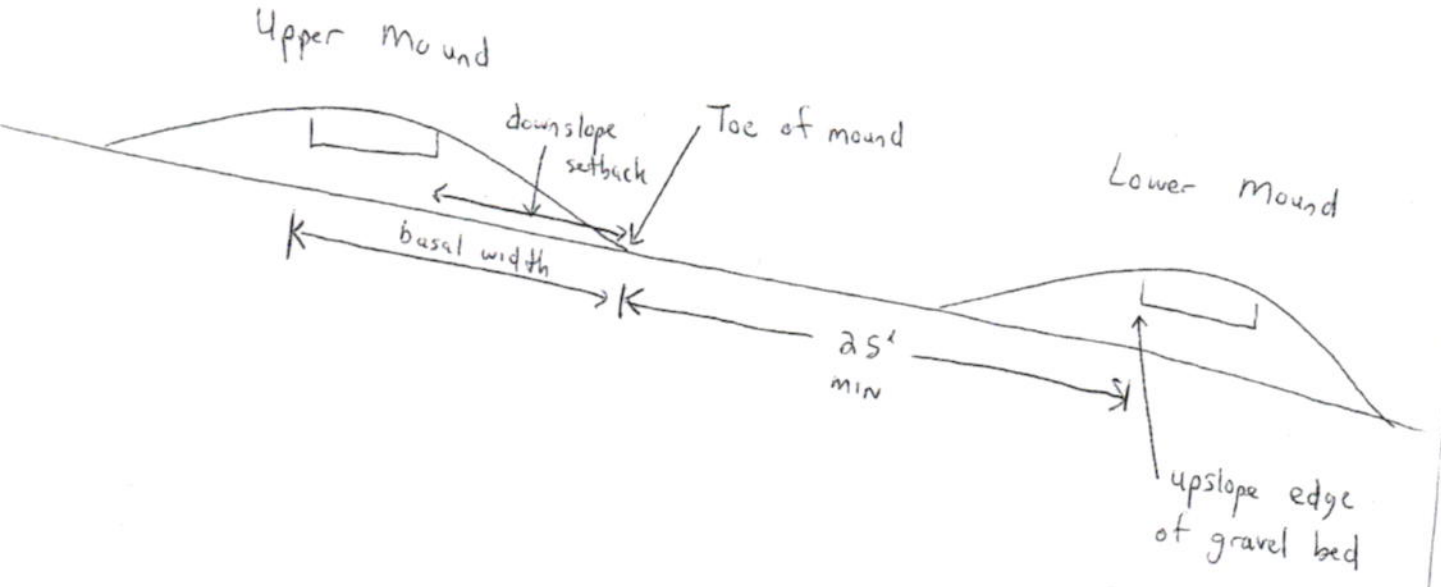
Respectfully,



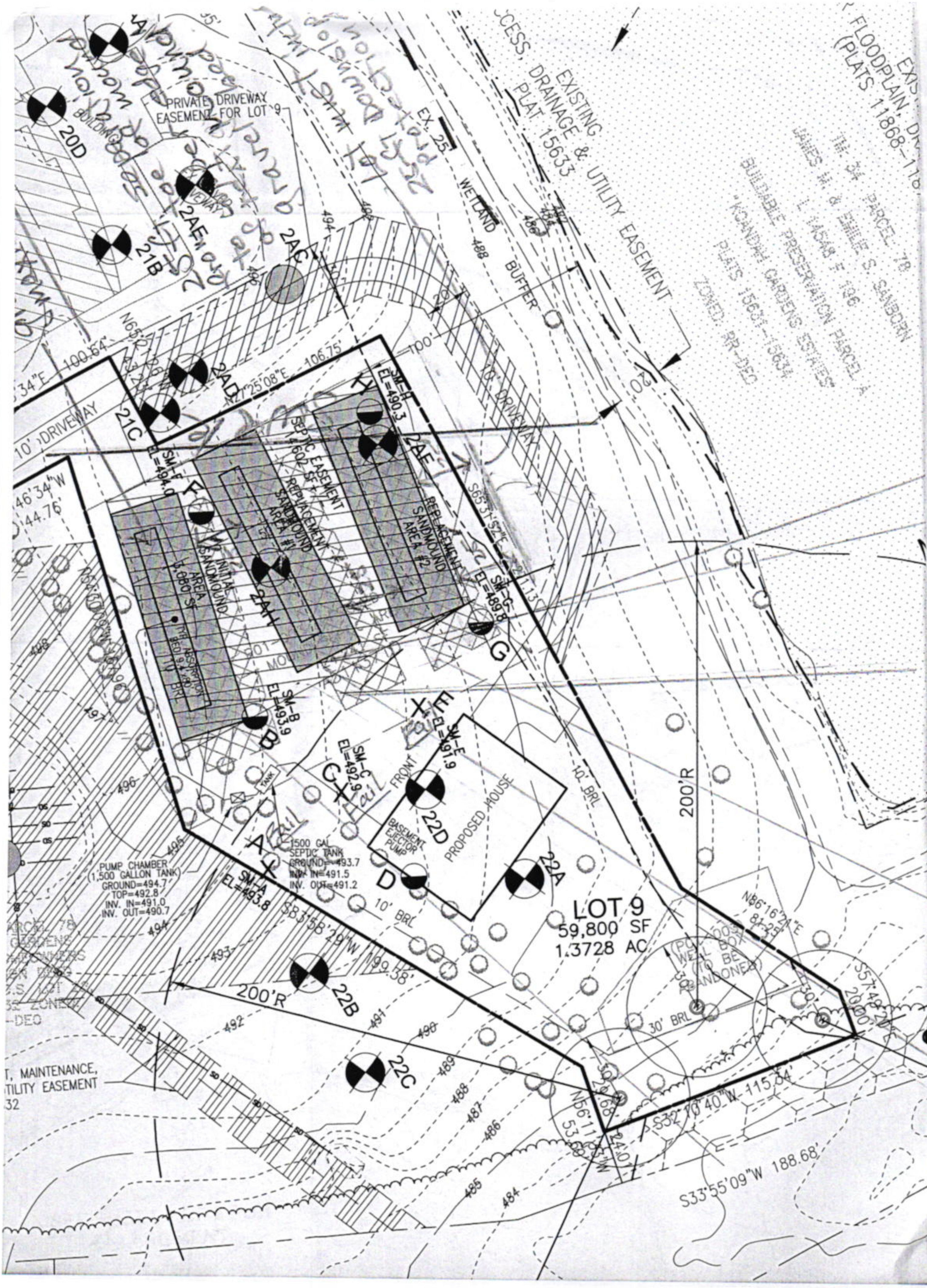
Robert Bricker, CPSS, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program, Bureau of Environmental Health
Howard County Health Department
8930 Stanford Boulevard
Columbia, MD 21045

Copy: Jeff Williams, Supervisor, Well and Septic Program
file

Stacked Mound Spacing



5/2016 Steven R. Krieg, LEHS, REHS/RS



PRIVATE DRIVEWAY EASEMENT FOR LOT 9
EXISTING ACCESS, DRAINAGE & UTILITY EASEMENT PLAT 15633
WETLAND BUFFER
EX. 25
10' DRIVEWAY
SEPTIC EASEMENT
INITIAL SANDMOUND AREA
REPLACEMENT SANDMOUND AREA #1
REPLACEMENT SANDMOUND AREA #2
SM-A EL=493.8
SM-B EL=493.9
SM-C EL=492.9
SM-E EL=491.9
SM-F EL=494.0
SM-G EL=489.8
SM-H EL=490.3
TANK
1500 GAL SEPTIC TANK GROUND=493.7 INV. IN=491.5 INV. OUT=491.2
PUMP CHAMBER (1,500 GALLON TANK) GROUND=494.7 TOP=492.8 INV. IN=491.0 INV. OUT=490.7
FRONT
BASEMENT EJECTOR PUMP
PROPOSED HOUSE
LOT 9
59,800 SF
1.3728 AC
10' BRL
30' BRL
200'R
N27°25'08"E 106.75'
100.64'
S83°58'29"W
S32°10'40"W 115.34'
S33°55'09"W 188.68'
N86°16'21"E 81.25'
20D
21B
21C
2AC
2AD
2AE
2AH
22A
22B
22C
22D
A
B
C
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E
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G
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ZONED: RR-DEO
T, MAINTENANCE, UTILITY EASEMENT

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS · SURVEYORS · PLANNERS

May 25, 2016

Mr. Robert Bricker, CPSS, REHS/RS
Howard County Health Department
Bureau of Environmental Health
7178 Gateway Drive
Columbia, Maryland 21046

RE: **McDaniel Property – Lot 9 and Non-Build. Pres. Parcel C**
A Resub. Pres. Parcel A
Koandah Gardens Estates
TM. 34 - P. 78

Dear Mr. Bricker:

Robert H. Vogel Engineering, Inc. offers the following response letter and revised Percolation Certification Plans for your review signature approval.

1. As required, one foot contours have been provided. Elevations of the previous tests (A-H) have been provided based on an interpolation of the May 2016 ground shots used to develop the 1ft contour information.
2. Sand Mounds have been amended. The mounds shown are per a 5 bedroom home located on a 6% slope.
3.
-Comment complied with. The areas between and below the lowest mound (25') shall remain undisturbed. Future Grading Plan submission for building and septic permit shall detail actual Limits of Disturbance and protective measures as well as provide detailing of the sand mound components; i.e. distribution network and pump design.
-Comment complied with. The lowest mound is at least 100 feet from the edge of the May 2016 field located edge of water. The highest mound is 10 feet from the property line and more than 50 feet from the offsite May 2016 field located bioretention facility. See F-02-004 for design plan.
4. The F02-004 Bioretention facility on adjoining Open Space Lot 22 has been field located. This facility is greater than 50 feet from the closest proposed mound. The easement per plat 15632 has been added to the Percolation Certification Plan.
5. The Lot shape in the area of the wells has been amended. The required 3 well sites are located 200 feet from the mounds.
6. Complied with. Thank you for the P01-003 results. The Legend and symbols have been amended to differentiate the tests with <60min. and >60 min. infiltration rates.
7. Note 3 has been amended. Field run topography (May 2016) over Lot 9 is provided.
8. The area of Non-Buildable Bulk Parcel C is added to the Percolation Certification Plan. There are no additional well sites and/or septic areas known on this parcel. Please refer to P01-003.

8407 Main Street · Ellicott City · Maryland 21043
Tel 410.461.7666 · Fax 410.461.8961

a. Existing / approved P01-003 sand mound locations have been shown with a unique symbol.
b. This plan and the Final Plat (F16-053) shall label the existing / approved P01-003 areas as "to be abandoned by recordation of the Final Plat (F16-053)".

9. The requested note: "There are no wells in the area of proposed Non-Buildable Preservation Parcel "C" has been added to the plan.

Should you have any questions, please do not hesitate to contact this office.

Sincerely,

ROBERT H. VOGEL ENGINEERING, INC.

Eric D. Salmi, Prof LS
esalmi@vogeleng.com

08-43es:Sanborn

Howard County Health Department

Bureau of Environmental Health
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Maura J. Rossman, M.D., Health Officer

April 28, 2016

To: Rob Vogel, Robert H. Vogel Engineering, Inc.

RE: McDaniel Property, proposed Lot 9 and Non-buildable Preservation Parcel 'C', Percolation Certification Plan; comments

Dear Mr. Vogel,

The following issues have been identified in the submitted subdivision proposal. Please note that, for a buildable lot or parcel, three (3) distribution systems are required for approval of the Percolation Certification Plan.

1. Field-run elevation contours at 1-foot intervals must be illustrated in the area where the sand mounds are proposed.
2. The sand mounds are to be illustrated such that low corners of the respective mounds are at the same elevation.
3. The areas between the proposed sand mounds, and an area extending 25 feet downslope from the lowermost sand mound, are to be protected from disturbances, such as the area of a sewage disposal area (SDA) is protected. The SDA must meet all regulated setbacks, for example, 100 feet to surface water.
4. Illustrate the infiltrative stormwater management facility that is located in the northeastern portion of Open Space Lot 22, and any stormwater management facility that may be installed in the area of the utility easement (Plat 15632) on Open Space Lot 22.
5. The proposed well zone is within 200 feet of the proposed sand mounds and is considered to be downgradient of the uppermost sand mound site, a condition that is prohibited.
6. Differentiate symbols for infiltrometer tests, as the results indicate a wide range of rates that effect design.
    a. Infiltrometer test locations 'B', 'D', 'F', 'G', and 'H' have infiltration rates less than 60 minutes per inch.
    b. Infiltrometer test locations 'A', 'C' and 'E' have infiltration rates greater than 60 minutes per inch.
7. Note 3 indicates that topography is taken from Howard County GIS, a statement that reflects inadequate data was used to generate elevation data presented on this proposed Percolation Certification Plan. Field –run topography is required for Percolation Certification Plans.

8. The Percolation Certification Plan must include the area of Nonbuildable Preservation Parcel 'C' and
    a. Indicating with a unique symbol those areas that may have been approved for sand mound locations, and
    b. Labeling such areas to be abandoned by recordation of the Final Plat.
9. The Percolation Certification plan must include a note stating either
    a. that there are no wells in the area of proposed Nonbuildable Preservation Parcel 'C', or
    b. identifying a well in that area and stating that the well shall be abandoned prior to signature of the Final Plat for the proposed subdivision.

If you have questions related to the above content, you may reply to me via email, rbricker@howardcountymd.gov , or call my desk, 410-313-2691.

Respectfully,

Robert Bricker, CPSS, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program, Bureau of Environmental Health
Howard County Health Department
8930 Stanford Boulevard
Columbia, MD 21045

Copy: Jeff Williams, Supervisor, Well and Septic Program
Chuck Zepp, representative of development team
file

TEST DATA

NAME: Konadah Garden Lot 2

LOCATION: N/S Rt 216

FILE NO:

COUNTY: Howard

DATE: 4/25/00

GRID: E

N

RECORDED BY: R Pauly

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
Lot 21	IE	20-24"	12:07		7" 40 mpi	Steady State not achieved
			12:27		6½" 64 mpi	Too Slow
			12:47	1/32 in 25 min	6 3/16	
			1:12	≃ 75 mpi	5 29/32	
	IB	17-21"	12:24		7" 15 mpi	
			12:39		6"	
			12:54		5¼" 20 mpi	
	Reset		12:57		7" 20 mpi	
			1:17		6"	
			1:39	3/4" in 18 min	4 7/8" 19.5	Pass — OK RB
			1:57	≃ 24 mpi	4 1/8"	
	IG	18"-22"	2:37		7"	Bad Seal — repacked but still going much faster than should / Plateau CL should test @. also air bubbles out of ¼" diameter hole in Bottom
			2:43		5 7/8"	
			2:50		4½"	
			3:13		2¼" pulled	~~But bottom of soil plug undamaged when pulled~~
	New shelf	20-24"	3:16		7" 88 mpi	
			3:39		6 3/4" 80 mpi	
			3:59		6½" 35.5 mpi	
	erratic results RB retest		4:30	13/16 in 24 min	5 5/8"	
			4:54	≃ 32 mpi	4 13/16"	only 3/16" in 24 min. = 128 mpi RB
			5:18	48 min/1"	4 5/8	48 mpi

TEST DATA

NAME Koondah Gardens Lot 21 FILE NO

LOCATION N/S Rt 216 just W/ Rt 108 COUNTY Howard

DATE 4/27/00

GRID E

RECORDED BY [illegible] N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
Lot 21	IA	16"-20"	11:22 11:40 12:00 12:20 12:40 1:00	80+ min on presoak inch 3/16 in 20 min 9/16 in 60 min	7" 6 3/4" 6 1/2" 6 1/4" 6 1/16" 5 7/8	Fail Pulled
	IC	18"-21"	11:30 11:48 12:01 12:22	some slight on stand	7" 6 7/8" 6 7/8 6 7/8"	pulled (Too Slow) Fail
	ID	17-21"	11:47 12:00 12:20 12:44 1:04	1/2" in 24 min ≈ 48 mpi 1/2 in 20 min	7" 6 3/8" 5 5/8" 5 1/8" 4 5/8"	20.8 mpi 40 mpi 48 mpi 40 mpi Denser clayey (7.5-10YR 5/6) CL layer begins @ 24+ inches. (48± mpi) pass 40 mpi Steady state not achieved

TEST DATA

also present, Mr Sandborn, Mike Rollins, Jeff Allen

NAME Kozadek Gardens Lot 21 FILE NO

LOCATION N/Rt 216 about ½ mi w/ Rt 108 COUNTY Howard

DATE 4/27/00

GRID E

RECORDED BY RP Pirtle N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
	IF	18"-22"	3:33		7" 40 mpi	fcd CL deposit @ 16"-22"
			3:43		6 3/4" 53 mpi	(100 w/ IB)
			4:26		5 15/16	
			4:50	≈ 55 mpi	5 1/2	
			5:21		5"	pass
				1 hr 31 min		Steady State not achieved RCB
				62 min		
	IH	18-24"	3:01		7" 145 mpi	DS/E/MW #7
			3:11		6 5/16" 18.5 mpi	
			3:26		5 1/2" 24 mpi	
			3:41		4 7/8 25 mpi	
			4:00		4 1/8	OK RCB
			4:27	1 24 mpi	3" even	pass

Did we ever get paid for five Tests on These 2 Kozadek Garden lots ?

5/1/00 RPP

A 511371 — Koandah Gardens

COUNTY #

SOIL PROFILE

0'

SOIL PROFILE

0'

INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

22A

Red yel - Str Brn
CL
2 m sbk

3½' — yel Brn CL
1 m sbk - platy
- massive

5½' — Red Brn Red
Mica loam Moist
c l d Bld Mn Gr
f Bled Filaw

6' — v dark Red Brn
- v dark Brn
Mica L
m d Bld Mn Con
water - Saturated

13'

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
7/7/99	25E						
7/8/99	22A	visual only	water seepage 10–13' water dists & side		8½' + lower	Trench left open to stabilize @ Bureau's	
		7/9/99 water level @ 10AM @ (9'10"–10')					in its tower

REMARKS

TYPE OF SOIL

TESTED BY AP Pauley

ALSO PRESENT Bert / Dale Gray on 7/8, Dale Gray on 7/9

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME ______ TRENCH WIDTH ______

INLET DEPTH ______ MAXIMUM BOTTOM DEPTH ______ SQ. FT/BEDROOM ______

TEST DATA

NAME: Koondah Garden

FILE NO:

LOCATION:

COUNTY:

DATE: 7/9/99

GRID: E

N

RECORDED BY: AP

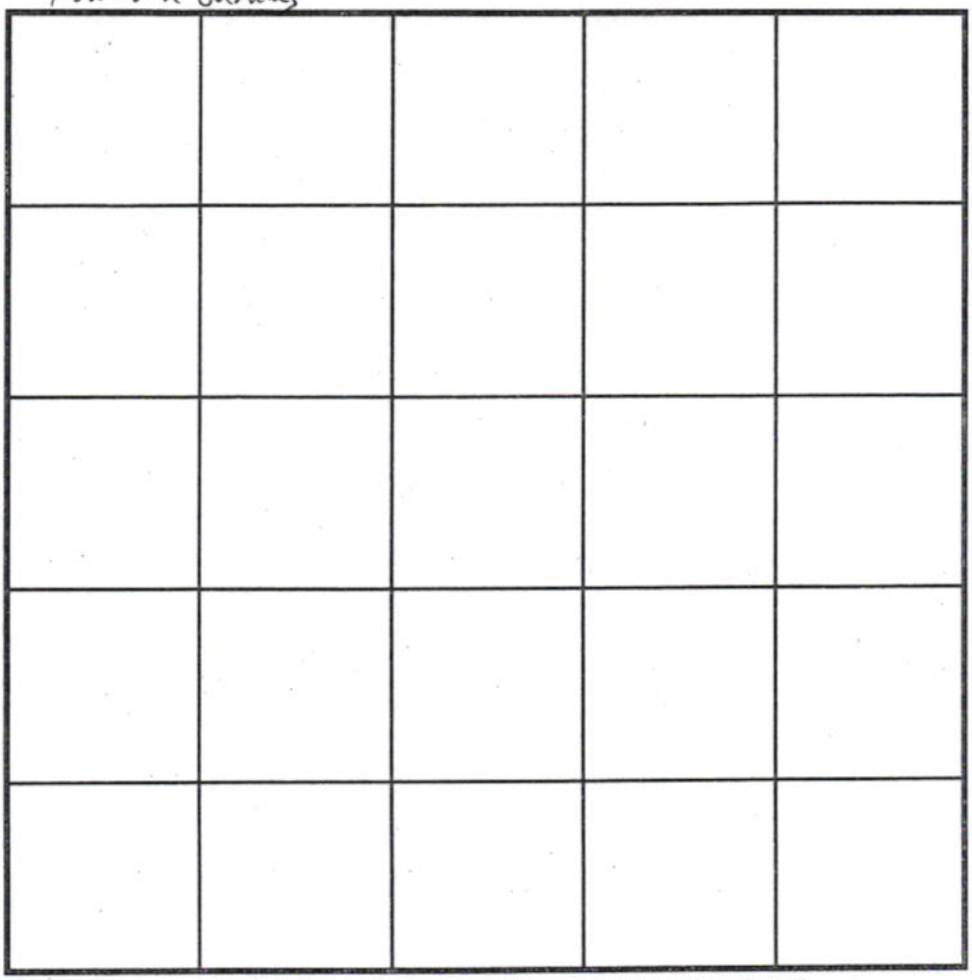
HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
	2AC Infl					Infl set 2 days ago - soils dry + cracky unit NOT Tapped + Sealed (Leaked on 1st pour @ 12:20

Owner decide Not to proceed with 6 driven Infiltrometers since we could Not Guarantee the Soundness of resealing rings once soils were Moistened. No further testing Done Today

A31/371
COUNTY #

Koandah Gardens

SOIL PROFILE
0'



SOIL PROFILE
0'

INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
7-8-99	2AC$_a$	34"	10:12	10:48	10:48	12:00	72+ Fail
7-8-99	2AC$_b$	43"	11:30	11:36	11:36	11:47	11
7-8-99	2AD	39"	10:17	10:23	10:23	10:32	9
7-8-99	2AE	36"	10:31	10:34	10:34	10:38	4
7-8-99	2AB	40"	10:47	10:52	10:52	11:11	19
7-8-99	2AA	40"	10:53	10:54	10:54	10:57	3

18' < apart

REMARKS _____

TYPE OF SOIL _____

TESTED BY _____ ALSO PRESENT _____

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME _____ TRENCH WIDTH _____

INLET DEPTH _____ MAXIMUM BOTTOM DEPTH _____ SQ. FT/BEDROOM _____

A51/371 Konandah Gardens

COUNTY #

SOIL PROFILE G

0'

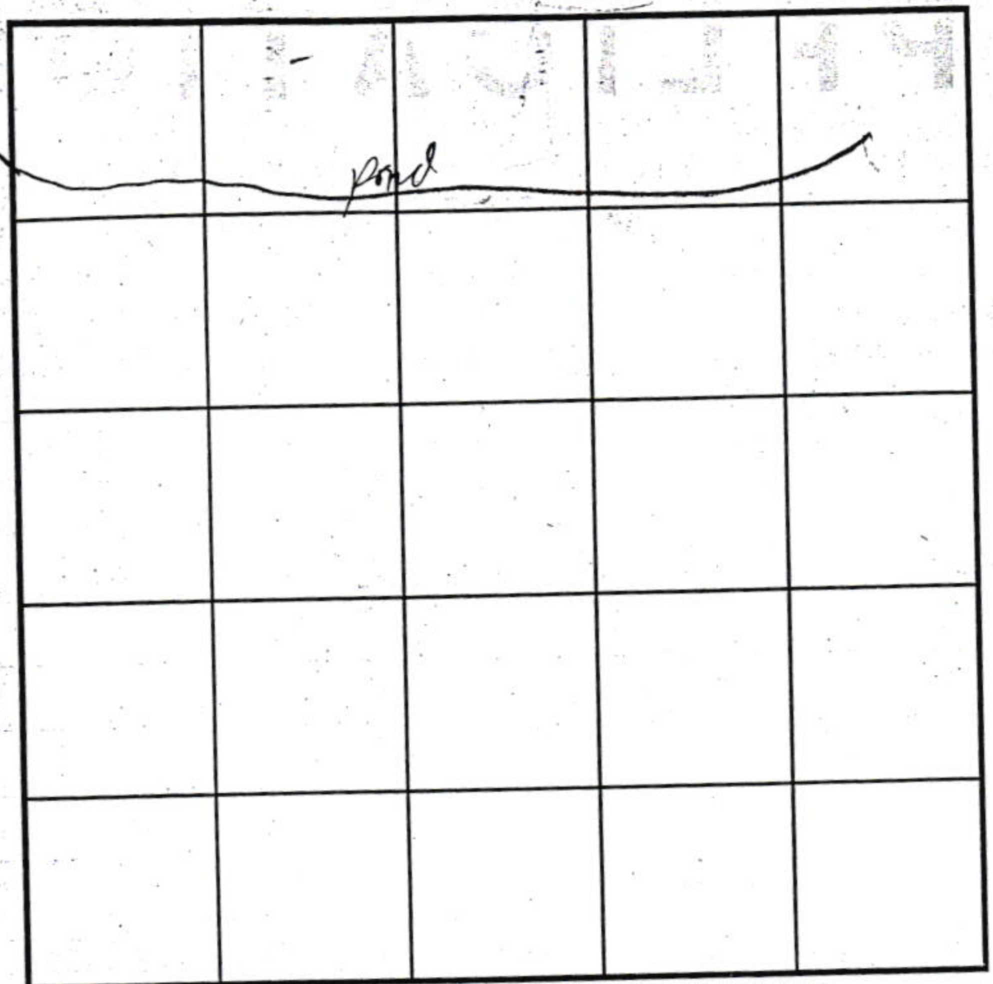
Topsoil

1½-2' Dry Dk Brn Str Brn-Red Brn CL

3½

5'

6½ bottom



SOIL PROFILE

0'

INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
7-8-99	24A	41"	1:59 3	2:06	2:06	2:20	14
7-8-99	24B	47"	2:15	2:16:15	2:16:15	2:18:15	2
7/9/99 Near corner of lot 21	4x 2A (Hole E)	42½"	Top bridge @ 10:34:40 (1st Wet) 10:43:00	for presoak [illegible] 10:54:00	10:54:00	11:09	15 mpi
	at Transition point Red HL Top,						
	4x 2A (Hole 6)	41½"	[illegible] 10:50 (1st N) 11:12	11:39	11:39	12:05	26 mpi
	F	Lost + poured Fell over	[illegible] 11:50 11:11:00	11:50	[illegible] ½" [illegible] 12:34	Hole Fading	
		3½ 4'	2:33:00	start ½-3/8" [illegible] 3:18	dirt fell in hole settled 3:32		Fail

water level in pond is 18" ± below Normal level — Many spring seeps in pond shore line.

REMARKS

TYPE OF SOIL

TESTED BY ALSO PRESENT

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME TRENCH WIDTH

INLET DEPTH MAXIMUM BOTTOM DEPTH SQ. FT/BEDROOM

TEST DATA

NAME Koandah Gardens Lots 20, 21 FILE NO A 511371

LOCATION N. Side Rt. 216 ¼ mile West of 108 COUNTY Howard

DATE 7/7/99

GRID _____ E

RECORDED BY B. Baker / R. Pinkley _____ N

HOLE NO.	TEST NO.	DEPTH	CLOCK TIME	ELAPSED TIME Min/Sec	MEASUREMENT	REMARKS (Method, Moisture, Biopores)
21A		3½'	4:45:45			Silty Clay Loam - Heavy Loam
			4:47:30	1:45	9" - 8"	
			4:49:55	2:25	8" - 7"	
			4:53:20	3:25	7" - 6"	
			4:58:00	4:40	6" - 5"	
21D		40"	4:55:15			Heavy Mica Loam
			5:00:30	4:45	8" - 7"	
			5:05:20	4:50	7" - 6"	
			5:10:20	5:00	7" - 6"	
21C		38"				Heavy Mica Loam
			5:05:30			
			5:15:30	9:00:00	8" - 7"	
			5:30:00	14:00:30	7" - 6"	
			5:46:20	16:00:20	7" - 6"	
21B		40"				Silty Clay Loam - Heavy Mica Loam
				1:20	8" - 7"	
				1:50	7" - 6"	
				2:50	6" - 5"	

steady state not achieved

Ap

MARYLAND DEPT. OF THE ENVIRONMENT
ONSITE SEWAGE DISPOSAL SYSTEM
SITE EVALUATION REPORT
SOIL PROFILE DESCRIPTION

FILE NO.
MD. GRID:
TAX MAP/B/P:
SUBDIVISION: Koandah Gardens
DATE: 7/8/99
BY: [illegible]

LOT 2A SECTION
DEPTH 13'
HOLE 2AC

DEPTH		TEXTURE	MATRIX COLOR	MOTTLES DESCRIPTION	STRUCTURE	CONSISTENCE	%ROCK BY VOL.	REMARKS (Caving, moisture, etc.)
0	7"	L	dark brown 10YR 4/3	—	3F-vf sbk – gran	mvfr	—	dry F-C Med Roots
7	11"	LL	Mix str Brn + dark Brn 10YR 4/4 4/3 → + 10YR 4/3		2 f-m sbk	mfi-mfr	Few small irregular gravels	dry No worm or Roots, slight sticky when wet
11	27"	CL	yel Red 5YR 4/6	—	2m-f sbk	mfi	—	dry – Sl Moist / 3K clay Films, Mod plastic + sticky when wet
27"	35"	micaceous L-FSL	Mix colors 7.5-10YR 5/6 + 10YR 4/4	6/8 orange-yel Brn f-c 1-2 Blk Mn Conc + dark Brn	1m-c sbk-Massive	mfr	—	Moist 1-2 n clay Films
35"	6½'	mica loam-SL	str Brn, Tan, yellowish Red	c1d Blk Mn Conc + silvery mica	Massive	mvfr	—	Moist
6½	7+'	mica L-FSL	Brn dark olive, Brn + dark gray, thin gray @	pale Red, yel, cream, light gray	Massive	mvfr	—	Moist – V Moist
7'	13'	Mica FSL-SL	dark Olive Brn, dark gray, mid gray	c1-2P mod Brn, Red, orange, pale gray	Massive	mvfr-Ls		wet
	active water seepage @ many points on side wall 8' + lower, caving @ 7½'							
7/8/99 @ 11 AM		water level @ 8' even.						
						Needs Wet Season Eval for Highest Seasonal Water Table		

Slope% – 2-4% EL.(ft) –
Chroma 2 –
Least Permeable Layers – could be anywhere in 3'-6' range below grade
Landscape Position – Toe
Water BLS –
Limiting Zones –
Additional Remarks – Need Deeper hole in Wet Season to ID highest water table – colors are Not confirming. 140' E of pond edge

APPLICATION

PERCOLATION TESTING

A S11371D

P _____

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 313-2640

DISTRICT _____

DATE _____

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER _____

ADDRESS _____ PHONE _____

AGENT OR PROSPECTIVE BUYER _____

ADDRESS _____ PHONE _____

PROPERTY LOCATION:

SUBDIVISION Koandah Garden Est. LOT NO. BPPA

ROAD AND DESCRIPTION _____

_____

TAX MAP _____ PARCEL # _____

SIZE OF LOT _____ TYPE BLDG. _____
(SINGLE FAMILY DWELLING OR COMMERCIAL)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. _____
(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

DISAPPROVED BY _____ FOR _____ DATE _____

HOLD PENDING FURTHER TESTS _____

REASONS FOR REJECTION OR HOLDING _____

PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # _____ DATE _____

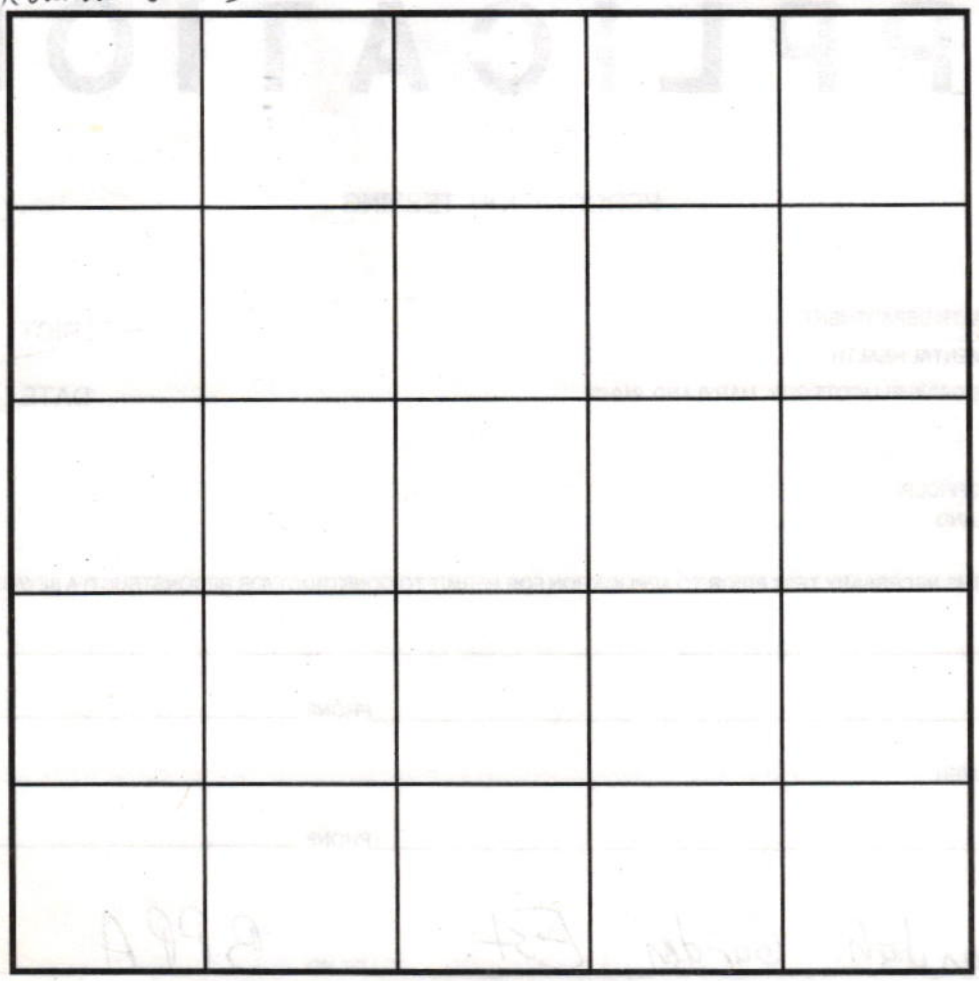
SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # _____ DATE _____

THIS IS NOT A PERMIT

HD-216 (3/92)

A511371 Koandah Gardens
COUNTY #

SOIL PROFILE
0'



SOIL PROFILE
0'

INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME	
7-8-99	22A	40"	12:05	12:06:30	12:06:30	12:09	2½	
7-8-99	22B	39"	12:12	12:15	12:15	12:22	7	
7-8-99	22C	38"	12:23	12:28	12:28	12:35	7	
7-8-99	22D	42"	12:32	12:41	12:41	1:09	28	
7-8-99	23 A_a	38"	1:43	2:11	2:11	2:48	37	Fail
7-8-99	23 A_b	44"	1:19	1:38	1:38	2:33	55	Fail
7-8-99	23B	39"	1:00	1:28	1:28	2:13	45	Fail
7-8-99	23C	40"	1:17	1:23	1:23	1:34	11	
7-8-99	23D	38"	1:29	2:06	2:06	3:00	54	Fail

REMARKS _____

TYPE OF SOIL _____

TESTED BY _____ ALSO PRESENT _____

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME _____ TRENCH WIDTH _____

INLET DEPTH _____ MAXIMUM BOTTOM DEPTH _____ SQ. FT/BEDROOM _____

APPLICATION

PERCOLATION TESTING

A _____

P _____

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 313-2640

DISTRICT _____

DATE _____

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER _____

ADDRESS _____ PHONE _____

AGENT OR PROSPECTIVE BUYER _____

ADDRESS _____ PHONE _____

PROPERTY LOCATION:

SUBDIVISION Woodch Garden Est. LOT NO. BPPA

ROAD AND DESCRIPTION _____

_____

TAX MAP _____ PARCEL # _____

SIZE OF LOT _____ TYPE BLDG. _____
(SINGLE FAMILY DWELLING OR COMMERCIAL)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. _____
(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

DISAPPROVED BY _____ FOR _____ DATE _____

HOLD PENDING FURTHER TESTS _____

REASONS FOR REJECTION OR HOLDING _____

PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # _____ DATE _____

SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # _____ DATE _____

THIS IS NOT A PERMIT

HD-216 (3/92)

A 51/371 Korandah Gardens

COUNTY #

SOIL PROFILE

0' G

Topsoil

1½-2' Dry

2m sbk
Str Brn - Red Brn
CL

3½

5'

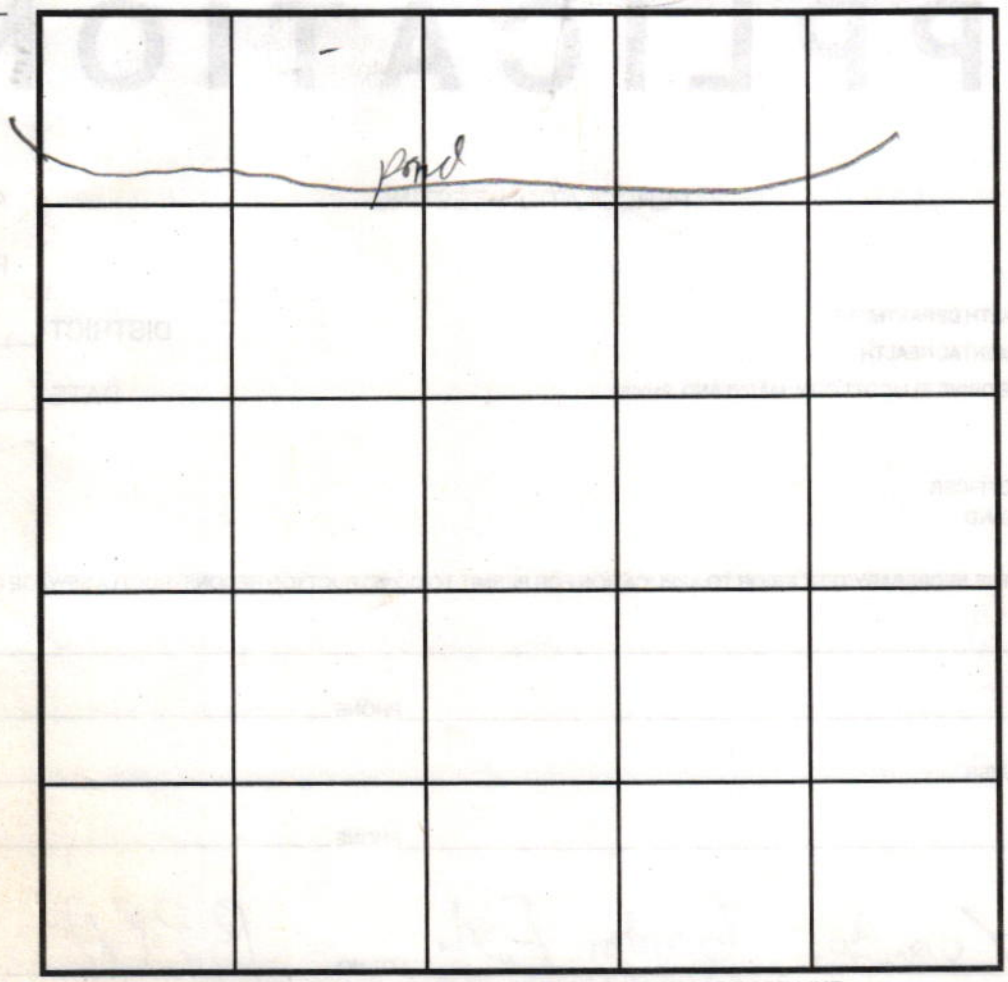
6½' bottom

7'

G

SOIL PROFILE

0'



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
7-8-99	24A	41"	1:593	2:06	2:06	2:20	14
7-8-99	24B	47"	2:15	2:16:15	2:16:15	2:18:15	2
7/9/99 near corner of lot 21	Lot 2A Hole E	42½"	Top Bridge @ 10:34:40 (1st Nail) 10:43:00	for presoak [illegible] 10:54:00	10:54:00	11:09	15 mpi
	at transition point [illegible] Top,						
	Lot 2A Hole 6	41½"	[illegible] presoak 10:50 (L+N) 11:12	11:39	11:39	12:05	26 mpi
	F	reset + [illegible] Fell over	only presoak 11:50 11:11:00	11:50	only ½" by 12:34	Hole Leaking	
		3½ 4'	2:33:00	start ½ - 3/5" by 3:18	[illegible] fell in hole pulled 3:32		Fail

water level in pond is 18" ± below Normal level — Many spring seeps in pond shore line.

REMARKS

TYPE OF SOIL

TESTED BY ALSO PRESENT

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME TRENCH WIDTH

INLET DEPTH MAXIMUM BOTTOM DEPTH SQ. FT/BEDROOM

Lot # 's Koandah Garden Review 8/17/99 continued from 8/10/99

on Aug'99 Plan	on Jan'97 Perc Date	Test Date	Test #	Rate – depth (Mpi)	Visual Hole Depth	P/F	Remarks W.T. / Gray	
25	23	1/2/97	168	7 @ 4'	12'	P	dry	Burnt Orange CL to 5' OK@ 8'
DA 10	(tested by GS)		169	5 @ 3' 2 @ 7'	12'	P	"	CL to 5'
			170	5 @ 3½'	12'	P	"	OK@8' (No data assume same as 168/169)
			171 (190)	9 @ 4'	12'	P	"	
			169A	4 @ 3'	NA	P	"	OK@8'
24	22	1/2/97	172	7 @ 3½'	12'	P	dry	Brown CL to 4'
DA9			173	8 @ 3' 3 @ 7'	12'	P	"	Typical (see 172
			174	4 @ 4'	11'	P	"	Typical (see 172)
3	21	1/2/97	175	18 @ 3½'	12'	P	"	Orange SCL to 3' OK@8'
			176	12 @ 4'	11'	P	"	NA OK@8'
A8			196 (21A)	2 @ 2' 2 @ 5'	10'	?	water @10'	Brn CL to 2'; Brn SCL to 4'; Tan/Gray/Brn SL c orange mottles (4'-10') ignore
			24					
			24A					
22	20	1/2/97	(20A) 195	3 @ 4'	8½'	F	water @8½'	dark Brn CL to 6'
			from above ~~196~~	~~2 @ 2~~			~~water @10'~~	~~Tan/Gray Brn c orange mottles @ 4'-10'~~
17			197	slow @ 5½'	10½'	F	water @ 10½	Sandy clay to water table
		1/3/97	198	No Test	11'		dry @ 11	only 35' from 191 c water @ 11
			23C					
			23B					
			23A					
		1/2/97	191 (High)	4 @ 2' 2 @ 6'	11'		water @11'	orange CL to 3½; dark Brn SSL; white/gray low chroma pockets; Blk/or mottles
			192	22 @ 3½' same @ 4'	8½'	F	8'??	@ 8' questionable W.T. dark orange sandy to 3'; dark Brn micaSL c Black banding @ 3
Same locations as 23B + 23C			2 lower holes	mottled, Not Tested one at head of swale, lower than			spillage	Dug + Filled – Not Tested – water 195 (20A)
·	7/8/99		22A	No Test			W.T. @ 9'10" (18)	in drought summer saturated water sidewall @ 8½' + lower; dark Brn loam start @ 6'
PA			22D					
			22B					
			22C					

Lot 25 OK as proposed

Lot 24 OK as proposed

Ripe?

To: Dave Duvre
410 875-7110
Fax 410-635-9960
From: Ron Pinkley, Howard County Health Dept
410-313-2651
Fax 410-313-2648

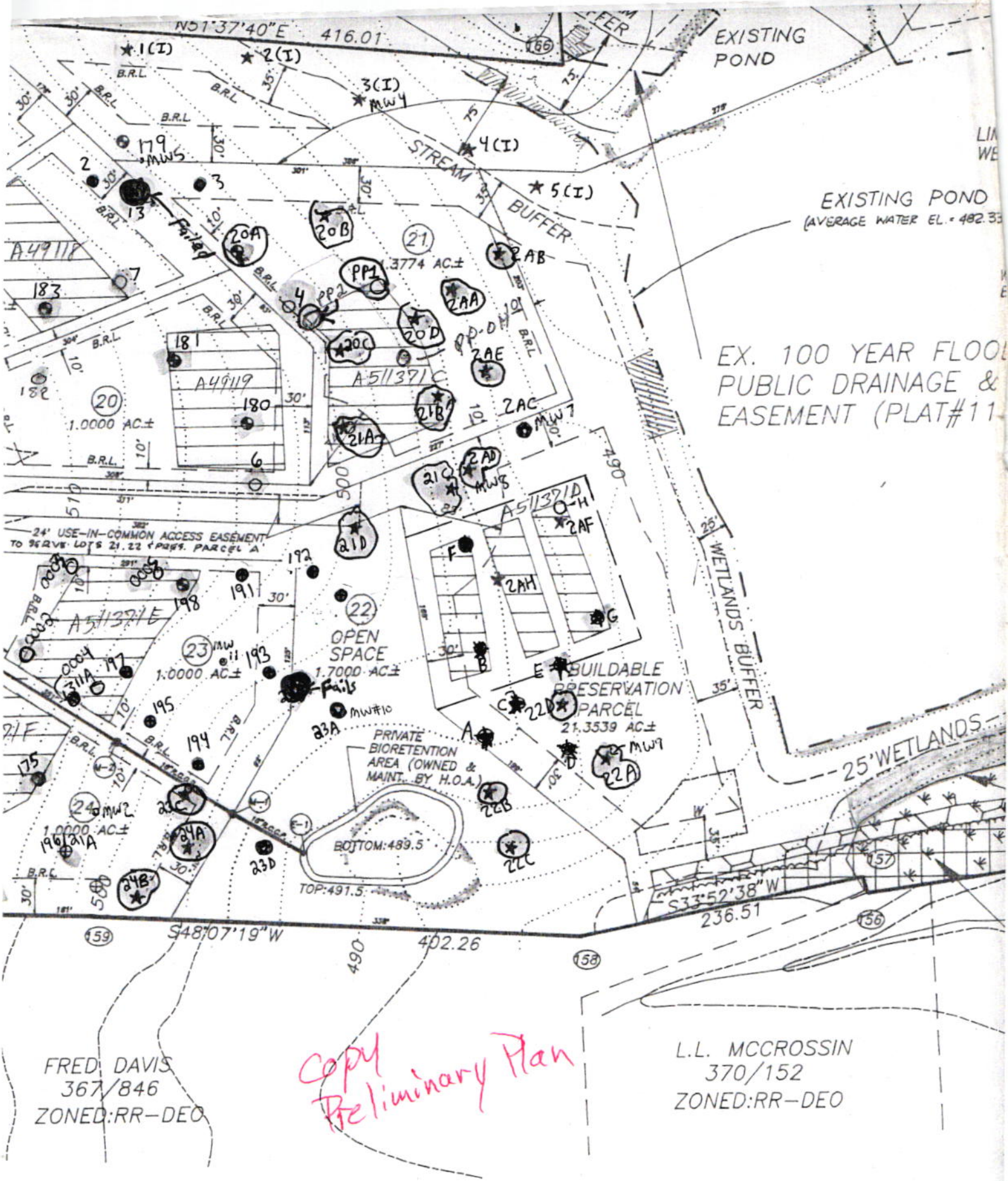
Koandah Garden's Monitoring Data 2000

Koandah Gardens Lots 16-25 * Lead Met

MW	Total Depth / stickup	1/7/00	MAR/BG 2/11/00	3/2/00	3/20/00	4/5/00	4/21/00
1	11'9" / 1'0"	6.3 / 5.3	—	4.8 / 3.8	4.9	4.9 / 3.9	3'8" * / 2.7
2	9'8" / 12"	6.4 / 5.4	—	5.0 / 3.9	—	5.3 / 4.2	3'8" * / 2.5
3 [illegible]	6'8" / 12"	dry / 5.7+	—	6.0 / 5.0	—	6'3" / 5.2	5'3" * / 4.2
4 [illegible]	7"	7.2 / 6.6	7.1 / 6.5	6.7 / 6.1	—	6'9" / 5.2	6'1" / 5.5
5 [illegible]	15'1" / 12"	14.3 / 13.5	14.7 / 13.7	13.8 / 12.8	—	13'6" / 12.5	13'1" / 12.1
6 [illegible]	15'8" / 14"	dry / 14.5	dry / 14.5	dry / 14.5	—	dry / 14.5	dry / 14.5
7 TP [illegible]	8'4" / 1'6"	7'6" / 6.0	7.8 / 6.3	6.5 / 4.9	—	6'5" / 4.9	6'2" / 4.7
8 TP 1AD	12'3" / 1'6"	9'[illegible]" / 8.2	9.9 / 8.4	8.5 / 7.0	—	8'4" / 7.2	7'9" / 6.2
9 TP22D	11'3" / 8"	9'[illegible]" / 8.5	9.1 / 8.4	8.2 / 7.5	—	8'7" / 7.9	7'6" / 6.8
10 TP23A	9'9" / 10"	7'6" / 7.0	8.0 / 7.2	6.8 / 5.9	—	6'11" / 6.1	5'11" / 5.1
11 [illegible]	12'7" / 12"	—	—	11.2 / 10.2	—	11'1" / 10.1	10'5" / 9.4
12 Lot 23	13.1 / 15"	—	dry + 12.5	water @ Bottom	Just opened dry @ 15.5	wet Bottom 12.5	12'0" / 11.1
Auger Hole Boring 1	(unprotected) (No pipe)	—	—	—		3.2	16" / 1.3

TRANSMIT CONFIRMATION REPORT

Journal No. : 009
Receiver : 914106359960
Transmitter : HCOD ENVHEALTH
Date : Apr 24.00 10:27
Time : 00:41
Mode : NORM
Document : 02 Pages
Result : O



Copy Preliminary Plan

Approved by DPZ 3/14/01

ADVANCE SYSTEMS

INNOVATIVE ONSITE WASTEWATER SOLUTIONS

A Division of DTD, Inc.

1318 New Windsor Road
New Windsor, MD 21776
email: advsystm@cct.infi.net

Office 410-875-9370

FAX 410-635-9960

April 19, 2000

Mr. James M. Sanborn
4967 Ten Oaks Road
Dayton, Maryland 21036

Re: Septic Disposal Areas for Proposed Lot 21, 26, 27 and Preservation Parcel A
Koandah Gardens Estates

Dear Mr. Sanborn:

A review of the abovementioned proposed lots and parcel as to the suitability for installation of onsite septic disposal systems has been made based on the percolation data and groundwater monitoring data as collected by Howard County Health Department and our office.

Percolation data on these sites was obtained primarily during July, 1999 and were satisfactory for conventional tile fields on Lot 21 and the Preservation Parcel A . These tests ranged from 2 - 7 minutes at an average depth of 39 inches.

Groundwater monitoring wells, placed at the direction of the Howard County Health Department, have been periodically checked since Fall 1999. Readings taken to date suggest that the groundwater levels fluctuate relative to climatic events but have remained at or below the acceptable levels in the respective sites. Monitoring well readings in the vicinity of Lot 21 and Preservation Parcel A should allow for the placement of standard tile field systems on these lots in the proposed SDA sites. Although some water levels were above the seven-foot level (5+/- feet at MW #7) , the three-foot elevation differential from the SDA on the Preservation Parcel A and water levels (>7 feet at MW#8)would suggest that adequate unconsolidated, unsaturated conditions exist. The readings taken on the well located on Lot 21 are in the acceptable range of 7-81/2 feet and are also down gradient of the proposed SDA.

Conventional sand mound (infiltrometer) testing was conducted on Lots 26 and 27, and were also satisfactory; averaged times were 15 minutes for Lot 26 and 26 minutes for Lot 27. These tests were conducted in the upper soil horizon at depths ranging from 10-14 inches. In the case of Lot 26, monitor well levels ranged from 3.8 feet to 5.7 feet. Sufficient separation above saturated zones, as required in COMAR 26.04.02.04-C, on these lots may be achieved with sand fill of 24 inches, No monitoring wells were placed in the vicinity of the SDA on Lot 26; the site elevations suggest that groundwater is not a determinant factor on this site.

It is my professional opinion that functional conventional septic systems and replacement areas can be designed and suitably placed on all of these proposed sites as indicated on the accompanying plans.

Sincerely yours,

J. M. Robbins, R.S.
ADVANCE SYSTEMS

ADVANCED
Land and Water, Inc.
Global Environmental Solutions

7540 Main St. Suite 7
Sykesville, MD 21784
PHONE 410-795-4626
FAX 410-795-4611
www.alwi.com

April 24, 2000

Mr. James Sanborn
4967 Ten Oaks Road
Dayton, MD 21036

Re: Letter of Opinion; Domestic Wastewater Disposal Feasibility Study
ALWI Project No. HO5K022

Dear Mr. Sanborn,

Following our meeting of March 30, 2000, Advanced Land and Water, Inc. (ALWI) is pleased to present our professional opinion concerning the hydrogeological aspects of the above referenced project. ALWI understands that you seek to develop lots 19, 24, 25 and the "preservation parcel" of the Koandah Gardens Estates (a portion of Howard County Tax Map No. 34, Block 23 and Parcel 78). The site is located on the northeast side of Highland Road, south of Isle of Mann Drive and approximately 0.2 mile northwest of MD Route 108, in southwestern Howard County, Maryland.

ALWI's professional opinion of the site's hydrogeologic suitability for on-lot wastewater disposal is presented pursuant to COMAR 26.02.02.06.D(1), which provides for professional consultants to prepare hydrogeological reports. ALWI's credentials and background are presented in the attached resume and brochure.

BACKGROUND

ALWI understands that the proposed lots will be served by individual wells and on-lot wastewater disposal systems. During our meetings of March 20 and 26, you requested a written professional opinion relative to the following: (1) the use of certain monitoring pipes installed on-site in determining the depth of the water table and (2) the potential effect of drought in depressing the water table at this location. ALWI further understood that these opinions were sought in the context of assessing the hydrogeologic viability of on-lot septic system development. Neither water supply issues nor the pedologic/agronomic aspects of wastewater disposal are addressed herein.

The requirements for approval of an on-lot septic system are set forth in COMAR 26.04.02 and require four feet of unsaturated soil thickness between the bottom of the trenches of each proposed wastewater disposal drainfield and the top of the "seasonally high" water table. ALWI understands that Howard County Health Department (HCHD) personnel, possibly in consultation with Maryland Department of the Environment (MDE) personnel, have directed and assisted you in constructing several piezometers on-site for the purpose of monitoring water levels (the design of these pipes and its significance are discussed below). ALWI also understands that HCHD personnel have advised that it will be necessary to add three feet to

measured water table elevations to correct for a continuing drought that is interpreted to be depressing on-site water levels.

PROFESSIONAL OPINIONS

In preparing the professional opinions enumerated below, ALWI has utilized its best level of effort consistent with its professional standards, present scientific judgment and knowledge. ALWI has upheld accepted industry practice and used and relied on (1) published scientific literature and textbooks (cited where appropriate); (2) information you provided regarding prior fieldwork conducted prior to ALWI's involvement; (3) your accounts of conversations with regulatory officials and ALWI's March 26, 2000 conversation with Ronald J. Pinkley, R.S. (HCHD) and (4) public domain data available from the U.S. Geological Survey (USGS) and over the internet.

1. **The data obtained from the on-site network of monitoring pipes likely record erroneously shallow water table depths.** The depth to water measured in this network of informally installed pipes likely reflects a higher-than-actual groundwater elevation due to (1) the high porosity and permeability of the backfilled materials adjacent to the pipes (compared to undisturbed soil strata); (2) the absence of perforations on the sides of the pipes at the true water table interface (true groundwater monitoring wells have such perforations) and (3) their open air construction allows rainfall to enter through direct precipitation.

2. **The on-site monitoring pipes do not measure the water table.** COMAR 26.04.02.01(43) defines "unconfined aquifer" as "an aquifer not bounded above by a bed of distinctly lower permeability than that of the aquifer itself and containing groundwater under pressure approximately equal to the atmosphere." Conversely, COMAR 26.04.02.01(8) defines a "confined aquifer" as an "aquifer bounded above and below by beds of distinctly lower permeability than that of the aquifer itself and which contains groundwater under pressure greater than that of the aquifer". COMAR correctly states that the terms "unconfined aquifer" and "water table aquifer" are synonymous and that the terms "confined aquifer" and "artesian aquifer" are also synonymous. On March 26, 2000, Mr. Pinkley indicated that the invert depths of the on-site monitoring pipes terminate in sandier water-bearing strata after penetrating distinctly less permeable clayey strata higher in section. Mr. Pinkley also stated that he has observed that water rises in the pipes (in response to this relief in pressure). By these facts, the on-site monitoring pipes do not record the depth to the water table under unconfined conditions[1] but merely a potentiometric surface[2] under confined conditions. On Page No. 114, Fetter (1994) states that to measure the water table or make a water table map, "...all wells should have

[1] Fetter (1994) states that "water table aquifers" have "continuous layers of materials of high intrinsic permeability extending from the land surface to the base of the aquifer".

[2] Fetter (1994) defines "potentiometric surface" for a confined aquifer as the "...level to which water level will rise in a well cased to the aquifer."

an open borehole or well screen at the depth of the water table. Fetter (1994) continues by stating that a potentiometric surface map (though not a water table map) can be made using wells in which the water table depth is cased off.

3. **The on-site pipes are not proper groundwater monitoring wells.** – COMAR 26.04.04.07 specifies well construction standards for water supply as well as groundwater monitoring. The on-site pipes were not constructed in accordance with this regulation nor by a master well driller as also required. To be accordance with COMAR and good scientific practice, had the on-site monitoring pipes not already been constructed, ALWI would have recommended differing construction. Specifically, ALWI would have recommended installation of one-or more standard monitoring wells in accordance with provisions of COMAR 26.04.04.07 so as to seal the annulus from flashy responses from short-circuiting precipitation and overland flow.

4. **Drought conditions no longer prevail in the shallow soil strata underlying the site.** ALWI understands that the HCHD has proposed the addition of three feet to correct for its belief that continued regional drought conditions are artificially suppressing what otherwise would be seasonally higher groundwater levels. Recent official press releases indicate that regional drought conditions no longer prevail (see attached). In taking a more site-specific approach to this, ALWI developed a hypothesis that the artificial pond located on-site intercepts the water table. ALWI then verified this hypothesis by designing a program for making a series of closely spaced hand-auger borings radially outward from the pond. ALWI understands that these borings document a local groundwater mound (not a perched pond). Insofar that the pond has been reported as full-to-overflowing since the tropical storms of September 1999, drought conditions no longer prevail in the shallow strata (first seven feet, based on the reach of ALWI's hand auger) in the proximity of this pond.

5. **The basis for the 3-foot "drought correction factor" appears inapplicable.** ALWI understands the technical basis for the HCHD's 3-foot drought correction factor may be a network of groundwater hydrographs maintained by the U.S. Geological Survey. One such hydrograph is No. HO Ce-38, which does record a three foot difference between present water levels and mean water levels for this time of year. However, ALWI notes that this well has 51 feet of casing yet measures water levels between 25 and 38 feet below land surface. By virtue that this well never records water levels within the range of the on-site monitoring pipes (shallower than 10-12 feet), it is not applicable to interpreting the existence and magnitude of drought-depressed groundwater level on-site. Insofar that all groundwater hydrographs maintained by the USGS in central Maryland also record confined conditions in fractured bedrock aquifers, no publicly available data exists to contravene the information in the attached news release. By extension, no publicly available data supports the three-foot drought correction factor as reportedly applied by HCHD.

SUMMARY

In summary, when not overprinted by rainfall events the on-site pipes merely monitor a potentiometric surface that likely is shallower than the true water table. If water levels are measured within one to three days of a rainfall event (i.e., 0.5 inches of precipitation or more), the resultant data are likely to be biased beyond objective use. The technical basis for the "drought correction factor" is similarly predicated on a potentiometric surface unrelated to the water table height in the shallow soils on-site. Limited on-site observations indicate that drought conditions are not prevalent in the shallow soils on site, and neither on-site nor publicly available regional data counter this. ALWI recommends that HCHD consider this information in supporting a decision to proceed with wet weather Soil Test as prescribed in COMAR 26.04.02.04.B, but without further drought correction.

Thank you for the opportunity to be of service. Please do not hesitate to call should you have any questions or wish our assistance in presenting our opinion and/or implementing our recommendations.

Respectfully submitted,

Mark W. Eisner, P.G.
President

Attachments

Fetter, C.W. 1994, Applied Hydrogeology, Third Edition, Prentice-Hall, Inc., Englewood Cliffs, NJ, 691 p.

cc: David Duree (Advanced Systems)

News Release

U.S. Department of the Interior
U.S. Geological Survey

Address
8987 Yellow Brick Rd.
Baltimore, MD 21237

Release	Contact	Phone	Fax
March 7, 2000	Mick Senus	(410) 238-4241	(410) 238-4210

WATER CONDITIONS IMPROVING IN MARYLAND, DELAWARE, AND D.C.

LEVELS INCREASE IN GROUND-WATER AND STREAMFLOW DURING FEBRUARY

Precipitation in February helped to replenish ground-water levels and reservoir supplies in the Maryland-Delaware-D.C. region, according to hydrologists at the U.S. Geological Survey (USGS) in Baltimore, Maryland. **However, improved water-supply conditions will be sustained only if precipitation remains near normal in the coming months.** Ground-water levels at the end of February have increased throughout most of the area and are in the normal range throughout the entire bi-state area. Contents of the Baltimore reservoir system increased from 60,740 million gallons (60.74 billion gallons) in January to 65,750 million gallons near the end of February, which was 87 percent of average and 94 percent of last year at this time. End-of-month contents in February 1999 were about 69,490 million gallons.

Flow into the Chesapeake Bay was 80% of average (68.5 billion gallons per day or bgd) for the month of February and was estimated to be about 55 bgd. February streamflow has increased in bi-state area local streams and has moved from the below normal range to the normal range for this time of year. Streamflow at Potomac River near Washington, D.C. has moved from the deficient into the normal range.

MARK W. EISNER, P.G. *C.V.*

Mr. Mark W. Eisner, P.G. is President of Advanced Land and Water, Inc. (ALWI). Possessing more than thirteen years experience in environmental and hydrogeological consulting, Mr. Eisner directs corporate environmental and hydrogeologic investigations for both private and public sector clients and is fully proficient in designing and executing environmental assessment and remediation projects. Mr. Eisner has personally completed nearly a thousand Phase I and Phase II Environmental Site Assessments (ESAs), as well as several hundred Transaction Screens, subsurface hydrogeologic investigations and environmental remediation designs. This work met or exceeded applicable standards published by the American Society for Testing and Materials (ASTM), other industry and professional organizations, and federal and state regulatory agencies.

In addition to ESAs and related field investigations, Mr. Eisner consults for clients nationwide on a wide range of technical, managerial and loss prevention aspects of environmental assessment, regulatory compliance, remediation and site closure issues. Additional areas of his technical expertise include mathematical modeling of hydrogeologic systems; pumping tests and matters relating to groundwater supply contamination. On numerous occasions, Mr. Eisner has testified as an expert on matters related to groundwater resources, hydrogeological environmental contamination and due diligence studies.

Mr. Eisner is a former senior regulator and environmental policy maker with the State of Maryland. The respect, which Mr. Eisner commands among his peers and former coworkers at the Maryland Department of the Environment (MDE), combines with his abundant local experience to provide ALWI's Maryland-based clients with the highest level of technical service and regulatory expertise. His credentials and experience for the proposed project are as follows:

1. **ENVIRONMENTAL INVESTIGATION AND REMEDIATION** - Mr. Eisner is fully proficient in designing and executing environmental assessment and remediation projects. Mr. Eisner has personally completed nearly a thousand Phase I and Phase II ESAs, as well as several hundred Transaction Screens, subsurface hydrogeologic investigations, and environmental remediation designs. This work met or exceeded applicable standards published by the ASTM, other industry and professional organizations, and federal and state regulatory agencies. Also, Mr. Eisner consults for clients nationwide on a wide range of technical, managerial and loss prevention aspects of environmental assessment, regulatory compliance, remediation and site closure issues. On numerous occasions, Mr. Eisner has testified as an expert on matters related to environmental contamination and due diligence studies.

2. **PROJECT MANAGEMENT** - Mr. Eisner's project management skills are exemplary: work is performed on time and within budget. ALWI uses the latest in project management software and techniques to provide state-of-the-art timeline and budgetary control on all projects. Clients are kept informed as to the work underway through regular written progress reports. Moreover, clients are afforded the means to contact their ALWI Project Manager around the clock via e-mail, pager and cellular services.

3. **WATER RESOURCES EXPLORATION AND DEVELOPMENT** – Mr. Eisner possesses an outstanding track record of developing many of the highest yielding and quality wells ever drilled in southern Pennsylvania and northern Maryland. Specific areas of his technical expertise include fracture trace analysis; well design and construction management; pumping test design and analysis; wellhead protection delineations and plans; surface water studies; mathematical modeling of hydrogeologic systems; spray irrigation permitting and other waste water application studies. Mr. Eisner's expertise extends from the field to the courtroom and he is fully experienced and qualified to tackle the most daunting groundwater supply challenges.

4. **REGULATORY AFFAIRS** - Mr. Eisner is a former senior state regulator and groundwater allocation policy maker, which commands him respect among professional colleagues at MDE and similar agencies in neighboring jurisdictions. Accordingly, his unique insights allow ALWI to provide its water supply clients with the highest level of technical service and regulatory expertise.

EDUCATION

B.S., Geology, University of Maryland
M.S., Geology, University of Delaware

REGISTRATION AND AFFILIATIONS

Professional Geologist, Commonwealth of Pennsylvania
Member, Geological Society of America
Member, Assoc. Groundwater Scientists and Engineers
Member, National Groundwater Association

SEMINARS AND PRESENTATIONS

- 40-HR OSHA-Trained For Hazardous Waste Site Operations, including supervisory and excavation/shoring components.
- "IBM PC Applications in Groundwater Hydrology", Assoc. of Groundwater Scientists and Engineers, Nat'l Groundwater Assoc., Boston, Massachusetts, 1994.
- "The Use of U.S. Geol. Survey (USGS) MODFLOW for Analysis of Groundwater Flow Systems", Assoc. of Groundwater Scientists and Engineers, Nat'l Groundwater Assoc., Tampa, Florida, 1989.
- "Fluid Flow Through Fractured Media", Dept. of Eng. Professional Development, Univ. of Wisconsin, Madison, Wisconsin, 1988.
- "When client, hydrogeological and regulatory interest collide; a case study from southern Pennsylvania", orally presented at the Northeastern sectional meeting, Geol. Society of America, Providence, RI, 1999.
- "Do large-scale groundwater withdrawals *cause* the failure of neighboring septic systems? New data from a site in southern Pennsylvania", orally presented at the annual state-county groundwater symposium, MDE, Baltimore, MD, 1999.
- "Forum on Geologic Mapping Applications in the Washington-Baltimore Urban Area", USGS Circular No. 1148, invited participant in technical forum, Reston, Virginia, 1998.

FUEL SPILL ASSESSMENTS AND CLEANUP EXPERIENCE

- Rapid Response and Initial Abatement - Managed on-scene operations at sites of petroleum leakage and spillage from both above-ground (AST) and underground storage tanks (UST). Coordinated for emergency response, initial spill assessment work using field-screening equipment. Acted as liaison between client and regulatory officials inspecting work site. Prepared Health and Safety Plans and acted as Project Health and Safety officer. Oversaw rapid-response excavations, stockpiling and composite waste profiling. Directed the lateral and vertical extent of excavations and supporting characterization efforts. Completed manifests for transport, treatment and disposal of contaminated soils and waters. Prepared final technical reports for regulatory submittal and site closure.
- UST Program Management - Managed $1,000,000 MDE and Virginia Department of Environmental Quality (VDEQ) contracts to provide assessment and remediation services at leaking UST sites referred for State lead throughout Maryland. Also, managed a $1,500,000 UST compliance upgrade and rapid response contract for Bell Atlantic.
- Remedial Action - Designed and installed a rapid-deployment environmental remediation system at a location where leakage from a residential fuel UST had caused neighborhood-wide contamination of domestic supply wells. System consisted of pump-and-treat, aeration, carbon filtration, soil vapor extraction, off-gas treatment and in-site bioremediation.
- Risk Assessment, Remedial Design and Construction- Designed and installed a groundwater remediation system at a police barracks where long-standing petroleum contamination of shallow groundwater had resulted in airborne VOCs within the barracks building after rainstorms. Once remediation was implemented (two recovery wells, a cut-off-trench, and positive ventilation of a sump pump area), instances of lost work time for illness decreased substantially.
- Fuel Spill Investigation - Performed environmental risk assessment of farm threatened by off-site contamination by salt, fecal coliform bacteria, solvents and heavy metals. Extensive sampling confirmed groundwater contamination by salt. Provided litigation support in pursuit of various courses of action in appeal of MDE permitting decisions. Adjudicatory hearing is set for 2000.
- Environmental Impact Study – Performed a comprehensive environmental impact study of a retail gasoline service station planned in a sensitive watershed. Collected and interpreted hydrogeologic data on which were based construction and operations recommendations designed to lessen the future risk of an environmental impact due to a hypothetical fuel spill. Testified at planning and zoning hearings and helped secure project approval.
- Environmental Trespass Investigation - Designed and executed an environmental assessment of commercial property located down gradient from a fuel spill site. Identified gasoline-contaminated groundwater and used trace element chemistry to fingerprint the source. Performed a limited risk assessment and assisted counsel in preparation of legal documents charging environmental trespass. Strength of deposition testimony allowed settlement with defendant (a major oil company) on highly favorable but sealed terms.

HYDROGEOLOGIC SITE CHARACTERIZATION EXPERIENCE

- Hydrogeologic Site Characterization - Designed and installed groundwater monitoring systems in both unconsolidated and fractured bedrock settings. Designed and executed aquifer pumping tests to evaluate the extent of subsurface contamination and to quantify hydraulic parameters. Conducted investigations to determine the extent of dissolved and non-aqueous phase groundwater contaminants.
- Subsurface Sampling and Monitoring - Designed and implemented investigations to characterize the degree of subsurface contamination at leaking UST sites, employing a wide variety of geological, soils, geophysical and analytical techniques. Designed and installed groundwater monitoring systems using a full spectrum of drilling and well construction techniques in a broad range of geological, hydrological and chemical environments.
- Computer Modeling of Groundwater Systems - Developed and employed numerical groundwater flow and contaminant transport models to evaluate remedial alternatives optimize remedial design and evaluate off-site impacts. Designed, calibrated and executed computerized groundwater flow models to identify capture zones and perform time-of-travel assessments necessary for delineating wellhead protection areas (WHPAs) in sensitive and contaminated aquifers.
- Wellhead Protection - Prepared comprehensive wellhead protection plans for eight municipal community groundwater supplies in northeastern Maryland. Also, provided wellhead protection and source water assessment assistance to fulfill MDE grant objective to assess and survey 100 non-community wells in western Maryland. Delineated WHPAs based on hydrologic water balances supported by fracture trace analyses, time of travel calculations, geologic mapping, land use planning reviews and ordinance development. Identified contaminant hazards within each WHPA and developed specific recommendations for mitigating future hazards and providing community outreach and emergency supply.
- Quarry Dewatering Impact Investigation – Designed and executed a comprehensive monitoring program to assess the hydrologic effects of existing and future dewatering activities at a limestone quarry in Washington County, Maryland. Collected and interpreted hydrologic data from 16 observation wells, 12 stream gauging stations, two flowmeters and four rain gauges over a 100-day monitoring period. Predicted future dewatering rates, off-site well impacts and future occurrences of sinkholes.
- Domestic Well Failure Evaluation – Testified for defendant in a civil action on the failure of a domestic supply; assisted attorney in providing key testimony, which helped to secure a "directed verdict" dismissing case.
- Groundwater Development – Located and developed municipal production wells for several municipalities in northern Maryland and southern Pennsylvania. Developed water supply facilities and implemented wellhead protection programs. Designed and executed aquifer pumping tests to evaluate long-term sustainable well yields, quantify hydraulic parameters, and assess impacts on neighboring supplies. Designed and implemented plan for long-term groundwater monitoring and impact mitigation.

4967 Ten Oaks Road
Dayton, MD 21036
April 24, 2000

Mr. Ronald J. Pinkley, R.S.
Howard County Health Department
Bureau of Environmental Health
Ellicott City, MD 21042-4544

Dear Mr. Pinkley:

Now that HCHD has opened a truncated wet season percolation testing period, it is incumbent on us to do our homework. I appreciate that we have been very generously granted three days of field time. To this end, we need a clear plan with parameters established prior to additional field exploration.

To expedite and facilitate productive use of our time, I have requested Mr. Shanaberger to submit an application for certification of SDAs (Sewage Disposal Areas) on four lots. This submission is based on data that has been collected to date and evaluated by Michael Robbins, R.S.. His evaluation is attached. I certainly hope that you will concur with Mr. Robbins evaluation and conclusions. If you are not in concurrence, however, I would appreciate your being very specific and precise as to what data you believe is still needed.

Also attached are Mr. Mark Eisener's (Hydrogeologist) evaluations and opinions concerning water table considerations pertinent to our site. Needless to say, his very professional and highly qualified expertise must be taken very seriously and with the greatest respect.

I have assembled a very confident, highly qualified expert team of specialists to address the feasibility of SDAs on this unique site - at least significantly different in various aspects for most local septic situations. I am fully cognizant of the particular features encountered that bear on the suitability here for successful septic systems. It would certainly be unethical for me to be a party to selling lots that are likely to present septic failure to the buyers.

I will assure you that the team I have in place is also of the highest ethical character and employs the highest professional standard. Team members are accomplished in state of the art technology and have a reputation to protect. As objective scientists they come without preconceived biases, but rely on factual data, critical observations, and accepted professional evaluations. Incidentally, I too am a professional research scientist in my own right and understand the necessity for objectivity.

I realize that this application for certification gives you scant time for review, but I believe that it would greatly assist all of us if you could address this application prior to Wednesday.

I look forward to meeting on site and hopefully we'll quickly wrap up this project.

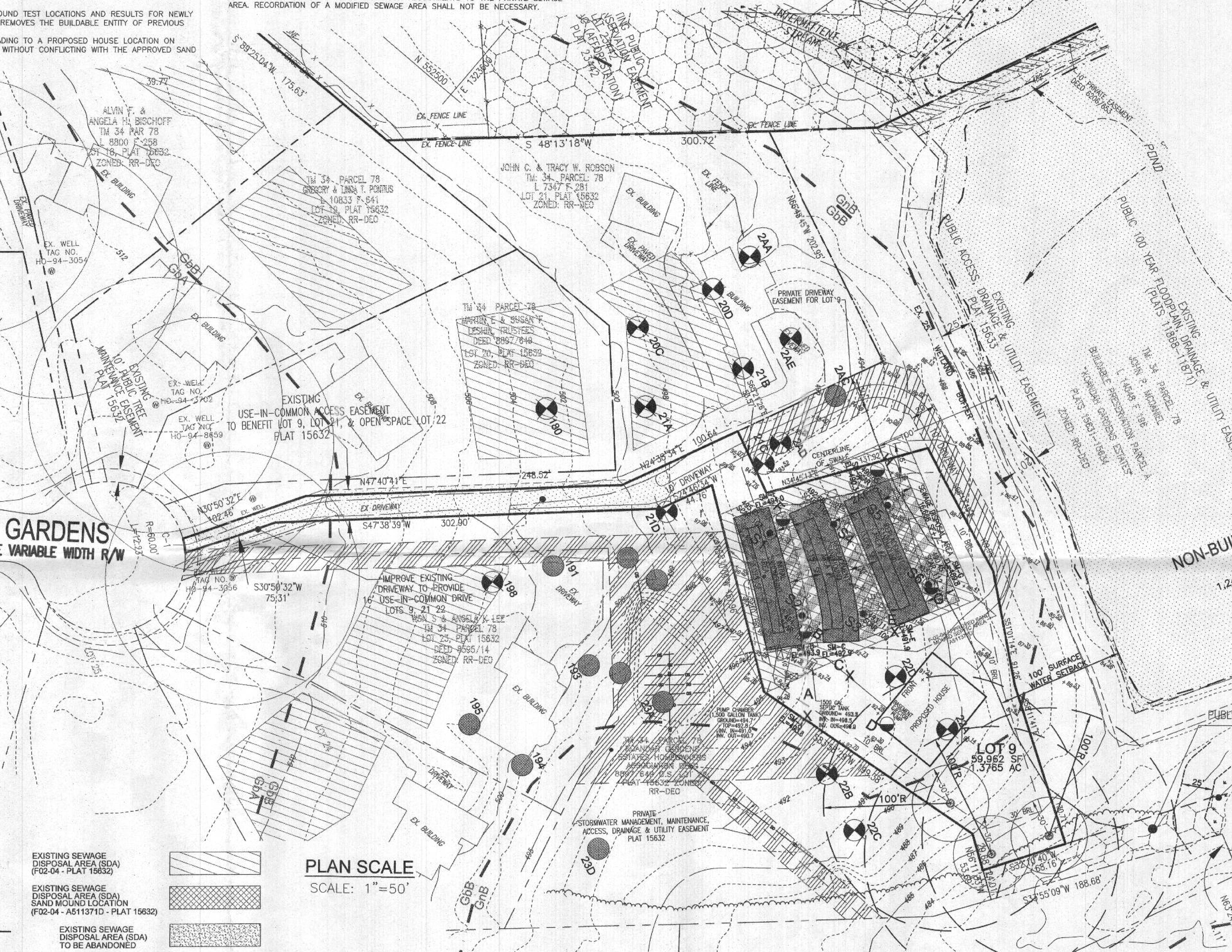
Sincerely yours,

James Sanborn

Cc.: Amy McMillen

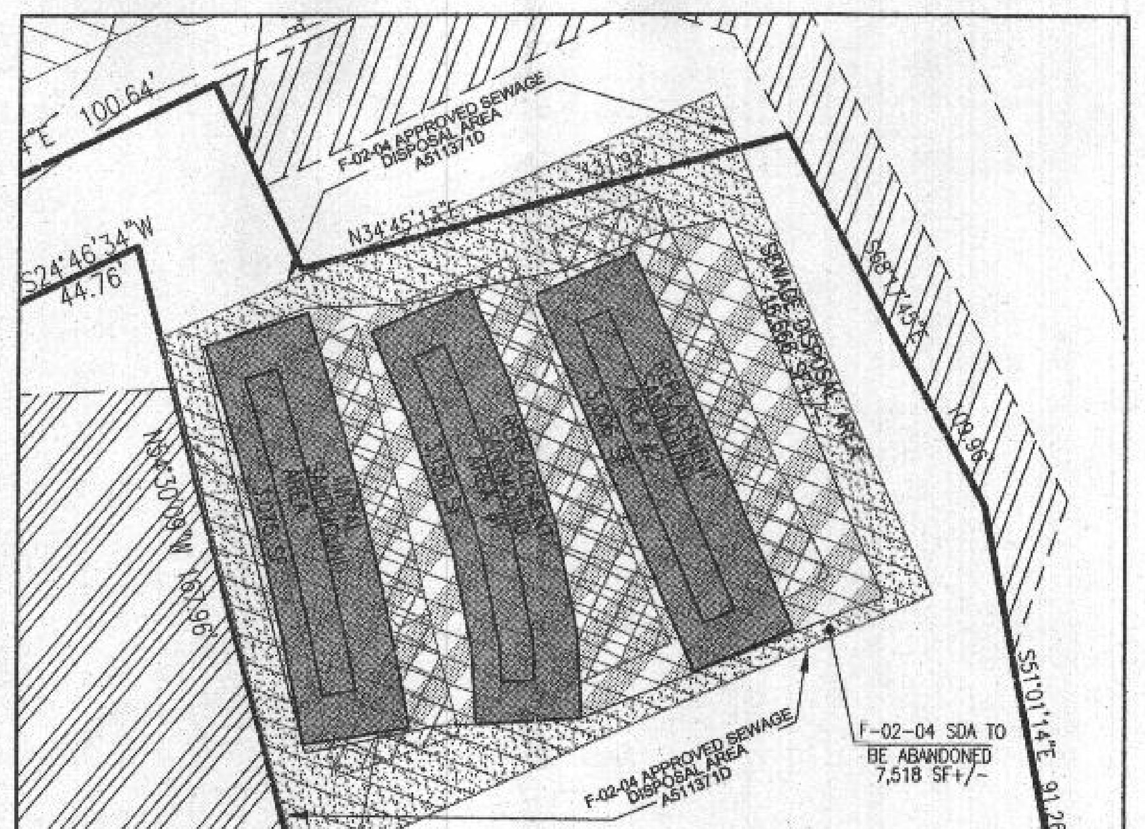
GENERAL NOTES:

1. THE SUBJECT PROPERTY IS ZONED RR-DEO IN ACCORDANCE WITH THE 10/6/13 COMPREHENSIVE ZONING PLAN, BUT WAS PREVIOUSLY SUBDIVIDED AND RECORDED UNDER THE 2/2/04 ZONING REGULATIONS AND THEREFORE THIS SUBDIVISION IS CONSIDERED SUBJECT TO THE 2/2/04 REGULATIONS SINCE IT DOES NOT INCREASE THE NUMBER OF BUILDABLE LOTS.
2. THIS PLAT IS BASED ON A FIELD RUN BOUNDARY SURVEYS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 2013 ("MCDANIEL PROPERTY" PARCEL B) AND JANUARY 2015 ("KOANDAH GARDENS ESTATES" PARCEL A).
3. -AS REQUIRED FOR MOUND SYSTEMS, THE TOPOGRAPHY SHOWN ON LOT 9 AND ADJOINING OPEN SPACE LOT 22 IS AT ONE FOOT INTERVALS BASED ON THE FIELD RUN SURVEY OF MAY 2016. -TWO-FOOT CONTOUR INTERVALS OBTAINED FROM CURRENT HOWARD COUNTY GIS DATA IS SHOWN ACROSS THE SURROUNDING PROPERTIES AND NON-BUILDABLE PRESERVATION PARCEL "C".
4. SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE HOWARD COUNTY SOIL SURVEY.
5. THE PURPOSE OF THIS PLAN IS TO:
   1. TO ABANDON THE PREVIOUSLY APPROVED (F02-04, PLAT 15632) WELL SITE AND SEWAGE DISPOSAL AREA KNOWN AS A511371D.
   2. CREATE NEW WELL SITES AND THE REQUIRED INITIAL AND TWO REPLACEMENT SAND MOUND LOCATIONS
   3. ILLUSTRATE PREVIOUSLY APPROVED SAND MOUND TEST LOCATIONS AND RESULTS FOR NEWLY CREATED LOT 9. THIS RECONFIGURED LOT REMOVES THE BUILDABLE ENTITY OF PREVIOUS PRESERVATION PARCEL A.
   4. DEMONSTRATE THE PROPOSED DRIVEWAY LEADING TO A PROPOSED HOUSE LOCATION ON THE RECONFIGURED LOT CAN BE INSTALLED WITHOUT CONFLICTING WITH THE APPROVED SAND MOUND LOCATION.
6. THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
7. ALL WELLS AND SEPTIC SYSTEMS WITHIN 100' FROM THE PROPERTY BOUNDARIES HAVE BEEN SHOWN.
8. ANY CHANGE TO A PRIVATE SEWERAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. PREVIOUSLY APPROVED SEWAGE DISPOSAL LOCATIONS ON LOT 9 ARE BASED ON FIELD NOTES PROVIDED BY HOWARD COUNTY HEALTH DEPARTMENT.
10. ALL WELLS SHALL BE DRILLED PRIOR TO FINAL PLAT RECORDATION. IT IS THE DEVELOPER'S RESPONSIBILITY TO SCHEDULE THE WELL DRILLING PRIOR TO FINAL PLAT SUBMISSION. IT WILL NOT BE CONSIDERED "GOVERNMENT DELAY" IF THE WELL DRILLING HOLDS UP HEALTH DEPARTMENT SIGNATURE OF THE RECORD PLAT.
11. THIS AREA DESIGNATES A MINIMUM 10,000 SQ FT PRIVATE SEWAGE AREA REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE THESE AREAS SHALL BE NULL AND VOID UPON CONNECTION TO A PUBLIC SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.
12. ON LOT 9, THE LIMITATIONS OF AVAILABLE AREA AND SOIL PROPERTIES ARE SUCH THAT A HOUSE WITH NO MORE THAN FIVE (5) BEDROOMS CAN BE SUPPORTED WITHIN THE ILLUSTRATED SEWAGE DISPOSAL AREA. THIS LIMITATION MAY BE RECONSIDERED IF A CERTIFIED PROFESSIONAL CAN PRESENT AN EXHIBIT ILLUSTRATING THAT THE SAND MOUND AREAS CAN BE PROPERLY DESIGNED AND ACCOMMODATE THE ESTIMATED FLOW FROM A RESIDENCE HAVING MORE THAN FIVE BEDROOMS.
13. ALL WELLS INSTALLED IN THIS SUBDIVISION MUST BE SAMPLED FOR ANALYSES OF RADIUM AND/OR RADIUM DEGRADATION PRODUCTS AT THE TIME OF YIELD TEST.
14. DPZ REF'S: VP 86-26, S 87-49, P 87-53, ECP 12-048, F-86-91, F-16-053, F 87-200, F 90-076, F 94-069, F 95-121, F 97-145, F 02-004, F 02-057, P 87-053, P 01-003, S 99-07, SP 13-005, WP 13-034, PLAT 15631-15634.
15. THE AREAS BETWEEN THE 3 MOUNDS AND 25 FEET BELOW THE LOWEST SAND MOUND SHALL BE PROTECTED FROM DISTURBANCE.
16. THE SAND MOUND AREA(S) DELINEATED AND IDENTIFIED ON LOT 9 MUST BE PROTECTED BY A FIXED BARRIER AT ALL TIMES DURING DEMOLITION, GRADING AND CONSTRUCTION ACTIVITIES. THEREAFTER PROTECTIVE MEASURES SHOULD BE IMPLEMENTED TO PROTECT THESE AREAS FROM EROSION AND ENCROACHMENT BY WHEELED VEHICLES. SUBSEQUENT BUILDING PERMIT APPLICATIONS MAY BE DENIED SHOULD THE SAND MOUND AREAS BE EVALUATED AND FOUND TO BE UNSATISFACTORY FOR THE INTENDED USE. IN ADDITION, A SUPPLEMENTAL SITE PLAN WITH ALL OF THE NECESSARY DETAILS FOR INSTALLATION OF THE SYSTEM WILL BE REQUIRED PRIOR TO RELEASE OF THE BUILDING PERMIT (IF APPLICABLE) AND SEPTIC SYSTEM INSTALLATION PERMIT.
17. TO THE OWNERS KNOWLEDGE, THERE ARE NO WELLS IN THE AREA OF PROPOSED NON-BUILDABLE PRESERVATION PARCEL "C".



LEGEND

- EXISTING CONTOURS — 382 / 380
- EXISTING TREES TO REMAIN
- SOIL BOUNDARY — GbA / GbB
- ℄ STREAM
- PASSED PERC TEST LOCATIONS (P01-003)
- FAILED PERC TEST LOCATIONS (P01-003)
- EXISTING WELL — EX. WELL
- PROPERTY LINE
- PROP. WELL LOCATION
- EXISTING PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT (PLATS 11868-11871)
- PROPOSED SEWAGE DISPOSAL AREA
- PROPOSED SAND MOUND LOCATION
- PRIVATE DRIVEWAY EASEMENT FOR LOT 9
- PRIVATE STORMWATER MANAGEMENT MAINTENANCE, ACCESS, DRAINAGE & UTILITY EASEMENT
- PASSED SAND MOUND TEST LOCATION (P01-003) (INFILTRATION RATES LESS THAN 60 MIN PER INCH) — D
- FAILED SAND MOUND TEST LOCATION (P01-003) (INFILTRATION RATES GREATER THAN 60 MIN PER INCH) — X B
- FIELD SURVEYED GROUND ELEVATION POINT MAY 2016 — × 95.85
- PASSED SAND MOUND TEST LOCATION (APRIL 2017) W/ FIELD SCAR GROUND ELEVATION — S1
- EXISTING SEWAGE DISPOSAL AREA (SDA) (F02-04 - PLAT 15632)
- EXISTING SEWAGE DISPOSAL AREA (SDA) SAND MOUND LOCATION (F02-04 - A511371D - PLAT 15632)
- EXISTING SEWAGE DISPOSAL AREA (SDA) TO BE ABANDONED



SEWAGE DISPOSAL AREA DETAIL
SCALE: 1"=50'

NOTE

THE SAND MOUNDS ON THIS PERCOLATION CERTIFICATION PLAN ARE DESIGNED FOR CONSTRUCTION WITH SAND MEETING SPECIFICATIONS OF CODE OF MARYLAND ANNOTATED REGULATIONS [COMAR] 26.04.02.05 U(4)(k)(ii) WHICH IS SAND HAVING AN EFFECTIVE SIZE OF 0.15 -0.3 MM WITH A UNIFORMITY COEFFICIENT BETWEEN 4 AND 6 AND CONTAIN LESS THAN 20 PERCENT OF MATERIAL LARGER THAN 2.0 MM AND LESS THAN 5 PERCENT OF MATERIAL LESS THAN 0.53 MM. SAND DELIVERED TO THE SUBJECT PROPERTY FOR THE PURPOSE OF CONSTRUCTING A SAND MOUND WILL BE SAMPLED AND ANALYZED FOR COMPLIANCE WITH COMAR 26.04.02.05U(4)(k)(ii) SPECIFICATIONS. THIS ANALYSIS MUST BE COMPLETED PRIOR TO PREPARATION OF THE SAND MOUND SITE FOR APPLICATION OF THE SAND. SAND DELIVERED TO THE SUBJECT PROPERTY THAT DOES NOT MEET SPECIFICATIONS OF COMAR 26.04.02.05U(4)(k)(ii) IS TO BE REMOVED IMMEDIATELY.

MAPPED SOILS TYPES

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K-FACTOR	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
GbA	GLADSTONE LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	PARTIALLY*	PARTIALLY*	0.37	NO	PARTIALLY*
W	WATER	---	---	---	---	---	---

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

WET SEASON* TESTING RESULTS

TEST NO.	PERCOLATION RATE	TEST DEPTH	GROUND ELEV
S1 / S2	53.33 MIN / INCH	18" / 18"	495.0 / 494.4
S3 / S4	40 MIN / INCH	18" / 17"	493.1 / 492.7
S5 / S6	40 MIN / INCH	16" / 19"	490.9 / 490.5

* APRIL 2017

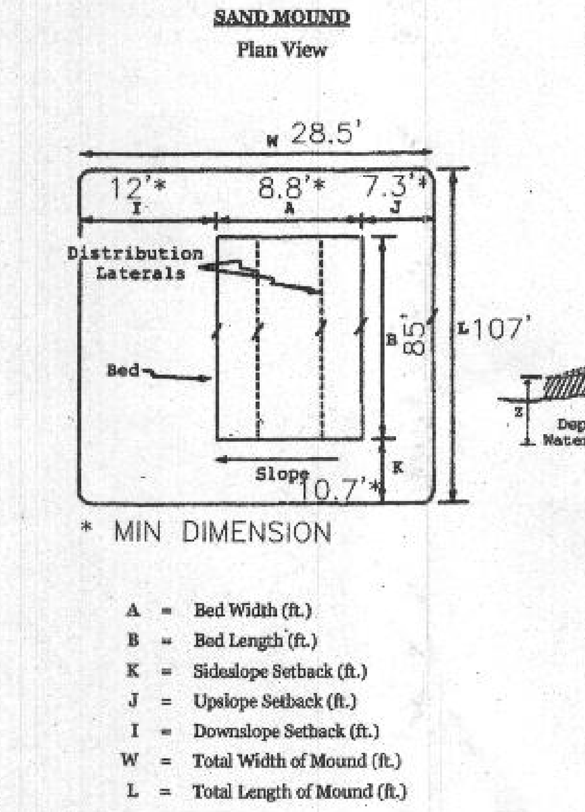


FIGURE 3.2 – DESIGN WORKSHEET, PLAN VIEW

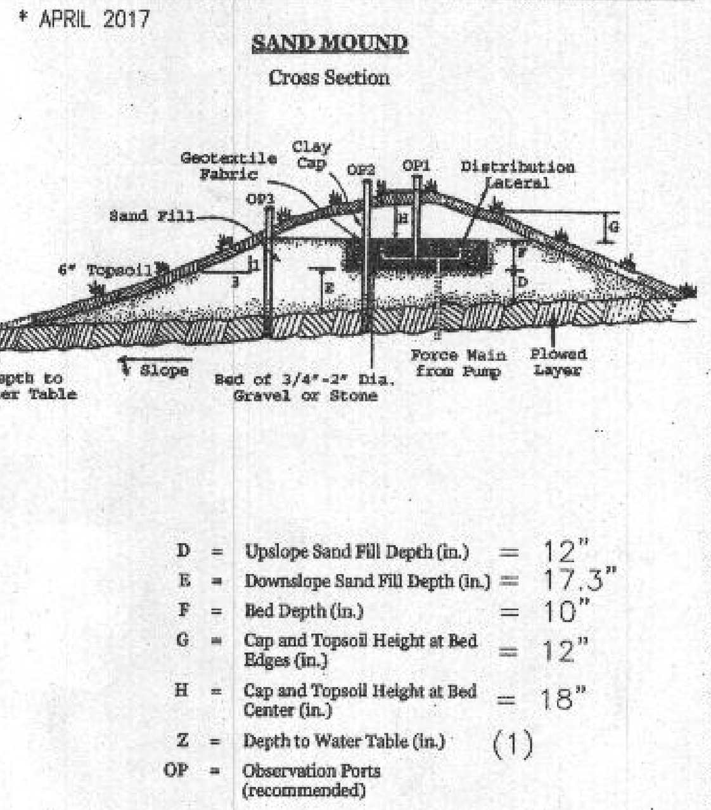
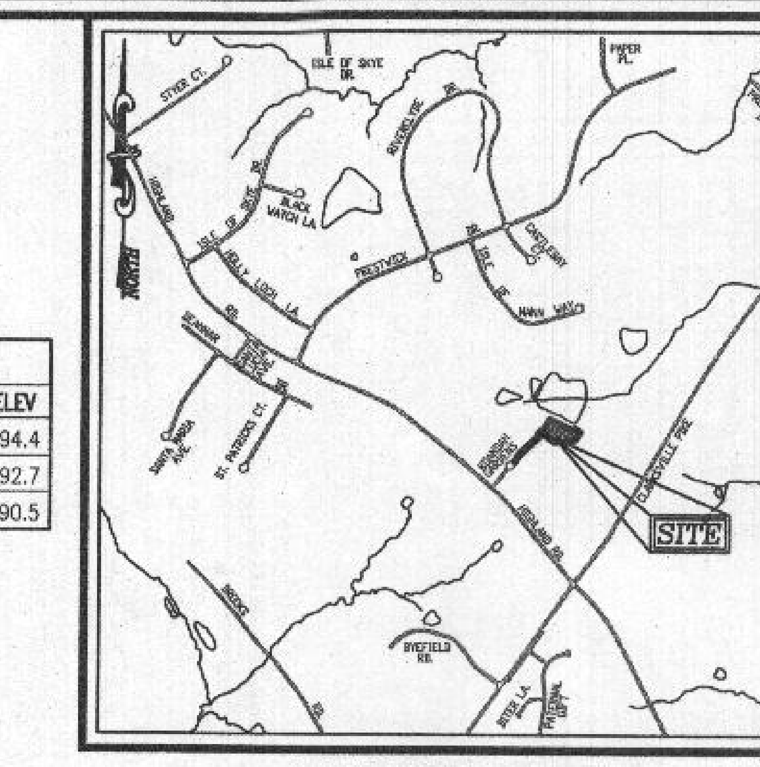


FIGURE 3.1 – DESIGN WORKSHEET CROSS SECTION

(1) 6.7' BELOW TEST S-6

MINIMUM LOT SIZE CHART

LOT #	GROSS AREA	PIPESTEM AREA	NET AREA
9	59,962 SF	8,187 SF	51,775 SF



VICINITY MAP
SCALE: 1"=2,000'
ADC MAP COORDINATE: 5051, F&G 1

SAND MOUND DIMENSIONS
Initial & Replacement Systems - LOT 9

USE ALTERNATE SAND MEDIA = 1.0 gpd/ft2

14. Basal Area Requirement (Upper Mound Location / S1 & S2)

Basal Area Sloping Site =	((A + I) X B)
Basal Area Required =	750 gpd
0.5	gpd/ft2 = Perc Rate between 45 MIN - 60 MIN
Basal Area Required =	1500 sf Required
Basal Area Provided =	(A + I) = 20.81
	B = 85.00
Basal Area Provided =	1769 sf Provided — Design OK

PURPOSE:

THE PURPOSE OF THIS PLAN IS TO:
1. TO ABANDON THE PREVIOUSLY APPROVED (F02-04, PLAT 15632) WELL SITE AND SEWAGE DISPOSAL AREA KNOWN AS A511371D.
2. CREATE NEW WELL SITES AND THE REQUIRED INITIAL AND TWO REPLACEMENT SAND MOUND LOCATIONS
3. ILLUSTRATE PREVIOUSLY APPROVED SAND MOUND TEST LOCATIONS AND RESULTS FOR NEWLY CREATED LOT 9. THIS RECONFIGURED LOT REMOVES THE BUILDABLE ENTITY OF PREVIOUS PRESERVATION PARCEL A.
4. DEMONSTRATE THE PROPOSED DRIVEWAY LEADING TO A PROPOSED HOUSE LOCATION ON THE RECONFIGURED LOT CAN BE INSTALLED WITHOUT CONFLICTING WITH THE APPROVED SAND MOUND LOCATION.

NO.	REVISION	DATE

OWNER / DEVELOPER

JOHN P. MCDANIEL
3032 HIGHLAND ROAD
HIGHLAND, MARYLAND 20777
ATTN: MR. JOE RUTTER
443-367-0422

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

BWrfon for Maura Rossman — 12/14/2017
COUNTY HEALTH OFFICER — DATE

PERCOLATION CERTIFICATION:
I CERTIFY THAT THE LOCATIONS SHOWN HEREON ARE BASED ON FIELD LOCATIONS DONE UNDER MY DIRECT SUPERVISION, AND ARE CORRECT, TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF.

ERIC D. SALMI — 12/5/2017
PROFESSIONAL LAND SURVEYOR No. 21639 — DATE

PERCOLATION CERTIFICATION PLAN

MCDANIEL PROPERTY
LOT 9
AND NON-BUILDABLE PRESERVATION PARCEL C

A RE-SUBDIVISION OF NON-BUILDABLE PRESERVATION PARCEL B, "MCDANIEL PROPERTY" (PLATS 23440-23442) AND A RE-SUBDIVISION OF BUILDABLE PRESERVATION PARCEL A, "KOANDAH GARDENS ESTATES" (PLATS 15631-15634)

ZONED: RR-DEO

TAX MAP 40 BLOCK
5TH ELECTION DISTRICT

P/O PARCEL 78
HOWARD COUNTY, MARYLAND

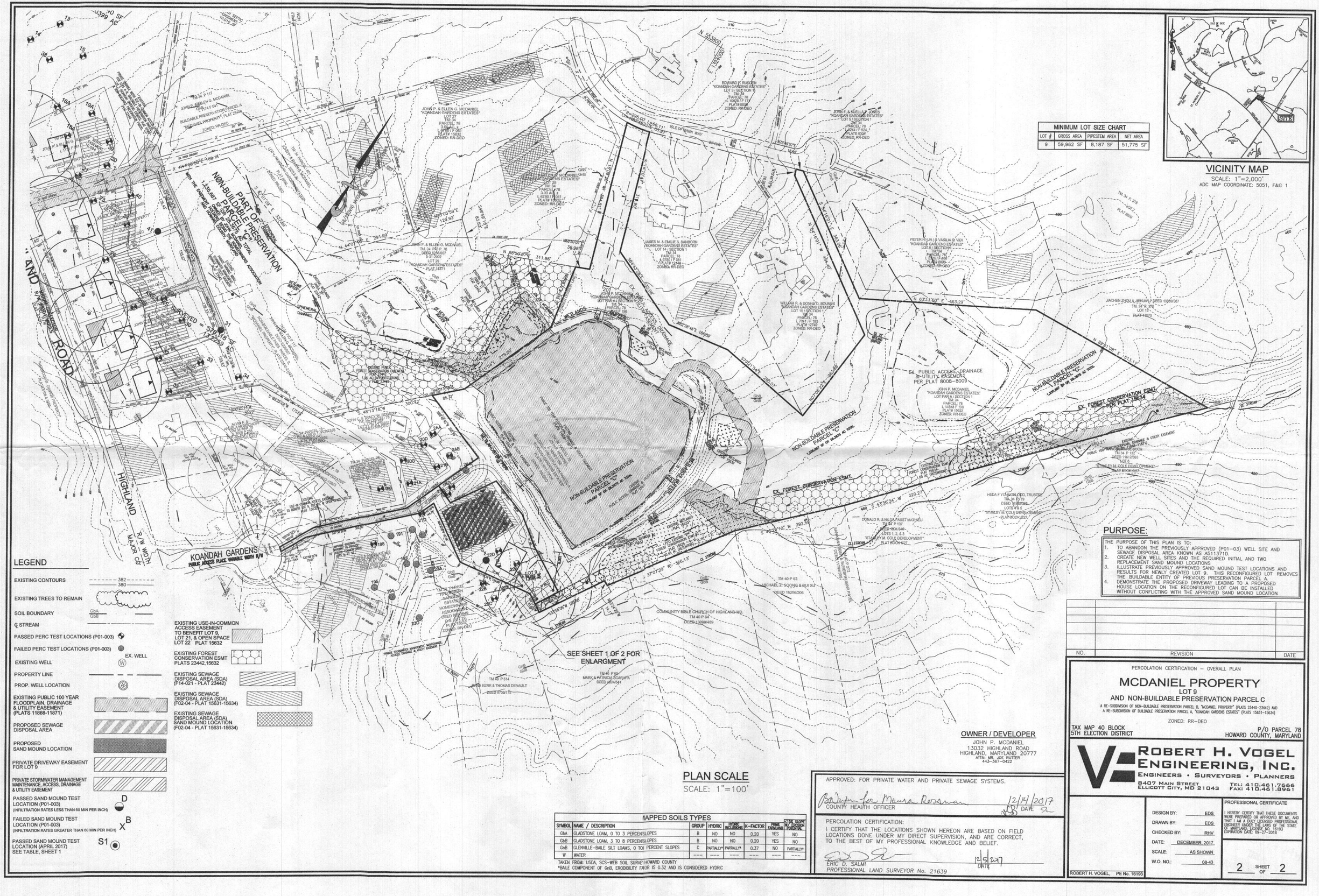
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: EDS
DRAWN BY: RVE
CHECKED BY: RHV
DATE: DECEMBER 2017
SCALE: AS SHOWN
W.O. NO.: 08-43

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018

ROBERT H. VOGEL, PE No. 16193

1 SHEET OF 2



VICINITY MAP

SCALE: 1"=2,000'
ADC MAP COORDINATE: 5051, F&G 1

MINIMUM LOT SIZE CHART			
LOT #	GROSS AREA	PIPESTEM AREA	NET AREA
9	59,962 SF	8,187 SF	51,775 SF

PURPOSE:

THE PURPOSE OF THIS PLAN IS TO:

1. TO ABANDON THE PREVIOUSLY APPROVED (P01–03) WELL SITE AND SEWAGE DISPOSAL AREA KNOWN AS A511371D.
2. CREATE NEW WELL SITES AND THE REQUIRED INITIAL AND TWO REPLACEMENT SAND MOUND LOCATIONS
3. ILLUSTRATE PREVIOUSLY APPROVED SAND MOUND TEST LOCATIONS AND RESULTS FOR NEWLY CREATED LOT 9. THIS RECONFIGURED LOT REMOVES THE BUILDABLE ENTITY OF PREVIOUS PRESERVATION PARCEL A.
4. DEMONSTRATE THE PROPOSED DRIVEWAY LEADING TO A PROPOSED HOUSE LOCATION ON THE RECONFIGURED LOT CAN BE INSTALLED WITHOUT CONFLICTING WITH THE APPROVED SAND MOUND LOCATION.

LEGEND

EXISTING CONTOURS	- - - 382 - - - — 380 —
EXISTING TREES TO REMAIN	
SOIL BOUNDARY	GbA / GbB
℄ STREAM	— - —
PASSED PERC TEST LOCATIONS (P01-003)	⊕
FAILED PERC TEST LOCATIONS (P01-003)	●
EXISTING WELL	EX. WELL Ⓦ
PROPERTY LINE	— — —
PROP. WELL LOCATION	Ⓦ
EXISTING PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT (PLATS 11868-11871)	▒
PROPOSED SEWAGE DISPOSAL AREA	▨
PROPOSED SAND MOUND LOCATION	■
PRIVATE DRIVEWAY EASEMENT FOR LOT 9	▨
PRIVATE STORMWATER MANAGEMENT MAINTENANCE, ACCESS, DRAINAGE & UTILITY EASEMENT	▨
PASSED SAND MOUND TEST LOCATION (P01-003) (INFILTRATION RATES LESS THAN 60 MIN PER INCH)	D ◒
FAILED SAND MOUND TEST LOCATION (P01-003) (INFILTRATION RATES GREATER THAN 60 MIN PER INCH)	X B
PASSED SAND MOUND TEST LOCATION (APRIL 2017) SEE TABLE, SHEET 1	S1 ◉
EXISTING USE-IN-COMMON ACCESS EASEMENT TO BENEFIT LOT 9, LOT 21, & OPEN SPACE LOT 22 PLAT 15632	▒
EXISTING FOREST CONSERVATION ESMT PLATS 23442,15632	⬡
EXISTING SEWAGE DISPOSAL AREA (SDA) (F14-021 - PLAT 23442)	▨
EXISTING SEWAGE DISPOSAL AREA (SDA) (F02-04 - PLAT 15631-15634)	▧
EXISTING SEWAGE DISPOSAL AREA (SDA) SAND MOUND LOCATION (F02-04 - PLAT 15631-15634)	▩

PLAN SCALE

SCALE: 1"=100'

MAPPED SOILS TYPES							
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K-FACTOR	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
GbA	GLADSTONE LOAM, 0 TO 3 PERCENT SLOPES	B	NO	NO	0.20	YES	NO
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W	WATER	---	---	---	---	---	---

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*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC

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ERIC D. SALMI 12/5/2017
PROFESSIONAL LAND SURVEYOR No. 21639 DATE

NO.	REVISION	DATE

PERCOLATION CERTIFICATION – OVERALL PLAN

MCDANIEL PROPERTY
LOT 9
AND NON-BUILDABLE PRESERVATION PARCEL C

A RE-SUBDIVISION OF NON-BUILDABLE PRESERVATION PARCEL B, "MCDANIEL PROPERTY" (PLATS 23440-23442) AND
A RE-SUBDIVISION OF BUILDABLE PRESERVATION PARCEL A, "KOANDAH GARDENS ESTATES" (PLATS 15631-15634)

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SHEET 2 OF 2