MCPB
Item No.
Date: 03-12-15

Horizon Hill, Lot 48: Preliminary Plan No. 120140190

Joshua Penn, Planner Coordinator, Area 3, Joshua.Penn@montgomeryplanning.org , 301-495-4546
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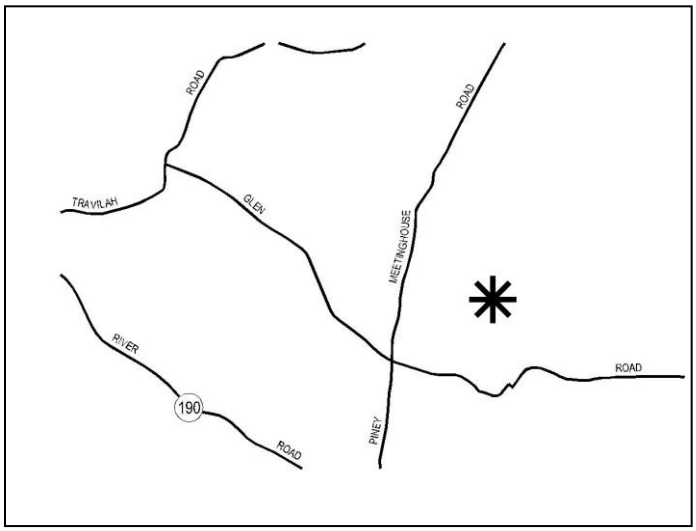
John Carter, Chief, Area 3, 301-495-4575

Completed: 02/27/15

Description

Horizon Hill, Lot 48: Preliminary Plan No. 120140190
A request to approve two lots for two, one-family detached dwelling units as a resubdivision of a 4.06 acre lot in the RE-2 Zone, located at 10812 Red Barn Lane 2002 Potomac Subregion Master Plan and the Rural West Policy Area.
Staff Recommendation:
Approval with conditions.

Date Submitted: March 27, 2014
Applicant: Rory S. Coakley
Review Basis: Chapter 50 and Chapter 22A



Summary

This is a Resubdivision of existing Lot 48 that will return the single lot back into its previously platted configuration of two lots.

- No community opposition at time of Staff Report posting.
- Meets all requirements of Zoning, Subdivision, Resubdivision, Forest Conservation, Water Quality, and Montgomery County Fire and Rescue Services.
- Project within the Piney Branch Special Protection Area (SPA), but exempt from submitting a Water Quality Plan
- Red Barn Lane is a private street and MCDOT deferred access improvements to M-NCPPC and Montgomery County Fire and Rescue Service

STAFF RECOMMENDATION

Staff recommends approval with the following conditions:

1. This Preliminary Plan is limited to two lots for two dwelling units.

2. Prior to recordation of plat(s), the Applicant must satisfy the provisions for access and improvements as required by MCDOT and Montgomery County Fire and Rescue Service ("MCFRS").

3. The Planning Board has accepted the recommendations of the Montgomery County Department of Permitting Service ("MCDPS") – Water Resources Section in its stormwater management concept letter dated October 21, 2014, and hereby incorporates them as conditions of the Preliminary Plan approval. Therefore, the Applicant must comply with each of the recommendations as set forth in the letter, which may be amended by MCDPS – Water Resources Section provided that the amendments do not conflict with other conditions of the Preliminary Plan approval.

PREVIOUS APPROVALS

Preliminary Plan 119880640 Lankler Property was approved by the Planning Board on January 2, 1999 and created 20 lots on 60.3 acres of land in the RE-2 Zone. This Preliminary Plan created Lots 32 and 33 and were recorded on Plat #21539.

Site Plan 819990440 Lankler Property was approved by the Planning Board on October 12, 1999 for 20 lots.

Lot 48 was created by consolidating lots 32 and 33 by Minor Subdivision, under Montgomery County Code Section 50-35A(3), Consolidation of Two or More Lots or a Part of a lot into One Lot. Lot 48 was recorded on Plat # 22239 on June 12, 2002.

SITE DESCRIPTION

Preliminary Plan No. 120140190 ("Application" or "Preliminary Plan") is a request to resubdivide lot 48 on Tax Map FQ23, Plat #22239; located at 10812 Red Barn Lane and consisting of 4.06-acres, zoned RE-2 ("Property" or "Subject Property") into two lots for two one-family detached dwelling units. The Property is within the 2002 Potomac Subregion Master Plan area. As depicted in Figures 1 and 2 below, the Property is currently unimproved and surrounded by one-family detached dwellings in the RE-2 Zone.

The Subject Property is located within the Piney Branch Special Protection Area within the Watts Branch watershed. The Property is primarily covered by open, mowed lawn with a small area of forest within an existing Category I conservation easement at the rear of the lot.

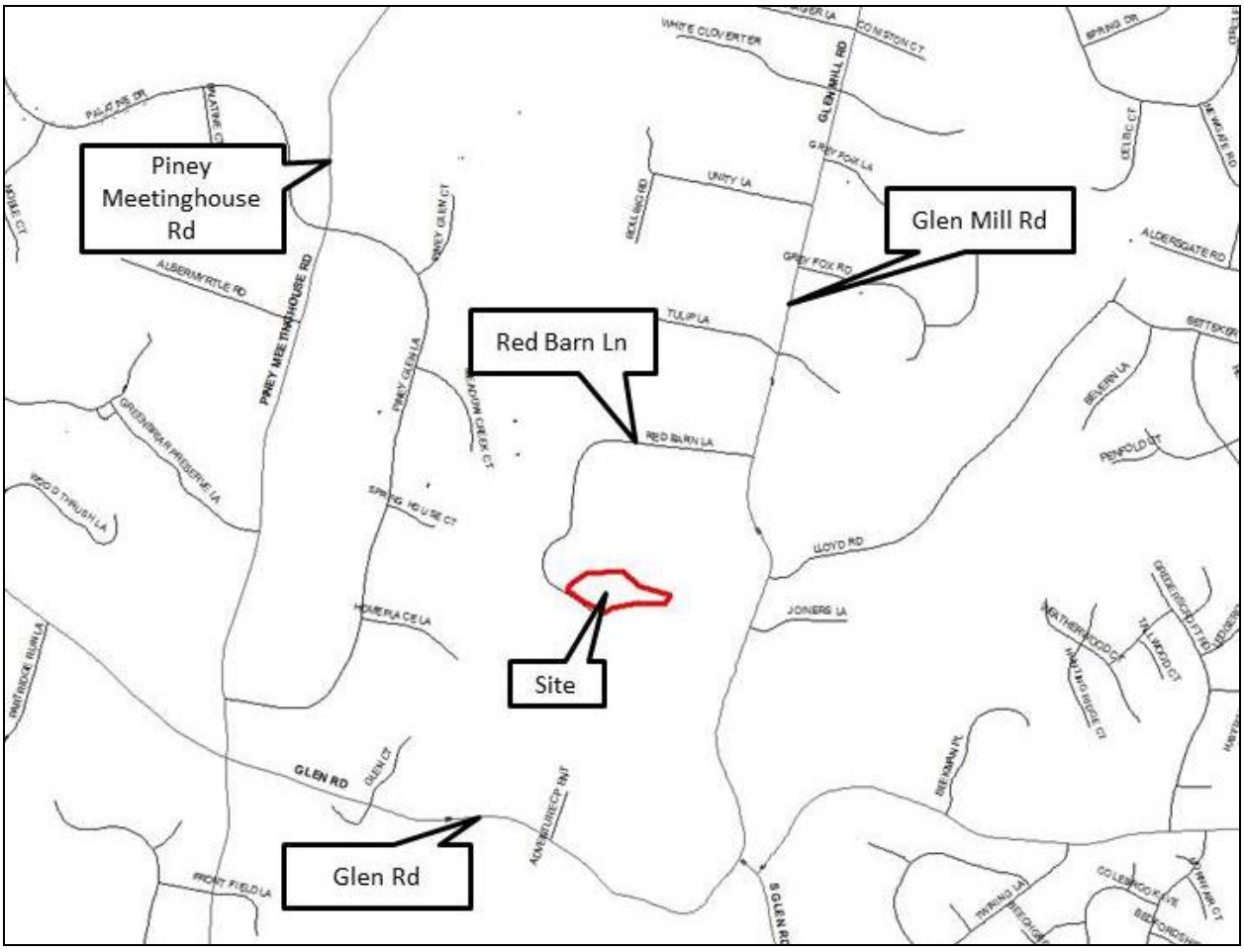


Figure 1 – Vicinity Map

Figure 2 – Subject Property

PROJECT DESCRIPTION

The Applicant proposes to re-subdivide Lot 48 into two lots to accommodate two, one-family detached dwelling units. The proposed lots will be 2.02 and 2.04 acres, and they are generally rectangular in shape. The lots will have frontage and access on Red Barn Lane, a private road. Each lot will be served by public water and sewer.

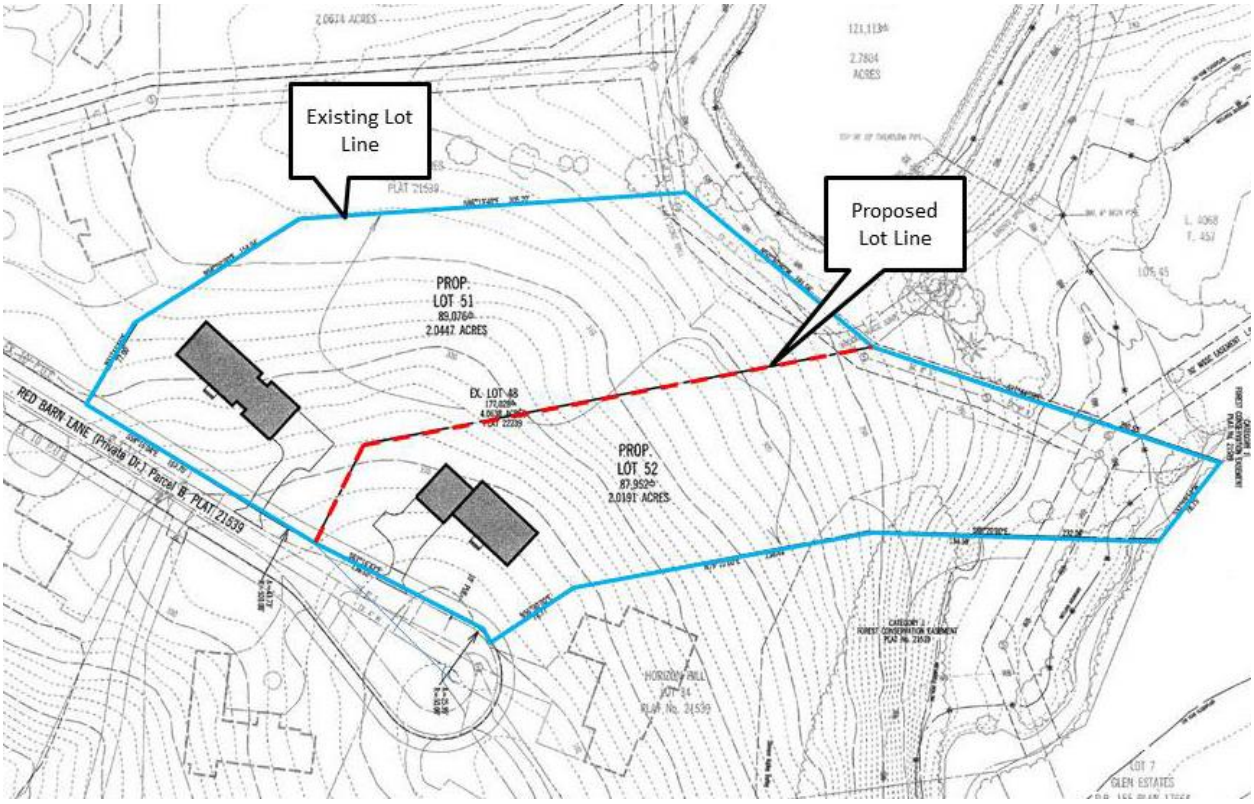


Figure 3 - Proposed Lot Lines

ANALYSIS AND FINDINGS

Conformance to the Master Plan

The Property is located in the Travilah community area as shown on page 5 of the 2002 Potomac Subregion Master Plan ("Master Plan"). The Master Plan provides recommends RE-2 zoning and makes overarching recommendations for the general vicinity of the Property. The Master Plan provides the following on the Travilah community area:

> "This central and southern portion of the Potomac Subregion is a low-density area that acts as a transition from the higher densities of Potomac and North Potomac to lower densities in Darnestown and the natural environment of the Potomac River" (p. 80).

The Property is within the sewer service envelope recommended by the Master Plan and is appropriately served. The Master Plan recommends that the Property and neighboring properties continue to be zoned RE-2. This zone provides the low density transition envisioned by the Master Plan.

The Property is also located in the Watts Branch Watershed and specifically within the Piney Branch subwatershed, which is a Special Protection Area (SPA). For this watershed, the Master Plan states,

> "The Piney Branch subwatershed is a Special Protection Area (SPA) due to unusually good water quality, a fragile ecosystem, and susceptibility to development pressures" (p. 16).

The Master Plan advises that community sewer allows the potential for maximum density under the zone, thereby increasing imperviousness. However, the Property and the surrounding subdivision known as Horizon Hill are already provided community sewer service and will retain community sewer service with this Application.

Staff concludes that the resubdivision of this Property, back into its original configuration of two lots larger than two acres is in substantial conformance with the 2002 Potomac Subregion Master Plan

Adequate Public Facilities

Local Area Transportation Review

The Local Area Transportation Review (LATR) guidelines require a traffic study to be performed if the development generates 30 or more peak-hour trips. The Application is expected to generate traffic volumes well below the 30-trip threshold. Therefore, no LATR is required.

Transportation Policy Area Review

The Subject Property is located in the Rural West Policy Area which is defined as "exempt" under the transit test and "exempt" under the roadway test for Transportation Policy Area Review (TPAR). No TPAR Mitigation is required.

Other Public Facilities

Public facilities and services including electric, communication, water and sewer, are all available to the surrounding subdivision and will be adequate to serve the proposed development.

The Application was reviewed by the Montgomery County Fire and Rescue Services, which approved the submitted plans on December 17, 2014, finding that the Application has adequate access for emergency vehicles. The fire access plan will require the Applicant to construct improvements to Red Barn Lane in lieu of the continuous 20 foot widening for the entire length of the road. Improvements will consist of widening in front of the subject property to 25 feet with a smooth transition back to the existing width. This widening exceeds the minimum width at the strategic area along the location of the fire hydrant allowing for superior access and circulation for fire personnel using the hydrant. Additionally, the

applicant will be required to widen the cul-de-sac to 20 feet, or the maximum extent possible within the confines of the parcel containing the drive as shown on the approved fire access plans.

Other public facilities and services, such as police stations, firehouses, and health services, are operating according to the 2012-2016 Subdivision Staging Policy and will be adequate.

The approval of the Horizon Hill subdivision in 1998, did not require sidewalks along Red Barn Lane. To be consistent with the established neighborhood, no sidewalks will be required along this Property's frontage.

School Capacity

The Application is within the Winston Churchill school cluster, which is operating at acceptable classroom levels for the elementary, middle, and high schools. The Application is not subject to the Schools Facilities Payment[1].

Environment

Environmental Guidelines

The Natural Resource Inventory/Forest Stand Delineation (NRI/FSD) #4119980490 for the overall Horizon Hill Subdivision was approved on November 7, 1997 and included the Subject Property. The NRI/FSD identified a small area of forest and Stream Valley Buffer at the rear of the lot. All areas of SVB on the Subject Property were placed into Category I conservation easement with the prior approvals; no additional protection measures are required.

Forest Conservation

A final forest conservation plan (FFCP) was approved with Site Plan #819990440 for the Horizon Hill Subdivision (aka Lankler Property). This FFCP set all the conservation easements and planting requirements for the overall subdivision including approximately a 0.38 acre Category I easement on the Property. All forest conservation requirements were met with FFCP #819990440 and continue to be met with this Application. The Application is in compliance with the previously approved FFCP.

[1] 2012 – 2016 Subdivision Staging Policy – School Capacity Forecasting
http://www.montgomeryplanning.org/research/growth_policy/subdivision_staging_policy/2012/documents/SSPappendix4sc.pdf

SPA WATER QUALITY

Review for Conformance to the Special Protection Area Requirements

As part of the requirements of the SPA law a preliminary plan application must comply with law. Under the provision of the SPA law, the Montgomery County Department of Permitting Services is the lead agency for determining applicability of Chapter 19 of the Montgomery County Code including the requirements to either submit a Water Quality Plan or a Water Quality Inventory.

MCDPS has determined that this Project is not required to submit a Water Quality Plan, under Section 19.67.01.04 Exemptions, and only requires a Water Quality Inventory submission. Since the project is exempt from submitting a Water Quality Plan, there are no additional findings for imperviousness or other SPA findings. The M-NCPPC has no regulatory action involved with the approval of a Water Quality Inventory.

The MCDPS – Water Resources Section approved a Water Quality Inventory, including a stormwater management concept, for the Application by letter dated October 21, 2014. Stormwater management will be accommodated by using Environmental Site Design practices including landscaped infiltration features. Stormwater management requirements are met as provided in Chapter 19 of the County Code.

Compliance with the Subdivision Regulations and Zoning Ordinance

The Application was reviewed for compliance with the Montgomery County Code, Chapter 50 in the Subdivision Regulations. The Application meets all applicable sections. The proposed lots size, width, shape and orientation are appropriate for the location of the subdivision since they are identical to the two lots approved with the original Horizon Hill Subdivision.

The lots were reviewed for compliance with the dimensional requirements for the RE-2 zone as specified in the Zoning Ordinance. The lots as proposed will meet all the dimensional requirements for area, frontage, width, and setbacks in that zone. A summary of this review is included in attached Table 1.

Table 1 - Preliminary Plan Data Table

	Zoning Ordinance Development Standard	Proposed for Approval by the Preliminary Plan	
		Lot 1	Lot 2
Minimum Lot Area	2 acres	2.04	2.02
Lot Width	150 ft.	209	190
Lot Frontage	25 ft.	212	162
Setbacks			
Front	50 ft. Min.	Must meet minimum[1]	Must meet minimum[1]
Side	17 ft. Min./ 35 ft. total	Must meet minimum[1]	Must meet minimum[1]
Rear	35 ft. Min.	Must meet minimum[1]	Must meet minimum[1]
Maximum Residential Dwelling Units	2	1	1
Site Plan Required	No	No	No

[1] As determined by MCDPS at the time of building permit.

Conformance with Section 50-29(b)(2)

Although the Application requests a resubdivision that will return Lot 48 back into two lots that are identical to the two lots approved for the Subject Property under the original subdivision, it is an Application that must meet the resubdivision criteria test. That analysis follows.

A. Statutory Review Criteria

In order to approve an application for resubdivision, the Planning Board must find that each of the proposed lots complies with all seven of the resubdivision criteria, set forth in Section 50-29(b)(2) of the Subdivision Regulations, which states:

> Resubdivision. Lots on a plat for the Resubdivision of any lot, tract or other parcel of land that is part of an existing subdivision previously recorded in a plat book shall be of the same character as to street frontage, alignment, size, shape, width, area and suitability for residential uses as other lots within the existing block, neighborhood or subdivision.

B. Neighborhood Delineation

In administering Section 50-29(b)(2) of the Subdivision Regulations, the Planning Board must determine the appropriate "neighborhood" for evaluating the Application. In this instance, the Neighborhood selected consists of 25 lots, which excludes the two proposed lots and concentrates on recorded lots

along Red Barn Lane and adjoining lots. The designated Neighborhood (figure 5) provides an adequate sample of the lot and development pattern in which to examine the resubdivision.

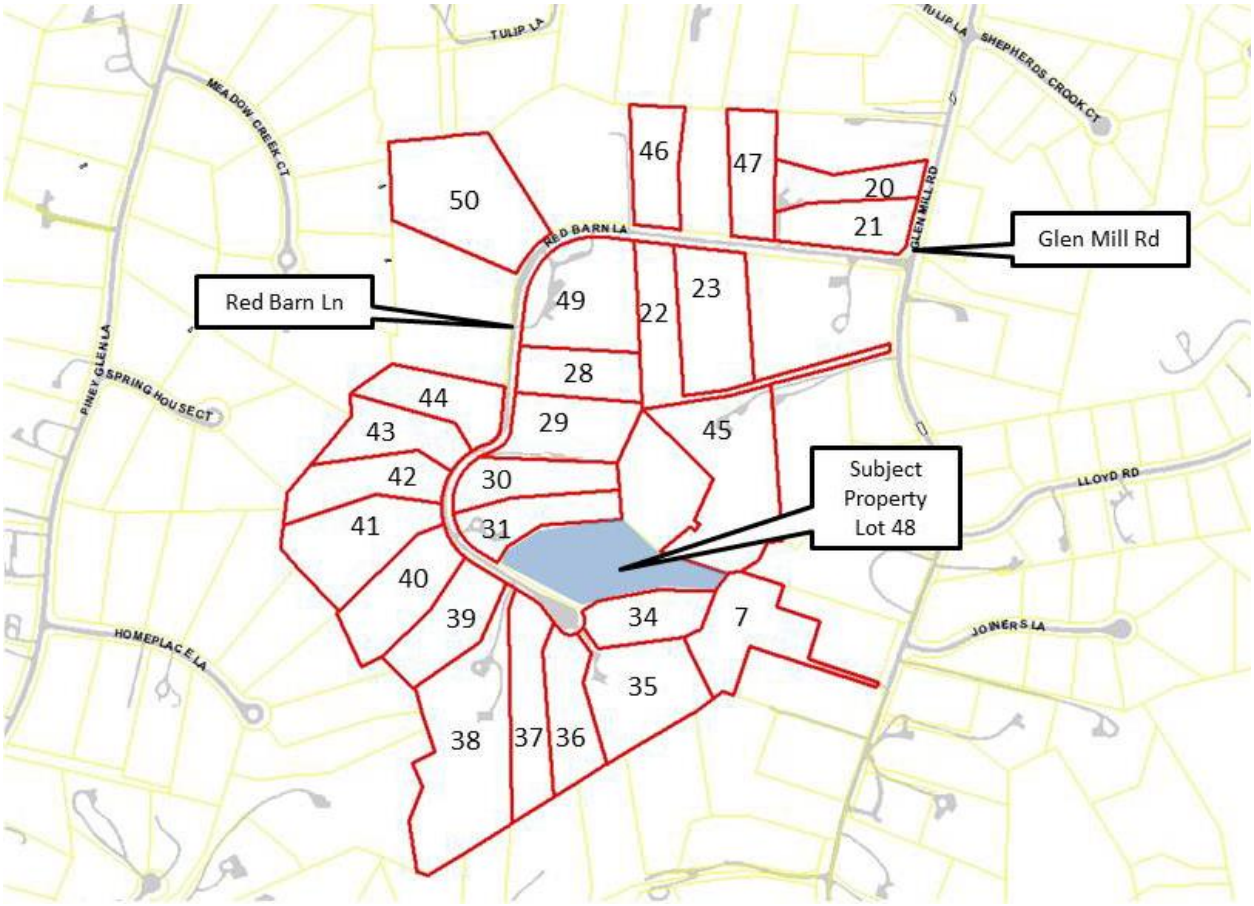


Figure 4 - Resubdivision Neighborhood shown in red with lot numbers

Lot No.	Street Frontage		Alignment	Size (lot area)		Shape	Width (at front B.R.L.)		Area (appx. building envelope)		Suitability for Resid. Use
20	175	l.f.	Angular	90,962	s.f.	Irregular	155	l.f.	50,000	s.f.	Existing
21	707	l.f.	Angular	89,167	s.f.	Corner lot	215	l.f.	30,000	s.f.	Yes
47	175	l.f.	Angular	87,120	s.f.	Rectangular	175	l.f.	35,000	s.f.	Existing
23	273	l.f.	Angular	149,289	s.f.	Rectangular	273	l.f.	70,000	s.f.	Existing
22	201	l.f.	Angular	127,369	s.f.	Flag-lot	170	l.f.	68,000	s.f.	Existing
46	183	l.f.	Angular	87,120	s.f.	Rectangular	183	l.f.	35,000	s.f.	Yes
49	723	l.f.	Angular	174,401	s.f.	Pie-shaped	720	l.f.	125,000	s.f.	Existing
50	206	l.f.	Radial	217,989	s.f.	Irregular	210	l.f.	98,000	s.f.	Existing
28	178	l.f.	Perpendicular	88,274	s.f.	Rectangular	178	l.f.	36,000	s.f.	Existing
44	241	l.f.	Angular	89,063	s.f.	Irregular	230	l.f.	35,000	s.f.	Existing
29	309	l.f.	Angular	115,743	s.f.	Irregular	192	l.f.	80,000	s.f.	Existing
43	127	l.f.	Radial	91,625	s.f.	Irregular	150	l.f.	22,000	s.f.	Existing
30	258	l.f.	Radial	90,056	s.f.	Irregular	250	l.f.	70,000	s.f.	Existing
42	142	l.f.	Radial	97,777	s.f.	Irregular	150	l.f.	14,000	s.f.	Existing
41	84	l.f.	Radial	148,008	s.f.	Irregular	150	l.f.	37,000	s.f.	Existing
31	264	l.f.	Radial	87,319	s.f.	Irregular	260	l.f.	74,000	s.f.	Existing
40	153	l.f.	Radial	121,953	s.f.	Irregular	155	l.f.	30,000	s.f.	Existing
39	176	l.f.	Perpendicular	104,546	s.f.	Irregular	176	l.f.	21,000	s.f.	Existing
38	32	l.f.	Angular	266,820	s.f.	Irregular	150	l.f.	186,000	s.f.	Existing
37	201	l.f.	Angular	121,350	s.f.	Irregular	200	l.f.	48,000	s.f.	Existing
36	92	l.f.	Angular	101,363	s.f.	Irregular	150	l.f.	30,000	s.f.	Existing
35	31	l.f.	Rad/Non-Rad	157,906	s.f.	Pan-handle	150	l.f.	39,000	s.f.	Existing
34	50	l.f.	Rad/Non-Rad	89,122	s.f.	Irregular	150	l.f.	26,000	s.f.	Existing
45	0	l.f.	N/A	223,546	s.f.	Irregular	281	l.f.	90,000	s.f.	Existing
7	25	l.f.	Perpendicular	142,923	s.f.	Pan-handle	175	l.f.	57,000	s.f.	Existing
Proposed Lots											
1	167	l.f.	Angular	89,076	s.f.	Irregular	167	l.f.	80,000	s.f.	Yes
2	162	l.f.	Angular	87,952	s.f.	Irregular	164	l.f.	60,000	s.f.	Yes

Table 2 – Resubdivision Criteria

C. Analysis

Comparison of the Character of Proposed Lots to Existing

In performing the analysis, the above-noted resubdivision criteria were applied to the delineated Neighborhood. The proposed lots are of the same character with respect to all seven of the resubdivision criteria when compared to the same characteristics of existing lots within the Neighborhood. Therefore, the Application complies with t Section 50-2(b) (2). As set forth below, the tabular summary shown in Table 2 and graphical documentation depicted in Figure 4 support this conclusion:

Frontage:

In the Neighborhood of 25 lots, lot frontages range from 0 feet to 723 feet. Seven of the lots have frontages of less than 100 feet and the remaining 18 lots have frontages of more than 100 feet. Proposed Lot 1 has a frontage of 167 feet on Red Barn Lane and Proposed Lot 2 has a frontage of 162 feet on Red Barn Lane. The proposed lots will be of the same character as the existing lots in the Neighborhood with respect to lot frontage.

Alignment:
Of the 25 existing lots in the Neighborhood, 12 are angular in alignment, 7 are radial in alignment, 3 are perpendicular in alignment. Proposed Lots 1 and 2 are angular lots. The proposed lots are of the same character as existing lots with respect to the alignment criteria.

Size:
The lots in the Neighborhood range from 87,120 square feet to 266,820 square feet. Proposed Lots 1 and 2 are 89,076 and 87,952 square feet in size, respectively. There are five lots smaller than proposed lot 1 and 3 lots smaller than proposed lot 2 in the Neighborhood. The proposed lot sizes are in character with the size of existing lots in the Neighborhood.

Shape:
Sixteen of the existing lots in the Neighborhood are irregularly shaped. The remaining nine lots consist of rectangular, pie-shaped, pan-handled, flag, or corner shaped lots. The proposed lots are irregularly shaped. The shapes of the proposed lots will be in character with shapes of the existing lots.

Width at front BRL:
The lots in the Neighborhood range from 150 feet to 720 feet in width at the front building line. Sixteen of the existing lots have widths fewer than 200 feet and nine lots have a width greater than 200 feet. Proposed Lot 1 has a width of 167 feet. Proposed Lot 2 has a width of 164 feet. The proposed lots will be in Character with existing lots in the neighborhood with respect to width.

Area:
The lots in the Neighborhood range from 14,000 square feet to 186,000 square feet in buildable area. Sixteen of the existing lots have a buildable area under 60,000 square feet and four have a buildable area over 80,000 square feet. Proposed Lot 1 has a buildable area of 80,000 square feet. Proposed Lot 2 has a buildable area of 60,000 square feet. The proposed lots will be of the same character as other lots in the Neighborhood with respect to buildable area.

Suitability for Residential Use:
The existing and proposed lots are zoned residential and the land is suitable for residential use.

Correspondence

This Application was submitted and noticed in accordance with all required procedures. Signs referencing the Application were posted along the Property's frontage on Red Barn Lane. The Applicant held an informational meeting on February 20, 2014 at 6:30 p.m. at Potomac United Methodist Church Parish Hall – Room 110 (10300 Falls Road, Potomac). Only the property owner, contract purchaser, and their representatives attended.

To date, Staff has not received any community inquiries or correspondence regarding the Application.

CONCLUSION

The Application meets all requirements established in the Subdivision Regulations and the Zoning Ordinance and substantially conforms to the recommendations of the 2002 Potomac Subregion Master Plan. Access and public facilities will be adequate to serve the proposed lots, and the Application was reviewed by other applicable county agencies, all of whom have recommended approval of the plan. Therefore, approval of the Application with the conditions specified above is recommended.

Attachments

Attachment A – Planning Board Opinion Preliminary Plan 119980640
Attachment B – Plat 21539 (Original Plat)
Attachment C – Planning Board Opinion Site Plan 819990440
Attachment D – Plat 22239 (Consolidation Plat)
Attachment E –Fire and Rescue Approved Access Plan
Attachment F - MCDPS – Water Resources Section Approval

JS Date Mailed: January 7, 1999

M-NCPPC

MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

Action: Approved Staff Recommendation
Motion of Comm. Richardson, seconded by Comm. Holmes with a vote of 5-0;
Comms. Richardson, Holmes, Hussmann, Bryant and Perdue voting in favor.

ATTACHMENT A

MONTGOMERY COUNTY PLANNING BOARD

OPINION

Preliminary Plan 1-98064
NAME OF PLAN: LANKLER PROPERTY

On 03-05-98, KNOB LIMITED PARTNERSHIP submitted an application for the approval of a preliminary plan of subdivision of property in the RE-2 zone. The application proposed to create 20 lots on 60.3 acres of land. The application was designated Preliminary Plan 1-98064. On 12-17-98, Preliminary Plan 1-98064 was brought before the Montgomery County Planning Board for a public hearing. At the public hearing, the Montgomery County Planning Board heard testimony and received evidence submitted in the record on the application. Based upon the testimony and evidence presented by staff and on the information on the Preliminary Subdivision Plan Application Form, attached hereto and made a part hereof, the Montgomery County Planning Board finds Preliminary Plan 1-98064 to be in accordance with the purposes and requirements of the Subdivision Regulations (Chapter 50, Montgomery County Code, as amended) and approves Preliminary Plan 1-98064, subject to the following conditions:

Approval, pursuant to Section 59-C-1.34.1 of the Montgomery County Zoning Ordinance and Section 50-25(h), Subdivision Regulations, (Development of Lots Fronting Private Streets and Cul-de-sacs), subject to the following conditions:

(1) Compliance with the conditions of approval of the preliminary forest conservation plan. The applicant must meet all conditions prior to recording of plats or MCDPS issuance of sediment and erosion control permit, as appropriate

(2) Pursuant to Section 50-25(h), Subdivision Regulations, submit structural design drawings to MCDPS for approval prior to Planning Board review of site plan

(3) Home Owner's Association (HOA) documents to be submitted with site plan package for review. Approved HOA documents to be recorded and referenced on record plat

(4) Final landscape and grading plans to be submitted and approved with site plan. Landscape plan and planting schedule to include planting details for the area along the Red Barn Road private right of way and the boundary line between Lot 4 and Parcel 58

(5) Conditions of MCDPS (Stormwater) approval dated 12-1-98

(6) Record plat to reference common ingress/egress easements and utility easements

(7) Other necessary easements

(8) Final designation of outlot (SWM facility) to be identified at site plan review

(9) If SWM facility is in private ownership, submit for staff review and approval SWM maintenance and access easement agreement between private owner and HOA

(10) This preliminary plan will remain valid until February 7, 2002 (37 months from date of mailing, which is January 7, 1999). Prior to the expiration of this validity period, a final record plat for all property delineated on the approved preliminary plan must be recorded or a request for an extension must be filed.

PLAT No 21539

M.C.S.(NAD 83/91) SCALE:1"=100'

LOT 45 HAS ACCESS TO GLEN MILL ROAD BY A 30' WIDE INGRESS AND EGRESS EASEMENT AS NOTED IN LIBER 4068 FOLIO 449 AND LIBER 6019 FOLIO 765.

CURVE TABLE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	BEARING
1	100.00'	59°15'21"	103.42'	56.87'	98.87'	S35°39'14"W
2	210.00'	123°32'57"	452.83'	391.23'	370.06'	S03°30'24"W
3	500.00'	05°00'39"	43.73'	21.88'	43.71'	S60°46'23"E
4	50.00'	204°58'27"	178.87'	∞	97.63'	S01°47'20"E
5	50.00'	81°59'45"	71.55'	43.46'	65.60'	N79°18'09"W
6	100.00'	19°57'49"	34.84'	17.60'	34.67'	N48°17'11"W
7	250.00'	123°32'57"	359.08'	455.75'	440.55'	N03°30'25"E
8	60.00	59°15'21"	62.05'	34.12'	59.32'	N35°39'13"E

LINE TABLE		
NO.	BEARING	DISTANCE
A	S20°00'00"E	114.00'
B	S61°00'00"W	87.00'
C	S16°00'00"W	76.00'
D	S31°00'00"W	54.00'
E	S25°00'00"E	45.00'
F	S55°00'00"W	15.00'
G	N60°00'00"W	48.01'
H	N57°15'00"W	13.24'
I	N32°45'00"E	36.00'
J	S57°15'00"E	26.58'
K	S44°08'00"W	10.00'

OWNER'S CERTIFICATE

WE, THE UNDERSIGNED, OWNER(S) OF THE PROPERTY DESCRIBED HEREON, HEREBY ADOPT THIS PLAN OF SUBDIVISION, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES, AND

FURTHER, WE GRANT TO THE POTOMAC ELECTRIC POWER COMPANY, BELL ATLANTIC MD INC., WASHINGTON GAS LIGHT CO. OF MD., AND TO THEIR RESPECTIVE SUCCESSORS, AGENTS AND ASSIGNS, AN EASEMENT, IN, ON AND OVER THE LAND HEREON DESCRIBED AS A PUBLIC UTILITY EASEMENT, DESIGNATED HEREON AS "PUE", WITH SAID TERMS AND PROVISIONS OF SUCH A GRANT BEING THOSE SET FORTH IN A CERTAIN DOCUMENT ENTITLED "DECLARATION OF TERMS AND PROVISIONS FOR PUBLIC UTILITY EASEMENTS" AND RECORDED AMONG THE LAND RECORDS OF MONTGOMERY COUNTY, MD IN LIBER 3834 AT FOLIO 457. SAID TERMS AND PROVISIONS BEING INCORPORATED HEREIN BY THIS REFERENCE.

FURTHER, WE ESTABLISH THE CATEGORY I FOREST CONSERVATION EASEMENT, AS SHOWN HEREON AND SUBJECT TO THE TERMS AND CONDITIONS, AS SET FORTH IN A CERTAIN DOCUMENT RECORDED AMONG SAID LAND RECORDS IN LIBER 13178 AT FOLIO 412 AND 421, RESPECTIVELY.

FURTHER, WE GRANT TO THE WASHINGTON SUBURBAN SANITARY COMMISSION (WSSC) SUCH EXCLUSIVE RIGHTS AS NECESSARY FOR THE CONSTRUCTION, RECONSTRUCTION, OPERATION, MAINTENANCE AND REPAIR OF SANITARY SEWERS AND/OR WATER MAINS AND APPURTENANCES WITHIN THE WATER AND/OR SEWER RIGHTS OF WAY/EASEMENTS SHOWN HEREON DESIGNATED "WSSC R/W," SUBJECT TO AND TOGETHER WITH THE CONDITIONS CONTAINED IN A RIGHT OF WAY DOCUMENT FROM THE GRANTOR(S), THEIR SUCCESSORS, AGENTS AND ASSIGNS TO THE WSSC AND TO BE RECORDED HEREAFTER. *

AS OWNERS OF THIS SUBDIVISION, WE, OUR SUCCESSORS, AGENTS AND ASSIGNS WILL CAUSE ALL PROPERTY CORNER MARKERS AND ANY OTHER REQUIRED MONUMENTATION TO BE SET BY A REGISTERED MARYLAND SURVEYOR IN ACCORDANCE WITH SECTION 50-24(E) OF THE MONTGOMERY COUNTY, CODE.

THERE ARE NO RECORDED SUITS ACTIONS AT LAW, LIENS, LEASES, MORTGAGES OR TRUSTS AFFECTING THE PROPERTY INCLUDED IN THIS PLAT OF SUBDIVISION, EXCEPT FOR A CERTAIN DEED OF TRUST, ETC. AND ALL THE PARTIES OF INTEREST, THERETO, HAVE BELOW INDICATED THEIR ASSENT.

DATE: 5 of 10, 2000

BY: Gerald M. Lankler by [illegible] attorney in fact
ALEXANDER M. LANKLER, OWNER
(BY HIS ATTORNEY IN FACT, REX L. STURM)

Alfsi Niko
WITNESS

WE HEREBY ASSENT TO THIS PLAT OF SUBDIVISION.

DATE: 7/11/00

BY: [signature]
ARREL E. COURRET, TRUSTEE

Judy M. Beatty
WITNESS

* FURTHER, WE GRANT TO MONTGOMERY COUNTY MARYLAND THE STORMWATER MANAGEMENT EASEMENT, SHOWN HEREON AS "SWM EASEMENT", TO BE RECORDED AMONG THE LAND RECORDS OF MONTGOMERY COUNTY, MARYLAND.

VICINITY MAP
NOT TO SCALE

PROPERTY TABULATION		
PARCEL ID.	ACCOUNT No.	DEED REFERENCE
P886 (FQ23)	10-001-01767505	L.4943 F.286
P950 (FQ23)	10-001-00856060	L.3966 F.663
P077 (FQ22)	10-001-00856036	L.2408 F.071
P108 (FQ32)	10-001-00856071	L.4068 F.457
P149 (FQ22)	10-001-00848060	L.5480 F.883
P241 (FQ22)	10-001-00856047	L.3350 F.696
P145 (FQ22)	10-001-00856058	L.3959 F.46
P145 (FQ22)		L.6274 F.325
P145 (FQ22)		L.6297 F.691

SUBDIVISION NOTES

1. THIS PLAT IS IN THE DATUM OF THE MARYLAND COORDINATE SYSTEM (MCS), NAD83/96 BASED ON NATIONAL GEODETIC SURVEY (NGS) CORS STATION GAITHERSBURG (GAIT), AS ESTABLISHED AUGUST, 1999.
2. THIS PLAT AND PLAN OF SUBDIVISION IS PART OF THE APPROVED PRELIMINARY PLAN NO. 1-98064 (PREVIOUSLY APPROVED AS PRELIMINARY PLAN 1-91004), APPROVED SITE PLAN NO. 8-99044, FINAL FOREST CONSERVATION PLAN NO. 8-99044 AND NRI/FSD PLAN NO. 4-98049.
3. THIS PROPERTY IS ZONED RE-2
4. THIS PLAT IS LIMITED TO USE AND CONDITIONS AS REQUIRED BY PRELIMINARY PLAN #1-89032 AND BY AGREEMENT WITH THE MONTGOMERY COUNTY PLANNING BOARD.
5. TITLE INFORMATION STATEMENT: THIS SUBDIVISION RECORD PLAT IS NOT INTENDED TO SHOW EVERY MATTER AFFECTING THE OWNERSHIP, AND USE, NOR EVERY MATTER RESTRICTING THE OWNERSHIP AND USE, OF THE PROPERTY. THE SUBDIVISION RECORD PLAT IS NOT INTENDED TO REPLACE AN EXAMINATION OF TITLE OR TO DEPICT OR NOTE ALL MATTERS AFFECTING THE PROPERTY.
6. DEVELOPMENT SUBJECT TO THE REQUIREMENTS OF THE MONTGOMERY COUNTY FOREST CONSERVATION LAW OF 1992, INCLUDING APPROVAL OF A FINAL FOREST CONSERVATION PLAN AND APPROPRIATE AGREEMENTS PRIOR TO ISSUANCE OF A SEDIMENT CONTROL PERMIT. A COPY OF THE APPROVED PLAN MAY BE VIEWED AT MNCP&PC, 8787 GEORGIA AVENUE, SILVER SPRING, MARYLAND.
7. THE PROPERTY SHOWN HEREON IS SUBJECT TO THE TERMS AND CONDITIONS, SET FORTH IN A DECLARATION OF COVENANTS FOR THE OPERATION AND MAINTENANCE OF PRIVATE STREETS, PRIVATE STORM DRAIN SYSTEMS, AND/OR OPEN SPACE AREA, DATED FEBRUARY 2, 2000, AND RECORDED AMONG THE LAND RECORDS OF MONTGOMERY COUNTY, MARYLAND IN LIBER 17853 AT FOLIO 310.
8. DEVELOPMENT IS SUBJECT TO THE TERMS OF A SITE PLAN ENFORCEMENT AGREEMENT WITH THE MONTGOMERY COUNTY PLANNING BOARD (FILE NO. 8-99044).
9. PARCEL B, SHOWN HEREON IS TO BE CONVEYED TO THE HOMEOWNERS ASSOCIATION (HOA) AND IS TO A PRIVATE ROAD TO ALL THE LOTS SHOWN ON THE APPROVED PRELIMINARY PLAN 1-98064, WITH THE EXCEPTION OF LOT 4 (AS SHOWN ON SAID PRELIMINARY PLAN). AND BEING SHOWN HEREON AS LOT 45. SAID PRIVATE ROAD TO BE SUBJECT TO A "COMMON ACCESS EASEMENT FOR INGRESS/EGRESS AND UTILITIES" AND SUBJECT TO THE TERMS AND CONDITIONS OF AN AGREEMENT TO BE RECORDED AMONG SAID LAND RECORDS. FURTHER SAID PARCEL B, IS ESTBLAISHED AS A PUBLIC UTILITY EASEMENT (PUE).
10. FOR PUBLIC WATER AND SEWER SYSTEMS ONLY.
11. THE SOURCE OF THE 100-YEAR FLOODPLAIN SHOWN HEREON WAS TAKEN FROM A FLOODPLAIN STUDY BY GREENHORNE & O'MARA, INC. DATED FEBRUARY, 1991, AND APPROVED BY MNCPPC WITH PRELIMINARY PLAN 1-91004 PER DATE SHOWN.
12. ALL TERMS, CONDITIONS, AGREEMENTS, LIMITATIONS AND REQUIREMENTS ASSOCIATED WITH ANY PRELIMINARY PLAN, SITE PLAN, PROJECT PLAN OR OTHER PLAN, ALLOWING DEVELOPMENT OF THIS PROPERTY, APPROVED BY THE MONTGOMERY COUNTY PLANNING BOARD ARE INTENDED TO SURVIVE AND NOT BE EXTINGUISHED BY THE RECORDATION OF THIS PLAT, UNLESS EXPRESSLY CONTEMPLATED BY THE PLAN AS APPROVED. THE OFFICIAL PUBLIC FILES FOR ANY SUCH PLAN ARE MAINTAINED BY THE PLANNING BOARD AND ARE AVAILABLE FOR PUBLIC REVIEW DURING NORMAL BUSINESS HOURS.

ENGINEER'S AND SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE PLAT SHOWN HEREON IS CORRECT;

THAT IT IS A SUBDIVISION OF PART OF THE LANDS CONVEYED TO ALEXANDER M. LANKLER AND CELESTE S. LANKLER, DESCRIBED IN EIGHT (8) DEEDS OF CONVEYANCE FROM:

1. EDWARD B. BEALE AND RUTH E. BEALE, BY A DEED DATED MAY 4, 1977 AND RECORDED AMONG THE LAND RECORDS OF MONTGOMERY COUNTY, MARYLAND IN LIBER 4943 AT FOLIO 286;
2. MONTGOMERY REA SHAFER, JR. AND BERNICE R. SHAFER, BY A DEED DATED JUNE 1, 1970 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 3966 AT FOLIO 663;
3. EDWARD B. BEALE AND RUTH E. BEALE, BY A DEED DATED NOVEMBER 15, 1957 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 2408 AT FOLIO 71;
4. MONTGOMERY REA SHAFER, JR. AND BERNICE R. SHAFER, BY A DEED DATED APRIL 14, 1971 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 4068 AT FOLIO 457;
5. EDWARD B. BEALE AND RUTH E. BEALE, BY A DEED DATED APRIL 6, 1970 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 3959 AT FOLIO 46;
6. RUTH E. BEALE, SURVIVING BY THE ENTIRETY OF EDWARD B. BEALE AND RUTH E. BEALE, BY A DEED DATED JANUARY 11, 1983 AND BEING RECORDED AMONG SAID LAND RECORDS IN LIBER 6274 AT FOLIO 325;
7. ALEXANDER M. LANKLER, BY A DEED DATED JANUARY 17, 1984 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 6297 AT FOLIO 691; AND
8. EDWARD B. BEALE AND RUTH E. BEALE, BY A DEED DATED APRIL 22, 1965 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 3350 AT FOLIO 696

AND THAT, ONCE ENGAGED AS DESCRIBED IN THE OWNER'S DEDICATION HEREON, ALL PROPERTY MARKERS AND OTHER BOUNDARY MARKERS SHOWN THUS ⟷ WILL BE SET AS DELINEATED HEREON IN ACCORDANCE WITH THE PROVISIONS OF SECTION 50-24(E) OF THE MONTGOMERY COUNTY CODE;

THERE IS NO STREET DEDICATION BY THIS PLAT OF SUBDIVISION. THE TOTAL AREA INCLUDED ON THIS PLAT OF SUBDIVISION IS 1,118,446 SQUARE FEET OR 25.6760 ACRES OF LAND.

I HEREBY CERTIFY TO THE LOCATION OF PROPERTY AND EASEMENT LINES SHOWN HEREON:

7/10/2000 [signature]
DATE MARWAN F. MOSTAFA
REGISTERED PROFESSIONAL LAND SURVEYOR, MARYLAND NO. 20007

BOARD OF PROFESSIONAL LAND SURVEYORS 20007 MARWAN FARIS MUSTAFA STATE OF MARYLAND

LEGEND

- PROPERTY CORNER TO BE SET
- PROPERTY LINE
- INTERIOR DEED LINES
- EX. EASEMENTS & R/W
- 100 YEAR FLOOD PLAIN
- CATEGORY II EASEMENT

2-00-279 | 990402070788

Maryland National Capital Park & Planning Commission Montgomery County Planning Board	Department Of Permitting Services Montgomery County, Maryland
Approved: June 27, 2000	Approved: June 26, 2000
[signature] Chairman	[signature] Director
Mary Ware Jemetone ASST. Secretary Treasurer	
MNCP&PC File NO. 613-06	PIA No. N/A

GRAPHIC SCALE
1" = 100'
0 100 200 300

FILE - J:\7111000\7111000 2.PLA (PRF-N7111000\PRF\7111PLA3*)

SUBDIVISION RECORD PLAT
LOTS 29 THROUGH 35,
LOT 45, OUTLOT 'A' AND PARCEL 'B'

FILED
AUG 08 2000

HORIZON HILL

POTOMAC (10th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND
SCALE : 1" = 100' JUNE, 2000

Recorded	GREENHORNE & O'MARA INC.	Sect.*
Plat Book	ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS 20410 CENTURY BOULEVARD GERMANTOWN, MARYLAND 20874 (301) 444-8282	Comp.- Drafter MAH
Plat No.		File No. R-850-P

613-06

MSA SSU 1249-27446

MONTGOMERY COUNTY PLANNING BOARD

R E V I S E D O P I N I O N

DATE MAILED: **October 12, 1999**

SITE PLAN REVIEW: **#8-99044**

PROJECT: **Lankler Property**

Action: Approval subject to conditions. Motion was made by Commissioner Wellington, seconded by Commissioner Perdue, with a vote of 3-0 , Commissioners, Hussmann, Perdue and Wellington voting for. Commissioners Bryant and Holmes were absent.

The date of this written opinion is October 12, (which is the date that this opinion is mailed to all parties of record). Any party authorized by law to take an administrative appeal must initiate such an appeal, as provided in the Maryland Rules of Procedure, on or before November 12, (which is thirty days from the date of this written opinion). If no administrative appeal is timely filed, this site plan shall remain valid for as long as Preliminary Plan #1-98064 is valid, as provided in Section 59-D-3.8. Once the property is recorded, this site plan shall remain valid until the expiration of the project's APFO approval, as provided in Section 59-D-3.8.

On August 5, 1999, Site Plan Review #8-99044 was brought before the Montgomery County Planning Board for a public hearing. At the public hearing, the Montgomery County Planning Board heard testimony and received evidence submitted in the record on the application. Based on the testimony and evidence presented and on the staff report which is made a part hereof, the Montgomery County Planning Board finds:

1. The Site Plan is consistent with the approved development plan or a project plan for the optional method of development, if required;

2. The Site Plan meets all of the requirements of the zone in which it is located;
3. The locations of the buildings and structures, the open spaces, the landscaping, the recreation

facilities, and the pedestrian and vehicular circulation systems are adequate, safe, and efficient;

4. Each structure and use is compatible with other uses and other site plans and with existing and proposed adjacent development;

5. The site plan meets all applicable requirements of Chapter 22A regarding forest conservation.

The Montgomery County Planning Board APPROVES Site Plan Review #8-99044 which consists of 20 single-family detached lots subject to the following conditions:

1. Prior to signature approval of the site/landscape plans the following revisions shall be made and/or information provided:
    2. Information regarding the maximum proposed building height and lot coverage and setback standards for accessory structures shall be provided on the plans.
    3. The septic field shown on Lot 4 shall be removed or relocated in order to preserve the existing row of mature trees.
    4. The swm pond and the required access shall be shown as located on a parcel owned and maintained by the homeowners association.
    5. A lighting distribution plan shall be submitted which demonstrates that a safe level of lighting with an even distribution will be provided along the new section of Red Barn Lane.
    5. The Forest Conservation Plan shall be revised in accordance with the recommendations from the Environmental Planning Division memorandum dated 7/27/99. (See attached Bachle to Komes).
    6. The Forest Conservation Plan shall be revised to incorporate the recommendations as contained in the Arborists Report dated 7/21/99 and as amended to add the following notes. A schedule which establishes the correct sequence for the tree preservation/construction measures shall also be provided on the plans.
        (1) Limits of root pruning shall be delineated in the field and inspected prior to beginning work.
        (2) Tree protection fencing used along Red Barn Lane shall be 14 gauge, four-inch wide wire mesh attached to steel tee posts located no more than 10-feet on-center.
        (3) Supplemental treatment of mycorrhizae and root growth stimulant should be injected into the primary root zone prior to beginning work. A follow schedule for repeat fertilization and mycorrhizae treatment shall also be provided.
        (4) Root zone of impacted trees shall be mulched with wood chips.
        (5) Prune roots with sharp vibratory plow blade to a depth of 18". Roots which can not be cut by plow are to be carefully excavated and cut by

hand using a clean, sharp saw.

7. Landscape planting shall be added along the access drive to Lot 4.
8. The road in front of Lot 6 shall be shifted to the east to avoid disturbance to the existing large Maples.
1. A twenty-foot-wide public pedestrian trail easement, which prohibits motorized vehicles, and containing a four-foot-wide natural surface trail and two-foot-wide cleared shoulders shall be provided from Red Barn Lane to the stream valley located along the west side of the site. The easement and trail shall continue southwest across the stream to connect to the existing easement on the Junkin Property. A rock ford shall be provided where the trail crosses the stream. Construction details and specifications for the trail, rock ford and associated stream bank protection measures shall be approved by the M-NCPPC staff and shown on the site plan. The exact alignment of the trail and the location of the stream crossing shall be determined in the field and shall be mutually agreed upon by staff and the applicant.
10. Tree protection fencing shall be added to protect the existing trees located around the pond which will be rebuilt as a swm facility.

2. Prior to release of the 14th building permit, the multi-use, natural surface trail and rock ford stream crossing shall be constructed.

3. The following Standard Conditions of Approval were approved by the Planning Board on October 10, 1995 and apply to this Site Plan:
    1. Submit a Site Plan Enforcement Agreement, Development Program, and Homeowners Association Documents for review and approval prior to approval of the signature set as follows:

        1) Development Program to include a phasing schedule as follows:

            a. Street tree planting must progress as street construction is completed, but no later than six months after completion of the units adjacent to those streets.
            b. Clearing and grading to correspond to the construction phasing, to minimize soil erosion;
            c. Coordination of each section of the development and roads;
            d. Phasing of dedications, stormwater management, sediment/erosion control, recreation, forestation, community paths, trip mitigation or other features.

        2) Site Plan Enforcement Agreement to delineate requirements of conditions of approval and Environmental Planning

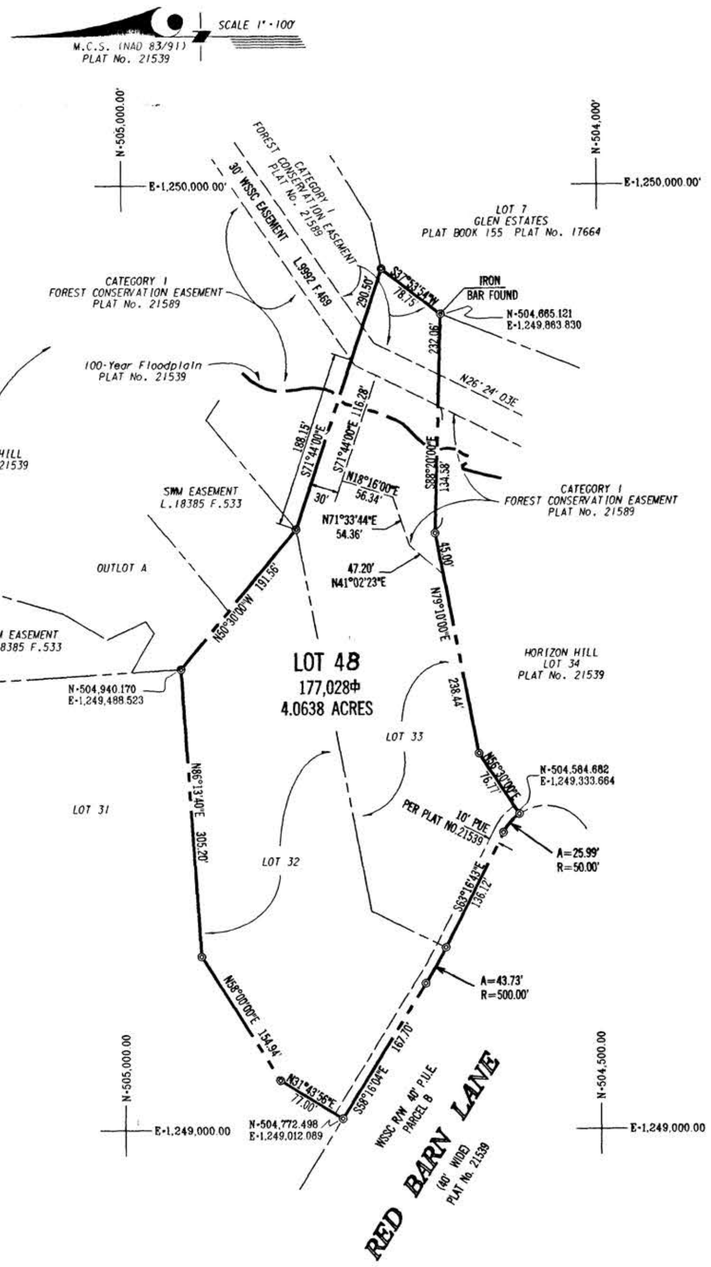
Division staff correspondence dated 7/27/99.

B. Signature set of site, landscape/lighting, forest conservation and sediment and erosion control plans to include for staff review prior to approval by Montgomery County Department of Permitting Services (DPS):
   1) Undisturbed stream buffers;
   2) Limits of disturbance;
   3) Methods and location of tree protection;
   4) Forest Conservation areas;
   5) Relocation of stormwater facility outfalls from pond away from forest preservation or other environmentally sensitive areas;
   6) Conditions of DPS Stormwater Management Concept approval letter dated *12/1/98*;
   7) Note stating the M-NCPPC staff must inspect tree-save areas and protection devices prior to clearing and grading;
   8) The development program inspection schedule.
   9) Conservation easement boundary
   10) location of outfalls away from tree preservation areas;

C. Forest Conservation Plan shall satisfy all conditions of approval prior to recording of plat and DPS issuance of sediment and erosion control permit.

D. No clearing or grading prior to M-NCPPC approval of signature set of plans.

PLAT No 22239



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THAT THE PLAT SHOWN HEREON IS CORRECT:

THAT IT IS A PLAT OF RESUBDIVISION OF ALL OF LOTS 32 AND 33 AS SHOWN ON A PLAT OF RECORD ENTITLED "LOTS 29 THROUGH 35, LOT 45, OUTLOT 'A' AND PARCEL 'B', HORIZON HILL" AND RECORDED AMONG THE LAND RECORDS OF MONTGOMERY COUNTY, MARYLAND AS PLAT No. 21539.

THAT IT IS A PLAT OF RESUBDIVISION OF ALL OF THE LANDS CONVEYED TO RICHARD AND REBECCA KAY BY TWO CONVEYANCES:

1. FROM KNOB LIMITED PARTNERSHIP BY DEED DATED OCTOBER 25, 2000 AND RECORDED AMONG SAID LAND RECORDS IN LIBER 18765 AT FOLIO 658.
2. FROM PIIN-DUANN HSIEH BY DEED DATED APRIL 16, 2001 TO BE RECORDED AMONG SAID LAND RECORDS:

AND THAT, ONCE ENGAGED AS DESCRIBED IN THE OWNER'S DEDICATION HEREON, ALL PROPERTY MARKERS AND OTHER BOUNDARY MARKERS SHOWN THUS ——o—— WILL BE SET AS DELINEATED HEREON IN ACCORDANCE WITH THE PROVISIONS OF SECTION 50-24 (E) OF THE MONTGOMERY COUNTY CODE.

THERE IS NO STREET DEDICATION BY THIS PLAT OF SUBDIVISION. THE TOTAL AREA INCLUDED ON THIS MINOR PLAT OF SUBDIVISION IS 177,028 SQUARE FEET OR 4.0638 ACRES OF LAND.

MARWAN F. MUSTAFA
PROFESSIONAL LAND SURVEYOR
MARYLAND REGISTRATION No. 20007

STATE OF MARYLAND
MARWAN FARIS MUSTAFA
No. 20007
REGISTERED
PROFESSIONAL LAND SURVEYOR

4-10-2002
DATE

OWNERS CERTIFICATE

I, THE UNDERSIGNED, OWNER OF THE PROPERTY DESCRIBED HEREON, HEREBY ADOPT THIS PLAN OF SUBDIVISION AND ESTABLISH THE MINIMUM BUILDING RESTRICTION LINES EXCEPT AS SHOWN.

AS OWNER OF THIS SUBDIVISION, I, MY SUCCESSORS, AGENTS AND ASSIGNS WILL CAUSE ALL PROPERTY CORNER MARKERS AND ANY OTHER REQUIRED MONUMENTATION TO BE SET BY A REGISTERED MARYLAND SURVEYOR IN ACCORDANCE WITH SECTION 50-24 (E) OF THE MONTGOMERY COUNTY CODE.

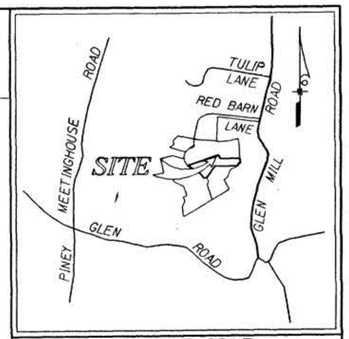
THERE ARE NO RECORDED SUITS, ACTIONS AT LAW, LIENS, LEASES, MORTGAGES OR TRUSTS AFFECTING THE PROPERTY INCLUDED IN THIS PLAT OF SUBDIVISION.

DATE: 4/11/02

BY: Richard Kay — Andrea D Cleary
RICHARD KAY — WITNESS

DATE: 4/11/02

Rebecca Kay — Andrea D Cleary
REBECCA KAY — WITNESS



VICINITY MAP
NOT TO SCALE

SUBDIVISION NOTES

1. THIS PLAT IS IN THE DATUM OF THE MARYLAND COORDINATE SYSTEM (MCS), AS ESTABLISHED BY A PLAT OF RECORD AS DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON.
2. THIS PLAT AND PLAN OF RESUBDIVISION CONFORMS WITH THE REQUIREMENTS OF SECTION 50-35 (A) OF THE MONTGOMERY COUNTY SUBDIVISION REGULATIONS, BEING CHAPTER 50 OF THE COUNTY CODE. THIS PLAT INVOLVES A CONSOLIDATION OF TWO LOTS AS PROVIDED FOR IN SECTION 50-35 (A) (a) (3).
3. THIS PROPERTY IS ZONED RE-2
4. TITLE INFORMATION STATEMENT: THIS SUBDIVISION RECORD PLAT IS NOT INTENDED TO SHOW EVERY MATTER AFFECTING THE OWNERSHIP AND USE, NOR EVERY MATTER RESTRICTING THE OWNERSHIP AND USE, OF THE PROPERTY. THE SUBDIVISION RECORD PLAT IS NOT INTENDED TO REPLACE AN EXAMINATION OF TITLE OR TO DEPICT OR NOTE ALL MATTERS AFFECTING THE PROPERTY.
5. THE PROPERTY SHOWN HEREON IS SUBJECT TO THE TERMS AND CONDITIONS, SET FORTH IN A DECLARATION OF COVENANTS FOR THE OPERATION AND MAINTENANCE OF PRIVATE STREETS, PRIVATE STORM DRAIN SYSTEMS, AND/OR OPEN SPACE AREA, DATED FEBRUARY 2, 2000, AND RECORDED AMONG THE LAND RECORDS OF MONTGOMERY COUNTY, MARYLAND IN LIBER 17853 AT FOLIO 310.
6. RED BARN LANE IS A PRIVATE ROAD AND IS SUBJECT TO A COMMON ACCESS EASEMENT FOR INGRESS/EGRESS AND UTILITIES AND IS ALSO A PUBLIC UTILITY EASEMENT AS NOTED ON PLAT No. 21539.
7. FOR PUBLIC WATER AND SEWER SYSTEMS ONLY. APPROVAL OF THIS PLAT IS PREDICATED ON AVAILABILITY OF PUBLIC WATER AND SEWER PRIOR TO CONSTRUCTION OF HOMES.
8. ALL TERMS, CONDITIONS, AGREEMENTS, LIMITATIONS AND REQUIREMENTS ASSOCIATED WITH ANY PRELIMINARY PLAN, SITE PLAN, PROJECT PLAN OR OTHER PLAN, ALLOWING DEVELOPMENT OF THIS PROPERTY, APPROVED BY THE MONTGOMERY COUNTY PLANNING BOARD ARE INTENDED TO SURVIVE AND NOT BE EXTINGUISHED BY THE RECORDATION OF THIS PLAT, UNLESS EXPRESSLY CONTEMPLATED BY THE PLAN AS APPROVED. THE OFFICIAL PUBLIC FILES FOR ANY SUCH PLAN ARE MAINTAINED BY THE PLANNING BOARD AND ARE AVAILABLE FOR PUBLIC REVIEW DURING NORMAL BUSINESS HOURS.
9. TAXMAP FQ122 P/O P241
10. THE LOTS SHOWN HEREON ARE LIMITED TO USES AND CONDITIONS AS REQUIRED BY PRELIMINARY PLAN #1-89032. ANY PROPSED CHANGES IN USE WILL REQUIRE FUTHER PLANNING BOARD REVIEW AND APPROVAL.
11. THE SOURCE OF THE 100-YEAR FLOODPLAIN SHOWN HEREON WAS TAKEN FROM A FLOODPLAIN STUDY BY GREENHORNE & O'MARA, INC. DATED FEBRUARY, 1991 AND APPROVED BY MNCPPC WITH PRELIMINARY PLAN 1-91004 PER DATE SHOWN.
12. The properties shown hereon are subject to the terms and conditions of The Piney Branch Sewer Agreement Recommendations as recorded in a Declaration of Covenants for the provision of Public Sewer Service among the land records of Montgomery County Government Liber 16250 Folio 159.

SUBDIVISION RECORD PLAT
LOT 48
A RESUBDIVISION OF LOTS 32 AND 33
HORIZON HILL

SITUATED ON RED BARN LANE
POTOMAC (10th) ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND
SCALE : 1" = 100' JUNE, 2001

FOR PUBLIC WATER & SEWER SYSTEMS ONLY 2-01279 Minor(3)

Maryland National Capital Park & Planning Commission Montgomery County Planning Board	Department Of Permitting Services Montgomery County, Maryland
Approved: June 28, 2001	Approved: MAY 7, 2002
Wendy C. Perdue — Barbara A. Preller	Director
Vice-Chairman — Secretary Treasurer	
MNCP&PC File NO. 618-11	PIA No. N/A

100 50 0 100 200 300
GRAPHIC SCALE
1" = 100'

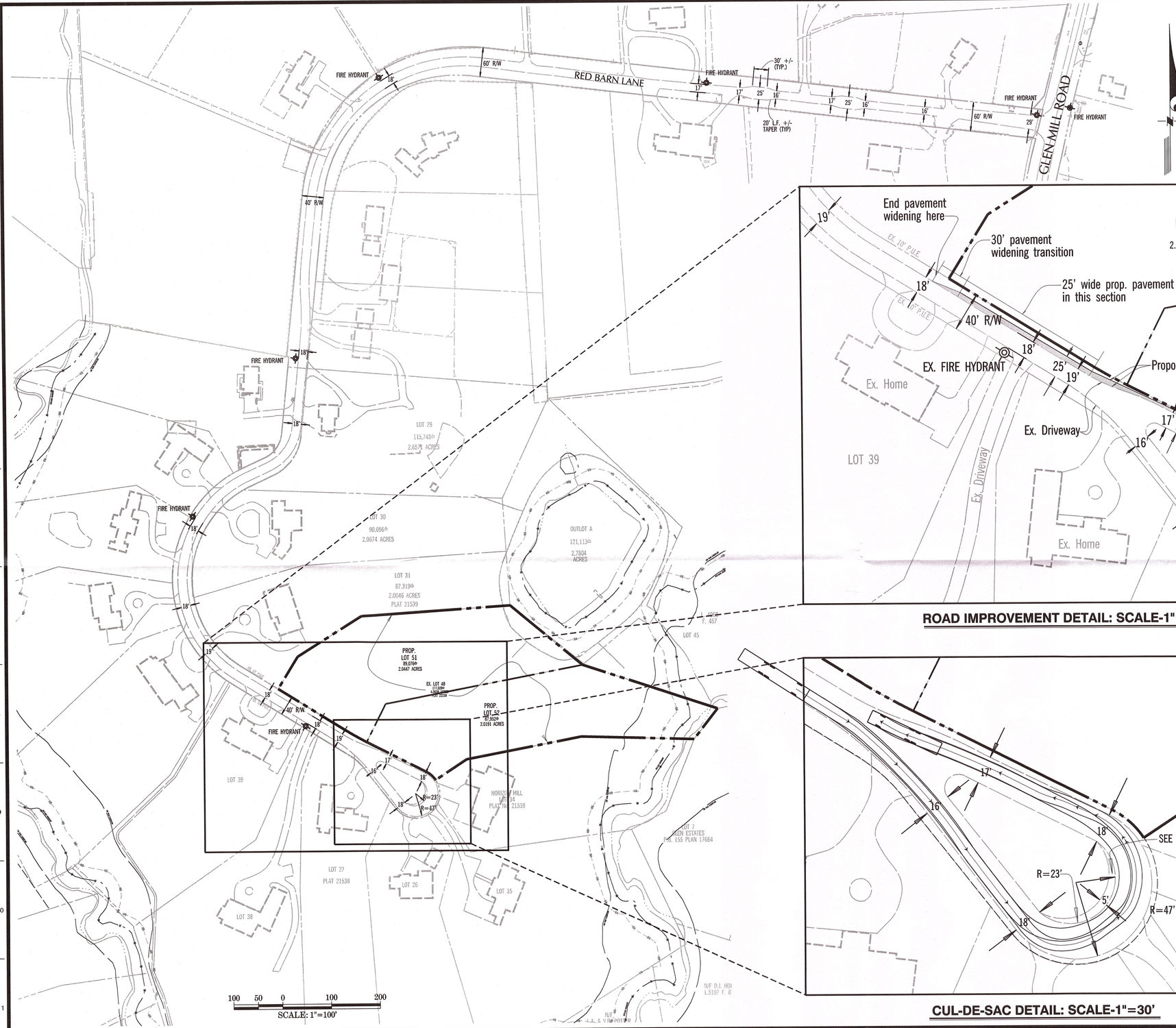
FILE - N:\11\000\3233RESUB.PLA (PRF-N:\11\000\PRF\3233RESUB.PRF)

Recorded	
Plat Book	
Plat No.	

GREENHORNE & O'MARA INC.
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS
20410 CENTURY BOULEVARD
GERMANTOWN, MARYLAND 20874
(301) 444-8282

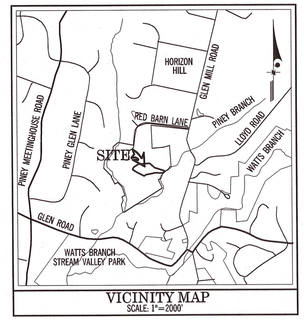
Sect.*	
Comp.- Drafter	MNB
File No.	R-850-P

MSA 55U 1249-28116 71474 618-11



ROAD IMPROVEMENT DETAIL: SCALE-1"=50'

CUL-DE-SAC DETAIL: SCALE-1"=30'

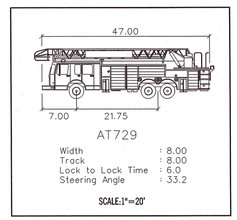


VICINITY MAP
SCALE: 1"=2000'

FIRE CODE ENFORCEMENT
Fire Department Access Review
Review based only upon information contained on this plan. Does not cover unsatisfactory layout resulting from omissions, errors, or failure to clearly indicate conditions on this plan. Correction of such unsatisfactory layout to afford required access will be required if found upon inspection after installation. SJC 43 12/17/14

NOTES:

1. Boundary information per MNCPPC GIS and subdivision Record Plats 22239 & 21539.
2. Footprints & driveway information for existing, surrounding homes digitized from air photos in Sept 2012.
3. Topographic information by Greenhorne & O'Mara 1991 and not updated to reflect more recent improvements of road and neighboring home construction.
4. Field measurments were taken for the existing Red Barn Lane on 7/8/14.
5. Inside radius area of the cul-de-sac island is paved with cobble pavers.
6. This Fire Access Exhibit is associated with Preliminary Plan of Subdivision #12014090.



STATE OF MARYLAND
FERNANDO ENRIQUE BENITEZ
No. 39966
REGISTERED PROFESSIONAL ENGINEER
11/26/14

PROFESSIONAL CERTIFICATION:

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.

SIGNATURE — DATE 11/26/14

Fernando Enrique Benitez — PRINTED NAME

01/17/2015 — EXPIRATION DATE

LICENSE No. 39966

PREPARED FOR:

Rory S. Coakley
11 N. Washington St., Suite 700
Rockville, MD 20850
(301) 517-4841

No.	REVISION	DATE	BY

Stantec

STANTEC CONSULTING SERVICES INC.
20410 CENTURY BOULEVARD., SUITE 200, GERMANTOWN, MARYLAND 20874
PHONE: (301) 444-8282 FAX: (301) 444-8181
www.Stantec.com

FIRE ACCESS & ROAD IMPROVEMENT EXHIBIT

HORIZON HILL Lot 48 - RESUBDIVISION

10th ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

DESIGN		SCALE	1" = 100'
DK			
DRAWN		SHEET	1 OF 1
CHECKED			
NOV 2014	072375		072375
DATE	PROJ No.		FILE No.

DATE=11/25/2014 DGN=U:\2029072375\engineering\drawings\0722375_FAP_01.dgn PRF=U:\2029072375\engineering\drawings\prf\0722375_FAP_01.prf TBL=R:\cad\plot\Pentables\Maryland\Montgomery\V8PRE.tbl SCALE=100 ROT=0

Stantec

Stantec Consulting Services Inc.
20410 Century Boulevard Suite 200
Germantown MD 20874
Tel: (301) 444-8282

GREENHORNE & O'MARA
CONSULTING ENGINEERS
Inspired Solutions. Improving Lives.

FIRE CODE ENFORCEMENT
Fire Department Access Review
Review based only upon information contained on this plan. Does not cover unsatisfactory layout resulting from omissions, errors, or failure to clearly indicate conditions on this plan. Correction of such unsatisfactory layout to afford required access will be required if found upon inspection after installation.
GJC 43 12/12/14

November 26, 2014

Via Hand Delivery

Marie LaBaw, PhD, PE
Engineering, Fire Code Enforcement
Office of the Fire Marshal
Montgomery County Fire and Rescue Services
100 Edison Park Dr, 2nd Floor
Gaithersburg, MD 20878

Reference: Horizon Hill Lot 48 (aka Red Barn lane, aka Highgate)
Statement of Performance Based Design – Red Barn Lane

Dear Ms. LaBaw,

On behalf of the property owners, Mr. and Mrs. Crawford, thank you for meeting with us on September 22, 2014 at your office and providing your guidance regarding fire access for the proposed two lot subdivision. We are pleased to provide this Statement of Performance as you requested during that meeting.

As you recall, Lots 32 and 33 were recorded by Plat 21539 in August of 2000 each containing approximately two acres. These lots were only two of the larger subdivision of homesites along Red Barn Lane, a private road. In October of 2000, Lot 32 was purchased followed by the purchase of the adjacent Lot 33 in April of 2001 by the same owner. By means of a Minor Subdivision, the new owner combined Lots 32 and 33 creating Lot 48 containing 4.06 acres as recorded on Plat 22239 in June of 2002. The owner's intent was to build a single-family home on the four acre property.

Subsequently, that owner decided to construct their home elsewhere. No improvements or other physical changes to the nature the lot were ever implemented that would alter the appropriateness of the property for use as two, single-family homesites as previously approved and recorded once returned to the initial two lot condition.

The 4.06 acre property has been purchased by the current owner who wishes to reinstate the property to lots 51 and 52 for two single family homes exactly as the property existed as Lots 32 and 33. The proposed subdivision will have the effect of simply vacating the previous Minor Subdivision Plat which consolidated the lots.

The nature and location of the existing conditions along Red Barn Lane limit the ability to make substantial changes to the private road. The road is controlled by the Homeowner's Association and that group is not receptive to a large degree of change to the current conditions. This situation necessitates some accommodation of performance solutions for fire access in lieu of a typical requirement. Typically, prescriptive code calls for the provision of a continuous, 20 foot wide lane for fire apparatus access. Red Barn Lane can be generally characterized as an 18 foot wide road but includes variations in width from as

Reference: **Horizon Hill Lot 48**

little as 16 feet to areas as wide as 25 feet in width to allow two vehicles, including fire trucks to pass with ease.

The enclosed exhibit demonstrates that the cul-de-sac turnaround can readily accommodate the fire apparatus design vehicle and that a fire hydrant is conveniently located directly confronting the proposed lots. Also, the development standards for the RE-2 zoned lots dictate that each home will be set back a minimum of 17 feet from each side yard resulting in home locations in excess of the minimum 30 foot separation from each other.

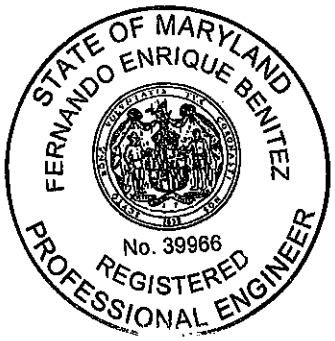
The applicant proposes substantial improvements to the existing condition in lieu of the continuous 20 foot widening. We are optimistic that the HOA will allow widening directly in front of the subject property as long as it is done in an attractive manner. We propose to widen the cul-de-sac as indicated on the enclosed exhibit to 20 feet, the maximum extent possible within the confines of the parcel containing the drive. Similarly, the drive itself can be widened to 25 feet along the remaining frontage with a smooth transition back to the existing drive width. This widening exceeds the minimum width at the strategic area along the location of the fire hydrant allowing for superior access and circulation for fire personnel using the hydrant.

In summary, the proposed design is a considerable improvement over the existing conditions in for fire access. The proposed provision of the additional widening is an effective substitute for a continuous-drive width and is the maximum that would be acceptable to the HOA. The absence of approval of this performance based design would result in the persistence of the inferior existing conditions with no other opportunity for such improvements to be made.

We have enclosed a copy of the Fire Access and Road Improvement exhibit for your use in considering this request. Please feel free to contact me, John Sekerak or any member of the project team, if you have any questions or need additional information.

Sincerely,

Fernando Benitez, P.E.



Enclosures: a/s

cc: Mr. and Mrs. Crawford - w/enclosure
Mr. Rory Coakley – w/enclosure

FIRE MARSHAL COMMENTS

DATE: 17-Dec-14

TO: John Sekerak - john.sekerak@stantec.com
Stantec

FROM: Marie LaBaw

RE: Horizon Hill Lot 48 (Red Barn Lane, Highgate)
120140190

PLAN APPROVED

1. Review based only upon information contained on the plan submitted **17-Dec-14** .Review and approval does not cover unsatisfactory installation resulting from errors, omissions, or failure to clearly indicate conditions on this plan.

2. Correction of unsatisfactory installation will be required upon inspection and service of notice of violation to a party responsible for the property.

***** Performance-based design review *****

ATTACHMENT F

DEPARTMENT OF PERMITTING SERVICES

Isiah Leggett
County Executive

Diane R. Schwartz Jones
Director

October 21, 2014

Mr. Fernando Benitez
Stantec Consulting Services Inc.
20410 Centurt Boulevard, Suite 200
Germantown, Maryland 20874

Re: **Water Quality Inventory** Request for Horizon Hill-Lot 48
Preliminary Plan #: 119980640
SM File #: 262455
Tract Size/Zone: 4.06 acres/ RE-2
Total Concept Area: 4.06 acres
Watershed: Piney Branch

Dear Mr. Benitez:

Based on a review by the Department of Permitting Services Review Staff, the water quality inventory for the above mentioned site is **acceptable**. The stormwater management concept proposes to meet required stormwater management goals via four Landscaped infiltration features.

The following **conditions** will need to be addressed **during** the detailed sediment control/stormwater management plan stage:

1. A detailed review of the stormwater management computations will occur at the time of detailed plan review.

2. An engineered sediment control plan must be submitted for this development.

This list may not be all-inclusive and may change based on available information at the time.

Payment of a stormwater management contribution in accordance with Section 2 of the Stormwater Management Regulation 4-90 **is not required**.

This letter must appear on the sediment control/stormwater management plan at its initial submittal. The concept approval is based on all stormwater management structures being located outside of the Public Utility Easement, the Public Improvement Easement, and the Public Right of Way unless specifically approved on the concept plan. Any divergence from the information provided to this office; or additional information received during the development process; or a change in an applicable Executive Regulation may constitute grounds to rescind or amend any approval actions taken, and to reevaluate the site for additional or amended stormwater management requirements. If there are subsequent additions or modifications to the development, a separate concept request shall be required.

If you have any questions regarding these actions, please feel free to contact Leo Galanko at 240-777-6242.

Sincerely,

Mark C. Etheridge, Manager
Water Resources Section
Division of Land Development Services

MCE: me lmg

cc: C. Conlon
SM File # 262455

ESD Acres:	4.06
STRUCTURAL Acres:	0
WAIVED Acres:	0

Stantec Consulting Services Inc.
20410 Century Boulevard, Suite 200
Germantown MD 20874-1187
Tel: (301) 444-8282
Fax: (301) 444-8181

March 19, 2014
File: 2029-072375

Attention: Mr.Leo Galanko
Montgomery County Department of Permitting Services
255 Rockville Pike, 2nd Floor
Rockville, MD 20850

Dear Mr. Galanko,

Reference: Horizon Hill Existing Lot 48-SWM Concept

On behalf of our client, Victor and Carla Crowford, and pursuant to our previous coordination, please find attached the stormwater management concept for the reference project. The project scope is to sub-divide existing lot 48 into two (2) acre lots (single family homes). The proposed development will have less than 15% of imperviousness, which exempts the site from the special protection water quality plans per 29-95, Section 4.A.1.i. The stormwater management concept plan includes facilities that are one of many treatment options that the applicant may incorporate at final engineering. The final layout for the home and driveway configurations is subject to change and will be determined at the Final engineering phase/building permit.

We would like to kindly request the review and approval of the enclosed stormwater management concept. An application and the check review fee are included in this submittal.

Should you have any questions, please do not hesitate to contact me,

Regards,

STANTEC CONSULTING SERVICES INC.

Fernando Benitez, PE
Project Manager
Phone: 301-444-8282
Fernando.benitez@stantec.com

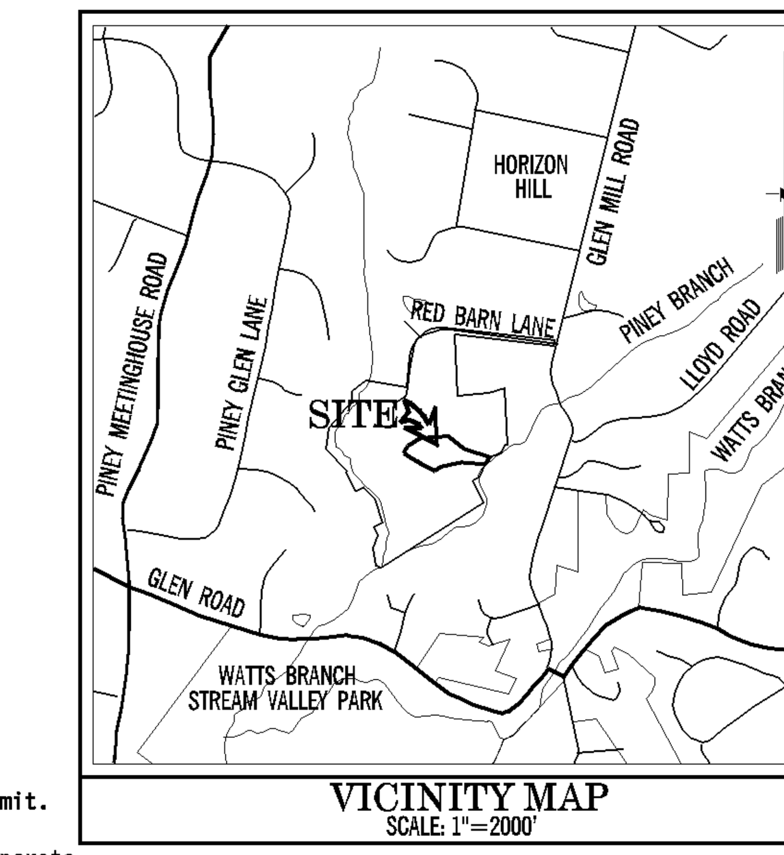
Attachment: SWM Concept Plan & package

cc. Victor & Carla Crawford


MD STATE PLANE
SCALE 1"=40'
LOT 30
90,056
2.0674 ACRES
LOT 31
87,319
2.0046 ACRES
PLAT 21539
EXISTING POND
OUTLOT A
121,113
2.7804
ACRES
TOP OF 18" OVERFLOW PIPE
N86°13'40"E 305.20'
PROP.
LOT 51
89,076
2.0447 ACRES
LANDSCAPE INFILTRATION
LEVEL SPREADER
B SOIL
EX. LOT 48
177,028
4.0638 ACRES
PLAT 22239
PROP.
LOT 52
87,952
2.0191 ACRES
RED BARN LANE (Private Dr.) Parcel B, PLAT 21539
S71°44'00"E
290.50'
S88°20'00"E
232.06'
N79°10'00"E 238.44'
30' WSSC EASEMENT
L.4068
F. 457
LOT 45
D SOIL
CATEGORY 1
FOREST CONSERVATION EASEMENT
PLAT No. 21589
HORIZON HILL
LOT 34
PLAT No. 21539
LOT 7
GLEN ESTATES
P.B. 155 PLAN 17664
LOT 27
Stream Valley Buffer
100 YEAR FLOODPLAIN
WETLANDS BOUNDARY

GENERAL NOTES

- Boundary information per subdivision Record Plats 22239 & 21539.
- Footprints & driveway information for existing, surrounding homes digitized from air photos in Sept 2012.
- Topographic information by Greenhorne & O'Mara 1991 and not updated to reflect more recent improvements of road and neighboring home construction.
- Existing Zoning is RE-2.
- NRI/FSD # 41998049 has been approved for this site on November 7th, 1997.
- Water and Sewer Category: W-1 & S-1 respectively.
- This site is within the Watts Branch watershed (Class I).
- This site is within Piney Branch Special Protection Area (SPA).
- This site is within Potomac Subregion Master Plan Area.
- This site is within Rural Transportation policy Area.
- This plan is not for construction purposes.
- The proposed homes and driveways are as shown on previous application materials. The ultimate home and driveway configurations and locations will be determined at building permit. Stormwater management has been provided to treat a maximum impervious area of 15%. The facilities proposed in this submittal are one of many options that the applicant may incorporate at the final engineering phase/building permit application.



VICINITY MAP
SCALE: 1"=2000'

LEGEND

- EXISTING TOPOGRAPHY
- EXISTING STREAM
- EXISTING FLOODPLAIN LIMITS
- STREAM VALLEY BUFFER
- EXISTING BUILDING
- EXISTING DRAINAGE DIVIDE
- PROPOSED CONTOURS
- PROPOSED BUILDING
- PROPOSED LANDSCAPE INFILTRATION

PROFESSIONAL CERTIFICATION:

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.

SIGNATURE ____________ DATE 03/19/2014

Fernando Enrique Benitez — PRINTED NAME
01/17/2015 — EXPIRATION DATE
LICENSE No. 39966

40 20 0 40 80
SCALE: 1"=40'

CONTACT:
Rory S. Coakley
20 Courthouse Square, Suite 107
Rockville, MD 20850
Phone: 301-825-9352

No.	REVISION	DATE	BY

STANTEC CONSULTING SERVICES INC.
20410 CENTURY BOULEVARD., SUITE 200, GERMANTOWN, MARYLAND 20874
PHONE: (301) 444-8282 FAX: (301) 444-8181
www.Stantec.com

STORMWATER CONCEPT

HORIZON HILL Ex. Lot 48 - RESUBDIVISION

13th ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

FB DESIGN	SCALE 1" = 40'
FB DRAWN	1 OF 2
CHECKED	SHEET
MAR 2014 DATE	072375 PROJ No.
	072375 FILE No.

DATE=3/20/2014 DGN=U:\2029072375\engineering\drawings\0722375_SWC_01.dgn PRF=U:\2029072375\engineering\drawings\prf\0722375_SWC_01.prf TBL=R:\cad\plot\Pentables\Maryland\Montgomery\V8swm.tbl SCALE=40 ROT=90

HORIZON HILL-EX.LOT 48- ESD Summary Table

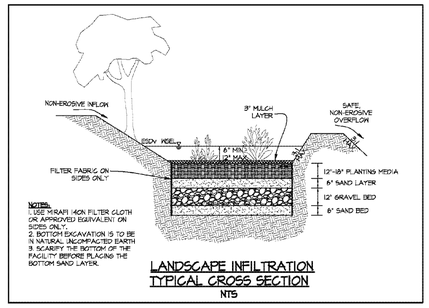
Overall Site Target

ESD Facility	Drainage Area sq. ft.	Imp. D.A. sq. ft.	% of Imp. Cover	A Soil	B Soil	C Soil	D Soil	Target PE (in.) Table 5.3	Provided P_E (in.)	Rv	Target ESDv cu. ft.	Provided ESDv cu. ft.	Excess ESDv cu. ft.	Reduced RCN	Type of Facility	Remarks
SITE AREA	176,854	26,528	15%	0%	100%	0%	0%	1.0	1.9	0.18	2,726	5,291	2,565	55	See ESD Practices Below	Site Compliance
				1	1.0 in (Individual Target 1)	1.0 in	1.0 in					(Provided ESDv Below)				

Total Site Target Composite RCN for "Woods in Good Cond." = 55
Total Site Reduced Composite RCN for "Woods in Good Cond." = 55
Additional Structural Treatment Volume Required (V) = 0 cu-ft (Provided via onsite volume based structural Stormfilter)

Phase 1 Individual Facility Summary

ESD Facility	Drainage Area sq. ft.	Imp. D.A. sq. ft.	% of Imp. Cover	A Soil	B Soil	C Soil	D Soil	Target PE (in.) Table 5.3	Provided P_E (in.)	Rv	Target ESDv cu. ft.	Provided ESDv cu. ft.	Excess ESDv cu. ft.	Reduced RCN	Type of Facility	Remarks
Landscape Infiltration-51A	10,000	6,000	60%	0%	100%	0%	0%	2.0	2.4	0.59	982	1,159	175	55	Landscape Infiltration	
Landscape Infiltration-51B	10,000	7,283	73%	0%	100%	0%	0%	2.2	2.6	0.70	1,296	1,528	232	55	Landscape Infiltration	
Landscape Infiltration-52A	10,000	5,500	55%	0%	100%	0%	0%	1.8	2.5	0.55	816	1,130	313	55	Landscape Infiltration	
Landscape Infiltration-52B	10,000	8,250	83%	0%	100%	0%	0%	2.2	2.2	0.79	1,453	1,470	17	55	Landscape Infiltration	
TOTALS	40,000 sqft	27,015 sqft									4,544 cu-ft	5,291 cu-ft	737 cu-ft			



LANDSCAPE INFILTRATION
TYPICAL CROSS SECTION
NTS

PROFESSIONAL CERTIFICATION:

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.

SIGNATURE — DATE: 03/19/2014

Fernando Enrique Benitez — PRINTED NAME — EXPIRATION DATE: 01/17/2015

LICENSE No. 39966

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20 Courthouse Square, Suite 107
Rockville, MD 20850
Phone: 301-825-9352

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STORMWATER CONCEPT

HORIZON HILL Ex. Lot 48 - RESUBDIVISION

13th ELECTION DISTRICT
MONTGOMERY COUNTY, MARYLAND

FB DESIGN	SCALE: NOT TO SCALE	
FB DRAWN	SHEET: 2 OF 2	
CHECKED		
MAR 2014 DATE	PROJ No. 072375	FILE No. 072375

DATE=3/20/2014 DGN=U:\2029072375\engineering\drawings\0722375_SWC_02.dgn PRF=U:\2029072375\engineering\drawings\prf\0722375_SWC_02.prf TEL=R:\cad\plot\Pentables\Maryland\Montgomery\V8sp.tbl SCALE=40 ROT=90

HORIZON HILL EXISTING LOT 48

STORMWATER MANAGEMENT CONCEPT

MARCH 19, 2014

Stantec

Prepared for:
VICTOR & CARLA CROWFORD
10916 BARN WOOD LN
POTOMAC,MD 20854

Prepared by:
Stantec Consulting Ltd.

Table of Contents

1 INTRODUCTION

The Horizon Hill existing lot 48 is located on Red Barn Lane, West of Glen Mill Road. The 4.06 acre site is zoned RE-2 and is planned to be developed as a two acre or greater single family lots, with public water and sewer systems.

The site lies within the Piney Branch Watershed, which has been designated as a special protection area. The existing lot is currently treated by an existing pond which was retrofitted when this site(Lanker Property) was originally designed as a two(2) acre lots in December 1998. The existing pond currently treats half (1/2) inch of storm runoff for the entire site. This reduction in treatment from the 1 inch required was due to a combination of micro facilities (wetland fringe, Surface Sand filters) that provided the remainder of the water quality requirement. The existing Lot 48 will be subdivided into two (2) acre lots, (51 & 52)for which environmental site design has been provided to the maximum extent practical.

2 STORMWATER MANAGEMENT REQUIREMENTS

The Maryland Department of the Environment 2009 Stormwater Management Design Manual, and the Montgomery County Code requires that all new developments meet the criteria for Water Quality Volume (WQv), Recharge Volume (Rev) and Channel Protection Volume (Cpv) through ESD practices to the maximum extent practicable (MEP). The proposed site will be designed to meet or exceed the ESD stormwater guidelines set forth in the MDE 2009 Stormwater Management Design Manual.

3 STORMWATER MANAGEMENT METHEDOLOGY

The existing site has a property land area of 4.06Ac. The site impervious area will be 0.61 Ac., totaling to 15% of the site. Based on the impervious area computations, the project is exempt from the Special Protection Water Quality plan per 29-95, section 4 A.1.i. The stormwater management approach for proposed lots 51 and 52 will have four (4) landscape infiltration facilities which will cap at 10,000 sf of drainage area per practice. In addition to the water quality provided by the ESD practices, the existing wet pond and surrounding wetlands will provide an additional treatment of one(1) of water quality volume. The stormwater management concept plan includes facilities that are one of many treatment options that the applicant may incorporate at final engineering. The ultimate layout for the home and driveway configurations is subject to change and will be determined at the Final engineering phase/building permit. Hence, alternative stormwater management facilities may be proposed at the final engineering phase.

To verify compliance with the intent of ESD design, we offer the following (please note that tables referenced are from the 2009 Maryland Stormwater Management Design Manual)

4 Natural Resource Protection and Enhancement

The site and resource mapping indicate no major impacts to the items listed in table 5.1. There are no natural resources on the existing site. The Web soil survey indicates soil list as follow:

-1C Galia Silt Loam-Group B

-16D Brinklow-Blocktown Silt loam-Group B

-54A Hatboro Silt Loam-Group D

The proposed lots lies within the boundaries of the Galia,Brinklow silt loam (B soil Group). Refer to the appendix for the web soil survey report.

5 Maintenance of Natural Flow Patterns

The site currently belongs to the Piney Branch watershed, designated as a special protection area. The proposed development will not require adjustment of the site existing flow patterns. Hence, the current natural flow patterns will be preserved.

6 Impervious Area

The existing site (Lot 48) has an undeveloped property land area of 4.06 Ac. The proposed site impervious cover is approximately 15%. The site impervious will be developed to a maximum of 15% imperviousness per lot (Lots 51 & 52). This approach exempts the project from the requirements of water quality plans.

7 Integration of Erosion and Sediment Control

The Limit of disturbance (LOD) for the proposed development will be approximately 43,560 square feet. Therefore, it will require a sediment control permit for the construction operations. Perimeter controls will be proposed to contain any sediment generated from the construction operations. Super Silt fence will be placed on the downstream of the construction operations. Integration of erosion and sediment control has been implemented to adhere with state and county regulations.

8 Implementation of ESD Planning Techniques

The implementation of the Environmental Site Design practices has been explored to comply with State and County regulations for the proposed lots 51 & 52. Several ESD practices were analyzed and it was determined that the benefit of implementing landscape infiltration facilities will be the best approach for meeting the ESD volume requirements. However, there are other available options that the applicant may incorporate to provide the required ESD volume. Therefore, implementation of ESD planning techniques have been explored and used to the MEP.

9 Conclusion

All ESD stormwater management requirements have been met or exceeded through the implementation of landscape infiltration facilities measures. The overall target Pe for the proposed conditions is 1.0 in. The Pe provided for the development 2.42 in.

The additional water quality volume provided through the current existing wet pond facility has not been counted towards the ESD volume provided. However, the treatment volume provided through pond is an additional measure that exceeds a treatment of 2.6 inches of the entire site. The proposed lots 51 and 52 have been designed to meet and exceed County and State standards for stormwater managment regulations.

FACILITY	**DRAINAGE AREA**	**IMPERVIOUS AREA**	**ESD REQUIRED**	**ESD PROVIDED**	**PE REQUIRED**	**PE PROVIDED**
51A	10,000 SFT	6,000 SFT	983CU-FT	1159 CU-FT	2.0 IN	2.36 IN
51B	10,000 SFT	7,265 SFT	1290 CU-FT	1523 CU-FT	2.2 IN	2.60 IN
52A	10,000 SFT	5,500 SFT	818 CU-FT	1130 CU-FT	1.8 IN	2.49 IN
52B	10,000 SFT	8,250 SFT	1453CU-FT	1470CU-FT	2.2 IN	2.23 IN
TOTAL	**40,000 SFT**	**27,015 SFT**	**4,544CU-FT**	**5,282CU-FT**	**2.1 IN**	**2.42 IN**

Appendices

Date	2/11/2014
Project Name	Horizon Hil-EX.LOT 48
Project No.	202907-23-75
By	FEB
Checked	

PROPOSED CONDITIONS EX LOT 48(Prop.Lot 51 & 52)
ESDv COMPUTATIONS

Site Area Target

Enter Total Site Property Area = **176854 sqft**
Enter Total Impervious Area = **26528 sqft**
% of Impervious D.A., I = **15.0%**
Volumetric Runoff Coefficient, Rv = 0.185 (Rv = 0.05 + 0.009 (I))

HSG	RCN	Area (sqft)	Percentage	Target P_E	Target Af (sqft)	Target ESDv (ac-ft)	Target ESDv (cu-ft)
A	38		0%	**1.0 in**			
B	55	**176854 sqft**	100%	**1.0 in**	11790 sqft	0.063 ac-ft	2726 cu-ft
C	70		0%	**1.0 in**			
D	77		0%	**1.0 in**			
Totals			100%	**1.0 in**	**11790 sqft**	**0.063 ac-ft**	**2726 cu-ft**

Equations

Target Design Runoff Volume, ESDv = (PE * Rv *(A/43560)) / 12

Composite RCN for "Woods in Good Cond." = **55**

Date	2/11/2014
Project Name	Horizon Hil-EX.LOT 48
Project No.	202907-22-66
By	FEB
Checked	KWC

SWM 51A
ESDv COMPUTATIONS

Landscape Infiltration

Enter Total Drainage Area to Micro facility = **10000 sqft**
Enter Total Impervious Area = **6000 sqft**
% of Impervious D.A., I = **60.0%**
Volumetric Runoff Coefficient, Rv = 0.590 (Rv = 0.05 + 0.009 (I))

HSG	RCN	Area (sqft)	Percentage	Target P_E	Target Af (sqft)	Target ESDv (ac-ft)	Target ESDv (cu-ft)	Reduced RCN's (2.36 in)	Reduced %I (RCN 55)	Effective Imp. Area
A	38		0%	**2.0 in**				**0**	**0.0%**	0 sqft
B	55	**10000 sqft**	100%	**2.0 in**	1000 sqft	0.023 ac-ft	983 cu-ft	**55**	**0.0%**	0 sqft
C	70		0%	**2.0 in**				**0**	**0.0%**	0 sqft
D	77		0%	**1.8 in**				**0**	**0.0%**	0 sqft
Totals			100%	**2.0 in**	**1000 sqft**	**0.023 ac-ft**	**983 cu-ft**			**0 sqft**

Equations

Target Planting Surface Area of Mirco facility, A_f = (PE*DA) / 20"
Target Design Runoff Volume, ESDv = (PE * Rv *(A/43560)) / 12

Composite RCN for "Woods in Good Cond." = **55**
Max Allowable Vol. Based on 1-yr 24-hr Storm (2.6in) = **1278 cu-ft**
Enter Filter Surface Area Provided = **493 sqft**
Depth Provided Above Micro Facility = **9 in**
Depth of Filter Media = **4.0 ft**
Surface Area of Prop. Gravel Trench = **0 sqft**
Depth of Prop. Gravel Trench = **0.0 in.**
Surface Area of Micro Facility = **493 sqft**
Actual Volume Provided = **1159 cu-ft**
Volume Credited Above/Below Micro Facility = **1159 cu-ft** **Target ESDv is Satisfied**
Excess Volume Provided = **175 cu-ft**
ESD P_E Treatment Provided = **2.36 in** (ESD P_E Treatment Provided = (ESD_{VP} * 12) / (Rv * A))
Reduced Composite RCN = **55**
Additional ESD Volume Required = **ESDv is Satisfied** **(Applied to ESD Practices)**
Additional ESD Treatment Required = **ESD is Satisfied**
Effective % Impervious (Table 5.3) = **0.0%**
Effective Impervious Area = **0 sqft**
If Used, Additional Structural Treatment Volume = **Treatment is Satisfied** **(Use With Structural Practices Downstream Only)**

Notes:
The drainage area to any individual practice shall be10,000sq-ft or less.
The surface area of micro-facility practices shall be at least 2% of the contributing drainage area.
A two to four foot deep layer of filter media shall be provided.
Filter beds shall not intercept groundwater. If designed as infiltration practices, filter bed inverts shall be separated at least four feet vertically (two feet on the lower Eastern shore) from the seasonal high water table.
A surface mulch layer (maximum 2 to 3 inches thick) should be provided to enhance plant survival and inhibit weed growth.
The filtering media or planting soil, mulch and underdrain systems shall conform to the specifications found in Appendix B.4. of the MDE Stormwater Manual.
See manual for addition limitations.

Date	2/11/2014
Project Name	Horizon Hil-EX.LOT 48
Project No.	202907-22-66
By	FEB
Checked	KWC

SWM 51B
ESDv COMPUTATIONS

Landscape Infiltration

Enter Total Drainage Area to Micro facility = **10000 sqft**
Enter Total Impervious Area = **7265 sqft**
% of Impervious D.A., I = **72.7%**
Volumetric Runoff Coefficient, Rv = 0.704 (Rv = 0.05 + 0.009 (I))

HSG	RCN	Area (sqft)	Percentage	Target P_E	Target Af (sqft)	Target ESDv (ac-ft)	Target ESDv (cu-ft)	Reduced RCN's (2.6 in)	Reduced %I (RCN 55)	Effective Imp. Area
A	38		0%	**2.2 in**				**0**	**0.0%**	0 sqft
B	55	**10000 sqft**	100%	**2.2 in**	1100 sqft	0.030 ac-ft	1290 cu-ft	**55**	**0.0%**	0 sqft
C	70		0%	**2.0 in**				**0**	**0.0%**	0 sqft
D	77		0%	**1.8 in**				**0**	**0.0%**	0 sqft
Totals			100%	**2.2 in**	**1100 sqft**	**0.030 ac-ft**	**1290 cu-ft**			**0 sqft**

Equations

Target Planting Surface Area of Mirco facility, A_f = (PE*DA) / 20"
Target Design Runoff Volume, ESDv = (PE * Rv *(A/43560)) / 12

Composite RCN for "Woods in Good Cond." = **55**
Max Allowable Vol. Based on 1-yr 24-hr Storm (2.6in) = **1525 cu-ft**
Enter Filter Surface Area Provided = **725 sqft**
Depth Provided Above Micro Facility = **6 in**
Depth of Filter Media = **4.0 ft**
Surface Area of Prop. Gravel Trench = **0 sqft**
Depth of Prop. Gravel Trench = **0.0 in.**
Surface Area of Micro Facility = **725 sqft**
Actual Volume Provided = **1523 cu-ft**
Volume Credited Above/Below Micro Facility = **1523 cu-ft** **Target ESDv is Satisfied**
Excess Volume Provided = **232 cu-ft**
ESD P_E Treatment Provided = **2.60 in** (ESD P_E Treatment Provided = (ESD_{VP} * 12) / (Rv * A))
Reduced Composite RCN = **55**
Additional ESD Volume Required = **ESDv is Satisfied** **(Applied to ESD Practices)**
Additional ESD Treatment Required = **ESD is Satisfied**
Effective % Impervious (Table 5.3) = **0.0%**
Effective Impervious Area = **0 sqft**
If Used, Additional Structural Treatment Volume = **Treatment is Satisfied** **(Use With Structural Practices Downstream Only)**

Notes:
The drainage area to any individual practice shall be10,000sq-ft or less.
The surface area of micro-facility practices shall be at least 2% of the contributing drainage area.
A two to four foot deep layer of filter media shall be provided.
Filter beds shall not intercept groundwater. If designed as infiltration practices, filter bed inverts shall be separated at least four feet vertically (two feet on the lower Eastern shore) from the seasonal high water table.
A surface mulch layer (maximum 2 to 3 inches thick) should be provided to enhance plant survival and inhibit weed growth.
The filtering media or planting soil, mulch and underdrain systems shall conform to the specifications found in Appendix B.4. of the MDE Stormwater Manual.
See manual for addition limitations.

Date	2/11/2014
Project Name	Horizon Hil-EX.LOT 48
Project No.	202907-22-66
By	FEB
Checked	KWC

SWM 52A
ESDv COMPUTATIONS

Landscape Infiltration

Enter Total Drainage Area to Micro facility = **10000 sqft**
Enter Total Impervious Area = **5500 sqft**
% of Impervious D.A., I = **55.0%**
Volumetric Runoff Coefficient, Rv = 0.545 (Rv = 0.05 + 0.009 (I))

HSG	RCN	Area (sqft)	Percentage	Target P_E	Target Af (sqft)	Target ESDv (ac-ft)	Target ESDv (cu-ft)	Reduced RCN's (2.49 in)	Reduced %I (RCN 55)	Effective Imp. Area
A	38		0%	**2.0 in**				**0**	**0.0%**	0 sqft
B	55	**10000 sqft**	100%	**1.8 in**	900 sqft	0.019 ac-ft	818 cu-ft	**55**	**0.0%**	0 sqft
C	70		0%	**1.8 in**				**0**	**0.0%**	0 sqft
D	77		0%	**1.8 in**				**0**	**0.0%**	0 sqft
Totals			100%	**1.8 in**	**900 sqft**	**0.019 ac-ft**	**818 cu-ft**			**0 sqft**

Equations

Target Planting Surface Area of Mirco facility, A_f = (PE*DA) / 20"
Target Design Runoff Volume, ESDv = (PE * Rv *(A/43560)) / 12

Composite RCN for "Woods in Good Cond." = **55**
Max Allowable Vol. Based on 1-yr 24-hr Storm (2.6in) = **1181 cu-ft**
Enter Filter Surface Area Provided = **481 sqft**
Depth Provided Above Micro Facility = **9 in**
Depth of Filter Media = **4.0 ft**
Surface Area of Prop. Gravel Trench = **0 sqft**
Depth of Prop. Gravel Trench = **0.0 in.**
Surface Area of Micro Facility = **481 sqft**
Actual Volume Provided = **1130 cu-ft**
Volume Credited Above/Below Micro Facility = **1130 cu-ft** **Target ESDv is Satisfied**
Excess Volume Provided = **313 cu-ft**
ESD P_E Treatment Provided = **2.49 in** (ESD P_E Treatment Provided = (ESD_{VP} * 12) / (Rv * A))
Reduced Composite RCN = **55**
Additional ESD Volume Required = **ESDv is Satisfied** **(Applied to ESD Practices)**
Additional ESD Treatment Required = **ESD is Satisfied**
Effective % Impervious (Table 5.3) = **0.0%**
Effective Impervious Area = **0 sqft**
If Used, Additional Structural Treatment Volume = **Treatment is Satisfied** **(Use With Structural Practices Downstream Only)**

Notes:
The drainage area to any individual practice shall be10,000sq-ft or less.
The surface area of micro-facility practices shall be at least 2% of the contributing drainage area.
A two to four foot deep layer of filter media shall be provided.
Filter beds shall not intercept groundwater. If designed as infiltration practices, filter bed inverts shall be separated at least four feet vertically (two feet on the lower Eastern shore) from the seasonal high water table.
A surface mulch layer (maximum 2 to 3 inches thick) should be provided to enhance plant survival and inhibit weed growth.
The filtering media or planting soil, mulch and underdrain systems shall conform to the specifications found in Appendix B.4. of the MDE Stormwater Manual.
See manual for addition limitations.

Date	2/11/2014
Project Name	Horizon Hil-EX.LOT 48
Project No.	202907-22-66
By	FEB
Checked	KWC

SWM 52B
ESDv COMPUTATIONS

Landscape Infiltration

Enter Total Drainage Area to Micro facility = **10000 sqft**
Enter Total Impervious Area = **8250 sqft**
% of Impervious D.A., I = **82.5%**
Volumetric Runoff Coefficient, Rv = 0.793 (Rv = 0.05 + 0.009 (I))

HSG	RCN	Area (sqft)	Percentage	Target P_E	Target Af (sqft)	Target ESDv (ac-ft)	Target ESDv (cu-ft)	Reduced RCN's (2.23 in)	Reduced %I (RCN 55)	Effective Imp. Area
A	38		0%	**2.4 in**				**0**	**0.0%**	0 sqft
B	55	**10000 sqft**	100%	**2.2 in**	1100 sqft	0.033 ac-ft	1453 cu-ft	**55**	**0.0%**	0 sqft
C	70		0%	**2.0 in**				**0**	**0.0%**	0 sqft
D	77		0%	**1.8 in**				**0**	**0.0%**	0 sqft
Totals			100%	**2.2 in**	**1100 sqft**	**0.033 ac-ft**	**1453 cu-ft**			**0 sqft**

Equations

Target Planting Surface Area of Mirco facility, A_f = (PE*DA) / 20"
Target Design Runoff Volume, ESDv = (PE * Rv *(A/43560)) / 12

Composite RCN for "Woods in Good Cond." = **55**
Max Allowable Vol. Based on 1-yr 24-hr Storm (2.6in) = **1717 cu-ft**
Enter Filter Surface Area Provided = **700 sqft**
Depth Provided Above Micro Facility = **6 in**
Depth of Filter Media = **4.0 ft**
Surface Area of Prop. Gravel Trench = **0 sqft**
Depth of Prop. Gravel Trench = **0.0 in.**
Surface Area of Micro Facility = **700 sqft**
Actual Volume Provided = **1470 cu-ft**
Volume Credited Above/Below Micro Facility = **1470 cu-ft** **Target ESDv is Satisfied**
Excess Volume Provided = **17 cu-ft**
ESD P_E Treatment Provided = **2.23 in** (ESD P_E Treatment Provided = (ESD_{VP} * 12) / (Rv * A))
Reduced Composite RCN = **55**
Additional ESD Volume Required = **ESDv is Satisfied** **(Applied to ESD Practices)**
Additional ESD Treatment Required = **ESD is Satisfied**
Effective % Impervious (Table 5.3) = **0.0%**
Effective Impervious Area = **0 sqft**
If Used, Additional Structural Treatment Volume = **Treatment is Satisfied** **(Use With Structural Practices Downstream Only)**

Notes:
The drainage area to any individual practice shall be10,000sq-ft or less.
The surface area of micro-facility practices shall be at least 2% of the contributing drainage area.
A two to four foot deep layer of filter media shall be provided.
Filter beds shall not intercept groundwater. If designed as infiltration practices, filter bed inverts shall be separated at least four feet vertically (two feet on the lower Eastern shore) from the seasonal high water table.
A surface mulch layer (maximum 2 to 3 inches thick) should be provided to enhance plant survival and inhibit weed growth.
The filtering media or planting soil, mulch and underdrain systems shall conform to the specifications found in Appendix B.4. of the MDE Stormwater Manual.
See manual for addition limitations.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Montgomery County, Maryland

10812 Red Barn Ln(Lot 48)

February 12, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Maryland
Survey Area Data: Version 8, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Nov 7, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Montgomery County, Maryland (MD031)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
1C	Gaila silt loam, 8 to 15 percent slopes	2.1	51.8%
16D	Brinklow-Blocktown channery silt loams, 15 to 25 percent slopes	1.8	43.7%
54A	Hatboro silt loam, 0 to 3 percent slopes, frequently flooded	0.2	4.5%
Totals for Area of Interest		**4.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Montgomery County, Maryland

1C—Gaila silt loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 100 to 2,000 feet
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 120 to 255 days

Map Unit Composition

Gaila and similar soils: 95 percent
Minor components: 5 percent

Description of Gaila

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.3 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B

Typical profile

0 to 8 inches: Silt loam

Minor Components

Baile

Percent of map unit: 5 percent
Landform: Flats

16D—Brinklow-Blocktown channery silt loams, 15 to 25 percent slopes

Map Unit Setting

Elevation: 300 to 2,000 feet
Mean annual precipitation: 7 to 55 inches
Mean annual air temperature: 45 to 61 degrees F
Frost-free period: 110 to 240 days

Map Unit Composition

Brinklow and similar soils: 50 percent
Blocktown and similar soils: 30 percent
Minor components: 20 percent

Description of Brinklow

Setting

Landform: Knolls
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Gravelly residuum weathered from low base phyllites and schists.

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B

Typical profile

0 to 10 inches: Channery silt loam
10 to 25 inches: Channery loam
25 to 35 inches: Bedrock
35 to 39 inches: Bedrock

Description of Blocktown

Setting

Landform: Knolls
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Gravelly residuum weathered from low base phyllites and schists.

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.7 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: C

Typical profile

0 to 6 inches: Channery silt loam
6 to 17 inches: Extremely channery silt loam
17 to 21 inches: Bedrock
21 to 25 inches: Bedrock

Minor Components

Glenelg

Percent of map unit: 10 percent

Baile

Percent of map unit: 5 percent
Landform: Flats

Occoquan

Percent of map unit: 5 percent

54A—Hatboro silt loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

Elevation: 200 to 600 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days

Map Unit Composition

Hatboro and similar soils: 100 percent

Description of Hatboro

Setting

Landform: Channels on flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mica bearing loamy alluvium

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Available water capacity: Very high (about 12.2 inches)

Interpretive groups

Farmland classification: Not prime farmland

Land capability (nonirrigated): 5w
Hydrologic Soil Group: D

Typical profile

0 to 2 inches: Slightly decomposed plant material
2 to 8 inches: Silt loam
8 to 18 inches: Silt loam
18 to 66 inches: Loam

PENNIMAN & BROWNE, INC.
CHEMISTS / ENGINEERS / INSPECTORS

6252 FALLS ROAD / P.O. BOX 65309 / BALTIMORE, MARYLAND 21209-0002 / TELEPHONE 410-825-4131 / FAX 410-321-7384

July 14, 1992

HERBST & ASSOCIATES
414 Main Street
Reisterstown, Maryland 21136

Attn: Greg

PROJECT: LANKLOR PROPERTY
RE: PERMEABILITY TESTING
LAB NO.: 92-40-6855
SAMPLE: #1 B-10 8', BROWN SILTY SAND
#2 B-10, 17' BROWN SILTY SAND W/GRAVEL

MILITARY STANDARD EM 110-2-1906 APPENDIX VII RIGID RING FALLING HAND PERMEABILITY TEST

SAMPLE	# 1	# 2
In Place Dry Density	89.8 PCF	100.7 PCF
Moisture Content	23.1 %	14.2 %
Dry Density As Tested (Remolded)	91.0 PCF	105.5 PCF
Permeability (K)	9.7×10^{-5} cm/sec.	2.0×10^{-4} cm/sec.

Respectfully,

Thomas C. Simon
Engineering

TCS/msm

CLASSIFICATION OF SOILS

The soil descriptions on the Boring Profiles are in accordance with the criteria outlined below. The principal constituents are written in capital letters. with other constituents preceded by descriptive terminology used to denote the percentages by weight of each component. The soil descriptions are based upon visual examinations except where laboratory gradation and Atterberg limits tests are available.

Descriptive Terms Denoting Component Proportions

Descriptive Terms	Range of Proportion
Trace	1 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

Component Definitions by Gradation

Soil Component		Sieve Limits Upper	Lower
*GRAVEL/ ROCK FRAGS:	Coarse	3 in.	1 in.
	Medium	1 in.	3/8 in.
	Fine	3/8 in.	No. 10 (2.0 mm)
SAND:	Coarse	No. 10 (2.0 mm)	No. 30 (0.590 mm)
	Medium	No. 30 (0.590 mm)	No. 60 (0.250 mm)
	Fine	No. 60 (0.250 mm)	No. 200 (0.074 mm)
SILT, CLAY and COLLOIDS: (fines) (defined by degree of plasticity)		No. 200 (0.074 mm)	

*This component is classified as "GRAVEL" in sedimentary soils and as "ROCK FRAGS" in residual soils.

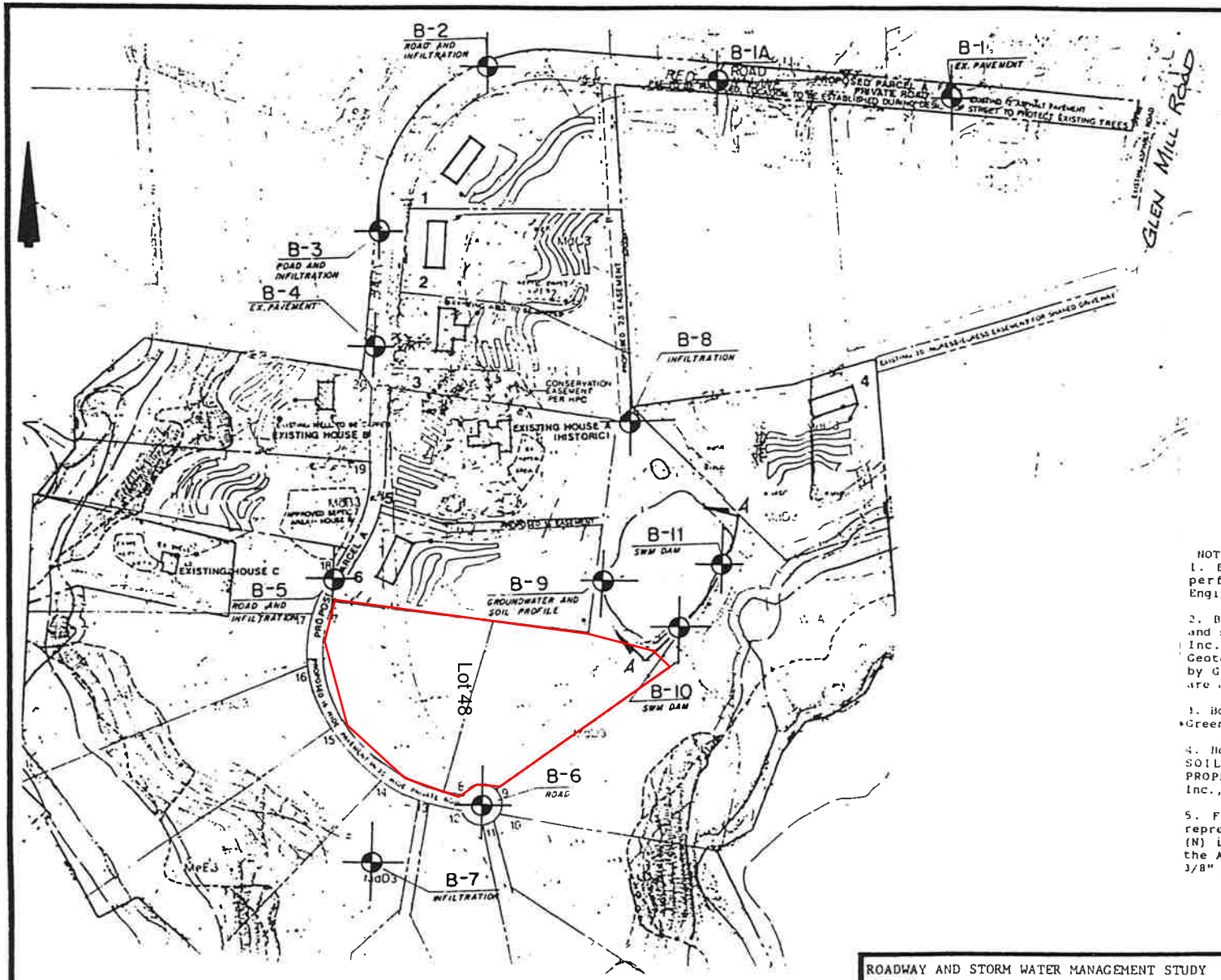
Component Definitions by Degree of Plasticity

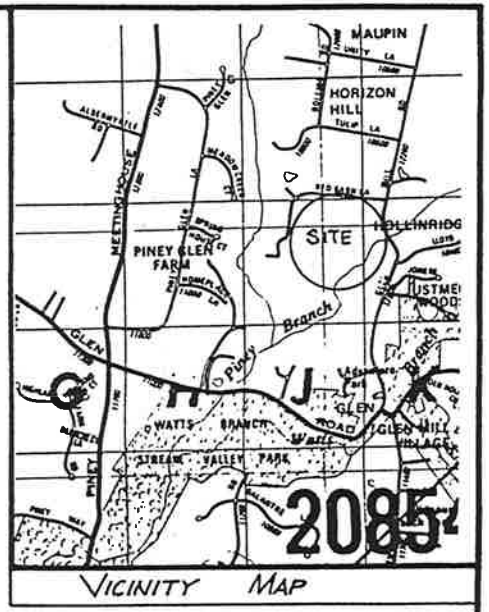
Descriptive Term	Degree of Plasticity	Plasticity Index Range
SILT	None	Non-plastic (NP)
Clayey SILT	Slight	1 - 5
SILT & CLAY	Low	5 - 10
CLAY & SILT	Medium	10 - 20
Silty CLAY	High	20 - 40
CLAY	Very High	Over 40

Gradation Terms of Granular Components

Gradation Designation	Symbol	Defining Proportions
coarse to fine	cf	All fractions greater than 10% of the component
coarse to medium	cm	Less than 10% fine
medium to fine	mf	Less than 10% coarse
coarse	c	Less than 10% medium and fine
medium	m	Less than 10% coarse and fine
fine	f	Less than 10% coarse and medium

HERBST & ASSOCIATES - GEOTECHNICAL ENGINEERS





NOTES:

1. Borings B-1, B-1A and B-2 through B-11 performed as directed by the Geotechnical Engineer during June 1992.

2. Boring locations B-1 through B-11 selected and staked in the field by Greenhorne & O'Mara, Inc. Boring location B-1A selected by the Geotechnical Engineer and staked in the field by Greenhorne & O'Mara, Inc. Locations shown are approximate.

3. Boring elevations determined in the field by Greenhorne & O'Mara, Inc.

4. Boring location plan taken from PRELIMINARY SOIL BORING PLAN; LOTS 1-6 ONLY; LANKLER PROPERTY, prepared by Greenhorne & O'Mara, Inc., dated April 1992.

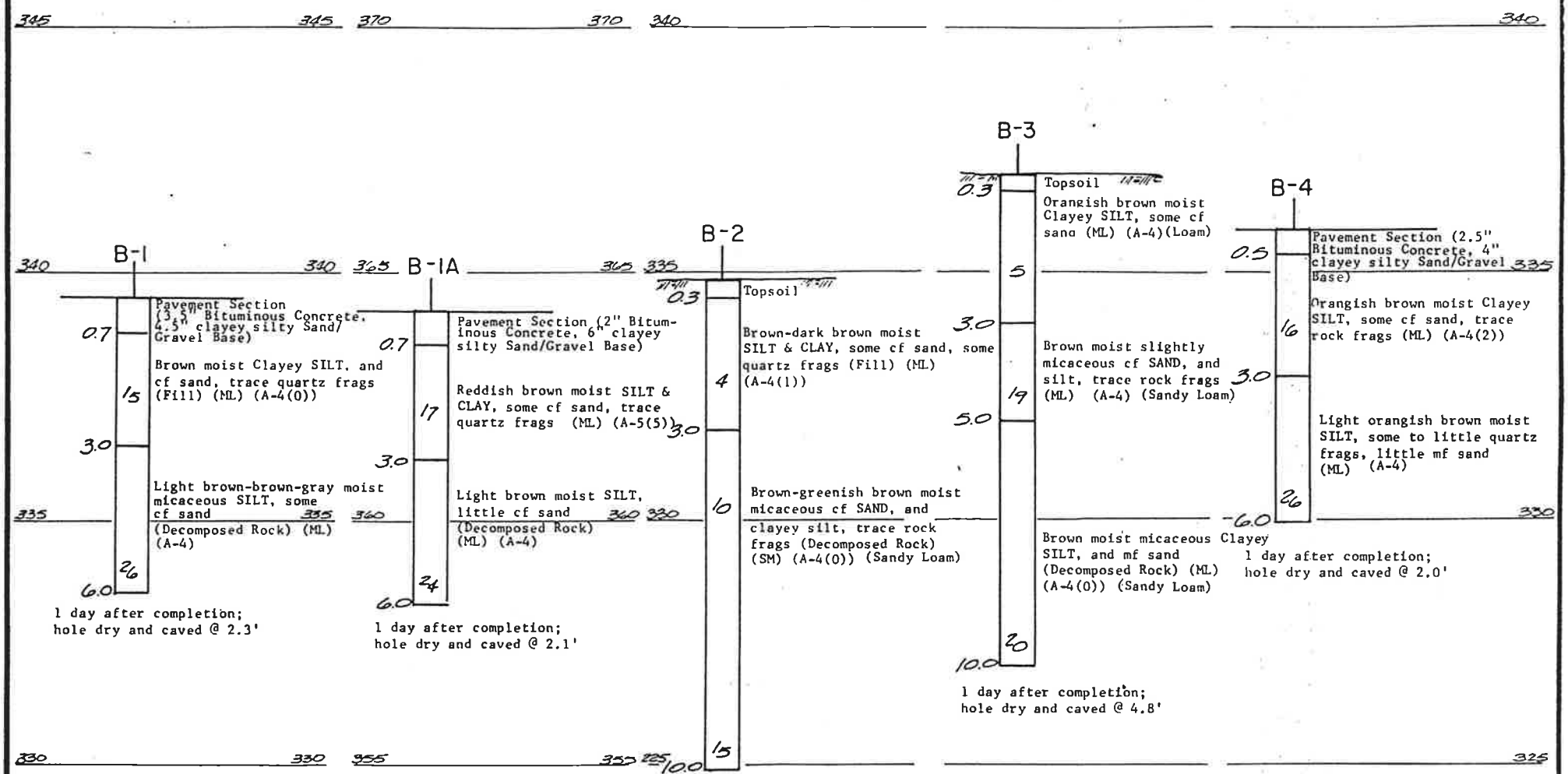
5. Figures in columns on boring profiles represent the standard penetration resistance (N) in blows per foot (or as noted) obtained by the ASTM D 1586 procedure using a 2" O.D. - 1 3/8" I.D. sampler.

ROADWAY AND STORM WATER MANAGEMENT STUDY
LANKLER PROPERTY
MONTGOMERY COUNTY, MARYLAND

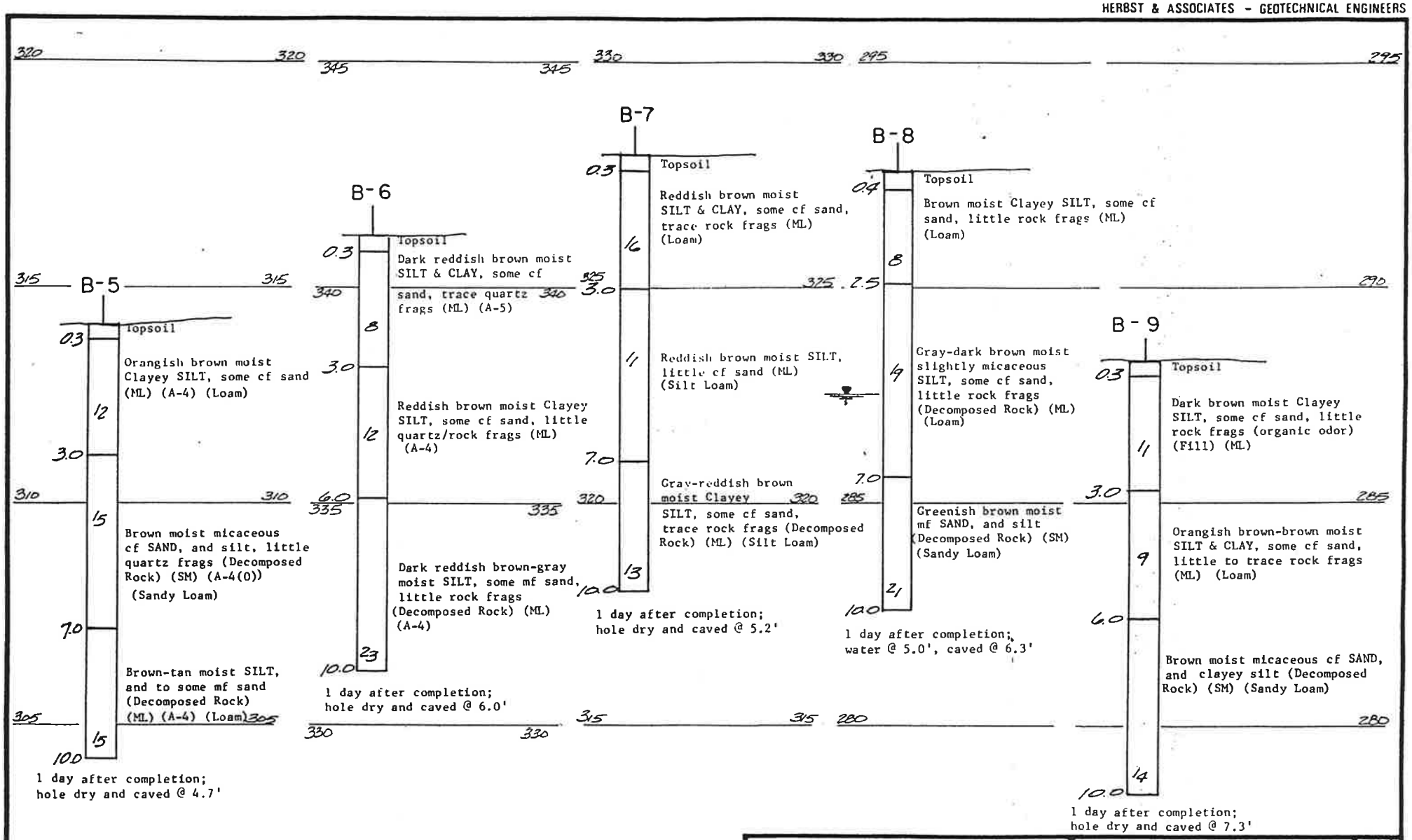
BORING LOCATION PLAN

Date July 1992	Horiz Scale 1"=200'
92132MD	Vert Scale —

PLATE NO 1



ROADWAY AND STORM WATER MANAGEMENT STUDY LANKLER PROPERTY MONTGOMERY COUNTY, MARYLAND	BORING PROFILES Date July 1992 / 92132MD Horiz. Scale — Vert Scale 1"= 2'	PLATE NO. 2



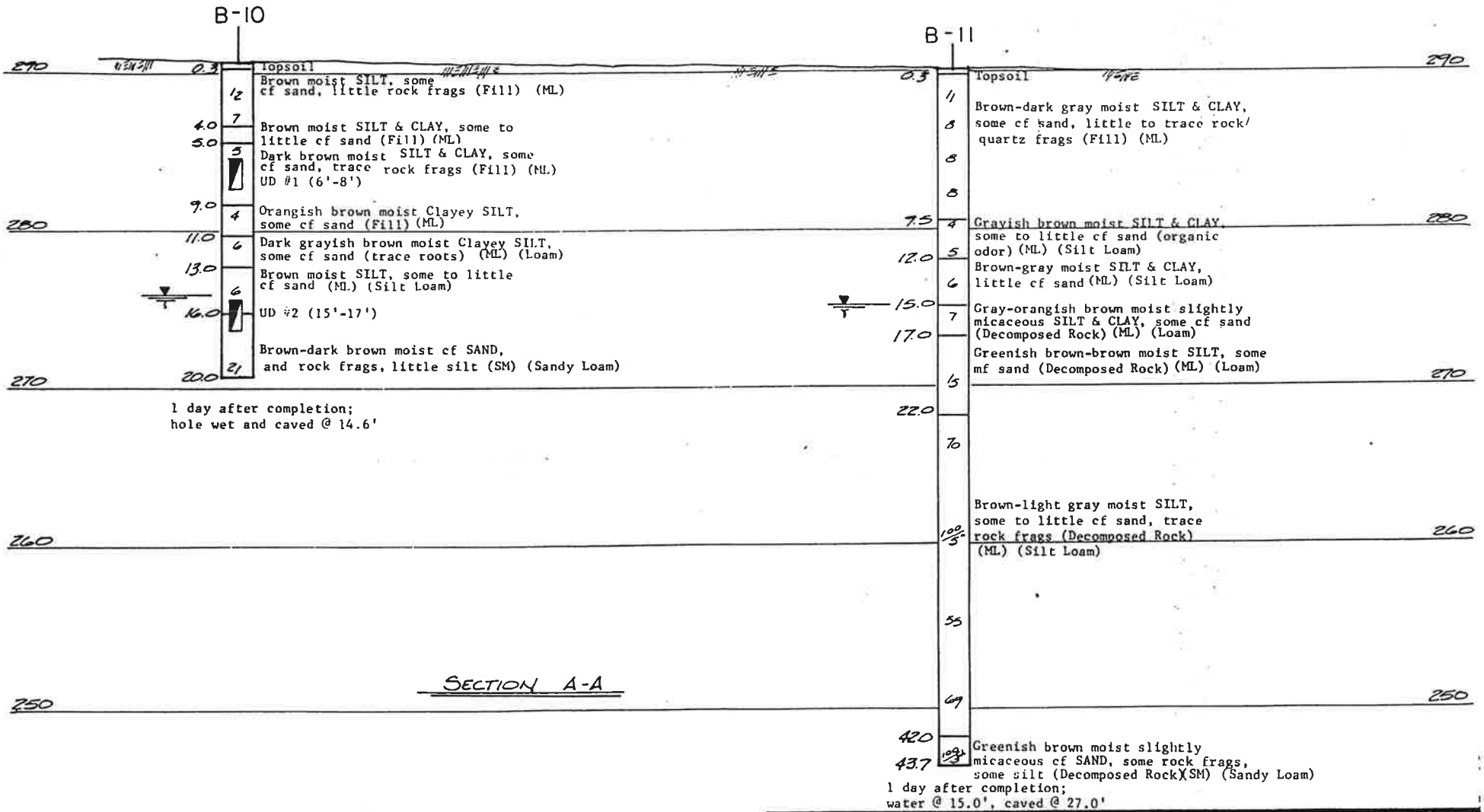
ROADWAY AND STORM WATER MANAGEMENT STUDY
LANKLER PROPERTY
MONTGOMERY COUNTY, MARYLAND

BORING PROFILES

Date: July 1992
92132MD

Horiz Scale: —
Vert Scale: 1" = 2'

PLATE NO. 3



ROADWAY AND STORM WATER MANAGEMENT STUDY
LANKLER PROPERTY
MONTGOMERY COUNTY, MARYLAND

BORING PROFILES

Date July 1992 | Horiz. Scale 1" = 20'
92132MD | Vert. Scale 1" = 6'

PLATE NO. 4