



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND					
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GoB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GgB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

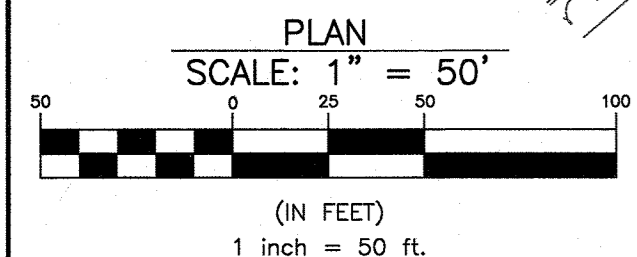
\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.

**LEGEND**

- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED STRUCTURE
- EXISTING STRUCTURE
- WELL BOX
- EXISTING SEWAGE DISPOSAL AREA
- SEWAGE DISPOSAL AREA
- EXISTING FOREST CONSERVATION EASEMENT
- PROPOSED DRIVEWAY
- EXISTING DRYWELL
- EXISTING MICRO-BIORETENTION FACILITY
- PROPOSED MICRO-BIORETENTION FACILITY
- SPECIMEN TREE

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.



APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: *[Signature]* 12/14/21 DATE  
HOWARD COUNTY HEALTH OFFICER

APPROVED: *[Signature]* 5/30/21 DATE  
PLANNING BOARD OF HOWARD COUNTY

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY  
*[Signature]* 12-17-21 DATE  
PLANNING DIRECTOR



FOR CONTINUATION SEE MATCH LINE SHEET 3

Key (X#)	Species	Size (Inches DBH)	CRZ (ft radius)	CRZ (ft radius)	Remove or	Comments
1	Tulip poplar	38.5	57.75	Retain	FAIR	
2	Tulip poplar	31.5	47.25	Retain	FAIR	
3	Tulip poplar	30.5	45.75	Remove	FAIR	
4	Tulip poplar	31	46.50	Remove	FAIR	
5	Hickory	31.5	47.25	Retain	POOR, MAJOR DIEBACK	
6N	Tulip poplar	32	48.00	Retain		
6	Tulip poplar	30	45.00	Retain		
7	Tulip poplar	31	46.50	Retain		
8	Tulip poplar	34	51.00	Retain		
9	Tulip poplar	32	48.00	Retain		
10	Tulip poplar	38.5/30.5	57.75	Retain		
11	Tulip poplar	38	57.00	Retain		
12	Tulip poplar	30.5	45.75	Retain		
13	Tulip poplar	34	51.00	Retain		
14	Tulip poplar	33.5	50.25	Retain	POOR, MAJOR DIEBACK	
15	Tulip poplar	38	57.00	Retain	FAIR	
16	Tulip poplar	36	54.00	Retain		
17	Tulip poplar	33	49.50	Retain		
18	Tulip poplar	35	52.50	Retain		
19	Tulip poplar	40	60.00	Retain	FAIR, SOME STORM DAMAGE AND DIEBACK	
20	Tulip poplar	33	49.50	Retain	POOR, MAJOR LEAN, ROT	
21	Tulip poplar	38.5	57.75	Retain		
22	Tulip poplar	30.5	45.75	Retain	FAIR, LIMB DIEBACK	
23	Tulip poplar	38.5	57.75	Retain	TWIN STREAM BELOW BH	
24	Tulip poplar	31.5	47.25	Remove	FAIR	
25	Tulip poplar	32	48.00	Retain		
26	Tulip poplar	32.5	48.75	Retain		
27	Tulip poplar	34	51.00	Retain		
28	Tulip poplar	35	52.50	Retain		
29	Tulip poplar	34	51.00	Retain		
30	Tulip poplar	35	52.50	Retain		
31	Tulip poplar	34	51.00	Remove	POOR, SIGNIFICANT DIEBACK IN THE CANOPY	
32	Tulip poplar	36	54.00	Retain		
33	Tulip poplar	36	54.00	Retain	POOR, DIEBACK	
34	Tulip poplar	35	52.50	Remove	VERY POOR, MAJOR TRUNK ROT	
35	Tulip poplar	33	49.50	Remove	POOR, MAJOR ROT	
36	Red Oak	33.5	50.25	Retain		
37	Tulip poplar	38	57.00	Retain	POOR, TRUNK AND CANOPY DIEBACK	
38	Tulip poplar	38	57.00	Retain	SPLITS ABOVE BH	
39	Tulip poplar	30	45.00	Retain	WINE	
40	Tulip poplar	33.5	50.25	Remove		
41	Tulip poplar	31	46.50	Remove		
42	Tulip poplar	31	46.50	Retain		
43	Tulip poplar	30.5	45.75	Retain		
44	Red Oak	31	46.50	Retain	POOR, MAJOR DIEBACK	
45	Tulip poplar	31.5	47.25	Retain		
46	Tulip poplar	42	63.00	Retain	FAIR, LIMITED CROWN	
47	Tulip poplar	37.5	56.25	Retain		
48	Tulip poplar	30.5	45.75	Retain	FAIR, LEANING	
49	Tulip poplar	31.5	47.25	Retain		
50	Tulip poplar	33	49.50	Retain		
51	Tulip poplar	31	46.50	Retain	FAIR, DIEBACK	
52	Tulip poplar	33	49.50	Retain		
53	Tulip poplar	31	46.50	Retain		
54	Tulip poplar	31	46.50	Retain		
55	Tulip poplar	33	49.50	Retain		
56	Tulip poplar	31	46.50	Retain		
57	Red Oak	30	45.00	Remove	POOR, MAJOR DIEBACK	
58	Tulip poplar	32	48.00	Retain		
59	Tulip poplar	34.5	51.75	Retain		
60	Tulip poplar	31	46.50	Retain	FAIR, LEANING	
61	Tulip poplar	35	52.50	Retain	FAIR, LEANING	
62	Tulip poplar	30.5	45.75	Retain	FAIR, LEANING	
63	Tulip poplar	31.5	47.25	Retain	FAIR, SOME DIEBACK	
64	Tulip poplar	30.2	45.30	Retain	POOR, STORM DAMAGE	
65	Tulip poplar	35	52.50	Retain		
66	White Oak	34	51.00	Retain	FAIR	
67	Tulip poplar	41	61.50	Retain		
68	White Oak	30.5	45.75	Retain		
69	Red Oak	33	49.50	Retain	POOR, MAJOR DIEBACK	
70	Tulip poplar	33	49.50	Retain		
71	Tulip poplar	35	52.50	Retain		
72	Tulip poplar	37	55.50	Retain		
73	Tulip poplar	48	72.00	Retain		
74	Tulip poplar	48	72.00	Remove		
75	Tulip poplar	34.5	51.75	Retain		
76	Tulip poplar	42.5	63.75	Retain	FAIR, LEANING	
77	Tulip poplar	39	58.50	Retain	FAIR, ONE SIDED CANOPY	
78	Tulip poplar	35.5	53.25	Remove	POOR, NOTABLE ROT IN CANOPY	
79	Tulip poplar	38.5	57.75	Retain		
80	Tulip poplar	33.5	50.25	Retain		
81	Tulip poplar	33.5	50.25	Remove		
82	Tulip poplar	34	51.00	Retain		
83	Tulip poplar	35.5	53.25	Retain	FAIR, LEANING	
84	Tulip poplar	38.5	57.75	Remove	FAIR, LEANING, ELECTRICAL WIRING ATTACHED TO TRUNK	
85	Tulip poplar	34.5	51.75	Retain		
86	Tulip poplar	31	46.50	Retain		
87	Tulip poplar	31	46.50	Retain		
88	Tulip poplar	33	49.50	Retain		
89	Tulip poplar	31	46.50	Retain		
90	Tulip poplar	38.5	57.75	Retain		
91	Tulip poplar	33	49.50	Retain		
92	Black Gum	33	49.50	Retain		
93	Tulip poplar	30	45.00	Retain		
94	Tulip poplar	33.5	50.25	Retain		
95	Tulip poplar	76	114.00	Retain	FAIR, DIEBACK NOTED, MULTI-STEMMED	
96	Tulip poplar	64	96.00	Retain	FAIR, DIEBACK NOTED, MULTI-STEMMED	
97	Tulip poplar	30.5	45.75	Retain		
98	Tulip poplar	38.5	57.75	Retain	POOR, MULTI-STEMMED, STORM DAMAGE AND DIEBACK	
99	Tulip poplar	32.5	48.75	Retain		
100	Tulip poplar	30	45.00	Retain	FAIR, MULTI-STEMMED ABOVE BH	
101	Red Oak	37.5	56.25	Retain		
102	Tulip poplar	36	54.00	Retain		
103	Tulip poplar	32	48.00	Retain		
104	Red Oak	40.5	60.75	Retain	POOR, TRUNK ROT	

NOTE: THE REMOVAL OF 13 TREES CONDITIONALLY APPROVED BY ALTERNATIVE COMPLIANCE WP-20-016.

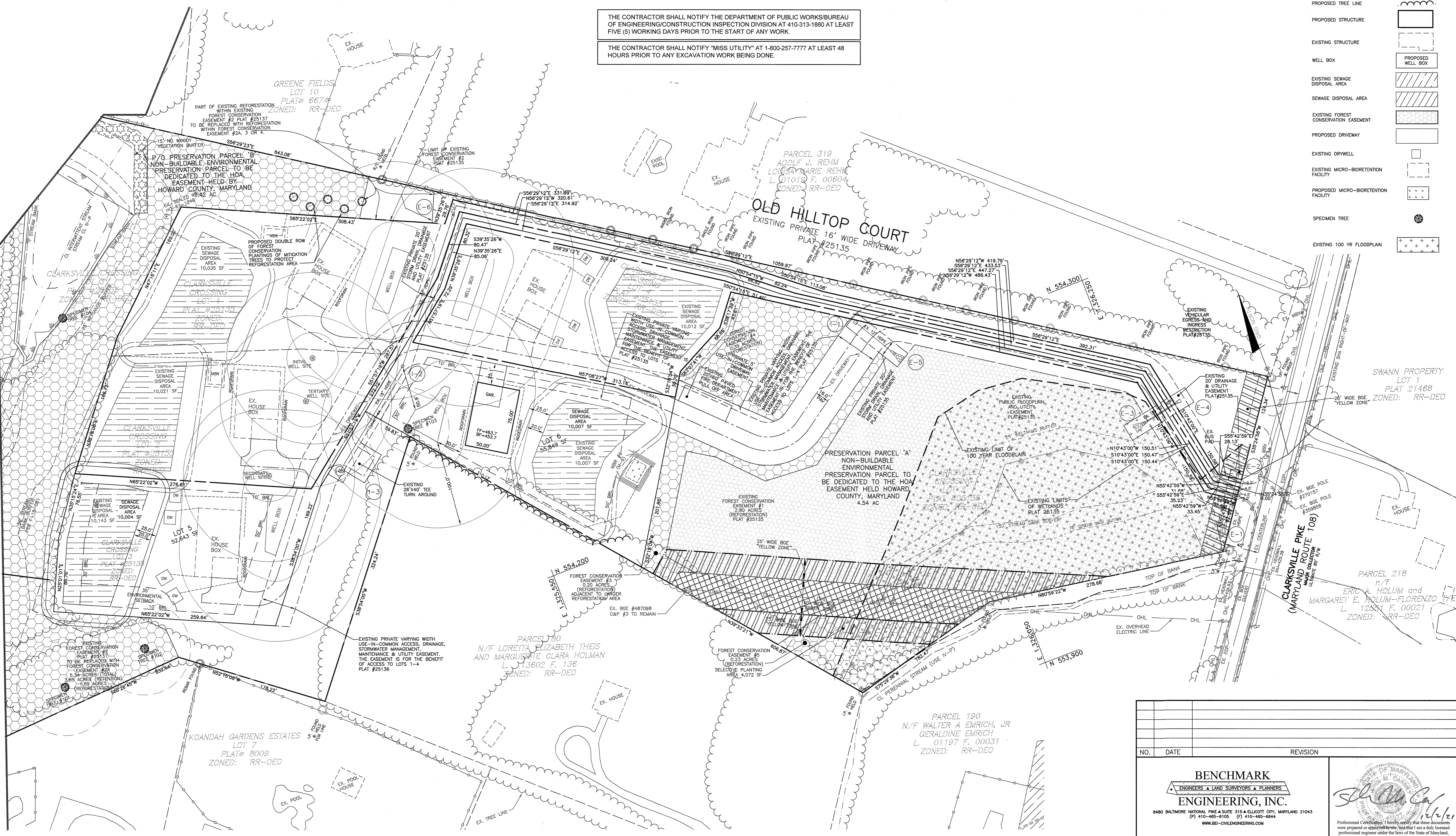
NO.	DATE	REVISION
<b>BENCHMARK</b> ENGINEERS • LAND SURVEYORS • PLANNERS <i>[Signature]</i> <b>ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE A SUITE 315 & ELLODDT CITY, MARYLAND 21043 (P) 410-465-8100 (F) 410-465-8644 WWW.BE-ENGINEERING.COM		
OWNER:	CLARKSVILLE CROSSING, PHASE 2	A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
DEVELOPER:	ROCK REALTY, INC. C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE #100 ELKRIDGE, MARYLAND 21075 410-579-2442	TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
PRELIMINARY EQUIVALENT SKETCH PLAN LAYOUT PLAN		
DATE:	NOVEMBER, 2021	BEI PROJECT NO: 2525
DESIGN: JC	DRAWN: JC	SCALE: AS SHOWN SHEET 2 OF 13

- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED STRUCTURE
- EXISTING STRUCTURE
- WELL BOX
- EXISTING SEWAGE DISPOSAL AREA
- SEWAGE DISPOSAL AREA
- EXISTING FOREST CONSERVATION EASEMENT
- PROPOSED DRIVEWAY
- EXISTING DRYWELL
- EXISTING MICRO-BIORETENTION FACILITY
- PROPOSED MICRO-BIORETENTION FACILITY
- SPECIMEN TREE
- EXISTING 100 YR FLOODPLAIN

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

FOR CONTINUATION SEE MATCH LINE SHEET 2



APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT

*[Signature]* 12/14/21  
HOWARD COUNTY HEALTH OFFICER

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*[Signature]* 12-17-21  
PLANNING DIRECTOR

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

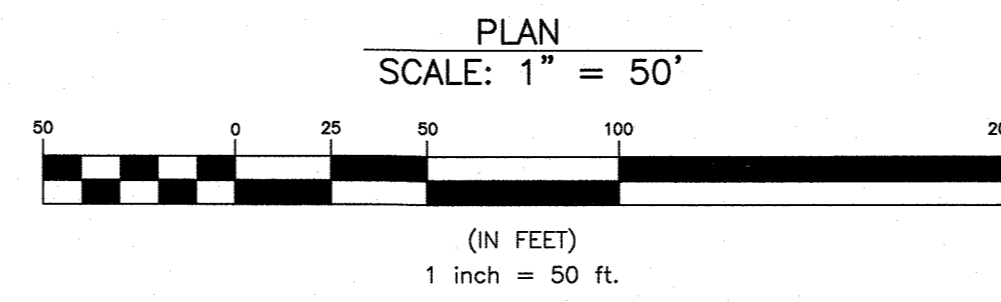
5/30/21  
DATE

PB452  
CASE NO.

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GoB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GbB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.



NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLOTT CITY, MARYLAND 21043  
(P) 410-465-8100 (F) 410-465-8844  
WWW.BE-CVLENGENRNG.COM

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, License No. 45577, Expiration Date: 06-08-2022.

<p>OWNER: CLARKSVILLE NL LLC C/O H&amp;H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442</p>	<p><b>CLARKSVILLE CROSSING, PHASE 2</b> A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' &amp; 'B'</p>
<p>DEVELOPER: ROCK REALTY, INC. C/O H &amp; H ROCK COMPANIES 6800 DEERPATH ROAD SUITE #100 ELKRIDGE, MARYLAND 21075 410-579-2442</p>	<p>TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND</p>
<p>PRELIMINARY EQUIVALENT SKETCH PLAN LAYOUT PLAN</p>	
<p>DESIGN: JC DRAWN: JC</p>	<p>DATE: NOVEMBER, 2021 BEI PROJECT NO: 2525 SCALE: AS SHOWN SHEET 3 OF 13</p>

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GnB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 9 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GgB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

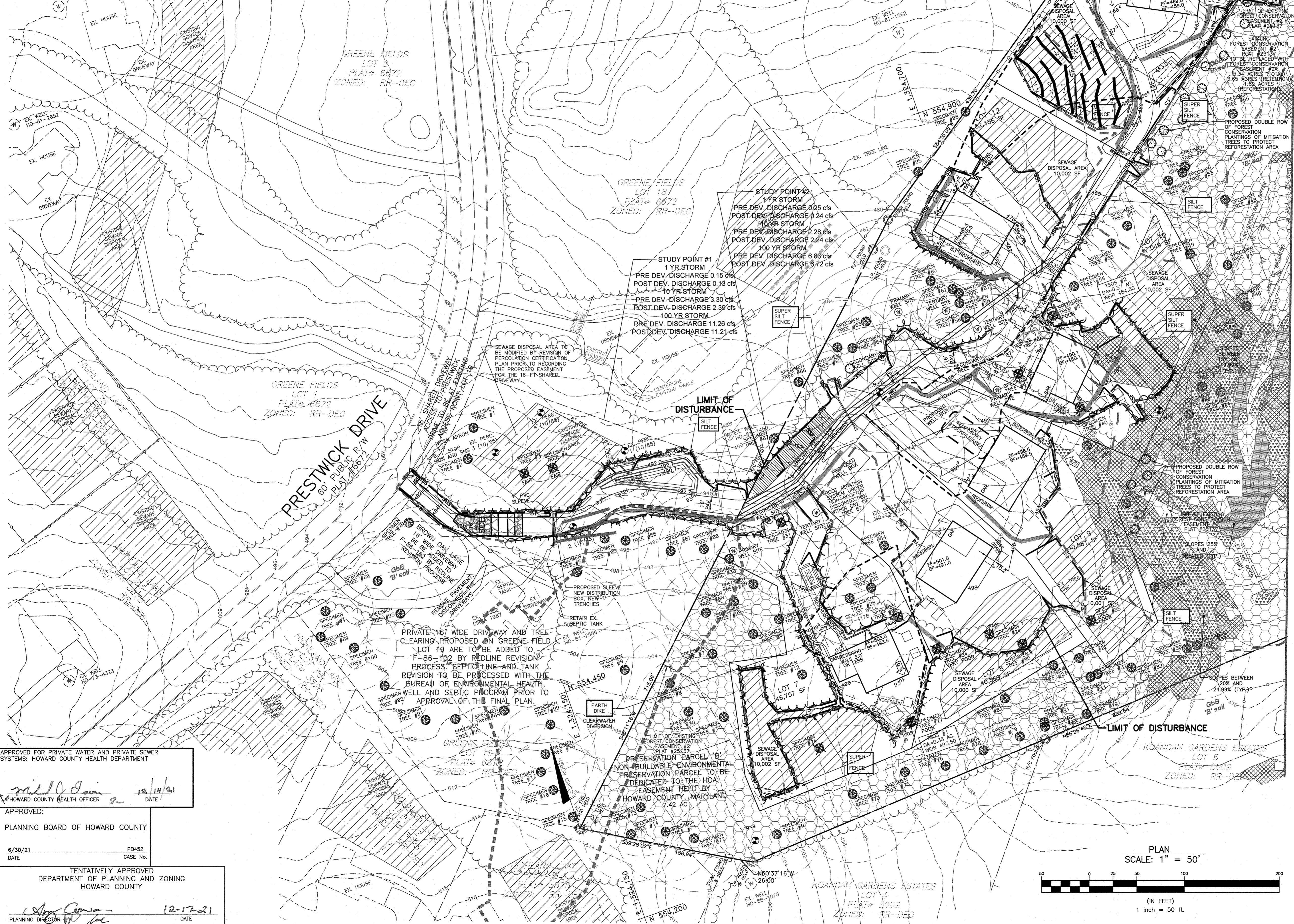
\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

NOTE: UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.

Designation	Drainage Area SF	Drainage Area Acres	Practice	Volume Required	Ground Elev.	Embankment Elev.	Weir Elev.	Pond Bottom	Bottom Width at Weir	Bottom Length Uphill of Weir	Volume Provided	Adequate Volume?
#1	24000	0.55	TGOS	992	493.90	495.40	492.40	15.00	18.00	1032.75	Yes	
#2	29000	0.67	TGOS	1198	475.70	477.20	474.20	15.00	22.00	1208.25	Yes	
#3	36000	0.83	TGOS	1488	456.50	458.00	455.00	20.00	22.00	1506.375	Yes	
#4	35000	0.80	TGOS	1446	488.70	490.20	489.45	20.00	22.00	1506.375	Yes	



FOR CONTINUATION SEE MATCH LINE SHEET 5

LEGEND	
SOILS CLASSIFICATION	GgB
SOILS DELINEATION	---480---
EXISTING CONTOURS	---478---
PROPOSED CONTOURS	---480---
EXISTING TREE LINE	~ ~ ~
PROPOSED TREE LINE	~ ~ ~
EXISTING UTILITY POLE	⊕
PROPOSED STRUCTURE	[ ]
EXISTING STRUCTURE	[ ]
WELL BOX	⊕
PROPOSED WELL BOX	⊕
EXISTING WELL BOX	⊕
EXISTING SEWAGE DISPOSAL AREA	[ ]
SEWAGE DISPOSAL AREA	[ ]
100 YR FLOODPLAIN	[ ]
SLOPES 15% TO 19.99%	[ ]
SLOPES 20% TO 24.99%	[ ]
SLOPES 25% AND GREATER	[ ]
PASSED PERCOLATION TEST	⊕
FAILED PERCOLATION TEST	⊕
BORING	⊕
MICRO-BIORETENTION FACILITY	⊕
EXISTING FENCE	—
SPECIMEN TREE (TO BE REMOVED)	⊗
SPECIMEN TREE	⊗
SPECIMEN TREE NOW TO BE RETAINED	⊗
MITIGATION PLANTINGS AS DOUBLE ROW BUFFER	⊗

SEDIMENT AND EROSION CONTROL LEGEND	
[ ]	STABILIZED CONSTRUCTION ENTRANCE WITH BERM
SSF	SUPER SILT FENCE
SF	SILT FENCE
T	TREE PROTECTION FENCE
[ ]	STABILIZATION MATTING
---	LIMIT OF DISTURBANCE
ED-1	EARTH DIKE
[ ]	TEMPORARY STONE/GABION OUTLET STRUCTURE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT  
 [Signature] 12/14/21  
 HOWARD COUNTY HEALTH OFFICER DATE

APPROVED: PLANNING BOARD OF HOWARD COUNTY  
 6/30/21 PB452  
 DATE CASE No.

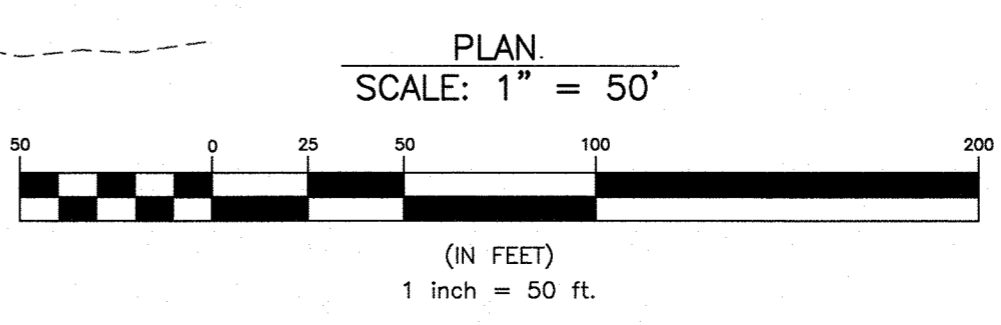
TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY  
 [Signature] 12-17-21  
 PLANNING DIRECTOR DATE

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELIJAH CITY, MARYLAND 21043  
 (P) 410-465-8108 (F) 410-465-8644  
 WWW.BE-CHALLENGERS.COM

*[Signature]*  
 Professional Certificate I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45377, Expiration Date: 06-08-2022.

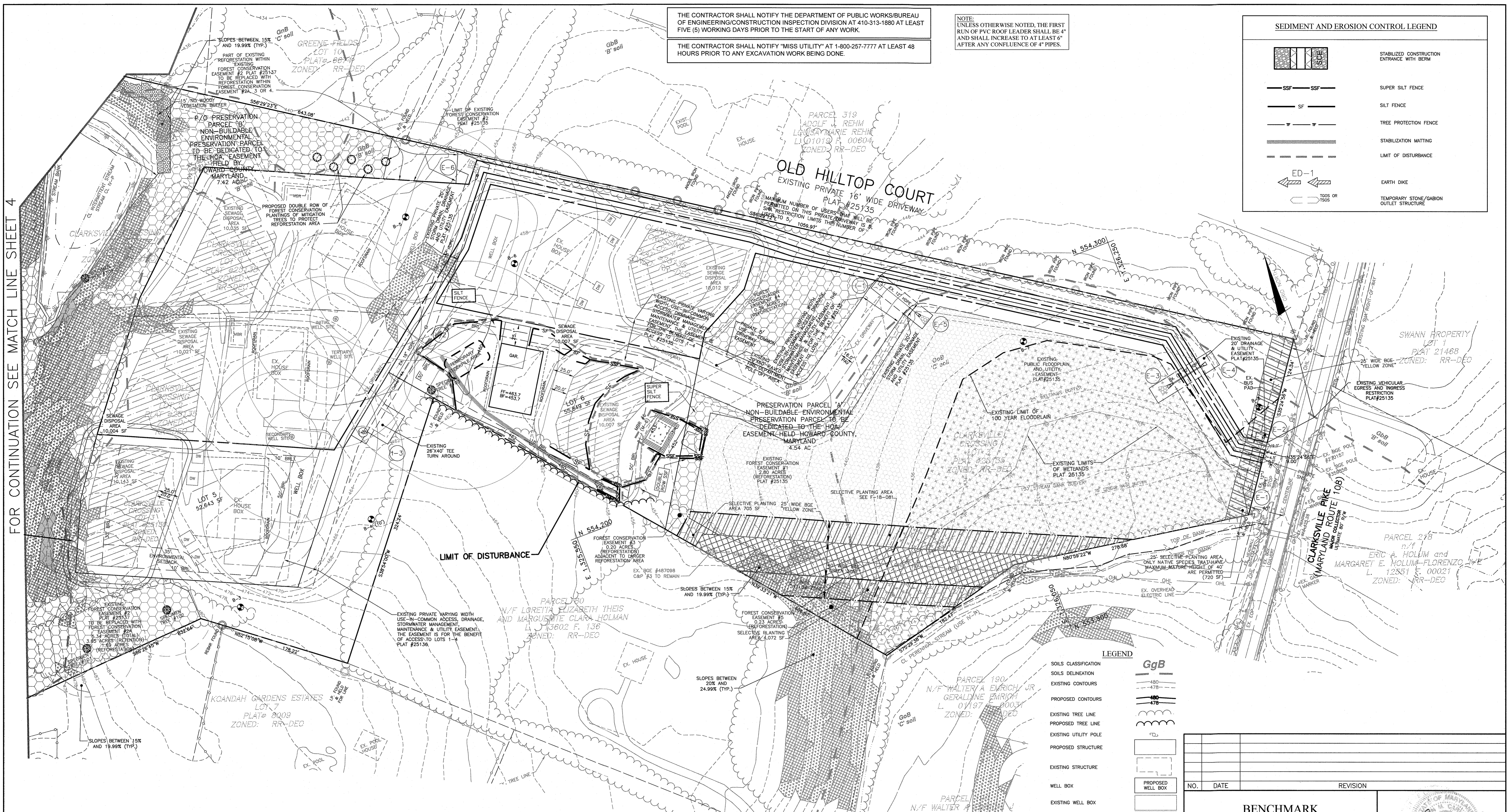
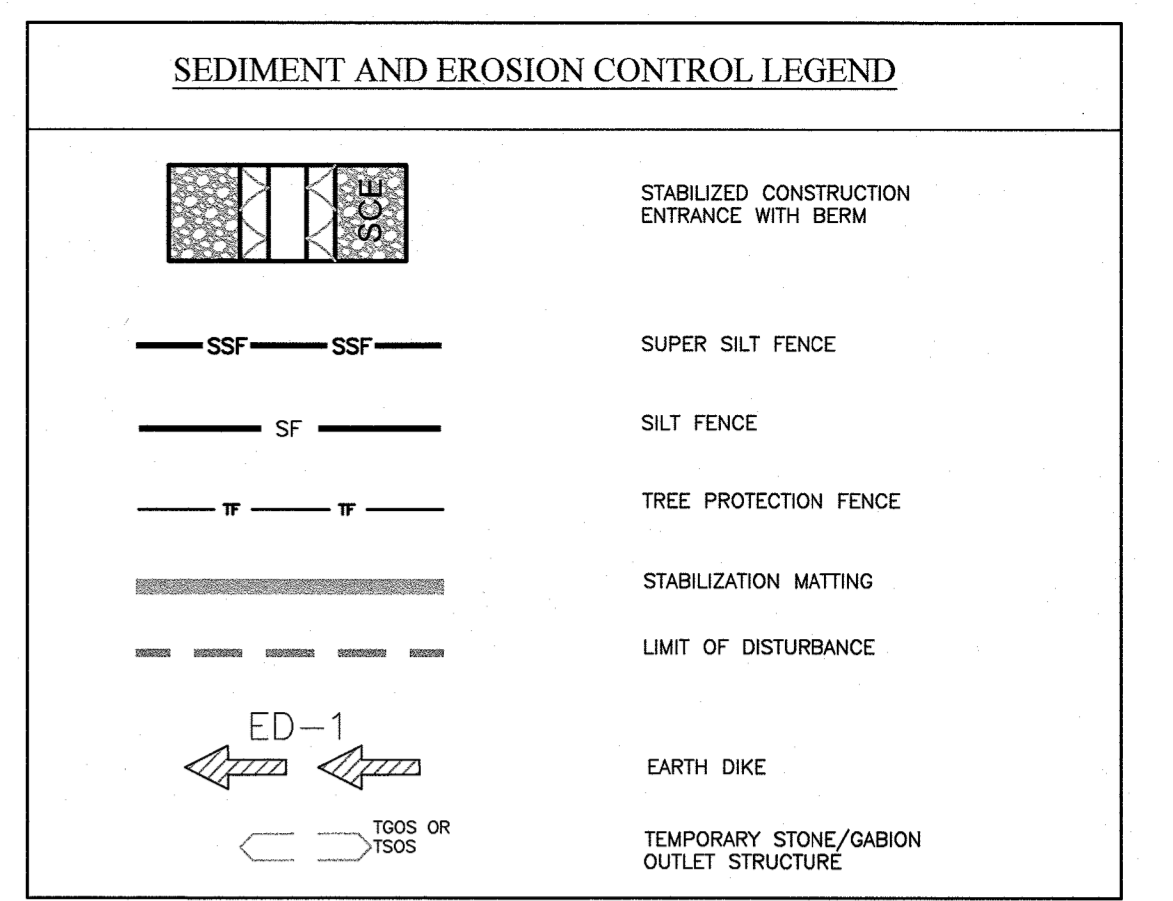
OWNER: CLARKSVILLE NL LLC C/O H&H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKBRIDGE, MD 21075 410-579-2442	CLARKSVILLE CROSSING, PHASE 2 A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
DEVELOPER: ROCK REALTY, INC. C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKBRIDGE, MARYLAND 21075 410-579-2442	TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
DESIGN: JC	SCALE: AS SHOWN
DRAWN: JC	SHEET 4 OF 13



FOR CONTINUATION SEE MATCH LINE SHEET 4

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.  
THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

NOTE: UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.



LEGEND: SOILS CLASSIFICATION, SOILS DELINEATION, EXISTING CONTOURS, PROPOSED CONTOURS, EXISTING TREE LINE, PROPOSED TREE LINE, EXISTING UTILITY POLE, PROPOSED STRUCTURE, EXISTING STRUCTURE, WELL BOX, PROPOSED WELL BOX, EXISTING WELL BOX, EXISTING SEWAGE DISPOSAL AREA, SEWAGE DISPOSAL AREA, 100 YR FLOODPLAIN, SLOPES 15% TO 19.99%, SLOPES 20% TO 24.99%, SLOPES 25% AND GREATER, PASSED PERCOLATION TEST, FAILED PERCOLATION TEST, BORING, MICRO-BIORETENTION FACILITY, EXISTING FENCE.

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BE-ENGINEERING.COM

**CLARKSVILLE CROSSING, PHASE 2**  
A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137)  
TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'

OWNER: CLARKSVILLE NL LLC  
C/O H&H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE 100  
ELKRDGE, MD 21075  
410-579-2442

DEVELOPER: ROCK REALTY, INC.  
C/O H & H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE #100  
ELKRDGE, MARYLAND 21075  
410-579-2442

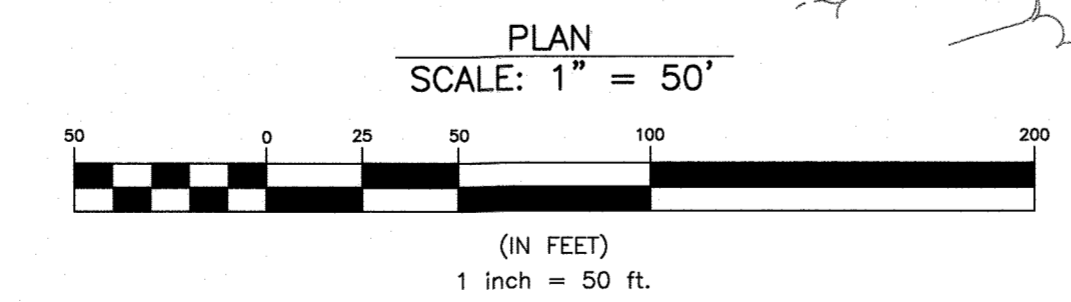
TAX MAP: 34 PARCEL: 23 ZONED: RR-DEO  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

PRELIMINARY EQUIVALENT SKETCH PLAN  
GRADING AND  
SEDIMENT AND EROSION CONTROL PLAN

DATE: NOVEMBER, 2021 BEI PROJECT NO: 2525  
SCALE: AS SHOWN SHEET 5 OF 13

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT  
*M. L. O. Davis* 12/14/21  
HOWARD COUNTY HEALTH OFFICER DATE

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY  
6/30/21 PB452  
DATE CASE No.  
TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*Allyson G...* 12-17-21  
PLANNING DIRECTOR DATE



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	k-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GcB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 16 PERCENT SLOPES	0.2
GbB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.

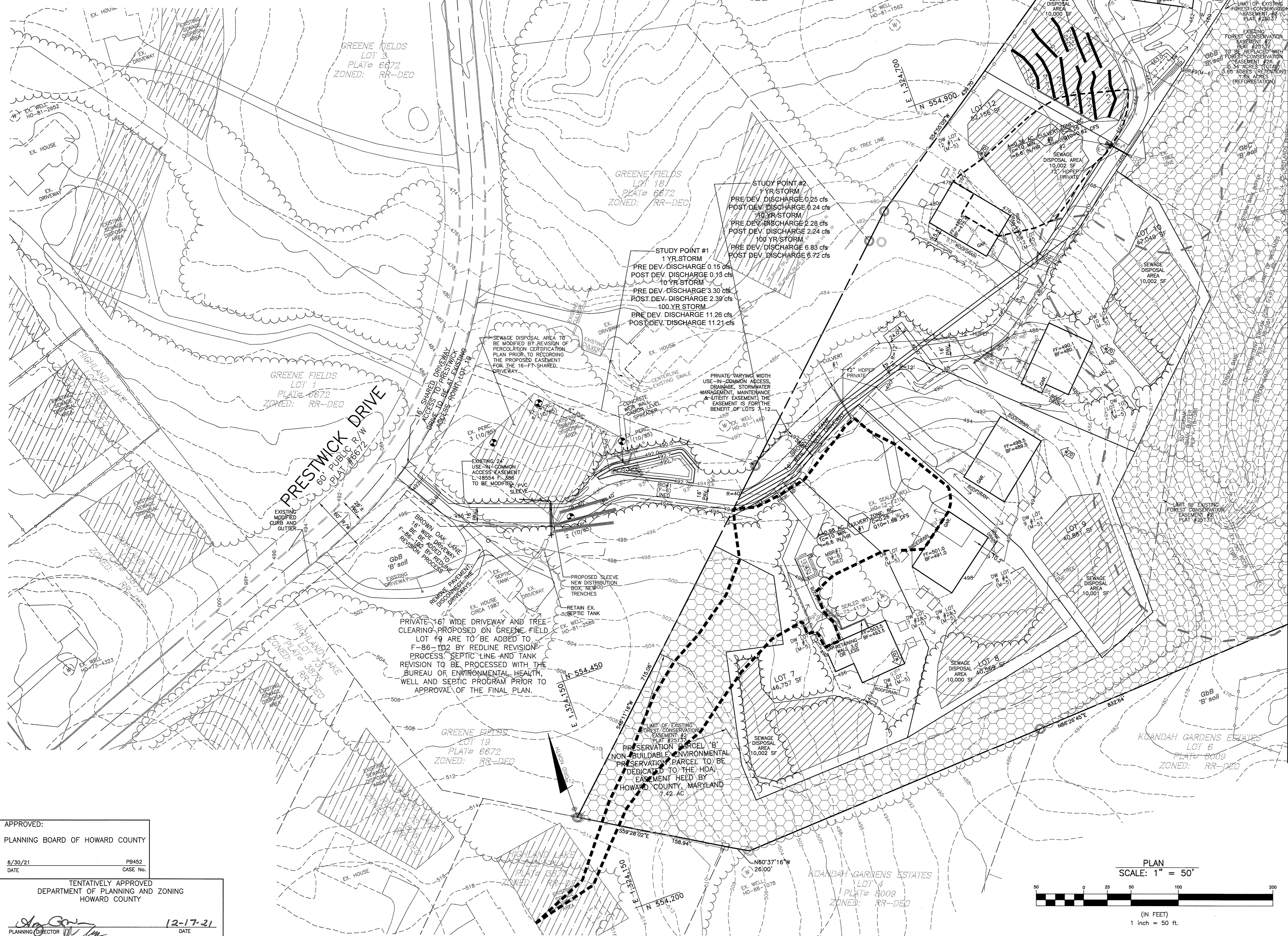
SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND					
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GgB	YES	C	D	GLENNVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GgB		C		GLENNVILLE-CODORUS SILT LOAMS, 0 TO 9 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GgB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

NOTE:  
UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.



LEGEND	
SOILS CLASSIFICATION	GgB
SOILS DELINEATION	---
EXISTING CONTOURS	---
PROPOSED CONTOURS	---
EXISTING TREE LINE	~ ~ ~
PROPOSED TREE LINE	~ ~ ~
EXISTING UTILITY POLE	○
PROPOSED STRUCTURE	[ ]
EXISTING STRUCTURE	[ ]
WELL BOX	[ ]
EXISTING WELL BOX	[ ]
EXISTING SEWAGE DISPOSAL AREA	[ ]
SEWAGE DISPOSAL AREA	[ ]
100 YR FLOODPLAIN	[ ]
SLOPES 15% TO 19.99%	[ ]
SLOPES 20% TO 24.99%	[ ]
SLOPES 25% AND GREATER	[ ]
EXISTING FENCE	—
STORMDRAIN DRAINAGE AREA	---
PROPOSED STORMDRAIN	---

AREA AND "C" FACTOR TABULATION

PROJECT: Clarksville Crossing, Phase 2      DATE: 2/2/2021      BY: jc

PHASE	INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR	% IMPERVIOUS (P)<25
	Culvert #1	RC		0.98	0.26	20.0
	Culvert #2	RC		0.36	0.26	20.0

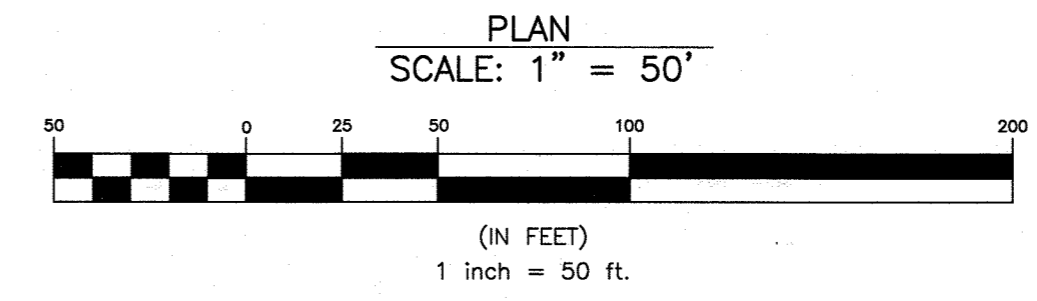
APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

6/30/21      PB452  
DATE      CASE No.

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

12-17-21  
DATE

<p>NO.      DATE      REVISION</p>	
<p><b>BENCHMARK</b> ENGINEERS • LAND SURVEYORS • PLANNERS <b>ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE &amp; SUITE 315 A ELIJAH CITY, MARYLAND 21043 (P) 410-465-8105    (F) 410-465-6644 WWW.BE-CVLENGINEERING.COM</p>	
<p>OWNER: CLARKSVILLE NL LLC C/O H&amp;H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442</p>	
<p>DEVELOPER: ROCK REALTY, INC. C/O H &amp; H ROCK COMPANIES 6800 DEERPATH ROAD SUITE #100 ELKRIDGE, MARYLAND 21075 410-579-2442</p>	
<p><b>CLARKSVILLE CROSSING, PHASE 2</b> A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT NO. 25134-25137) TO CREATE BUILDABLE LOTS 5-12, NON-BUILDABLE PRESERVATION PARCELS 'A' AND 'C', AND NON-BUILDABLE BULK PARCEL 'B'</p>	
<p>TAX MAP: 34      GRID: 23      PARCEL: 301      ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND</p>	
<p>PRELIMINARY EQUIVALENT SKETCH PLAN STORMDRAIN DRAINAGE AREA MAP</p>	
<p>DATE: NOVEMBER, 2021      BEI PROJECT NO: 2525 SCALE: AS SHOWN      SHEET 6 OF 13</p>	



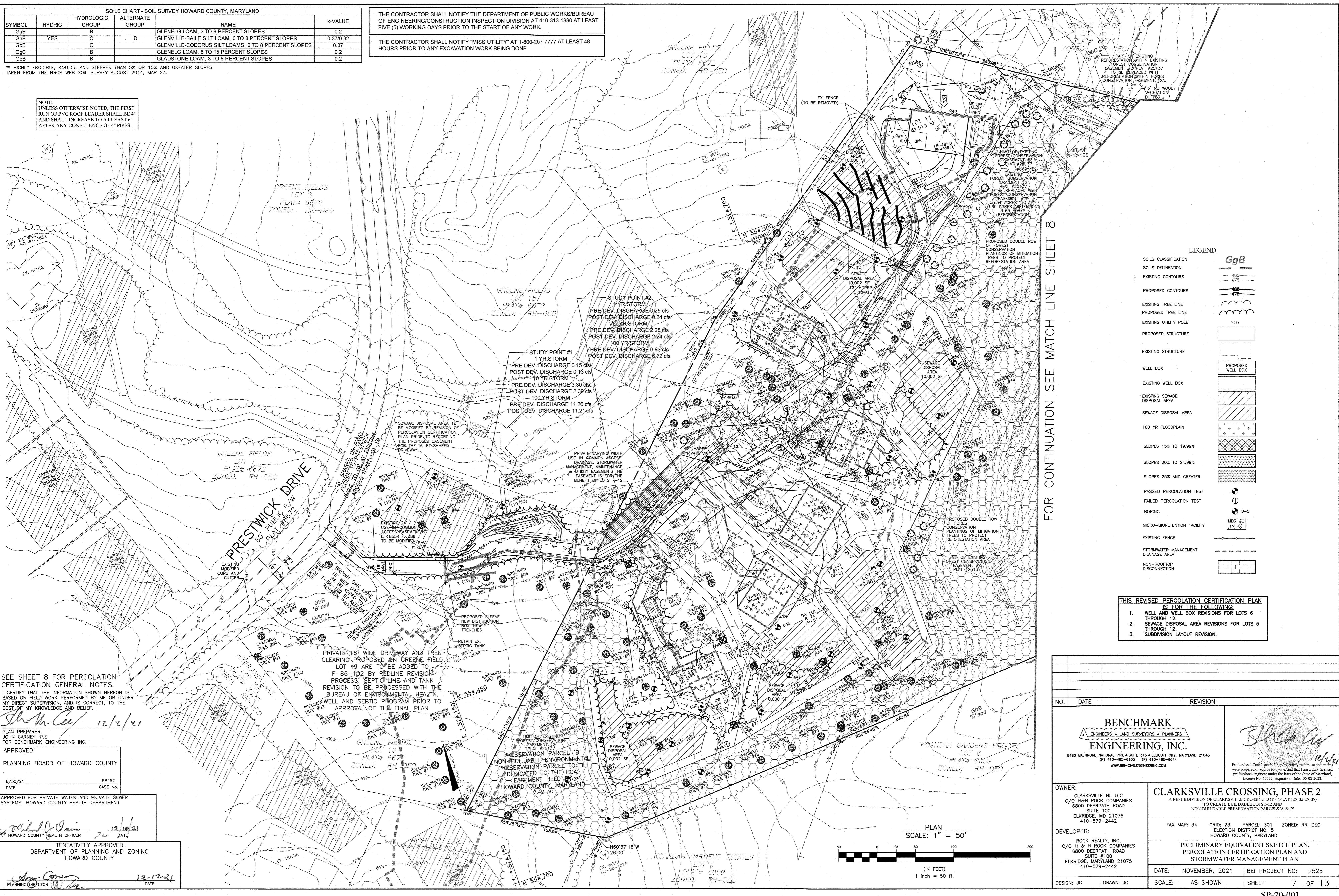
SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND					
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GoB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GgB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

NOTE: UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.



FOR CONTINUATION SEE MATCH LINE SHEET 8

LEGEND	
SOILS CLASSIFICATION	GgB
SOILS DELINEATION	—480—
EXISTING CONTOURS	—478—
PROPOSED CONTOURS	—478—
EXISTING TREE LINE	~ ~ ~
PROPOSED TREE LINE	~ ~ ~
EXISTING UTILITY POLE	⊕
PROPOSED STRUCTURE	[ ]
EXISTING STRUCTURE	[ ]
WELL BOX	[ ]
EXISTING WELL BOX	[ ]
EXISTING SEWAGE DISPOSAL AREA	[ ]
SEWAGE DISPOSAL AREA	[ ]
100 YR FLOODPLAIN	[ ]
SLOPES 15% TO 19.99%	[ ]
SLOPES 20% TO 24.99%	[ ]
SLOPES 25% AND GREATER	[ ]
PASSED PERCOLATION TEST	⊕
FAILED PERCOLATION TEST	⊕
BORING	⊕ B-5
MICRO-BIORETENTION FACILITY	[ ]
EXISTING FENCE	— — —
STORMWATER MANAGEMENT DRAINAGE AREA	[ ]
NON-ROOFTOP DISCONNECTION	[ ]

THIS REVISED PERCOLATION CERTIFICATION PLAN IS FOR THE FOLLOWING:

- WELL AND WELL BOX REVISIONS FOR LOTS 6 THROUGH 12.
- SEWAGE DISPOSAL AREA REVISIONS FOR LOTS 5
- SUBDIVISION LAYOUT REVISION.

SEE SHEET 8 FOR PERCOLATION CERTIFICATION GENERAL NOTES.  
I CERTIFY THAT THE INFORMATION SHOWN HEREON IS BASED ON FIELD WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, AND IS CORRECT, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

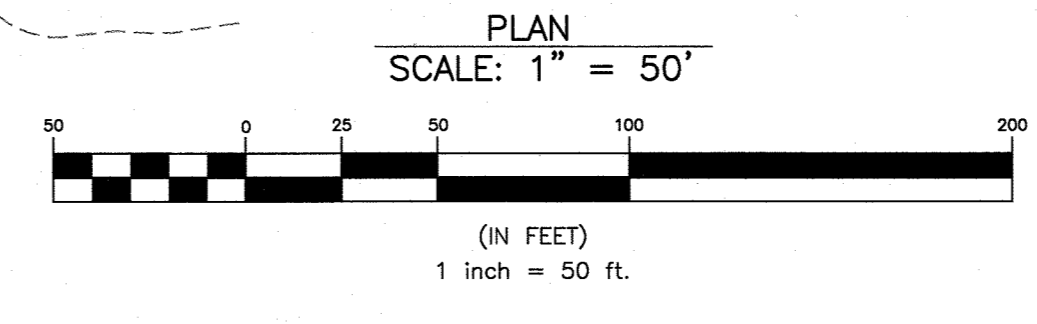
PLAN PREPARER  
JOHN CARNEY, P.E.  
FOR BENCHMARK ENGINEERING INC.

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

NO.	DATE	REVISION
 <b>BENCHMARK ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE A SUITE 315 ELLICOTT CITY, MARYLAND 21043 (P) 410-485-0105 (F) 410-485-6844 WWW.BE-CIVILENGINEERING.COM		
OWNER: CLARKSVILLE NL LLC C/O H&H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELK RIDGE, MD 21075 410-579-2442		CLARKSVILLE CROSSING, PHASE 2 A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 4-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
DEVELOPER: ROCK REALTY, INC. C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELK RIDGE, MARYLAND 21075 410-579-2442		TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO: 5 HOWARD COUNTY, MARYLAND
PRELIMINARY EQUIVALENT SKETCH PLAN, PERCOLATION CERTIFICATION PLAN AND STORMWATER MANAGEMENT PLAN		
DATE: NOVEMBER, 2021	BEI PROJECT NO: 2525	
DESIGN: JC	DRAWN: JC	SCALE: AS SHOWN SHEET 7 OF 13



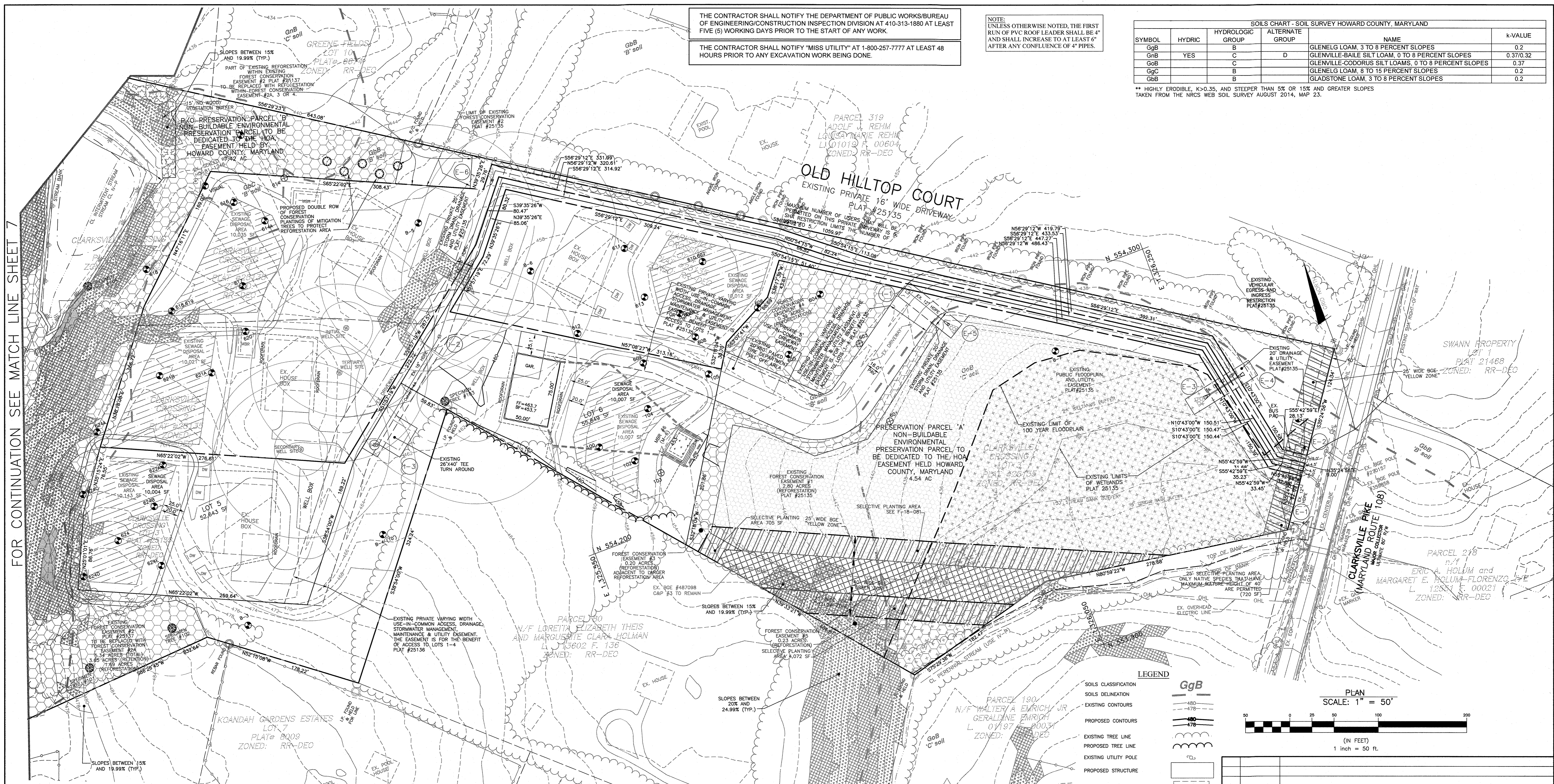
FOR CONTINUATION SEE MATCH LINE SHEET 7

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.  
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SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND					
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GbB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GbB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K>0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.



PERCOLATION CERTIFICATION GENERAL NOTES

- THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE DISPOSAL AREA. RECORDATION OF A MODIFIED SEWAGE DISPOSAL AREA SHALL NOT BE NECESSARY.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT. THE LOT SIZE FOR THESE LOTS WILL FULFILL THE REQUIREMENTS OF THE ZONING REGULATIONS.
- ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THE PROPERTY'S BOUNDARIES EXCEPT THAT WHICH ARE SHOWN. INFORMATION HAS BEEN REQUESTED FROM THE BUREAU OF ENVIRONMENTAL HEALTH CONCERNING THE ADJOINING PROPERTIES.
- GROUNDWATER APPROPRIATIONS PERMIT (GAP) SHALL BE OBTAINED PRIOR TO ISSUE OF PERMITS TO INSTALL WELLS, OR AN EXEMPTION FROM THE GAP SHALL BE OBTAINED PRIOR TO ISSUE OF PERMITS TO INSTALL WELLS.
- TOPOGRAPHY SHOWN IS BASED ON FIELD-RUN SURVEY PERFORMED ON OR ABOUT AUGUST, 2017 BY BENCHMARK ENGINEERING, INC.
- ALL WELLS TO BE DRILLED PRIOR TO FINAL RECORD PLAT APPROVAL. IT IS THE DEVELOPER'S RESPONSIBILITY TO SCHEDULE WELL DRILLING PRIOR TO FINAL RECORD PLAT SUBMISSION. IT WILL NOT BE CONSIDERED GOVERNMENT DELAY IF THE WELL-DRILLING HOLDS UP THE HEALTH DEPARTMENT SIGNATURE OF THE RECORD PLAT.
- PERCOLATION TEST FEE RECEIPT NUMBER, REFERENCED IN THE APPROVING AUTHORITY CORRESPONDENCE, IS A520113.
- THE PURPOSES OF THIS REVISED PERCOLATION CERTIFICATION IS TO REVISE WELL SITES, WELL BOXES FOR LOTS 6 THROUGH 12 AND SEPTIC DISPOSAL AREAS FOR LOTS 5 THROUGH 12 AND TO UPDATE THE LOT LINES AND SITE IMPROVEMENTS.
- ANY MICRO-BIORETENTION FACILITIES WITHIN 100 FEET OF A WELL, AS MEASURED FROM THE WELL BOX TO THE FILTER MEDIA, SHALL BE LINED. LINING WILL BE IN ACCORDANCE WITH THE STORMWATER MANAGEMENT DETAIL AS SHOWN ON THE FINAL CONSTRUCTION PLAN. THE CURRENT DESIGN REQUIRES THAT THE MICRO-BIORETENTION FACILITIES ON LOT 11 AND GREENE FIELD LOT 19 BE LINED. MICRO-BIORETENTION FACILITIES ARE NOT ALLOWED WITHIN 50' OF WELL OR WELL BOXES.
- THIS PLAN IS A CHANGE TO THE PERCOLATION CERTIFICATION PLAN INCLUDED IN SP-07-013. THE APPROVED WELLS AND SEWAGE DISPOSAL AREAS FROM THAT PLAN ARE NOT SHOWN ON THIS PLAN FOR CLARITY.
- WATER SAMPLES FROM WELLS INSTALLED FOR LOTS 5 AND 6 MUST BE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS (VOC) PRIOR TO RELEASE OF USE AND OCCUPANCY BY THE HEALTH DEPARTMENT.
- IF THERE ARE OVERHEAD POWER LINES WITHIN 25 FEET OF ANY WELL BOX THE LINES MUST BE REMOVED PRIOR TO SUBMITTAL OF AN APPLICATION FOR WELL DRILLING. ALL UNDERGROUND POWER LINES MUST BE MARKED BY MISS UTILITY PRIOR TO SUBMITTAL OF AN APPLICATION FOR WELL DRILLING.
- EACH POTABLE WATER WELL INSTALLED IN THE CLARKSVILLE CROSSING SUBDIVISION SHALL BE SAMPLED AT YIELD TEST AND THE RESPECTIVE SAMPLES ANALYZED FOR RADIUM OR RADIUM DEGRADATION PRODUCTS GROSS ALPHA AND GROSS BETA.
- THIS PLAN IS A PERCOLATION CERTIFICATION PLAN ONLY. THIS PLAN IS NOT A OSOS PERMIT PLAN. EACH LOT'S SEPTIC COMPONENTS SHALL BE SHOWN ON A OSOS PERMIT PLAN, THIS PERMIT REQUEST MUST BE REVIEWED AND APPROVED IN ORDER TO OBTAIN A PERMIT TO CONSTRUCT THE SYSTEM.
- THE SHARED DRIVEWAY MAINTENANCE EASEMENT FOR LOTS 10 THROUGH 12 SHALL INCLUDE A CLAUSE GRANTING PRIMACY TO LOT 10 FOR AN AREA OF ACCESS AND UTILIZATION TO THE TERTIARY WELL LOCATION AS SHOWN ON THE FINAL PERCOLATION CERTIFICATION PLAN. A DRAFT OF THIS CLAUSE IS TO BE PROVIDED TO HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO SIGNATURE APPROVAL OF THE FINAL PLAN.
- SEWAGE DISPOSAL IMPROVEMENT ON GREENE FIELD LOT 19 WILL BE CERTIFIED AND DESIGNED ON INDEPENDENT PLANS.
- WAIVER FOR THE LOCATION OF THE SEPTIC SYSTEM ON LOT 11 AND WELL LOCATIONS ON THE SAME LOT AS SHOWN ON THIS PLAN WILL BE SUBMITTED TO MBE FOR APPROVAL AS A CONDITION OF THE APPROVAL OF THIS WAIVER. THE INITIAL AND ALL REPLACEMENT WELLS ON LOT 11 WILL REQUIRE STEEL CASINGS TO BE INSTALLED TO 50' OR 10' INTO COMPETENT BEDROCK, WHICHEVER IS DEEPER. THE SEPTIC SYSTEM TO BE INSTALLED ON LOT 11 SHALL UTILIZE BEST AVAILABLE TECHNOLOGIES FOR NITROGEN REMOVAL TO TREAT SEPTIC EFFLUENT, AND THE SEPTIC SYSTEM ON LOT 11 WILL BE REQUIRED TO BE A LOW PRESSURE DOSE SYSTEM.

APPROVED FOR PRIVATE WATER AND PRIVATE SEWER SYSTEMS: HOWARD COUNTY HEALTH DEPARTMENT

Richard J. Davis 12/14/21  
HOWARD COUNTY HEALTH OFFICER

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

6/30/21 DATE  
PB452 CASE NO.

12-17-21 DATE

LEGEND

- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING TREE LINE
- PROPOSED TREE LINE
- EXISTING UTILITY POLE
- PROPOSED STRUCTURE
- EXISTING STRUCTURE
- WELL BOX
- PROPOSED WELL BOX
- EXISTING WELL BOX
- EXISTING SEWAGE DISPOSAL AREA
- SEWAGE DISPOSAL AREA
- 100 YR FLOODPLAIN
- SLOPES 15% TO 19.99%
- SLOPES 20% TO 24.99%
- SLOPES 25% AND GREATER
- PASSED PERCOLATION TEST
- FAILED PERCOLATION TEST
- BORING
- MICRO-BIORETENTION FACILITY
- EXISTING FENCE
- STORMWATER MANAGEMENT DRAINAGE AREA

PLAN SCALE: 1" = 50'

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8480 BALTIMORE NATIONAL PREE SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-0105 (F) 410-465-6644  
WWW.BE-ENGINEERING.COM

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. License No. 43577, Expiration Date: 06/08/2022.

OWNER: CLARKSVILLE NL LLC  
C/O H&H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE 100  
ELKRDGE, MD 21075  
410-579-2442

DEVELOPER: ROCK REALTY, INC.  
C/O H & H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE #100  
ELKRDGE, MARYLAND 21075  
410-579-2442

DESIGN: JC DRAWN: JC

CLARKSVILLE CROSSING, PHASE 2  
A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'

GRID: 23 PARCEL: 301 ZONED: RR-DEO  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

PRELIMINARY EQUIVALENT SKETCH PLAN,  
PERCOLATION CERTIFICATION PLAN AND  
STORMWATER MANAGEMENT PLAN

DATE: NOVEMBER, 2021 BEI PROJECT NO: 2525  
SCALE: AS SHOWN SHEET 8 OF 13

12/14/21  
12/17/21

12/14/21  
12/17/21

12/14/21  
12/17/21



### CONSTRUCTION SPECIFICATIONS

#### B.4.C Specifications for Micro-Bioretentation, Rain Gardens, Landscape Infiltration & Infiltration Berms

##### 1. Material Specifications:

The allowable materials to be used in these practices are detailed in Table B.4.1.

##### 2. Filtering Media or Planting Soil:

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretentation practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
Organic Content - Minimum 10% by dry weight (ASTM D 2874). In general, this can be met with a mixture of loamy and (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of cationic matter and soluble salts.

##### 3. Compaction:

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoses to remove original soil.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin.

##### 4. Plant Material:

Recommended plant material for micro-bioretentation practices can be found in Appendix A, Section A.2.3.

##### 5. Plant Installation:

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed surrounding to a uniform thickness of 2" to 3".

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality.

Underdrains if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

##### 6. Underdrains:

Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
Perforations - If perforated pipe is used, perforations should be 1/4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized hardware cloth.
Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

##### 7. Miscellaneous:

These practices may not be constructed until all contributing drainage area has been stabilized.

#### OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

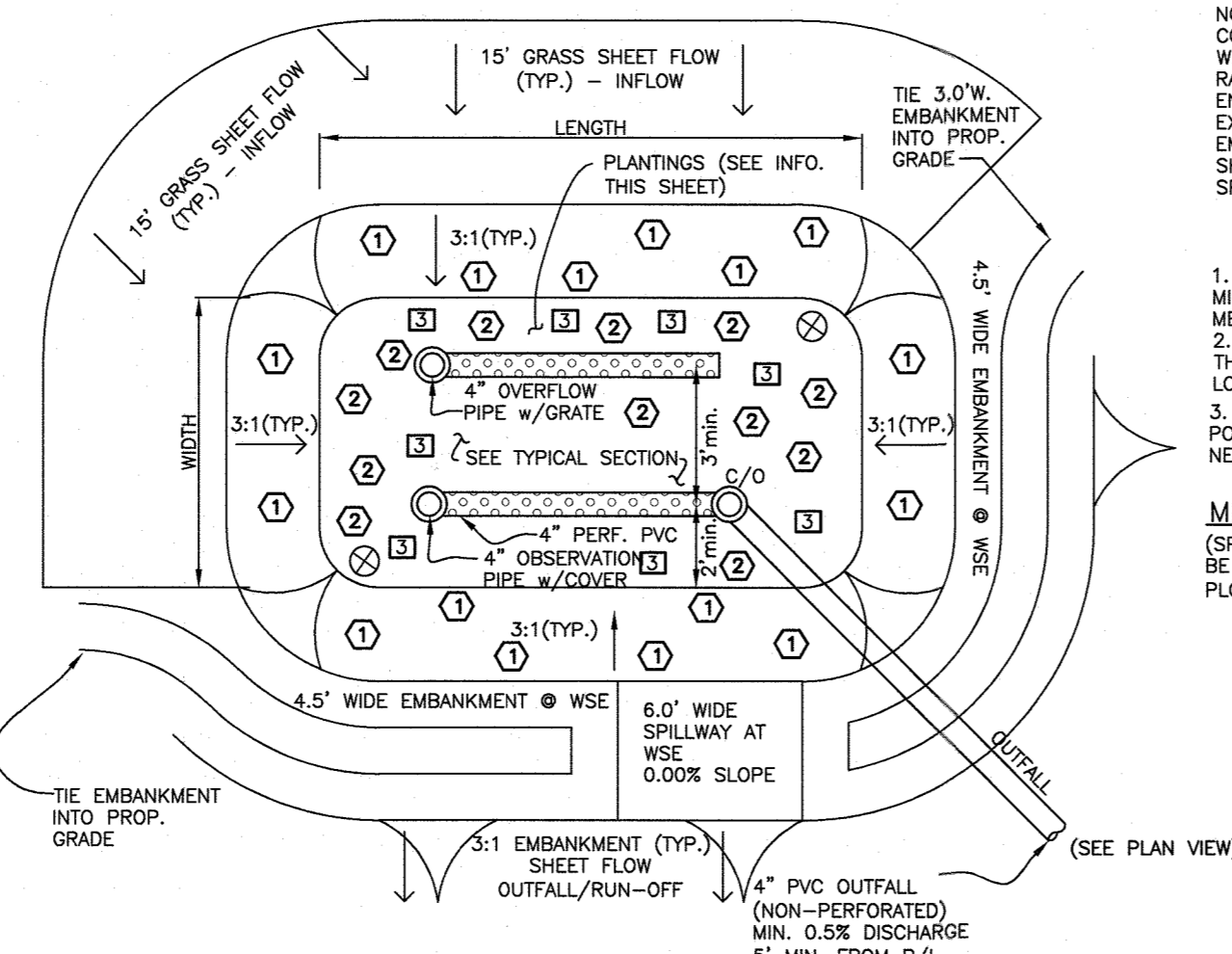
- A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
B. THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANTS, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

#### OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

- A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

#### OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED (M-5) DRY WELLS

- 1. The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
2. Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.
3. A log book shall be maintained to determine the rate at which the facility drains.
4. When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
5. The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
6. Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.



SCHEMATIC PLAN VIEW

NOTE: FACILITIES MUST BE CONSTRUCTED WITH IMPERMEABLE LINER WHEN INSTALLED WITHIN THE 100' WELL RADIUS.

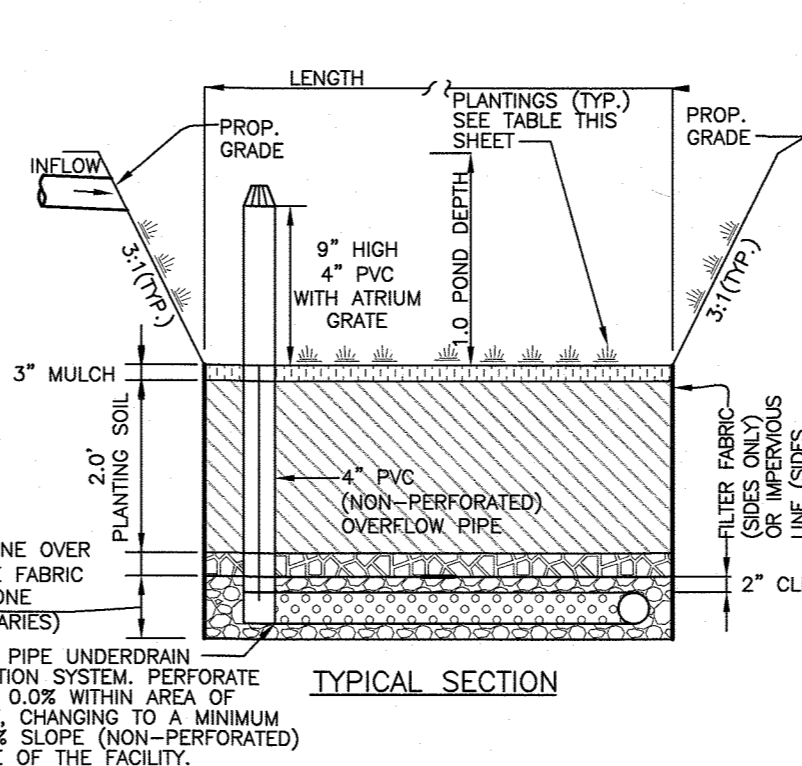
- 1. PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE.
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION FACILITY NEAR O.B. PIPE AND UNDERDRAIN.

#### MICROBIORETENTION PLANTING SCHEDULE

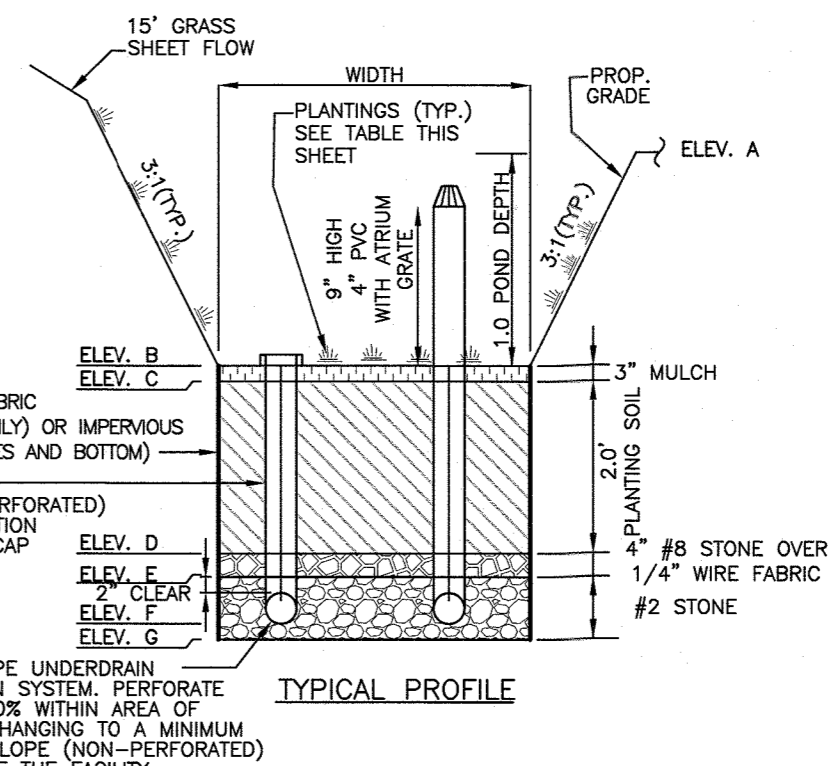
(SPECIFIC NUMBER OF PLANTINGS SHALL BE DETERMINED WITH FINAL DESIGN AT PLOT PLAN PHASE)
1 VINCA MINOR (COMMON PERIWINKLE)
2 IRIS VERSICOLOR (REES)
3 CALLUNA VULGARIS (HEATHER)

MICROBIORETENTION PLANTING DATA
1. PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.

MICRO-BIORETENTION DETAILS (TYPICAL) NOT TO SCALE



TYPICAL SECTION



TYPICAL PROFILE

BIO-RETENTION DIMENSION LEGEND	
FACILITY	NAME
A	TOP OF EMBANKMENT
B	TOP OF MULCH
C	TOP OF SOIL
D	TOP OF STONE FILTER
E	TOP OF STONE STORAGE
F	UNDERDRAIN INVERT
G	BOTTOM OF STONE
H	OUTFALL ELEVATION

FACILITY	ELEVATIONS (SEE TYPICAL BIORETENTION DETAIL)								FILTER			PLANTINGS			LINER REQ'D
	A	B	C	D	E	F	G	H	LENGTH (ft)	WIDTH (ft)	AREA (sf)	1	2	3	
MBR-6	454.50	454.00	453.00	452.83	450.83	450.50	450.00	449.17	22.6	13.0	361	35	30	16	NO
MBR-7	497.50	497.00	496.00	495.83	493.83	493.50	493.00	491.42	15.0	5.0	75	7	6	3	YES
MBR-8	458.50	458.00	457.00	456.83	454.83	454.50	454.00	453.17	31.6	19.1	604	57	50	27	YES
MBR-9	464.00	463.50	462.50	462.33	460.33	460.00	459.50	458.50	34.4	12.5	430	44	38	20	NO

PROJECT: Clarksville Crossing Lots 5-12 DATE: 02/02/21

Facility Summary

Pe (LOTS): 1.00 inches

Facility	Drainage Area (SF)	Imperious (SF)	I (%)	Rv	ESDv Req'd (cf)		Req'd Stone Storage (cf)		Stone Storage Provided (cf)		Total ESDv (cf)	Pe Prov.	Rev (cf)	Notes
					Required (CF)	Contrib (CF)	Length (ft)	Width (ft)	Length (ft)	Width (ft)				
BIO-1 (F-6)	75,372	4,639	6%	0.11	662	496.5	868	165	166	1034	1.56	166	Partially lined	
MBR-6 (M-6)	15,853	3,750	24%	0.263	347	260	501	87	120	621	1.79	87		
MBR-7 (M-6)	2,196	1,402	64%	0.625	114	86	153	29	47	200	1.75		LINED	
MBR-8 (M-6)	18,809	5,637	30%	0.320	501	376	760	125	197	957	1.91		LINED	
MBR-9 (M-6)	18,468	8,001	43%	0.440	677	508	612	169	182	793	1.17	169		
TOTALS		23,429			2302		2894		712	3606		422		

Facility	Imperious Area (SF)	Drainage Area (SF)	Volumetric Runoff	ESDv Required (CF)	Contrib. Length (ft)	Previos. Length (ft)	Imp. Disconnection Length (ft)	Ratio	Pe Treated (inches)	Volume Provided (cf)	NON-ROOFTOP DISCONNECTION (N-2)	
											Length (ft)	Width (ft)
NR-1 (N-2)	470	1091	0.44	39.80	80	16	16	0.4	0.4	15.92		
NR-2 (N-2)	3644	7506	0.49	304.58	9	16	16	1.0	1.0	304.58		
NR-3 (N-2)	825	1783	0.47	69.30	2	12	12	1.0	1.0	69.30		
NR-4 (N-2)	1801	3522	0.51	149.75	12	12	12	1.0	1.0	149.75		
NR-5 (N-2)	1562	3277	0.48	130.80	7	12	12	1.0	1.0	130.80		
NR-6 (N-2)	717	1442	0.50	59.78	0	20	26	1.0	1.0	59.78		
TOTALS	9019			730						730		

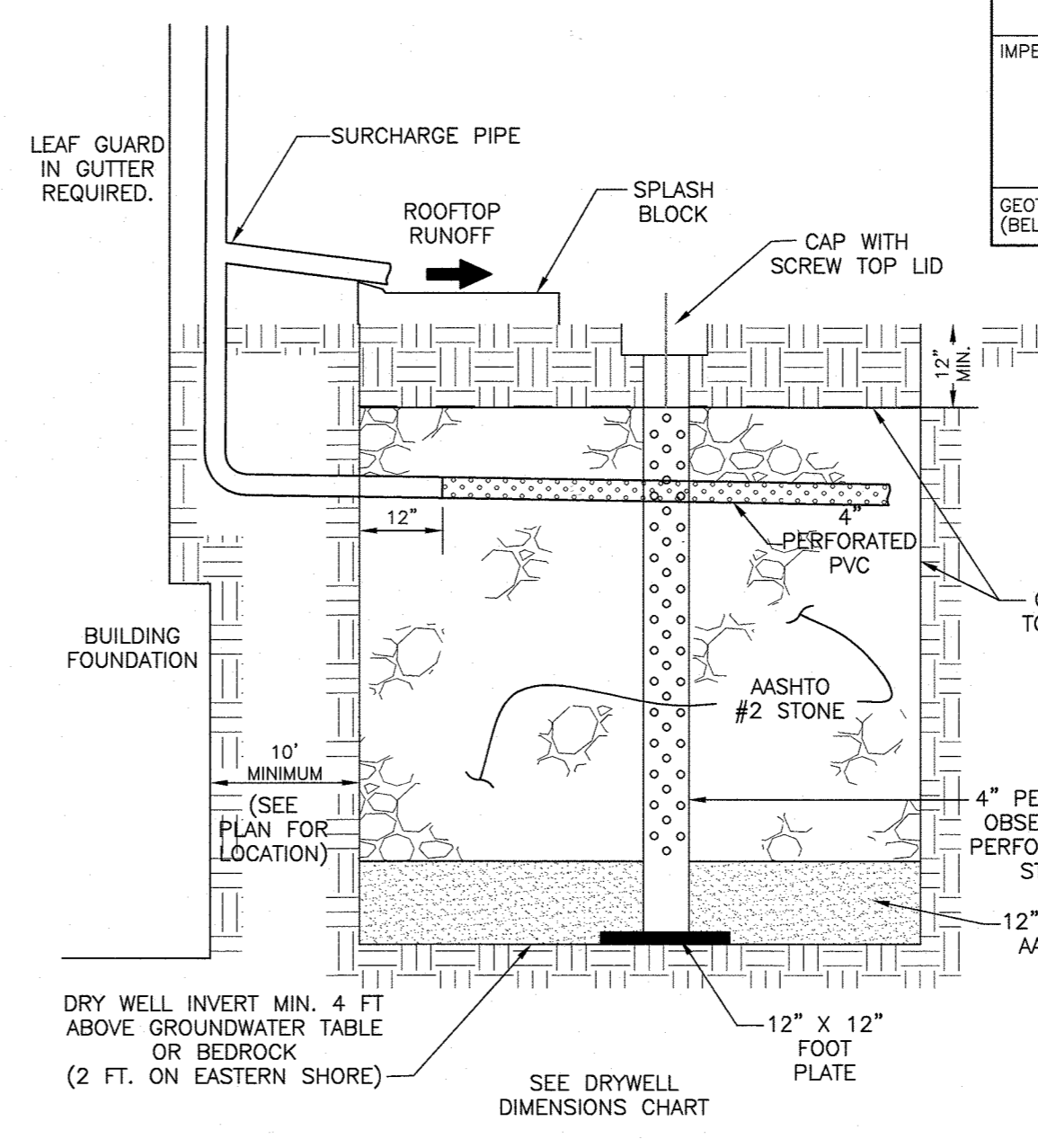
Facility	Imperious Area (SF)	Drainage Area (SF)	I (%)	Rv	ESDv (cf)	Length (ft)	Width (ft)	Depth (ft)	Porosity	Grade	Top of Stone	Bottom of Sand	Volume Stored (cf)	Pe Treated
7-1	938	938	100%	0.95	74.26	7.00	6.00	5.00	0.40	498	497	492	84.00	1.13
7-2	875	875	100%	0.95	69.27	9.00	9.00	5.00	0.40	495	494	489	162.00	2.34
7-3	612	612	100%	0.95	48.45	9.00	9.00	5.00	0.40	494	493	488	162.00	3.34
7-4	613	613	100%	0.95	48.53	9.00	9.00	5.00	0.40	492.6	491.6	486.6	162.00	3.34
8-1	875	875	100%	0.95	69.27	9.00	9.00	5.00	0.40	497.5	496.5	491.5	162.00	2.34
8-2	875	875	100%	0.95	69.27	12.00	7.00	5.00	0.40	496	495	490	168.00	2.43
8-3	875	875	100%	0.95	69.27	13.00	7.00	5.00	0.40	496	495	490	162.00	2.63
8-4	875	875	100%	0.95	69.27	9.00	9.00	5.00	0.40	497.5	496.5	491.5	162.00	2.34
9-1	937	937	100%	0.95	74.18	9.00	9.00	5.00	0.40	496	495	490	162.00	2.18
9-2	938	938	100%	0.95	74.26	9.00	9.00	5.00	0.40	495	494	489	162.00	2.18
9-3	938	938	100%	0.95	74.26	9.00	9.00	5.00	0.40	494	491	486	162.00	2.18
9-4	937	937	100%	0.95	74.18	9.00	9.00	5.00	0.40	492	489	484	162.00	2.18
10-1	625	625	100%	0.95	49.48	9.00	9.00	5.00	0.40	484.9	483.9	478.9	162.00	3.27
10-2	875	875	100%	0.95	69.27	9.00	9.00	5.00	0.40	482.6	480.6	475.6	162.00	2.34
10-3	865	865	100%	0.95	68.48	16.00	5.00	5.00	0.40	481.3	480.3	475.3	160.00	2.34
10-4	875	875	100%	0.95	69.27	8.00	7.00	5.00	0.40	478.7	478.7	473.7	112.00	1.62
12-1	875	875	100%	0.95	69.27	7.00	5.00	5.00	0.40	478.7	478.7	473.7	98.00	1.41
12-2	875	875	100%	0.95	69.27	10.50	6.50	5.00	0.40	478	477	472	136.50	1.97
12-3	625	625	100%	0.95	49.48	10.00	4.50	5.00	0.40	476.7	475.7	470.7	90.00	1.82
12-4	500	500	100%	0.95	39.58	5.00	6.00	5.00	0.40	476	475	470	60.00	1.52
12-5	625	625	100%	0.95	49.48	8.00	5.00	5.00	0.40	479	478	473	80.00	1.62
TOTALS		17028.00			1348.05					2952.50				

The total ESDv provided by this design is: 2789 CF (1,583 CF greater than required)
The total Rev provided by this design is: 4105 CF (2,621 CF greater than required)

Micro-Bioretentation facilities within the 100' well radius must be provided with an impermeable liner.

\*The ESDvs summary table portrays storage in excess of that required for Environmental Site Design requirements.

Designation	Area (SF)	Drainage Area (SF)	Volumetric Runoff	ESDv Required (CF)	Contrib. Length (ft)	Previos. Length (ft)	Imp. Disconnection Length (ft)	Ratio	Pe Treated (inches)	Volume Provided (CF)	Lot
NR-1	470	1091	0.44	39.80	80	16	16	0.4	0.4	15.92	Driveway
NR-2	3644	7506	0.49	304.58	9	16	16	1.0	1.0	304.58	Driveway
NR-3	825	1783	0.47	69.30	2	12	12	1.0	1.0	69.30	Lot 7
NR-4	1801	3522	0.51	149.75	12	12	12	1.0	1.0	149.75	Lot 8
NR-5	1562	3277	0.48	130.80	7	12	12	1.0	1.0	130.80	Lot 9
NR-6	717	1442	0.50	59.78	0	20	26	1.0	1.0	59.78	Lot 10
TOTALS										730.14	



DRY WELL DETAIL NOT TO SCALE

Drywell Designation	Length (ft)	Width (ft)	Depth (ft)	Grade	Top of Stone	Bottom of Sand	Target Pe = 1.00		Volume Provided (CF)	Full ESDv
							Length (ft)	Width (ft)		
7-1	7.00	6.00	5.00	498.0	497.0	492.0		84.00	492.0	
7-2	9.00	9.00	5.00	495.0	494.0	489.0		162.00	489.0	
7-3	9.00	9.00	5.00	494.0	493.0	488.0		162.00	488.0	
7-4	9.00	9.00	5.00	492.6	491.6	486.6		162.00	486.6	
8-1	9.00	9.00	5.00	497.5	496.5	491.5		162.00	491.5	
8-2	12.00	7.00	5.00	496.0	495.0	490.0		168.00	490.0	
8-3	13.00	7.00	5.00	496.0	495.0	490.0		162.00	490.0	
8-4	9.00	9.00	5.00	497.5	496.5	491.5		162.00	491.5	
8-1	9.00	9.00	5.00	496.0	495.0	490.0		162.00	490.0	
8-2	9.00	9.00	5.00	494.0	493.0	488.0		162.00	488.0	
8-3	9.00	9.00	5.00	492.6</						

Key (X#)	Species	Size (Inches DBH)	CRZ (ft radius)	Remove or Retain	Comments
1	Tulip poplar	38.5	57.75	Retain	FAIR
2	Tulip poplar	31.5	47.25	Retain	FAIR
3	Tulip poplar	30.5	45.75	Remove	FAIR
4	Tulip poplar	31	46.50	Remove	FAIR
5	Hickory	31.5	47.25	Retain	POOR, MAJOR DIEBACK
6N	Tulip poplar	32	48.00	Retain	
6	Tulip poplar	30	45.00	Retain	
7	Tulip poplar	31	46.50	Retain	
8	Tulip poplar	34	51.00	Retain	
9	Tulip poplar	32	48.00	Retain	
10	Tulip poplar	38.5/30.5	57.75	Retain	
11	Tulip poplar	38	57.00	Retain	
12	Tulip poplar	30.5	45.75	Retain	
13	Tulip poplar	34	51.00	Retain	
14	Tulip poplar	33.5	50.25	Retain	POOR, MAJOR DIEBACK
15	Tulip poplar	38	57.00	Retain	FAIR
16	Tulip poplar	36	54.00	Retain	
17	Tulip poplar	33	49.50	Retain	
18	Tulip poplar	35	52.50	Retain	
19	Tulip poplar	40	60.00	Retain	FAIR, SOME STORM DAMAGE AND DIEBACK
20	Tulip poplar	33	49.50	Retain	POOR, MAJOR LEAN, ROT
21	Tulip poplar	38.5	57.75	Retain	
22	Tulip poplar	30.5	45.75	Retain	FAIR, LIMB DIEBACK
23	Tulip poplar	38.5	57.75	Retain	TWIN STREAM BELOW BH
24	Tulip poplar	31.5	47.25	Remove	FAIR
25	Tulip poplar	32	48.00	Retain	
26	Tulip poplar	32.5	48.75	Retain	
27	Tulip poplar	34	51.00	Retain	
28	Tulip poplar	35	52.50	Retain	
29	Tulip poplar	34	51.00	Retain	
30	Tulip poplar	35	52.50	Retain	
31	Tulip poplar	34	51.00	Remove	POOR, SIGNIFICANT DIEBACK IN THE CANOPY
32	Tulip poplar	36	54.00	Retain	
33	Tulip poplar	36	54.00	Retain	POOR, DIEBACK
34	Tulip poplar	36	54.00	Remove	VERY POOR, MAJOR TRUNK ROT
35	Tulip poplar	33	49.50	Remove	POOR, MAJOR ROT
36	Red Oak	33.5	50.25	Retain	
37	Tulip poplar	38	57.00	Retain	POOR, TRUNK AND CANOPY DIEBACK
38	Tulip poplar	38	57.00	Retain	SPLITS ABOVE BH
39	Tulip poplar	30	45.00	Retain	VINE
40	Tulip poplar	33.5	50.25	Remove	
41	Tulip poplar	31	46.50	Remove	
42	Tulip poplar	31	46.50	Retain	
43	Tulip poplar	30.5	45.75	Retain	
44	Red Oak	31	46.50	Retain	POOR, MAJOR DIEBACK
45	Tulip poplar	31.5	47.25	Retain	
46	Tulip poplar	42	63.00	Retain	FAIR, LIMITED CROWN
47	Tulip poplar	37.5	56.25	Retain	
48	Tulip poplar	30.5	45.75	Retain	FAIR, LEANING
49	Tulip poplar	31.5	47.25	Retain	
50	Tulip poplar	33	49.50	Retain	
51	Tulip poplar	31	46.50	Retain	FAIR, DIEBACK
52	Tulip poplar	31	46.50	Retain	
53	Tulip poplar	31	46.50	Retain	
54	Tulip poplar	31	46.50	Retain	
55	Tulip poplar	33	49.50	Retain	
56	Tulip poplar	31	46.50	Retain	
57	Red Oak	30	45.00	Remove	POOR, MAJOR DIEBACK
58	Tulip poplar	32	48.00	Retain	
59	Tulip poplar	34.5	51.75	Retain	
60	Tulip poplar	31	46.50	Retain	FAIR, LEANING
61	Tulip poplar	35	52.50	Retain	FAIR, LEANING
62	Tulip poplar	30.5	45.75	Retain	FAIR, LEANING
63	Tulip poplar	31.5	47.25	Retain	FAIR, SOME DIEBACK
64	Tulip poplar	30.2	45.30	Retain	POOR, STORM DAMAGE
65	Tulip poplar	35	52.50	Retain	
66	White Oak	34	51.00	Retain	FAIR
67	Tulip poplar	41	61.50	Retain	
68	White Oak	30.5	45.75	Retain	
69	Red Oak	33	49.50	Retain	POOR, MAJOR DIEBACK
70	Tulip poplar	33	49.50	Retain	
71	Tulip poplar	35	52.50	Retain	
72	Tulip poplar	37	55.50	Retain	
73	Tulip poplar	48	72.00	Retain	
74	Tulip poplar	34.5	51.75	Remove	
75	Tulip poplar	42.5	63.75	Retain	FAIR, LEANING
76	Tulip poplar	33	49.50	Retain	FAIR, ONE SIDED CANOPY
77	Tulip poplar	35.5	53.25	Remove	POOR, NOTABLE ROT IN CANOPY
78	Tulip poplar	38.5	57.75	Retain	
79	Tulip poplar	33.5	50.25	Retain	
80	Tulip poplar	33.5	50.25	Remove	
81	Tulip poplar	34	51.00	Retain	
82	Tulip poplar	35.5	53.25	Retain	FAIR, LEANING
83	Tulip poplar	38.5	57.75	Remove	FAIR, LEANING, ELECTRICAL WIRING ATTACHED TO TRUNK
84	Tulip poplar	34.5	51.75	Retain	
85	Tulip poplar	31	46.50	Retain	
86	Tulip poplar	31.5	47.25	Retain	
87	Tulip poplar	31	46.50	Retain	
88	Tulip poplar	32	48.00	Retain	
89	Tulip poplar	31	46.50	Retain	
90	Tulip poplar	38.5	57.75	Retain	
91	Tulip poplar	33	49.50	Retain	
92	Black Gum	33	49.50	Retain	
93	Tulip poplar	30	45.00	Retain	
94	Tulip poplar	33.5	50.25	Retain	
95	Tulip poplar	76	114.00	Retain	FAIR, DIEBACK NOTED, MULTI-STEMMED
96	Tulip poplar	64	96.00	Retain	FAIR, DIEBACK NOTED, MULTI-STEMMED
97	Tulip poplar	30.5	45.75	Retain	
98	Tulip poplar	38.5	57.75	Retain	POOR, MULTI-STEMMED, STORM DAMAGE AND DIEBACK
99	Tulip poplar	32.5	48.75	Retain	
100	Tulip poplar	30	45.00	Retain	FAIR, MULTI-STEMMED ABOVE BH
101	Red Oak	37.5	56.25	Retain	
102	Tulip poplar	36	54.00	Retain	
103	Tulip poplar	32	48.00	Retain	
104	Red Oak	40.5	60.75	Retain	POOR, TRUNK ROT

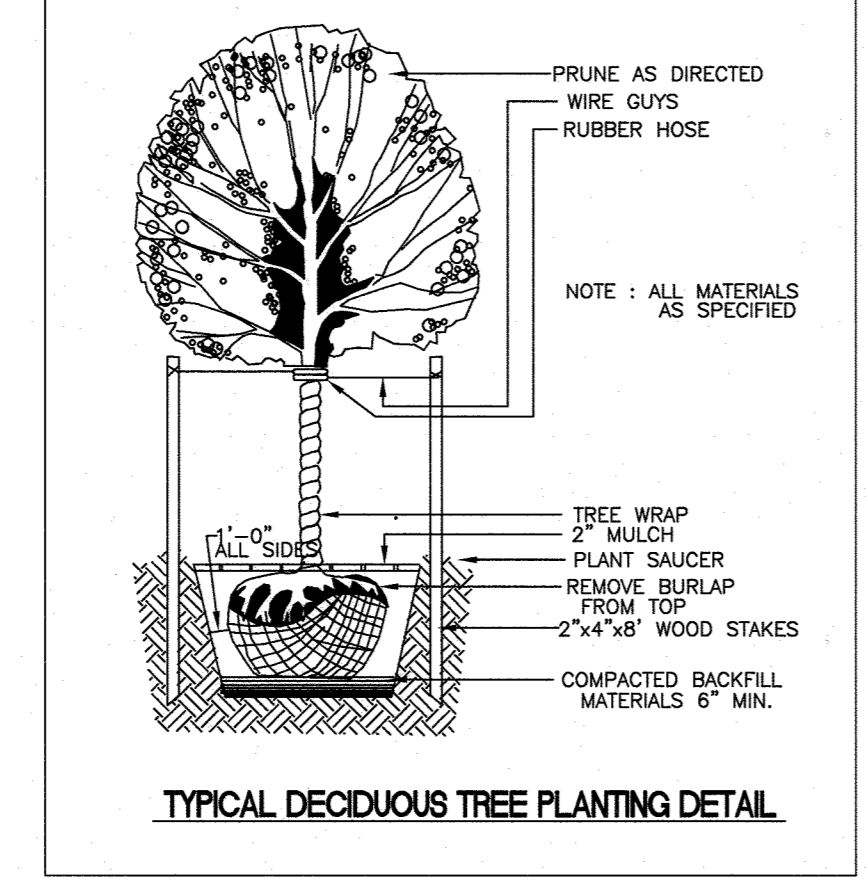
NOTE: THE REMOVAL OF 13 TREES CONDITIONALLY APPROVED BY ALTERNATIVE COMPLIANCE WP-20-016.

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY  
6/30/21 PB452  
DATE CASE No.

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
PLANNING DIRECTOR [Signature] 12-17-21  
DATE

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENNVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GcB		C		GLENNVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GdB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K<0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.



GREENE FIELDS LOT 15  
PLAT# 6674  
ZONED: RR-DEO

GREENE FIELDS LOT 16  
PLAT# 6672  
ZONED: RR-DEO

GREENE FIELDS LOT 18  
PLAT# 6672  
ZONED: RR-DEO

GREENE FIELDS LOT 1  
PLAT# 6672  
ZONED: RR-DEO

GREENE FIELDS LOT 13  
PLAT# 6672  
ZONED: RR-DEO

GREENE FIELDS LOT 14  
PLAT# 3875  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 6  
PLAT# 8008  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 7  
PLAT# 8009  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 8  
PLAT# 8010  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 9  
PLAT# 8011  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 10  
PLAT# 8012  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 11  
PLAT# 8013  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 12  
PLAT# 8014  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 13  
PLAT# 8015  
ZONED: RR-DEO

HOANDAH GARDENS ESTATES LOT 14  
PLAT# 8016  
ZONED: RR-DEO

LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED STRUCTURE
- EXISTING STRUCTURE
- EXISTING SEWAGE DISPOSAL AREA
- SEWAGE DISPOSAL AREA
- 100 YR FLOODPLAIN
- PERIMETER DESIGNATION
- LIMIT OF WETLANDS
- STREAM
- FOREST CONSERVATION EASEMENT
- SPECIMEN TREE
- CRITICAL ROOT ZONE
- SPECIMEN TREE (TO BE REMOVED)
- EXISTING LANDSCAPE TREE PER F-18-081
- PROPOSED TREE
- PROPOSED FOREST MITIGATION TREE

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE A SUITE 315 & ELLICOTT CITY, MARYLAND 21043  
(P) 410-485-0105 (F) 410-485-6844  
WWW.BE-ENGINEERING.COM

**CLARKSVILLE CROSSING, PHASE 2**  
A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137)  
TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'

TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO  
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

DEVELOPER:  
ROCK REALTY, INC.  
C/O H & H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE #100  
ELKCRIDGE, MARYLAND 21075  
410-579-2442

DATE: NOVEMBER, 2021 BEI PROJECT NO: 2525  
SCALE: AS SHOWN SHEET 10 OF 13

DESIGN: JC DRAWN: JC

PLAN  
SCALE: 1" = 50'  
(IN FEET)  
1 inch = 50 ft.

FOR CONTINUATION SEE MATCH LINE SHEET 10

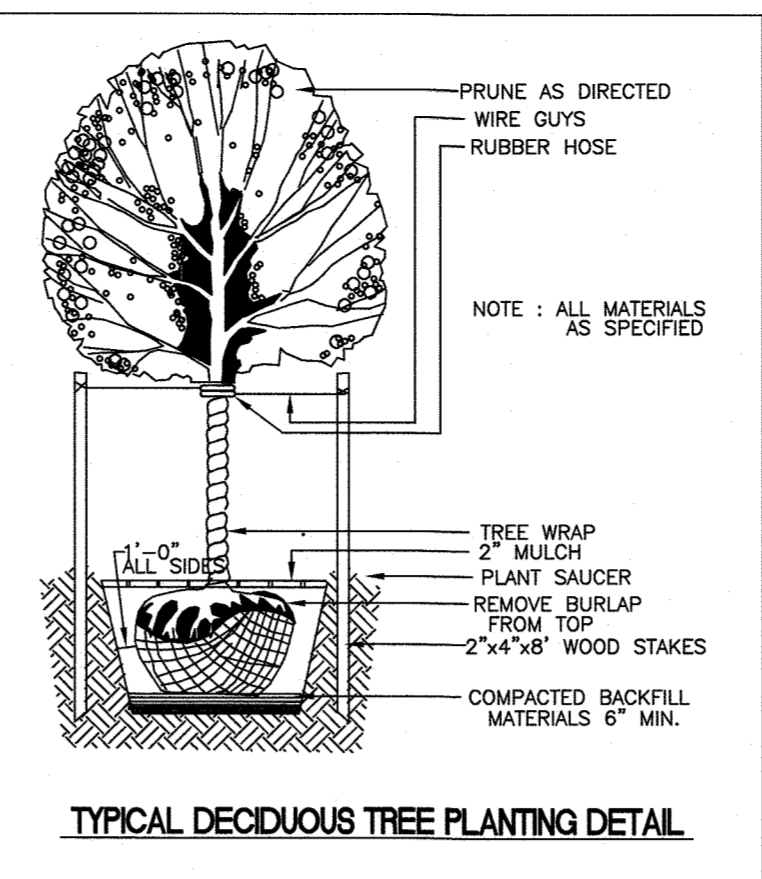
GREENE FIELDS  
LOT 10  
PLAT# 0674  
ZONED: RR-DEC

P/O PRESERVATION PARCEL 'B'  
NON-BUILDABLE ENVIRONMENTAL  
RESERVATION PARCEL TO BE  
PRIVATELY OWNED  
EASEMENT HELD BY HOA AND  
HOWARD COUNTY  
7.42 AC

PROPOSED DOUBLE ROW  
FOREST CONSERVATION  
PLANTINGS 3.0" MINIMUM  
CALIPER, TWO CREDITED  
TOWARDS LANDSCAPE  
REQUIREMENT

EXISTING LANDSCAPE  
TREES PER  
F-18-081

EXISTING LANDSCAPE  
TREES PER  
F-18-081



SCHEDULE A PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	PERIMETER			TOTAL
		P-1	P-2	P-3	
PERIMETER NO. / LANDSCAPE TYPE		A	A	A	
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)		1:60 shade	1:60 shade	1:60 shade	
CREDIT FOR EXISTING VEGETATION: NO OR YES (LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	YES	YES	
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING		552	296	1029	1877
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO	
NUMBER OF PLANTS REQUIRED: SHADE TREES 1:60		9	5	17	31
EVERGREEN TREES		-	-	-	-
OTHER TREES (2:1 SUBSTITUTE) SHRUBS		-	-	-	-
NUMBER OF PLANTS PROVIDED: SHADE TREES		9	5	17	31
EVERGREEN TREES		-	-	-	-
OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		-	-	-	-

**LANDSCAPE NOTES:**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- STREET TREE LOCATIONS:**
  - WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS 6 FEET OR GREATER, THE TREES SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY AND SHALL BE CENTERED BETWEEN THE CURB AND SIDEWALK.
  - WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS LESS THAN 6 FEET, TREES MAY BE PLANTED 3 FEET FROM THE SIDEWALK IN THE DIRECTION AWAY FROM THE ROAD. A 10-FOOT WIDE TREE MAINTENANCE EASEMENT SHALL BE REQUIRED IF THE RIGHT-OF-WAY IS LIMITED.
  - TREES SHALL BE PLANTED 6 FEET BEHIND CURB WHEN THERE ARE NO SIDEWALKS.
  - TREES TO BE PLANTED MINIMUM 30 FEET FROM SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB. TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A STORM DRAIN INLET, OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- FINANCIAL SURETY IN THE AMOUNT OF \$17,100 FOR THE REQUIRED PERIMETER LANDSCAPING (31 PERIMETER SHADE TREES AND 26 MITIGATION TREES FOR REMOVAL OF SPECIMEN TREES (WP-20-016 @ \$300 PER TREE) SHALL BE POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT.

OLD HILLTOP COURT  
PRIVATE 16' WIDE DRIVEWAY

EXISTING LANDSCAPE  
TREES PER  
F-18-081

SWANN PROPERTY  
LOT 1  
PLAT 2146B  
ZONED: RR-DEC

CLARKSVILLE PIKE  
(MARYLAND ROUTE 106)

PARCEL 218  
n/f  
ERICA HOLM and  
MARGARET E. HOLM-FLORENZO  
L. 12551 F. 00021  
ZONED: RR-DEC

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

5/30/21  
DATE

PH452  
CASE No.

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

12-17-21  
DATE

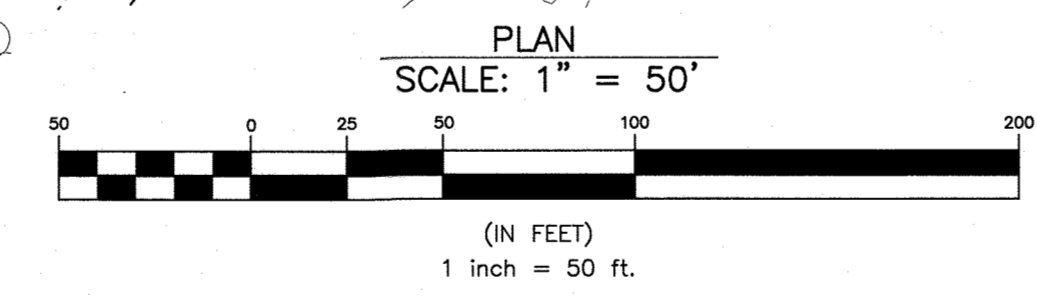
STREET TREE SCHEDULE		
CLARKSVILLE PIKE PUBLIC ROAD		TOTAL
LINEAR FEET OF RIGHT-OF-WAY	12'	
LINEAR FEET OF CREDIT	0	
LINEAR FEET OF REQUIRED PLANTING	12'	
TREE SIZE	MEDIUM 1-40 LF	
TREES REQUIRED	0*	0*

\*STREET TREES PROVIDED UNDER F-18-081

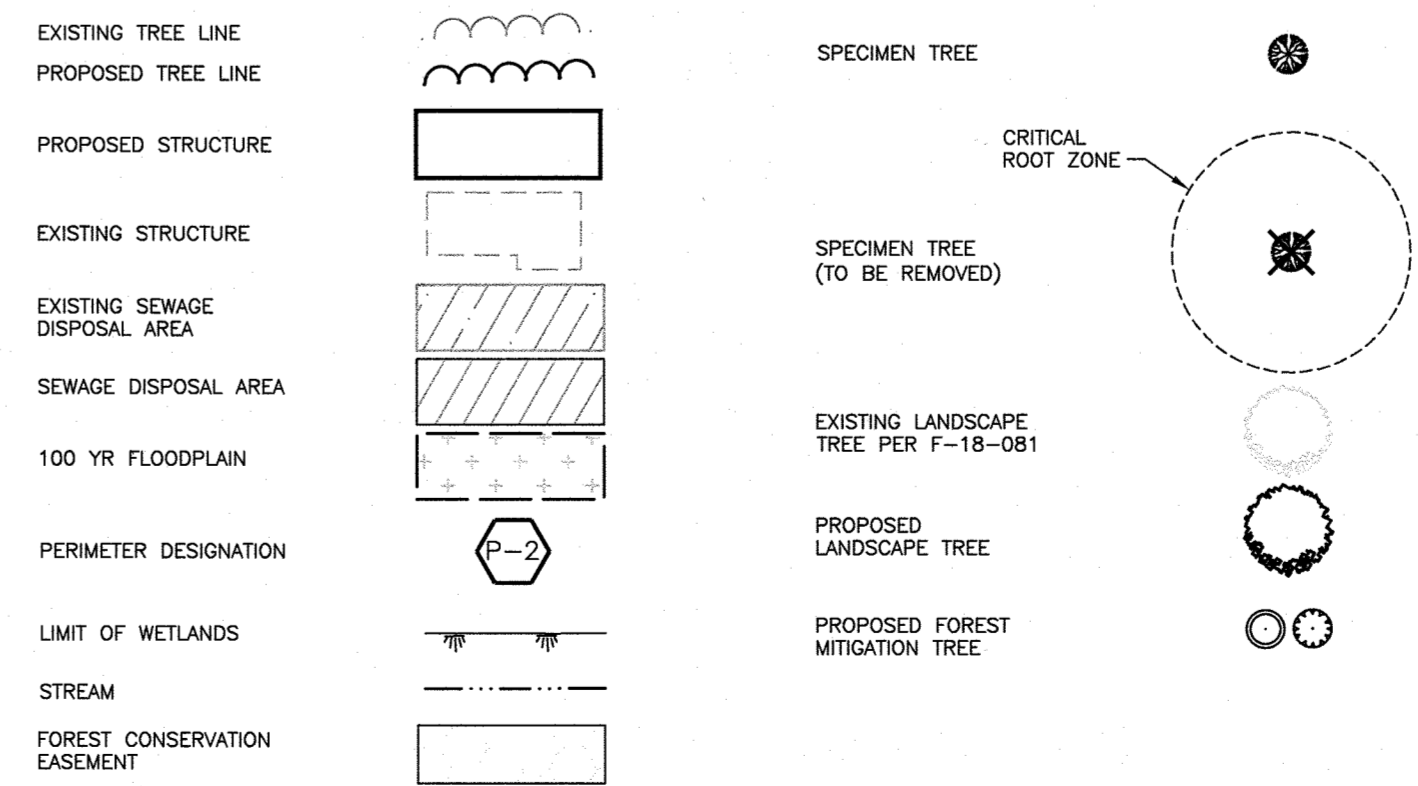
PERIMETER LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
⊙	2	QUERCUS RUBRA (Red Oak)	3.0" cal. (min.)	MITIGATION FOR REMOVAL OF RED OAK SPECIMEN TREE (WP-20-016)
⊙	24	LIRIODENDRON TULIPIFERA / (tulip poplar)	3.0" cal. (min.)	MITIGATION FOR REMOVAL OF TULIP POPLAR SPECIMEN TREES (WP-20-016)
⊙	31	Acer rubrum Red Sunset/ (Red Sunset Red Maple)	2.5" cal. (min.)	PERIMETER SHADE TREES

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND					
SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	k-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GnB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GcB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GpC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GsB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K<0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.



**LEGEND**



NO.	DATE	REVISION

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-8644  
WWW.BE-CIVILENGINEERING.COM

Professional Certification: I certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 45377, Expiration Date: 06-08-2022.

OWNER: CLARKSVILLE NL LLC C/O H&H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442	CLARKSVILLE CROSSING, PHASE 2 A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 4-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
DEVELOPER: ROCK REALTY, INC. C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE #100 ELKRIDGE, MARYLAND 21075 410-579-2442	TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEC ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
DESIGN: JC	DATE: NOVEMBER, 2021 BEI PROJECT NO: 2525
DRAWN: JC	SCALE: AS SHOWN SHEET 11 OF 13

**LEGEND**

**WELL BOX**  
PROPOSED WELL BOX

**TREE PROTECTION FENCE**  
EXISTING TREE LINE  
PROPOSED TREE LINE

**PROPOSED STRUCTURE**

**SEWAGE DISPOSAL AREA**

**LIMIT OF WETLANDS**

**STREAM**

**EXISTING STRUCTURE**

**100 YR FLOODPLAIN**

**FOREST CONSERVATION EASEMENT**

**EX. FOREST CONSERVATION EASEMENT TO BE RETAINED**

**SPECIMEN TREE (TO BE REMOVED)**

**SPECIMEN TREE**

**MITIGATION PLANTINGS AS DOUBLE ROW BUFFER**

**LIMIT OF DISTURBANCE**

**PLAN PREPARED BY:**

**JOHN CANOLES**  
MD DNR FCA QUALIFIED PROFESSIONAL

**FOREST CONSERVATION WORKSHEET FOR**

**Net Tract Area**  
A. Total (Gross) Tract Area  
B. Area within 100-year Floodplain  
C. Other Deductions (Identify)  
D. Net Tract Area

**Land Use Category**  
Insert the number "1" under the appropriate land use (limit to only one use)

**Existing Forest Cover**  
G. Existing Forest Cover within the Net Tract Area  
H. Area of Forest above Afforestation Threshold  
I. Area of Forest above Restoration Threshold

**Break Even Point**  
J. Break Even Point  
K. Forest Clearing Permitted without Mitigation

**Proposed Forest Clearing**  
L. Total Area of Forest to be Cleared  
M. Total Area of Forest to be Retained

**Planting Requirements Inside Watershed**  
N. Restoration for Clearing above the Restoration Threshold  
P. Restoration for Clearing below the Restoration Threshold  
Q. Credit for Retention above the Restoration Threshold  
R. Total Restoration Required  
S. Total Afforestation and Afforestation Requirement  
T. Total Restoration and Afforestation Requirement  
U. 75% of Total Obligation (Retention + Planting)  
V. Planting Required Onsite to meet 75% Obligation

**Planting Requirements Outside Watershed**  
W. Total Planting within Development Site Watershed  
X. Total Afforestation Required  
Y. Remaining Planting within Watershed for Restoration Credit  
Z. Restoration for Clearing above the Restoration Threshold  
AA. Restoration for Clearing below the Restoration Threshold  
BB. Credit for Retention above the Restoration Threshold  
CC. Total Restoration Required  
DD. Total Afforestation and Afforestation Requirement

**OFF-SITE RESTORATION, IN THE AMOUNT OF 0.3 ACRES, WAS PREVIOUSLY PURCHASED FROM THE FOREST BANK AT PROPERTY OF FOREVER A FARM, INC., SDP-14-005. NO NEW OFF-SITE OBLIGATIONS EXIST.**

**Forest Stand Data**

Key	Community Type	Acres (nta)	Dominant Vegetation	General Condition	Priority
F1	Mix oak-Poplar	8.2	Liriodendron tulipifera, Quercus rubra, Quercus alba, Fagus grandiflora,	Good	1.4 +/- buffers slopes

See accompanying report for complete stand descriptions  
\* Approximately 1.0 acres of offsite forest area is currently present within 100 feet of the property

- FSD NOTES:**
- No rare, threatened or endangered species, or their habitats, were observed on the property.
  - Surrounding land use is medium density residential development.
  - Approximately 1.0 acre of forest is currently present within 100 feet of the subject property. This forest occurs on private residential lots.
  - The site lies within the Use IV-P watershed of the Carroll's Run (02-13-11). The wetlands will require a 25 foot buffer, intermittent streams 50 foot buffers, and perennial stream channels require a 100 foot buffer.
  - No historic elements or cemeteries are known to occur on the property.
  - There is 2.1 +/- acres of 100 year floodplain present on the property.
  - There are steep slopes present on the site.
  - Specimen trees are present on the subject property. Forty-six specimen trees have been identified outside of the stream buffers.

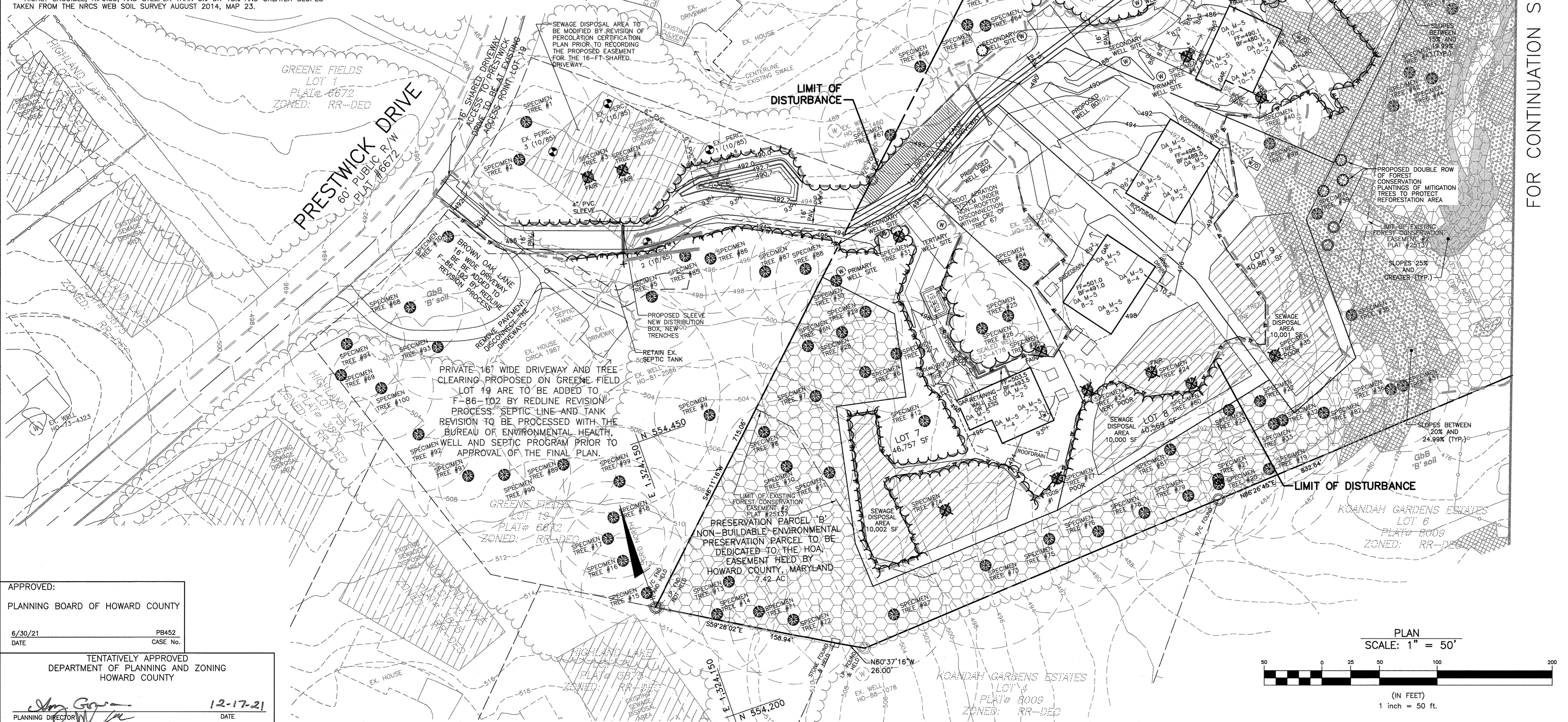
**Myra Brosius**  
ISA Certified Arborist #MA5411A  
MD DNR FCA Qualified Professional  
Myra.brosius@gmail.com

**Eco-Science Professionals, Inc.**  
CONSULTING ECOLOGISTS  
P.O. BOX 5066 GLEN ARB, MARYLAND 21087  
Telephone (410) 683-7840  
www.ecoscienceprofessionalsinc.com

**SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND**

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	k-VALUE
GbB		B		GLENNELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GbB	YES	C	D	GLENNVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GbB		C		GLENNVILLE-CODORIUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GcC		B		GLENNELG LOAM, 8 TO 16 PERCENT SLOPES	0.2
GdB		B		GLADSTONE LOAM, 3 TO 6 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K<0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.



**Specimen Tree Chart - CLARKSVILLE CROSSING PHASE 2 AND GREENE FIELD LOT 19**

Key (W)	Species	Size (Inches DBH) (ft radius)	CR2	Remove or Retain	Comments
1	Tulip poplar	38.5	57.75	Retain	FAIR
2	Tulip poplar	31.5	47.25	Retain	FAIR
3	Tulip poplar	30.5	45.75	Remove	FAIR
4	Tulip poplar	31	46.50	Remove	FAIR
5	Hickory	31.5	47.25	Retain	POOR, MAJOR DIEBACK
6	Tulip poplar	30	45.00	Retain	
7	Tulip poplar	31	46.50	Retain	
8	Tulip poplar	34	51.00	Retain	
9	Tulip poplar	32	48.00	Retain	
10	Tulip poplar	38.5/38.5	57.75	Retain	
11	Tulip poplar	38	57.00	Retain	
12	Tulip poplar	30.5	45.75	Retain	
13	Tulip poplar	34	51.00	Retain	
14	Tulip poplar	33.5	50.25	Retain	POOR, MAJOR DIEBACK
15	Tulip poplar	38	57.00	Retain	FAIR
16	Tulip poplar	36	54.00	Retain	
17	Tulip poplar	33	49.50	Retain	
18	Tulip poplar	35	52.50	Retain	
19	Tulip poplar	40	60.00	Retain	FAIR, SOME STORM DAMAGE AND DIEBACK
20	Tulip poplar	33	49.50	Retain	VERY POOR, MAJOR LEAF ROT
21	Tulip poplar	38.5	57.75	Retain	POOR, MAJOR ROT
22	Tulip poplar	30.5	45.75	Retain	FAIR, LIMB DIEBACK
23	Tulip poplar	38.5	57.75	Retain	TWIN STREAM BELOW BH
24	Tulip poplar	31.5	47.25	Remove	FAIR
25	Tulip poplar	32	48.00	Retain	
26	Tulip poplar	32.5	48.75	Retain	
27	Tulip poplar	34	51.00	Retain	
28	Tulip poplar	35	52.50	Retain	
29	Tulip poplar	34	51.00	Retain	
30	Tulip poplar	35	52.50	Retain	
31	Tulip poplar	34	51.00	Remove	POOR, SIGNIFICANT DIEBACK IN THE CANOPY
32	Tulip poplar	36	54.00	Retain	
33	Tulip poplar	36	54.00	Retain	POOR, DIEBACK
34	Tulip poplar	36	54.00	Remove	VERY POOR, MAJOR TRUNK ROT
35	Tulip poplar	33	49.50	Remove	POOR, MAJOR ROT
36	Red Oak	33.5	50.25	Retain	
37	Tulip poplar	38	57.00	Retain	POOR, TRUNK AND CANOPY DIEBACK
38	Tulip poplar	38	57.00	Retain	SPLITS ABOVE BH
39	Tulip poplar	30	45.00	Retain	WINE
40	Tulip poplar	33.5	50.25	Remove	
41	Tulip poplar	31	46.50	Remove	
42	Tulip poplar	31	46.50	Retain	
43	Tulip poplar	30.5	45.75	Retain	
44	Red Oak	31	46.50	Retain	POOR, MAJOR DIEBACK
45	Tulip poplar	31.5	47.25	Retain	
46	Tulip poplar	42	63.00	Retain	FAIR, LIMITED CROWN
47	Tulip poplar	37.5	56.25	Retain	
48	Tulip poplar	30.5	45.75	Retain	FAIR, LEANING
49	Tulip poplar	31.5	47.25	Retain	
50	Tulip poplar	33	49.50	Retain	
51	Tulip poplar	31	46.50	Retain	FAIR, DIEBACK
52	Tulip poplar	31	46.50	Retain	
53	Tulip poplar	31	46.50	Retain	
54	Tulip poplar	31	46.50	Retain	
55	Tulip poplar	33	49.50	Retain	
56	Tulip poplar	31	46.50	Retain	
57	Red Oak	30	45.00	Remove	POOR, MAJOR DIEBACK
58	Tulip poplar	32	48.00	Retain	
59	Tulip poplar	34.5	51.75	Retain	
60	Tulip poplar	31.5	47.25	Retain	FAIR, LEANING
61	Tulip poplar	35	52.50	Retain	FAIR, LEANING
62	Tulip poplar	30.5	45.75	Retain	FAIR, LEANING
63	Tulip poplar	31.5	47.25	Retain	FAIR, SOME DIEBACK
64	Tulip poplar	30.2	45.30	Retain	POOR, STORM DAMAGE
65	White Oak	35	52.50	Retain	
66	White Oak	34	51.00	Retain	FAIR
67	Tulip poplar	41	61.50	Retain	
68	White Oak	30.5	45.75	Retain	
69	Red Oak	33	49.50	Retain	POOR, MAJOR DIEBACK
70	Tulip poplar	33	49.50	Retain	
71	Tulip poplar	36	54.00	Retain	
72	Tulip poplar	37	55.50	Retain	
73	Tulip poplar	48	72.00	Retain	
74	Tulip poplar	34.5	51.75	Remove	
75	Tulip poplar	42.5	63.75	Retain	FAIR, LEANING
76	Tulip poplar	33	49.50	Retain	FAIR, ONE SIDED CANOPY
77	Tulip poplar	35.5	53.25	Remove	POOR, NOTABLE ROT IN CANOPY
78	Tulip poplar	38.5	57.75	Retain	
79	Tulip poplar	33.5	50.25	Retain	
80	Tulip poplar	33.5	50.25	Remove	
81	Tulip poplar	34	51.00	Retain	
82	Tulip poplar	35.5	53.25	Retain	FAIR, LEANING
83	Tulip poplar	38.5	57.75	Remove	FAIR, LEANING, ELECTRICAL WIRING ATTACHED TO TRUNK
84	Tulip poplar	34.5	51.75	Retain	
85	Tulip poplar	31	46.50	Retain	
86	Tulip poplar	31.5	47.25	Retain	
87	Tulip poplar	31	46.50	Retain	
88	Tulip poplar	32	48.00	Retain	
89	Tulip poplar	31	46.50	Retain	
90	Tulip poplar	38.5	57.75	Retain	
91	Tulip poplar	33	49.50	Retain	
92	Black Gum	33	49.50	Retain	
93	Tulip poplar	30	45.00	Retain	
94	Tulip poplar	33.5	50.25	Retain	
95	Tulip poplar	76	114.00	Retain	FAIR, DIEBACK NOTED, MULTI-STEMMED
96	Tulip poplar	64	96.00	Retain	FAIR, DIEBACK NOTED, MULTI-STEMMED
97	Tulip poplar	30.5	45.75	Retain	
98	Tulip poplar	38.5	57.75	Retain	POOR, MULTI-STEMMED, STORM DAMAGE AND DIEBACK
99	Tulip poplar	32.5	48.75	Retain	
100	Tulip poplar	30	45.00	Retain	FAIR, MULTI-STEMMED ABOVE BH
101	Red Oak	37.5	56.25	Retain	
102	Tulip poplar	36	54.00	Retain	
103	Tulip poplar	32	48.00	Retain	
104	Red Oak	40.5	60.75	Retain	POOR, TRUNK ROT

NOTE: THE REMOVAL OF 13 TREES CONDITIONALLY APPROVED BY ALTERNATIVE COMPLIANCE WP-20-016.

FOR CONTINUATION SEE MATCH LINE SHEET 13

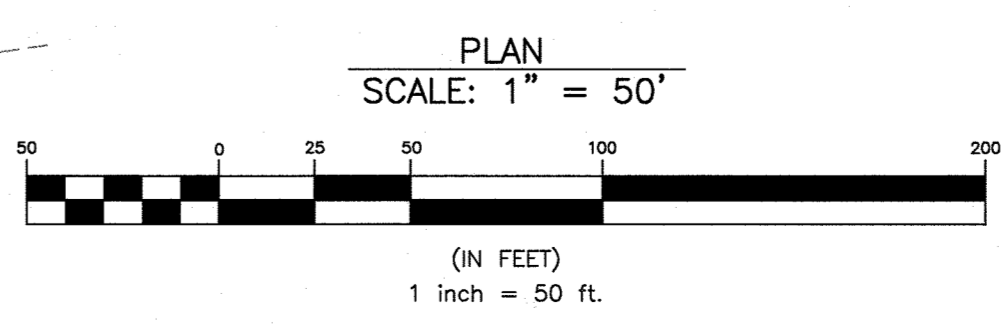
APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

6/30/21  
DATE

PB452  
CASE NO.

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

1-2-17-21  
DATE



NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE SUITE 315 • ELK RIDGE CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-8644  
WWW.BE-ONLINEENGINEERING.COM

**CLARKSVILLE CROSSING, PHASE 2**  
A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #2513-25137)  
TO CREATE BUILDABLE LOTS 5-12 AND  
NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'

OWNER:  
CLARKSVILLE NL LLC  
C/O H&H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE 100  
ELK RIDGE, MD 21075  
410-579-2442

DEVELOPER:  
ROCK REALTY, INC.  
C/O H & H ROCK COMPANIES  
6800 DEERPATH ROAD  
SUITE #100  
ELK RIDGE, MARYLAND 21075  
410-579-2442

TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO  
ELIGION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

PRELIMINARY EQUIVALENT SKETCH PLAN  
FOREST CONSERVATION PLAN, NOTES AND DETAILS

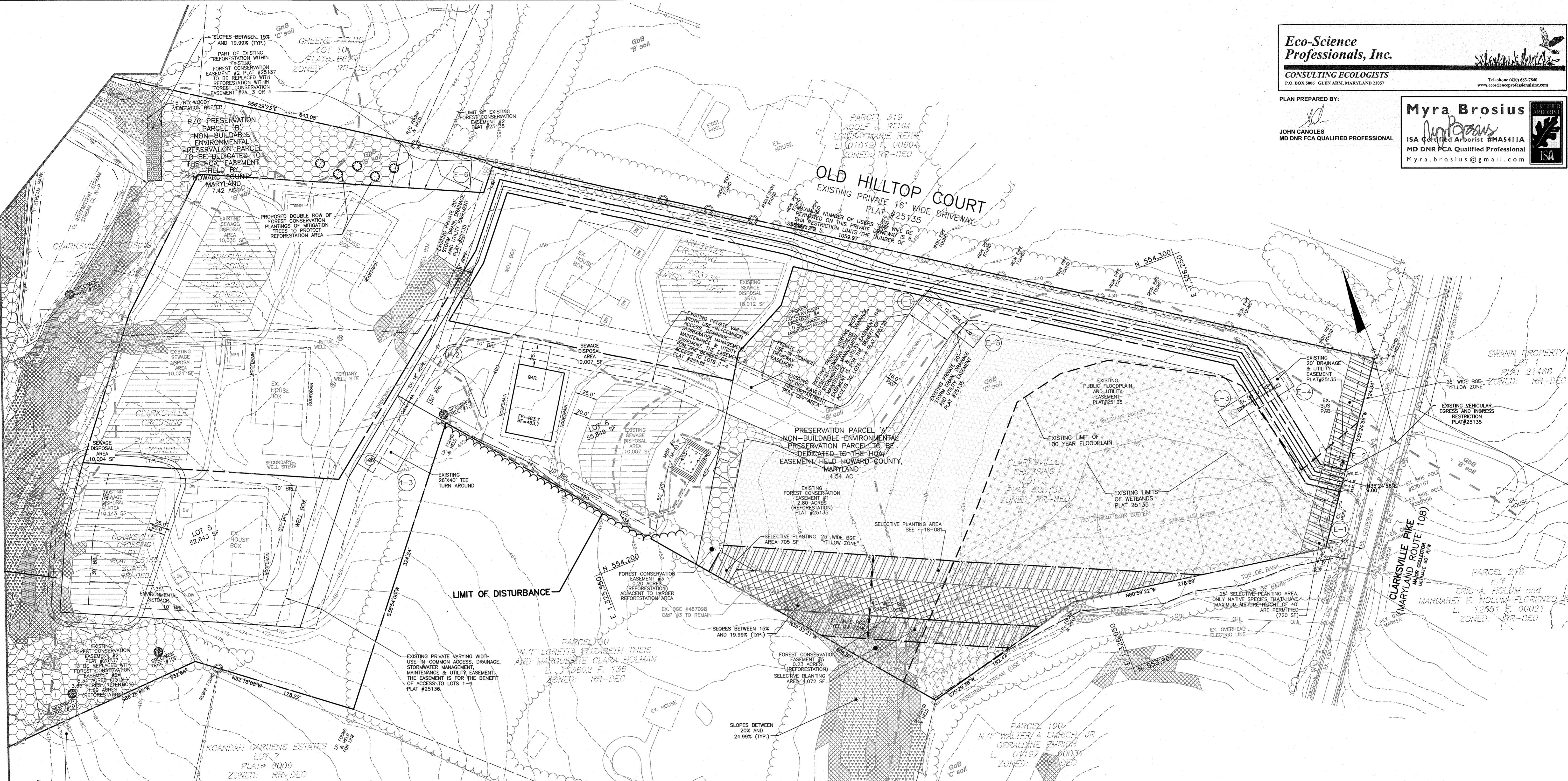
DATE: NOVEMBER, 2021 BEI PROJECT NO: 2525  
SCALE: AS SHOWN SHEET 12 OF 13

DESIGN: JC DRAWN: JC

FOR CONTINUATION SEE MATCH LINE SHEET 12

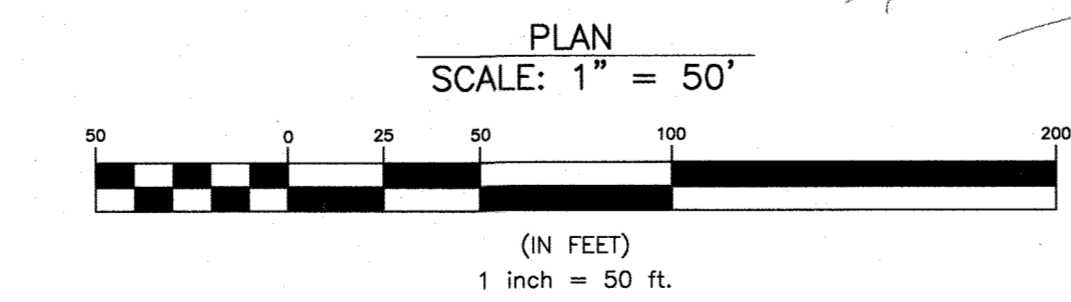
PLAN PREPARED BY:  
 JOHN CANOLES  
 MD DNR FCA QUALIFIED PROFESSIONAL

**Myra Brosius**  
 ISA Certified Arborist #MA5411A  
 MD DNR FCA Qualified Professional  
 Myra.brosius@gmail.com



APPROVED:  
 PLANNING BOARD OF HOWARD COUNTY  
 6/30/21 DATE PB452 CASE NO.  
 TENTATIVELY APPROVED  
 DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY  
 12-17-21 DATE

**3. Root Pruning**  
 Root pruning shall be performed or supervised by an ISA and/or TCIA certified arborist. Root pruning shall be applied to all specimen trees and trees to be retained in the forest retention areas with disturbance in the critical root zone, on roots one inch in diameter or greater.  
 One of two methods shall be used:  
 1. Soil excavation using air excavation tools, pressurized water, or hand tools, followed by selective root cutting and/or  
 2. Cutting through the soil along a line just outside the tree protection fence on the surface using a tool specifically designed to cut roots including but not limited to mechanical root pruning tools such as Dosko or Vermeer.  
 • Prune before construction disturbance as shown in Figure E-9.  
 • Cut cleanly using well-maintained pruning equipment.  
 • Cover exposed roots immediately with topsoil, leaf compost or other suitable plant-growth medium.  
 • For trees with DBH greater than 15 inches, conduct root pruning up to one entire growing season before construction disturbance.  
 • Water before and after root pruning, as needed.



SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	k-VALUE
GgB		B		GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.2
GgB	YES	C	D	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32
GgB		C		GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	0.37
GgC		B		GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.2
GgB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.2

\*\* HIGHLY ERODIBLE, K=0.35, AND STEEPER THAN 5% OR 15% AND GREATER SLOPES TAKEN FROM THE NRCS WEB SOIL SURVEY AUGUST 2014, MAP 23.

- LEGEND**
- WELL BOX
  - TREE PROTECTION FENCE
  - EXISTING TREE LINE
  - PROPOSED TREE LINE
  - PROPOSED STRUCTURE
  - SEWAGE DISPOSAL AREA
  - LIMIT OF WETLANDS
  - STREAM
  - EXISTING STRUCTURE
  - 100 YR FLOODPLAIN
  - FOREST CONSERVATION EASEMENT
  - EX. FOREST CONSERVATION EASEMENT TO BE RETAINED
  - SPECIMEN TREE (TO BE REMOVED)
  - SPECIMEN TREE
  - MITIGATION PLANTINGS AS DOUBLE ROW BUFFER
  - LIMIT OF DISTURBANCE
  - PROPOSED WELL BOX

NO.	DATE	REVISION
<b>BENCHMARK ENGINEERING, INC.</b> ENGINEERS • LAND SURVEYORS • PLANNERS 8480 BALTIMORE NATIONAL PIKE • SUITE 315 • ELlicOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BE-ENGINEERING.COM		
<b>OWNER:</b> CLARKSVILLE NL LLC C/O H&H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MD 21075 410-579-2442		<b>CLARKSVILLE CROSSING, PHASE 2</b> A RESUBDIVISION OF CLARKSVILLE CROSSING LOT 3 (PLAT #25135-25137) TO CREATE BUILDABLE LOTS 5-12 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
<b>DEVELOPER:</b> ROCK REALTY, INC. C/O H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE #100 ELKRIDGE, MARYLAND 21075 410-579-2442		TAX MAP: 34 GRID: 23 PARCEL: 301 ZONED: RR-DEO ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND PRELIMINARY EQUIVALENT SKETCH PLAN FOREST CONSERVATION PLAN, NOTES AND DETAILS
DATE: NOVEMBER, 2021	BEI PROJECT NO: 2525	
DESIGN: JC	DRAWN: JC	SCALE: AS SHOWN SHEET 13 OF 13

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, License No. 45577, Expiration Date: 06-08-2022.