

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	SITE DEVELOPMENT PLAN
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10	GRADING, SEDIMENT AND EROSION CONTROL PLAN AND DETAILS
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13	RETAINING WALL ELEVATION AND DETAILS
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MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
2	9,792 S.F.	1,200 S.F.	8,592 S.F.
3	8,047 S.F.	1,200 S.F.	6,847 S.F.
9	10,604 S.F.	2,039 S.F.	8,565 S.F.
13	19,364 S.F.	995 S.F.	18,369 S.F.
14	17,066 S.F.	480 S.F.	16,586 S.F.
15	14,824 S.F.	47 S.F.	14,777 S.F.
22	10,754 S.F.	1,992 S.F.	8,762 S.F.
30	9,343 S.F.	957 S.F.	8,386 S.F.
48	10,441 S.F.	511 S.F.	9,930 S.F.
49	10,104 S.F.	1,310 S.F.	8,794 S.F.
69	13,320 S.F.	153 S.F.	13,167 S.F.
70	12,830 S.F.	853 S.F.	11,977 S.F.

SHC TABLE					
NO.	MIN. CELLAR	SHC INV.	NO.	MIN. CELLAR	SHC INV.
1	297.0	293.2	41	287.2	283.4
2	298.9	293.1	42	284.0	280.3
3	299.1	293.0	43	305.1	301.2
4	296.7	292.8	44	313.4	309.5
5	296.3	292.3	45	323.7	319.8
6	305.0	301.2	46	325.2	321.1
7	309.3	305.5	47	324.9	320.8
8	313.5	309.7	48	326.0	322.3
9	317.8	311.7	49	329.4	325.7
10	317.8	313.3	50	325.4	321.8
11	318.3	314.2	51	324.8	320.9
12	317.9	313.9	52	324.9	320.8
13	318.8	315.0	53	313.9	310.0
14	317.9	314.1	54	309.3	305.4
15	317.0	313.0	55	303.0	299.1
16	316.1	312.2	56	295.7	291.8
17	315.1	311.0	57	288.4	284.5
18	309.9	305.9	58	318.3	313.8
19	306.2	302.1	59	314.7	310.2
20	291.7	287.9	60	310.0	305.4
21	288.7	284.9	61	304.9	301.1
22	287.3	283.1	62	301.9	298.2
23	284.8	280.8	63	300.2	296.4
24	281.6	277.9	64	298.7	294.9
25	296.9	293.1	65	297.3	293.6
26	296.3	292.5	66	294.8	291.1
27	295.7	291.8	67	290.9	287.1
28	284.7	280.7	68	287.8	284.0
29	285.1	281.1	69	284.1	280.3
30	286.2	281.0	70	280.3	276.4
31	285.0	281.2	71	285.4	281.6
32	285.6	281.5	72	288.7	284.9
33	285.7	281.7	73	290.6	286.7
34	284.8	280.4	74	294.0	290.4
35	285.0	280.7	75	297.2	293.5
36	284.9	281.0	76	298.5	294.9
37	285.0	281.2	77	300.0	296.4
38	282.7	279.2	78	301.1	297.4
39	282.6	279.0	79	302.5	298.8
40	291.2	286.9			

NOTE: CONTRACTOR TO CHECK SEWER HOUSE CONNECTION ELEVATION AT PROPERTY/EASEMENT LINE PRIOR TO CONSTRUCTION OF HOUSE TO ENSURE PROPER SHC SLOPES CAN BE MAINTAINED.

SITE ANALYSIS DATA CHART

GENERAL SITE DATA

- PRESENT ZONING: R-ED
- APPLICABLE DPZ FILE REFERENCES: SP-97-02, WP-97-78, PB 312, F-93-70, WP-98-82, F-98-52
- PROPOSED USE OF SITE: SINGLE FAMILY DETACHED
- PROPOSED WATER AND SEWER SYSTEMS: PUBLIC PRIVATE

AREA TABULATION

- TOTAL PROJECT AREA: 100.57 AC.
- AREA OF THIS PLAN SUBMISSION: 20.78 AC.
- APPROXIMATE LIMIT OF DISTURBANCE: 19.08 AC.
- TOTAL NUMBER OF LOTS ALLOWED AS SHOWN ON FINAL PLATS: 79
- TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION: 79
- OPEN SPACE ON-TOTAL SITE: 50.03 AC. PERCENTAGE OF GROSS AREA: 49.7%
- AREA OF RECREATIONAL OPEN SPACE REQUIRED: 0.91 AC.
- AREA OF RECREATIONAL OPEN SPACE PROVIDED: 0.91 AC.

ADDRESS CHART

SUBDIVISION: VILLAGE OF CEDAR RIDGE					
LOT No.	STREET ADDRESS	LOT No.	STREET ADDRESS	LOT No.	STREET ADDRESS
1	6805 CREEKSIDE ROAD	21	6829 CREEKSIDE ROAD	41	6829 RIVER OAK COURT
2	6807 CREEKSIDE ROAD	22	6830 CREEKSIDE ROAD	42	7039 RIVER OAK COURT
3	6813 CREEKSIDE ROAD	23	6837 CREEKSIDE ROAD	43	7037 RIVER OAK COURT
4	6817 CREEKSIDE ROAD	24	6841 CREEKSIDE ROAD	44	7041 RIVER OAK COURT
5	6821 CREEKSIDE ROAD	25	6845 CREEKSIDE ROAD	45	7045 RIVER OAK COURT
6	6825 WALNUT CREEK COURT	26	6849 CREEKSIDE ROAD	46	7049 RIVER OAK COURT
7	6829 WALNUT CREEK COURT	27	6853 CREEKSIDE ROAD	47	7053 RIVER OAK COURT
8	6833 WALNUT CREEK COURT	28	6857 WOLF CREEK COURT	48	7057 RIVER OAK COURT
9	6837 WALNUT CREEK COURT	29	6861 WOLF CREEK COURT	49	7061 RIVER OAK COURT
10	6841 WALNUT CREEK COURT	30	6865 WOLF CREEK COURT	50	7065 RIVER OAK COURT
11	6845 WALNUT CREEK COURT	31	6869 WOLF CREEK COURT	51	7069 RIVER OAK COURT
12	6849 WALNUT CREEK COURT	32	6873 WOLF CREEK COURT	52	7073 RIVER OAK COURT
13	6853 WALNUT CREEK COURT	33	6877 TRAIL CREEK COURT	53	7077 RIVER OAK COURT
14	6857 WALNUT CREEK COURT	34	6881 TRAIL CREEK COURT	54	7081 RIVER OAK COURT
15	6861 WALNUT CREEK COURT	35	6885 TRAIL CREEK COURT	55	7085 RIVER OAK COURT
16	6865 WALNUT CREEK COURT	36	6889 TRAIL CREEK COURT	56	7089 RIVER OAK COURT
17	6869 WALNUT CREEK COURT	37	6893 TRAIL CREEK COURT	57	7093 RIVER OAK COURT
18	6873 WALNUT CREEK COURT	38	6897 TRAIL CREEK COURT	58	7097 RIVER OAK COURT
19	6877 WALNUT CREEK COURT	39	6901 TRAIL CREEK COURT	59	7101 RIVER OAK COURT
20	6881 WALNUT CREEK COURT	40	6905 TRAIL CREEK COURT	60	7105 RIVER OAK COURT

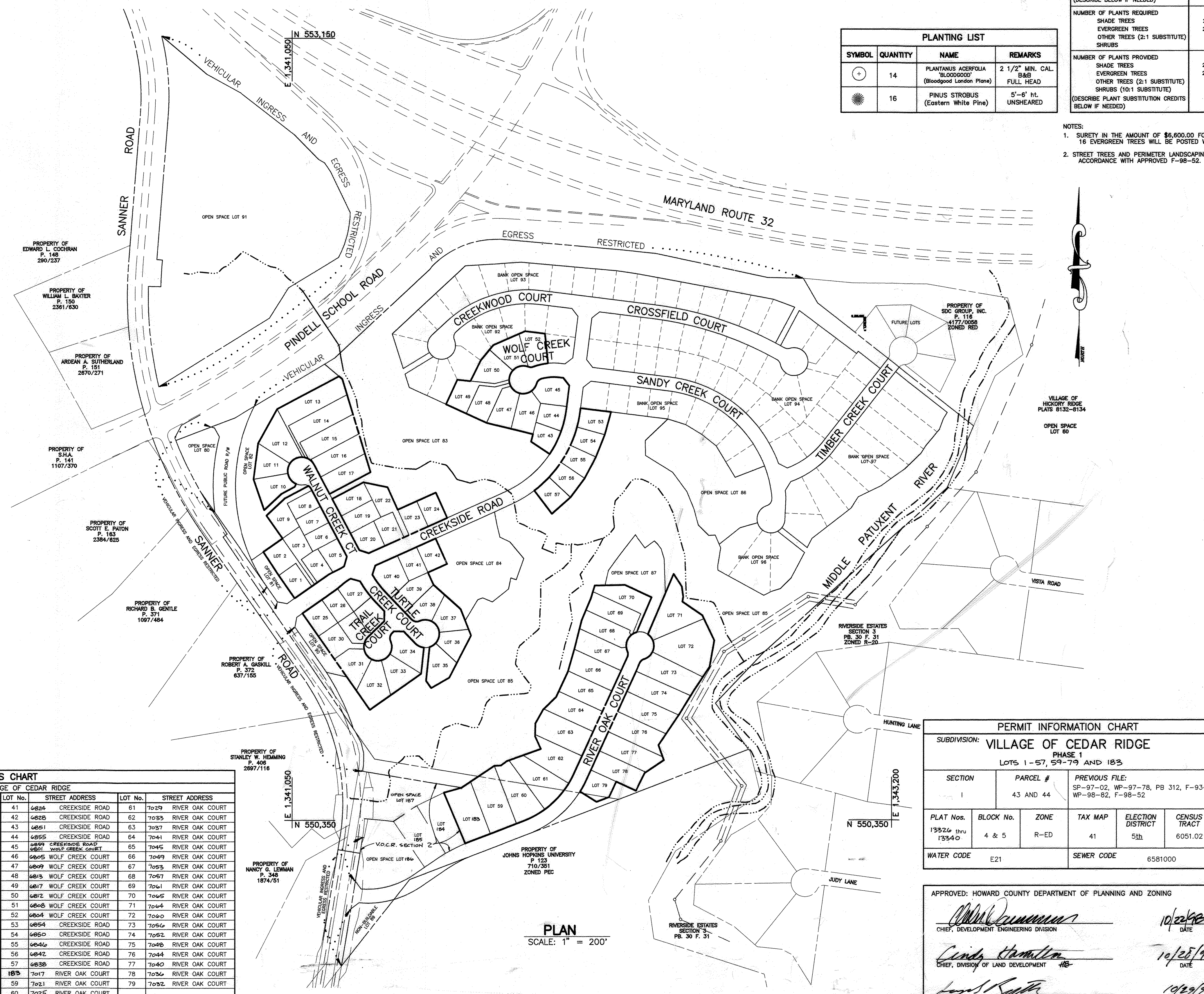
SITE DEVELOPMENT PLAN

VILLAGE OF CEDAR RIDGE

LOTS 1-57, 59-79 AND 183

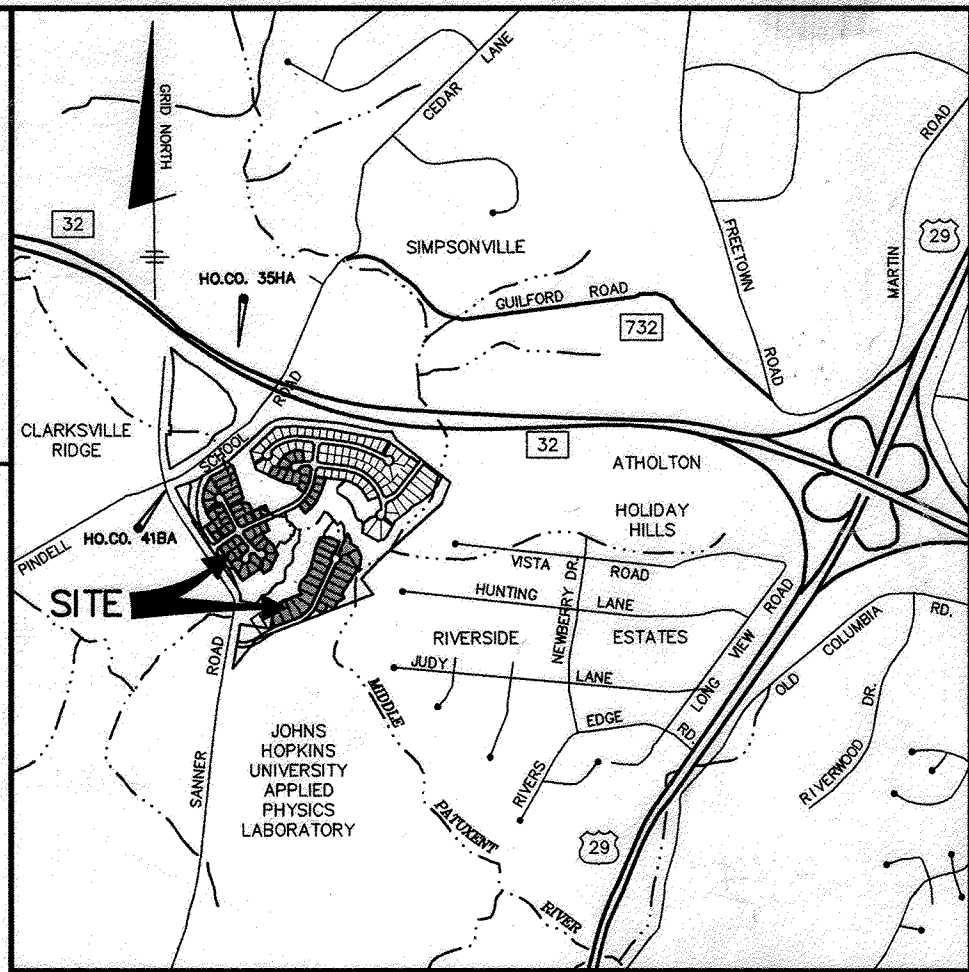
5th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND



PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
+	14	PLANTANUS ACERIFOLIA 'BLOODGOOD' (Bloodgood Loropetalum)	2 1/2" MIN. CAL. B&E FULL HEAD
☀	16	PINUS STROBUS (Eastern White Pine)	5'-6" HL. UNSHEARED

SCHEDULE A - PERIMETER LANDSCAPE EDGE ADJACENT TO ROADWAYS							
LOT NO.	5	20	27	28	34	40	45
LANDSCAPE TYPE	B	B	B	B	B	B	B
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	91.5'	65.5'	86.2'	88.0'	112.2'	125.1'	93.2'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED							
SHADE TREES	2	1	2	2	2	3	2
EVERGREEN TREES	2	2	2	2	2	3	2
OTHER TREES (2:1 SUBSTITUTE) SHRUBS							
NUMBER OF PLANTS PROVIDED							
SHADE TREES	2	1	2	2	2	3	2
EVERGREEN TREES	2	2	2	2	2	3	2
OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)							



- NOTES:**
- SURETY IN THE AMOUNT OF \$6,600.00 FOR 14 SHADE TREES AND 16 EVERGREEN TREES WILL BE POSTED WITH THE GRADING PERMIT.
 - STREET TREES AND PERIMETER LANDSCAPING WERE PROVIDED IN ACCORDANCE WITH APPROVED F-98-52.

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT (410)313-1880 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM ROAD CONSTRUCTION PLANS F-98-52. CONTOUR INTERVAL IS 2 FEET.
- HORIZONTAL AND VERTICAL DATUM ARE NAD '83 - MONUMENTS 418A, 358A AND BM#R-109.
- ALL ROADWAYS ARE PUBLIC.
- EXISTING UTILITIES SHOWN HAVE BEEN TAKEN FROM CONTRACT DRAWINGS 34-3652-D & 34-3662-D AND ROAD CONSTRUCTION PLANS F-98-52. IF NECESSARY, CONTRACTOR SHALL ADJUST ALL TOP ELEVATIONS TO MATCH SDP GRADES.
- STORMWATER MANAGEMENT IS PROVIDED FOR THESE LOTS UNDER ROAD CONSTRUCTION PLANS F-98-52 BY MEANS OF EXTENDED DETENTION.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLAND BUFFERS, STREAM BUFFERS OR FOREST CONSERVATION RETENTION AREAS.
- PORCHES, FIREPLACES, CHIMNEYS, EXTERIOR STAIRWAYS, DECKS AND BAY WINDOWS WHICH EXTEND ACROSS THE BRL SHALL BE IN ACCORDANCE WITH SECTION 128 (a)(1) OF THE HOWARD COUNTY ZONING REGULATIONS.
- [WOB] INDICATES WALKOUT BASEMENT.
- STREAM BUFFERS ARE LOCATED ON LOTS 13-17 AND 65-73.
- PREVIOUS HOWARD COUNTY FILE NOS. SP-97-02, WP-97-78, PB-312, F-93-70, WP-98-82, F-98-52
- MAINTENANCE AGREEMENT FOR USE-IN-COMMON DRIVeways ARE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY FOR LOTS 2-3, 13-15, 48-49 AND 69-70 IN LIBER 044611 AT FOLIO 0393, 0393B, 0397, AND 0399.
- THE STAKING OF FOUNDATIONS PRIOR TO CONSTRUCTION TO ENSURE COMPLIANCE WITH REGULATORY BUILDING RESTRICTION LINES IS RECOMMENDED.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
- BRL INDICATES BUILDING RESTRICTION LINE.
- FOR DRIVEWAY ENTRANCE DETAIL SEE HOWARD COUNTY STANDARD DETAILS R-6.03 & R-6.05.
- FOR EASEMENT, LOT SIZE AND OTHER RELATED INFORMATION REFER TO PLAT NOS. 19326 - 19340
- HOUSES/GARAGES WILL BE SITED ON LOTS SO THAT A SECOND CAR, IF PARKED IN THE DRIVEWAY, WILL NOT OVERHANG THE USE-IN-COMMON ACCESS DRIVEWAY.
- DRIVEWAY SLOPES SHOWN ARE AVERAGE. THE SLOPE AT THE OUTSIDE EDGES COULD BE FLATTER OR STEEPER DEPENDING ON GRADE OF ROADWAY.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT TO THE PIPESTEM LOT DRIVEWAY.
- ON FEBRUARY 21, 1987, WAIVER PETITION WP-97-78 A REQUEST TO WAIVE SECTION 16.134(b)(1) TO REQUIRE SIDEWALK ALONG SANNER ROAD WAS DENIED.
- ON MARCH 18, 1988, WAIVER PETITION WP-98-82 A REQUEST TO WAIVE SECTIONS 16.145, 16.146 AND 16.146(b)(11) WHICH REQUIRE A SKETCH PLAN, PRELIMINARY PLAN AND AN APPLICANT TO SHOW ALL OF THE CONTIGUOUS HOLDINGS FOR THE INCLUSION OF P/O PARCEL 123 INTO THIS SUBDIVISION WAS REVIEWED AND APPROVED UPON THE FOLLOWING CONDITIONS: (1) PROVIDE SIGNATURE REPRESENTING JHU/APL ON PLATS. (2) PROVIDE WRITTEN ACKNOWLEDGEMENT FROM JHU/APL ACCEPTING TRANSFER OF 0.366 ACRES OF RE-ZONED LAND TO BE CONVEYED TO JHU/APL BY DEED AFTER RECORDATION OF THE PLAT FOR THE VILLAGE OF CEDAR RIDGE F-98-52.

PERMIT INFORMATION CHART						
SUBDIVISION: VILLAGE OF CEDAR RIDGE						
PHASE 1						
LOTS 1-57, 59-79 AND 183						
SECTION	PARCEL #	PREVIOUS FILE:				
1	43 AND 44	SP-97-02, WP-97-78, PB 312, F-93-70				
PLAT Nos. BLOCK No. ZONE TAX MAP ELECTION DISTRICT CENSUS TRACT						
19326 thru 19340		4 & 5	R-ED	41	5th	6051.02
WATER CODE		E21		SEWER CODE		6581000

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

William J. Hamilton
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Cindy Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT

Joseph J. Smith
DIRECTOR

DATE: 10/22/98
DATE: 10/25/98
DATE: 10/29/98

NO.	DATE	REVISION
3	12-7-00	REVISE ADDRESS FOR LOTS 20 & 28 PER RESITES
2	8-31-99	REVISE LOT 53 CONFIGURATION AND PER V.O.C.R. SECTION 2 PLAT.
1	1-18-97	RE-SITE LOT 34 FROM "B BOX" TO "NORWELLY" RE-SITE LOT 38 FROM "B BOX" TO "RICHMOND" ADD "COLLEUM" OPT. TO HOUSE MATRIX, RE-ADDRESS FOR LOT 34.

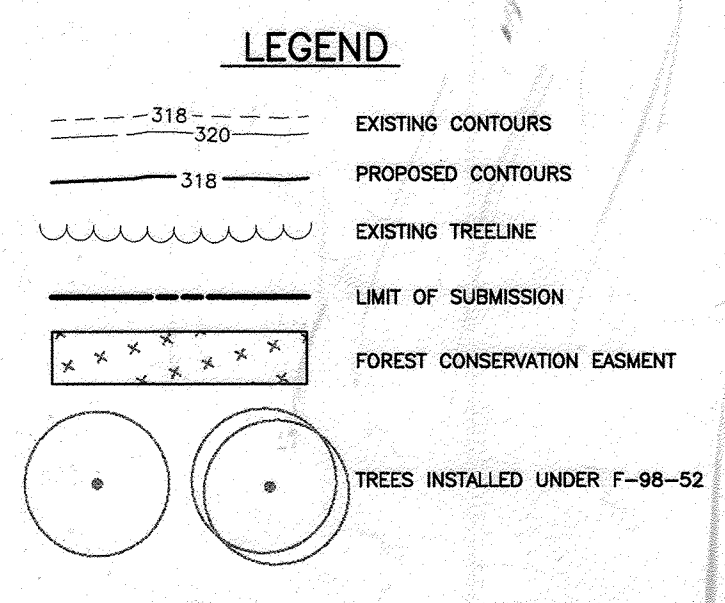
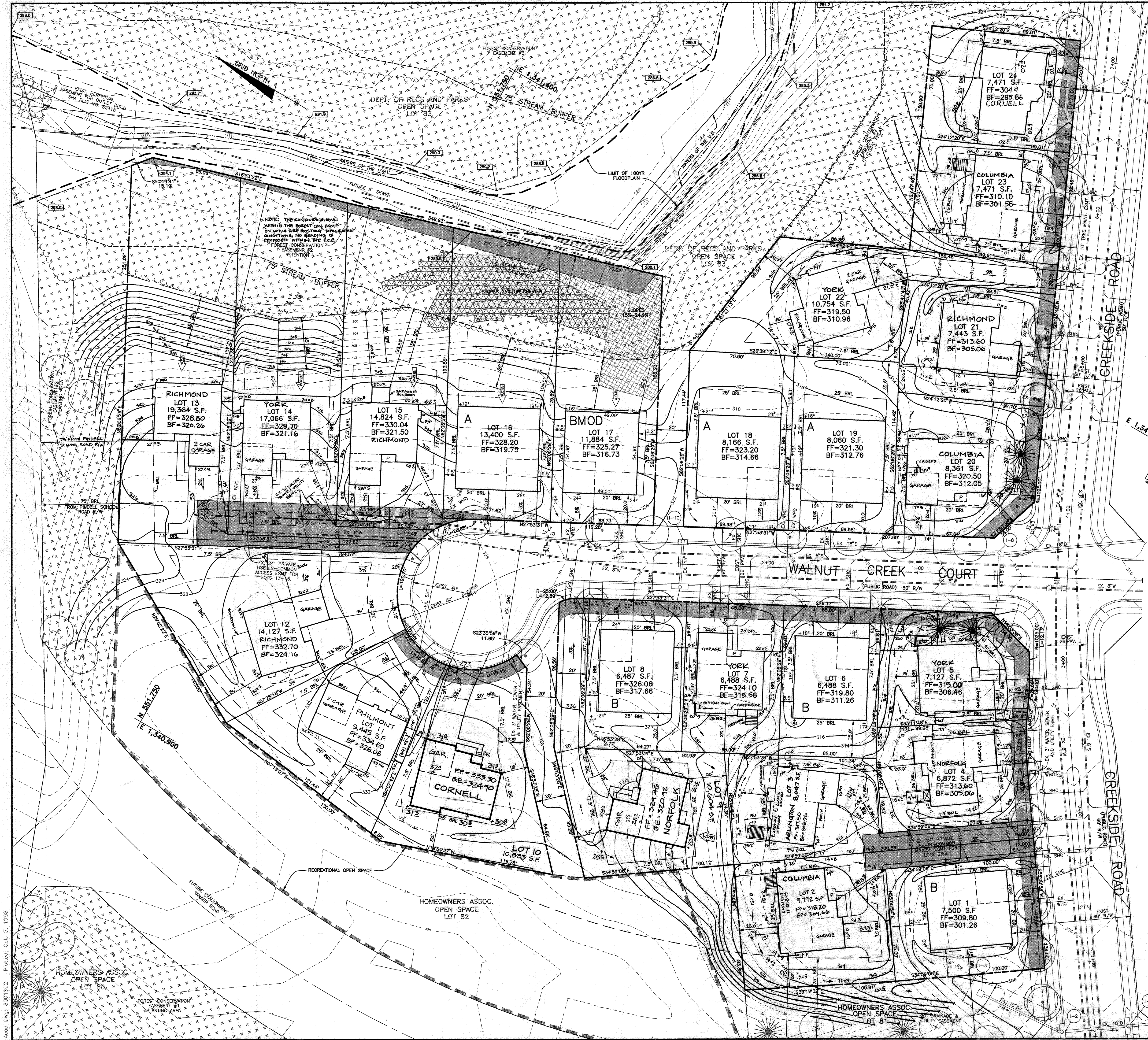
BENCHMARK ENGINEERING, INC.

ENGINEERS • LAND SURVEYORS • PLANNERS

Donald Mason

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043
PHONE: 410-465-8105 FAX: 410-465-8644

OWNERS:		PROJECT: VILLAGE OF CEDAR RIDGE	
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852		LOTS 1-57, 59-79 AND 183	
DEVELOPER:		LOCATION:	
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852		TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE:		TITLE SHEET	
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52		PROJECT NO. 1114	
DATE: JULY, 1998		SCALE: AS SHOWN	
OCTOBER, 1998		SHEET 1 OF 14	
DES: DBT/YSL DRAFT: DBT CHECK: DAM			



NO.	DATE	REVISION
10	5-23-05	REVISE GRADES PER AS-BUILT CONDITIONS ON LOT 2.
17	10-7-02	RESITE A COLUMBIA (GARAGE LEFT) ON LOT 2.
16	6-12-02	GRAB AN ADJUTANT (GARAGE RIGHT) W/ BENCHMARK 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.
15	3-5-02	REVISE GRADES PER AS-BUILT CONDITIONS ON LOT 5.
14	10-22-01	REVISE GRADES AND SITE YORKE ON LOT 14 PER AS-BUILT CONDITIONS.
13	7-20-01	REVISE A YORKE AND REVISE GRADES ON LOT 7 PER AS-BUILT CONDITIONS.
12	6-27-01	RESITE A YORKE ON LOT 5 AND A NORFOLK ON LOT 4.
11	6-24-01	RESITE A COLUMBIA AND REVISE GRADES ON LOT 23 PER AS-BUILT CONDITIONS.
9	12-6-00	RESITE A COLUMBIA ON LOT 20.
8	11-13-00	RESITE A RICHMOND ON LOT 21.
7	8-23-00	RESITE A YORKE W/SOLARIUM ON LOT 22.
6	3-25-00	RESITE A RICHMOND W/FLIPPED DRIVEWAY ON LOT 15.
5	3-23-99	RESITE A PHILMONT ON LOT 11.
4	7-6-99	RESITE A CORNELL ON LOT 24.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Scott Hare 10/6/98
DEVELOPER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chris Cassman 10/21/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cinda Hanotta 10/29/98
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Scott Hare 10/29/98
DIRECTOR DATE

* THE 20' FRONT BRL WAS REDUCED TO 19.8' PER AA CASE NO. 01-06 APPROVED ON 4-17-01.

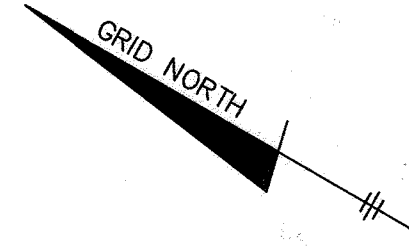
NO.	DATE	REVISION
3	5-24-99	RESITE A RICHMOND ON LOT 13.
2	4-12-99	RESITE A RICHMOND ON LOT 12 AND REVISE GRADES.
1	2-24-99	REVISED HOUSE SITING AND GRADING ON LOTS 9 AND 10.

BENCHMARK ENGINEERING, INC.

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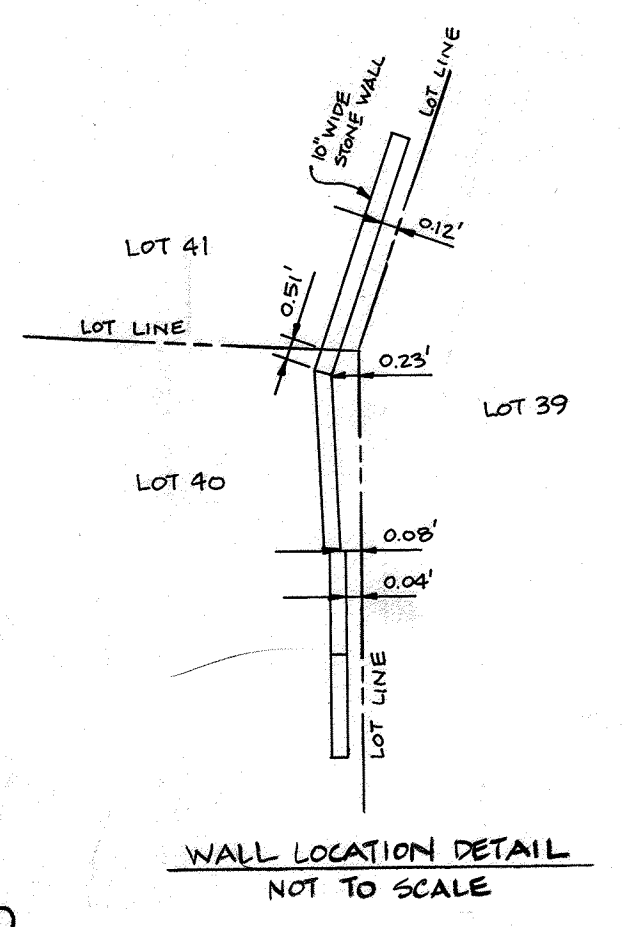
8450 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

OWNER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3208 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1 THRU 79
DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3208 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	LOCATION: TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: SITE DEVELOPMENT PLAN	DATE: JULY 1998 OCTOBER, 1998
DES: DBT/YSL DRAFT: DBT CHECK: DAM	PROJECT NO.: 1114 SHEET 2 OF 14



FOR CONTINUATION SEE SHEET 2
CREEKSIDE ROAD

FOR CONTINUATION SEE SHEET 2
CREEKSIDE ROAD



LEGEND

- 318-320 EXISTING CONTOURS
- 318 PROPOSED CONTOURS
- EXISTING TREELINE
- LIMIT OF SUBMISSION
- FOREST CONSERVATION EASMENT
- TREES INSTALLED UNDER F-98-52
- 288.1 100YR FLOODPLAIN ELEVATION
- INDICATES WALK-OUT BASEMENT

15	3-19-02	REVISE GRADES AND ADD RETAINING WALL PER AS-BUILT CONDITIONS ON LOT 39, 40, 41
14	12-14-01	REVISE GRADES ON LOT 25 PER AS-BUILT CONDITIONS
13	9-4-01	REVISE GRADES ON LOT 42 PER AS-BUILT CONDITIONS
12	3-21-01	RESITE A COLUMBIA WITH "FLIPPED" D/W ON LOT 42
11	12-7-00	RESITE A YORK ON LOT 28
10	10-25-00	RESITE A COLUMBIA WITH FLIPPED GARAGE I/D/W ON LOT 28
9	7-13-00	RESITE A RICHMOND ON LOT 30
8	4-7-00	REVISE GRADING IN REAR OF HOUSE ON LOT 36
7	10-28-99	RESITE AN ELKINS ON LOT 31
6	5-12-99	RESITE A ELKINS ON LOT 35 AND A CORNELL ON LOT 36
5	4-12-99	RESITE A RICHMOND ON LOT 27 AND REVISE GRADES
4	4-6-99	MOVE RICHMOND MODEL BACK ON LOT 38 PER BUILDER

DEVELOPER'S/BUILDER'S CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
Paul Kane 10/6/98
DEVELOPER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
William Dammann 10/22/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Cindy Hamilton 10/28/98
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
Paul Kane 10/29/98
DIRECTOR DATE

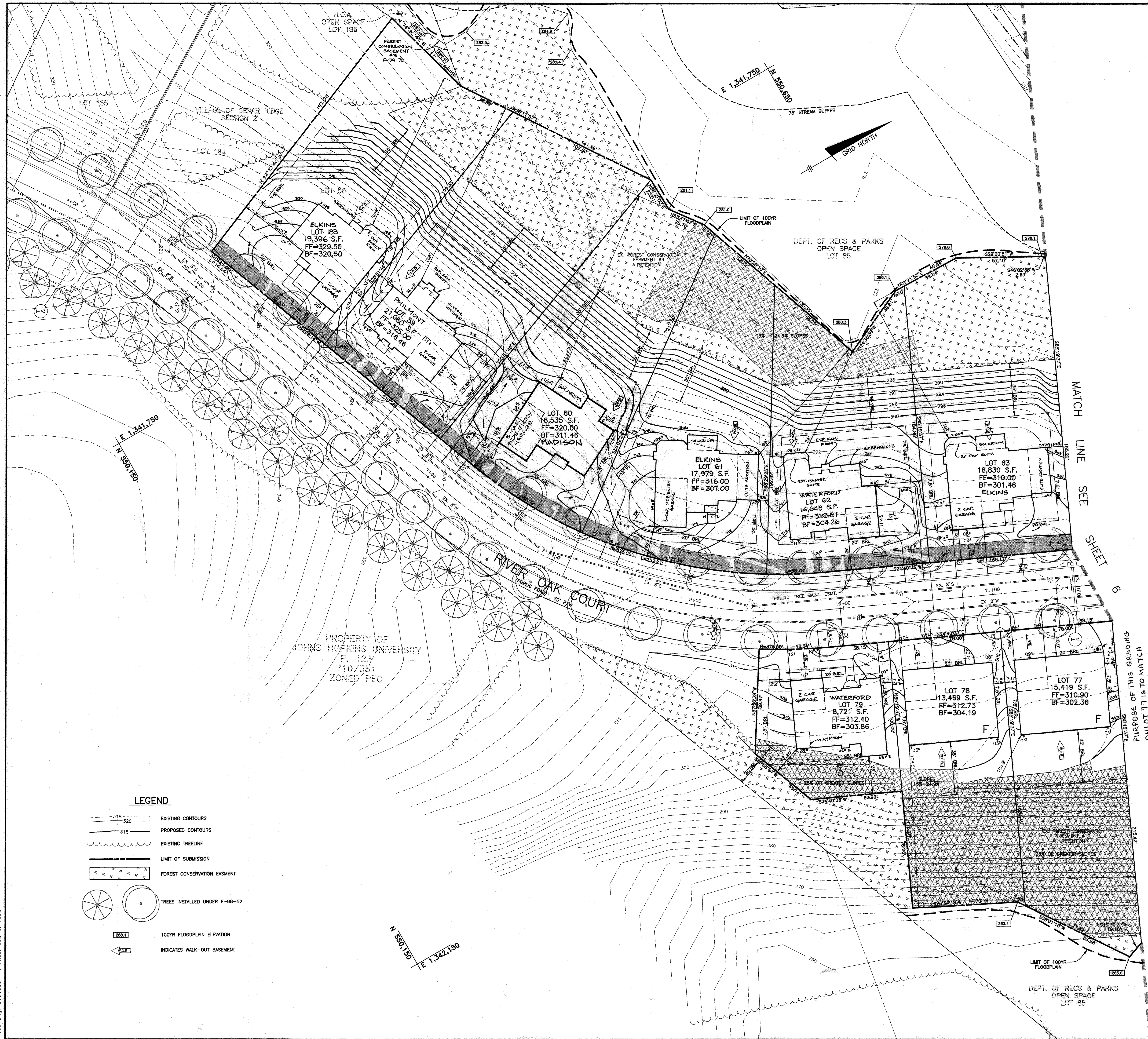
3	3-9-99	ADD BERM ALONG SANNER ROAD
2	2-24-99	REV. HOE AND GRADING LOT 33 FROM "E BOX" TO "CORNELL"
1	1-18-99	REV. SITE LOT 34 FROM "E BOX" TO "NORFOLK"; REV. SITE LOT 38 FROM "E BOX" TO "RICHMOND"; ADD "SEALANT" OPT. TO HOUSE PLATINUM; REV. ADDRESS FOR LOT 34
NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
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DES: DBT/YSL DRAFT: DBT CHECK: DAM	TITLE: SITE DEVELOPMENT PLAN SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52 DATE: JULY 1998 PROJECT NO. 1114 OCTOBER, 1998
SCALE: 1" = 30'	SHEET 3 OF 14



LEGEND

	EXISTING CONTOURS
	PROPOSED CONTOURS
	EXISTING TREELINE
	LIMIT OF SUBMISSION
	FOREST CONSERVATION EASEMENT
	TREES INSTALLED UNDER F-98-52
	100YR FLOODPLAIN ELEVATION
	INDICATES WALK-OUT BASEMENT

MATCH LINE SEE SHEET 6

PURPOSE OF THIS GRADING ON LOT 77 IS TO MATCH AS-BUILT FOR LOT 76

NO.	DATE	REVISION
5	8-17-01	REVISE GRADING ON LOT 77 PER RESITE FOR LOT 76 TO SHOW AS-BUILT COND.
4	12-2-99	REVISE HOE. & GRD. LOT 60 FROM G-BOX TO MADISON WIDE ENTRY GARAGE
REVISIONS (CON'T)		

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chris Hamilton
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 10/25/98
 DATE

Chris Hamilton
 CHIEF, DIVISION OF LAND DEVELOPMENT
 10/25/98
 DATE

James S. Smith
 DIRECTOR
 10/25/98
 DATE

NO.	DATE	REVISION
3	9-21-99	RESITE A WATERFORD W/ FLIPPED DW ON LOT 62 AND A PHILMONT W/ FLIPPED DW ON LOT 69
2	8-31-99	REVISE LOT 58 CONFIGURATION AND # PER V.O.C.R. SECTION 2 PLAT.
1	5-24-99	RESITE AN ELKINS ON LOTS 68, 61, AND 63 AND A WATERFORD ON LOT 79.

BENCHMARK
 ENGINEERS • LAND SURVEYORS • PLANNERS

ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6103 FAX: 410-465-6644

Donald Mason
 PROFESSIONAL ENGINEER

OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852		PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1-57, 59-79 AND 183	
DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852		LOCATION: TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
DES: DBT/YSL DRAFT: DBT CHECK: DAM		TITLE: SITE DEVELOPMENT PLAN SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52 DATE: JULY 1998 PROJECT NO. 1114 OCTOBER, 1998	
SCALE: 1" = 30'		SHEET 5 OF 14	



* NOTE:
75' SIDE BEL WAS REDUCED TO 60' AND THE 50' MINIMUM LOT WIDTH AT BEL WAS REDUCED TO 46.7' PER ADMINISTRATIVE ADJUSTMENT CASE NO. 00-07 APPROVED ON JULY 12, 2000.

10	10-12-01	REVISE GRADES AND SHOW HOUSE ON LOT 68 PER AS-BUILT CONDITIONS
9	9-18-01	REVISE GRADES ON LOTS 71 & 72 PER AS-BUILT CONDITIONS
8	8-17-01	RESITE A PHILMONT AND REVISE GRADES ON LOT 76 PER AS-BUILT CONDITIONS
7	6-8-01	RESITE A COLUMBIA AND REVISE GRADES PER AS-BUILT CONDITIONS ON LOT 73
6	2-14-01	RESITE A COLUMBIA W/MODIFIED GARAGE ON LOT 72 AND A YORK ON LOT 71 PER AA CASE #00-07
5	10-20-00	RESITE AN ELKINS ON LOT 70
4	3-25-00	RESITE A MADISON W/SOLARIUM ON LOT 67

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Howard County
CHIEF, DEVELOPMENT ENGINEERING DIVISION
10/2/98
DATE

David Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT
10/2/98
DATE

James S. Suter
DIRECTOR
10/2/98
DATE

3	2-15-00	RESITE A MADISON W/SOLARIUM ON LOT 65
2	1-14-00	RESITE AN ELKINS ON LOT 64 AND LOT 74
1	11-12-99	RESITE AN ELKINS W/SOLARIUM ON LOT 66
NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS

8450 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Moan
REGISTERED PROFESSIONAL ENGINEER

OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1 THRU 79
DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	LOCATION: TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: SITE DEVELOPMENT PLAN SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52	DATE: JULY, 1998 OCTOBER, 1998
DES: DBT/YSL DRAFT: DBT CHECK: DAM	PROJECT NO.: 1114 SHEET NO.: 6 OF 14

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING TREELINE
- LIMIT OF SUBMISSION
- FOREST CONSERVATION EASEMENT
- INDICATES WALK-OUT BASEMENT
- EXISTING TREE PROTECT. FENCE
- EXISTING SILT FENCE
- PROPOSED SUPER SILT FENCE
- EXISTING EARTH DIKE
- LIMIT OF DISTURBANCE
- SOIL STABILIZATION MATTING

SEE SHEET 7 FOR CONTINUATION

SEE SHEET 7 FOR CONTINUATION



THIS PLAN IS FOR SEDIMENT CONTROL ONLY

BY THE DEVELOPER:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Scott Nave 10/6/98
DEVELOPER - TOLL MD LIMITED PARTNERSHIP DATE

BY THE ENGINEER:

I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Donald Maan 10/5/98
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cheryl Simms Jus 10/19/98
NATURAL RESOURCES CONSERVATION SERVICE DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

J.R. Rauton /GS 10/19/98
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chris Drummond 10/22/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Stanatta 10/26/98
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul Smith 10/29/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION DIRECTOR DATE

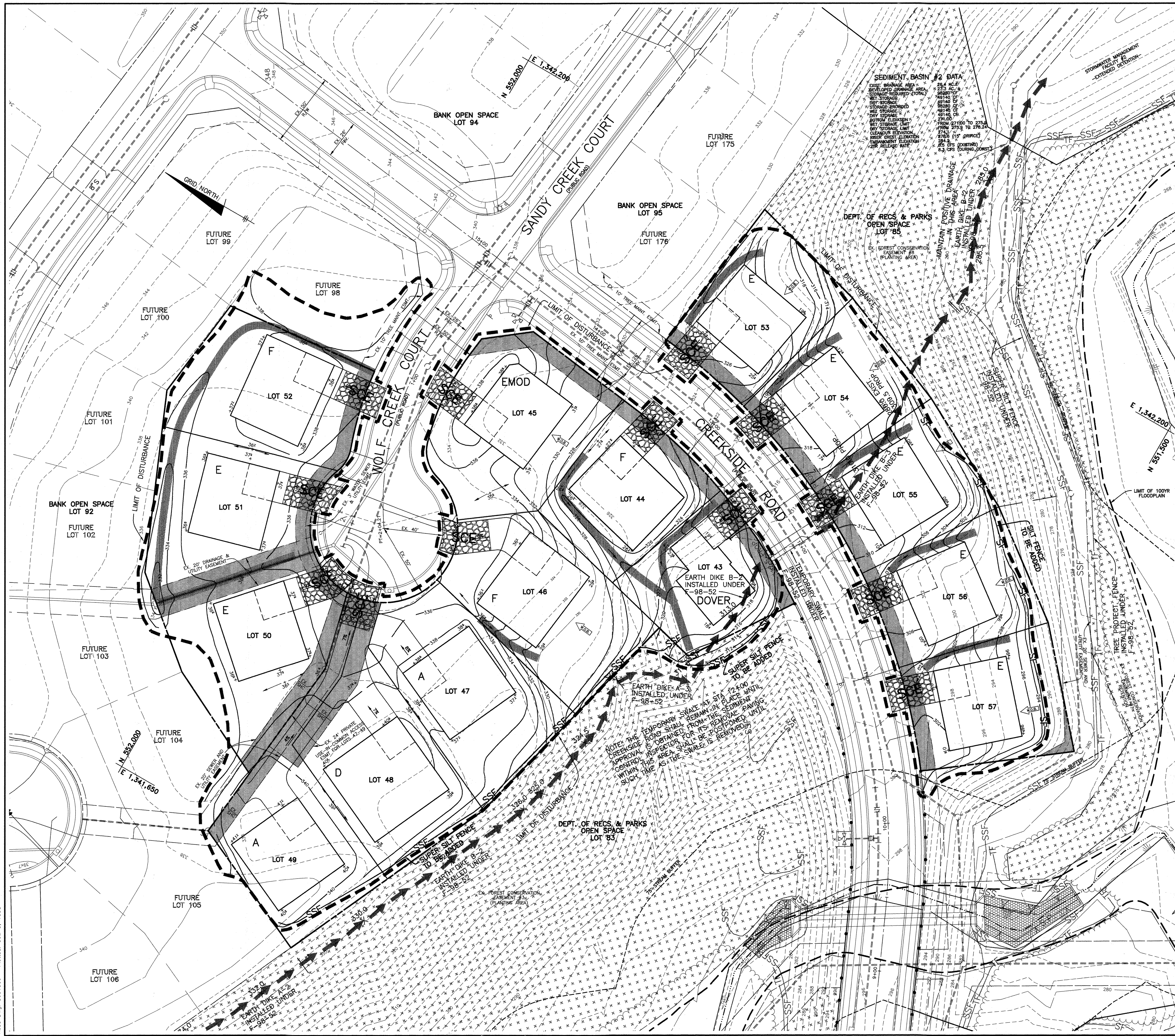
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BENCHMARK ENGINEERING, INC.

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PHONE: 410-465-6105 FAX: 410-465-6644

OWNERS:	TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852	PROJECT:	VILLAGE OF CEDAR RIDGE, LOTS 1 THRU 79
DEVELOPER:	TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852	LOCATION:	TAX MAP 41 - PARCELS 43 AND 44, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
TITLE:	GRADING, SEDIMENT & EROSION CONTROL PLAN	DATE:	JULY 1998, PROJECT NO. 1114
DES:	DBT/YSL, DRAFT: DBT, CHECK: DAM	SCALE:	1" = 30'
		SHEET 8 OF 14	



- LEGEND**
- 318 --- EXISTING CONTOURS
 - 320 --- PROPOSED CONTOURS
 - 318 --- EXISTING TREELINE
 - --- LIMIT OF SUBMISSION
 - --- FOREST CONSERVATION EASEMENT
 - --- INDICATES WALK-OUT BASEMENT
 - TF --- EXISTING TREE PROTECT. FENCE
 - SF --- EXISTING SILT FENCE
 - SSF --- PROPOSED SUPER SILT FENCE
 - --- EXISTING EARTH DIKE
 - --- LIMIT OF DISTURBANCE
 - --- SOIL STABILIZATION MATTING

THIS PLAN IS FOR SEDIMENT CONTROL ONLY

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
Scott Hare 10/6/98
 DEVELOPER - TOLL MD LIMITED PARTNERSHIP DATE

BY THE ENGINEER:
 "I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
Donald Mason 10/5/98
 ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Chief Simon /ec 10/19/98
 NATURAL RESOURCES CONSERVATION SERVICE DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
J.R. Robinson /ec 10/19/98
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division 10/20/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Chief, Division of Land Development 10/20/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Director 10/23/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DIRECTOR DATE

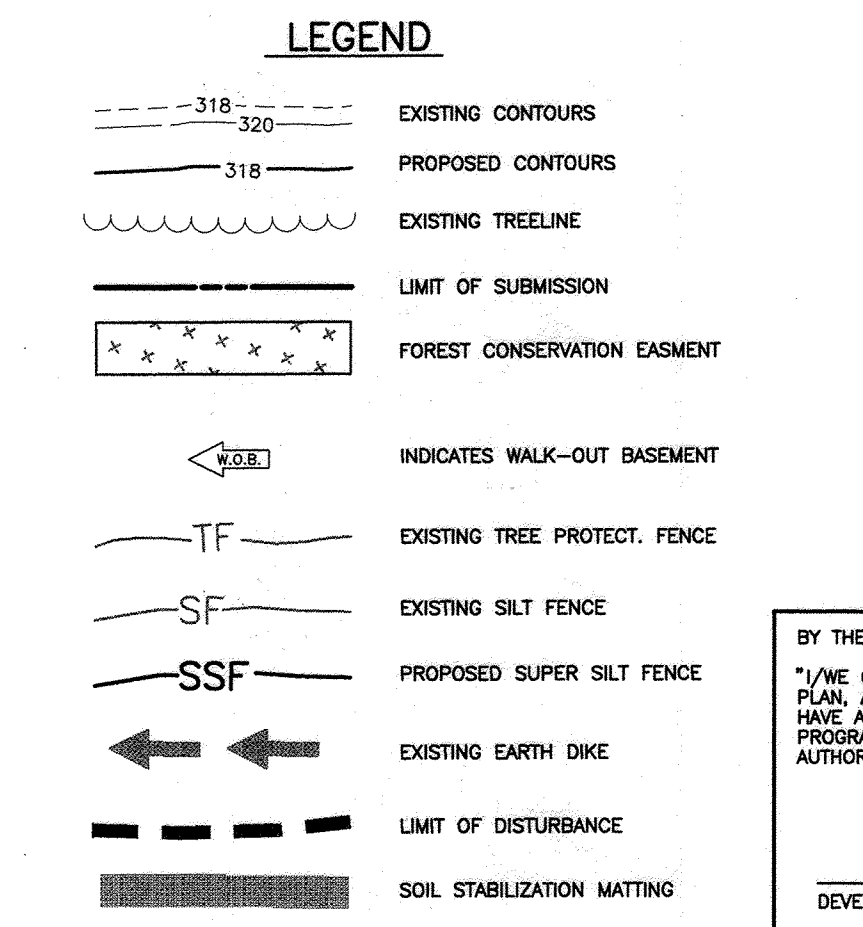
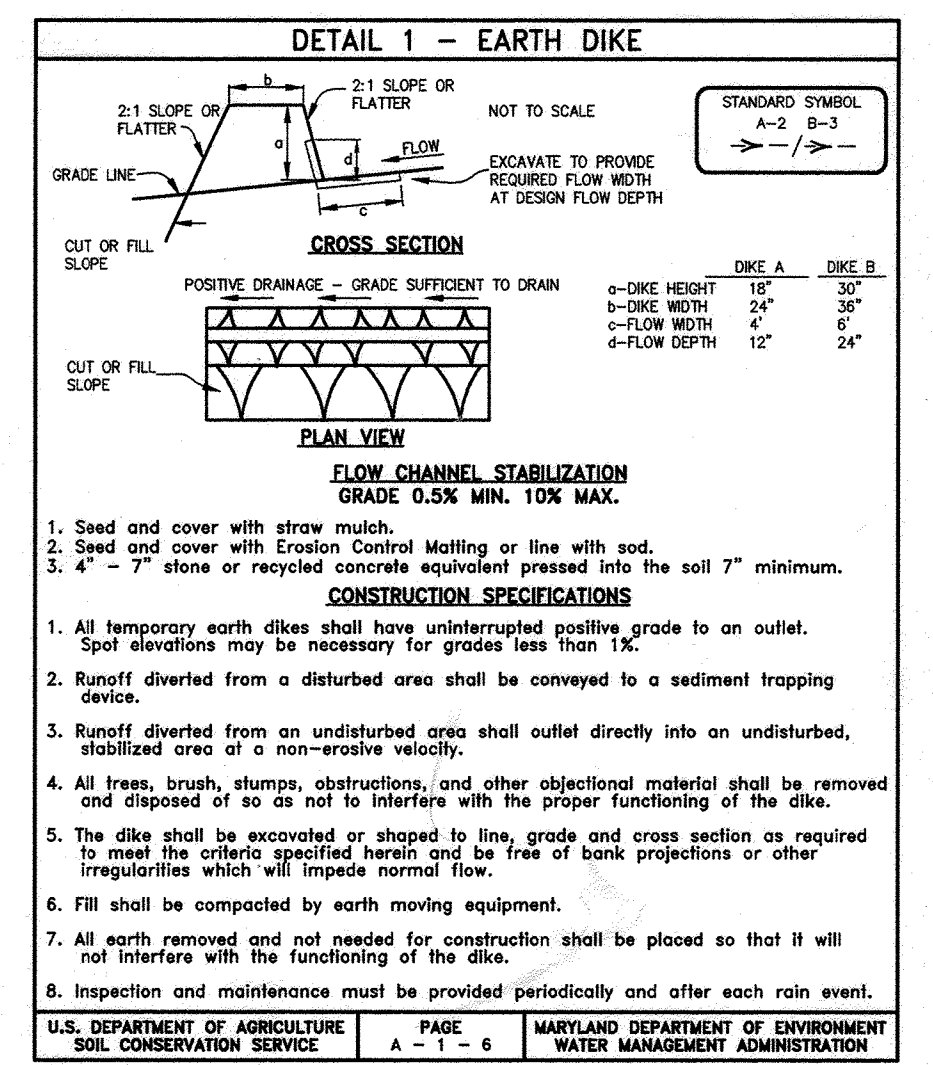
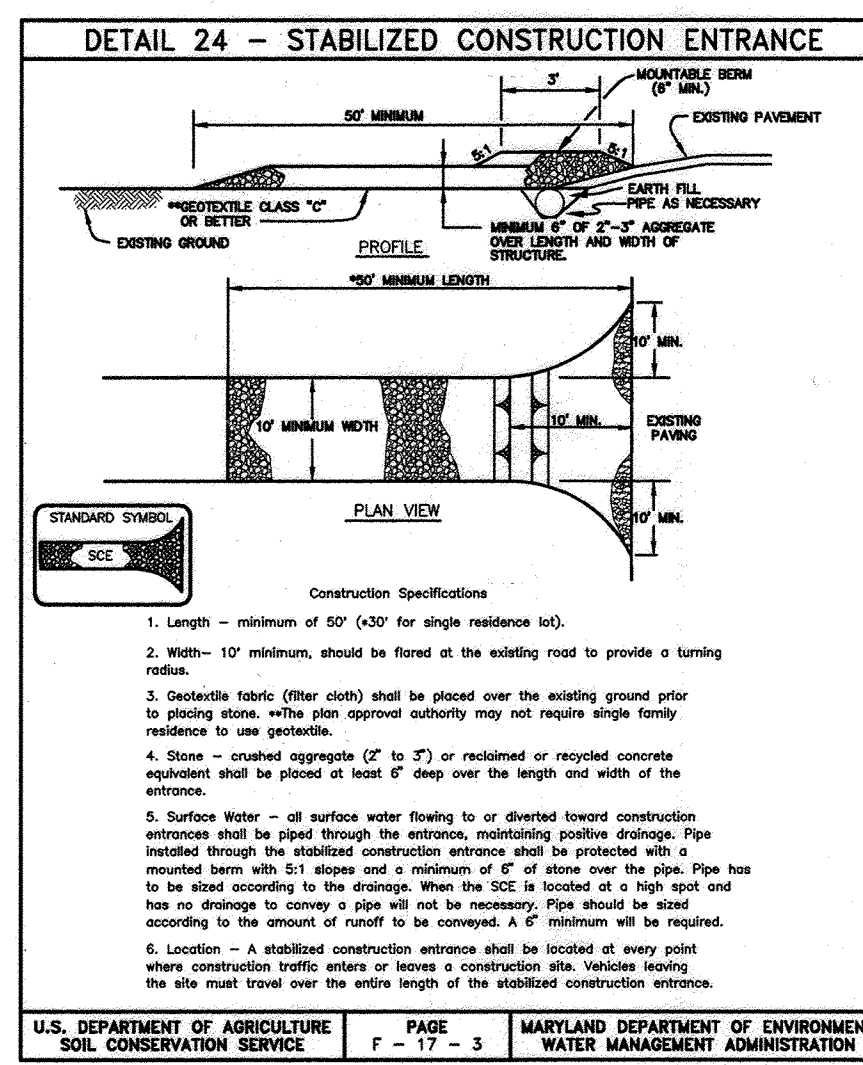
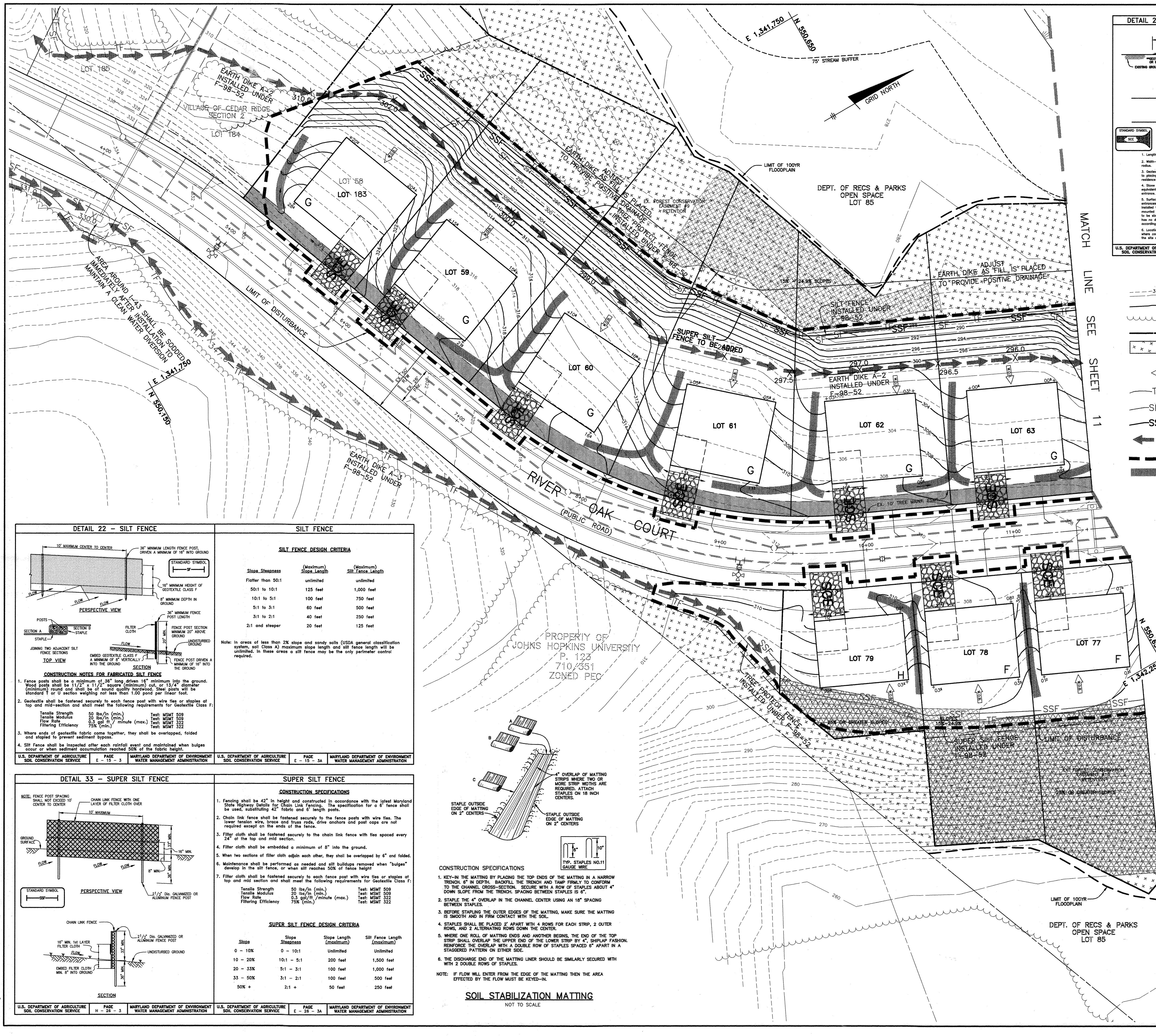
NO.	DATE	REVISION

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ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-455-6105 FAX: 410-465-6644

OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1 THRU 79
DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	LOCATION: TAX MAP 41 - PARCELS 43, 44 AND P/O 123 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: GRADING, SEDIMENT & EROSION CONTROL PLAN SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52	DATE: JULY, 1998 OCTOBER, 1998
DES: DBT/YSL DRAFT: DBT CHECK: DAM	PROJECT NO. 1114 SCALE: 1" = 30' SHEET 9 OF 14



THIS PLAN IS FOR SEDIMENT CONTROL ONLY

BY THE DEVELOPER:

Robert Moore 10/6/98
DEVELOPER - TOLL MD LIMITED PARTNERSHIP

BY THE ENGINEER:

Donald Moorn 10/5/98
ENGINEER - DONALD A. MOORN, P.E. # 21443

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cheryl Simeon / JCS 10/19/98
NATURAL RESOURCES CONSERVATION SERVICE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

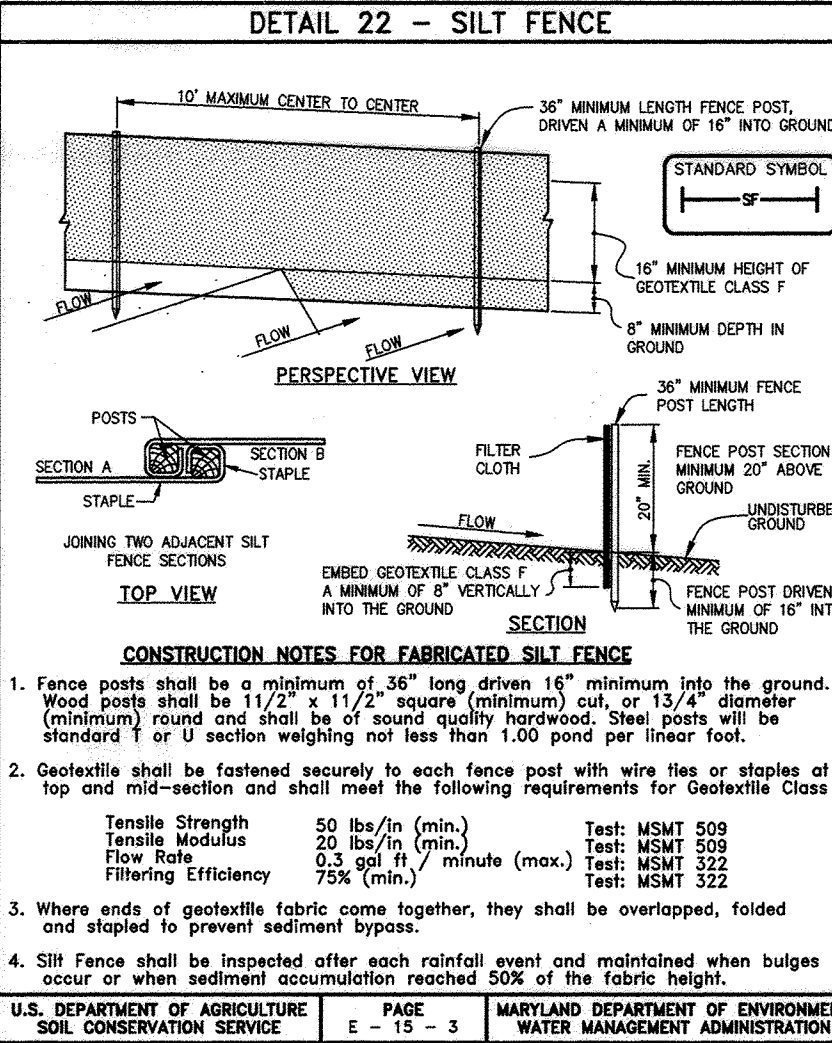
J.R. Robertson / JCS 10/19/98
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chris Dammann 10/22/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Gandy Hamilton 10/21/98
CHIEF, DIVISION OF LAND DEVELOPMENT

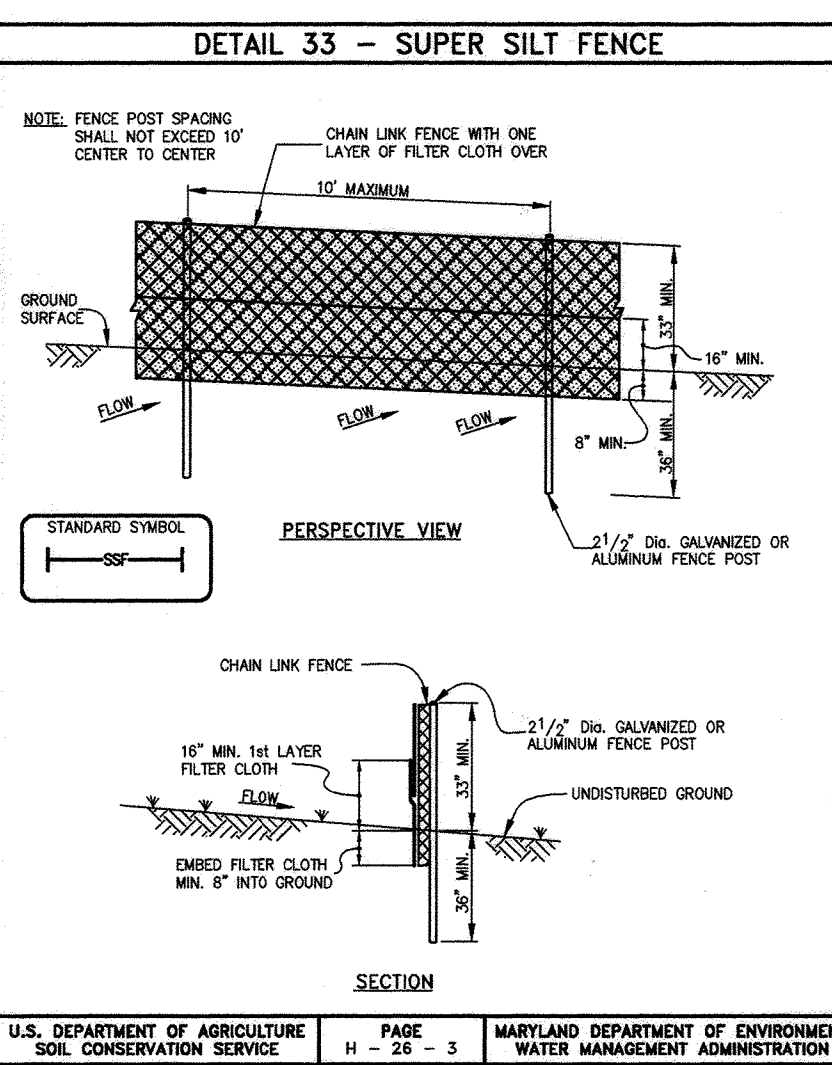
Robert Moore 10/22/98
DIRECTOR



SILT FENCE DESIGN CRITERIA

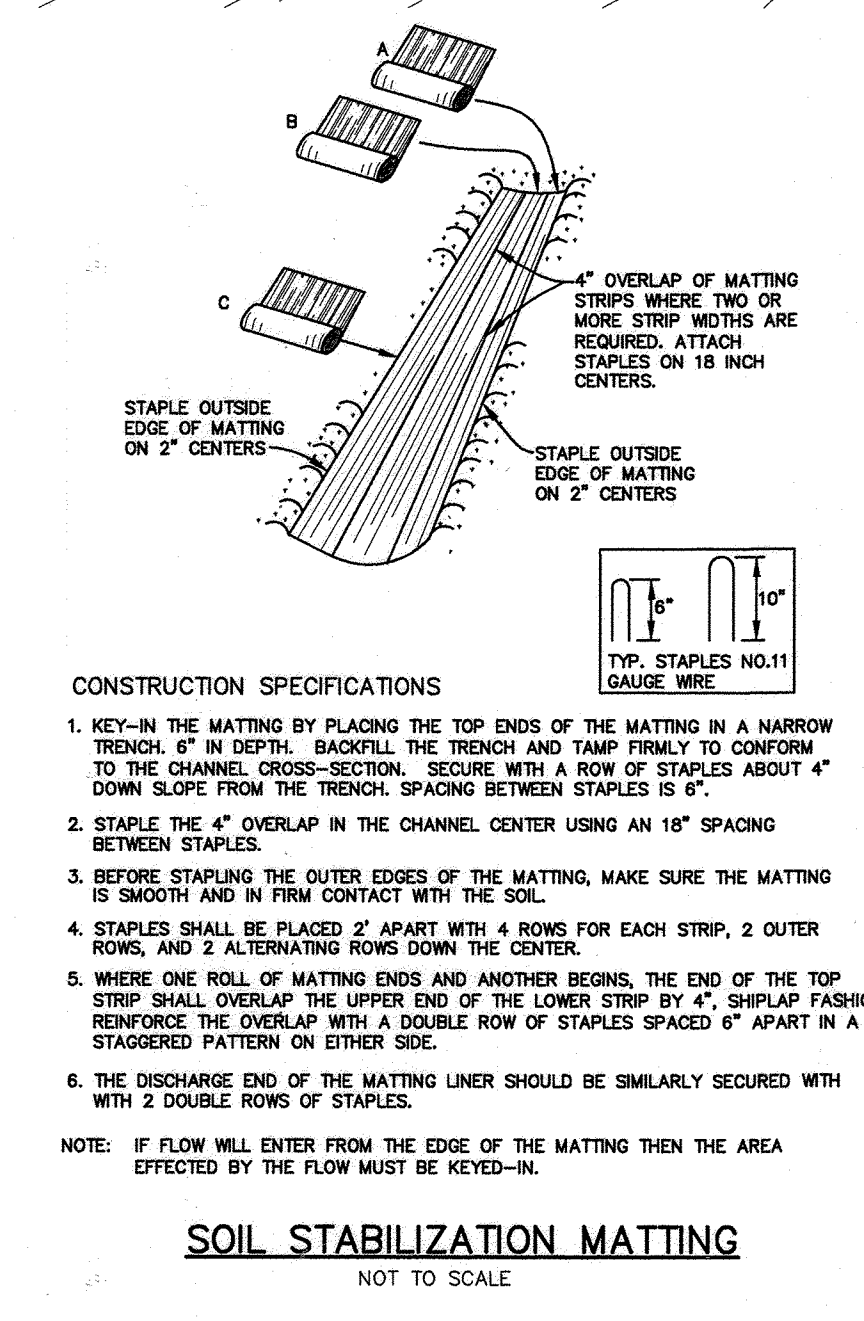
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.



SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (Maximum)	Silt Fence Length (Maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet



NO. DATE REVISION

1 8-31-99 REVISE LOT 58 CONFIGURATION AND PER V.O.C.R. SECTION 2 PLAT.

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-8105 FAX: 410-465-8644

OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
LOTS 1-57, 59-79, AND 183

LOCATION: TAX MAP 41 - PARCELS 43 AND 44
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT & EROSION CONTROL PLAN AND DETAILS
JULY 1998
DATE: OCTOBER, 1998 PROJECT NO. 1114

DES: DBT/YSL DRAFT: DBT CHECK: DAM SCALE: 1" = 30' SHEET 10 OF 14



THIS PLAN IS FOR SEDIMENT CONTROL ONLY

BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
David Hare 10/6/98
 DEVELOPER - TOLL MD LIMITED PARTNERSHIP DATE

BY THE ENGINEER:
 "I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
Donald Moen 10/5/98
 ENGINEER - DONALD A. MOEN, P.E. # 21443 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Chad Simms 10/19/98
 NATURAL RESOURCES CONSERVATION SERVICE DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
J.R. Robinson 10/19/98
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Michael P. ... 10/22/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hanston 10/20/98
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David ... 10/20/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION - DIRECTOR DATE

NO.	DATE	REVISION

BENCHMARK
 ENGINEERS • LAND SURVEYORS • PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6644

<p>OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852</p>	<p>PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1 THRU 79</p> <p>LOCATION: TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p>
<p>DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852</p>	<p>TITLE: GRADING, SEDIMENT & EROSION CONTROL PLAN</p> <p>SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52 DATE: JULY 1998 PROJECT NO. 1114 OCTOBER, 1998</p>
<p>DES: DBT/YSL DRAFT: DBT CHECK: DAM</p>	<p>SCALE: 1" = 30' SHEET 11 OF 14</p>

SEDIMENT CONTROL NOTES

- A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (3-3-1800)
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 10, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 5) SOD (SEC. 5A), TEMPORARY SEEDING (SEC. 5B) AND MULCHING (SEC. 5C), TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE (THIS SUBMISSION)	20.76 ACRES
AREA DISTURBED	19.08 ACRES
AREA TO BE ROOFED OR PAVED	6.75 ACRES
AREA TO BE VEGETATIVELY STABILIZED	12.33 ACRES
TOTAL CUT	24,700 CY
TOTAL FILL	24,700 CY
OFFSITE WASTE/BORROW AREA LOCATION	N/A
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER GRADING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OF THAT WHICH CAN BE BACK FILLED AND STABILIZED WITH ONE WORKING DAY, WHICHEVER IS SHORTER.

PERMANENT SEEDBED PREPARATIONS

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
- SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREA-FORM FERTILIZER (8 LBS/1000 SQ FT).
 - ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.
- SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY OPTION (2) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
- MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNMATTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.
- MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TOPSOIL SPECIFICATIONS

- Topsoil salvaged from the existing site may be used provided it meets the standards set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
- Topsoil shall be a loam, sandy loam, clay loam, silty loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textures and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.
 - Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutgrass, poison ivy, bitistle, or others as specified.
 - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
 - For sites having disturbed areas under 5 acres:
 - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 - For sites having disturbed areas over 5 acres:
 - On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 - pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - Organic content or topsoil shall be not less than 1.5 percent by weight.
 - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - No soil or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
 - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
 - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 - Topsoil Application
 - When topsoiling, grade stabilization structures and sediment control practices such as diversions, grass, maintenance structures, earth dikes, slope silt fence and sediment traps and basins.
 - Grades on the areas to be topsoiled, which have been previously established, shall be maintained, about 4" - 8" higher in elevation.
 - Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seeding or seedling can proceed with a minimum of additional preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.
 - Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 - Composted Sludge Material for use as a soil conditioner for sites having distributed areas over 5 acres shall conform to the following requirements:
 - Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
 - Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements for use.
 - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
- References: Guidelines Specifications, Soil Preparation and Soddings, MD-MA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1973.

TEMPORARY SEEDBED PREPARATIONS

- APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
- SOIL AMENDMENTS: APPLY 800 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).
- SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (0.7 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.
- MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNMATTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.
- REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

- NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION
- DAY 1-1) OBTAIN GRADING PERMIT.
- DAY 2-8 2) INSTALL SEDIMENT CONTROLS THAT ARE NOTED TO BE INSTALLED UNDER THIS SDP. THE EXISTING CONTROLS THAT WERE INSTALLED UNDER F-98-52 THAT ARE TO REMAIN SHALL BE INSPECTED AND/OR MODIFIED AS SHOWN ON PLAN TO ENSURE THEY MEET COMPLIANCE WITH SPECIFICATIONS. ANY REMAINING CONTROLS INSTALLED UNDER F-98-52 THAT WILL NOT BE UTILIZED UNDER THIS SDP SHALL BE REMOVED BY THE DEVELOPER.
- DAY 9-12* 3) EXCAVATE FOR FOUNDATIONS, ROUGH GRADE AND STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. NOTE THAT CONSTRUCTION OF HOUSES ON LOTS 13,14,23,24, 29 AND 70 CANNOT BE DONE UNTIL THE CONTRIBUTING DRAINAGE AREA TO THE SEDIMENT TRAP LOCATED ON THOSE LOTS HAS BEEN PERMANENTLY STABILIZED.
- DAY 13-82 4) CONSTRUCT HOUSES, BACKFILL AND CONSTRUCT DRIVEWAYS.
- DAY 83-87 5) FINAL GRADE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDBED NOTES. FLUSH STORM DRAINAGE SYSTEMS, REMOVE ACCUMULATED SEDIMENT IN SUMP, REFURISH AND CONVERT PONDS TO PERMANENT DESIGN AS SHOWN ON F-98-52.
- DAY 88-91 6) WITH THE APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ANY REMAINING DISTURBED AREAS.
- * - INDICATES SINGLE HOUSE CONSTRUCTION.
- NOTES: 1. SEDIMENT CONTROL LOCATION AND IMPLEMENTATION SHOWN ON THESE PLANS IS SUBJECT TO REVISION IN THE FIELD AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.
2. EROSION CONTROL MATTING SHALL BE PLACED IN SWALES UNTIL VEGETATION IS ESTABLISHED OR SOLID SOD SHOULD BE USED.

OPTIONS CHART

NOTE: THE OPTIONS LISTED IN THIS CHART ARE OPTIONS WHICH "WILL NOT" FIT WITHIN THE GENERIC BOX FOOTPRINT.

	YORK	NORFOLK	DOVER	PHILMONT	ELKINS	MADISON	CORNELL/COLUMBIA	WATERFORD	ARLINGTON	RICHMOND
BOX A	YES 1	YES					YES 1,7,8,9		YES 8	YES 1,2,4
BOX B	YES 1	YES					* #		**	YES 1,2,4
BOX C	YES 1,2,3									
BOX D	YES 1	YES 7,8	YES 7,8	YES 7,8,9	YES 3,4,7,8,12	YES 3,7,8,9	YES 7,8,9	YES 10,15	YES 8	YES 1,4
BOX E	YES 1,2,3						YES 1,4,7,8,9,10		YES 1,4,8,10	
BOX F	YES 1,2,3		YES 7,8	YES 7,8,9			YES 1,4,7,8,9,10		YES 1,4,8,10	
BOX G	YES 1	YES	YES 7,8	YES 7,8,9			YES 1,7,8,9	YES 10,15	YES 8	YES 1,2
BOX H			YES 1,4,7,8				YES 1,2,3,4,5 7,8,9,10,14		YES 1,2,4,8,10,11	

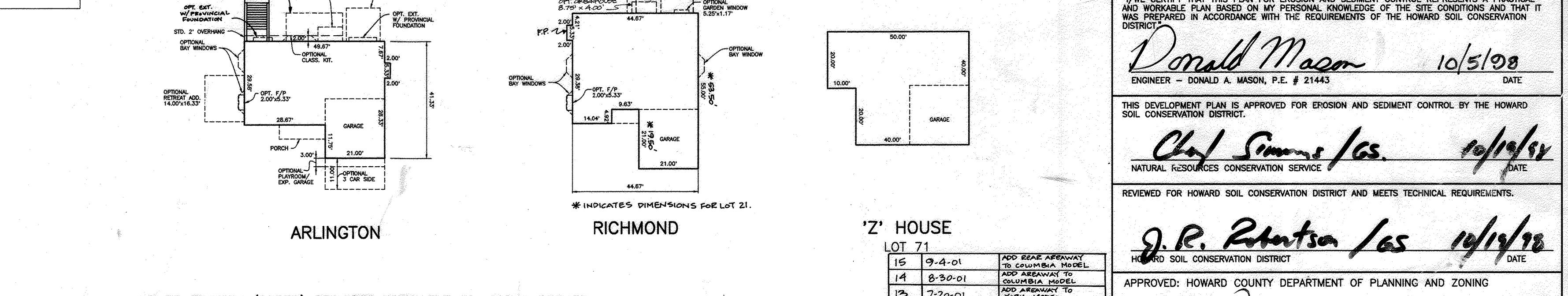
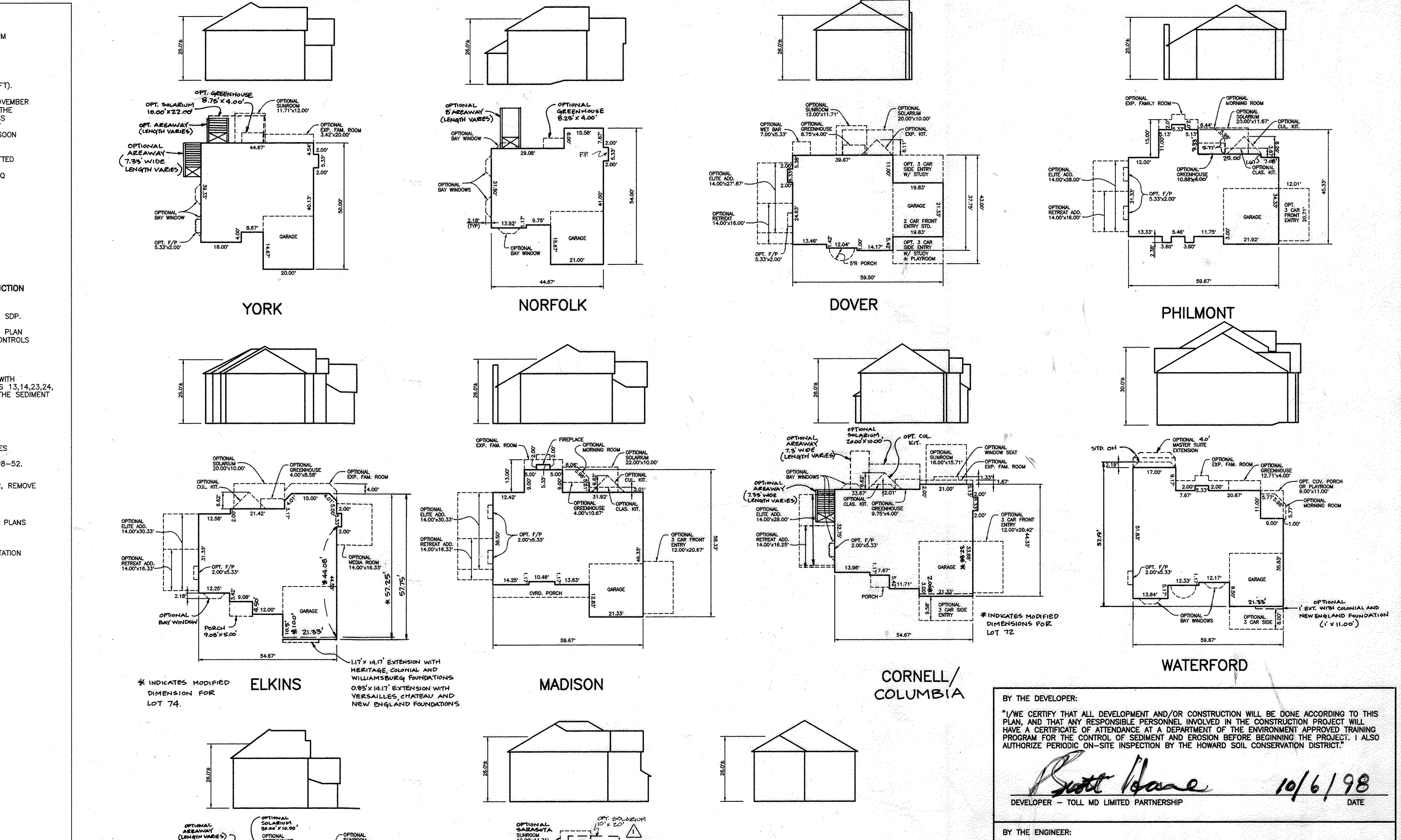
- * WITH OPTIONAL 3-CAR SIDE ENTRY GARAGE, THESE OPTIONS ARE EXCLUDED IN ADDITION TO THOSE LISTED IN CHART; 2,3,4,5.
- ** WITH OPTIONAL 3-CAR SIDE ENTRY GARAGE, THESE OPTIONS ARE EXCLUDED IN ADDITION TO THOSE LISTED IN CHART; 1,2,4.
- *** WITH OPTIONAL 3-CAR SIDE ENTRY GARAGE, THESE OPTIONS ARE EXCLUDED IN ADDITION TO THOSE LISTED IN CHART; 1,4.
- # WITH OPTIONAL 3-CAR SIDE ENTRY GARAGE, THESE OPTIONS ARE EXCLUDED IN ADDITION TO THOSE LISTED IN CHART; 4,5,14.
- ## WITH OPTIONAL PLAYROOM, THESE OPTIONS ARE EXCLUDED IN ADDITION TO THOSE LISTED IN CHART; 1.
- ### WITH OPTIONAL 3-CAR SIDE ENTRY GAR/STUDY/PLAYROOM, THESE OPTIONS ARE EXCLUDED IN ADDITION TO THOSE LISTED IN CHART; 2,5,16.

- EXCLUDED OPTIONS LEGEND:
- | | |
|----------------------|------------------------------|
| 1 = SUNROOM | 9 = 3-CAR FRONT ENTRY GARAGE |
| 2 = GREENHOUSE | 10 = 3-CAR SIDE ENTRY GARAGE |
| 3 = EXP. FAM. ROOM | 11 = PLAYROOM |
| 4 = SOLARIUM | 12 = MEDIA ROOM |
| 5 = CUL. KITCHEN | 13 = MORNING ROOM |
| 6 = CLASSIC KITCHEN | 14 = WINDOW SEAT |
| 7 = ELITE ADDITION | 15 = MASTER SUITE EXT. |
| 8 = RETREAT ADDITION | 16 = WET BAR |

NOTE: SIDE ENTRY GARAGE OPTIONS ARE DEPENDENT ON LOT CONFIGURATION AND MAY REQUIRE A HOUSE TYPE REVISION.

LOT/BOX CHART

LOT #	BOX	LOT #	BOX	LOT #	BOX	LOT #	BOX
LOT 1	B	LOT 21	F	LOT 41	A	LOT 61	G
LOT 2	ARLNTN	LOT 22	C	LOT 42	A	LOT 62	G
LOT 3	ARLNTN	LOT 23	E	LOT 43	DOVER	LOT 63	G
LOT 4	B	LOT 24	F	LOT 44	F	LOT 64	G
LOT 5	C MOD	LOT 25	B	LOT 45	E MOD	LOT 65	G
LOT 6	B	LOT 26	B	LOT 46	F	LOT 66	D
LOT 7	B	LOT 27	C MOD	LOT 47	A	LOT 67	A
LOT 8	B	LOT 28	C	LOT 48	D	LOT 68	A
LOT 9	C	LOT 29	B	LOT 49	A	LOT 69	A
LOT 10	B MOD	LOT 30	B	LOT 50	E	LOT 70	A
LOT 11	B	LOT 31	F	LOT 51	E	LOT 71	Z HSE
LOT 12	D	LOT 32	D	LOT 52	F	LOT 72	NORFLK
LOT 13	YORK	LOT 33	E	LOT 53	E	LOT 73	F MOD
LOT 14	A	LOT 34	B	LOT 54	E	LOT 74	F
LOT 15	A	LOT 35	F	LOT 55	E	LOT 75	F
LOT 16	A	LOT 36	C	LOT 56	E	LOT 76	F
LOT 17	B MOD	LOT 37	E	LOT 57	E	LOT 77	F
LOT 18	A	LOT 38	C	LOT 58	G	LOT 78	F
LOT 29	A	LOT 39	B	LOT 59	G	LOT 79	H
LOT 20	DOVER	LOT 40	F	LOT 60	G		



BENCHMARK ENGINEERING, INC.
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE, LOTS 1-57, 59-79, AND 183

LOCATION: TAX MAP 41 - PARCELS 43 AND 44, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

TITLE: SEDIMENT & EROSION CONTROL NOTES AND HOUSE DETAILS SHEET

SP-97-02 JULY-78 PB 312 F-93-70 WP-98-82 F-98-52

DATE: JULY 1998 PROJECT NO. 1114

SCALE: AS SHOWN SHEET 12 OF 14

DES: DBT/YSL DRAFT: DBT CHECK: DAM

BY THE DEVELOPER:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Scott Hane 10/6/98
DEVELOPER - TOLL MD LIMITED PARTNERSHIP DATE

BY THE ENGINEER:

I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Donald Mason 10/5/98
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Chaf Simms /cs 10/19/98
NATURAL RESOURCES CONSERVATION SERVICE DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

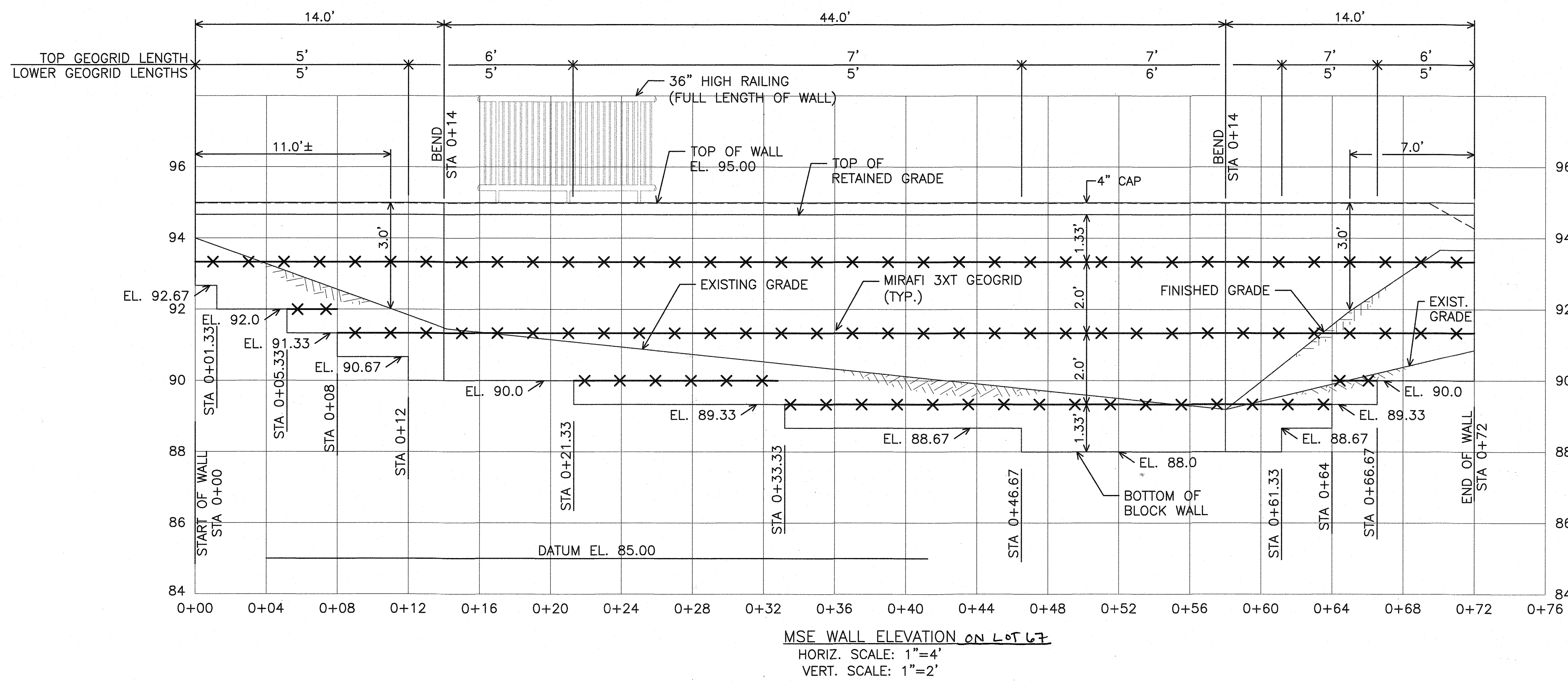
J.R. Robertson /cs 10/14/98
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

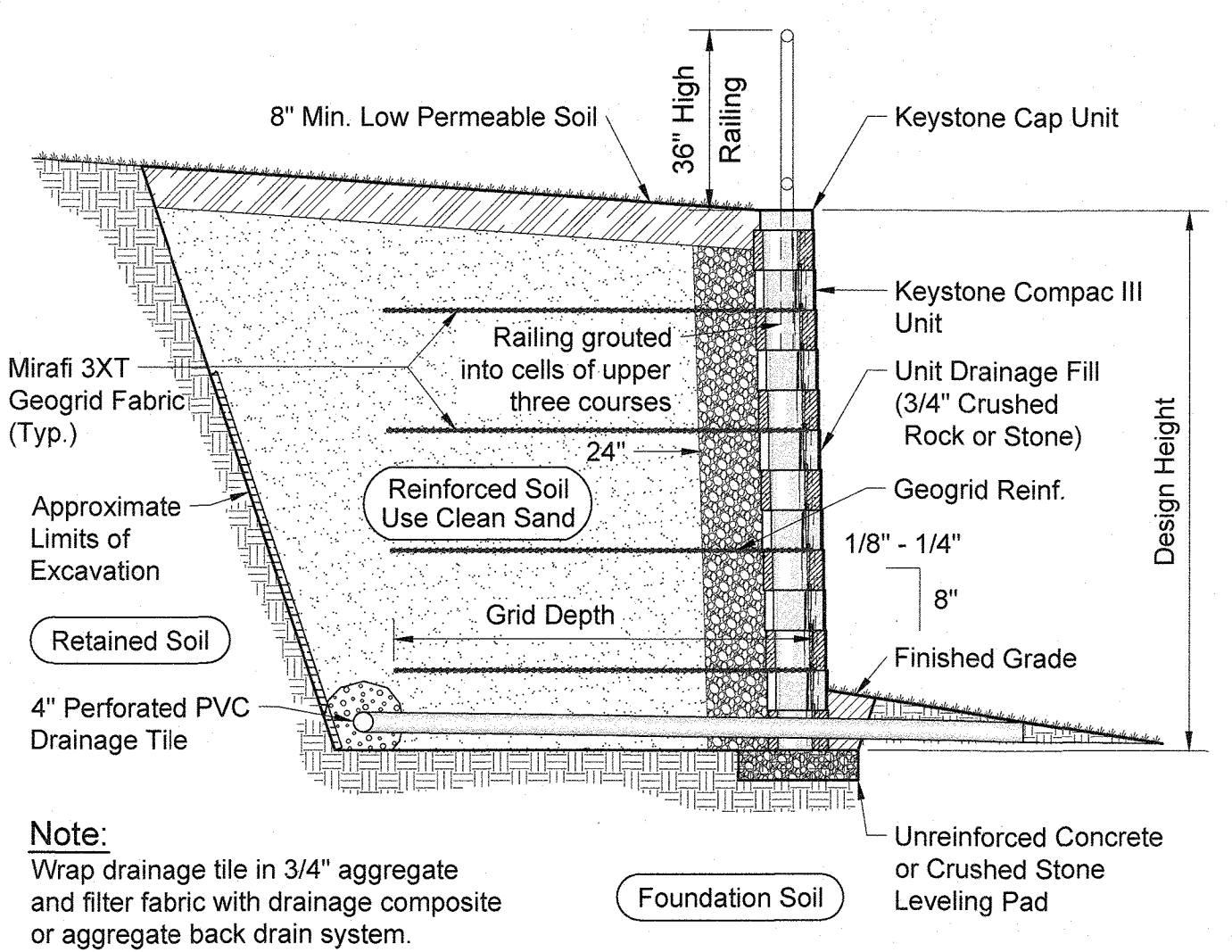
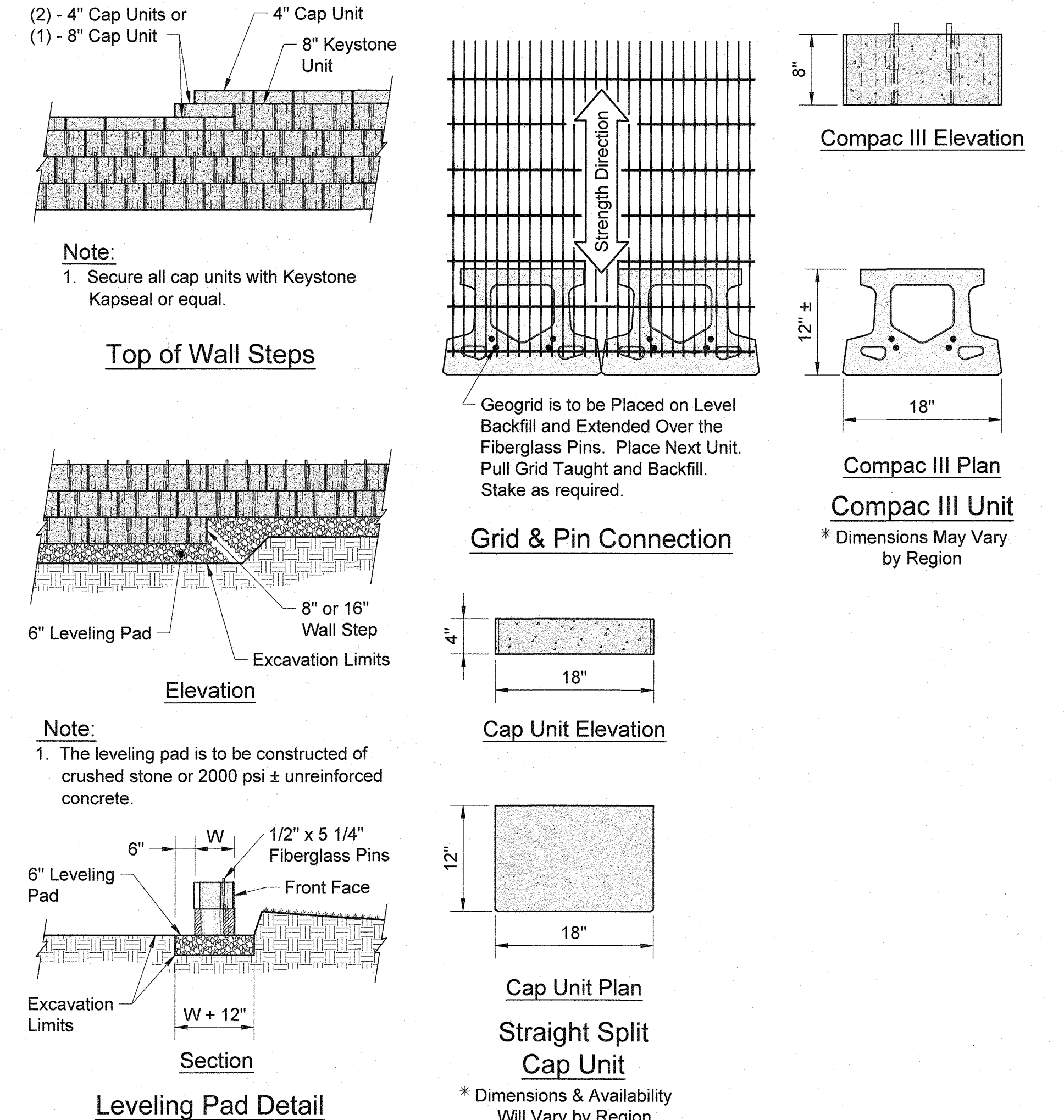
John Dammicus 10/25/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Handley 10/20/98
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

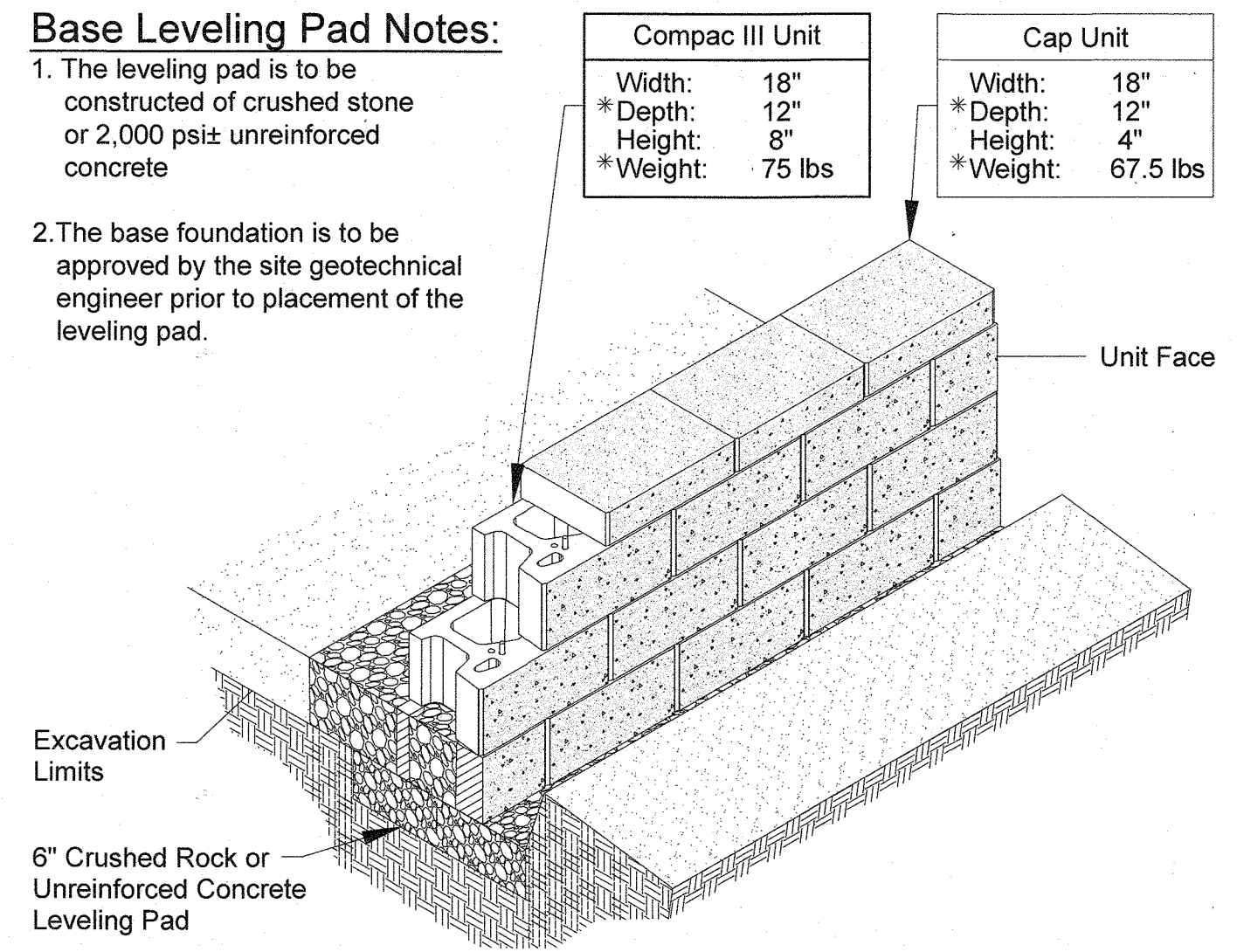
Joseph Smith 10/29/98
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING DIRECTOR DATE



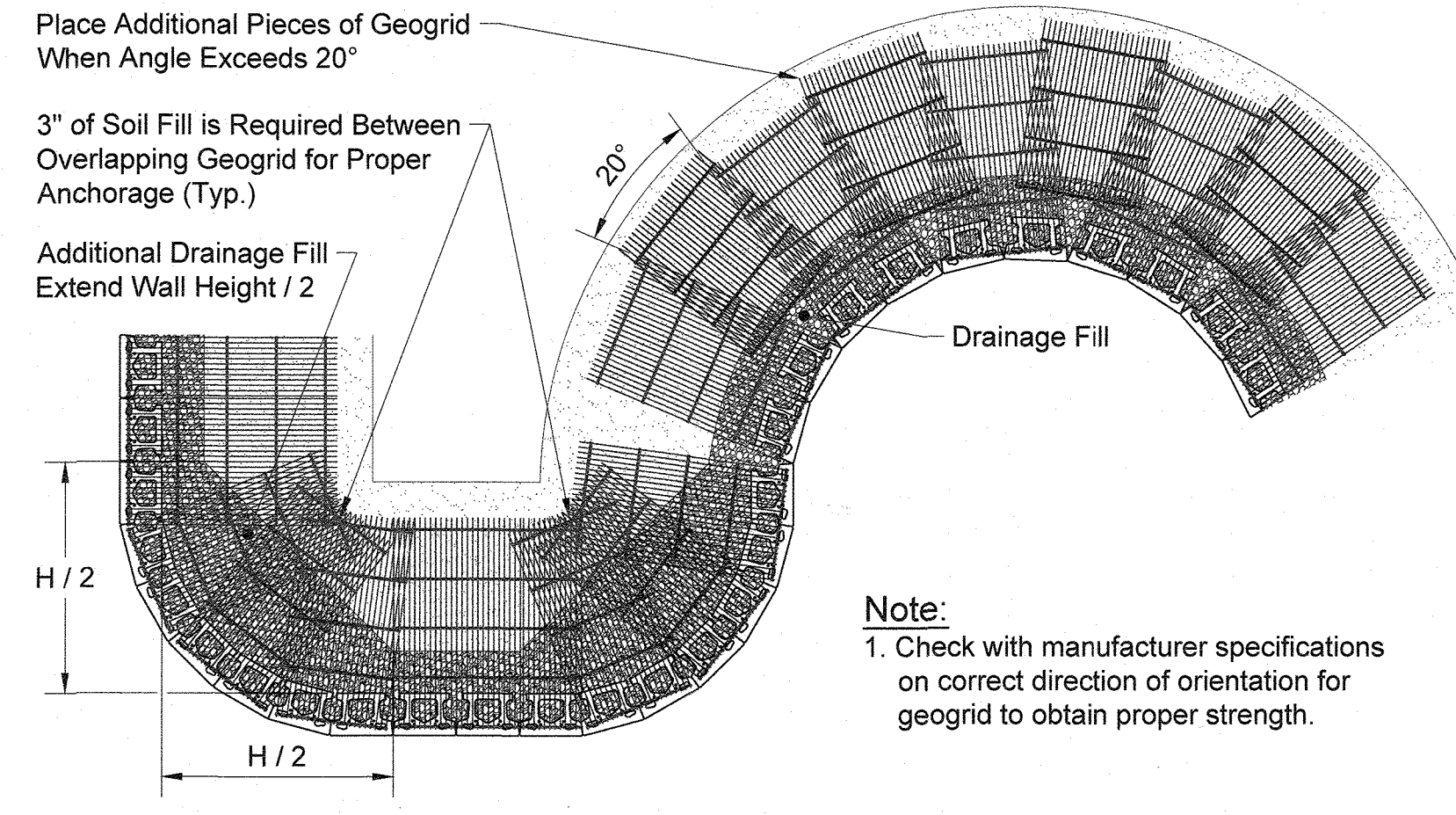
MSE WALL ELEVATION ON LOT 67
 HORIZ. SCALE: 1"=4'
 VERT. SCALE: 1"=2'



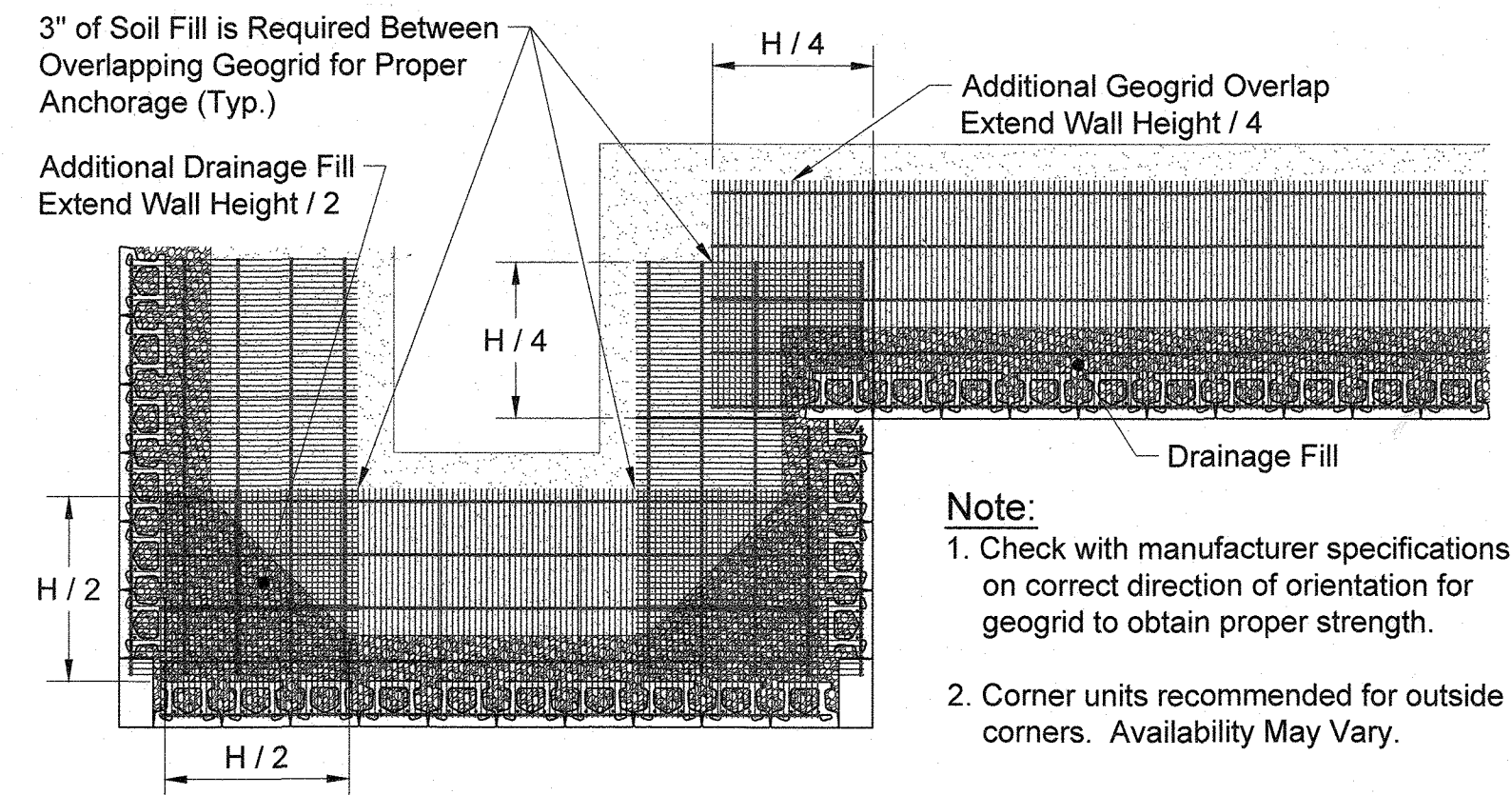
Typical Reinforced Wall Section
 Compac III Unit - Near Vertical Setback



Compac III Unit/Base Pad Isometric Section View
 * Dimensions & Weight May Vary by Region



Geogrid Installation on Curves



Geogrid Installation at Corners

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* 8-11-22 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* 8-17-22 DATE
 DIRECTOR *[Signature]* 8-17-22 DATE

OWNERS: TOLL MD LIMITED PARTNERSHIP A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1 THRU 79
DEVELOPER: TOLL MD LIMITED PARTNERSHIP A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	LOCATION: TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: SITE DEVELOPMENT PLAN	DATE: JULY 5, 2022
DES: BEB DRAFT: AM CHECK: BEB	PROJECT NO.: SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52 SHEET: 13 OF 14



Blake Structural
 12518 Ridgely Road, Ridgely MD 21660, PH 443-604-1461

Job No: 07038 A
 Scale: As Shown
 Date: July 5, 2022
 Sheet: 13 of 14

Designed by: BEB
 Drawn by: BEB

72' long x 7' High MSE Retaining Wall
 7053 River Oak Court
 Parthiv Mahadevia
 Clarksville, MD 21029

Section 32 32 23

Keystone Concrete Retaining Wall

Part 1: GENERAL

1.01 Description

- A. Work shall consist of designing, furnishing and construction of a KEYSTONE Compac III unit retaining wall system in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans. No alternate wall systems will be considered.
- B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit facing system, unit drainage fill and reinforced backfill to the lines and grades shown on the construction drawings.
- C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location and lengths designated on the construction drawings.

1.02 Related Sections

- A. Section 31 00 00 - Earthwork

1.03 Reference Documents

- A. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. AASHTO M 252 Corrugated Polyethylene Drainage Pipe
 - 2. AASHTO M 288 Geotextile Specification for Highway Applications
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM C140 Sampling and Testing Concrete Masonry Units
 - 2. ASTM C1372 Specification for Dry-Cast Segmental Retaining Wall Units
 - 3. ASTM D442 Particle Size Analysis of Soils
 - 4. ASTM D698 Laboratory Compaction Characteristics of Soil - Standard Effort
 - 5. ASTM D1556 Standard Test Method for Density and Unit Weight of Soil In Place by the Sand Cone Method
 - 6. ASTM D1557 Laboratory Compaction Characteristics of Soil - Modified Effort
 - 7. ASTM D2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
 - 8. ASTM D2922 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 - 9. ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer pipe and Fittings
 - 10. ASTM D4318 Liquid Limit, Plastic Limit and Plasticity Index of Soils
 - 11. ASTM D4475 Horizontal Shear Strength of Pultruded Reinforced Plastic Rods
 - 12. ASTM D4476 Flexural Properties of Fiber Reinforced Pultruded Plastic Rods
 - 13. ASTM D4595 Standard Test Method for Tensile Properties of Geotextiles by Wide-Width Strip Method
 - 14. ASTM D4873 Standard Guide for Identification, Storage and Handling of Geosynthetics
 - 15. ASTM D5262 Standard Test Method for Evaluating the Unconfined Tension Creep Behavior of Geosynthetics
 - 16. ASTM D5321 Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
 - 17. ASTM D5818 Standard Practice for Obtaining Samples of Geosynthetics from a Test Section for Assessment of Installation Damage
 - 18. ASTM D6637 Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Method
 - 19. ASTM D6638 Standard Test Method for Determining Connection Strength Between Geosynthetic Reinforcement and Segmental Concrete Units
 - 20. ASTM D6706 Standard Test Method for Measuring Geosynthetic Pullout Resistance in Soil
 - 21. ASTM D6916 Standard Test Method for Determining the Shear Strength Between Segmental Concrete Units
- C. National Concrete Masonry Association (NCMA)
 - 1. NCMA SRWU-1 Test Method for Determining Connection Strength of SRW
 - 2. NCMA SRWU-2 Test Method for Determining Shear Strength of SRW

1.04 Definitions

- A. Compac III Unit - a dry-stacked concrete retaining wall unit machine made from Portland cement, water, aggregates, manufactured by a licensed manufacturer of Keystone.
- B. Structural Geogrid - a polymeric material formed by a regular network of connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock or earth and function primarily as reinforcement.
- C. Unit Drainage Fill - drainage aggregate that is placed within and immediately behind the Keystone concrete units.
- D. Reinforced Backfill - compacted soil that is placed within the reinforced soil volume as outlined on the plans.
- E. Retained Soil - the soil mass behind the reinforced backfill.
- F. Foundation Soil - the soil mass below the leveling pad and reinforced backfill.
- G. Leveling Pad - crushed stone, sand and gravel or unreinforced concrete material placed to provide a level surface for placement of the Keystone concrete units.
- H. Geosynthetic Reinforcement - polymeric material designed specifically for soil reinforcement.

1.05 Submittals and Certification

- A. Contractor shall submit a Manufacturer's certification, prior to the start of work, that the retaining wall system components meet the requirements of this specification and the structure design.
- B. Contractor shall submit construction drawings and design calculations for the retaining wall system prepared and stamped by a Professional Engineer registered in the state of the project.

1.06 Quality Assurance

- A. Contractor shall submit a list of five (5) previously constructed projects of similar size and magnitude by the wall installer where the Compac retaining wall system has been constructed successfully. Contact names and phone numbers shall be listed for each project.
- B. Contractor shall provide evidence that the design engineer has a minimum of five years documented experience in the design of reinforced soil structures. The design engineer shall provide proof of current professional liability insurance with an aggregate coverage limit of not less than \$2,000,000.
- C. Owner shall/may provide quality assurance inspection and testing during earthwork and wall construction operations. Contractor shall provide all quality control testing and inspection not provided by the owner. Owner's quality assurance program does not relieve the contractor of responsibility for quality control and wall performance.

1.07 Delivery Handling and Storage

- A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification have been received.
- B. Contractor shall protect all materials from damage due to jobsite conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Keystone Concrete Retaining Wall Units

- A. Compac III retaining wall units shall conform to the following architectural requirements
 - 1. Face color - concrete gray, unless otherwise specified. The Owner may specify standard manufacturers' color.
 - 2. Tri-plane or Straight Face finish - hard split in angular tri-plane or straight face configuration. Other face finishes will not be allowed without written approval of Owner.
 - 3. Bond configuration - running with bonds nominally located at midpoint in vertically adjacent units.
 - 4. Exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 20 feet (6 m) under diffused lighting.
- B. Keystone concrete units shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.
- C. Keystone concrete units shall conform to the following structural and geometric requirements measured in accordance with ASTM C140 Sampling and Testing Concrete Masonry Units:
 - 1. Compressive strength: ≥ 3000 psi (21 MPa).
 - 2. Absorption: $\leq 8\%$ for standard weight aggregates.
 - 3. Dimensional tolerances: $\pm 1/8"$ (3 mm) from nominal unit dimensions not including rough split face.
 - 4. Unit Size: 8" (203 mm) (H) x 18" (457 mm) (W) x 12" (304 mm) (D) minimum.
- D. Keystone concrete units shall conform to the following constructability requirements:
 - 1. Vertical setback: 1/8 inch (3 mm) \pm per course (near vertical) or 1 1/8 inch (28 mm) \pm per course, per the design.
 - 2. Alignment and grid attachment mechanism - fiberglass pins, two per unit.
 - 3. Maximum horizontal gap between erected units shall be $\leq 1/2$ inch (13 mm).

2.02 Shear and Reinforcement Pin Connectors

- A. Shear and reinforcement pin connectors shall be 1/2-inch (12 mm) diameter thermoset isophthalic polyester resin pultruded fiberglass reinforcement rods to provide connection between vertically and horizontally adjacent units and geosynthetic reinforcement, with the following requirements:
 - 1. Flexural Strength in accordance with ASTM D4476: 128,000 psi (882 MPa) minimum.
 - 2. Short Beam Shear in accordance with ASTM D4475: 6,400 psi (44 MPa) minimum.
- B. Shear and reinforcement pin connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

- A. Material shall consist of a compacted crushed stone base, sand and gravel or unreinforced concrete, as shown on the construction drawings.

2.04 Unit Drainage Fill

- A. Unit drainage fill shall consist of clean 1 inch (25 mm) minus crushed stone or crushed gravel meeting the following gradation tested in accordance with ASTM D-422:

Sieve Size	Percent Passing
1 inch (25 mm)	100
3/4-inch (19mm)	75 - 100
No. 4 (4.75 mm)	0 - 10
No. 50 (300 um)	0 - 5

- B. Drainage fill shall be placed within the cores of, between, and behind the units as indicated on the design drawings. Not less than 1.3 cubic foot (0.036 m³), of drainage fill shall be used for each square foot (0.093 m²) of wall face unless otherwise specified.

2.05 Reinforced Backfill

- A. Reinforced backfill shall be free of debris and meet the following gradation tested in accordance with ASTM D-422:

Sieve Size	Percent Passing
1 1/2 inch (38 mm)	100
3/4-inch (19 mm)	75 - 100
No. 40 (425 um)	0 - 60
No. 200 (75 um)	0 - 35
Plasticity Index (PI) < 15 and Liquid Limit < 40, per ASTM D4318	

- B. The maximum aggregate size shall be limited to 3/4 inch (19 mm) unless installation damage tests have been performed to evaluate potential strength reductions to the geogrid design due to increased installation damage during construction.
- C. Material can be site-excavated soils where the above requirements can be met. Soils not meeting the above criteria, including highly plastic clays and organic soils, shall not be used in the backfill or reinforced backfill soil mass.
- D. Contractor shall submit reinforced fill sample and laboratory test results to the Architect/Engineer for approval, prior to the use of any proposed reinforced backfill material.

2.06 Geogrid Soil Reinforcement

- A. Geosynthetic reinforcement shall consist of geogrids manufactured for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn or high density polyethylene. Polyester geogrid shall be made from high tenacity polyester filament yarn with a molecular weight exceeded 25,000 g/m and with a carboxyl end group value less than 30. Polyester geogrid shall be coated with an impregnated PVC coating that resists peeling, cracking and stripping.
- B. Ta - Long Term Allowable Tensile Design Load. Ta of the geogrid material shall be determined as follows: Ta = Tult/(RFcr * RFd * RFD * FS). Ta shall be evaluated based on a 75 year design life.
 - 1. Tult - Short Term Ultimate Tensile Strength. Tult shall be determined in accordance with ASTM D4595 or ASTM D6637. Tult is based on the minimum average roll values (MARV).
 - 2. RFcr - Reduction Factor for Long Term Tension Creep. RFcr shall be determined from 10,000 hour creep testing performed in accordance with ASTM D5262. RFcr = 1.45 minimum.
 - 3. RFd - Reduction Factor for Durability. RFd shall be determined from polymer specific durability testing covering the range of expected soil environments. RFd = 1.10 minimum.
 - 4. RFD - Reduction Factor for Installation Damage. RFD shall be determined from product specific construction damage testing performed in accordance with ASTM D5818. Test results shall be provided for each product to be used with project specific or more severe soil types. RFD = 1.05 minimum.
 - 5. FS - Overall Design Factor of Safety. FS shall be 1.5 unless noted for the maximum allowable working stress calculation.
- C. The maximum design tensile load of the geogrid shall not exceed the laboratory tested ultimate strength of the geogrid/facing unit connection divided by a factor of safety of 1.5. The connection strength testing and computation procedures shall be in accordance with ASTM D6638 Connection Strength between Geosynthetic Reinforcement and Segmental Concrete Units or NCMA SRWU-1.
- D. Ci - Coefficient of Soil Interaction. Ci values shall be determined per ASTM D6706 at a maximum 0.75 inch (19 mm) displacement.
- E. The geogrid manufacturer shall have a Manufacturing Quality Control program that includes QC testing by an independent laboratory. The QC testing shall include Tensile Strength testing, Melt Flow Index testing for HDPE geogrids and Molecular Weight testing for polyester geogrids.

2.07 Drainage Pipe

- A. If required, drainage pipe shall be perforated or slotted PVC pipe manufactured in accordance with ASTM D3034 or corrugated HDPE pipe manufactured in accordance with AASHTO M252.

2.08 Geotextile Filter Fabric

- A. When required, geotextile filter fabric shall be a needle-punched nonwoven fabric that meets the requirements of AASHTO M288.

PART 3: EXECUTION

3.01 Excavation

- A. Contractor shall excavate to the lines and grades shown on the construction drawings. The Owner or Contractors QA/QC representative shall inspect the excavation and test the foundation soils and approve prior to placement of the leveling pad material or fill soils. Any over-excavation required to remove unsuitable soils shall be oversized from the front of the leveling pad and back of the geogrid reinforcement.
- B. Over-excavation and replacement of unsuitable soils and replacement with approved compacted fill will be compensated as agreed upon with the Owner.

3.02 Base Leveling Pad

- A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings to a minimum thickness of 6 inches (150 mm) and extend laterally a minimum of 6 inches in front and behind the Keystone wall unit.

- B. Soil leveling pad materials shall be compacted to a minimum of 95% of Standard Proctor density per ASTM D697 or 92% Modified Proctor density per ASTM D1557.
- C. Leveling pad shall be prepared to insure full contact with the base surface of the concrete units.

3.03 Keystone Unit Installation

- A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.
- B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.
- C. Install shear/connecting pins per manufacturer's recommendations.
- D. Place and compact drainage fill within and behind wall units. Place and compact reinforced backfill soil behind drainage fill.
- E. Maximum stacked vertical height of wall units, prior to drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

- A. Geogrid shall be installed with the highest strength direction perpendicular to the wall alignment.
- B. Geogrid reinforcement shall be placed at the strengths, lengths and elevations shown on the construction drawings, or as directed by the engineer.
- C. The geogrid shall be laid horizontally on compacted backfill and attached to the Keystone wall unit pins and within 1 inch of the face of the units. Place the next course of Keystone units over the geogrid. The geogrid shall be pulled taut and anchored prior to backfill placement on the geogrid.
- D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps greater than 2 inches between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

- A. Reinforced backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage to the geogrid.
- B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches (150 mm) where hand operated compaction equipment is used, or 8 - 10 inches (200 to 250 mm) where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density, as needed.
- C. Reinforced backfill shall be compacted to a minimum of 95% of Standard Proctor density per ASTM D697 or 92% Modified Proctor density per ASTM D1557. The moisture content of the reinforced backfill material during compaction shall be uniformly distributed throughout each layer and shall be dry of optimum by 0 to 3 percentage points of moisture.
- D. Only hand operated compaction equipment shall be allowed within 3 feet (1 M) from the back of the Keystone concrete units.
- E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches (150 mm) is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging or displacing the Keystone units or geogrid.
- F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and turning shall be avoided.
- G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from the wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation

- A. Prior to placement of the cap units, the upper surface of the top course of wall units shall be cleaned of soil and any other material.
- B. Cap units shall be adequately glued to the underlying wall units with an all-weather exterior construction adhesive.

3.07 As-built Construction Tolerances

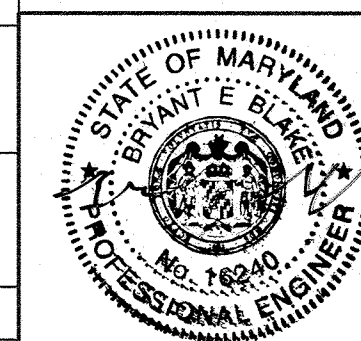
- A. Vertical alignment: ± 1.5 inches (40 mm) over any 10 foot (3 m) distance.
- B. Wall batter: within 2 degrees of design batter. Overall wall batter shall be ≥ 0 degrees.
- C. Horizontal alignment: ± 1.5 inches (40 mm) over any 10 foot (3 m) distance.
- D. Corners and curves: ± 1 foot (300 mm) to theoretical location.
- E. Maximum horizontal gap between erected units shall be $\leq 1/2$ inch (13 mm).

3.08 Field Quality Control

- A. Quality Assurance - The owner shall/may engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction. This does not relieve the Contractor from securing the necessary construction quality control testing.
- B. Quality assurance should include foundation soil inspection and testing and verification of the geotechnical design parameters and verification that the contractor's quality control testing is adequate as a minimum. Quality assurance shall also include observation of the construction for general compliance with the design drawings and project specifications. Quality assurance is usually best performed by the site geotechnical engineer.
- C. Quality Control - The Contractor shall engage independent inspection and testing services to perform the minimum quality control testing described in the retaining wall design plans and specifications. Only qualified and experienced technicians and engineers shall perform quality control testing and inspection services.
- D. Quality control testing shall include soil and backfill testing to verify soil types and strengths, compaction and moisture conditions and verification that the retaining wall is being constructed in accordance with the design plans and specifications.

PART 4: MEASUREMENT AND PAYMENT

OWNERS: TOLL MD LIMITED PARTNERSHIP A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	PROJECT: VILLAGE OF CEDAR RIDGE LOTS 1 THRU 79
DEVELOPER: TOLL MD LIMITED PARTNERSHIP A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852	LOCATION: TAX MAP 41 - PARCELS 43 AND 44 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: SITE DEVELOPMENT PLAN	SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82 F-98-52
DATE: JULY 5, 2022	PROJECT NO.:
DES: BEB	DRAFT: AM
CHECK: BEB	CHECK: AS NOTED
	SHEET: 14 OF 14



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 8/1/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION HSK DATE

[Signature] 8/1/22
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 8/17-22
DIRECTOR DATE

Blake Structural

12518 Ridgely Road, Ridgely MD 21660, PH 443-604-1461

Job No: 07038 A
Scale: As Shown
Date: July 5, 2022
Sheet: 14 of 14

Designed by: BEB
Drawn by: BEB

72' long x 7' High MSE Retaining Wall

7053 River Oak Court

Parthiv Mahadevia

Clarksville, MD 21029