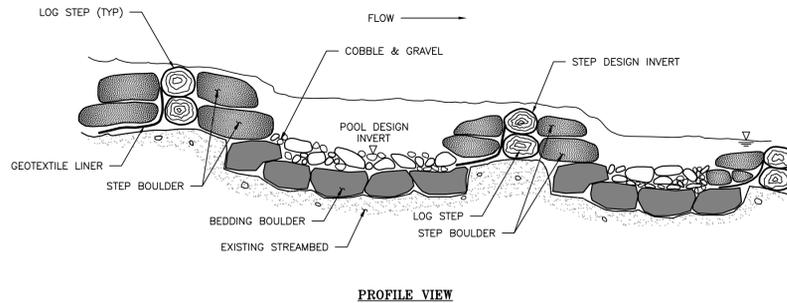
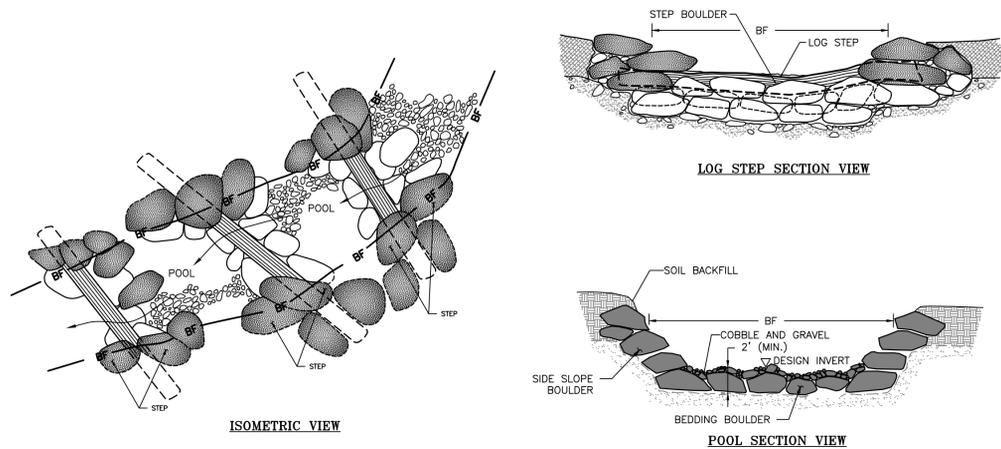
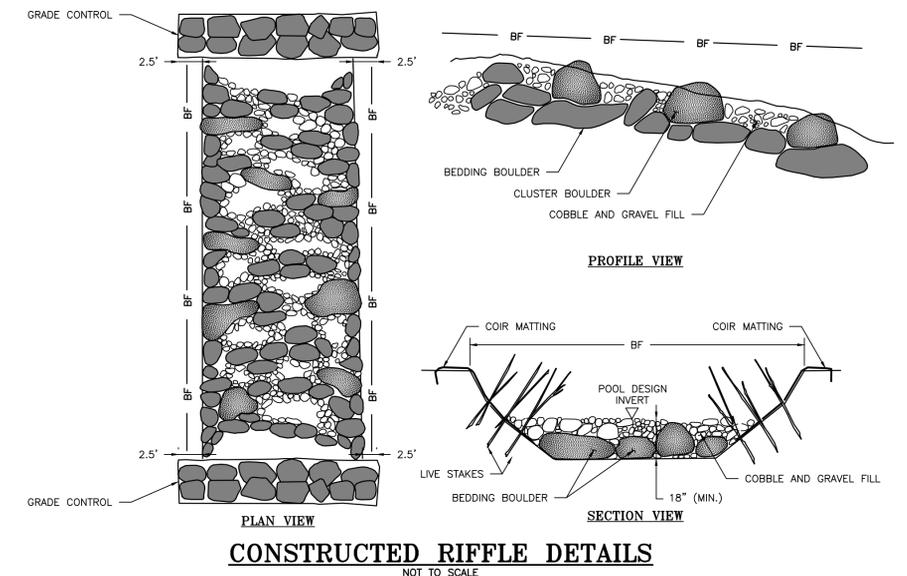


**TOE WOOD & SOIL LIFT DETAILS**  
NOT TO SCALE

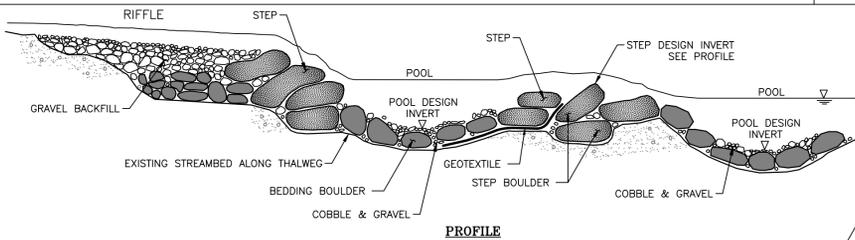


**LOG BOULDER STEP POOL DETAILS**  
NOT TO SCALE

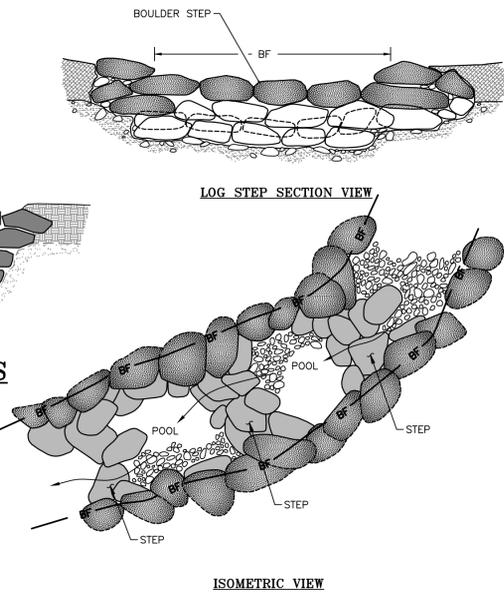
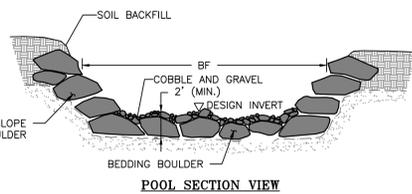


**PLUNGE POOL TABLE**

TRIBUTARY	PLUNGE POOL LENGTH	PLUNGE POOL WIDTH
BARRINGTON PLACE	28'	13
ROLLINS COURT	21.5'	8
ROLLINS COURT BRANCH #2	7'	10



**BOULDER STEP POOL DETAILS**  
NOT TO SCALE

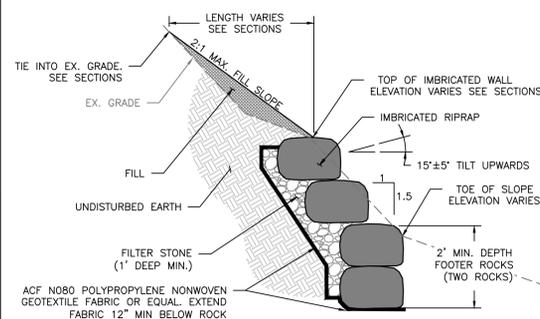


**IMBRICATED ROCK WALL NOTES**

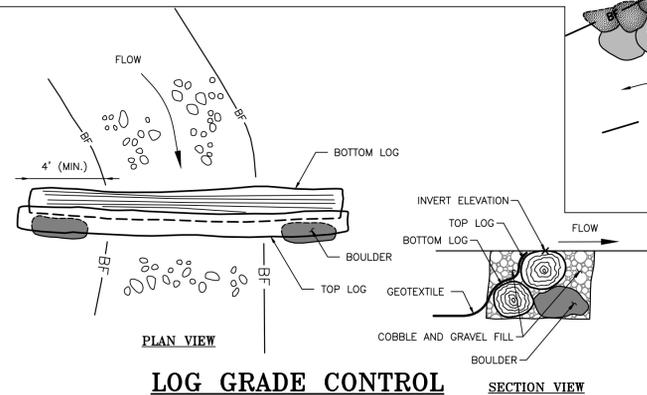
- ALL MATERIALS SHALL BE UNDERLAIN BY ACF N080 POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC OR EQUAL.
- WHEN BACKFILLING, ALL MATERIAL SHALL BE COMPACTED FIRMLY IN ALL VOIDS TO SECURE STONE. ALL SOIL SHALL BE COMPACTED TO MD-378 STANDARDS.
- ALL ROCKS SHALL BE PLACED WITH 2 PARALLEL FACES ORIENTED UP AND DOWN WITH THE TOP FACE TILTED 15°±5° INTO THE UPSTREAM DIRECTION.
- IMBRICATED ROCK WALL SHALL BE CONSTRUCTED SUCH THAT ALL ROCKS SECURELY INTERLOCK AND SHALL NOT ROCK OR ROTATE IN PLACE. ALL ROCKS EXCEPT BOTTOM FOOTER ROCKS SHALL BE SUPPORTED BY A FOOTER ROCK.
- IMBRICATED ROCK SHALL BE OBLONG AND FLAT IN APPEARANCE WITH TWO PARALLEL FACES, AND SHALL BE STACKABLE.
- ALL ROCK SHALL BE GRANITE ROCK THAT IS TAN, DARK BROWN, OR DARK GRAY IN COLOR. ROCKS NOT MEETING SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT NO COST TO THE OWNER.

**IMBRICATED ROCK SIZE TABLE**

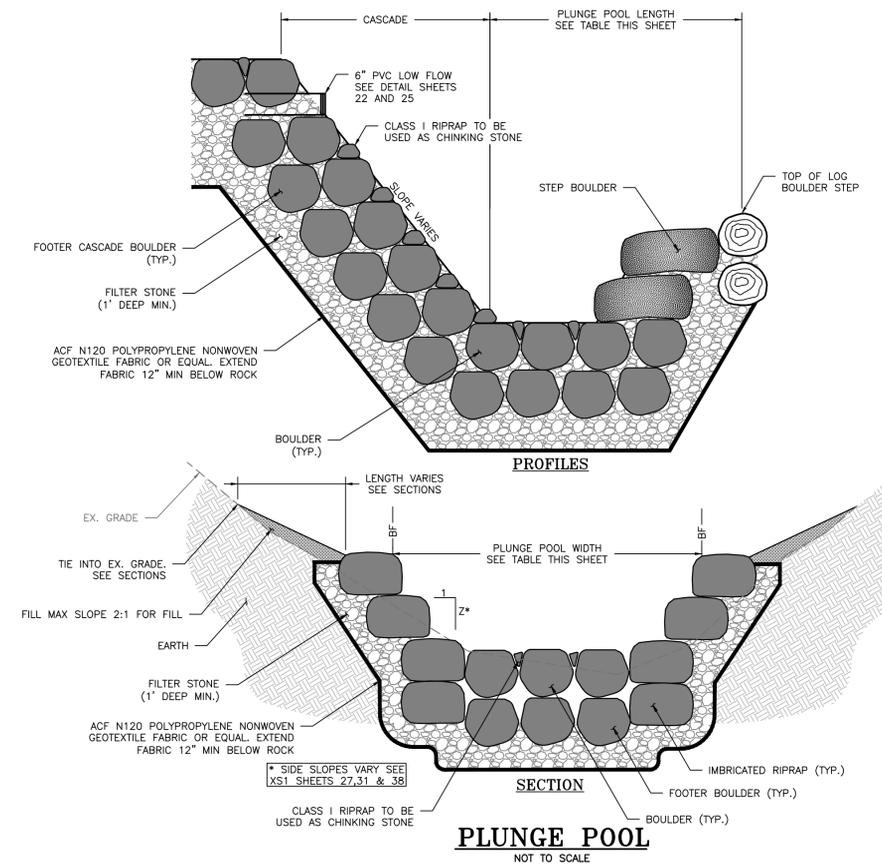
ROCK TYPE	SIZE	% BY WEIGHT
IMBRICATED ROCK	GREATER THAN 2' X 3' X 4'	20
	1' X 2' X 3' TO 2' X 3' X 4'	80
FILTER STONE	Dis = 4"; Dmax = 7"	100



**IMBRICATED ROCK WALL DETAIL**  
NOT TO SCALE



**LOG GRADE CONTROL**  
NOT TO SCALE



**PLUNGE POOL**  
NOT TO SCALE

EG-SWMENG-000135-2015 #99974



REVISIONS		HARFORD COUNTY, MARYLAND	
		<b>BARRINGTON PLACE STREAM RESTORATION STREAM DETAILS</b>	
DRAWN BY: MDD		CONTRACT NO.:	
DESIGNED BY: RP/MDD		SCALE: NONE	
REVIEWED BY: CJS		SHEET 39 OF 53	
		DATE: 01/27/17	

# MD-378 CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

**SITE PREPARATION**  
AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBSTRUCTIBLE MATERIALS SHALL BE REMOVED. CHANNEL BANKS AND SHOULDER BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

**AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBER AND OTHER OBSTRUCTIBLE MATERIAL, UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.**

**ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.**

**EARTH FILL**  
MATERIAL THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STONES, RUBBER, STONES GREATER THAN 6 INCHES, FROZEN OR OTHER OBSTRUCTIBLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION (UC, SC, CH, OR CL) AND MUST HAVE AT LEAST 90% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER.

**MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.**

**PLACEMENT AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMISSIBLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.**

**COMPACTION OF THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN SEVEN TRACKS OF HEAVY EQUIPMENT OR EQUIPMENT EQUIVALENT. THIS SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TREAD OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.**

**WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF THE MAXIMUM DENSITY OF THE DRY TRENCH OR SUBGRADE. THIS SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TREAD OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.**

**CUT OFF TRENCH THE CUT OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE COVERED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.**

**EMBANKMENT CORE THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.**

**STRUCTURE BACKFILL**  
BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT THE END OF THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER A PART OF A CONCRETE STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

**STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE FLOWABLE FILL SHALL HAVE A 100-200 PSI, 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR ROAD CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL Voids ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.**

**PIPE CONDUITS**  
ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.  
CORRUGATED METAL PIPE ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:  
1. MATERIALS (POLYMER COATED STEEL PIPE) STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATER TIGHT COUPLING BANDS OR FLANGES.

**MATERIALS (ALUMINUM COATED STEEL PIPE)**  
- THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED PIPES MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

**ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.**

**MATERIALS (ALUMINUM PIPE)** THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED PIPES MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

**EROSION AND SEDIMENT CONTROL**  
CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

**HARFORD COUNTY, MARYLAND**

**BARRINGTON PLACE STREAM RESTORATION**

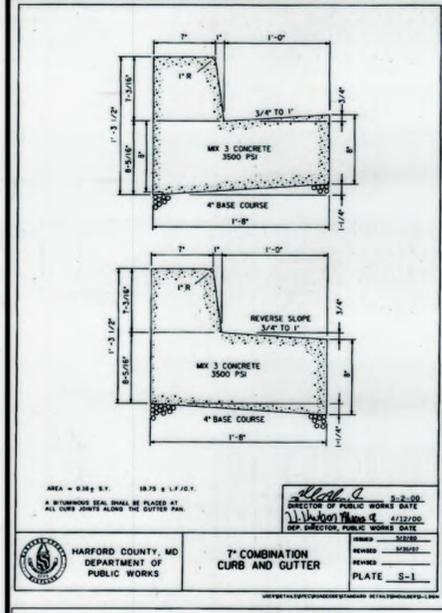
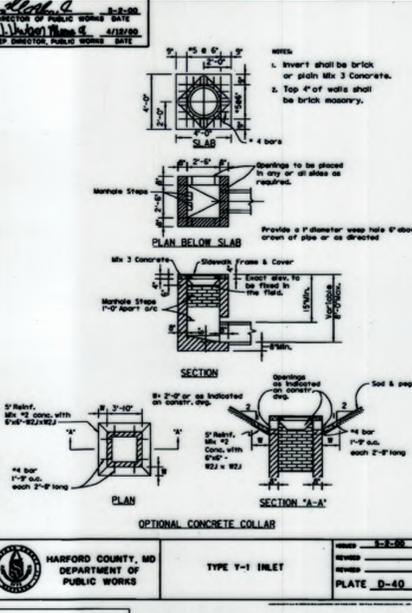
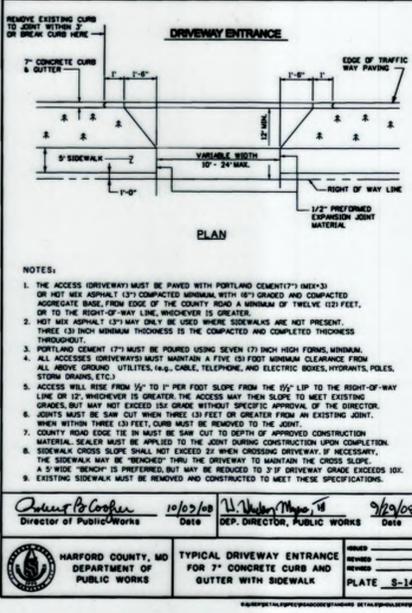
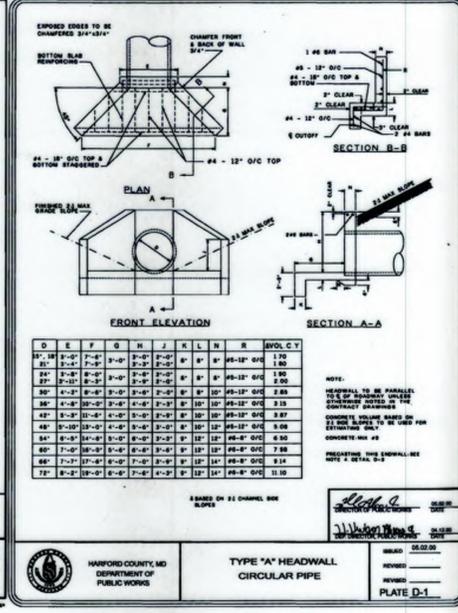
**NOTES & DETAILS**

REVISIONS

2019-06-25  
REVISED SWM ACCESS ROAD DETAIL TO REFLECT CR-6 STONE  
R09 7/16/19

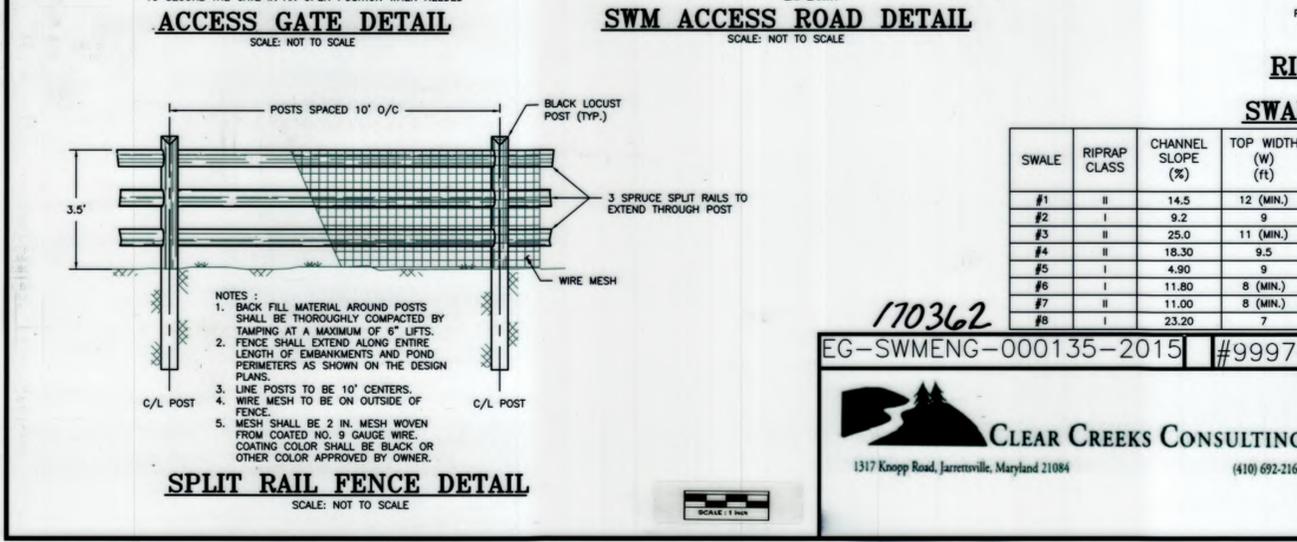
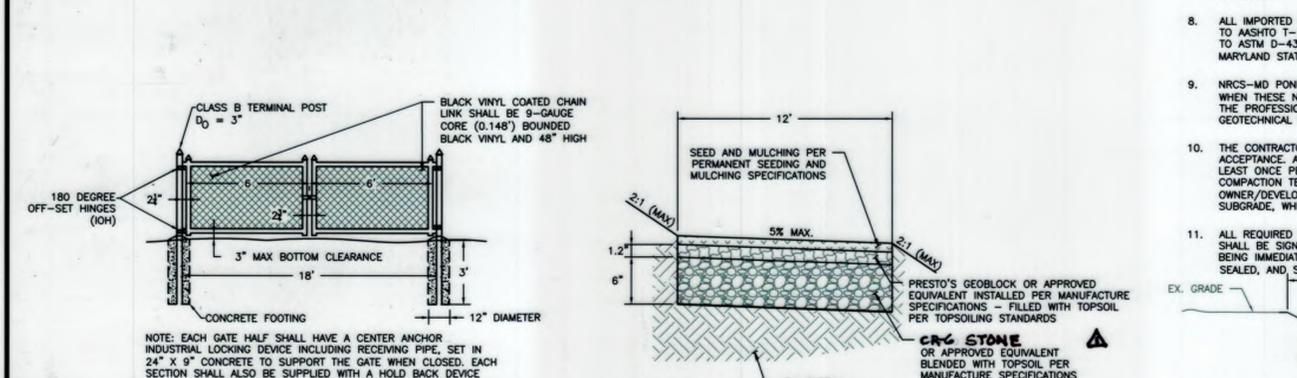
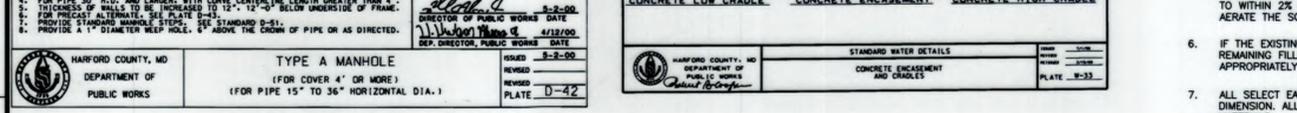
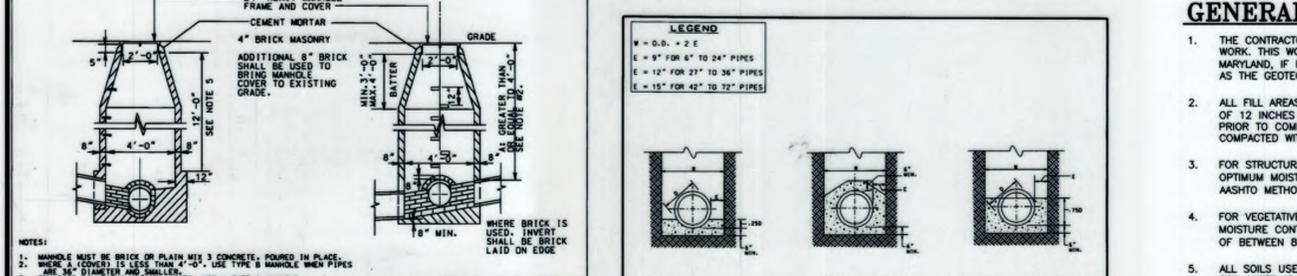
DRAWN BY: MDD  
DESIGNED BY: RP/MDD  
REVIEWED BY: CJS

CONTRACT NO: \_\_\_\_\_  
SCALE: NONE  
SHEET 40 OF 53  
DATE: 03/16/17



## GENERAL GEOTECHNICAL NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUBGRADE INSPECTIONS AND SOIL COMPACTION TESTING ASSOCIATED WITH THE PROPOSED WORK. THIS WORK SHALL BE COMPLETED BY OR UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND, IF REQUESTED BY THE OWNER/DEVELOPER OR AS INDICATED ON THE APPROVED PLANS. THIS ENGINEER IS HEREOF REFERRED TO AS THE GEOTECHNICAL ENGINEER AND SHALL BE FROM AN INDEPENDENT FIRM FROM THAT OF THE CONTRACTOR.
- ALL FILL AREAS SHALL BE CLEARED OF ALL VEGETATION AND DEBRIS, STRIPPED OF ALL TOPSOIL, AND THEN SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES PRIOR TO THE PLACEMENT OF FILL. FILL MATERIAL SHALL BE PLACED IN CONTROLLED LIFTS WITH A MAXIMUM THICKNESS OF 8" PRIOR TO COMPACTION THAT IS CONTINUOUS OVER THE ENTIRE AREA WHERE FILL IS TO BE PLACED. EACH LAYER OF FILL SHALL BE COMPACTED WITH THE MINIMUM NUMBER OF PASSES NECESSARY TO PRODUCE A FULL ASYMPTOTIC COMPACTION.
- FOR STRUCTURAL AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS, COMPACTION SHALL BE CARRIED OUT WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT TO A DRY DENSITY OF 95% OF THE MAXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698 AND AASHTO METHOD T-99).
- FOR VEGETATIVE AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS, COMPACTION SHALL BE CARRIED OUT AT A LESS THAN OPTIMUM MOISTURE CONTENT (E.G., AT A WATER CONTENT OF LESS THAN 13% ON A SOIL HAVING AN OPTIMUM CONTENT OF 15%) TO A DRY DENSITY OF BETWEEN 80% AND 85% OF THE MAXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698).
- ALL SOILS USED IN FILL AND BACKFILL MUST BE MOISTENED OR AERATED TO WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. WHERE THE SOIL LAYER IS TOO DRY, THE CONTRACTOR MUST APPLY WATER UNIFORMLY USING APPROVED EQUIPMENT TO INCREASE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM. WHERE THE SOIL LAYER IS TOO WET, THE CONTRACTOR MUST DRY THE SOILS BY PLOWING OR DISKING TO AERATE THE SOIL AND REDUCE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM.
- IF THE EXISTING ONSITE MATERIAL IS ROCKY, THEN THE SAME CAN BE USED UP TO 9 INCHES BELOW THE FINAL ELEVATION OR SUBBASE. THE REMAINING FILL MUST BE SELECT EARTH FILL. SOFT SPOTS IDENTIFIED DURING COMPACTION SHALL BE UNDERCUT AND BACKFILLED APPROPRIATELY.
- ALL SELECT EARTH FILL SHALL BE FREE FROM ORGANICS, FROZEN MATERIAL, AND ROCKS/STONES GREATER THAN 2" INCHES IN ANY DIMENSION. ALL FILL MATERIAL MUST BE FREE FROM WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR OTHER DELETERIOUS MATERIALS.
- ALL IMPORTED FILL MATERIAL SHALL HAVE A MINIMUM DENSITY OF 105 POUNDS PER CUBIC FOOT FOR THE MAXIMUM DRY DENSITY ACCORDING TO AASHTO T-180, METHOD C; AND SHALL NOT HAVE A LIQUID LIMIT GREATER THAN 30 NOR A PLASTICITY INDEX GREATER THAN 6 ACCORDING TO ASTM D-4318. ALL OTHER MATERIALS SHALL MEET THE REQUIREMENTS STATED IN CATEGORY 900 OF THE LATEST EDITION OF THE MARYLAND STATE HIGHWAY ADMINISTRATION (MSHA) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
- NRCS-MD POND CODE NO. 378 STANDARDS/SPECIFICATIONS (MD-378) SHALL SUPERSEDE THESE NOTES FOR ANY FILL SUBJECT TO MD-378 WHEN THESE NOTES ARE LESS STRINGENT AND/OR IN THE CASE OF CONFLICT, ANY REFERENCE TO THE ENGINEER IN THE MD-378 SHALL BE THE PROFESSIONAL ENGINEER WHO SIGNED AND SEALED THE DESIGN PLANS. ANY REFERENCE TO THE GEOTECHNICAL ENGINEER SHALL BE THE GEOTECHNICAL ENGINEER IN THESE GENERAL NOTES.
- THE CONTRACTOR SHALL SUBMIT ALL REQUIRED PROCTOR DENSITY RESULTS OF TESTED FILL TO THE OWNER/DEVELOPER FOR REVIEW AND ACCEPTANCE AT A MINIMUM, COMPACTION TESTS SHALL BE COMPLETED FOR EVERY LIFT OF FILL AND THE TESTING FREQUENCY SHALL BE AT LEAST ONE PER 150 LINEAR FEET OF TRENCH OR ONCE PER 1,500 SQUARE FEET OF FILL. AT A MINIMUM, THERE SHALL BE AT LEAST ONE COMPACTION TEST PER LIFT AND AT LEAST TWO COMPACTION TESTS PER DAY. THE GEOTECHNICAL ENGINEER SHALL SUPPLY THE OWNER/DEVELOPER WITH CERTIFIED COMPACTION TEST RESULTS, INCLUDING CERTIFICATION OF PIPE BEDDING SUBGRADE AND/OR FILL SUBGRADE, WHERE APPROPRIATE.
- ALL REQUIRED INSPECTIONS, TESTS, SUPPORTING DATA, REPORTS, AND CERTIFICATIONS SHALL BE PROVIDED TO THE OWNER/DEVELOPER AND SHALL BE SIGNED AND SEALED BY THE GEOTECHNICAL ENGINEER. DAILY INSPECTION REPORTS, IF REQUESTED, MAY BE PROVIDED WITHOUT BEING IMMEDIATELY SIGNED AND SEALED BY THE GEOTECHNICAL ENGINEER. THESE REPORTS SHALL BE COMPLETED, REVIEWED, SIGNED AND SEALED, AND SUBMITTED TO THE OWNER/DEVELOPER NO LATER THAN 30 DAYS AFTER THE COMPLETION OF THE PROJECT.



## RIPRAP SWALE DETAIL

### SWALE STRUCTURE TABLE

SWALE #	RIPRAP CLASS	CHANNEL SLOPE (%)	TOP WIDTH (W) (ft)	BOTTOM WIDTH (B) (ft)	RIPRAP WIDTH (W <sub>R</sub> ) (ft)	SIDE SLOPES (X)	SWALE DEPTH (H) (ft)	MATERIAL DEPTH (D) (ft)	100-YR VELOCITY (fps)	100-YR SHEAR STRESS (lb/ft <sup>2</sup> )
#1	II	14.5	12 (MIN.)	3	8	3	1.5 (MIN.)	32	10.70	10.10
#2	II	9.2	9	3	6	3	1	19	4.30	1.70
#3	II	25.0	11 (MIN.)	5	8	3	1 (MIN.)	32	7.30	8.70
#4	II	18.30	9.5	3.5	9	3	1	32	7.90	5.70
#5	I	4.90	9	3	6	3	1	19	4.60	1.80
#6	I	11.80	8 (MIN.)	2	5	2	1.5 (MIN.)	19	7.10	4.50
#7	II	11.00	8 (MIN.)	2	5	2	1.5 (MIN.)	32	7.80	5.80
#8	I	23.20	7	3	5	2	1	19	6.80	4.20

**Clear Creeks Consulting**

1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

**BayLand Consultants & Designers, Inc.**

"Integrating Engineering and Environment"

7455 New Ridge Road, Suite I Phone: (410) 694-9401  
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Website: www.baylandinc.com

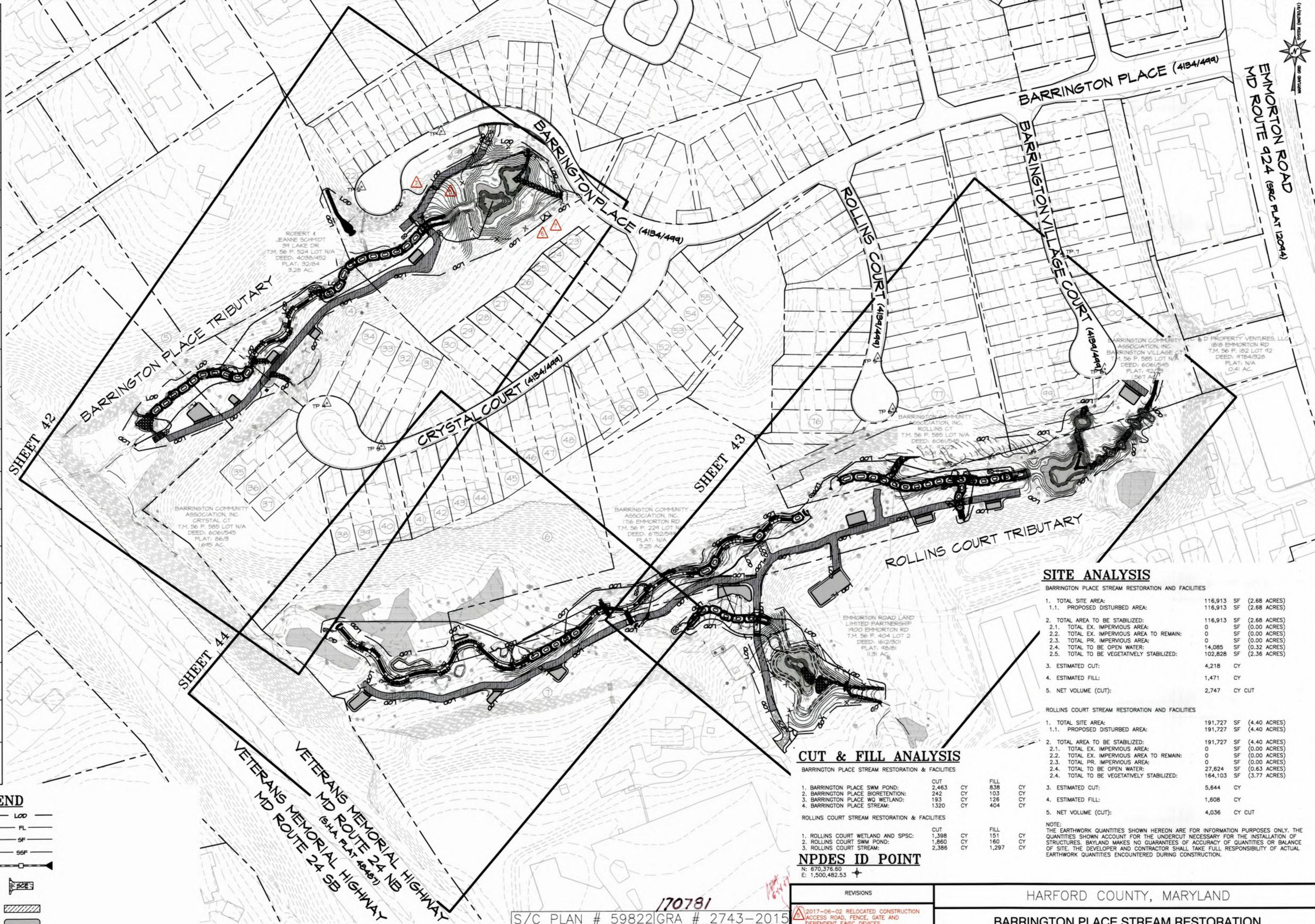
BAYLAND JOB NO. 4-3602

PARCEL TABLE	
NO.	PARCEL INFO.
3	BARRINGTON COMMUNITY ASSOCIATION, INC. BARRINGTON PL. T.M. 56 P. 585 LOT N/A DEED: 6081/545 PLAT: 86/37 4.053 AC.
4	BARRINGTON COMMUNITY ASSOCIATION, INC. BARRINGTON PL. T.M. 56 P. 585 LOT N/A DEED: 6081/545 PLAT: 82/3 1.18 AC.
5	RICHARD O. COOK ET. AL. TOLLGATE RD. T.M. 56 P. 622 LOT N/A DEED: 11655/112 PLAT: N/A 2.70 AC.
6	BARRINGTON COMMUNITY ASSOCIATION, INC. BARRINGTON PL. T.M. 56 P. 585 LOT N/A DEED: 6081/545 PLAT: 82/3 2.862 AC.
7	EMMORTON BAPTIST CHURCH 106A PLUMTREE RD. T.M. 56 P. 28 LOT N/A DEED: 1000/210 PLAT: N/A 10.399 AC.
22	MICHAEL D. FAIRCLOTH 76 BARRINGTON PL. T.M. 56 P. 585 LOT 22 DEED: 2858/742 PLAT: 82/2 0.08 AC.
23	DAN N. MD & MARY ANN GOLDSTEIN (CO-TRUSTEES) 50 CRYSTAL CT. T.M. 56 P. 585 LOT 23 DEED: 7857/19 PLAT: 82/2 0.13 AC.
24	ROBERTA VEGA 52 CRYSTAL CT. T.M. 56 P. 585 LOT 24 DEED: 10900/113 PLAT: 82/2 0.12 AC.
25	DONNA B. WELSH & CATHERINE B. CAMPBELL (TRUSTEES) 54 CRYSTAL CT. T.M. 56 P. 585 LOT 25 DEED: 11822/131 PLAT: 82/2 0.13 AC.
26	DORIS GEER-LOCKWOOD ET. AL. 56 CRYSTAL CT. T.M. 56 P. 585 LOT 26 DEED: 7922/95 PLAT: 82/2 0.14 AC.
27	MARY ELISE MC HUGH 58 CRYSTAL CT. T.M. 56 P. 585 LOT 27 DEED: 9226/371 PLAT: 82/2 0.14 AC.
28	SHEILA L. JACOBS 60 CRYSTAL CT. T.M. 56 P. 585 LOT 28 DEED: 3132/202 PLAT: 82/2 0.12 AC.
29	ALICE M. MARZICOLA 62 CRYSTAL CT. T.M. 56 P. 585 LOT 29 DEED: 9151/138 PLAT: 82/2 0.12 AC.
30	ALBERT L. & CONNIE BLUMBERG 64 CRYSTAL CT. T.M. 56 P. 585 LOT 30 DEED: 2459/245 PLAT: 82/2 0.12 AC.
31	JERRY N. & MADELINE G. DAY 66 CRYSTAL CT. T.M. 56 P. 585 LOT 31 DEED: 2484/1000 PLAT: 82/3 0.16 AC.
32	WALTER ALLEN TILLEY III 68 CRYSTAL CT. T.M. 56 P. 585 LOT 32 DEED: 7142/697 PLAT: 82/3 0.15 AC.
33	PETER F. & JUNE ALLERA (TRUSTEES) 70 CRYSTAL CT. T.M. 56 P. 585 LOT 33 DEED: 7280/684 PLAT: 82/3 0.13 AC.
34	JOHN J. & MARLENE SCHAUB 72 CRYSTAL CT. T.M. 56 P. 585 LOT 34 DEED: 2464/485 PLAT: 82/3 0.13 AC.
35	RAYMOND J. & BRENDA VOGEL 79 CRYSTAL CT. T.M. 56 P. 585 LOT 35 DEED: 2562/690 PLAT: 86/3 0.15 AC.
36	FRANK & MARY SPECIALE 77 CRYSTAL CT. T.M. 56 P. 585 LOT 36 DEED: 10277/440 PLAT: 86/3 0.12 AC.
37	MARK A. & SUSAN L. JOSLIN (TRUSTEES) 75 CRYSTAL CT. T.M. 56 P. 585 LOT 37 DEED: 10411/222 PLAT: 86/3 0.13 AC.
38	EDWARD H. JR. & PATRICIA A. WALKER 73 CRYSTAL CT. T.M. 56 P. 585 LOT 38 DEED: 2567/01 PLAT: 82/3 0.14 AC.
39	JEANNE BECKMAN 71 CRYSTAL CT. T.M. 56 P. 585 LOT 39 DEED: 10565/112 PLAT: 82/3 0.12 AC.
40	MELVIN JAMES, JR. & NANCY L. DIXON 69 CRYSTAL CT. T.M. 56 P. 585 LOT 40 DEED: 2536/413 PLAT: 82/3 0.13 AC.

PARCEL TABLE	
NO.	PARCEL INFO.
41	MARY D. DEYESU 67 CRYSTAL CT. T.M. 56 P. 585 LOT 41 DEED: 2410/422 PLAT: 82/3 0.14 AC.
42	CHUCK & ANN M. WIENCKOWSKI 65 CRYSTAL CT. T.M. 56 P. 585 LOT 42 DEED: 9737/445 PLAT: 82/3 0.12 AC.
43	MARTIN L. & PATRICIA A. BURCH 63 CRYSTAL CT. T.M. 56 P. 585 LOT 43 DEED: 6375/407 PLAT: 82/3 0.12 AC.
44	DAWN MARIE SHIFLET 61 CRYSTAL CT. T.M. 56 P. 585 LOT 44 DEED: 11461/430 PLAT: 82/3 0.14 AC.
45	LEJUNE R. PYLE (TRUSTEE) 59 CRYSTAL CT. T.M. 56 P. 585 LOT 45 DEED: 11278/363 PLAT: 82/3 0.14 AC.
46	WILLIAM E. & GERALDINE H. VON DEN BOSCH 57 CRYSTAL CT. T.M. 56 P. 585 LOT 46 DEED: 2380/697 PLAT: 82/3 0.12 AC.
47	H. CHARLES & MARTA MITCHELL 53 CRYSTAL CT. T.M. 56 P. 585 LOT 47 DEED: 2380/757 PLAT: 82/3 0.12 AC.
48	ARTHUR W. BELL 53 CRYSTAL CT. T.M. 56 P. 585 LOT 48 DEED: 2358/552 PLAT: 82/3 0.14 AC.
49	NANCY M. EDWARDS (TRUSTEE) 51 CRYSTAL CT. T.M. 56 P. 585 LOT 49 DEED: 9217/432 PLAT: 86/58 0.14 AC.
50	PAUL M. & MARY ANNE LUBERTINE 49 CRYSTAL CT. T.M. 56 P. 585 LOT 50 DEED: 9217/68 PLAT: 86/58 0.13 AC.
51	ANTHONY S. & DORIS W. SPERANDEO 47 CRYSTAL CT. T.M. 56 P. 585 LOT 51 DEED: 2862/437 PLAT: 86/58 0.14 AC.
52	MABEL GARRITY STURR (TRUSTEE) 45 CRYSTAL CT. T.M. 56 P. 585 LOT 52 DEED: 4456/409 PLAT: 86/58 0.15 AC.
53	COLLEEN E. KANDE 43 CRYSTAL CT. T.M. 56 P. 585 LOT 53 DEED: 9677/313 PLAT: 86/58 0.13 AC.
54	MARY R. BUCCI 41 CRYSTAL CT. T.M. 56 P. 585 LOT 54 DEED: 11243/222 PLAT: 86/58 0.13 AC.
55	JOHN LOUIS CITRO 39 CRYSTAL CT. T.M. 56 P. 585 LOT 55 DEED: 2611/906 PLAT: 89/28 0.15 AC.
76	ROBERT G. & CATHERINE D. PRESTON 1818 ROLLS CT. T.M. 56 P. 585 LOT 76 DEED: 6777/433 PLAT: 99/34 0.14 AC.
77	MARGUERITE L. HEUMAN (TRUSTEE) 1819 ROLLS CT. T.M. 56 P. 585 LOT 77 DEED: 3950/177 PLAT: 92/22 0.13 AC.
99	JOE N. & REBECCA G. ROSS 1824 BARRINGTON VILLAGE CT. T.M. 56 P. 585 LOT 99 DEED: 3110/528 PLAT: 92/23 0.13 AC.
100	JAMES R. & MARCELLA A. DE CAPITTE 1819 BARRINGTON VILLAGE CT. T.M. 56 P. 585 LOT 100 DEED: 7128/46 PLAT: 92/23 0.10 AC.

### ESC LEGEND

LIMIT OF DISTURBANCE	---	LOD
18" FILTER LOG	---	FL
SILT FENCE	---	SF
SUPER SILT FENCE	---	SSF
DIVERSION PIPE & CLEAN WATER PUMP	---	
STABILIZED CONSTRUCTION ENTRANCE	---	
TEMPORARY CONSTRUCTION ACCESS ROAD	---	
STOCKPILE AREA	---	
MOUNTABLE BERM	---	
TEMPORARY SANDBAG DIKE	---	
FILTER BAG	---	
TEMPORARY ACCESS BRIDGE	---	TB
TEMPORARY STONE OUTFALL PROTECTION	---	
COMBINATION INLET PROTECTION	---	COIP



### SITE ANALYSIS

BARRINGTON PLACE STREAM RESTORATION AND FACILITIES

1. TOTAL SITE AREA:	116,913 SF (2.68 ACRES)
1.1. PROPOSED DISTURBED AREA:	116,913 SF (2.68 ACRES)
2. TOTAL AREA TO BE STABILIZED:	116,913 SF (2.68 ACRES)
2.1. TOTAL EX. IMPERVIOUS AREA:	0 SF (0.00 ACRES)
2.2. TOTAL EX. IMPERVIOUS AREA TO REMAIN:	0 SF (0.00 ACRES)
2.3. TOTAL PR. IMPERVIOUS AREA:	0 SF (0.00 ACRES)
2.4. TOTAL TO BE OPEN WATER:	14,085 SF (0.32 ACRES)
2.5. TOTAL TO BE VEGETATIVELY STABILIZED:	102,828 SF (2.36 ACRES)
3. ESTIMATED CUT:	4,218 CY
4. ESTIMATED FILL:	1,471 CY
5. NET VOLUME (CUT):	2,747 CY CUT

ROLLINS COURT STREAM RESTORATION AND FACILITIES

1. TOTAL SITE AREA:	191,727 SF (4.40 ACRES)
1.1. PROPOSED DISTURBED AREA:	191,727 SF (4.40 ACRES)
2. TOTAL AREA TO BE STABILIZED:	191,727 SF (4.40 ACRES)
2.1. TOTAL EX. IMPERVIOUS AREA:	0 SF (0.00 ACRES)
2.2. TOTAL EX. IMPERVIOUS AREA TO REMAIN:	0 SF (0.00 ACRES)
2.3. TOTAL PR. IMPERVIOUS AREA:	0 SF (0.00 ACRES)
2.4. TOTAL TO BE OPEN WATER:	27,624 SF (0.63 ACRES)
2.4. TOTAL TO BE VEGETATIVELY STABILIZED:	164,103 SF (3.77 ACRES)
3. ESTIMATED CUT:	5,644 CY
4. ESTIMATED FILL:	1,608 CY
5. NET VOLUME (CUT):	4,036 CY CUT

### CUT & FILL ANALYSIS

BARRINGTON PLACE STREAM RESTORATION & FACILITIES

	CUT	FILL
1. BARRINGTON PLACE SWM POND:	2,463 CY	838 CY
2. BARRINGTON PLACE BIORETENTION:	242 CY	103 CY
3. BARRINGTON PLACE WQ WETLAND:	193 CY	126 CY
4. BARRINGTON PLACE STREAM:	1,320 CY	404 CY

ROLLINS COURT STREAM RESTORATION & FACILITIES

	CUT	FILL
1. ROLLS COURT WETLAND AND SPSC:	1,398 CY	151 CY
2. ROLLS COURT SWM POND:	1,860 CY	160 CY
3. ROLLS COURT STREAM:	2,366 CY	1,297 CY

NOTE: THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. THE QUANTITIES SHOWN ACCOUNT FOR THE UNDERCUT NECESSARY FOR THE INSTALLATION OF STRUCTURES. BAYLAND MAKES NO GUARANTEES OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE DEVELOPER AND CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.

### NPDES ID POINT

N: 670,376.60  
E: 1,500,482.53

### REVISIONS

2017-06-02	RELOCATED CONSTRUCTION ACCESS ROAD, FENCE, GATE AND DEPENDENT EASC DEVICES
2017-06-02	REMOVED CONSTRUCTION ACCESS ROAD
2017-06-02	REVISED LIMIT OF DISTURBANCE

HARFORD COUNTY, MARYLAND	
<b>BARRINGTON PLACE STREAM RESTORATION EROSION &amp; SEDIMENT CONTROL KEY SHEET</b>	
DRAWN BY: MDD	CONTRACT NO.:
DESIGNED BY: RP/MDD	SCALE: 1" = 80'
REVIEWED BY: CJS	SHEET 41 OF 53
	DATE: 06/06/17

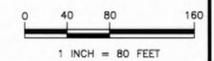
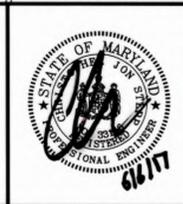
EG-SWMENG-000135-2015 #99974

1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

**Bayland**  
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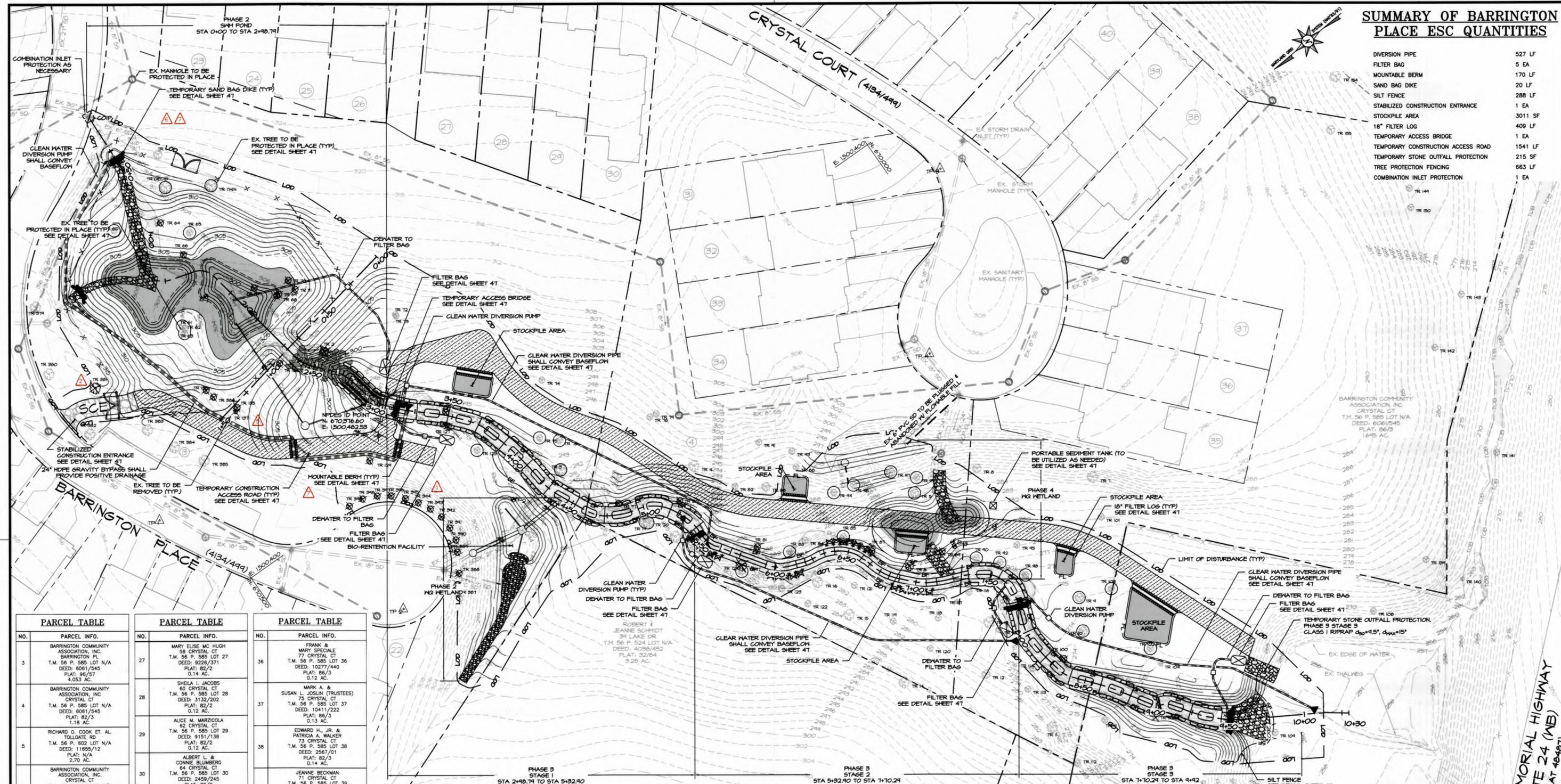
BAYLAND JOB NO. 4-3602



TAX MAP: HCC BILLING ID NO.: HCC DWG ID NO.: SCALE: 1" = 80'

**SUMMARY OF BARRINGTON PLACE ESC QUANTITIES**

DIVERSION PIPE	527 LF
FILTER BAG	5 EA
MOUNTABLE BERM	170 LF
SAND BAG DIKE	20 LF
SILT FENCE	288 LF
STABILIZED CONSTRUCTION ENTRANCE	1 EA
STOCKPILE AREA	3011 SF
18" FILTER LOG	409 LF
TEMPORARY ACCESS BRIDGE	1 EA
TEMPORARY CONSTRUCTION ACCESS ROAD	1541 LF
TEMPORARY STONE OUTFALL PROTECTION	215 SF
TREE PROTECTION FENCING	663 LF
COMBINATION INLET PROTECTION	1 EA



NO.	PARCEL INFO.	NO.	PARCEL INFO.	NO.	PARCEL INFO.
3	BARRINGTON COMMUNITY ASSOCIATION, INC. BARRINGTON PL. T.M. 56 P. 585 LOT N/A DEED: 6061/545 PLAT: 98/27 4.053 AC.	27	MARY ELISE MC HUGH 58 CRYSTAL CT. T.M. 56 P. 585 LOT 27 DEED: 9226/371 PLAT: 82/2 0.14 AC.	36	FRANK & MARY SPECIALE 77 CRYSTAL CT. T.M. 56 P. 585 LOT 36 DEED: 10277/440 PLAT: 86/3 0.12 AC.
4	BARRINGTON COMMUNITY ASSOCIATION, INC. CRYSTAL CT. T.M. 56 P. 585 LOT N/A DEED: 6061/545 PLAT: 82/3 1.18 AC.	28	SHEILA J. JACOBS 60 CRYSTAL CT. T.M. 56 P. 585 LOT 28 DEED: 3132/202 PLAT: 82/2 0.12 AC.	37	SUSAN L. JOSLIN (TRUSTEES) 75 CRYSTAL CT. T.M. 56 P. 585 LOT 37 DEED: 10411/222 PLAT: 86/3 0.13 AC.
5	RICHARD O. COOK ET. AL. TOLLGATE RD. T.M. 56 P. 802 LOT N/A DEED: 11655/12 PLAT: N/A	29	ALICE M. MARZICOLA 62 CRYSTAL CT. T.M. 56 P. 585 LOT 29 DEED: 9151/138 PLAT: 82/2 0.12 AC.	38	EDWARD H., JR. & PATRICIA A. WALKER 73 CRYSTAL CT. T.M. 56 P. 585 LOT 38 DEED: 2567/01 PLAT: 82/3 0.14 AC.
6	BARRINGTON COMMUNITY ASSOCIATION, INC. CRYSTAL CT. T.M. 56 P. 585 LOT N/A DEED: 6061/545 PLAT: 82/3 2.882 AC.	30	ALBERT L. & CONNIE BLUMBERG 64 CRYSTAL CT. T.M. 56 P. 585 LOT 30 DEED: 2459/245 PLAT: 82/2 0.12 AC.	39	JEANNE BECKMAN 71 CRYSTAL CT. T.M. 56 P. 585 LOT 39 DEED: 10565/112 PLAT: 82/3 0.12 AC.
7	EMMORTON BAPTIST CHURCH 106A PLUMTREE RD. T.M. 56 P. 28 LOT N/A DEED: 1000/210 PLAT: N/A 10.399 AC.	31	JERRY N. & MADELINE G. GAY 68 CRYSTAL CT. T.M. 56 P. 585 LOT 31 DEED: 2484/1000 PLAT: 82/3 0.16 AC.	40	MELVIN JAMES, JR. & NANCY L. DIXON 69 CRYSTAL CT. T.M. 56 P. 585 LOT 40 DEED: 2536/413 PLAT: 82/3 0.13 AC.
22	MICHAEL D. FAIRCLOTH 76 BARRINGTON PL. T.M. 56 P. 585 LOT 22 DEED: 2858/742 PLAT: 82/2 0.18 AC.	32	WALTER ALLEN TILLEY III 66 CRYSTAL CT. T.M. 56 P. 585 LOT 32 DEED: 7142/697 PLAT: 82/3 0.15 AC.		
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24	ROBERTA NEGA 82 CRYSTAL CT. T.M. 56 P. 585 LOT 24 DEED: 10505/113 PLAT: 82/2 0.12 AC.	34	JOHN J. & MARLENE SCHALUB 72 CRYSTAL CT. T.M. 56 P. 585 LOT 34 DEED: 2484/485 PLAT: 82/3 0.13 AC.		
25	DONNA B. WELSH & CATHERINE B. CAMPBELL (TRUSTEES) 54 CRYSTAL CT. T.M. 56 P. 585 LOT 25 DEED: 11829/231 PLAT: 82/2 0.13 AC.	35	RAYMOND J. & BRENDA VOGEL 79 CRYSTAL CT. T.M. 56 P. 585 LOT 35 DEED: 2562/690 PLAT: 86/3 0.15 AC.		
26	DORIS GEER-LOCKWOOD ET. AL. 56 CRYSTAL CT. T.M. 56 P. 585 LOT 26 DEED: 7922/95 PLAT: 82/2 0.14 AC.				

- NOTES:**
- SEE SHEET 45 FOR SEQUENCE OF CONSTRUCTION.
  - FOR EACH PHASE, THE CLEANWATER DIVERSIONS SHALL BE SETUP BEFORE THE COMMENCEMENT OF GRADING OPERATIONS. THE CLEANWATER DIVERSION PIPES SHALL BE FIELD LOCATED BY THE CONTRACTOR AND ARE SHOWN ON THE PLANS TO ILLUSTRATE POTENTIAL ALIGNMENTS. THE CLEANWATER DIVERSION TEMPORARY INFRASTRUCTURE SHALL REMAIN IN PLACE FOR EACH PHASE AND SHALL COMPLETELY DEWATER THE WORK AREA WHEN CONSTRUCTION ACTIVITIES ARE TAKING PLACE.
  - BECAUSE OF SEASONAL VARIATIONS IN FLOW, THE SIZE OF PUMP AND THE SIZE AND TYPE OF PIPING PUMPED NECESSARY TO CONVEY CLEANWATER FOR THE PUMPED CLEANWATER DIVERSIONS SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE SEDIMENT CONTROL INSPECTOR. CARE SHOULD BE TAKEN BY THE CONTRACTOR AS TO NOT OVER OR UNDER-SIZE THE PUMP/PIPING NECESSARY TO CONVEY THE BASE FLOW.
  - CONTRACTOR SHALL ONLY INSTALL INSTREAM STRUCTURES OR COMPLETE STREAM WORK THAT CAN BE COMPLETED IN ONE WORKING DAY. ALL INSTREAM WORK SHALL BE STABILIZED BY THE END OF EACH WORKING DAY BEFORE THE CLEAN WATER DIVERSION PUMPS ARE SHUT DOWN AND WATER IS ALLOWED TO FLOW THROUGH THE WORK AREA.
  - THE CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT CONTROLS ARE IN WORKING CONDITION AT THE END OF EACH WORKING DAY TO PREVENT SEDIMENT LADEN MATERIAL FROM DISCHARGING FROM THE WORK AREA.
  - FOR EACH PHASE, INSTREAM WORK SHALL NOT COMMENCE UNTIL ALL NEEDED RESOURCES ARE ON SITE.
  - ALL TREES WITHIN THE LIMIT OF DISTURBANCE NOT DESIGNATED FOR REMOVAL SHALL BE PROTECTED AS PER THE TREE PROTECTION AND PLANKING DETAILS ON SHEET 47. TREE PLANKING SHALL BE UTILIZED FOR TREES THAT ARE DIRECTLY ADJACENT TO OR HAVE THE POTENTIAL TO BE DAMAGED BY MACHINERY THAT IS IN CLOSE OPERATION. TREE PROTECTION FENCING SHALL BE USED FOR TREES WHERE THERE IS NECESSARY ROOM TO AVOID DURING CONSTRUCTION.
  - NO FUEL SHALL BE STORED WITHIN THE 100-YEAR FLOODPLAIN.
  - WITH EROSION AND SEDIMENT CONTROL INSPECTORS APPROVAL, EROSION AND SEDIMENT CONTROLS FOR STOCKPILE AREAS MAY BE OMITTED IF THE STOCKPILE AREAS ARE ONLY USED FOR STOCKPILING MATERIALS OTHER THAN SATURATED SOILS.
  - CONTRACTOR SHALL INSTALL MOUNTABLE BERMS AT ALL AREAS OF INGRESS/EGRESS FOR CONSTRUCTION ACCESS ROAD TO STOCKPILE AREA.

EG-SWMENG-000135-2015 #99974

**Clear Creeks Consulting**  
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Hanover, Maryland 21076 Fax: (410) 694-9405  
Website: www.baylandinc.com

BAYLAND JOB NO. 4-3602



REVISIONS
2017-06-02 ADDED TREES TO BE REMOVED AROUND THE CUL-DE-SAC
2017-06-02 ADDED EXISTING TREES & TREES TO BE REMOVED AROUND PROPOSED FACILITY ACCESS
2017-06-02 RELOCATED CONSTRUCTION ACCESS ROAD, FENCE, GATE AND DEPENDENT EASC DEVICES
2017-06-02 REMOVED CONSTRUCTION ACCESS ROAD
2017-06-02 REVISED LIMIT OF DISTURBANCE

HARFORD COUNTY, MARYLAND

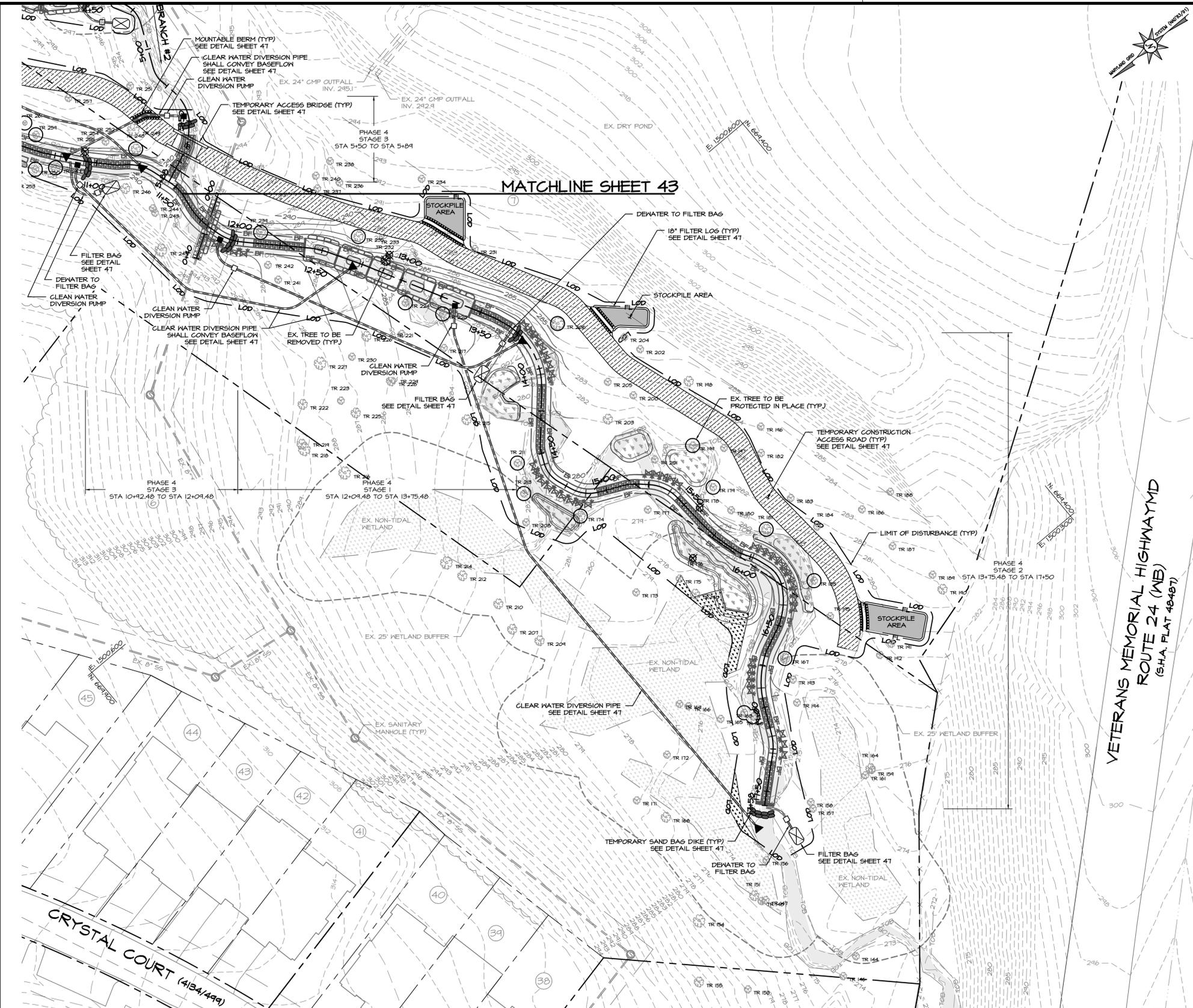
**BARRINGTON PLACE STREAM RESTORATION EROSION & SEDIMENT CONTROL PLAN**

DRAWN BY: MDD  
DESIGNED BY: RP/MDD  
REVIEWED BY: CJS

CONTRACT NO.:  
SCALE: 1" = 30'  
SHEET 42 OF 53  
DATE: 05/06/17

HCC BILLING ID NO.:  
HCC DWG ID NO.:  
SCALE: 1" = 30'





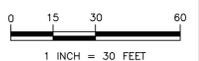
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  - CONTRACTOR SHALL INSTALL MOUNTABLE BERMS AT ALL AREAS OF INGRESS/EGRESS FOR CONSTRUCTION ACCESS ROAD TO STOCKPILE AREA.

PARCEL TABLE	
NO.	PARCEL INFO.
6	BARRINGTON COMMUNITY ASSOCIATION, INC. CRYSTAL CT T.M. 56 P. 585 LOT N/A DEED: 6061/545 PLAT: 82/3
38	EDWARD H., JR. & PATRICIA A. WALKER 73 CRYSTAL CT T.M. 56 P. 585 LOT 38 DEED: 2567/01 PLAT: 82/3 0.14 AC.
39	JEANNE BECKMAN 71 CRYSTAL CT T.M. 56 P. 585 LOT 39 DEED: 10565/112 PLAT: 82/3 0.12 AC.
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PARCEL TABLE	
NO.	PARCEL INFO.
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42	CHUCK & ANN M. WIENKOWSKI 65 CRYSTAL CT T.M. 56 P. 585 LOT 42 DEED: 9737/445 PLAT: 82/3 0.12 AC.
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VETERANS MEMORIAL HIGHWAY MD ROUTE 24 (WB) (S.H.A. PLAT 48487)

CRYSTAL COURT (4134/449)



EG-SWMENG-000135-2015 #99974

1317 Koopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

S/C PLAN # 59822 | GRA # 2743-2015

4755 New Ridge Road, Suite T Hanover, Maryland 21076 Phone: (410) 694-9401 Fax: (410) 694-9405 Website: www.baylandinc.com

BAYLAND JOB NO. 4\_3602

REVISIONS	

HARFORD COUNTY, MARYLAND

BARRINGTON PLACE STREAM RESTORATION EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: MDD	CONTRACT NO. :
DESIGNED BY: RP/MDD	SCALE : 1" = 30'
REVIEWED BY: CJS	SHEET 44 OF 53
	DATE : 01/27/17

TAX MAP No.: HCG BILLING ID No.: HCG DWG ID No.: SCALE: 1" = 30'



**STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS**

- A. SOIL PREPARATION
- TEMPORARY STABILIZATION
    - SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSEND, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
    - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
    - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  - PERMANENT STABILIZATION
    - A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      - SOIL PH BETWEEN 6.0 AND 7.0.
      - SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      - SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      - SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      - SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
    - APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
    - GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSEND TO A DEPTH OF 3 TO 5 INCHES.
    - APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
    - MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.
- B. TOPSOILING
- TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
  - TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS 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-NRCS.
  - TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
    - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
    - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
    - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
    - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
  - AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
  - TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
    - TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CONCRETES, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2 INCHES IN DIAMETER.
    - TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
    - 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.
  - TOPSOIL APPLICATION
    - EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
    - UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
    - TOPSOIL MUST NOT BE PLACED IF 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.
- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
  - FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
  - LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
  - LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

HARDNESS ZONE (FROM FIGURE B.3): 7a SEED MIXTURE (FROM TABLE B.1)					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
1	ANNUAL RYEGRASS	40 (1lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	0.5"	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
2	BARLEY	96 (2.2lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	0.5"		
3	OATS	72 (1.7lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	0.5"		
4	RYE	112 (2.8lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	0.5"		
5	FOXTAIL MILLET	30 (0.7lb/1000 sf)	5/1 - 8/14	0.5"		

**STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING**

- A. SEEDING
- SPECIFICATIONS
    - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
    - MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
    - INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
    - SOD OR SEED MUST NOT 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 PHYTO-TOXIC MATERIALS.
  - APPLICATION
    - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      - INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1. PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDBED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
      - DRILL OR CULTIPACKER SEEDING; MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      - CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDS MUST BE FIRM AFTER PLANTING.
      - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
      - HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
        - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
        - LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
        - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
        - WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
    - MULCHING
      - MULCH MATERIALS (IN ORDER OF PREFERENCE)
        - STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLLY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
        - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
          - WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORM SPREAD SLURRY.
          - WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
          - WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER. ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
          - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
        - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
      - APPLICATION
        - APPLY MULCH TO ALL SEEDBED AREAS IMMEDIATELY AFTER SEEDING.
        - WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDBED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
        - WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
    - ANCHORING
      - PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
        - A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
        - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
        - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRATACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
        - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

HARDNESS ZONE (FROM FIGURE B.3): 7a SEED MIXTURE (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P2O5	K2O	
1	SWITCHGRASS CREeping RED FESCUE BUSH CLOVER	10 15 2	2/15 - 4/30 8/15 - 10/31	1" - 1"	45 lb/ac (1.0 lb/1000 sf)	90 lb/ac (2.0 lb/1000 sf)	90 lb/ac (2.0 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
3	DEERTONGUE SHEEP FESCUE COMMON LESPEDEZA	20 20 10	2/15 - 4/30 8/15 - 10/31	1" - 1"				

- NOTES:
- SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES. SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL (BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS). CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE. OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.
  - FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
  - THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

**HARFORD COUNTY SEDIMENT CONTROL NOTES**

- A GRADING UNIT OF 20 ACRES IS THE MAXIMUM CONTIGUOUS AREA ALLOWED TO BE GRADED AT A GIVEN TIME.
- A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY DPW. NO MORE THAN THIRTY ACRES CUMULATIVELY MAY BE DISTURBED AT ANY GIVEN TIME.
- THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
- THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.
- ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.
- ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.
- EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - A) THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
  - B) SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
- DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
- SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.
- TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.
- AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
- ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.
- CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.
- SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
- OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.
- ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
- STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.
- TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED.
- SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

**BEST MANAGEMENT PRACTICES FOR WORKING IN NON TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS AND 100 YEAR FLOOD PLAINS**

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, WATERWAYS OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, WATERWAYS OR THE 100 YEAR FLOODPLAIN.
- DO NOT USE EXCAVATED MATERIAL AS BACK FILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE IF ADDITIONAL BACK FILL IS REQUIRED. USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, OR WATERWAYS OR THE 100 YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NON TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100 YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NON TIDAL WETLAND AND NON TIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS(LOLIUM MULTIFLORUM), MILLET(SETARIA ITALICA), BARLEY(HORDEUM SP.), OATS (LINOCL. SP.) AND/OR RYE (SECAL. CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON TIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHADE NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION.
- AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED, AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
  - USE IN WATERS: IN STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THRU MAY 31, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

**CARE OF WATER DURING CONSTRUCTION**

- CLEANWATER DIVERSIONS FROM POINT SOURCES MAYBE OMITTED IF NO BASE FLOW IS PRESENT.
- BECAUSE OF SEASONAL VARIATIONS IN FLOW, THE SIZE OF PUMP AND THE SIZE AND TYPE OF PIPING NECESSARY TO CONVEY CLEANWATER FOR ANY PUMPED CLEANWATER DIVERSIONS SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE SEDIMENT CONTROL INSPECTOR. CARE SHOULD BE TAKEN BY THE CONTRACTOR AS TO NOT OVER OR UNDERSIZE THE PUMP/PIPING NECESSARY TO CONVEY ANY BASE FLOW.
- DIVERSION PIPES, PUMPS, SUMP PITS, AND ASSOCIATED SEDIMENT FILTRATION DEVICES SHALL BE FIELD LOCATED BY THE CONTRACTOR AND ARE SHOWN ON THE PLANS TO ILLUSTRATE POTENTIAL ALIGNMENTS AND PLACEMENT.
- WITH THE SEDIMENT CONTROL INSPECTORS APPROVAL, ANY DIVERSION PIPES, PUMPS, SUMP PITS, AND ASSOCIATED SEDIMENT FILTRATION DEVICES MAY BE RELOCATED WITHIN THE LIMIT OF DISTURBANCE TO ACCOMMODATE CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL SUFFICIENTLY DEWATER THE WORK AREA BEFORE COMMENCING ANY GRADING OPERATIONS. ADDITIONAL SUMP PUMPS, AT NO ADDITIONAL COST, MAY BE NECESSARY AT LOCATIONS WHERE GROUNDWATER IS INFILTRATING THE WORK AREA.
- DEWATERING OF THE WORK AREA MAY REQUIRE ADDITIONAL TREATMENT BEYOND AN APPROVED DEWATERING PRACTICE TO REDUCE TURBIDITY IN THE DISCHARGE TO RECEIVING WATERS.
- ANY FUEL SHALL BE STORED ABOVE THE 100-YR FLOOD ELEVATION.
- THE CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT CONTROLS ARE IN WORKING CONDITION AT THE END OF EACH WORKING DAY TO PREVENT SEDIMENT LAIDEN MATERIAL FROM DISCHARGING FROM THE WORK AREA.

**STOCKPILING NOTES**

- ALL STOCKPILING AND STAGING SHALL OCCUR WITHIN THE LIMIT OF DISTURBANCE AND BE STABILIZED WITH 4"-6" OF MULCH.
- MAXIMUM STOCKPILE HEIGHT SHALL NOT EXCEED 15 FEET AND MAXIMUM SLOPE SHALL NOT EXCEED 2:1.
- ALL STOCKPILES LEFT AT THE END OF THE DAY NEED TO BE STABILIZED UNTIL THE NEXT DISTURBANCE.

170783  
S/C PLAN # 59822GRA # 2743-2015

REVISIONS		HARFORD COUNTY, MARYLAND	
2017-06-02 ADDED STOCKPILING NOTES		BARRINGTON PLACE STREAM RESTORATION EROSION & SEDIMENT CONTROL NOTES	
DRAWN BY: MDD	DESIGNED BY: RP/MDD	REVIEWED BY: JCS	CONTRACT NO.:
			SCALE: NONE
			SHEET 46 OF 53
			DATE: 06/06/17

EG-SWMENG-000135-2015 #99974

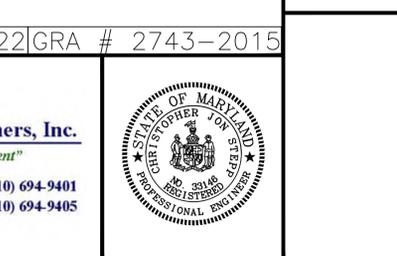
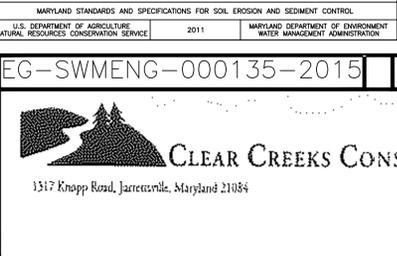
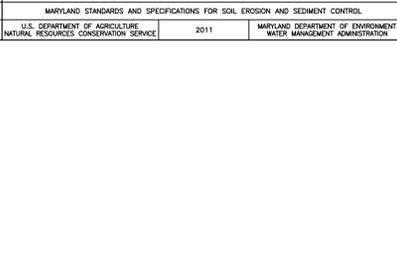
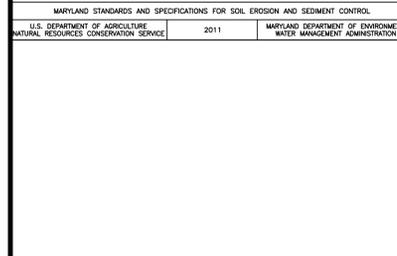
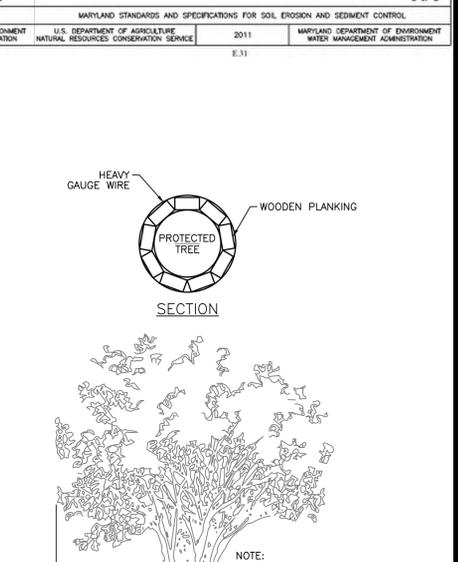
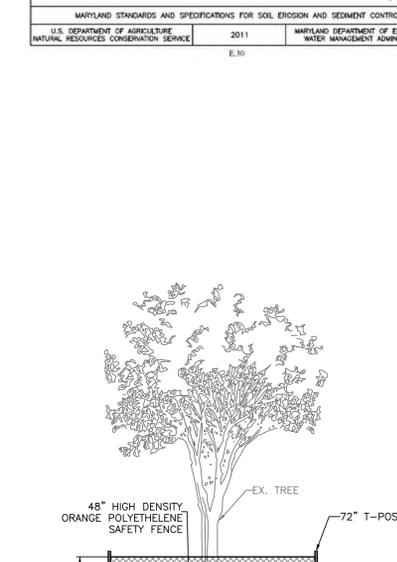
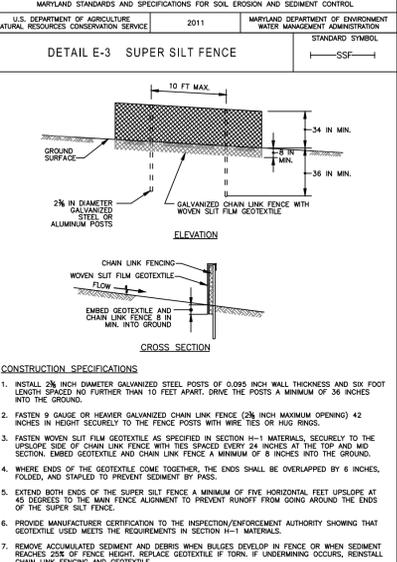
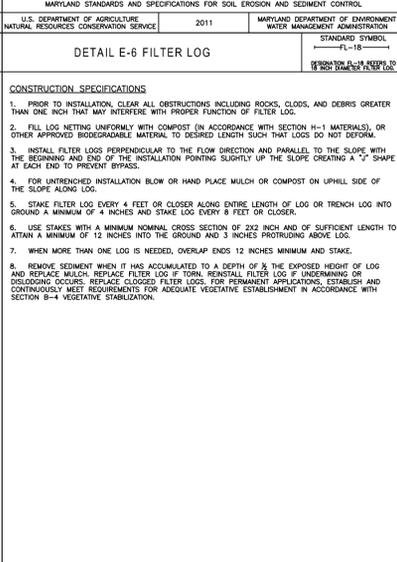
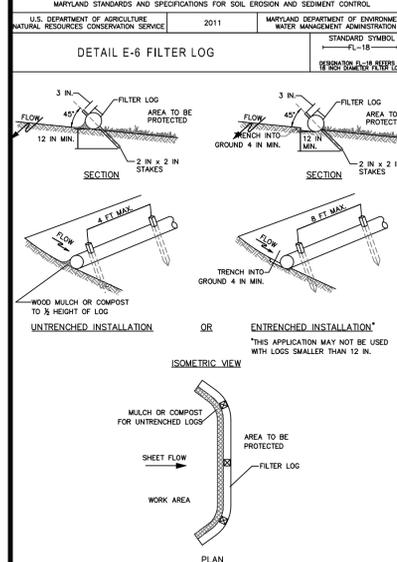
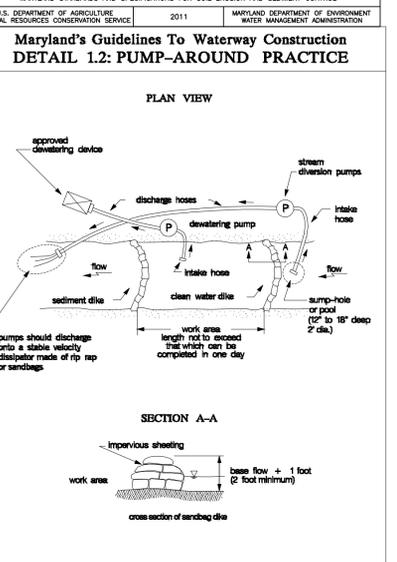
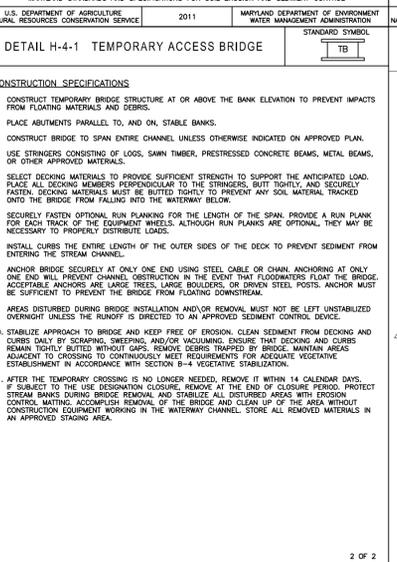
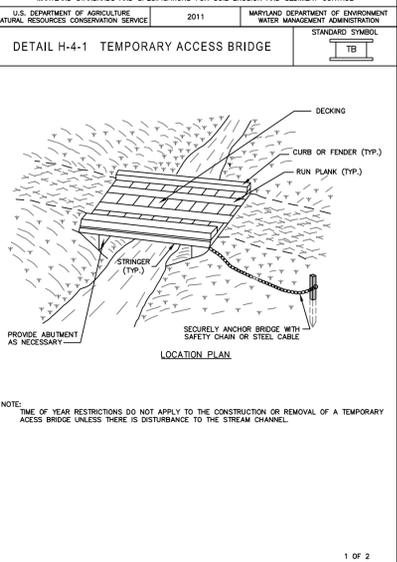
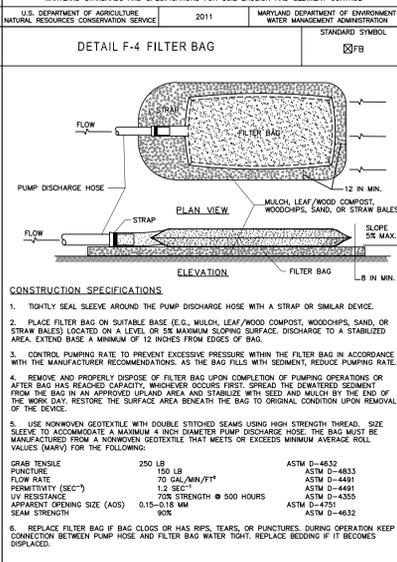
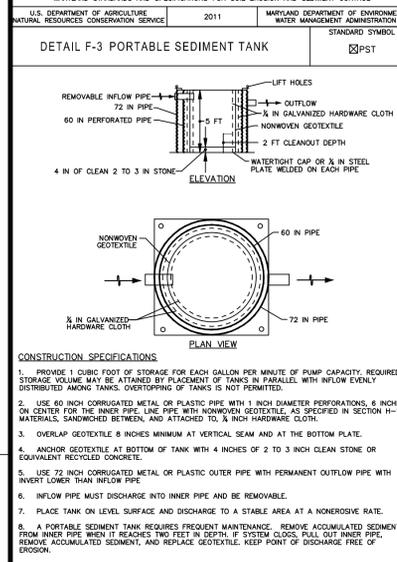
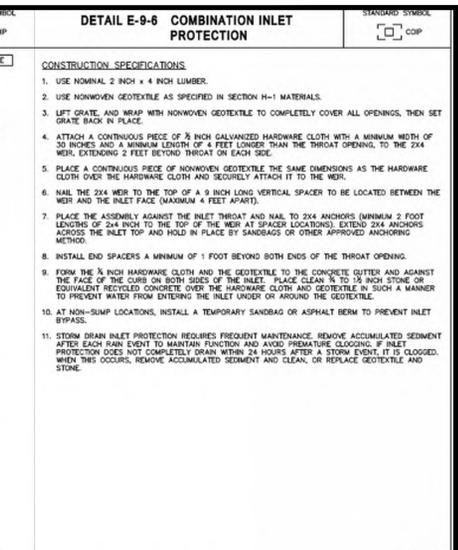
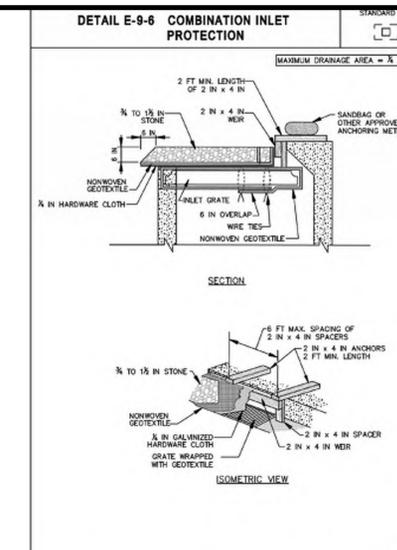
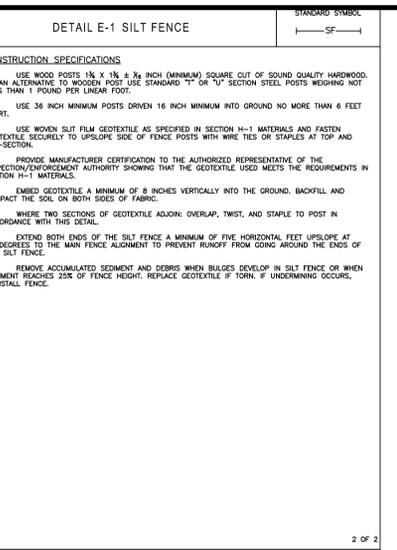
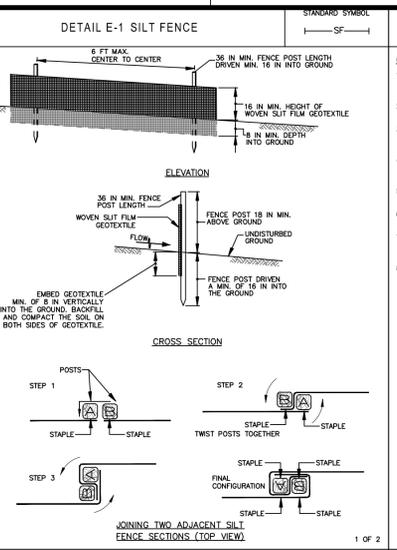
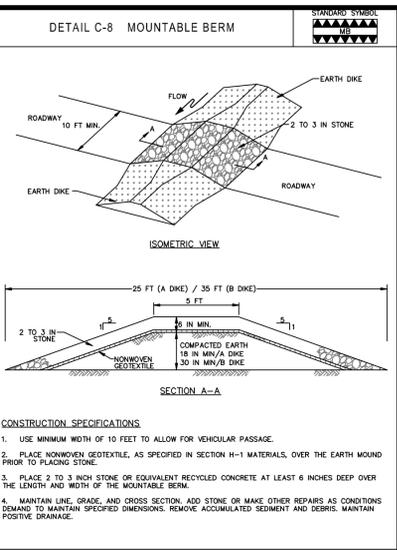
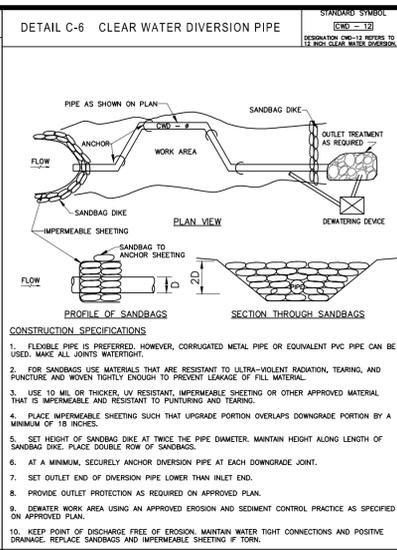
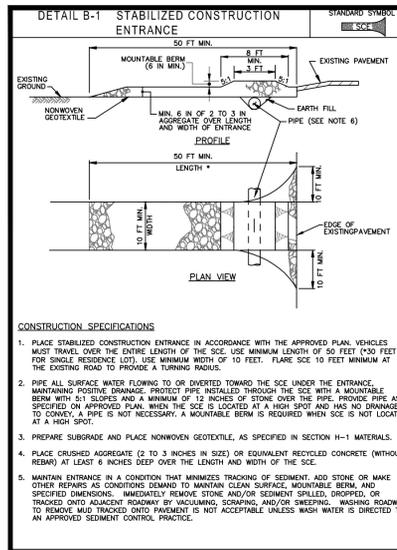
**Clear Creeks Consulting**  
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

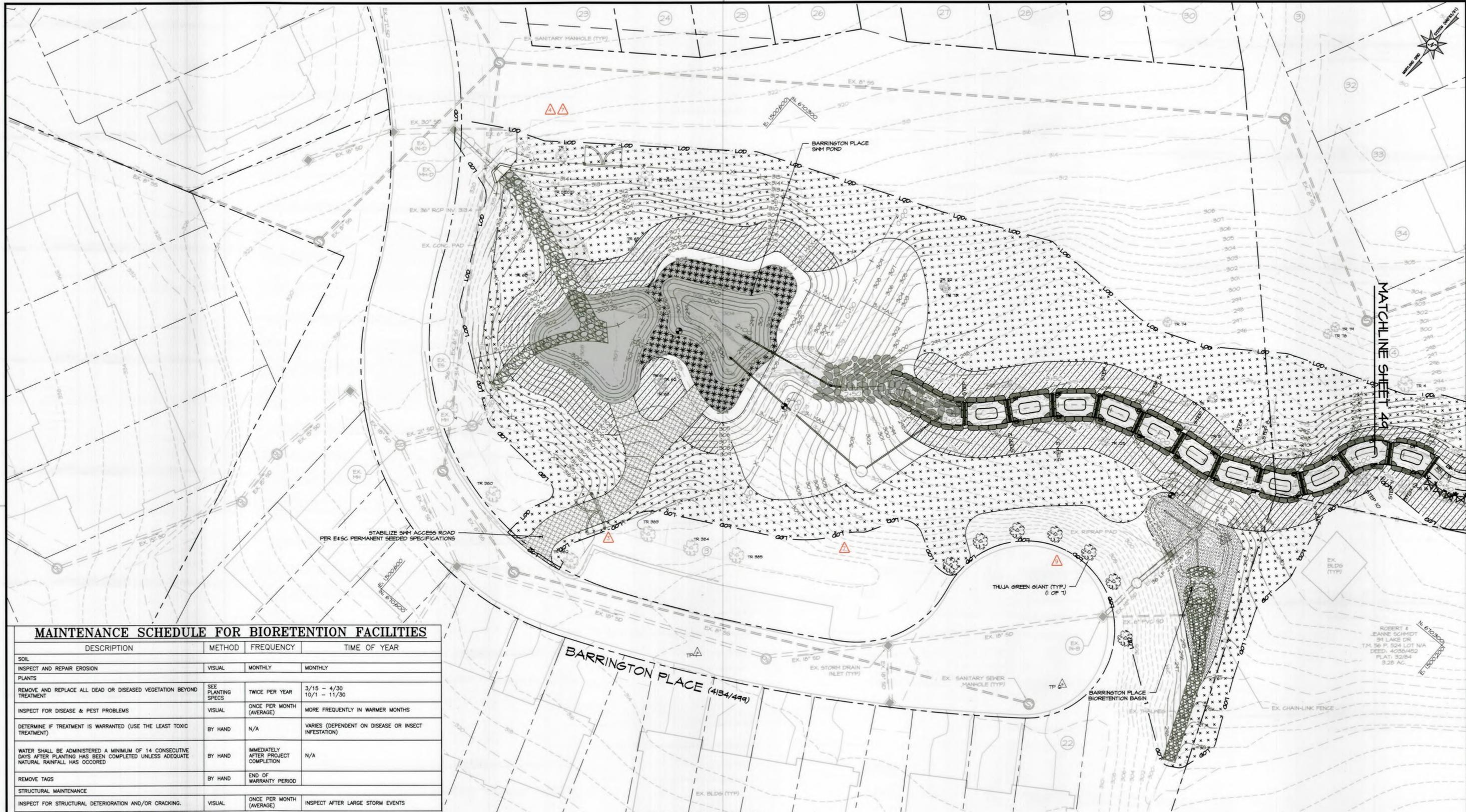
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"Integrating Engineering and Environment"

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Hanover, Maryland 21076 Fax: (410) 694-9405  
Website: www.baylandinc.com

BAYLAND JOB NO. 4-3602







**MAINTENANCE SCHEDULE FOR BIORETENTION FACILITIES**

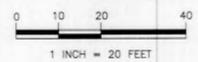
DESCRIPTION	METHOD	FREQUENCY	TIME OF YEAR
SOIL			
INSPECT AND REPAIR EROSION	VISUAL	MONTHLY	MONTHLY
PLANTS			
REMOVE AND REPLACE ALL DEAD OR DISEASED VEGETATION BEYOND TREATMENT	SEE PLANTING SPECS	TWICE PER YEAR	3/15 - 4/30 10/1 - 11/30
INSPECT FOR DISEASE & PEST PROBLEMS	VISUAL	ONCE PER MONTH (AVERAGE)	MORE FREQUENTLY IN WARMER MONTHS
DETERMINE IF TREATMENT IS WARRANTED (USE THE LEAST TOXIC TREATMENT)	BY HAND	N/A	VARIES (DEPENDENT ON DISEASE OR INSECT INFESTATION)
WATER SHALL BE ADMINISTERED A MINIMUM OF 14 CONSECUTIVE DAYS AFTER PLANTING HAS BEEN COMPLETED UNLESS ADEQUATE NATURAL RAINFALL HAS OCCURED	BY HAND	IMMEDIATELY AFTER PROJECT COMPLETION	N/A
REMOVE TAGS	BY HAND	END OF WARRANTY PERIOD	
STRUCTURAL MAINTENANCE			
INSPECT FOR STRUCTURAL DETERIORATION AND/OR CRACKING.	VISUAL	ONCE PER MONTH (AVERAGE)	INSPECT AFTER LARGE STORM EVENTS

**LANDSCAPING LEGEND**

- ZONE A UPLAND FOREST
- ZONE B RIPARIAN BUFFER
- ZONE C BENCHED WETLANDS
- ZONE D DEEP WETLANDS
- ZONE E BIORETENTION BASIN
- ZONE F SPSC BORDERS

**NOTE:**  
 1. TREES TO BE REMOVED ARE SHOWN ON THE EXISTING CONDITIONS SITE PLANS FOR CLARIFICATION  
 2. SEE SHEET 2 FOR PARCEL INFORMATION

**LANDSCAPING PLAN**



EG-SWMENG-000135-2015 #99974

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BAYLAND JOB NO. 4-3602



REVISIONS
2017-06-02 RELOCATED PROPOSED FACILITY ACCESS ROAD, FENCE AND GATE
2017-06-02 REMOVED PROPOSED FACILITY ACCESS ROAD
2017-06-02 REVISED LIMIT OF DISTURBANCE AND ADJUSTED PLANTING LIMITS
2017-06-02 ADDED 7 THUJA GREEN GIANT PLANTINGS AROUND THE CUL-DE-SAC

HARFORD COUNTY, MARYLAND

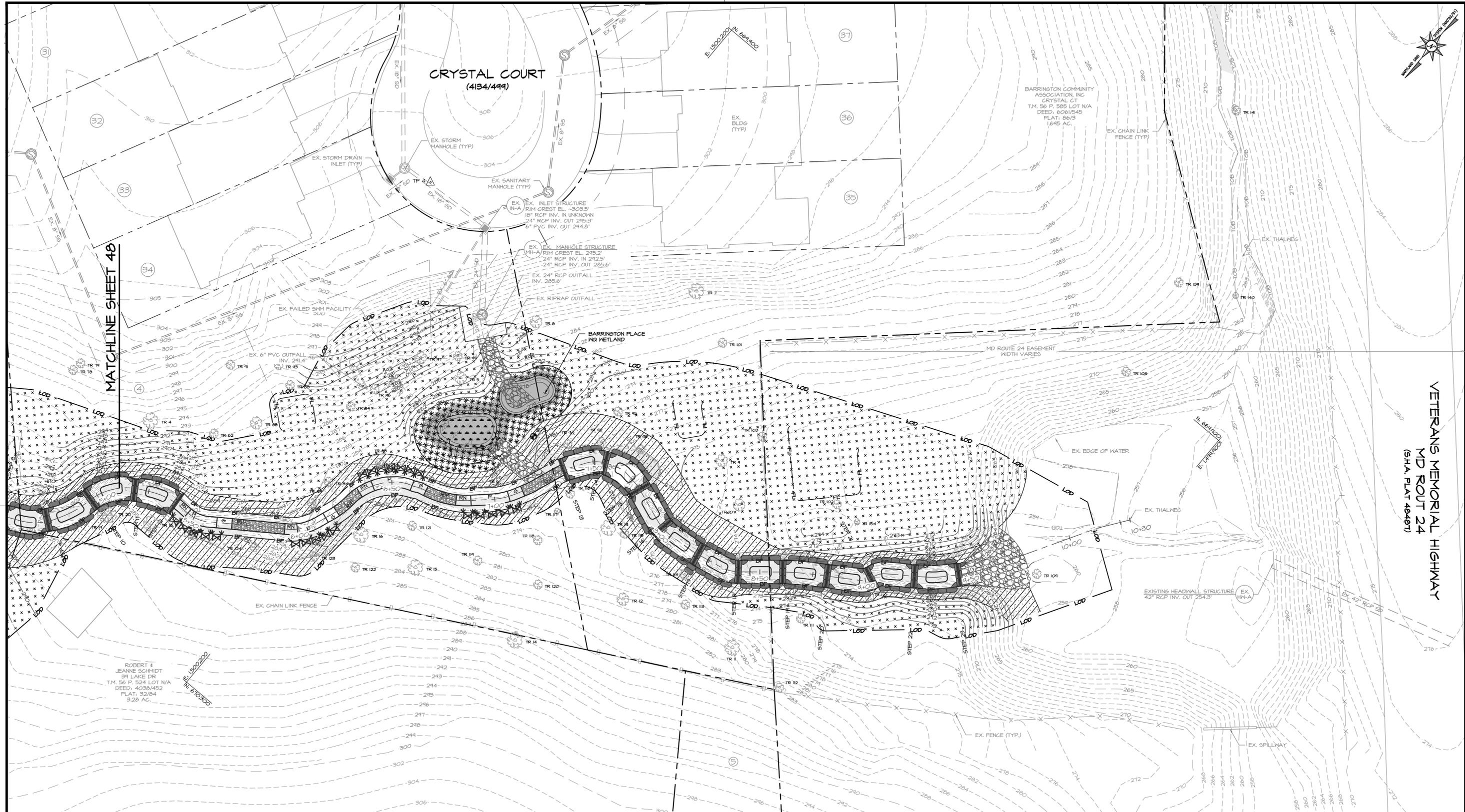
**BARRINGTON PLACE STREAM RESTORATION PLANTING PLAN - BARRINGTON TRIBUTARY**

DRAWN BY: MDD  
 DESIGNED BY: RP/MDD  
 REVIEWED BY: CJS

CONTRACT NO.:  
 SCALE: 1" = 20'  
 SHEET 48 OF 53  
 DATE: 06/06/17

MATCHLINE SHEET 49

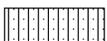
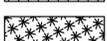
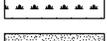
TAX MAP: HCC BILLING ID NO.: HCC DWG ID NO.: SCALE: 1" = 20'



MATCHLINE SHEET 48

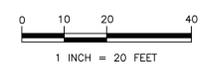
VETERANS MEMORIAL HIGHWAY  
MD ROUTE 24  
(SHA PLAT 48487)

**LANDSCAPING LEGEND**

-  ZONE A UPLAND FOREST
-  ZONE B RIPARIAN BUFFER
-  ZONE C BENCH WETLANDS
-  ZONE D DEEP WETLANDS
-  ZONE E BIORETENTION BASIN
-  ZONE F SPSC BORDERS

**NOTE:**  
1. TREES TO BE REMOVED ARE SHOWN ON THE EXISTING CONDITIONS SITE PLANS FOR CLARIFICATION  
2. SEE SHEET 2 FOR PARCEL INFORMATION

**LANDSCAPING PLAN**



EG-SWMENG-000135-2015 #99974



**CLEAR CREEKS CONSULTING**  
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Hanover, Maryland 21076 Fax: (410) 694-9405  
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BAYLAND JOB NO. 4\_3602



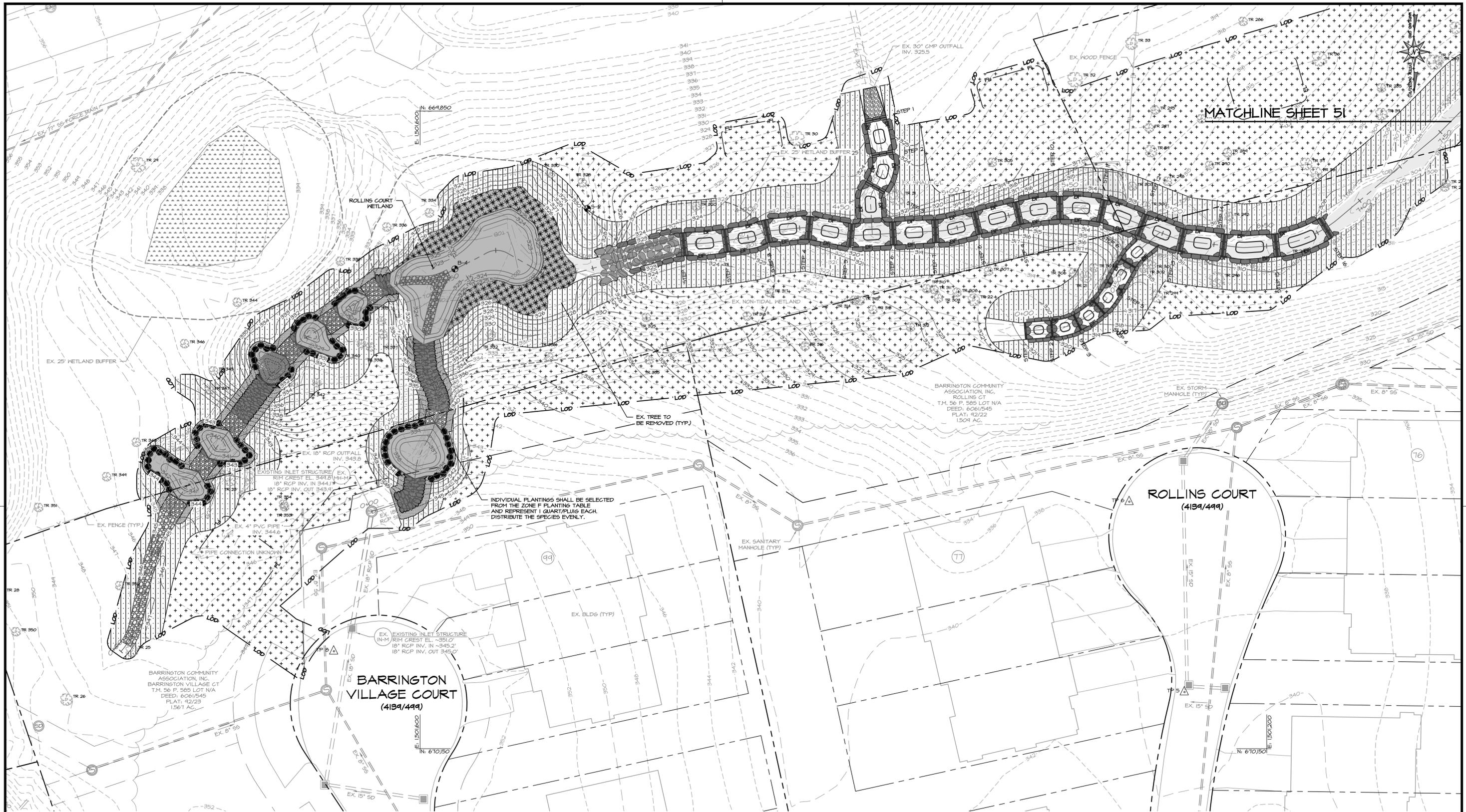
REVISIONS

HARFORD COUNTY, MARYLAND

**BARRINGTON PLACE STREAM RESTORATION  
PLANTING PLAN - BARRINGTON TRIBUTARY**

DRAWN BY: MDD	CONTRACT NO. :
DESIGNED BY: RP/MDD	SCALE : 1" = 20'
REVIEWED BY: CJS	SHEET 49 OF 53
	DATE : 01/27/17

HCG BILLING ID No.: HCG DWG ID No.: TAX MAP :



MATCHLINE SHEET 51

ROLLINS COURT  
(4139/499)

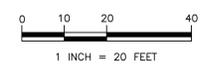
BARRINGTON VILLAGE COURT  
(4139/499)

**LANDSCAPING LEGEND**

- ZONE A UPLAND FOREST
- ZONE B RIPARIAN BUFFER
- ZONE C BENCHED WETLANDS
- ZONE D DEEP WETLANDS
- ZONE E BIORETENTION BASIN
- ZONE F SPSC BORDERS

**NOTE:**  
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2. SEE SHEET 2 FOR PARCEL INFORMATION

**LANDSCAPING PLAN**



EG-SWMENG-000135-2015 #99974

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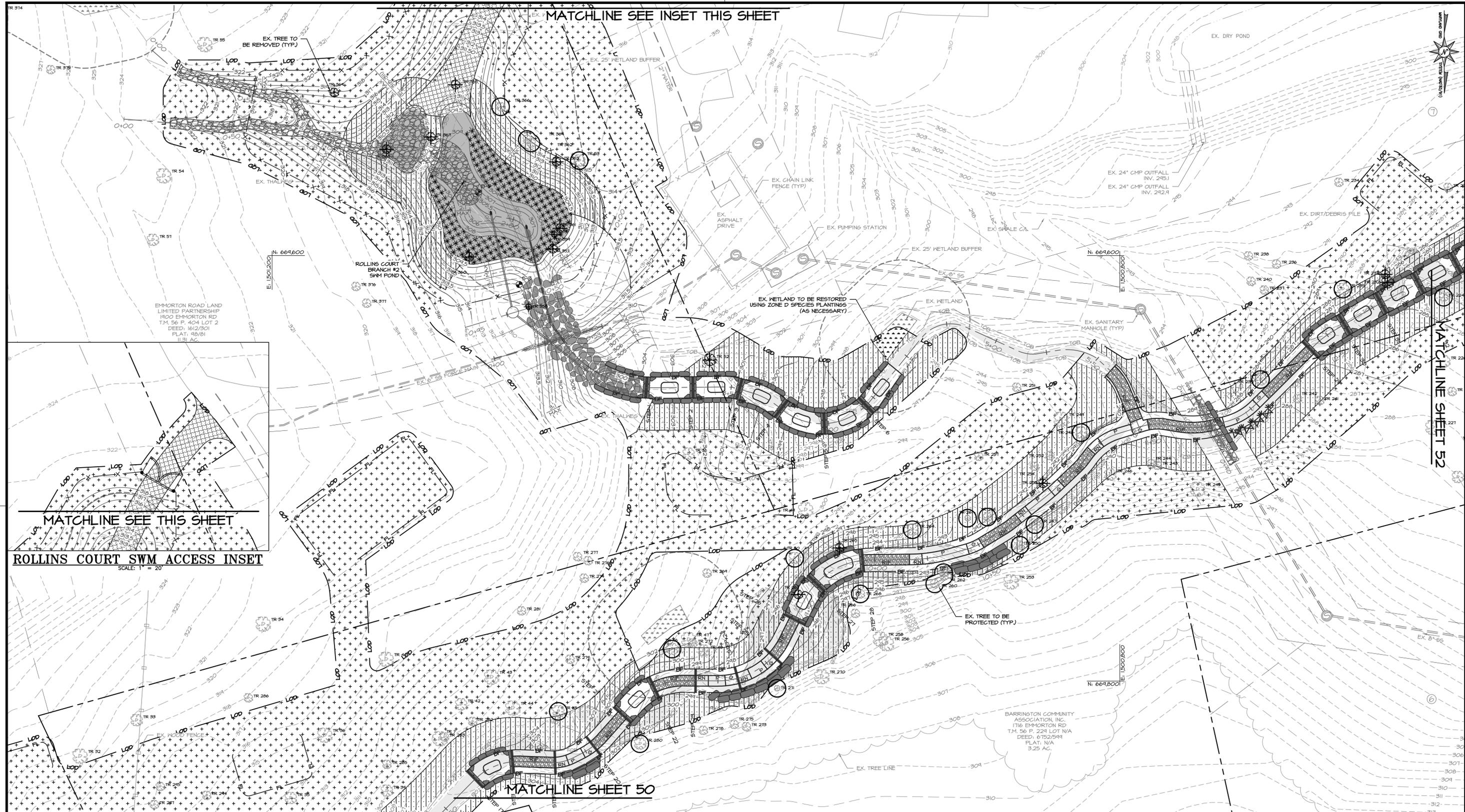
BAYLAND JOB NO. 4\_3602



REVISIONS

HARFORD COUNTY, MARYLAND	
<b>BARRINGTON PLACE STREAM RESTORATION PLANTING PLAN - ROLLINS COURT TRIBUTARY</b>	
DRAWN BY: MDD	CONTRACT NO. :
DESIGNED BY: RP/MDD	SCALE :1" = 20'
REVIEWED BY: CJS	SHEET 50 OF 53
	DATE :01/27/17

TAX MAP No. : HCG BILLING ID No. : HCG DWG ID No. :



MATCHLINE SEE INSET THIS SHEET



MATCHLINE SHEET 52

MATCHLINE SEE THIS SHEET

ROLLINS COURT SWM ACCESS INSET  
SCALE: 1" = 20'

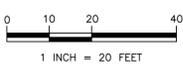
MATCHLINE SHEET 50

**LANDSCAPING LEGEND**

- ZONE A UPLAND FOREST
- ZONE B RIPARIAN BUFFER
- ZONE C BENCHED WETLANDS
- ZONE D DEEP WETLANDS
- ZONE E BIORETENTION BASIN
- ZONE F SPSC BORDERS

**NOTE:**  
1. TREES TO BE REMOVED ARE SHOWN ON THE EXISTING CONDITIONS SITE PLANS FOR CLARIFICATION  
2. SEE SHEET 2 FOR PARCEL INFORMATION

**LANDSCAPING PLAN**



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REVISIONS

HARFORD COUNTY, MARYLAND	
<b>BARRINGTON PLACE STREAM RESTORATION PLANTING PLAN - ROLLINS COURT TRIBUTARY</b>	
DRAWN BY: MDD	CONTRACT NO. :
DESIGNED BY: RP/MDD	SCALE: 1" = 20'
REVIEWED BY: CJS	SHEET 51 OF 53
	DATE: 01/27/17

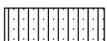
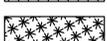
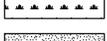
HCG BILLING ID No.:  
HCG DWG ID No.:



VETERANS MEMORIAL HIGHWAY  
MD ROUTE 24 NB  
(S.H.A. PLAT 48-48)

MATCHLINE SHEET 31

**LANDSCAPING LEGEND**

-  ZONE A UPLAND FOREST
-  ZONE B RIPARIAN BUFFER
-  ZONE C BENCHED WETLANDS
-  ZONE D DEEP WETLANDS
-  ZONE E BIORETENTION BASIN
-  ZONE F SPSC BORDERS

**LANDSCAPING PLAN**



EG-SWMENG-000135-2015 #99974



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BAYLAND JOB NO. 4-3602



REVISIONS

HARFORD COUNTY, MARYLAND	
<b>BARRINGTON PLACE STREAM RESTORATION PLANTING PLAN - ROLLINS COURT TRIBUTARY</b>	
DRAWN BY: MDD	CONTRACT NO. :
DESIGNED BY: RP/MDD	SCALE : 1" = 20'
REVIEWED BY: CJS	SHEET 52 OF 53
	DATE : 01/27/17

**PLANTING SCHEDULES**

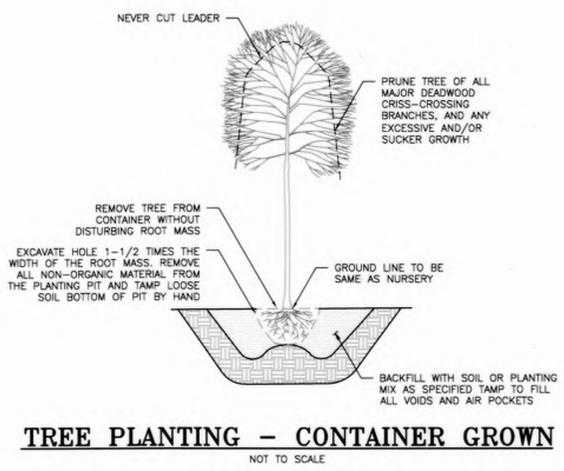
ZONE A PLANTING SCHEDULE - UPLAND FOREST						ZONE D PLANTING SCHEDULE - DEEP WETLANDS												
135,270 SQUARE FEET (3.10 ACRES), FOREST PLANTING AREA: 73,300 SQUARE FEET (1.7 ACRES)						4,208 SQUARE FEET (0.08 ACRES)												
QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING	QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING							
TREES																		
80	NYSSA SYLVATICA	BLACK GUM	FAC	4-6 FT	11 FT/0C RANDOM (SEE ALSO PLANTING DETAIL)	30	QUART	NUPHAR LUTEA	AMERICAN LOTUS	OBL	QUART							
70	FAGUS GRANDIFOLIA	AMERICAN BEECH	FACU	4-6 FT		90	PLUG	JUNCUS EFFUSUS	SOFT RUSH	OBL	PLUG & QUART							
80	QUERCUS ALBA	WHITE OAK	FAC	4-6 FT		90	PLUG	30 QUART	PELTANDRA VIRGINICA	ARROW ARUM	OBL	PLUG & QUART						
80	JUGLANS NIGRA	BLACK WALNUT	FACU	4-6 FT		90	PLUG	30 QUART	SCIRPUS ATROVIRENS	GREEN BULRUSH	OBL	PLUG & QUART						
65	PRUNUS SEROTINA	BLACK CHERRY	FACU	4-6 FT		90	PLUG	30 QUART	ELEOCHARIS OBTUSA	SPIKE RUSH	OBL	PLUG & QUART						
55	ACER RUBRUM	RED MAPLE	FAC	4-6 FT		90	PLUG	30 QUART	SCHOENOPLECTUS TABERNAEMONTANI	SOFT-STEMMED BULRUSH	OBL	PLUG & QUART						
75	QUERCUS RUBRA	NORTHERN RED OAK	FACU	4-6 FT		ZONE E PLANTING SCHEDULE - BIORETENTION BASIN 1,600 SQUARE FEET (0.04 ACRES)												
45	CERCIS CANADENSIS	EASTERN REDBUD	FACU	3-4 FT														
55	CORNUS FLORIDA	FLOWERING DOGWOOD	FACU	3-4 FT														
PERMANENT SEEDING																		
25	LBS	PANICUM VIRGATUM	SWITCHGRASS	FAC	SEED							7.5	LBS/AC					
25	LBS	ANDROPOGON GERARDII	VITMAN	BIG BLUE STEM	FAC							SEED	7.5	LBS/AC				
25	LBS	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW	SEED							7.5	LBS/AC					
25	LBS	DICHANTHELIUM CLANDESTINUM	DEER TONGUE GRASS	FAC	SEED							7.5	LBS/AC					
ZONE B PLANTING SCHEDULE - RIPARIAN BUFFER																		
TOTAL AREA: 108,900 SQUARE FEET (2.5 ACRES), FOREST PLANTING AREA: 52,400 SQUARE FEET (1.2 ACRES)																		
QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING	QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING							
LIVE STAKES - RIFFLE/POOL SECTIONS ONLY																		
210	CORNUS AMOMUM	SILKY DOGWOOD	FACW	2-3 FT	1.5 FT 0/C RANDOM	ZONE F PLANTING SCHEDULE - SPSC BORDERS 1,930 SQUARE FEET (0.04 ACRES)												
210	SAMBUCUS CANADENSIS	ELDERBERRY	FACW	2-3 FT														
210	SALIX NIGRA	BLACK WILLOW	FACW	2-3 FT														
210	SALIX SERICEA	SILKY WILLOW	FACW	2-3 FT														
210	SALIX DISCOLOR	PUSSY WILLOW	FACW	2-3 FT														
LIVE BRANCH CUTTINGS - TOEWOOD/SOIL LIFTS ONLY																		
140	CORNUS AMOMUM	SILKY DOGWOOD	FACW	2-3 FT	0.5 FT 0/C RANDOM							HERBACEOUS						
140	SAMBUCUS CANADENSIS	ELDERBERRY	FACW	2-3 FT														
140	VIBURNUM PRUNIFOLIUM	BLACKHAW	FACW	2-3 FT														
140	SALIX SERICEA	SILKY WILLOW	FACW	2-3 FT														
140	SALIX DISCOLOR	PUSSY WILLOW	FACW	2-3 FT														
TREES																		
50	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	FACW	4-6 FT	11 FT 0/C RANDOM (SEE ALSO PLANTING DETAIL)	TREES												
50	BETULA NIGRA	RIVER BIRCH	FACW	4-6 FT														
10	ACER RUBRUM	RED MAPLE	FAC	4-6 FT														
20	NYSSA SYLVATICA	BLACK GUM	FAC	4-6 FT														
30	QUERCUS BICOLOR	SWAMP WHITE OAK	FACW	4-6 FT														
30	QUERCUS PALUSTRIS	PIN OAK	FACW	4-6 FT														
40	ULMUS AMERICANA	AMERICAN ELM	FACW	4-6 FT														
40	CARPINUS CAROLINIANA	IRONWOOD	FAC	3-4 FT														
20	AMELANCHIER CANADENSIS	SERVICEBERRY	FAC	3-4 FT														
20	ASIMINA TRILOBA	PAW PAW	FAC	3-4 FT														
SHRUBS																		
170	ILEX VERTICILLATA	WINTERBERRY	FACW	SHRUB	8 FT 0/C RANDOM (SEE ALSO PLANTING DETAIL)	TREES												
145	ALNUS SERRULATA	SMOOTH ALDER	OBL	SHRUB														
170	LINDERA BENZOIN	SPICEBUSH	FAC	SHRUB														
155	HAMAMELIS VIRGINIANA	WITCH HAZEL	FACU	SHRUB														
170	VIBURNUM DENTATUM	ARROWWOOD	FAC	SHRUB														
155	VIBURNUM LENTAGO	NANNY BERRY	FAC	SHRUB														
155	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	FACW	SHRUB														
PERMANENT SEEDING																		
10.5	LBS	PANICUM VIRGATUM	SWITCHGRASS	FAC								SEED	5	LBS/AC				
12.25	LBS	ANDROPOGON GERARDII	BIG BLUESTEM	FAC								SEED	6	LBS/AC				
17.5	LBS	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW	SEED	9	LBS/AC											
7	LBS	CAREX VULPINOIDEA	LURID SEDGE	OBL	SEED	3.5	LBS/AC											
0.88	LBS	EUPATORIUM MACULATUM	JOE PYE WEED	FACW	SEED	0.5	LBS/AC											
0.88	LBS	LOBELIA CARDINALIS	CARDINAL FLOWER	FACW	SEED	0.5	LBS/AC											
3.5	LBS	JUNCUS EFFUSUS	SOFT RUSH	FACW	SEED	1.75	LBS/AC											
ZONE C PLANTING SCHEDULE - BENCHED WETLANDS																		
7,366 SQUARE FEET (0.17 ACRES)																		
QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING	QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING							
HERBACEOUS																		
40	QUARTS	ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL	QUART	PLUGS 2 FT 0/C RANDOM QUARTS 5 FT 0/C RANDOM												
90	PLUGS	30 QUARTS	ELEOCHARIS OBTUSA	BLUNT SPIKE RUSH	OBL							PLUG & QUART						
40	QUARTS	CAREX VULPINOIDEA	FOX SEDGE	OBL	PLUG & QUART													
40	QUARTS	CHELONE GLABRA	WHITE TURTLEHEAD	OBL	QUART													
60	PLUGS	20 QUARTS	HIBISCUS MOSCHEUTOS	ROSE MALLOW	OBL							PLUG & QUART						
120	PLUGS	40 QUARTS	IRIS VERSICOLOR	BLUE FLAG	OBL							PLUG & QUART						
40	PLUGS	20 QUARTS	JUNCUS EFFUSUS	SOFT RUSH	OBL							PLUG & QUART						
120	PLUGS	40 QUARTS	MIMULUS RINGENS	MONKEYFLOWER	OBL							PLUG & QUART						
60	PLUGS	20 QUARTS	SCIRPUS ATROVIRENS	GREEN BULRUSH	OBL							PLUG & QUART						
90	PLUGS	30 QUARTS	SCIRPUS CYPERINUS	WOOLGRASS	OBL							PLUG & QUART						

QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING			
SHRUBS								
5	CEPHALANTHUS OCCIDENTALIS	BUTTON BUSH	OBL	2-3 FT	10 FT 0/C RANDOM BOTTOM OF FACILITY ONLY			
5	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	FACW	2-3 FT				
5	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	FAC+	2-3 FT				
5	ILEX VERTICILLATA	WINTERBERRY	FACW	2-3 FT				
10	MORNADA DIDYMA	BEE-BALM	FAC+	PLUG				
10	ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL	PLUG	2 FT 0/C RANDOM BOTTOM OF FACILITY ONLY			
10	LOBELIA CARDINALIS	CARDINAL FLOWER	FACW	PLUG				
PERMANENT SEEDING								
0.3	LBS	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW		SEED	8	LBS/AC
0.2	LBS	MORNADA DIDYMA	BEE-BALM	FAC+		SEED	5	LBS/AC
0.2	LBS	ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL	SEED	5	LBS/AC	
0.2	LBS	PANICUM VIRGATUM	SWITCHGRASS	FAC	SEED	5	LBS/AC	
0.1	LBS	CALTHA PALUSTRIS	MARSH MARIGOLD	OBL	SEED	2.5	LBS/AC	
0.1	LBS	EUPATORIUM MACULATUM	JOE PYE WEED	FACW	SEED	2.5	LBS/AC	
0.1	LBS	LOBELIA CARDINALIS	CARDINAL FLOWER	FACW	SEED	2.5	LBS/AC	
BARRINGTON PLACE CUL-DE-SAC STREET TREES*								
INSTALL 7 TREES SPACED EQUALLY APART ALONG THE CUL-DE-SAC - SEE SHEET 48								
QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR STATUS	SIZE	SPACING			
7	THUJA GREEN GIANT	THUJA STANDISHII X PLICATA	FACW	4-6 FT	18 FT 0/C			

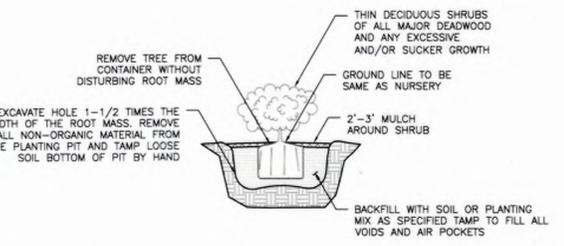
SOIL LIFTS  
LIVE BRANCH CUTTINGS WILL BE INSTALLED BETWEEN THE LIFTS. LIVE BRANCH CUTTINGS SHALL BE SPACED 0.5 FEET APART. LIVE BRANCH CUTTINGS SHALL BE ONE-HALF TO ONE AND ONE-HALF INCHES (0.5" TO 1.5") IN DIAMETER. THE CUTTINGS SHOULD BE LONG ENOUGH FOR THE BOTTOM TO BE IN CONTACT WITH THE SOIL AT THE BACK OF THE FABRIC OVERLAP AND THE GROWING TIPS TO EXTEND A MINIMUM OF 6 INCHES BEYOND THE FRONT OF THE NEXT LIFT UP.

**GENERAL PLANTING NOTES**

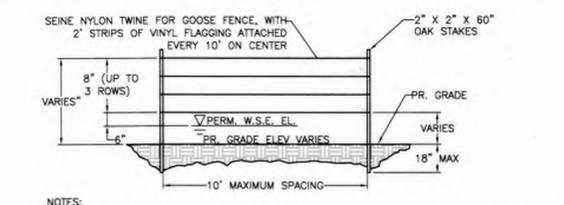
- ALL PLANT MATERIALS SHALL BE NURSERY GROWN AND SHALL CONFORM TO AMERICAN ASSOCIATION OF NURSERYMEN, INC. STANDARDS.
- CONTRACTOR IS RESPONSIBLE TO VERIFY ALL UTILITY LOCATIONS PRIOR TO PLANTING MATERIAL. IF CONFLICTS ARISE, BAYLAND, INC. MUST BE NOTIFIED PRIOR TO ANY GROUND BREAKING.
- WETLAND PLANTING WILL BE ACCOMPLISHED BETWEEN MARCH 15TH AND MAY 15TH (SPRING PLANTING SEASON) OR SEPTEMBER 15TH AND NOVEMBER 15TH (FALL PLANTING SEASON).
- TREES AND SHRUBS SHALL BE PLANTED FROM MARCH 1 TO JUNE 15 AND FROM SEPTEMBER 15 TO DECEMBER 15. PLANTING MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDING THERE IS NO FROST IN THE GROUND AND FROST FREE TOPSOIL PLANTING MIXTURES ARE USED.
- NO CONTAINER-GROWN MATERIAL SHALL BE PLANTED IF NOT ACCLIMATED TO THE CURRENT WEATHER CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR GENERAL MAINTENANCE INCLUDING WATERING.
- NO AQUATIC BENCH PLANTINGS SHALL BE INSTALLED UNTIL POND HAS BEEN ALLOWED TO FILL AND BENCH HAS BECOME SATURATED. IMMEDIATELY INSTALL GOOSE PROTECTION FENCING (DETAIL THIS SHEET) AFTER INSTALLATION OF AQUATIC BENCH PLANTINGS.
- ALL PLANTING MATERIAL AND PLANTING METHODS SHALL CONFORM TO CONSTRUCTION SPECIFICATIONS.
- DISTURBED AREAS WITHIN THE LIMITS OF DISTURBANCE SHALL BE STABILIZED PER THE DETAILS AND SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT (SHEET 46).
- IF A MINIMUM COVERAGE OF 80% IS NOT ACHIEVED IN THE PLANTED AQUATIC BENCH AFTER THE SECOND GROWING SEASON, A REINFORCEMENT PLANTING WILL BE REQUIRED.
- REMOVE GOOSE PROTECTION FENCING AFTER TWO GROWING SEASONS IF THE PLANTS HAVE BECOME ESTABLISHED.
- IF A SURVIVAL RATE OF 75% IS NOT ACHIEVED IN THE PLANTED FOREST CONSERVATION AREAS AFTER THE SECOND GROWING SEASON, A REINFORCEMENT PLANTING WILL BE REQUIRED.



**TREE PLANTING - CONTAINER GROWN**  
NOT TO SCALE

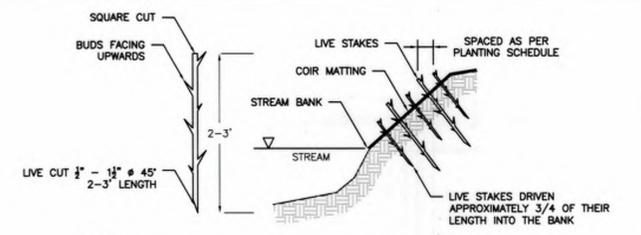


**SHRUB PLANTING - CONTAINER GROWN**  
NOT TO SCALE



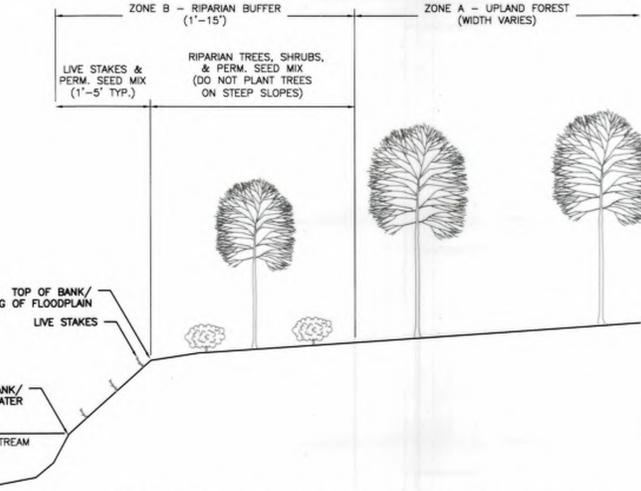
- NOTES:
- OAK STAKES SHALL BE SPACED A MAXIMUM OF 10' O/C. WITH A MINIMUM OF TWO ROWS OF STAKES INSTALLED ALONG THE INNER AND OUTER PERIMETERS OF THE AREA TO BE PROTECTED.
  - THE SEINE NYLON TWINE SHALL BE STRUNG FROM EACH STAKE TO EVERY ADJACENT STAKE WITHIN THE SAME ROW AND ADJACENT ROWS TO FORM A CRISS-CROSS PATTERN.
  - THE FIRST ROW OF SEINE NYLON TWINE SHALL BE PLACED A MINIMUM OF 6\"/>

**GOOSE PROTECTION FENCING DETAIL**  
NOT TO SCALE

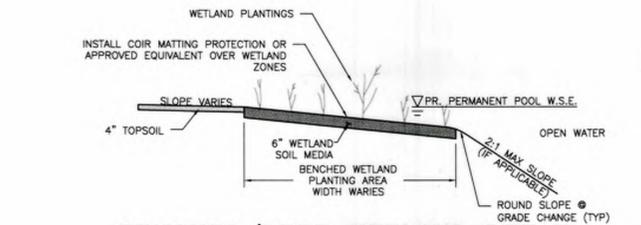


- NOTES:
- NATURAL FIBER MATTING SHALL ONLY BE INSTALLED IN AREAS OF GRADING AND DISTURBANCE.
  - LIVESTAKES SHALL BE INSTALLED DURING THE DORMANT SEASON DECEMBER 1 THROUGH APRIL 1.

**LIVE STAKE DETAIL**  
NOT TO SCALE

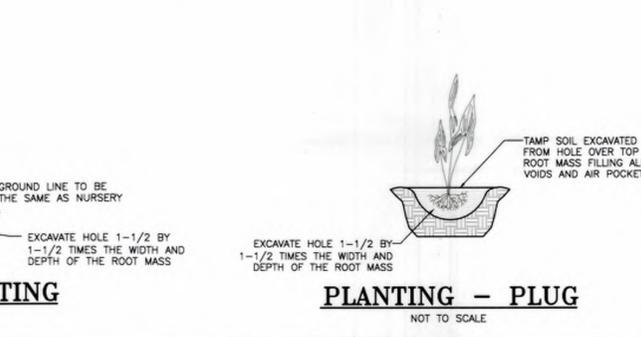


**TYPICAL RIPARIAN ZONES SECTION**  
NOT TO SCALE

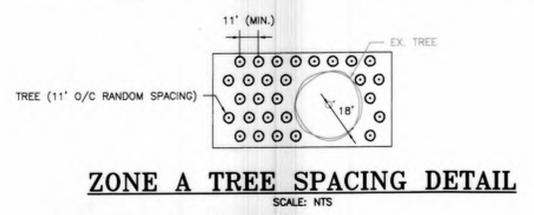


**BENCHED/DEEP WETLAND DETAIL**  
SCALE: NOT TO SCALE

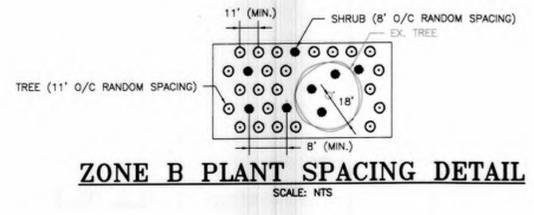
**WETLAND SOIL MEDIA**  
THE SOIL MEDIA SHALL CONSIST OF: 40% ASTM C33 CONCRETE SAND WITH A GRAIN SIZE DIAMETER OF 0.02-0.04\", 40% COMPOST AND 20% TOPSOIL WITH LESS THAN 5% CLAY CONTENT.



**QUART PLANTING** and **PLANTING - PLUG**  
NOT TO SCALE



**ZONE A TREE SPACING DETAIL**  
SCALE: NTS



**ZONE B PLANT SPACING DETAIL**  
SCALE: NTS

EG-SWMENG-000135-2015 #99974  
  
 1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

170375  
  
 BayLand Consultants & Designers, Inc.  
 "Integrating Engineering and Environment"  
 7455 New Ridge Road, Suite T Phone: (410) 694-9401  
 Hanover, Maryland 21076 Fax: (410) 694-9405  
 Website: www.baylandinc.com  
 BAYLAND JOB NO. 4-3602

REVISIONS  
 2017-06-02 ADDED 7 THUJA GREEN GIANT PLANTINGS AROUND THE CUL-DE-SAC TO THE TABLE  
 RBA 6/22/17

HARFORD COUNTY, MARYLAND  
**BARRINGTON PLACE STREAM RESTORATION**  
 PLANTING SCHEDULE & DETAILS

DRAWN BY: MDD  
 DESIGNED BY: RP/MDD  
 REVIEWED BY: CJS

CONTRACT NO.:  
 SCALE: NONE  
 SHEET 53 OF 53  
 DATE: 06/06/17