

**SHEET INDEX**

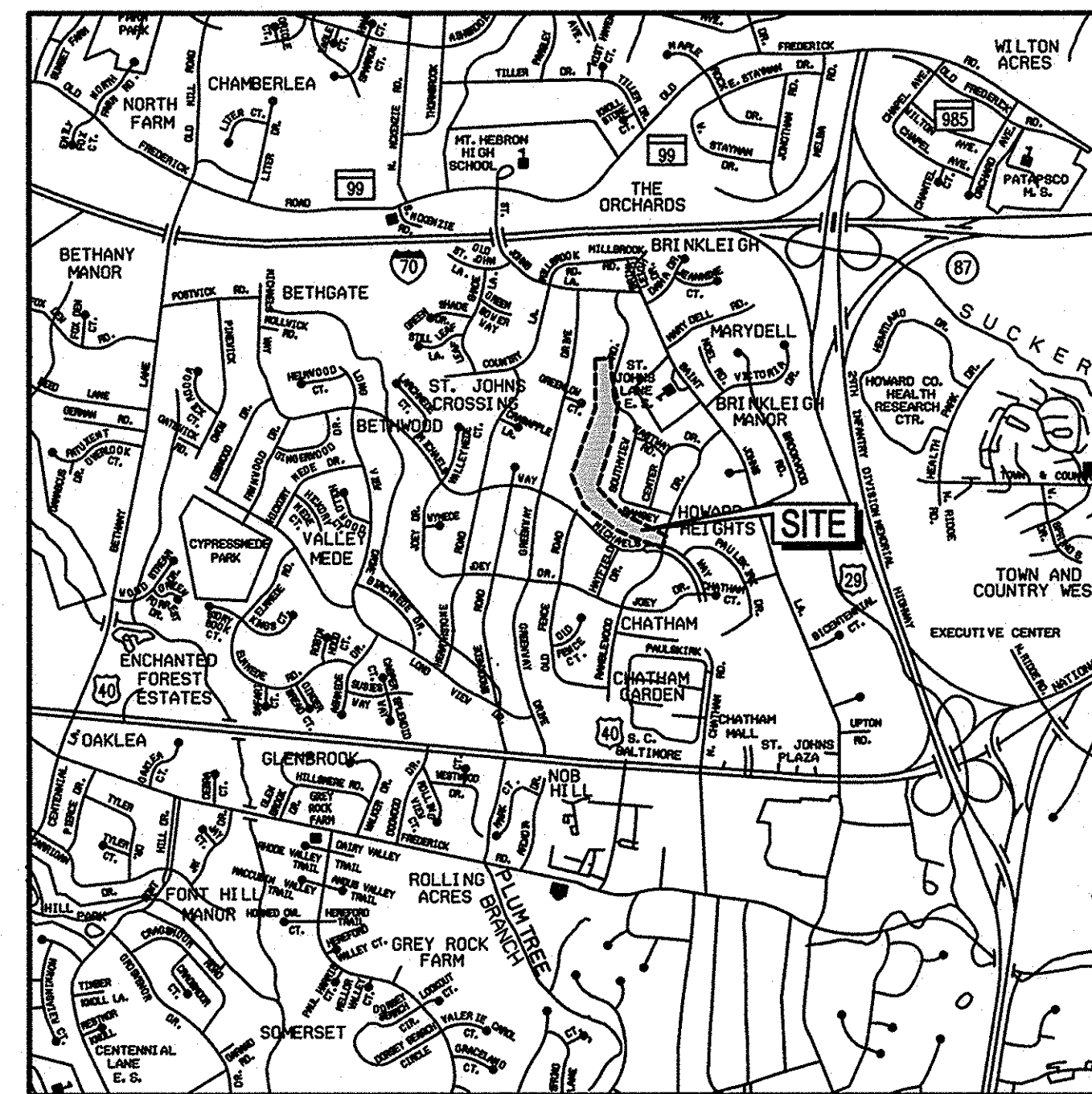
DWG. NO.	SHEET NO.	SHEET TITLE
TI-01	1	TITLE SHEET
GS-01 TO GS-06	2-7	GEOMETRY PLANS
PS-01 TO PS-05	8-12	GRADING PLANS
DE-01 TO DE-06	13-18	STREAM DETAILS
DE-07	19	RELOCATED WOOD FOOT BRIDGE PLAN AND SECTIONS
PR-01 TO PR-03	20-22	PROFILES
ES-00	23	EROSION & SEDIMENT CONTROL OVERVIEW
ES-01 TO ES-06	24-29	EROSION & SEDIMENT CONTROL PLANS
ESD-01	30	EROSION & SEDIMENT CONTROL DETAILS
ESN-01	31	EROSION & SEDIMENT CONTROL GENERAL NOTES
LS-01 TO LS-05	32-36	LANDSCAPE PLANS
LD-01	37	LANDSCAPE DETAILS
FCP-00 TO FCP-05	38-43	FOREST CONSERVATION PLANS
FCP-06	44	FOREST CONSERVATION NOTES AND DETAILS

**LEGEND**

----- 4.30 -----	EX. CONTOUR
---SD---	EX. STORM DRAIN
---S---	EX. SANITARY SEWER
---X---	EX. OVERHEAD ELECTRIC
---OH---	EX. METAL FENCE
~~~~~	EX. WOODS LINE
(Tree Symbol)	EX. TREE
(Manhole Symbol)	EX. MANHOLE
(Pole Symbol)	EX. UTILITY POLE
---	EX. EASEMENT
---	PROPERTY LINE
WUS	WATERS OF THE U.S.
---	EX. NON-TIDAL WETLAND
(Tree Symbol)	SP-11 SPECIMEN TREE
---	EXISTING 100 YR. FLOODPLAIN
---	PROPOSED 100 YR. FLOODPLAIN

# SOUTHVIEW ROAD

## DESIGN PLANS STREAM RESTORATION PROJECT HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS CAPITAL PROJECT NUMBER D-1158



VICINITY MAP  
SCALE: 1" = 2000'  
ADC MAP COORD. 5052/K7

HOWARD COUNTY SURVEY CONTROL				
DESIGNATION	PID	NORTHING	EASTING	ELEVATION
17 HA	N/A	590,619.889	1,360,443.4375	437.547
17 ID	N/A	589,445.668	1,360,778.492	421.164

**GENERAL INFORMATION**

- THE SUBJECT PROPERTIES ARE ZONED R-20 PER COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS.
- THE DEPARTMENT OF PLANNING AND ZONING AND THE HOWARD SOIL CONSERVATION DISTRICT HAVE DETERMINED THAT THE DISTURBANCES WITHIN THE 100-YEAR FLOODPLAIN, WETLANDS, STREAM AND REQUIRED BUFFERS FOR THE PROPOSED STREAM RESTORATION PROJECT ARE CONSIDERED ESSENTIAL OR NECESSARY IN ACCORDANCE WITH SECTIONS 16.115(C) AND 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- THIS PROJECT IS NOT A SUBDIVISION, AND THEREFORE THIS PLAN IS NOT REQUIRED TO MEET THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
- THIS PLAN MEETS THE REQUIREMENTS OF THE FOREST CONSERVATION REGULATIONS. THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) HAS SATISFIED THE FOREST CONSERVATION OBLIGATION OF 0.44 ACRES OF REFORESTATION FOR THIS PLAN WITH A FEE-IN-LIEU PAYMENT OF \$14,375.00 MADE TO THE HOWARD COUNTY FOREST CONSERVATION FUND.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY CONTAINED HEREIN PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 24 HOURS IN ADVANCE OF ANY WORK BEING DONE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 17 HA & 17 ID WERE USED FOR THIS SITE.
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
- THE WETLANDS DELINEATION FOR THIS PROJECT WAS PERFORMED BY KCI TECHNOLOGIES INC. ON JULY 22, 2013 AND JULY 24, 2013.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC., ON SEPTEMBER 12, 2013.
- ALL WORK SHALL CONFORM TO THE MDE BEST MANAGEMENT PRACTICES FOR WETLANDS AND WATERWAYS AS LISTED IN THE REQUIREMENTS OF THE NONTIDAL WETLANDS AND WATERWAYS PERMIT APPROVED ON JUNE 12, 2014 (MDE TRACKING # 14-NT-3108/201460610).
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- A WAIVER PETITION (WP-15-009) WAS APPROVED ON JULY 31, 2014 FROM SECTION 16.155(a)(1)(iv), MAKING THE PROJECT EXEMPT FROM AN SDP SUBMITTAL. SECTION 16.120(n) AND 16.1202(b)(iv), THAT ALLOWS THE USE OF THE AREA INSIDE THE LIMIT OF DISTURBANCE AS THE NET TRACT AREA IN THE FOREST CONSERVATION CALCULATIONS; AND SECTION 16.1205(d)(7), THAT ALLOWS THE REMOVAL OF ONE SPECIMEN TREE WITHIN THE PROJECT AREA. APPROVAL OF THE WAIVER PETITION IS SUBJECT TO THE FOLLOWING CONDITIONS:
  - THE WAIVER PETITION PLAN EXHIBIT SHALL SERVE AS THE SUBSTITUTE FOR A SITE DEVELOPMENT PLAN FOR DEVELOPMENT. NO DISTURBANCE IS PERMITTED BEYOND 3.41 ACRE LIMIT OF DISTURBANCE AS SHOWN ON THE WAIVER EXHIBIT UNLESS IT CAN BE SUFFICIENTLY DEMONSTRATED BY THE APPLICANT TO BE JUSTIFIED.
  - PRIOR TO THE COMMENCEMENT OF CAPITAL PROJECT D-1158, THE DEPARTMENT OF PUBLIC WORKS SHALL FORWARD ALL RIGHT-OF-ENTRY DOCUMENTS FOR THE 15 PRIVATELY-OWNED LOTS TO THE DEPARTMENT OF PLANNING & ZONING-DIVISION OF LAND DEVELOPMENT.
  - PRIOR TO THE COMMENCEMENT OF CAPITAL PROJECT D-1158, THE DEPARTMENT OF PUBLIC WORKS SHALL PAY A FEE-IN-LIEU OF THE AMOUNT OF \$14,375.00 FOR THE REFORESTATION OBLIGATION OF 0.44 ACRES. THE PAYMENT SHALL BE MADE THROUGH THE TRANSFER OF FUNDS TO SAP ACCOUNT 2060000000-3000-300000000-PWP0000000000-432521. A COPY OF THE TRANSFER RECEIPT SHALL BE SUBMITTED TO DPZ-DIVISION OF LAND DEVELOPMENT FOR FILE RETENTION RECORDS. ALSO, DPW MUST SUBMIT TO DPZ-DIVISION OF LAND DEVELOPMENT A COMPLETED FOREST CONSERVATION DATA SUMMARY FOR THIS PROJECT.
  - ONCE CAPITAL PROJECT D-1158 IS COMPLETE, THE LIMIT OF DISTURBANCE SHALL BE RESTORED TO ITS PREVIOUS CONDITION THROUGH STABILIZATION AND REPLANTING OF FOREST RESOURCES.
  - COMPLIANCE WITH THE COMMENTS FROM DPZ-DIVISION OF LAND DEVELOPMENT. SUBMIT A REVISED FOREST CONSERVATION WORKSHEET AND REVISED SHEETS 1 AND 44 OF THE EXHIBIT PLAN FOR FILE RETENTION RECORDS.
  - THE APPLICANT SHALL OBTAIN ALL REQUIRED AUTHORIZATIONS AND PERMITS FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND U.S. ARMY CORPS OF ENGINEERS FOR DISTURBANCES WITHIN THE FLOODPLAIN, WETLANDS, STREAMS AND THEIR BUFFERS. REFERENCE ANY APPLICABLE MDE OR USACE PERMITS OR TRACKING NUMBERS ON THE BUILDING OR GRADING PERMITS.
- HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS PROJECT MANAGER IS CHRISTINE SMITH, P.E. (410) 313-0522.

**SPECIAL CONTRACTOR NOTES**

- 100-YEAR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS.
- NO STOCKPILE OF ANY MATERIAL IS ALLOWED IN THE 100-YEAR FLOODPLAIN.
- IN-STREAM WORK IS PROHIBITED FROM MARCH 1 TO MAY 31, INCLUSIVE. STREAM CLASSIFICATIONS: USE IV-P
- CONTRACTOR SHALL CONTINUALLY MONITOR WEATHER FORECASTS DURING WORK ACTIVITIES AND SCHEDULE WORK DURING FAVORABLE CONDITIONS.
- THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN AT THE CONSTRUCTION SITE. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIPLINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STORMWATER MANAGEMENT DIVISION PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE ORANGE FENCING SHOWN ON THE PLANS.
- UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
- PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
- ALL TREES TO BE REMOVED SHALL BE CUT AT THE BASE WITH A SAW AND NOT PUSHED OVER. TREE STUMPS MAY BE LEFT IN PLACE, UNLESS OTHERWISE DIRECTED ON THE PLANS.
- ALL MATERIAL SHALL BE REMOVED AND DISPOSED OF OFFSITE UNLESS SPECIFICALLY SALVAGED FOR USE IN STREAM RESTORATION STRUCTURES.
- THE CONTRACTOR SHALL PAY CLOSE ATTENTION TO PEDESTRIANS WALKING NEAR THE WORK SITE.
- WORKING HOURS ARE 7AM TO 7PM MONDAY THROUGH FRIDAY.
- THE CONTRACTOR SHALL AVOID TRACKING HEAVY EQUIPMENT OVER THE CRITICAL ROOT ZONE OF SPECIMEN TREES. IF UNAVOIDABLE, LOAD MATS SHOULD BE USED WHEN TRACKING OVER THE CRITICAL ROOT ZONES.
- THE CONTRACTOR SHALL ERADICATE ALL AREAS OF WAVYLEAF BASKETGRASS, AS INDICATED ON THE PLANS. ERADICATION SHALL INCLUDE CHEMICAL TREATMENT PRIOR TO SITE DISTURBANCE. REPEAT TREATMENT MAY BE NECESSARY.

**ENGINEER'S CERTIFICATE**

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT"

*Kathy L. Hooverman* P.E. • 38311 DATE: 8/19/14  
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE)  
KATHY L. HOVERMAN, P.E.

**DEVELOPER'S CERTIFICATE**

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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 THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"

*Mark S. Richmond* DATE: 8/26/14  
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)  
Mark S. Richmond

EP-14-021

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*John J. Daulton* DATE: 8/26/14  
DIRECTOR OF PUBLIC WORKS

*Mark S. Richmond* DATE: 8/26/14  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

*Mark S. Richmond* DATE: 8/26/14  
CHIEF, STORMWATER MANAGEMENT DIVISION

DEPARTMENT OF RECREATION AND PARKS, HOWARD COUNTY, MD

*John R. Spill* DATE: 8/26/14  
DIRECTOR OF RECREATION AND PARKS

**PERMIT INFORMATION CHART**

SUBDIVISION NAME	SECTION/AREA	PARCEL#
0000		
PLAT# of L/T	GRID #	ZONING
	0022	R20
WATER CODE	SEWER CODE	CENSUS TRACT
PUBLIC	PUBLIC	17 02 602202

PLAT# 12, 27, 73, 25, 46, 8527, 15029, 8508, 37  
PARCEL# 489, 399, 562, 211, 386, 495, 530

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

*John R. Spill* DATE: 9/11/14  
HOWARD SCD

OWNER:  
HOWARD COUNTY  
DEPARTMENT OF PUBLIC WORKS  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
410-313-6444

STATE OF MARYLAND  
KATHY L. HOVERMAN  
PROFESSIONAL ENGINEER  
8/19/14

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311. EXPIRATION DATE: JANUARY 6, 2016

DATE: \_\_\_\_\_

NO. REVISIONS DESCRIPTION: \_\_\_\_\_

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com

KCI TECHNOLOGIES

SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

TITLE SHEET

SCALE: NOT TO SCALE  
DATE: AUGUST 2014  
KCIJOB NO.: 17133314.10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

TI-01  
SHEET NO.: 1 OF 44

KCI FILE: M:\2013\17133314\10



**Line Table - Tributary**

Line #	Length	Direction
L15	3.10	S 10°22'33.72" W
L16	12.10	S 17°56'40.53" W
L17	16.93	S 11°04'28.13" W
L18	10.94	S 7°07'50.51" W
L19	5.34	S 10°43'37.55" W
L20	23.00	S 9°05'21.65" W
L21	9.59	S 34°20'54.88" W
L22	12.95	S 14°57'10.87" W
L23	7.23	S 37°11'31.23" W
L24	4.33	S 65°23'51.30" W

**Curve Table - Tributary**

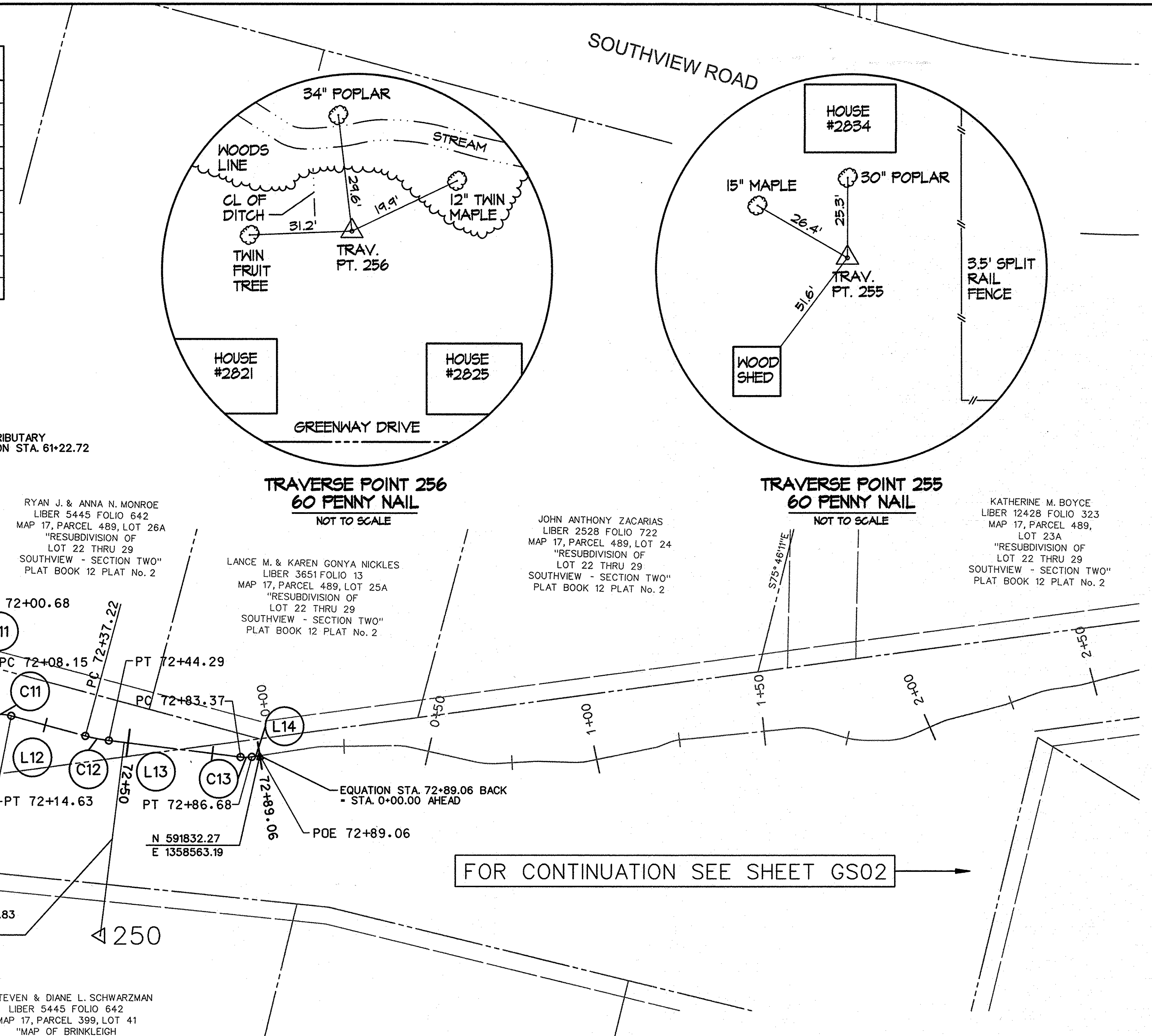
Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C14	20.00	2.64	7°34'06.81"	1.32	S 14°09'37.12" W	2.64
C15	40.00	4.80	6°52'12.40"	2.40	S 14°30'34.33" W	4.79
C16	40.00	2.75	3°56'37.62"	1.38	S 9°06'09.32" W	2.75
C17	40.00	2.51	3°35'47.04"	1.26	S 8°55'44.03" W	2.51
C18	100.00	2.86	1°38'15.90"	1.43	S 9°54'29.60" W	2.86
C19	20.00	8.82	25°15'33.23"	4.48	S 21°43'08.27" W	8.75
C20	20.00	6.77	19°23'44.01"	3.42	S 24°39'02.87" W	6.74
C21	12.00	4.66	22°14'20.36"	2.36	S 26°04'21.05" W	4.63
C22	12.00	5.91	28°12'20.06"	3.01	S 51°17'41.27" W	5.85

DAVID L. & MARY ETTA LANDIS  
LIBER 467 FOLIO 73  
MAP 17, PARCEL 489, LOT 30  
"MAP OF SOUTHVIEW - SECTION TWO"  
PLAT BOOK 10 PLAT No. 27

JEREMY K. & BEVERLY L. WEBER  
LIBER 11607 FOLIO 242  
MAP 17, PARCEL 489, LOT 29A  
"RESUBDIVISION OF LOT 22 THRU 29 SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

RAY E. BECRAFT, JR. & FAYE S. BECRAFT  
LIBER 4230 FOLIO 244  
MAP 17, PARCEL 489, LOT 28A  
"RESUBDIVISION OF LOT 22 THRU 29 SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

J. PAUL & ANNE E. ELLIS  
LIBER 488 FOLIO 786  
MAP 17, PARCEL 489, LOT 27A  
"RESUBDIVISION OF LOT 22 THRU 29 SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2



EDWARD J. HYNES  
LIBER 343 FOLIO 310  
MAP 17, PARCEL 670  
"MAP OF SOUTHVIEW - SECTION TWO"  
PLAT BOOK 10 PLAT No. 27

EDWARD J. HYNES  
LIBER 343 FOLIO 310  
MAP 17, PARCEL 670  
"MAP OF SOUTHVIEW - SECTION TWO"  
PLAT BOOK 10 PLAT No. 27

JAY P. AND ELIZABETH A. MCCARTHY  
LIBER 5346 FOLIO 303  
MAP 17, PARCEL 399, LOT 44  
"MAP OF BRINKLEIGH SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

JAY P. AND ELIZABETH A. MCCARTHY  
LIBER 5346 FOLIO 303  
MAP 17, PARCEL 399, LOT 44  
"MAP OF BRINKLEIGH SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

JAMES D. & DORIS B. RUSSELL  
LIBER 448 FOLIO 344  
MAP 17, PARCEL 399, LOT 43  
"MAP OF BRINKLEIGH SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

JAMES D. & DORIS B. RUSSELL  
LIBER 448 FOLIO 344  
MAP 17, PARCEL 399, LOT 43  
"MAP OF BRINKLEIGH SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

**Traverse Coordinate Table**

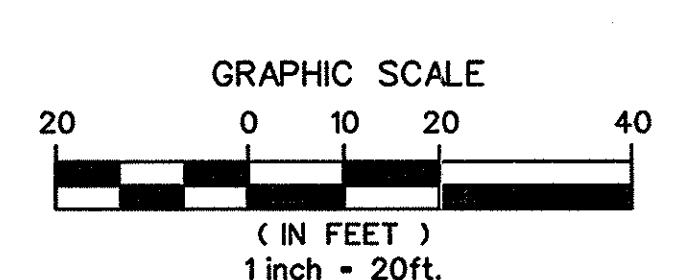
Traverse #	Northing	Easting	Elevation
250	591879.241	1358510.386	437.800
255	591965.523	1358672.471	447.000
256	592065.571	1358537.770	439.500

**Line Table - Mainstem**

Line #	Length	Direction
L1	16.69	S 25°27'20.29" W
L2	7.26	S 47°24'12.02" W
L3	19.13	S 2°46'56.43" E
L4	4.68	S 24°37'39.31" E
L5	17.74	S 12°42'24.01" W
L6	13.34	S 1°27'04.68" E
L7	2.19	S 26°51'27.91" E
L8	5.72	S 36°26'56.72" E
L9	53.63	S 0°45'34.82" W
L10	9.04	S 13°33'24.51" E
L11	7.47	S 15°44'56.33" E
L12	22.59	S 15°11'19.40" W
L13	39.08	S 7°05'13.90" W
L14	2.38	S 8°45'31.27" E

**Curve Table - Mainstem**

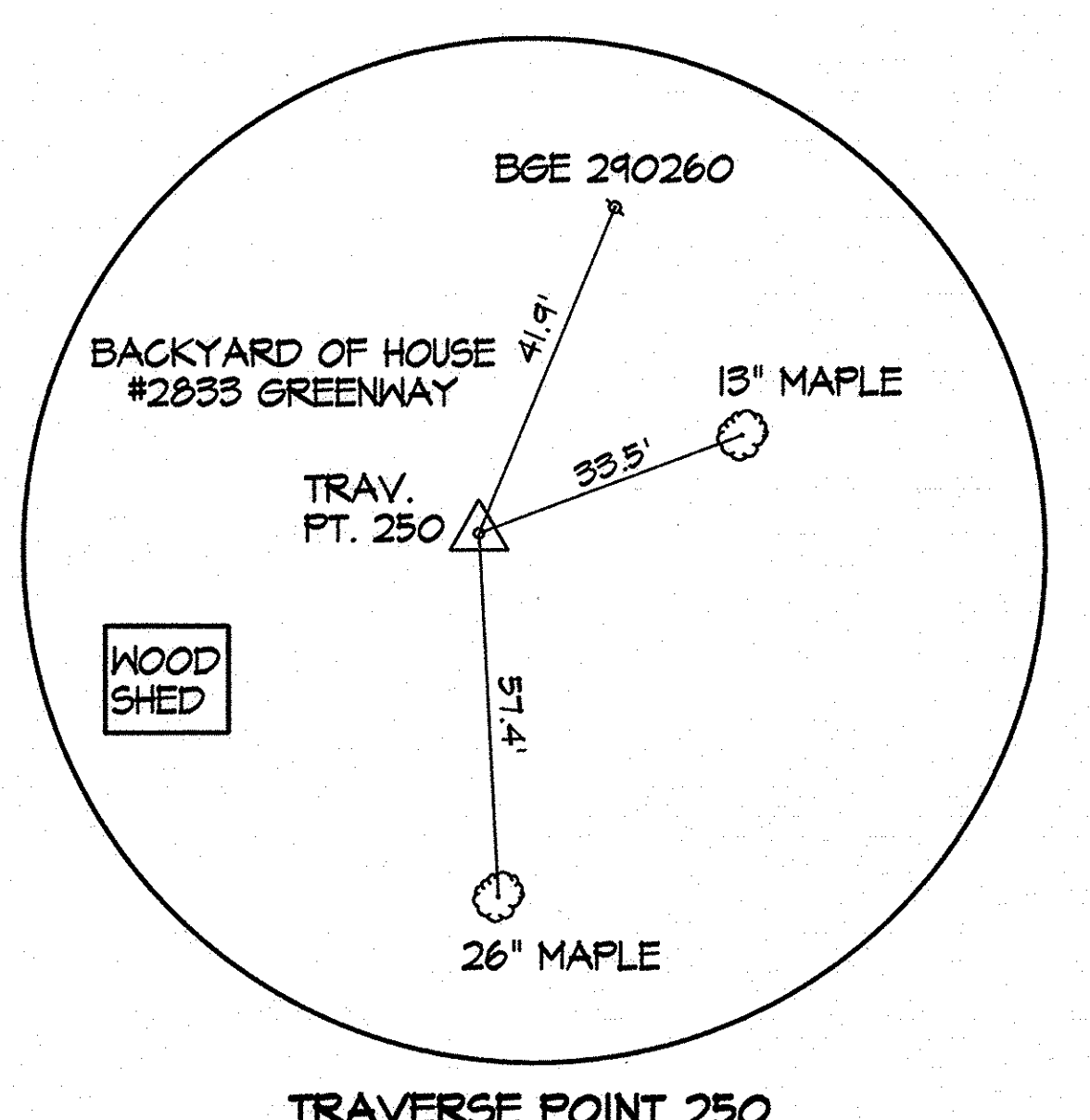
Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C1	12.00	4.60	21°56'51.73"	2.33	S 36°25'46.15" W	4.57
C2	12.00	10.51	50°11'08.45"	5.82	S 22°18'37.79" W	10.18
C3	12.00	4.58	21°50'42.88"	2.32	S 13°42'17.87" E	4.55
C4	12.00	7.82	37°20'03.32"	4.05	S 5°57'37.65" E	7.68
C5	12.00	2.97	14°09'28.68"	1.49	S 5°37'39.66" W	2.96
C6	12.00	5.32	25°24'23.23"	2.71	S 14°09'16.29" E	5.28
C7	12.00	2.01	9°35'28.82"	1.01	S 31°39'12.32" E	2.01
C8	12.00	7.79	37°12'31.55"	4.04	S 17°50'40.95" E	7.66
C9	12.00	3.00	14°18'59.33"	1.51	S 6°23'54.84" E	2.99
C10	70.00	2.68	2°11'31.82"	1.34	S 14°39'10.42" E	2.68
C11	12.00	6.48	30°56'15.73"	3.32	S 0°16'48.47" E	6.40
C12	50.00	7.07	8°06'05.50"	3.54	S 11°08'16.65" W	7.06
C13	12.00	3.32	15°50'45.17"	1.67	S 0°50'08.68" E	3.31



**STATE OF MARYLAND**  
**PROFESSIONAL ENGINEER**  
CHRISTOPHER D. DEAN  
No. 38311  
EXPIRES JANUARY 08, 2016  
8/26/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/26/14

FOR CONTINUATION SEE SHEET GS02



JOHN G. & CHARLOTTE A. ROTHENHOEFER  
LIBER 541 FOLIO 759  
MAP 17, PARCEL 399, LOT 39  
"MAP OF BRINKLEIGH SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

ROSARIA PORTERA  
LIBER 13576 FOLIO 62  
MAP 17, PARCEL 399, LOT 38  
"MAP OF BRINKLEIGH SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com

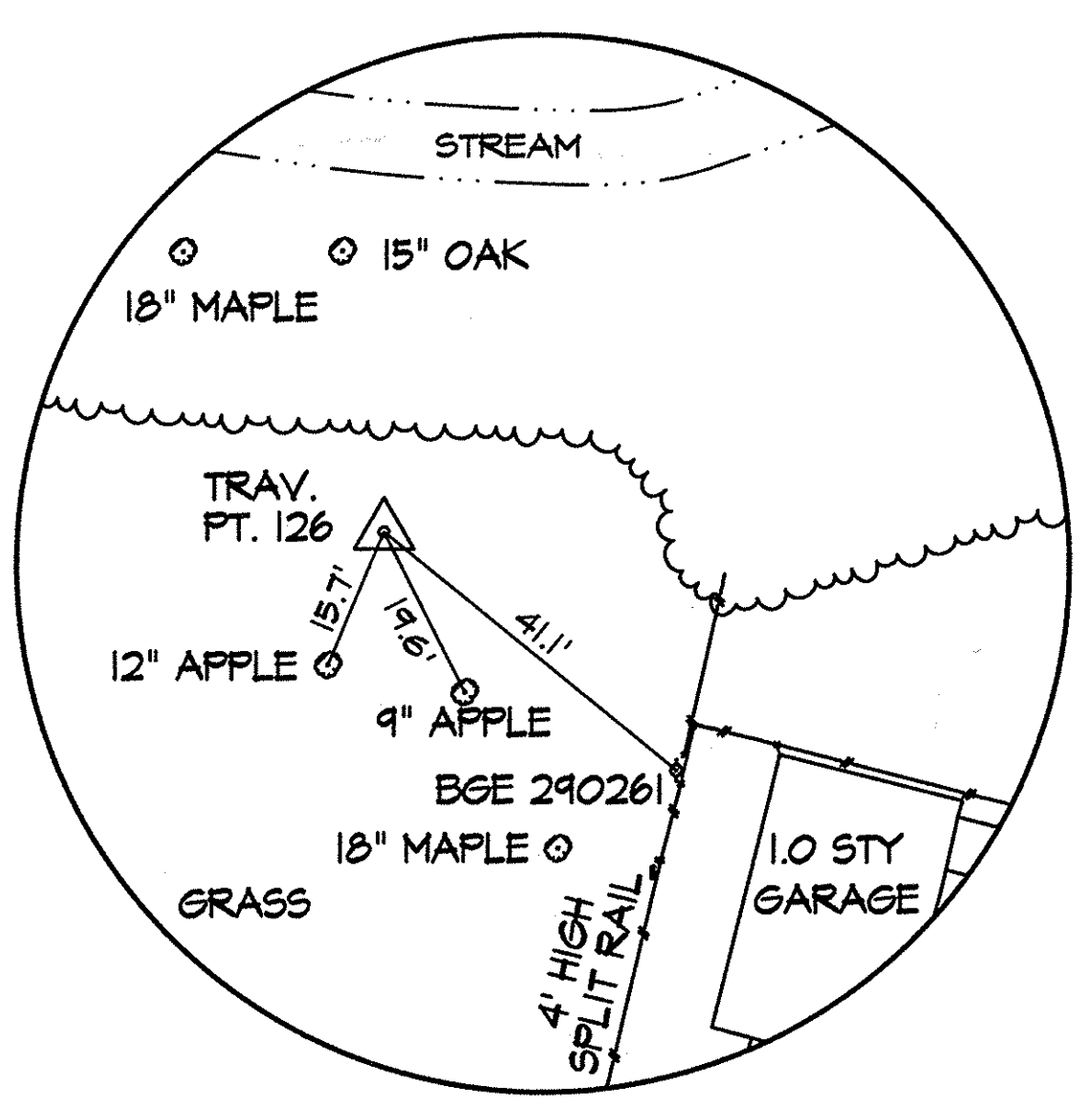
**KCI TECHNOLOGIES**

**SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT**  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 582, 211, 386, 495, 530  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

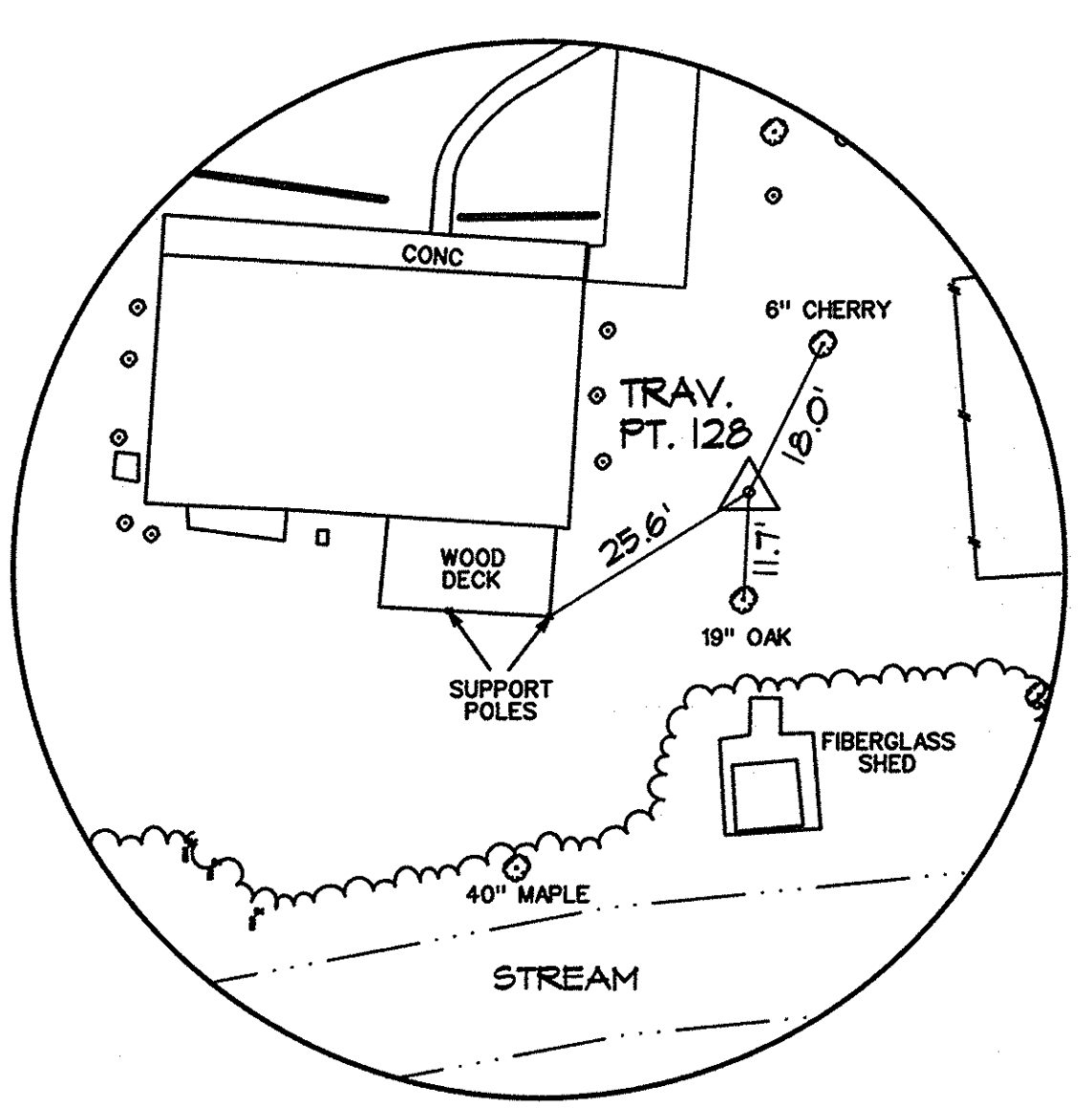
**GEOMETRY PLAN**

SCALE: 1" = 20'  
DATE: AUGUST 2014  
JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:  
**GS-01**  
SHEET NO.: 2 OF 44





**TRAVERSE POINT 126  
PIN AND CAP**  
NOT TO SCALE



**TRAVERSE POINT 128  
PIN AND CAP**  
NOT TO SCALE

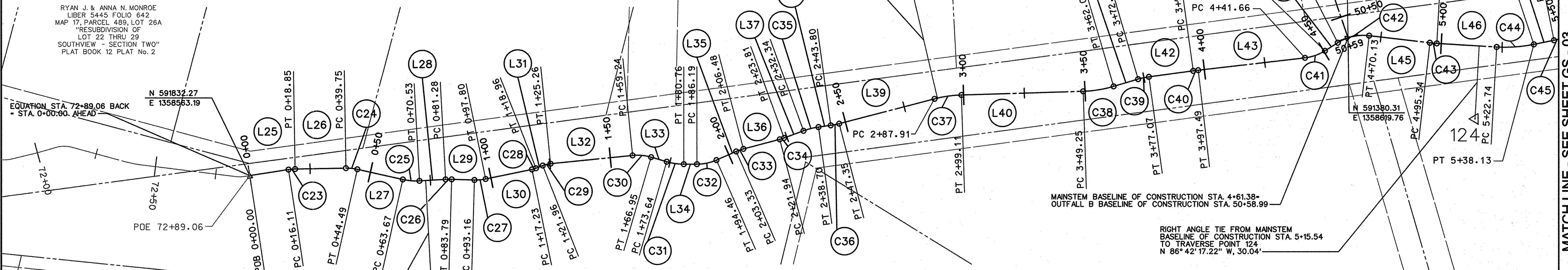
Traverse #	Northing	Easting	Elevation
124	591328.201	1358586.541	428.270
126	591757.614	1358518.052	433.600
128	591560.503	1358642.660	431.280

RYAN J. & ANNA N. MONROE  
LIBER 5445 FOLIO 642  
MAP 17, PARCEL 489, LOT 26A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

KATHERINE M. BOYCE  
LIBER 12428 FOLIO 323  
MAP 17, PARCEL 489,  
LOT 23A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

CRAIG A. AUS AND FANGYANG LIU  
LIBER 12371 FOLIO 111  
MAP 17, PARCEL 489,  
LOT 22A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

JEROME E. & SAMANTHA YOUNG  
LIBER 6002 FOLIO 79  
MAP 17, PARCEL 489,  
LOT 21  
"MAP OF SOUTHVIEW"  
PLAT BOOK 10 PLAT No. 27



EQUATION STA. 72+89.06 BACK  
STA. 0+00.00 AHEAD

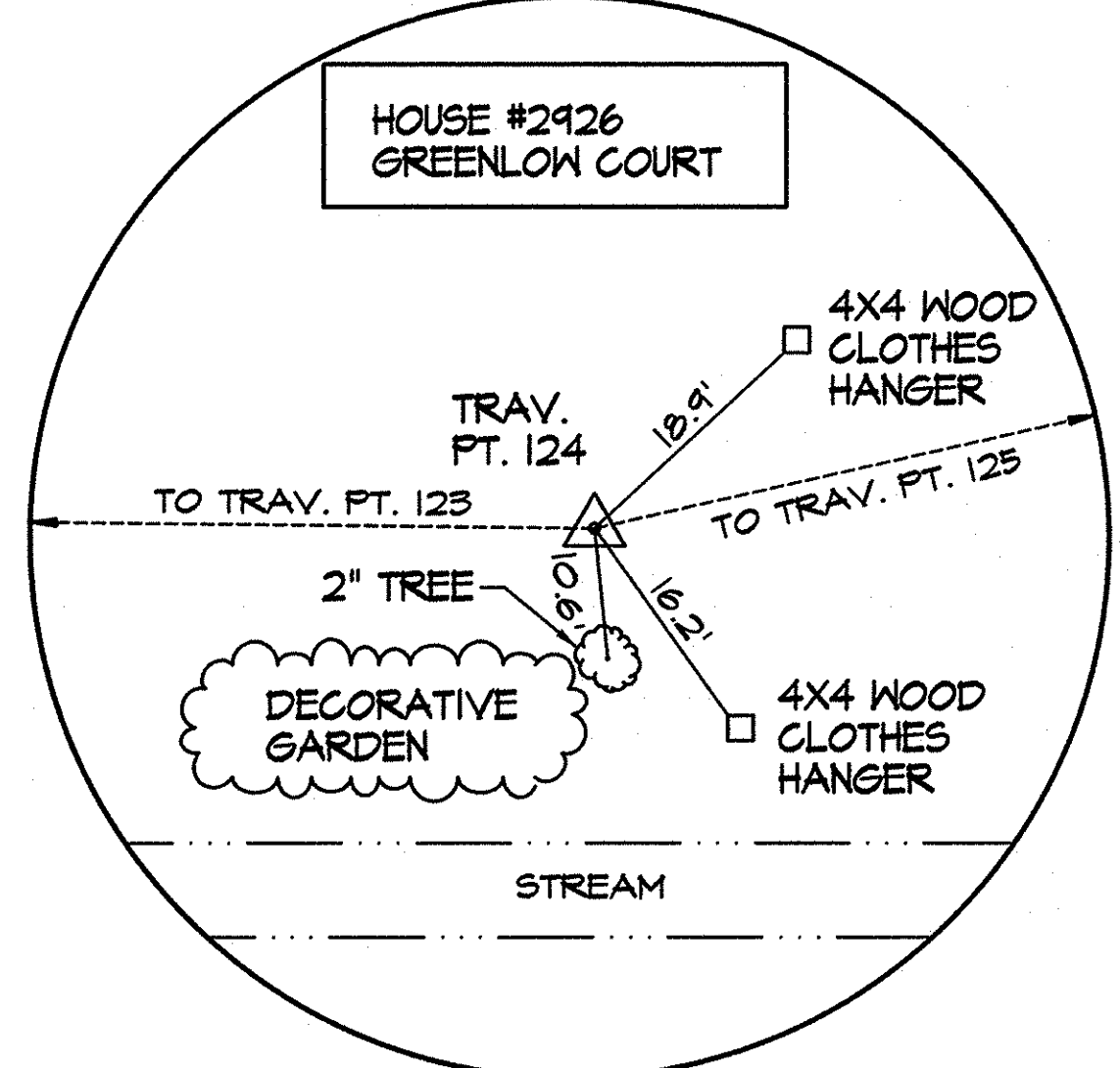
RIGHT ANGLE TIE FROM MAINSTEM  
BASELINE OF CONSTRUCTION STA. 0+73.07  
TO TRAVERSE POINT 126  
N 86° 53' 46.92" W, 43.12'

RIGHT ANGLE TIE FROM MAINSTEM  
BASELINE OF CONSTRUCTION STA. 5+15.54  
TO TRAVERSE POINT 124  
N 86° 42' 17.22" W, 30.04'

FOR CONTINUATION SEE SHEET GS01

Line #	Length	Direction
L55	1.50	S 77°26'11.12" W
L56	55.32	S 71°14'17.66" W

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C52	20.00	2.16	6°11'53.45"	1.08	S 74°20'14.39" W	2.16



**TRAVERSE POINT 124  
PIN AND CAP**  
NOT TO SCALE

Line #	Length	Direction
L25	16.11	S 8°45'31.27" E
L26	20.91	S 0°55'40.76" E
L27	19.18	S 12°37'27.24" W
L28	10.75	S 3°08'13.08" E
L29	9.37	S 1°41'00.34" W
L30	19.43	S 11°36'01.79" E
L31	3.00	S 21°30'03.70" E
L32	33.98	S 5°44'46.26" E
L33	6.69	S 16°19'52.80" W
L34	5.43	S 0°00'00.00" W
L35	8.87	S 23°40'42.51" E
L36	15.45	S 14°38'47.30" E
L37	8.53	S 20°01'42.04" E
L38	5.10	S 7°52'28.78" E
L39	40.56	S 14°38'47.30" E
L40	50.15	S 1°49'00.34" E
L41	10.54	S 16°26'06.55" E
L42	18.34	S 7°47'58.29" E
L43	44.17	S 6°36'12.87" E
L44	6.22	S 31°53'01.51" E
L45	25.21	S 6°34'01.41" W
L46	24.55	S 3°17'42.78" W
L47	8.46	S 11°24'00.46" E

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C23	20.00	2.73	7°49'50.51"	1.37	S 4°50'36.01" E	2.73
C24	20.00	4.73	13°33'07.99"	2.38	S 5°50'53.24" W	4.72
C25	25.00	6.86	15°43'40.32"	3.45	S 4°45'37.08" W	6.84
C26	30.00	2.51	4°47'13.42"	1.25	S 0°42'36.37" E	2.51
C27	20.00	4.64	13°17'02.13"	2.33	S 4°57'30.73" E	4.63
C28	10.00	1.73	9°54'01.91"	0.87	S 16°33'02.75" E	1.73
C29	12.00	3.30	15°45'17.44"	1.66	S 13°37'24.98" E	3.29
C30	20.00	7.71	22°04'39.05"	3.90	S 5°17'33.27" W	7.66
C31	25.00	7.13	16°19'52.80"	3.59	S 8°09'56.40" W	7.10
C32	20.00	8.27	23°40'42.51"	4.19	S 11°50'21.25" E	8.21
C33	20.00	3.15	9°01'55.21"	1.58	S 19°09'44.90" E	3.15
C34	20.00	1.88	5°22'54.74"	0.94	S 17°20'14.67" E	1.88
C35	30.00	6.36	12°09'13.25"	3.19	S 13°57'05.41" E	6.35
C36	30.00	3.55	6°46'18.51"	1.77	S 11°15'38.04" E	3.54
C37	50.00	11.20	12°49'46.95"	5.62	S 8°13'53.82" E	11.17
C38	50.00	12.76	14°37'06.21"	6.41	S 9°07'33.45" E	12.72
C39	30.00	4.52	8°38'08.27"	2.27	S 12°07'02.42" E	4.52
C40	100.00	2.09	1°11'45.42"	1.04	S 7°12'05.58" E	2.09
C41	20.00	8.82	25°16'48.64"	4.49	S 19°14'37.19" E	8.75
C42	20.00	13.42	38°27'02.92"	6.97	S 12°39'30.05" E	13.17
C43	50.00	2.86	3°16'18.63"	1.43	S 4°55'52.10" W	2.85
C44	60.00	15.39	14°41'43.25"	7.74	S 4°03'08.84" E	15.35
C45	20.00	2.70	7°44'32.01"	1.35	S 15°16'16.47" E	2.70

J. STEVEN & DIANE L. SCHWARZMAN  
LIBER 5445 FOLIO 642  
MAP 17, PARCEL 399, LOT 41  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

JEFFREY A. & PAMELA SUE PIEGOLS  
LIBER 2099 FOLIO 625  
MAP 17, PARCEL 399, LOT 40  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

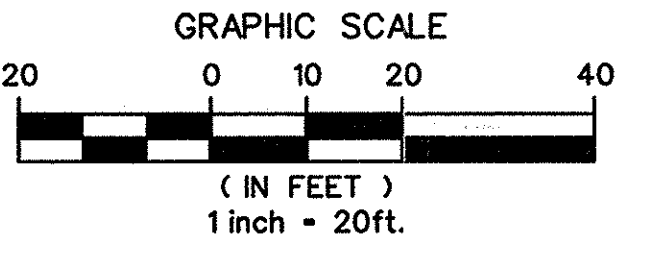
RYAN E. & GRETA L. BOCK  
LIBER 14919 FOLIO 117  
MAP 17, PARCEL 399, LOT 35  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

DAVID E. RUSSELL  
LIBER 13299 FOLIO 172  
MAP 17, PARCEL 399, LOT 36  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73



PROFESSIONAL CERTIFICATION. I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME AND THAT  
I AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND. LICENSE NO. 38312  
EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
8/26/14  
DATE



NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
WWW.KCI.COM

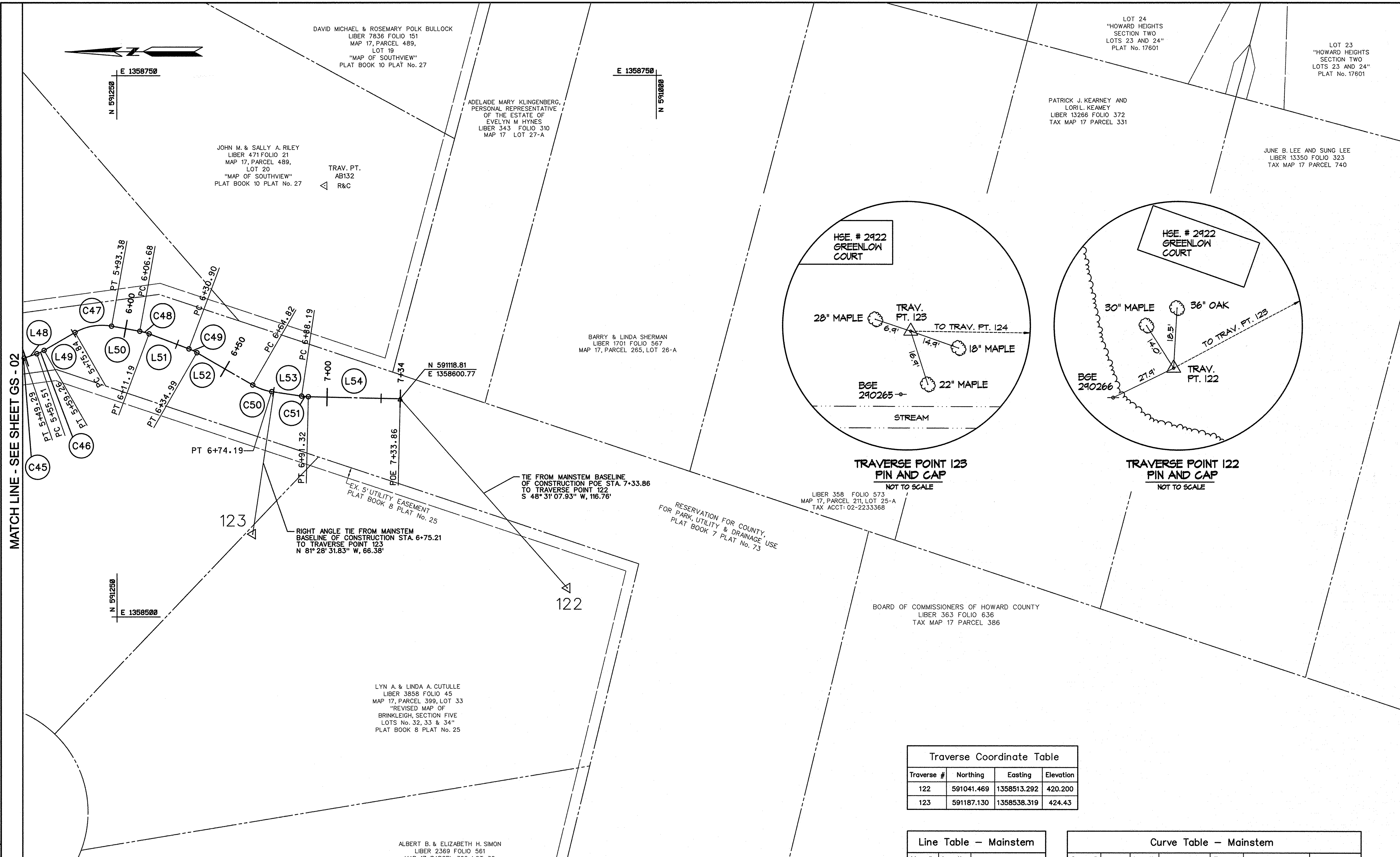


**SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT**  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**GEOMETRY PLAN**

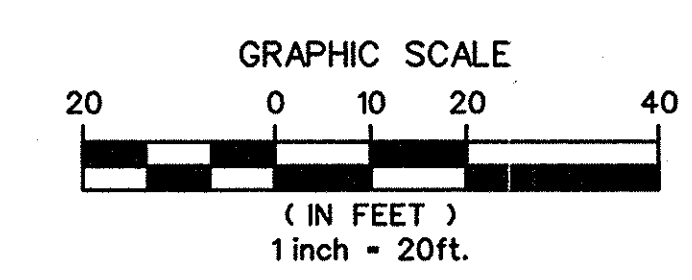
SCALE:	1" = 20'
DATE:	AUGUST 2014
KCIJOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



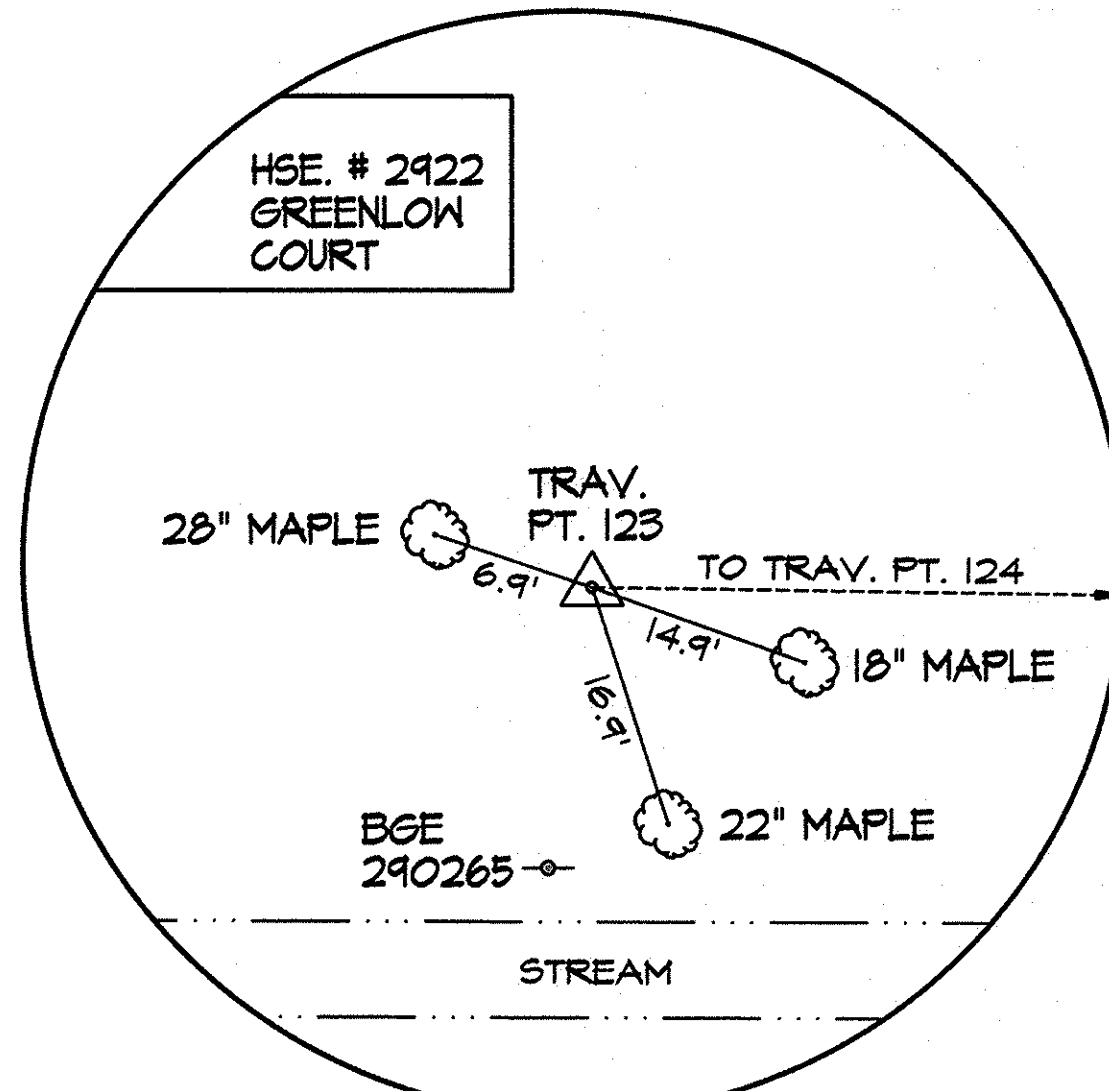


MATCH LINE - SEE SHEET GS - 02

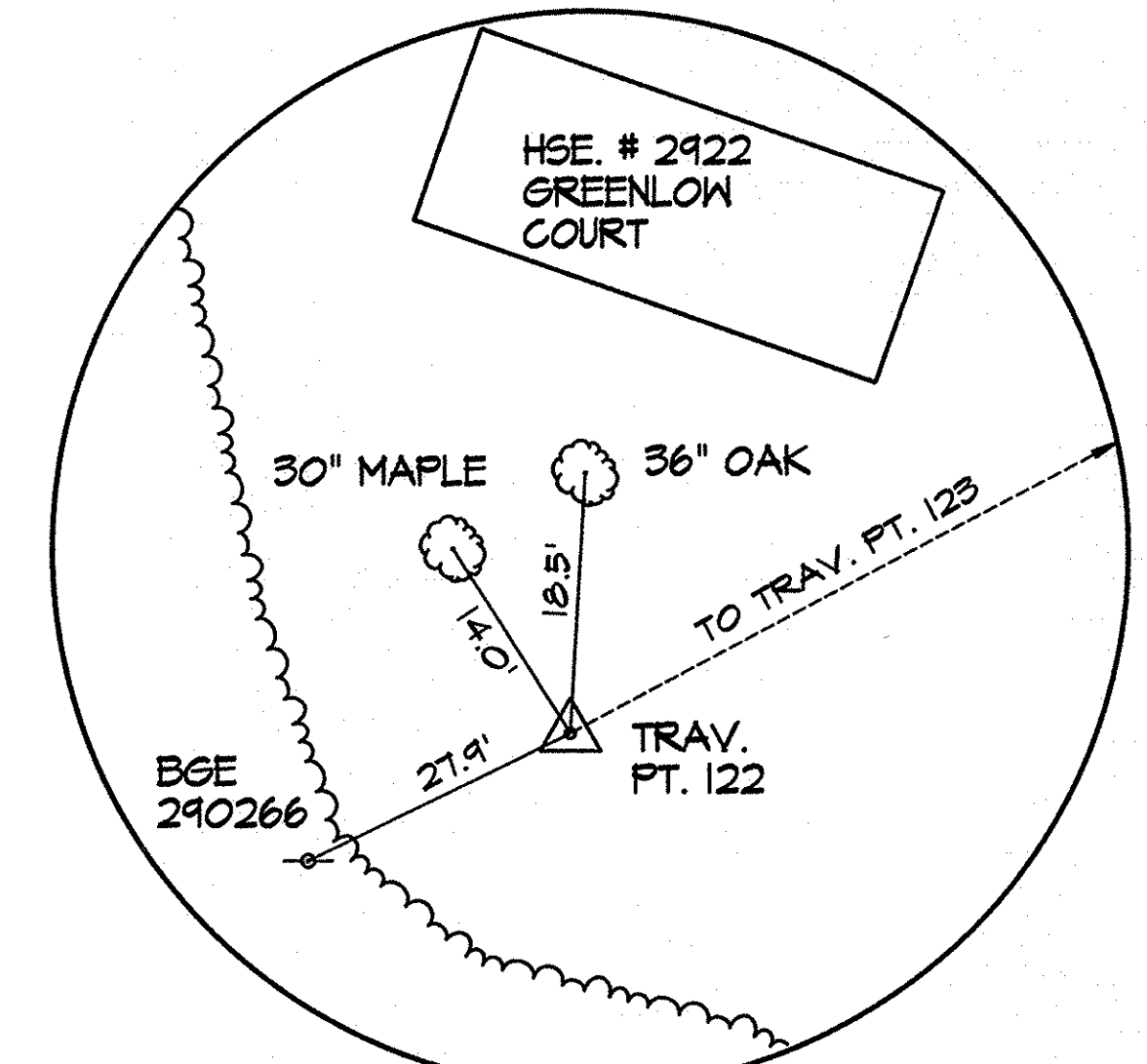
STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 8/19/14  
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311. EXPIRATION DATE: JANUARY 08, 2016



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14



**TRAVERSE POINT 123  
PIN AND CAP**  
NOT TO SCALE



**TRAVERSE POINT 122  
PIN AND CAP**  
NOT TO SCALE

Traverse Coordinate Table

Traverse #	Northing	Easting	Elevation
122	591041.469	1358513.292	420.200
123	591187.130	1358538.319	424.43

Line Table - Mainstem

Line #	Length	Direction
L48	6.21	S 19°08'32.47" E
L49	16.58	S 29°54'13.08" E
L50	13.30	S 10°17'43.99" W
L51	19.71	S 20°37'34.89" W
L52	29.83	S 30°00'16.67" W
L53	13.99	S 8°31'28.17" W
L54	42.55	S 1°21'12.04" W

Curve Table - Mainstem

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C45	20.00	2.70	7°44'32.01"	1.35	S 15°16'16.47" E	2.70
C46	20.00	3.76	10°45'40.61"	1.88	S 24°31'22.78" E	3.75
C47	25.00	17.54	40°11'57.07"	9.15	S 9°48'14.55" E	17.18
C48	25.00	4.51	10°19'50.90"	2.26	S 15°27'39.44" W	4.50
C49	25.00	4.09	9°22'41.78"	2.05	S 25°18'55.78" W	4.09
C50	25.00	9.37	21°28'48.50"	4.74	S 19°15'52.42" W	9.32
C51	25.00	3.13	7°10'16.12"	1.57	S 4°56'20.10" W	3.13

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 www.kci.com



**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**GEOMETRY PLAN**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314.10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:



JUNE B. LEE AND SUNG LEE  
LIBER 13350 FOLIO 323  
TAX MAP 17 PARCEL 740

KEVIN A. SHARPE AND COLLEN M. CAVANAUGH  
LIBER 13949 FOLIO 7  
TAX MAP 17 PARCEL 562

W. RUSSEL FLEMING AND MILDRED  
RUSSEL FLEMING, TRUSTEES  
LIBER 3736 FOLIO 551  
TAX MAP 17 PARCEL 211  
LOTS 21 & 21A HOWARD HEIGHTS

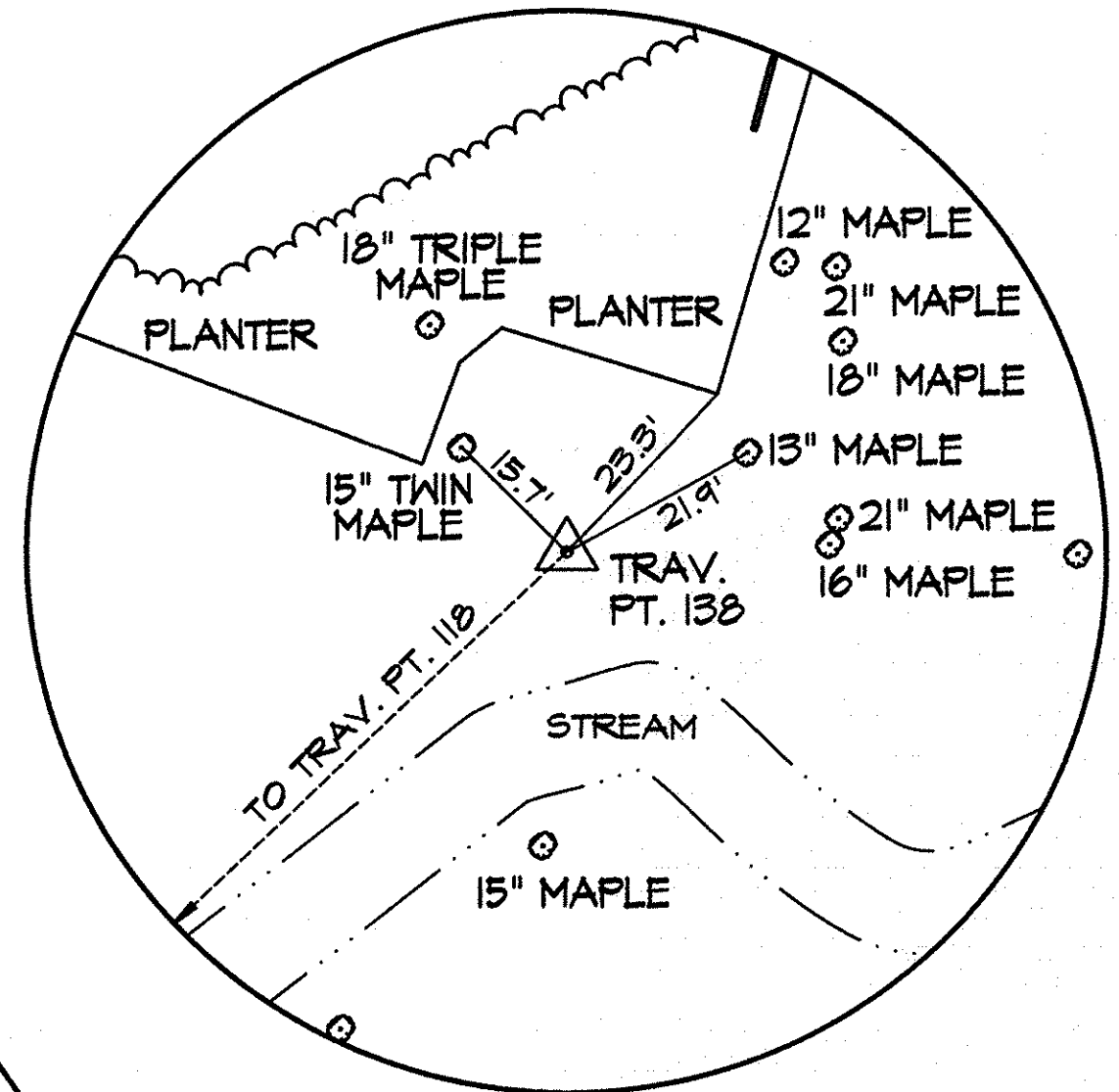
LOT 3  
"SOUTHVIEW ROAD"  
LOTS 1-3  
A REVISION TO SOUTHVIEW ROAD  
LOTS 1-3 AND OPEN SPACE LOT 4"  
PLAT No. 15333

Line Table - Mainstem

Line #	Length	Direction
L57	15.22	S 15°04'25.02" W
L58	6.11	S 47°16'20.82" W
L59	15.85	S 63°32'09.31" W
L60	24.43	S 67°46'17.50" W
L61	53.45	S 73°52'58.81" W
L62	24.98	S 77°07'10.81" W
L63	11.02	S 55°16'57.87" W
L64	17.44	S 50°03'42.18" W
L65	8.23	S 49°19'27.41" W
L66	11.87	S 0°12'32.23" W
L67	22.49	S 32°37'05.08" E
L68	27.96	S 28°55'32.90" E
L69	6.83	S 9°39'10.14" E
L70	12.60	S 59°20'44.94" E
L71	6.76	S 9°51'30.91" E
L72	10.63	S 19°40'42.42" W
L73	2.36	S 1°17'37.08" W
L74	3.72	S 48°36'53.12" E
L75	4.11	S 53°35'29.29" E
L76	27.72	S 37°11'04.45" E
L77	9.75	S 20°07'56.76" E
L78	16.85	S 41°40'36.78" W
L79	11.31	S 22°17'28.26" E

Curve Table - Mainstem

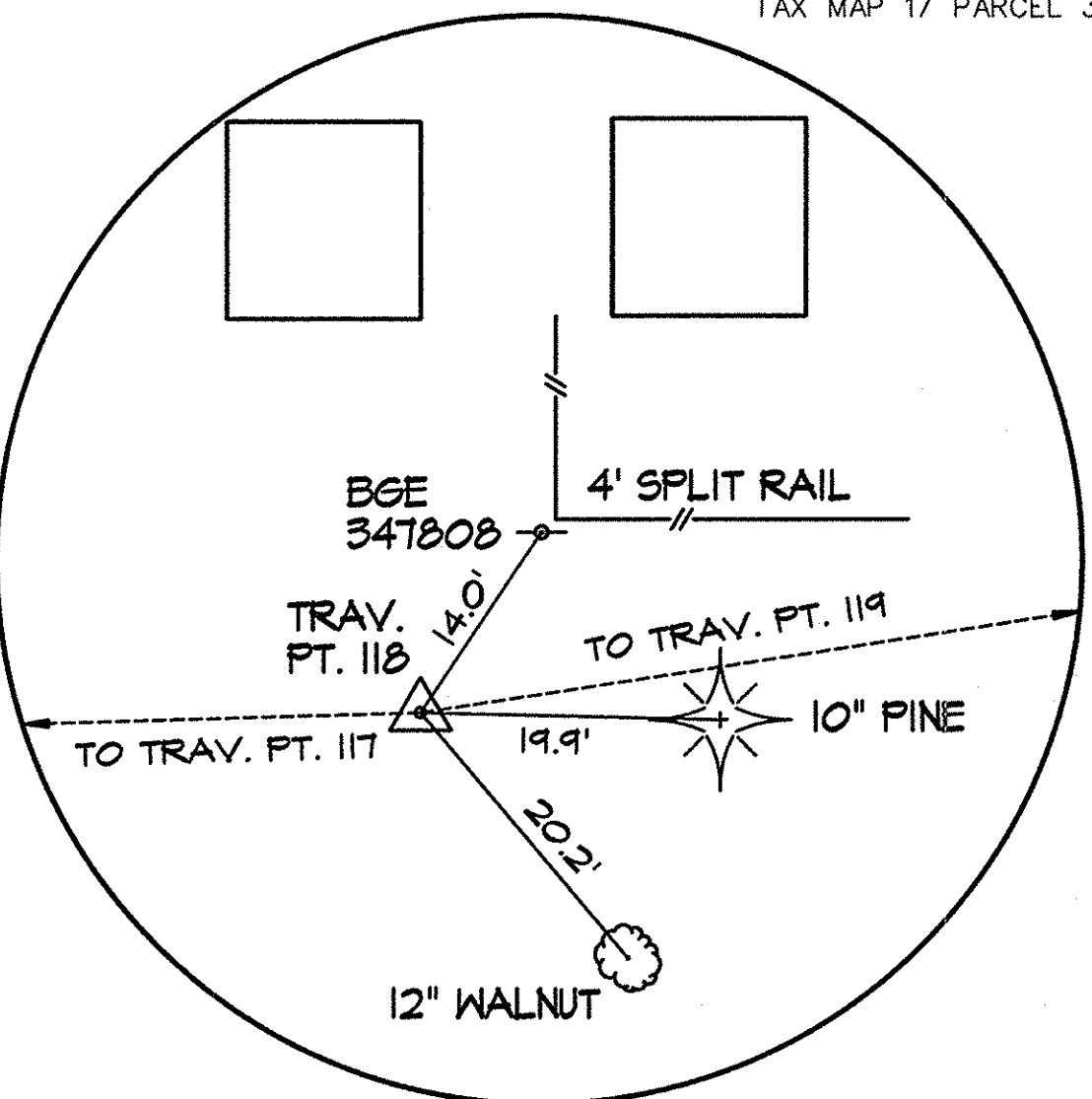
Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C53	15.00	8.43	32°11'55.80"	4.33	S 31°10'22.92" W	8.32
C54	20.00	5.68	16°15'48.49"	2.86	S 55°24'15.07" W	5.66
C55	30.00	2.22	4°14'08.19"	1.11	S 65°39'13.41" W	2.22
C56	50.00	5.33	6°06'41.31"	2.67	S 70°49'38.16" W	5.33
C57	50.00	2.82	3°14'12.00"	1.41	S 75°30'04.81" W	2.82
C58	20.00	7.62	21°50'12.95"	3.86	S 66°12'04.34" W	7.58
C59	20.00	1.82	5°13'15.69"	0.91	S 52°40'20.02" W	1.82
C60	500.00	6.44	0°44'14.76"	3.22	S 49°41'34.79" W	6.44
C61	40.00	34.29	49°06'55.19"	18.28	S 24°45'59.82" W	33.25
C62	50.00	28.65	32°49'37.30"	14.73	S 16°12'16.43" E	28.26
C63	160.00	10.31	3°41'32.18"	5.16	S 30°46'18.99" E	10.31
C64	60.00	20.18	19°16'22.76"	10.19	S 19°17'21.52" E	20.09
C65	14.00	12.14	49°41'34.80"	6.48	S 34°29'57.54" E	11.77
C66	13.00	11.23	49°29'14.03"	5.99	S 34°36'07.93" E	10.88
C67	20.00	10.31	29°32'13.33"	5.27	S 4°54'35.75" W	10.20
C68	12.00	3.85	18°23'05.34"	1.94	S 10°29'09.75" W	3.83
C69	10.00	8.71	49°54'30.20"	4.65	S 23°39'38.02" E	8.44
C70	12.00	1.04	4°58'36.17"	0.52	S 51°08'11.21" E	1.04
C71	10.00	2.86	16°24'24.85"	1.44	S 45°23'16.87" E	2.85
C72	12.00	3.57	17°03'07.69"	1.80	S 28°39'30.60" E	3.56
C73	12.00	12.95	61°48'33.53"	7.18	S 10°46'20.01" W	12.33
C74	16.00	17.86	63°58'05.04"	9.99	S 9°41'34.26" W	16.95



TRAVERSE POINT 138  
PIN AND CAP  
NOT TO SCALE

LOT 1  
"SOUTHVIEW ROAD"  
LOTS 1-3  
A REVISION TO SOUTHVIEW ROAD  
LOTS 1-3 AND OPEN SPACE LOT 4"  
PLAT No. 15333

RIGHT ANGLE TIE FROM MAINSTEM  
BASELINE OF CONSTRUCTION STA. 15+12.28  
TO TRAVERSE POINT 138  
N 75° 53' 27.54" E, 19.38'



TRAVERSE POINT 118  
PIN AND CAP  
NOT TO SCALE

SHARON L. SCHMICKLEY  
LIBER 4928 FOLIO 262  
MAP 17, PARCEL 445, LOT 26  
"MAP OF BRINKLEIGH"  
SECTION SIX"  
PLAT BOOK 8 PLAT No. 56

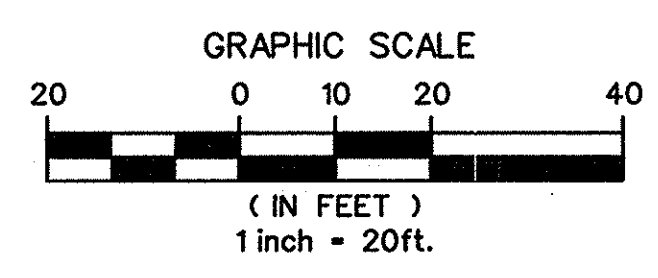
LYNN M. GLAESER AND CHRISTOPHER T. MULLER  
LIBER 3488 FOLIO 202  
MAP 17, PARCEL 445, LOT 25  
"MAP OF BRINKLEIGH"  
SECTION SIX"  
PLAT BOOK 8 PLAT No. 56

CARLA S. DAHLE, TRUSTEE  
LIBER 4067 FOLIO 303  
MAP 17, PARCEL 445, LOT 24  
"MAP OF BRINKLEIGH"  
SECTION SIX"  
PLAT BOOK 8 PLAT No. 56

MICHAEL JOHN KELLER AND  
CORNELIA MARIA VAN DER WEELE  
LIBER 12710 FOLIO 205  
MAP 17, PARCEL 445, LOT 23  
"MAP OF BRINKLEIGH"  
SECTION SIX"  
PLAT BOOK 8 PLAT No. 56

DEMETRIOS & EVA P. CAMPANIDES  
LIBER 932 FOLIO 191  
MAP 17, PARCEL 466, LOT 22  
"SECTION 8 AND  
RESUBDIVISION OF LOT 22 -  
SECTION 6  
BRINKLEIGH"  
PLAT BOOK 9 PLAT No. 27

BOARD OF COMMISSIONERS OF HOWARD COUNTY  
LIBER 363 FOLIO 636  
TAX MAP 17 PARCEL 386



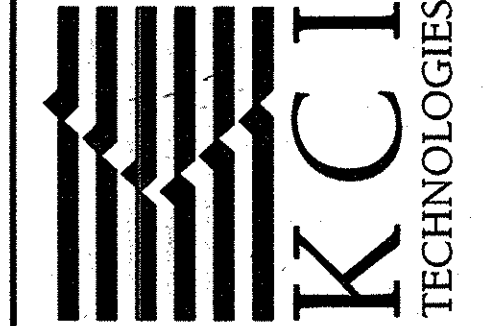
Traverse #	Northing	Eastng	Elevation
118	590459.327	1358199.700	414.480
138	590249.897	1358397.089	409.940

PROFESSIONAL CERTIFICATION, I HEREBY  
CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME AND THAT  
I AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND, LICENSE NO. 98311  
EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com



SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

GEOMETRY PLAN

SCALE:	1" = 20'
DATE:	AUGUST 2014
KCIJOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

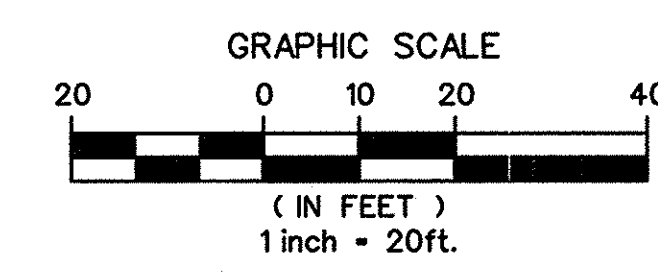






MATCH LINE - SEE SHEET GS - 05

STATE OF MARYLAND  
MELBA MAXINE MCCARTHY  
LICENSE NO. 38351  
EXPIRES JANUARY 08, 2016



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
Melba Maxine McCarthy  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
8/26/14  
DATE

Line Table - Outfall E

Line #	Length	Direction
L107	23.02	N 29°35'13.55" E

Line Table - Outfall F

Line #	Length	Direction
L108	37.10	S 32°29'08.30" W

Line Table - Mainstem

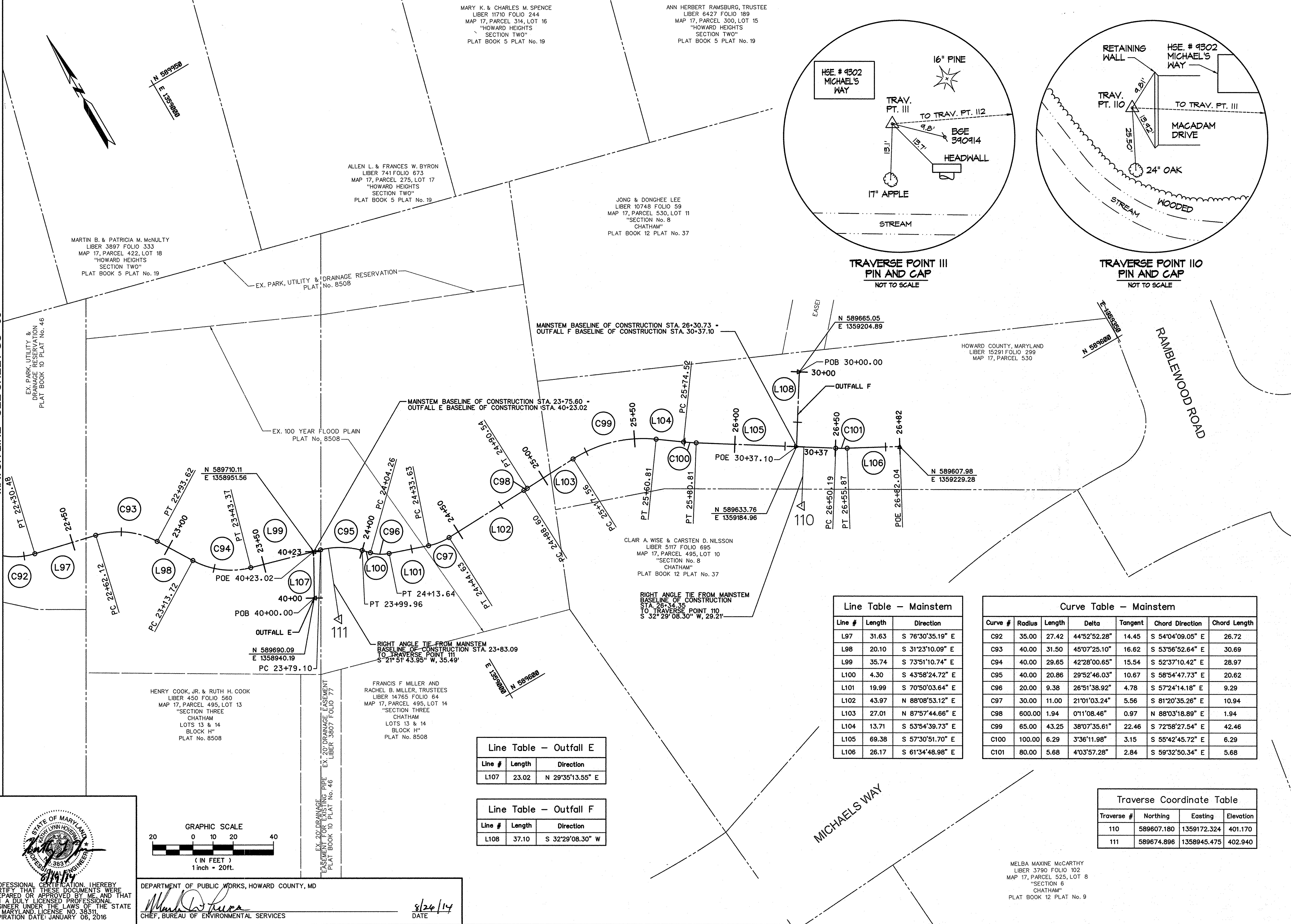
Line #	Length	Direction
L97	31.63	S 76°30'35.19" E
L98	20.10	S 31°23'10.09" E
L99	35.74	S 73°51'10.74" E
L100	4.30	S 43°58'24.72" E
L101	19.99	S 70°50'03.64" E
L102	43.97	N 88°08'53.12" E
L103	27.01	N 87°57'44.66" E
L104	13.71	S 53°54'39.73" E
L105	69.38	S 57°30'51.70" E
L106	26.17	S 61°34'48.98" E

Curve Table - Mainstem

Curve #	Radius	Length	Delta	Tangent	Chord Direction	Chord Length
C92	35.00	27.42	44°52'52.28"	14.45	S 54°04'09.05" E	26.72
C93	40.00	31.50	45°07'25.10"	16.62	S 53°56'52.64" E	30.69
C94	40.00	29.65	42°28'00.65"	15.54	S 52°37'10.42" E	28.97
C95	40.00	20.86	29°52'46.03"	10.67	S 58°54'47.73" E	20.62
C96	20.00	9.38	26°51'38.92"	4.78	S 57°24'14.18" E	9.29
C97	30.00	11.00	21°01'03.24"	5.56	S 81°20'35.26" E	10.94
C98	600.00	1.94	0°11'08.46"	0.97	N 88°03'18.89" E	1.94
C99	65.00	43.25	38°07'35.61"	22.46	S 72°58'27.54" E	42.46
C100	100.00	6.29	3°36'11.98"	3.15	S 55°42'45.72" E	6.29
C101	80.00	5.68	4°03'57.28"	2.84	S 59°32'50.34" E	5.68

Traverse Coordinate Table

Traverse #	Northing	Easting	Elevation
110	589607.180	1359172.324	401.170
111	589674.896	1358945.475	402.940



DATE: \_\_\_\_\_

NO. REVISIONS DESCRIPTION: \_\_\_\_\_

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com

KCI TECHNOLOGIES

SOUTHWIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

GEOMETRY PLAN

SCALE: 1" = 20'

DATE: AUGUST 2014

KCI JOB NO.: 17133314-10

CAPITAL PROJECT NO.: D-1158

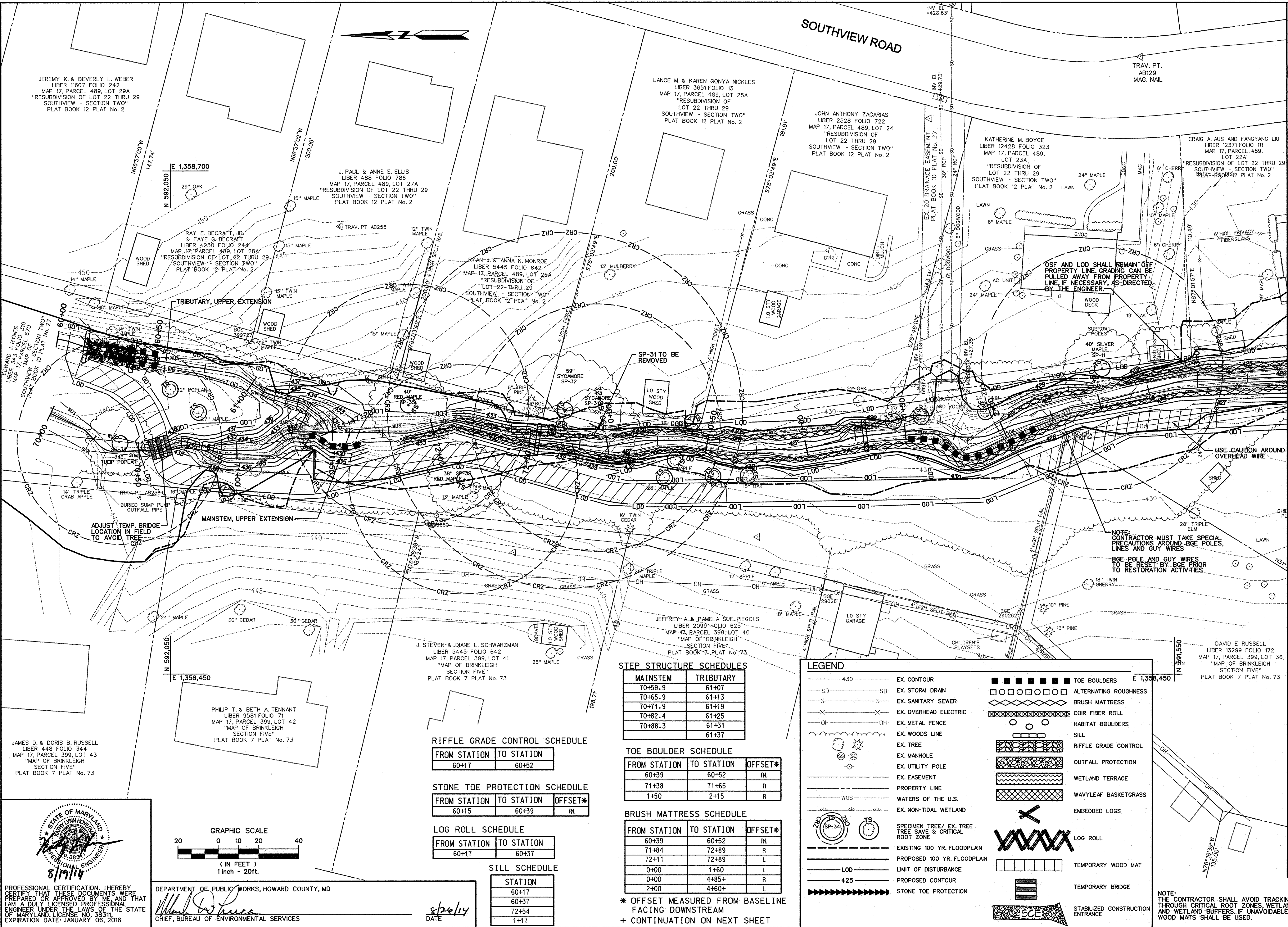
PERMIT ISSUE: \_\_\_\_\_

CONSTRUCTION ISSUE: \_\_\_\_\_

GS-06

SHEET NO.: 7 OF 44





JEREMY K. & BEVERLY L. WEBER  
LIBER 11607 FOLIO 242  
MAP 17, PARCEL 489, LOT 29A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

J. PAUL & ANNE E. ELLIS  
LIBER 488 FOLIO 786  
MAP 17, PARCEL 489, LOT 27A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

LANCE M. & KAREN GONYA NICKLES  
LIBER 3651 FOLIO 13  
MAP 17, PARCEL 489, LOT 25A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

JOHN ANTHONY ZACARIAS  
LIBER 2528 FOLIO 722  
MAP 17, PARCEL 489, LOT 24  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

KATHERINE M. BOYCE  
LIBER 12428 FOLIO 323  
MAP 17, PARCEL 489,  
LOT 23A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

CRAIG A. AUS AND FANGYANG LIU  
LIBER 12371 FOLIO 111  
MAP 17, PARCEL 489,  
LOT 22A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

RYAN J. & ANNA N. MONROE  
LIBER 5445 FOLIO 642  
MAP 17, PARCEL 489, LOT 26A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

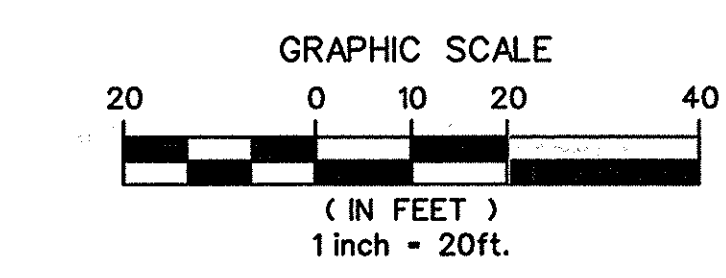
JEFFREY A. & PAMELA SUE PIEGOLS  
LIBER 2089 FOLIO 625  
MAP 17, PARCEL 399, LOT 40  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

J. STEVEN & DJANE L. SCHWARZMAN  
LIBER 5445 FOLIO 642  
MAP 17, PARCEL 399, LOT 41  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

PHILIP T. & BETH A. TENNANT  
LIBER 9581 FOLIO 71  
MAP 17, PARCEL 399, LOT 42  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

JAMES D. & DORIS B. RUSSELL  
LIBER 448 FOLIO 344  
MAP 17, PARCEL 399, LOT 43  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

STATE OF MARYLAND  
Professional Engineer  
8/24/14



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
Chief, Bureau of Environmental Services  
8/24/14  
DATE

RIFFLE GRADE CONTROL SCHEDULE

FROM STATION	TO STATION
60+17	60+52

STONE TOE PROTECTION SCHEDULE

FROM STATION	TO STATION	OFFSET*
60+15	60+39	RL

LOG ROLL SCHEDULE

FROM STATION	TO STATION
60+17	60+37

SILL SCHEDULE

STATION
60+17
60+37
72+54
1+17

STEP STRUCTURE SCHEDULES

MAINSTEM	TRIBUTARY
70+59.9	61+07
70+65.9	61+13
70+71.9	61+19
70+82.4	61+25
70+88.3	61+31
	61+37

TOE BOULDER SCHEDULE

FROM STATION	TO STATION	OFFSET*
60+39	60+52	RL
71+38	71+65	R
1+50	2+15	R

BRUSH MATTRESS SCHEDULE

FROM STATION	TO STATION	OFFSET*
60+39	60+52	RL
71+84	72+89	R
72+11	72+89	L
0+00	1+60	L
0+00	4+85+	R
2+00	4+60+	L

\* OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM  
+ CONTINUATION ON NEXT SHEET

LEGEND

- EX. CONTOUR
- EX. STORM DRAIN
- EX. SANITARY SEWER
- EX. OVERHEAD ELECTRIC
- EX. METAL FENCE
- EX. WOODS LINE
- EX. TREE
- EX. MANHOLE
- EX. UTILITY POLE
- EX. EASEMENT
- PROPERTY LINE
- WATERS OF THE U.S.
- EX. NON-TIDAL WETLAND
- SPECIMEN TREE/ EX. TREE TREE SAVE & CRITICAL ROOT ZONE
- EXISTING 100 YR. FLOODPLAIN
- PROPOSED 100 YR. FLOODPLAIN
- LIMIT OF DISTURBANCE
- PROPOSED CONTOUR
- STONE TOE PROTECTION
- EX. CONTOUR
- EX. STORM DRAIN
- EX. SANITARY SEWER
- EX. OVERHEAD ELECTRIC
- EX. METAL FENCE
- EX. WOODS LINE
- EX. TREE
- EX. MANHOLE
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- SPECIMEN TREE/ EX. TREE TREE SAVE & CRITICAL ROOT ZONE
- EXISTING 100 YR. FLOODPLAIN
- PROPOSED 100 YR. FLOODPLAIN
- LIMIT OF DISTURBANCE
- PROPOSED CONTOUR
- STONE TOE PROTECTION
- TOE BOULDERS
- ALTERNATING ROUGHNESS
- BRUSH MATTRESS
- COIR FIBER ROLL
- HABITAT BOULDERS
- SILL
- RIFFLE GRADE CONTROL
- OUTFALL PROTECTION
- WETLAND TERRACE
- WAVYLEAF BASKETGRASS
- EMBEDDED LOGS
- LOG ROLL
- TEMPORARY WOOD MAT
- TEMPORARY BRIDGE
- STABILIZED CONSTRUCTION ENTRANCE

NOTE: THE CONTRACTOR SHALL AVOID TRACKING THROUGH CRITICAL ROOT ZONES, WETLANDS, AND WETLAND BUFFERS. IF UNAVOIDABLE, WOOD MATS SHALL BE USED.

REVISIONS DESCRIPTION

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com

SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

GRADING PLAN

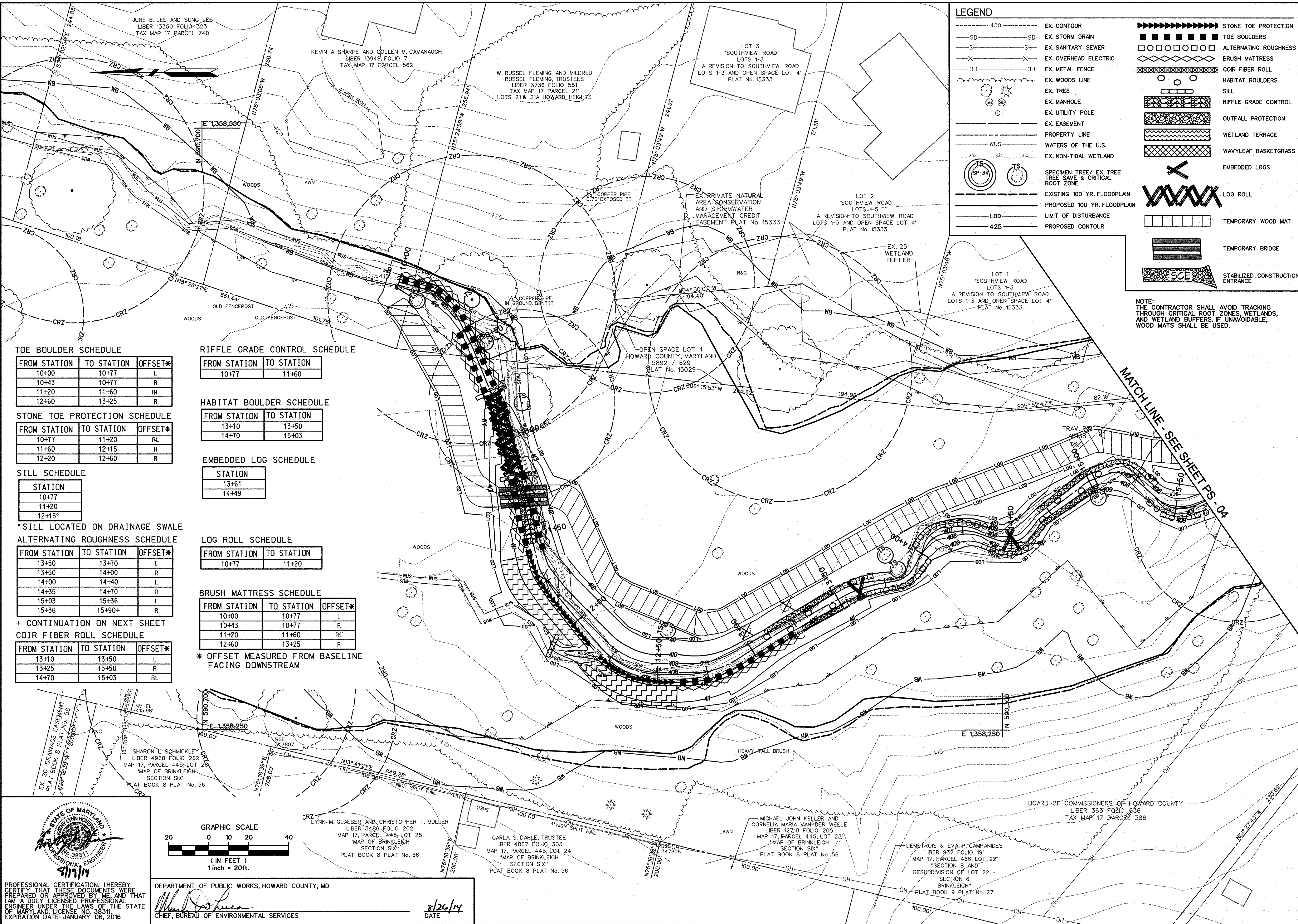
SCALE: 1" = 20'  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

PS-01  
SHEET NO.: 8 OF 44









### LEGEND

---	430	---	EX. CONTOUR	▶▶▶▶▶▶▶▶▶▶	STONE TOE PROTECTION
SD	---	SD	EX. STORM DRAIN	■ ■ ■ ■ ■ ■ ■ ■	TOE BOULDERS
S	---	S	EX. SANITARY SEWER	□ □ □ □ □ □ □ □	ALTERNATING ROUGHNESS
OH	---	OH	EX. OVERHEAD ELECTRIC	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	BRUSH MATTRESS
---	---	---	EX. WOODS LINE	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	COIR FIBER ROLL
---	---	---	EX. TREE	○ ○ ○ ○ ○ ○ ○ ○	HABITAT BOULDERS
---	---	---	EX. MANHOLE	○ ○ ○ ○ ○ ○ ○ ○	SILL
---	---	---	EX. UTILITY POLE	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	RIFFLE GRADE CONTROL
---	---	---	EX. EASEMENT	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	OUTFALL PROTECTION
---	---	---	PROPERTY LINE	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	WETLAND TERRACE
---	---	---	WATERS OF THE U.S.	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	WAVYLEAF BASKETGRASS
---	---	---	EX. NON-TIDAL WETLAND	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	EMBEDDED LOGS
---	---	---	SPECIMEN TREE / EX. TREE	✕	LOG ROLL
---	---	---	TREE SAVE & CRITICAL ROOT ZONE	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	TEMPORARY WOOD MAT
---	---	---	EXISTING 100 YR. FLOODPLAIN	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	TEMPORARY BRIDGE
---	---	---	PROPOSED 100 YR. FLOODPLAIN	▨ ▨ ▨ ▨ ▨ ▨ ▨ ▨	STABILIZED CONSTRUCTION ENTRANCE
---	---	---	LIMIT OF DISTURBANCE		
---	---	---	PROPOSED CONTOUR		

NOTE: THE CONTRACTOR SHALL AVOID TRACKING THROUGH CRITICAL ROOT ZONES, WETLANDS, AND WETLAND BUFFERS. IF UNAVOIDABLE, WOOD MATS SHALL BE USED.

#### TOE BOULDER SCHEDULE

FROM STATION	TO STATION	OFFSET*
10+00	10+77	L
10+43	10+77	R
11+20	11+60	RL
12+60	13+25	R

#### RIFFLE GRADE CONTROL SCHEDULE

FROM STATION	TO STATION
10+77	11+60

#### STONE TOE PROTECTION SCHEDULE

FROM STATION	TO STATION	OFFSET*
10+77	11+20	RL
11+60	12+15	R
12+20	12+60	R

#### HABITAT BOULDER SCHEDULE

FROM STATION	TO STATION
13+10	13+50
14+70	15+03

#### SILL SCHEDULE

STATION
10+77
11+20
12+15

#### EMBEDDED LOG SCHEDULE

STATION
13+61
14+49

#### ALTERNATING ROUGHNESS SCHEDULE

FROM STATION	TO STATION	OFFSET*
13+50	13+70	L
13+50	14+00	R
14+00	14+40	L
14+35	14+70	R
15+03	15+36	L
15+36	15+90+	R

#### LOG ROLL SCHEDULE

FROM STATION	TO STATION
10+77	11+20

#### BRUSH MATTRESS SCHEDULE

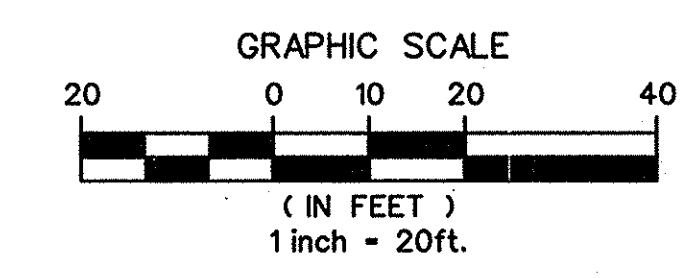
FROM STATION	TO STATION	OFFSET*
10+00	10+77	L
10+43	10+77	R
11+20	11+60	RL
12+60	13+25	R

#### COIR FIBER ROLL SCHEDULE

FROM STATION	TO STATION	OFFSET*
13+10	13+50	L
13+25	13+50	R
14+70	15+03	RL

\* OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14

DATE	
NO.	
REVISIONS DESCRIPTION	

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 www.kci.com

**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**GRADING PLAN**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314-10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

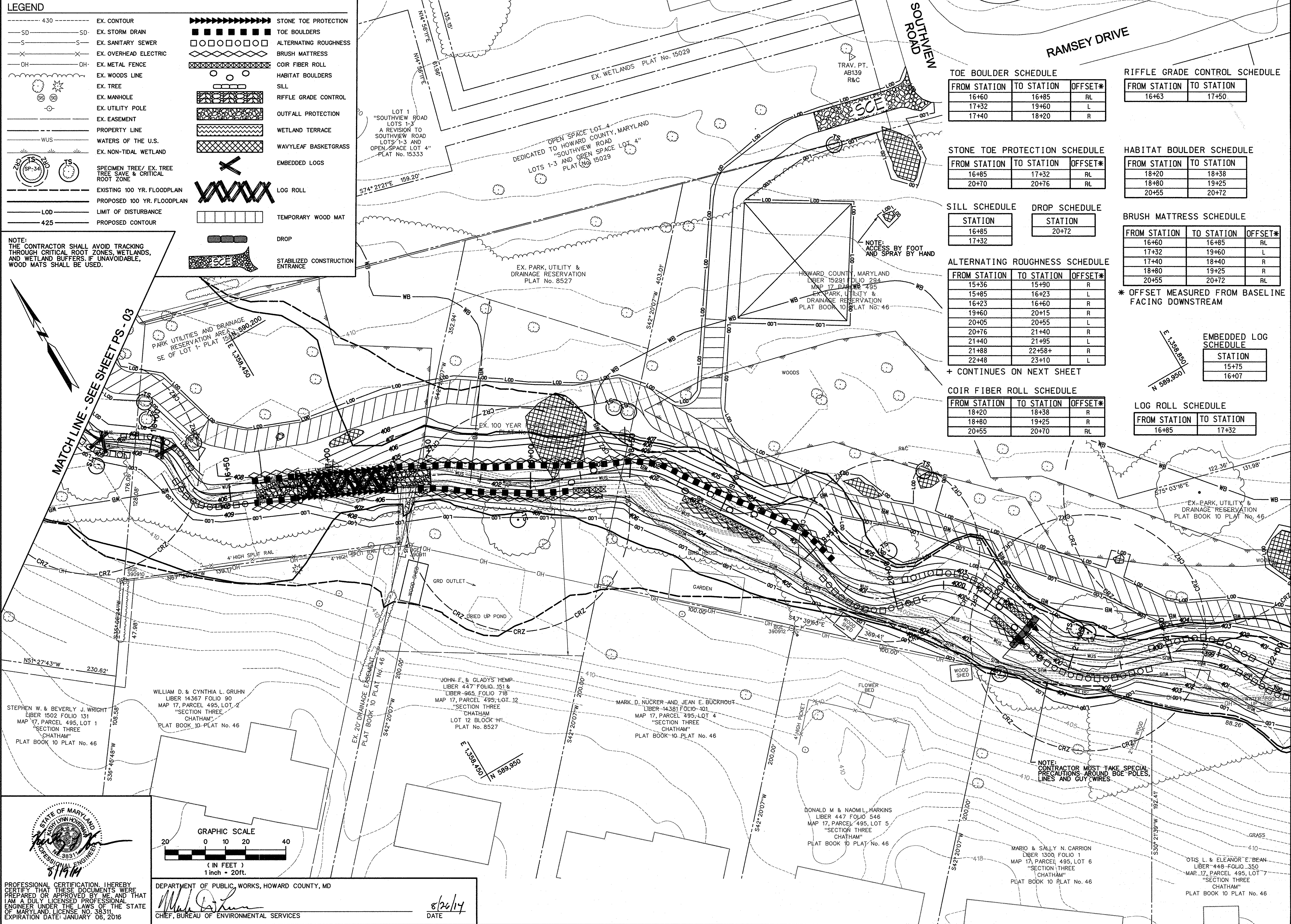
**PS-03**  
 SHEET NO.: 10 OF 44



**LEGEND**

--- 430 ---	EX. CONTOUR	██████████	STONE TOE PROTECTION
--- SD ---	EX. STORM DRAIN	□□□□□□	TOE BOULDERS
--- S ---	EX. SANITARY SEWER	◇◇◇◇◇◇	ALTERNATING ROUGHNESS
--- X ---	EX. OVERHEAD ELECTRIC	▨▨▨▨▨▨	BRUSH MATTRESS
--- OH ---	EX. METAL FENCE	▨▨▨▨▨▨	COIR FIBER ROLL
○	EX. WOODS LINE	○	HABITAT BOULDERS
○	EX. TREE	○	SILL
○	EX. MANHOLE	▨▨▨▨▨▨	RIFFLE GRADE CONTROL
○	EX. UTILITY POLE	▨▨▨▨▨▨	OUTFALL PROTECTION
---	EX. EASEMENT	▨▨▨▨▨▨	WETLAND TERRACE
---	PROPERTY LINE	▨▨▨▨▨▨	WAVYLEAF BASKETGRASS
---	WATERS OF THE U.S.	---	EMBEDDED LOGS
---	EX. NON-TIDAL WETLAND	---	LOG ROLL
○	SPECIMEN TREE/ EX. TREE	---	TEMPORARY WOOD MAT
○	TREE SAVE & CRITICAL	---	DROP
○	ROOT ZONE	---	STABILIZED CONSTRUCTION
---	EXISTING 100 YR. FLOODPLAIN	---	ENTRANCE
---	PROPOSED 100 YR. FLOODPLAIN	---	
---	LIMIT OF DISTURBANCE	---	
---	PROPOSED CONTOUR	---	

NOTE: THE CONTRACTOR SHALL AVOID TRACKING THROUGH CRITICAL ROOT ZONES, WETLANDS, AND WETLAND BUFFERS. IF UNAVOIDABLE, WOOD MATS SHALL BE USED.



**TOE BOULDER SCHEDULE**

FROM STATION	TO STATION	OFFSET*
16+60	16+85	RL
17+32	19+60	L
17+40	18+20	R

**RIFFLE GRADE CONTROL SCHEDULE**

FROM STATION	TO STATION
16+63	17+50

**STONE TOE PROTECTION SCHEDULE**

FROM STATION	TO STATION	OFFSET*
16+85	17+32	RL
20+70	20+76	RL

**HABITAT BOULDER SCHEDULE**

FROM STATION	TO STATION
18+20	18+38
18+80	19+25
20+55	20+72

**SILL SCHEDULE**

STATION
16+85
17+32

**DROP SCHEDULE**

STATION
20+72

**ALTERNATING ROUGHNESS SCHEDULE**

FROM STATION	TO STATION	OFFSET*
15+36	15+90	R
15+85	16+23	L
16+23	16+60	R
19+60	20+15	R
20+05	20+55	L
20+76	21+40	R
21+40	21+95	L
21+88	22+58+	R
22+48	23+10	L

**BRUSH MATTRESS SCHEDULE**

FROM STATION	TO STATION	OFFSET*
16+60	16+85	RL
17+32	19+60	L
17+40	18+40	R
18+80	19+25	R
20+55	20+72	RL

\* OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM

**EMBEDDED LOG SCHEDULE**

STATION
15+75
16+07

**COIR FIBER ROLL SCHEDULE**

FROM STATION	TO STATION	OFFSET*
18+20	18+38	R
18+80	19+25	R
20+55	20+70	RL

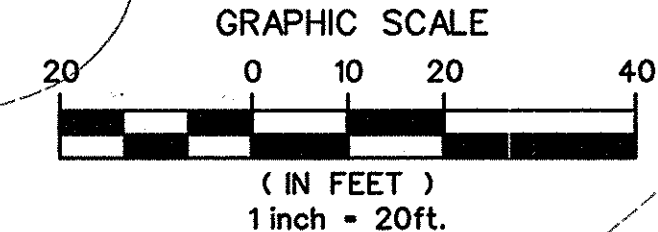
**LOG ROLL SCHEDULE**

FROM STATION	TO STATION
16+85	17+32

+ CONTINUES ON NEXT SHEET



PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38211, EXPIRATION DATE: JANUARY 08, 2016



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 www.kci.com

**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**GRADING PLAN**

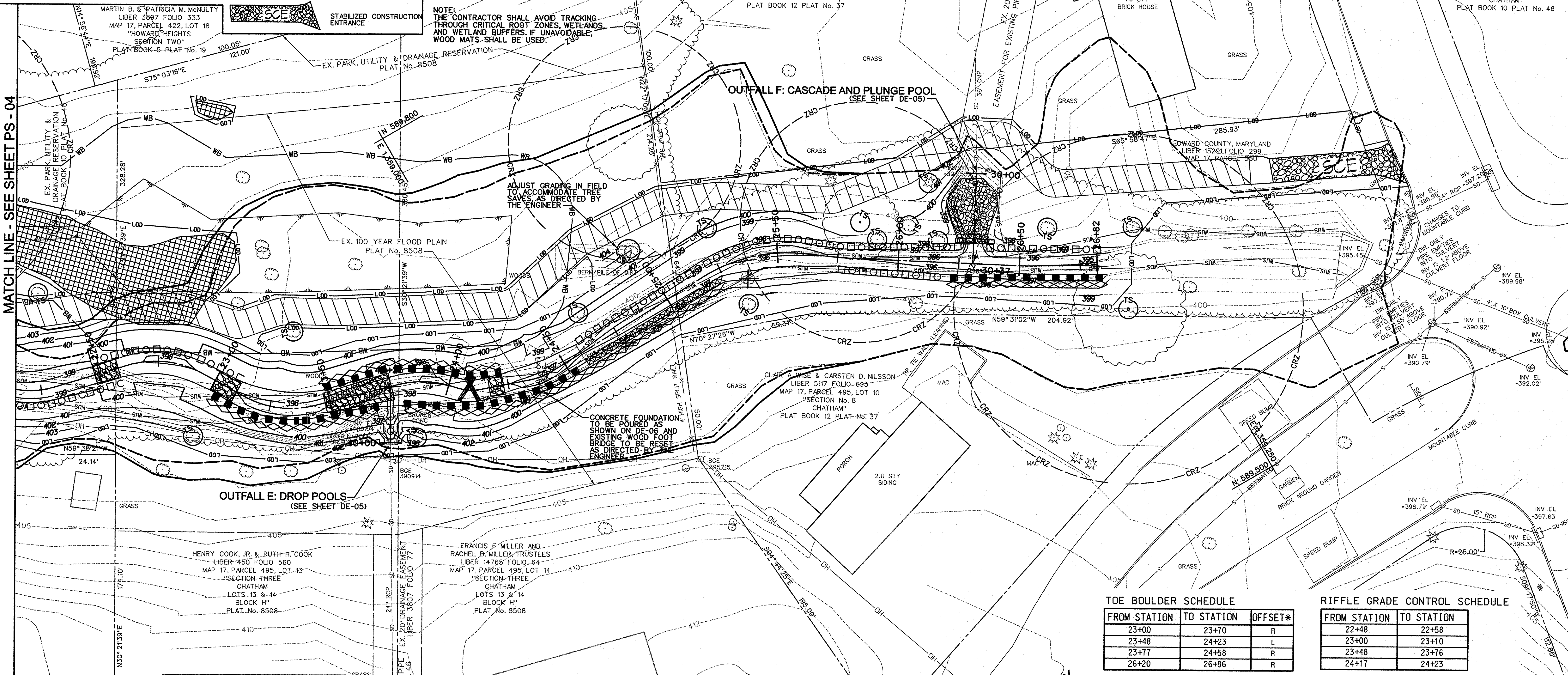
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 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314-10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

**PS-04**  
 SHEET NO.: 11 OF 44



**LEGEND**

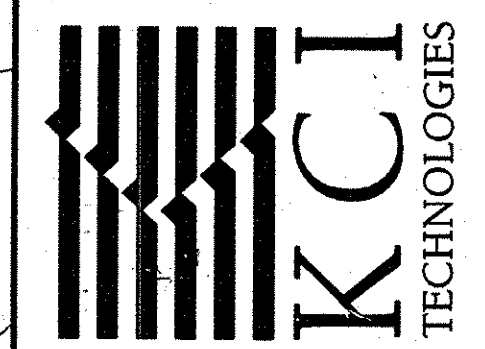
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- SD --- EX. STORM DRAIN
- S --- EX. SANITARY SEWER
- X --- EX. OVERHEAD ELECTRIC
- OH --- EX. METAL FENCE
- EX. WOODS LINE
- EX. TREE
- EX. MANHOLE
- EX. UTILITY POLE
- EX. EASEMENT
- PROPERTY LINE
- WUS --- WATERS OF THE U.S.
- EX. NON-TIDAL WETLAND
- SPECIMEN TREE / EX. TREE TREE SAVE & CRITICAL ROOT ZONE
- EXISTING 100 YR. FLOODPLAIN
- PROPOSED 100 YR. FLOODPLAIN
- LOD --- LIMIT OF DISTURBANCE
- 425 --- PROPOSED CONTOUR
- ██████████ STONE TOE PROTECTION
- ALTERNATING ROUGHNESS
- ▨▨▨▨▨▨ BRUSH MATTRESS
- ▨▨▨▨▨▨ COIR FIBER ROLL
- ○ ○ ○ ○ ○ HABITAT BOULDERS
- ▬▬▬▬▬▬ SILL
- ▨▨▨▨▨▨ RIFFLE GRADE CONTROL
- ▨▨▨▨▨▨ OUTFALL PROTECTION
- ▨▨▨▨▨▨ WETLAND TERRACE
- ▨▨▨▨▨▨ WAVYLEAF BASKETGRASS
- EMBEDDED LOGS
- LOG ROLL
- TEMPORARY WOOD MAT
- STABILIZED CONSTRUCTION ENTRANCE



MATCH LINE - SEE SHEET PS - 04

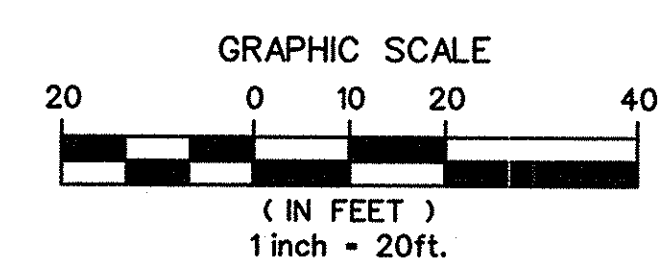
NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 WWW.KCI.COM



**SOUTHWIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 889311. EXPIRATION DATE: JANUARY 06, 2016



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

**TOE BOULDER SCHEDULE**

FROM STATION	TO STATION	OFFSET*
23+00	23+70	R
23+48	24+23	L
23+77	24+58	R
26+20	26+86	R

**RIFFLE GRADE CONTROL SCHEDULE**

FROM STATION	TO STATION
22+48	22+58
23+00	23+10
23+48	23+76
24+17	24+23

**ALTERNATING ROUGHNESS SCHEDULE**

FROM STATION	TO STATION	OFFSET*
21+88+	22+58	R
22+48	23+10	L
24+58	26+25	L
25+75	26+20	R
26+35	26+86	L

**EMBEDDED LOG SCHEDULE**

STATION	STATION
24+09	30+28

**BRUSH MATTRESS SCHEDULE**

FROM STATION	TO STATION	OFFSET*
23+00	23+70	R
23+48	24+23	L
23+77	25+25	R
26+20	26+86	R

**COIR FIBER ROLL SCHEDULE**

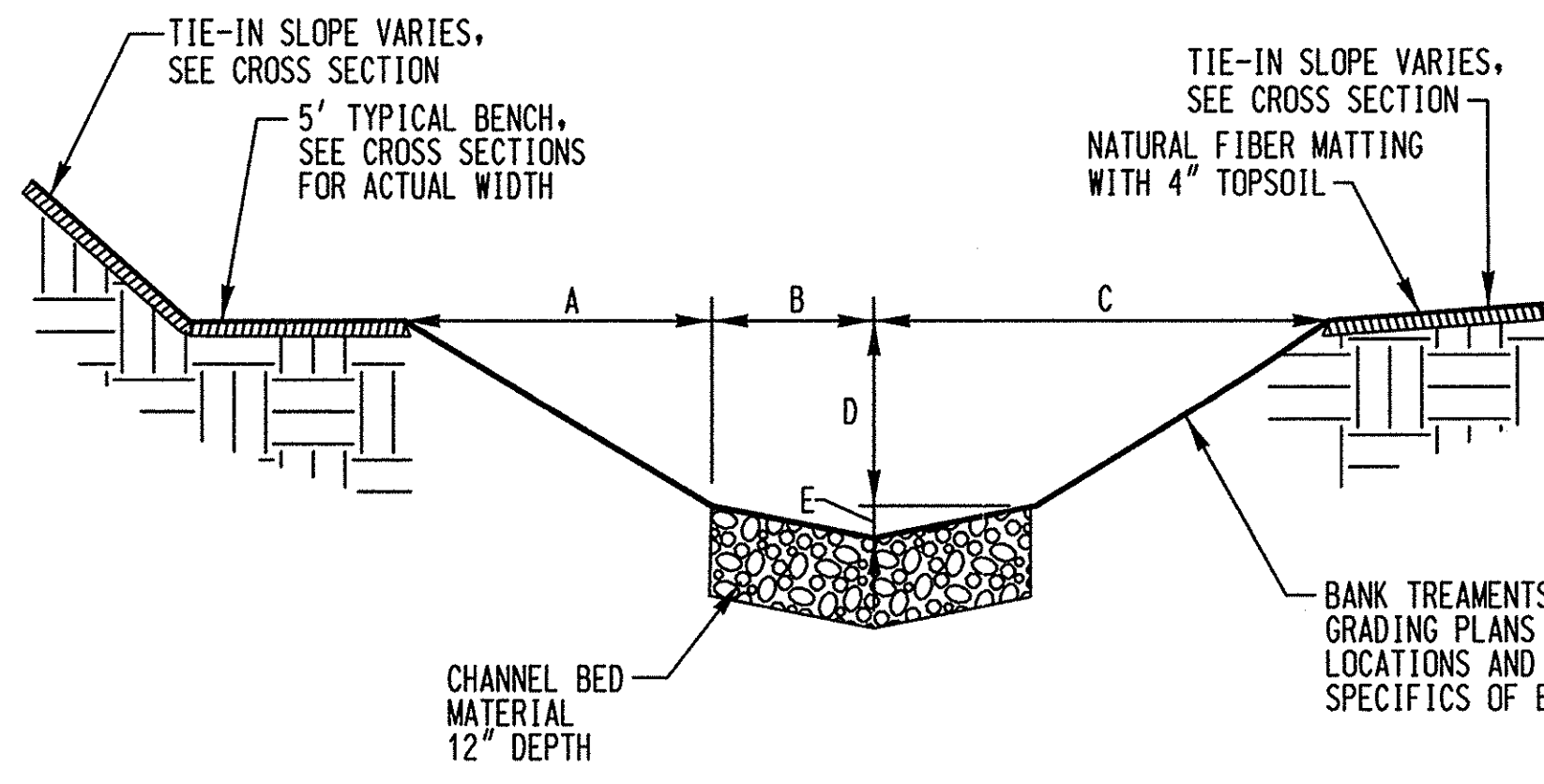
FROM STATION	TO STATION	OFFSET*
24+58	25+25	R

\* OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM

**GRADING PLAN**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314.10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

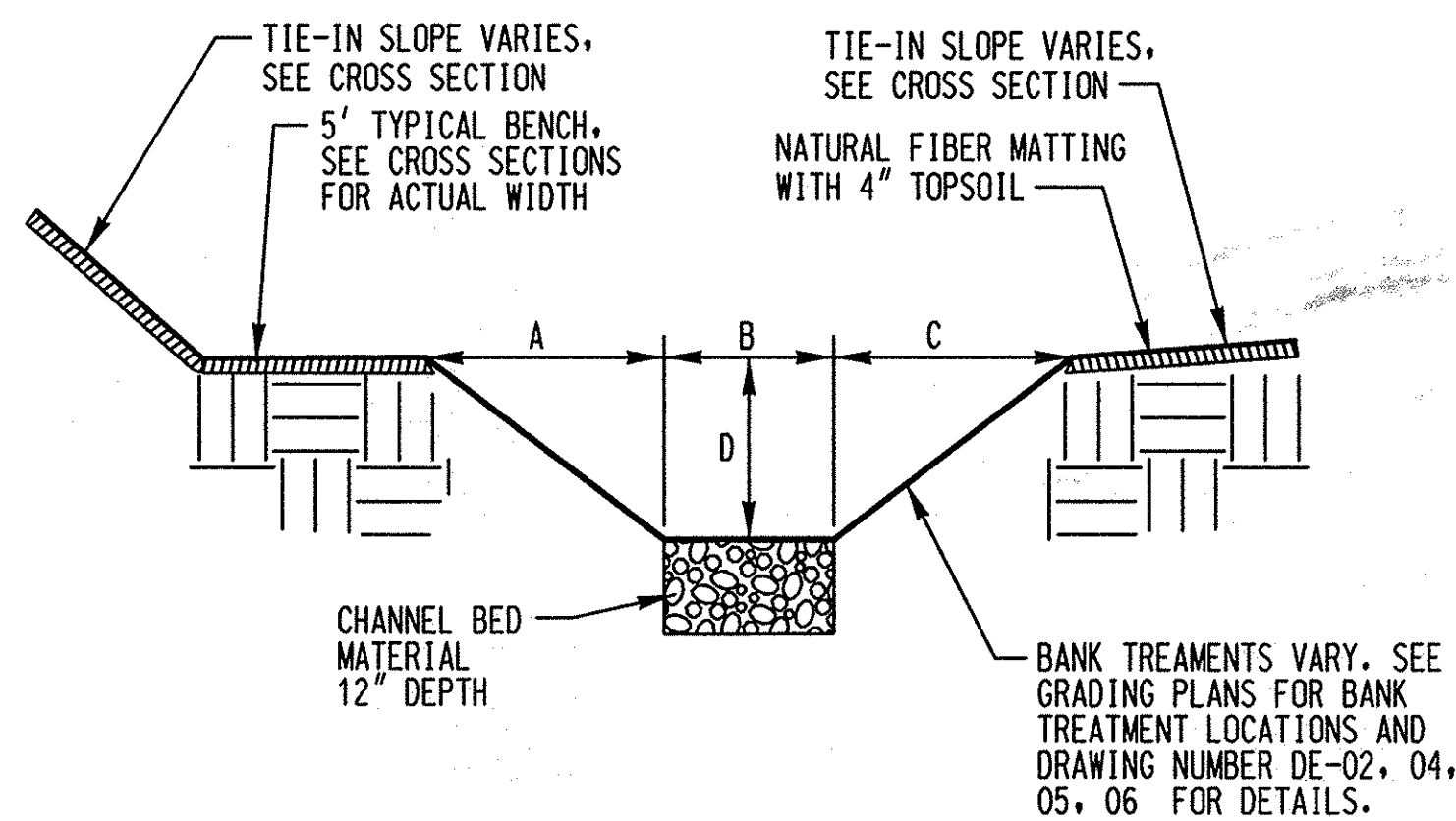




NOTE: RIFFLES FROM STA. 4+75 TO 7+49 AND 11+60 TO 26+86 ARE TYPE 1. SEE PROFILE FOR SPECIFIC LOCATIONS.

**TYPICAL SECTION RIFFLE TYPE 1**  
NOT TO SCALE

TYPICAL RIFFLE TYPE 1					
	A	B	C	D	E
RIFFLE A	3.8'	2.0'	5.8'	1.7'	0.3'
RIFFLE B2	4.0'	2.5'	6.5'	1.9'	0.3'
RIFFLE B3	4.5'	2.0'	6.5'	1.7'	0.3'
RIFFLE B4	3.0'	3.0'	6.0'	1.2'	0.3'



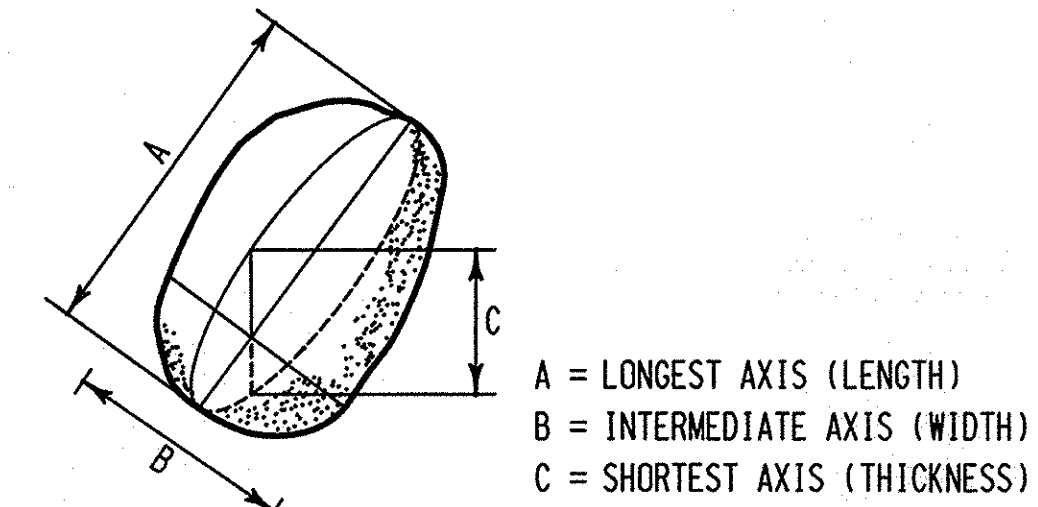
NOTE: RIFFLES FROM STATION 10+00 TO 10+43 ARE TYPE 2. SEE PROFILE FOR SPECIFIC LOCATIONS.

**TYPICAL SECTION RIFFLE TYPE 2**  
NOT TO SCALE

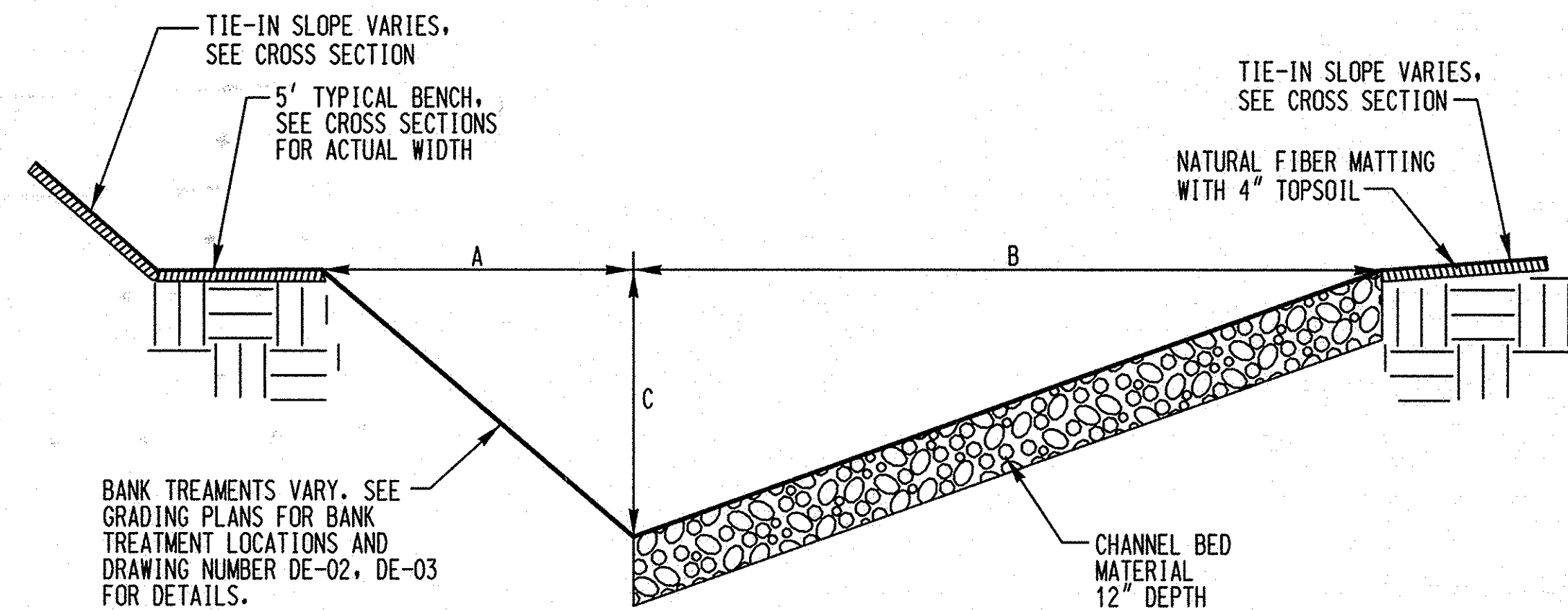
TYPICAL RIFFLE TYPE 2				
	A	B	C	D
RIFFLE B1	3.5'	2.0'	3.5'	2.0'

SIZES FOR STONE TYPES			
AXIS	A (LONGEST)	B (INTERMEDIATE)	C (SHORTEST)
STONE TYPE	MAX.	RANGE	MIN.
SILL AND DROP STRUCTURE STONES*	2.0'	1.5' - 2.0'	1.0'
ROUGHNESS STONES	3.0'	2.0'	1.5'
STONE TOE PROTECTION	CLASS III, VOIDS TO BE CHINKED WITH CLASS I RIPRAP		
TOE BOULDERS	CLASS II		

\* SILL AND DROP STONES SHALL BE BLOCKY IN SHAPE AND GREY OR BROWN IN COLOR.



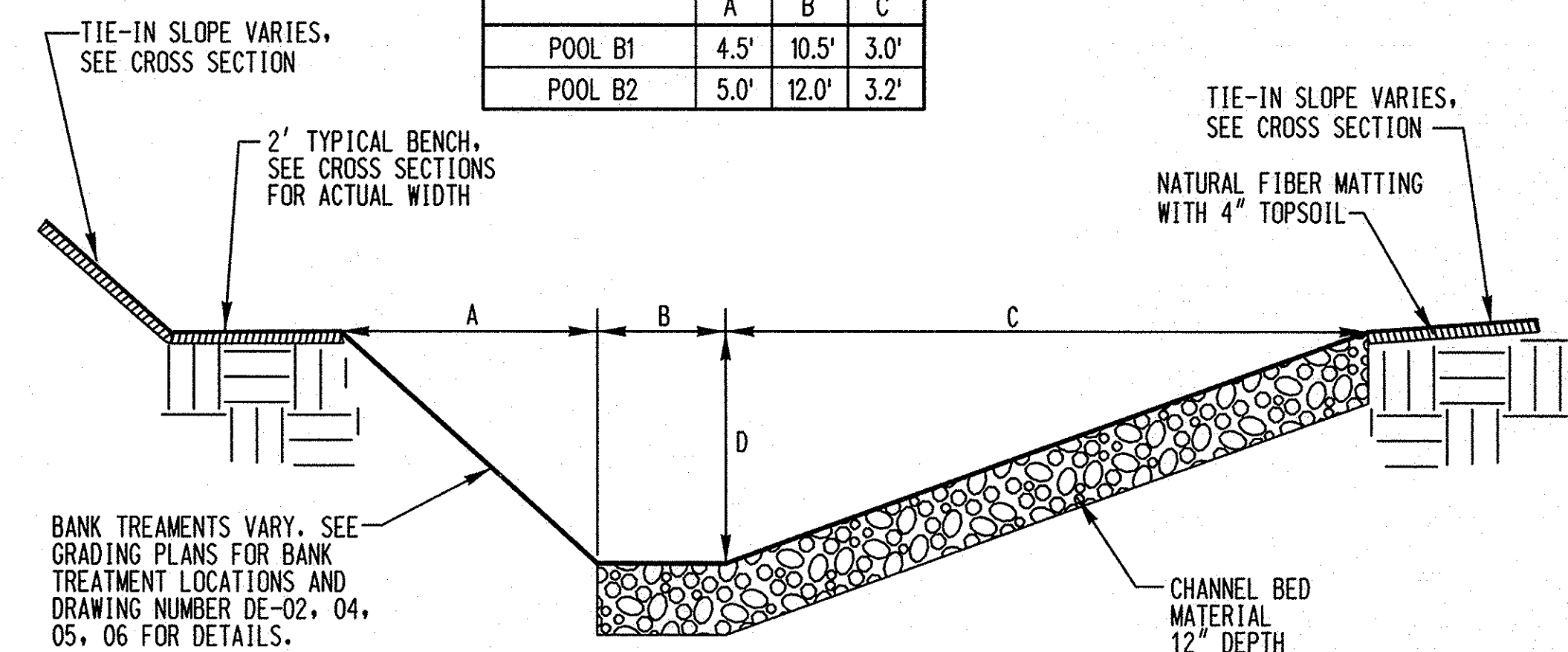
**ROCK AXIS DEFINITION**  
NOT TO SCALE



NOTE: POOLS FROM STA. 10+17 TO 10+23, 13+80, 14+15, 14+50 AND 15+51 ARE TYPE 1. POOL RIGHT IS A MIRROR IMAGE OF POOL LEFT. SEE PROFILE FOR SPECIFIC LOCATIONS.

**TYPICAL SECTION POOL LEFT TYPE 1**  
NOT TO SCALE

TYPICAL POOL TYPE 1			
	A	B	C
POOL B1	4.5'	10.5'	3.0'
POOL B2	5.0'	12.0'	3.2'

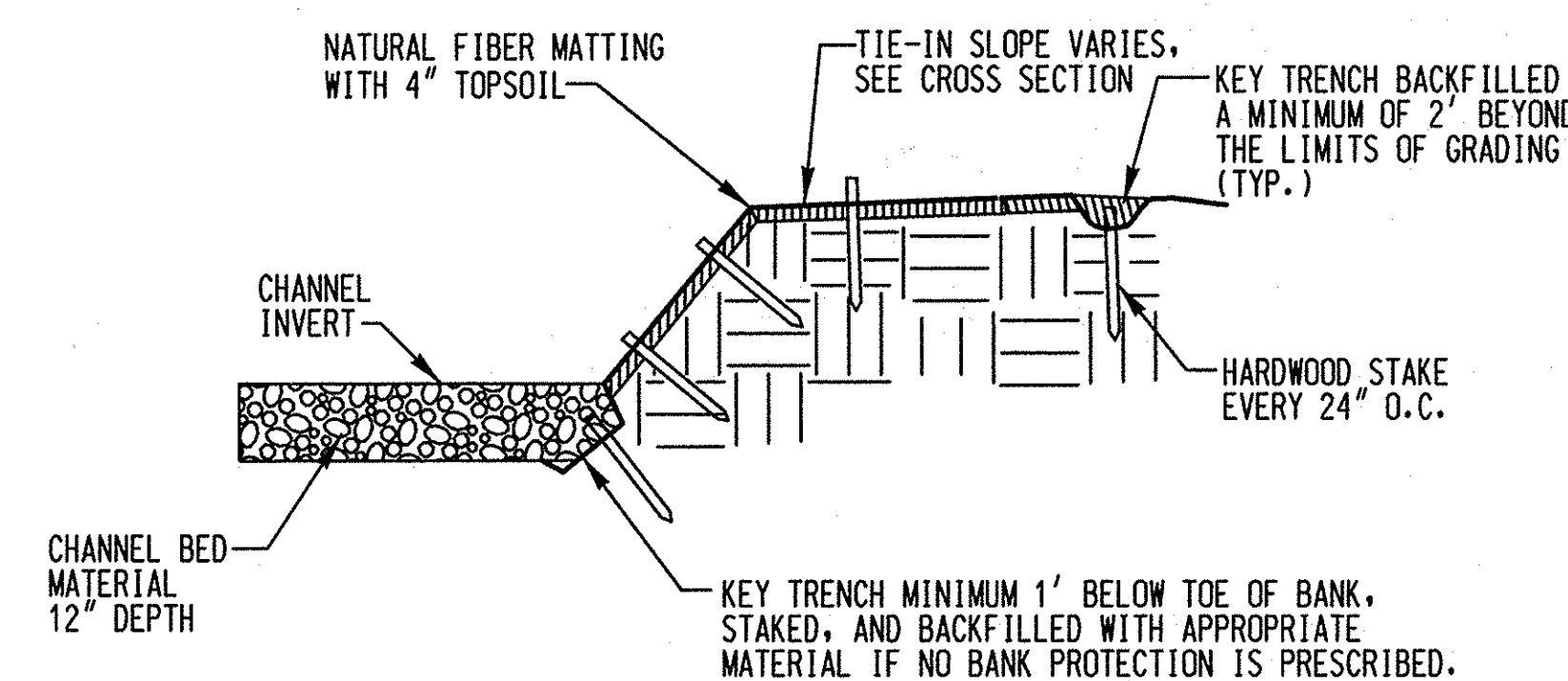


NOTES: POOLS FROM STA. 5+25 TO 6+85, 12+30 TO 12+60, 15+18 AND 16+38 TO 25+55 ARE TYPE 1. POOL RIGHT IS A MIRROR IMAGE OF POOL LEFT. SEE PROFILE FOR SPECIFIC LOCATIONS.

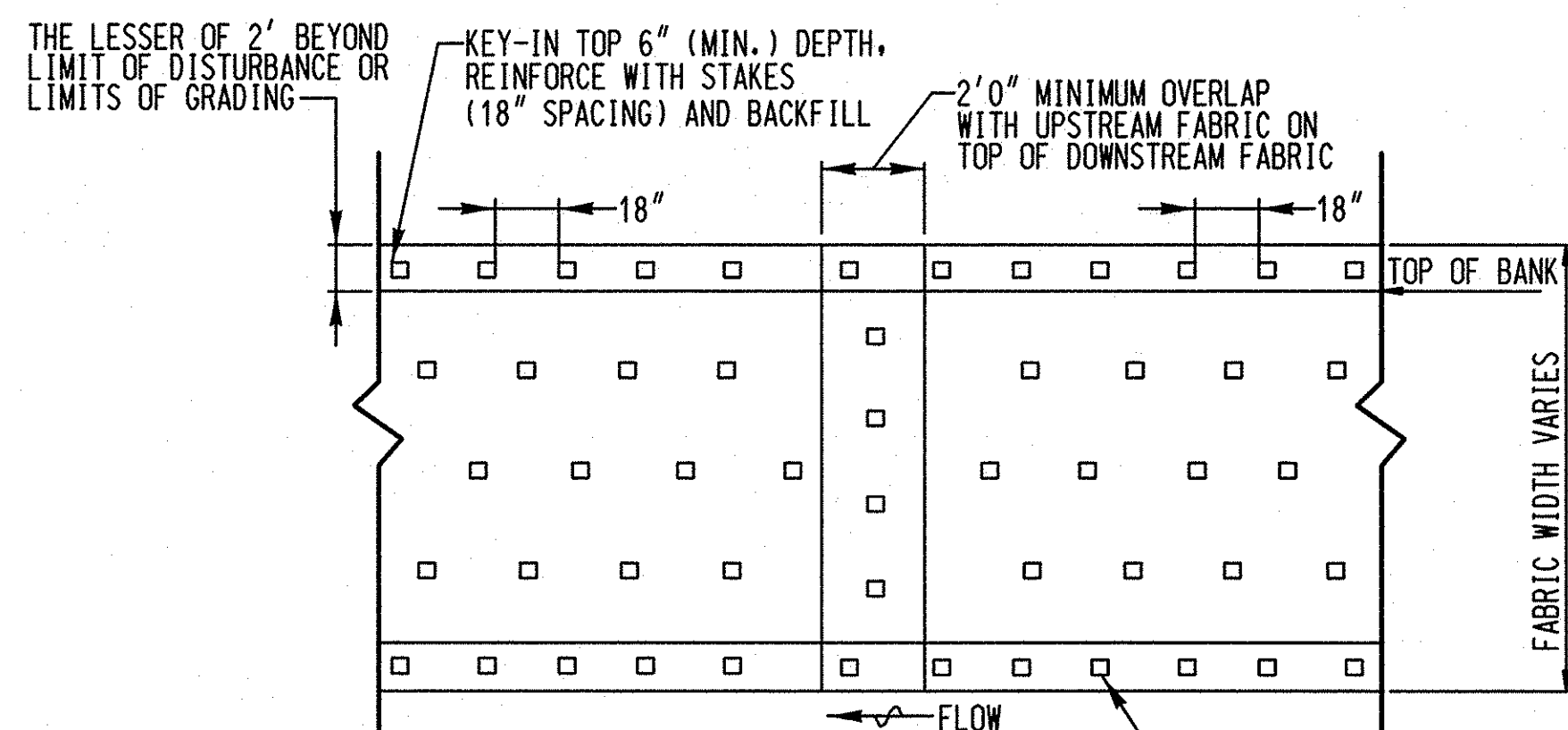
**TYPICAL SECTION POOL LEFT TYPE 2**  
NOT TO SCALE

TYPICAL POOL TYPE 2				
	A	B	C	D
POOL A	4.0'	2.0'	10.0'	2.7'
POOL B3*	4.0'	2.0'	11.0'	2.5'
POOL B4*	4.0'	2.0'	11.0'	2.5'

\*POOLS B3 AND B4 DIFFER ONLY IN THEIR LOCATION RELATIVE TO THE BASELINE.



**NATURAL FIBER MATTING CROSS SECTION**  
NOT TO SCALE



**TYPICAL PLAN VIEW NATURAL FIBER MATTING**  
NOT TO SCALE

- NOTES:
- NATURAL FIBER MATTING TO BE ROLLED LENGTHWISE ALONG STREAMBANK EXTENDING TO THE BOTTOM OF TOE PROTECTION AND A MINIMUM OF ONE FOOT PAST TOP OF BANK. IF MORE THAN ONE ROLL IS REQUIRED, MID-BANK OVERLAP SHOULD BE A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH STAKES.
  - NATURAL FIBER MATTING IS TO BE INSTALLED ON ALL GRADED BANK SLOPES THAT ARE NOT PROTECTED BY STONE TOE OR IMBRICATED BANK PROTECTIONS.

GRANULAR FILTER AND CHANNEL SAND & GRAVEL	
% LESS THAN	US STD SIEVE
100	2.5 in
85-100	1.0 in
60-100	0.5 in
35-70	No. 10
20-50	No. 40
3-20	No. 200

CHANNEL BED MATERIAL	
% LESS THAN	US STD SIEVE
100	5.6 in
84	4.0 in
60	3.2 in
50	2.8 in
30	2.0 in
10	0.6 in

NOTE: CHANNEL BED MATERIAL SHALL BE SALVAGED WHEN POSSIBLE. ONLY FURNISH CHANNEL BED MATERIAL WHEN SALVAGED MATERIAL IS NOT AVAILABLE. MATERIAL SHALL NOT BE COMPRISED OF RIPRAP BUT OF A NATURAL STREAM MATERIAL.

NO.	REVISIONS DESCRIPTION	DATE

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SPARKS, MARYLAND 21152  
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FAX: (410) 316-7818  
WWW.KCI.COM



**SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT**  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**STREAM DETAILS**

SCALE:	NOT TO SCALE
DATE:	AUGUST 2014
KCI JOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

**DE-01**  
SHEET NO.: 13 OF 44

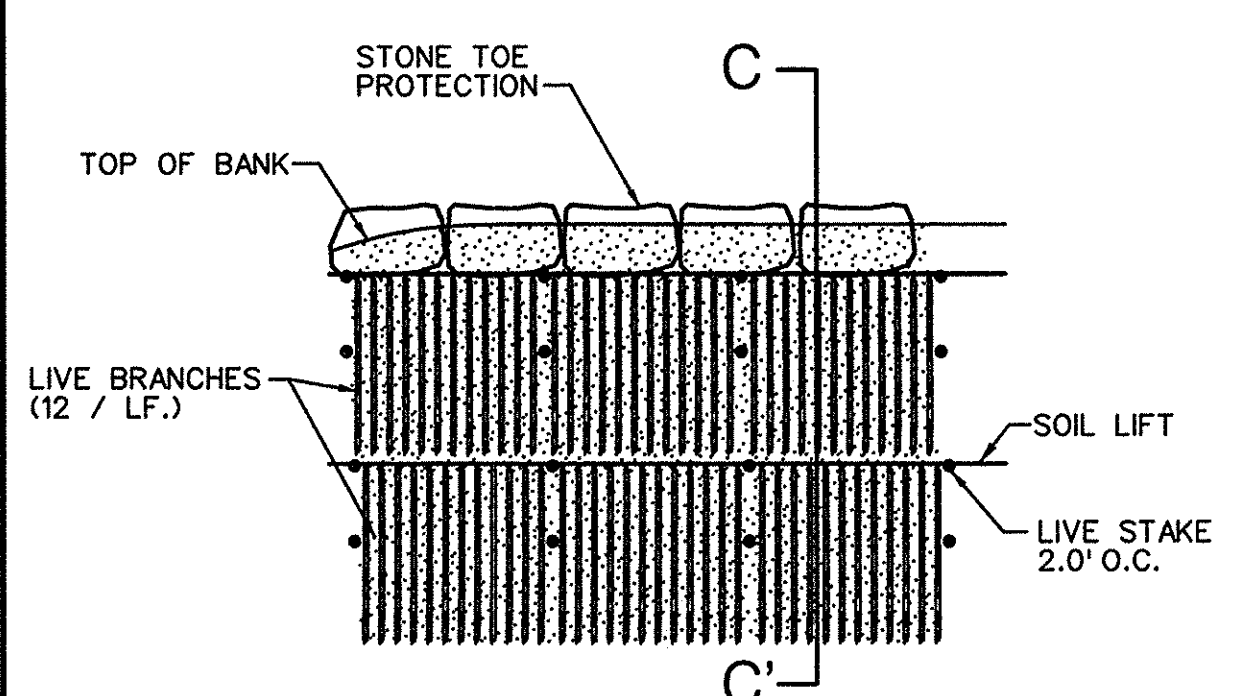
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

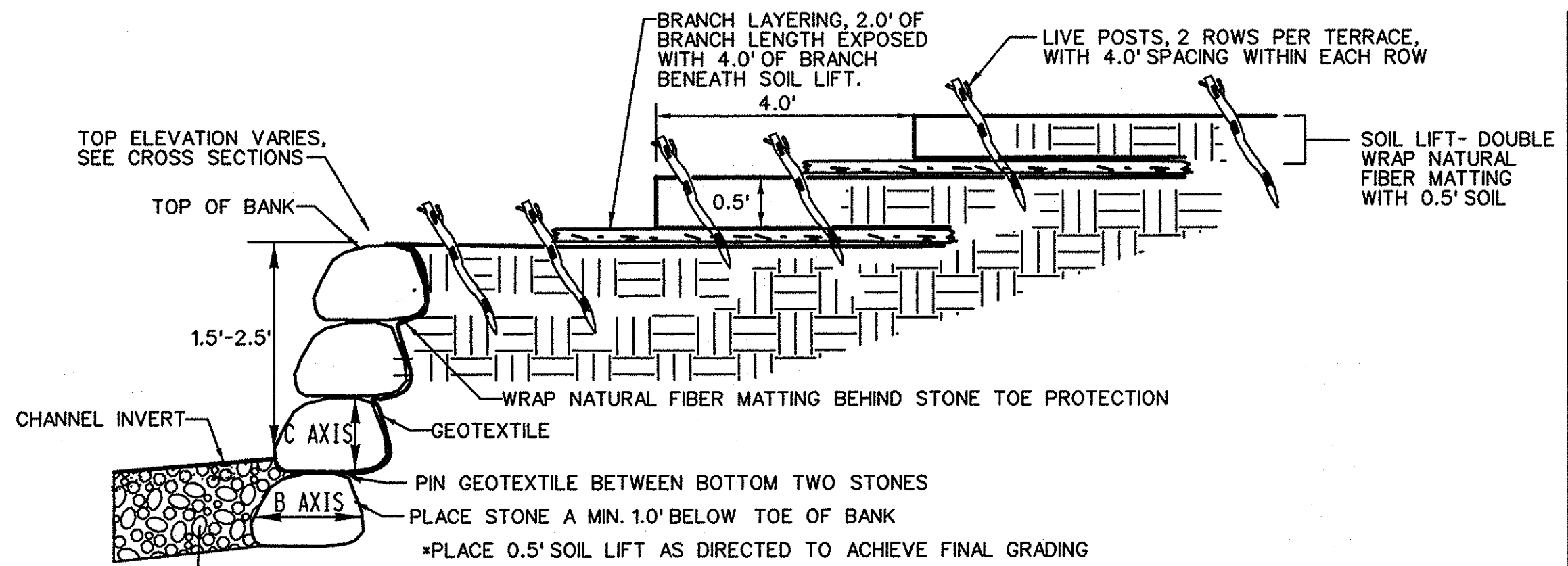




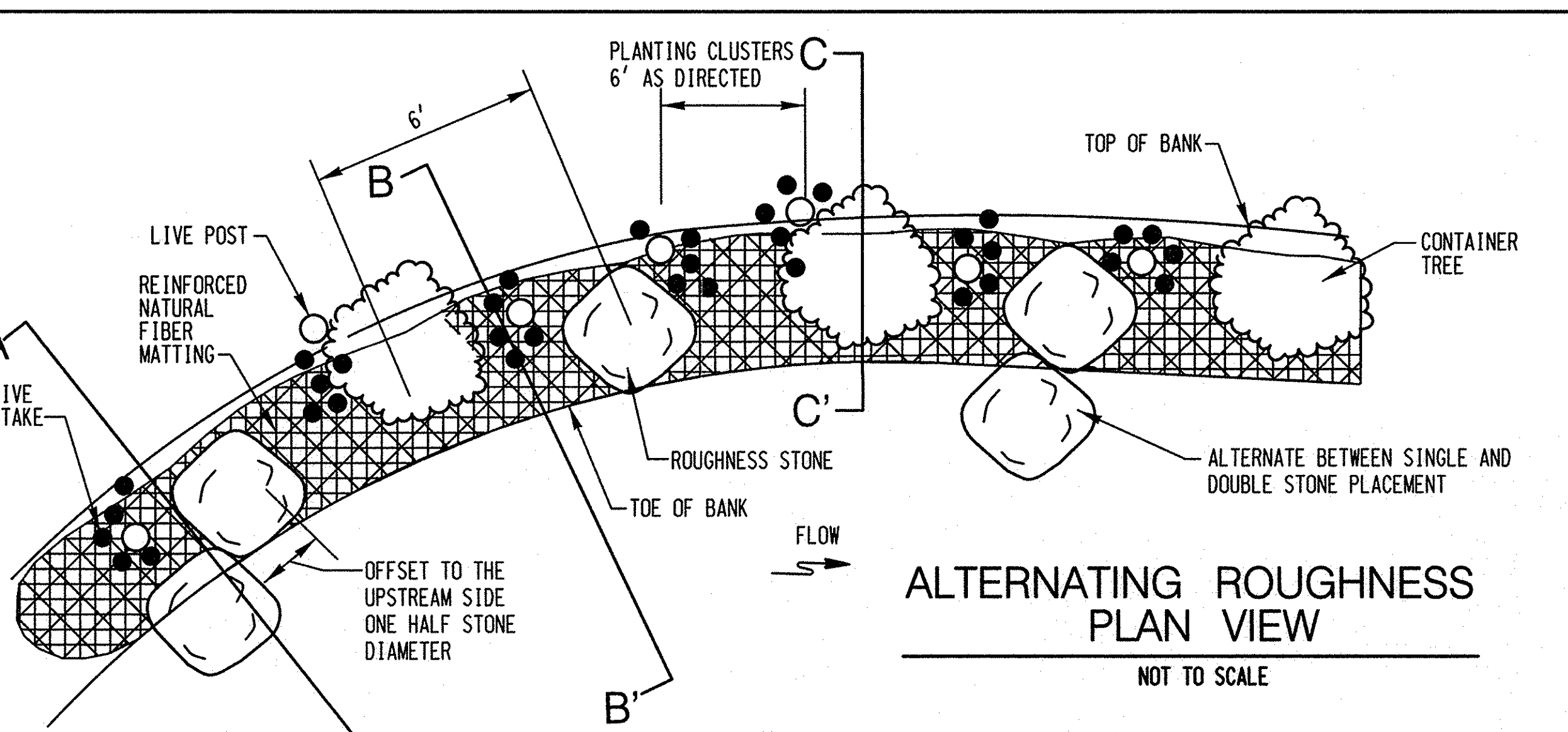




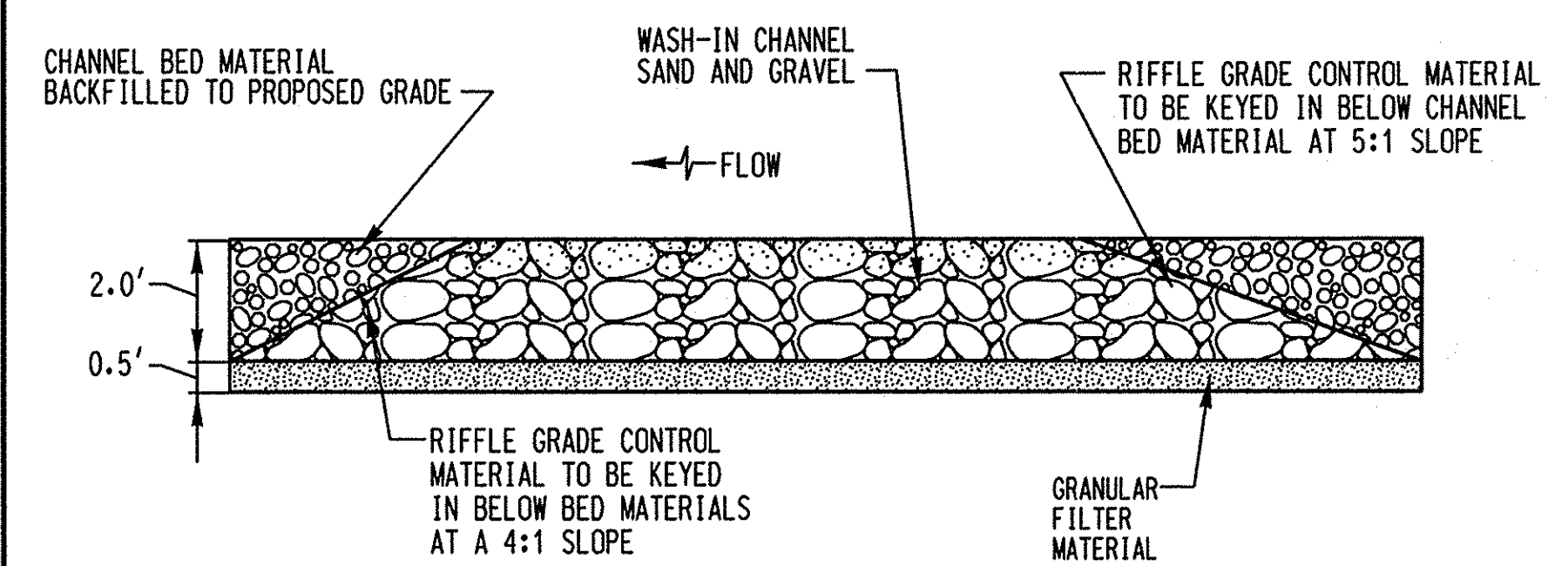
**LIVE BRANCHES FOR WETLAND TERRACE ZONE PLAN VIEW DETAIL**  
NOT TO SCALE



**STONE TOE PROTECTION WITH WETLAND TERRACE CROSS SECTION DETAIL C-C'**  
NOT TO SCALE



**ALTERNATING ROUGHNESS PLAN VIEW**  
NOT TO SCALE



**TYPICAL RIFFLE GRADE CONTROL PROFILE**  
NOT TO SCALE

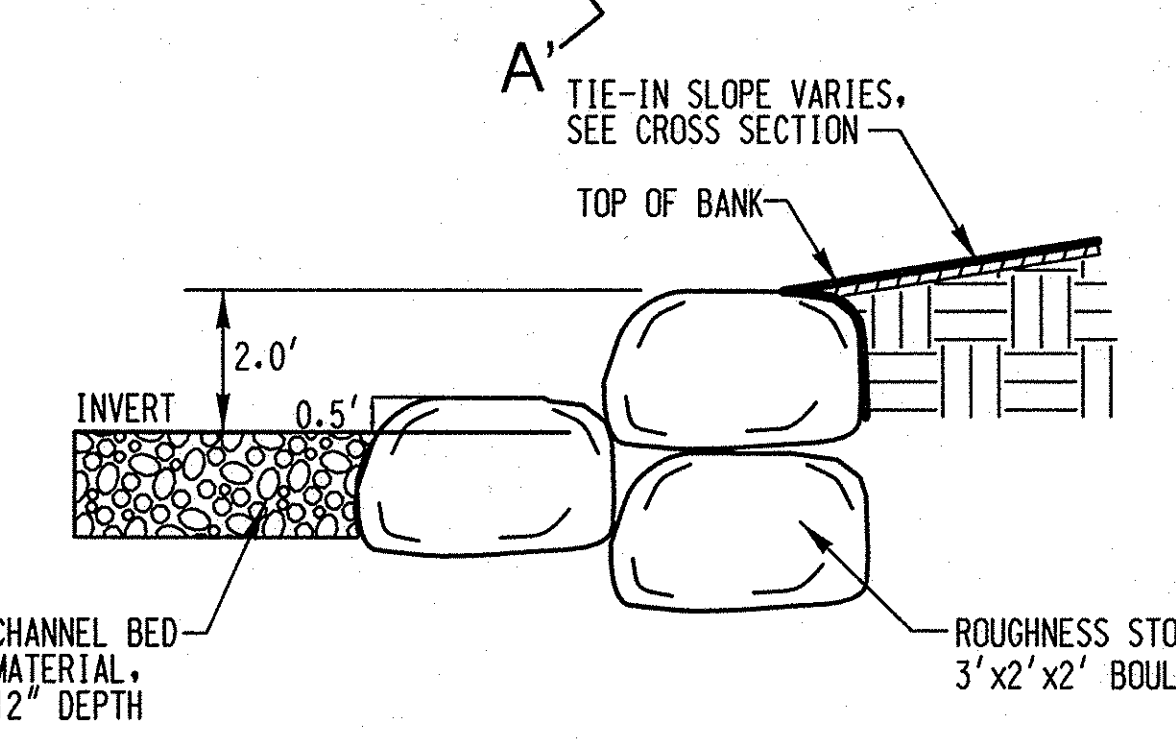
RIFFLE GRADE CONTROL MATERIAL	
% LESS THAN	US STD SIEVE
100	22.4 in
84	17.0 in
60	13.0 in
50	11.2 in
30	7.5 in
10	2.2 in

NOTE: RIFFLE GRADE CONTROL MATERIAL SHALL NOT BE COMPRISED OF RIPRAP BUT OF A NATURAL STREAM MATERIAL.

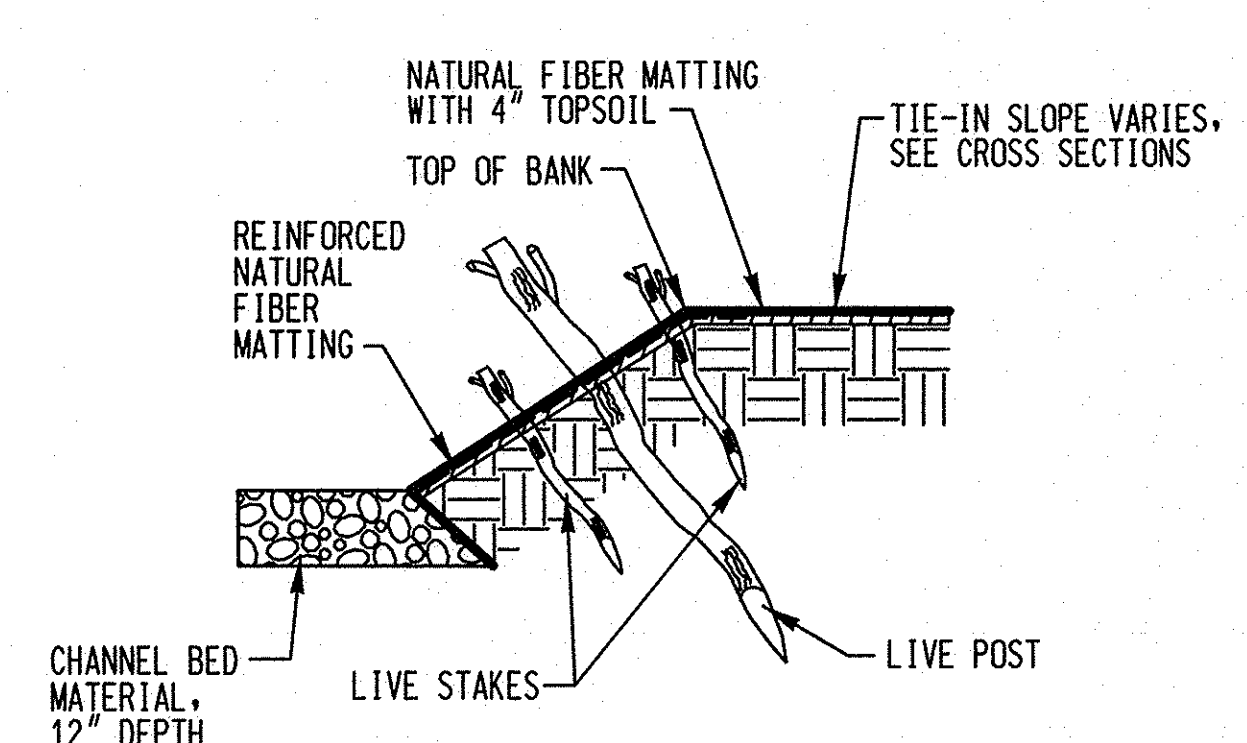
RIFFLE GRADE CONTROL SCHEDULE	
FROM STATION	TO STATION
60+17	60+52
7+05	7+49
10+77	11+60
16+63	17+50
22+48	22+58
23+00	23+10
23+48	23+76
24+17	24+23

STONE TOE PROTECTION SCHEDULE		
FROM STATION	TO STATION	OFFSET*
60+15	60+39	RL
10+77	11+20	RL
11+60	12+15	R
12+20	12+60	R
16+85	17+32	R
20+70	20+76	RL

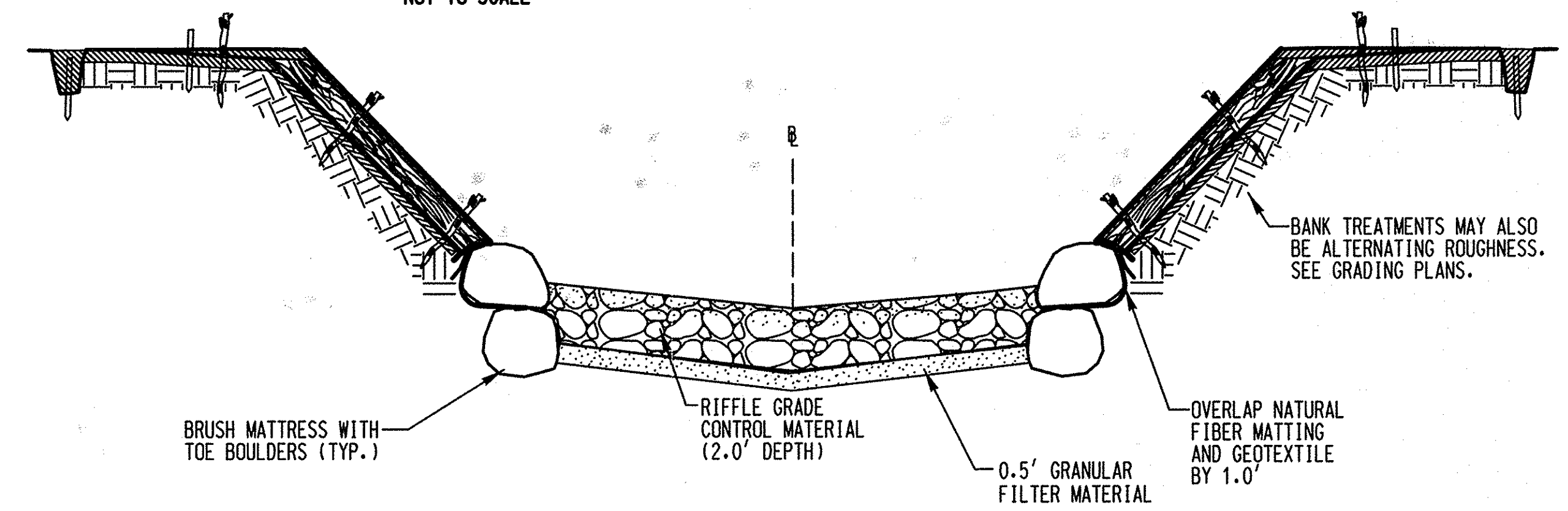
\* OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM



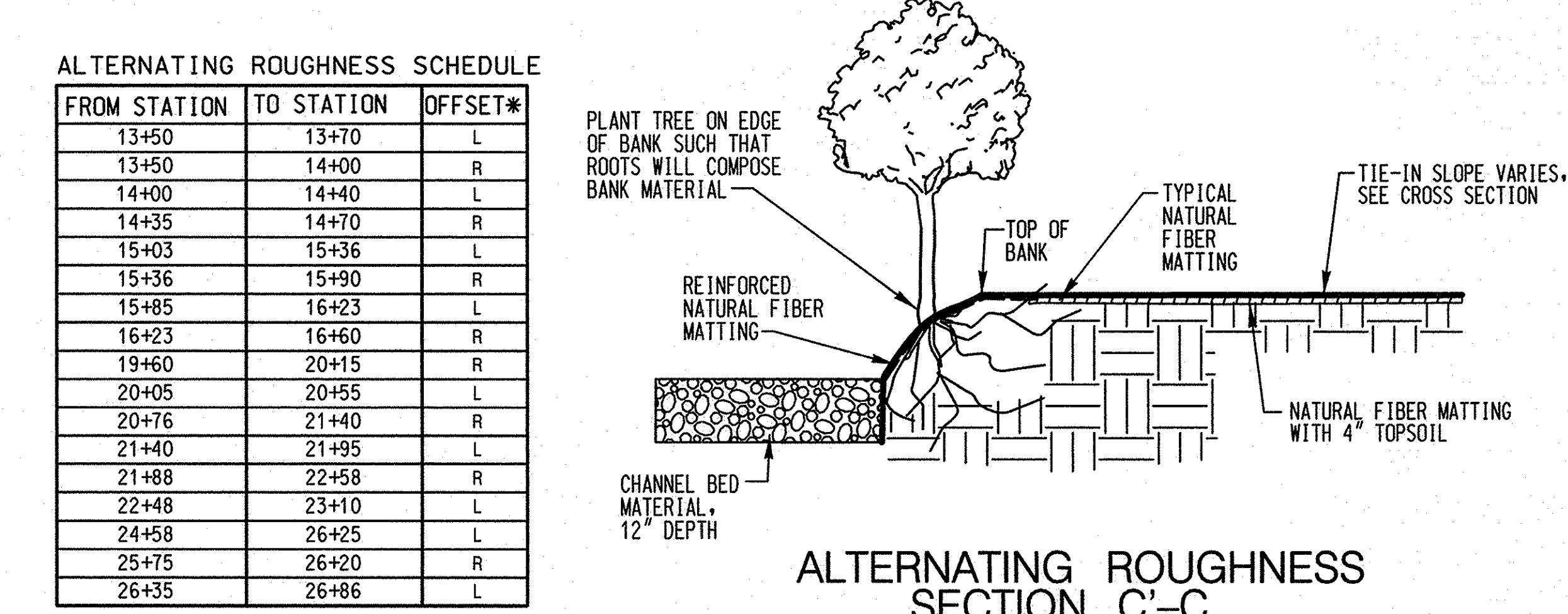
**ALTERNATING ROUGHNESS SECTION A-A**  
NOT TO SCALE



**ALTERNATING ROUGHNESS SECTION B-B**  
NOT TO SCALE



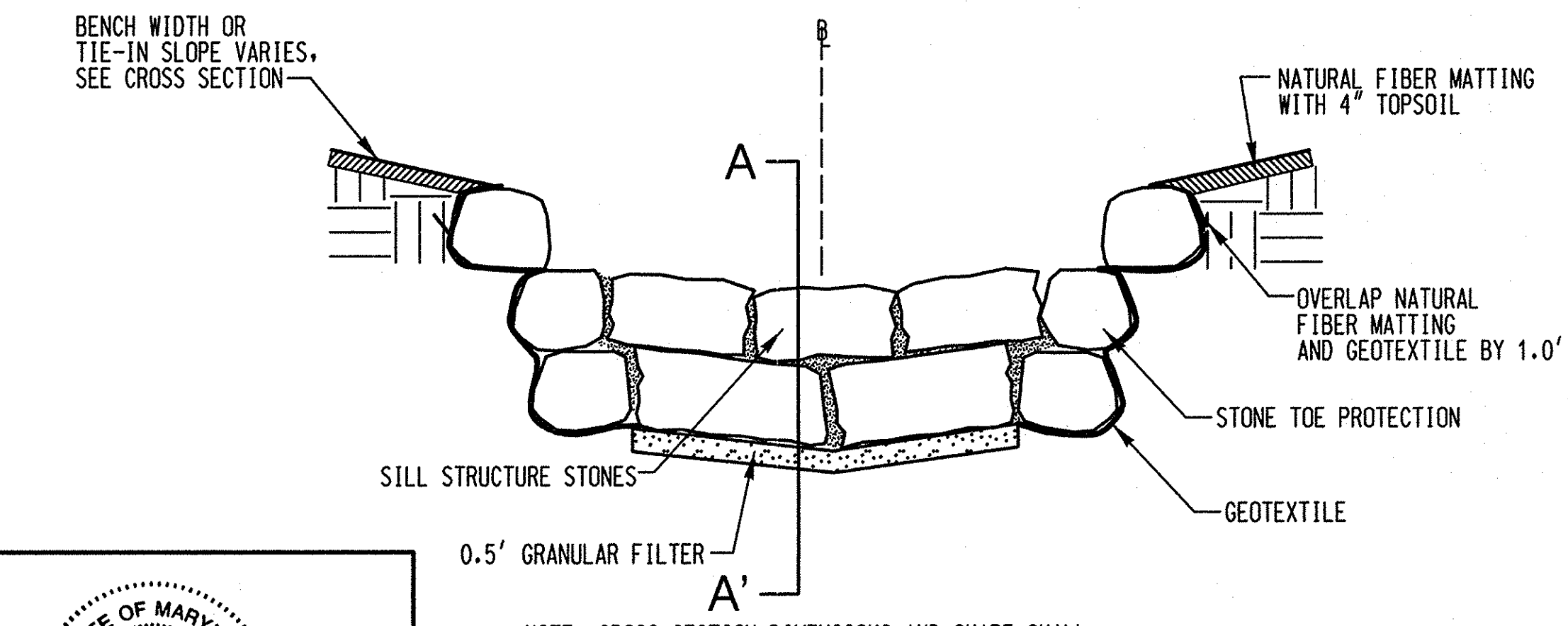
**RIFFLE GRADE CONTROL CROSS SECTION**  
NOT TO SCALE



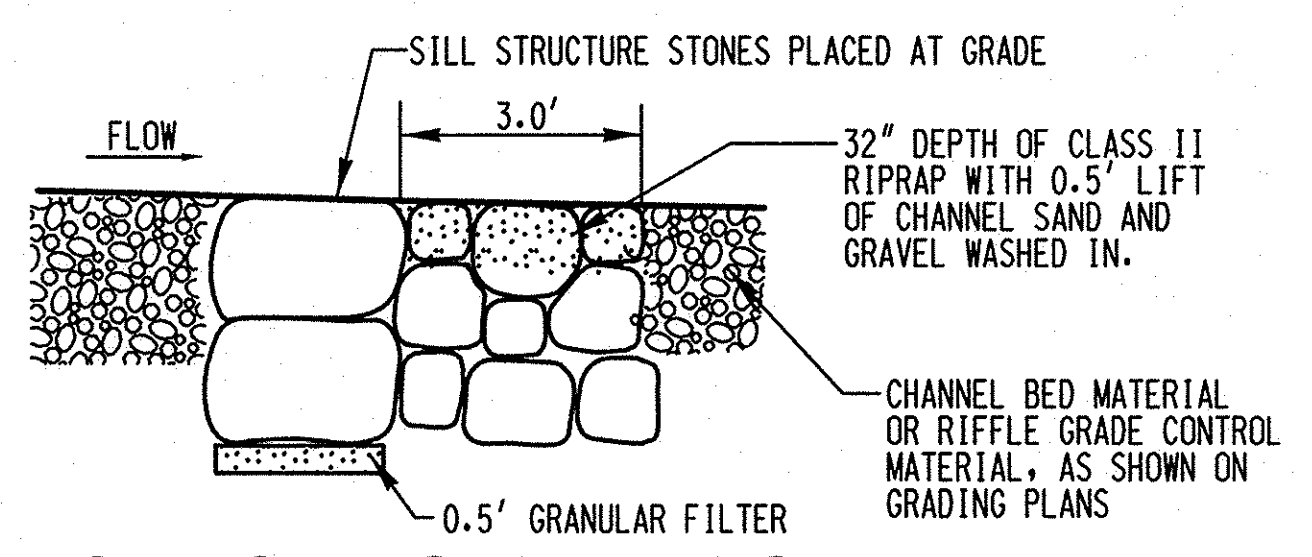
**ALTERNATING ROUGHNESS SECTION C-C**  
NOT TO SCALE

ALTERNATING ROUGHNESS SCHEDULE		
FROM STATION	TO STATION	OFFSET*
13+50	13+70	L
13+50	14+00	R
14+00	14+40	R
14+35	14+70	R
15+03	15+36	L
15+36	15+90	R
15+85	16+23	L
16+23	16+60	R
19+60	20+15	R
20+05	20+55	L
20+76	21+40	R
21+40	21+95	L
21+88	22+58	R
22+48	23+10	L
24+58	26+25	L
25+75	26+20	R
26+35	26+86	L

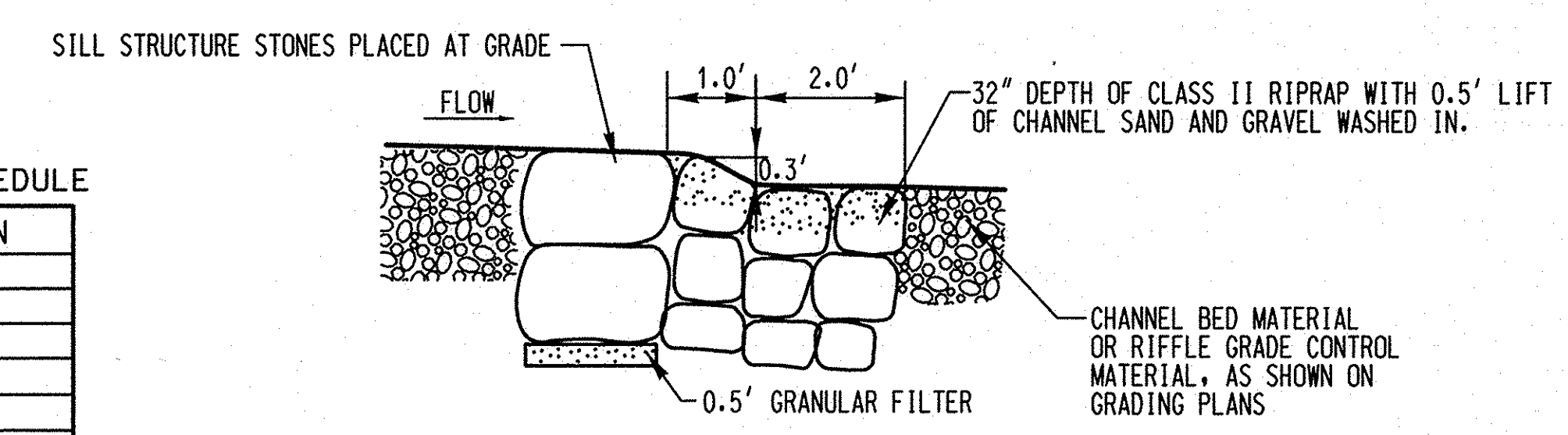
\* OFFSET MEASURED FROM BASELINE FACING DOWNSTREAM



**TYPICAL SILL AND DROP STRUCTURE CROSS SECTION**  
NOT TO SCALE



**TYPICAL SILL STRUCTURE PROFILE A-A**  
NOT TO SCALE



**TYPICAL DROP STRUCTURE PROFILE A-A**  
NOT TO SCALE

SILL SCHEDULE	
STATION	
60+17	
60+37	
72+54	
1+17	
10+77	
11+20	
12+15*	
16+85	
17+32	
30+28	

\* SILL IS LOCATED ON DRAINAGE SWALE.

DROP SCHEDULE	
STATION	
20+72	

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 06, 2016.

STATE OF MARYLAND  
NORTH MOUNTAIN  
No. 38311  
PROFESSIONAL ENGINEER  
8/26/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
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FAX: (410) 316-7818  
WWW.KCI.COM



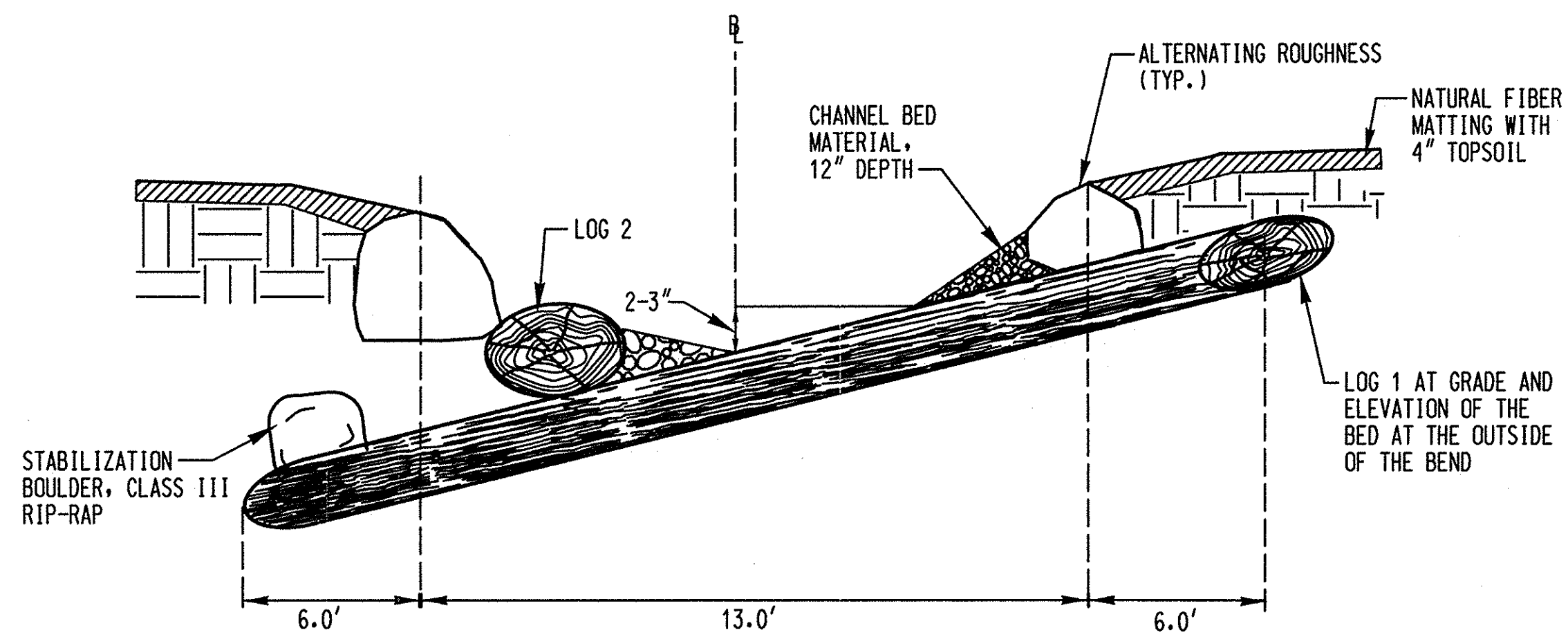
SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 489, 562, 211, 386, 495, 530  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**STREAM DETAILS**

SCALE:	NOT TO SCALE
DATE:	AUGUST 2014
KCI JOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	



# EMBEDDED LOG DETAILS

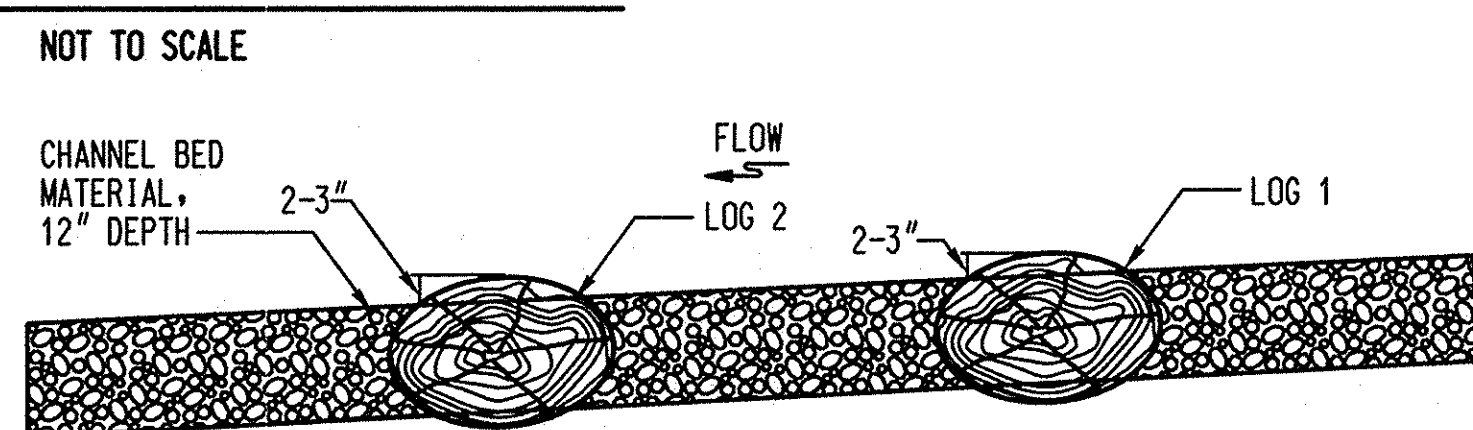


CROSS SECTION VIEW A-A'

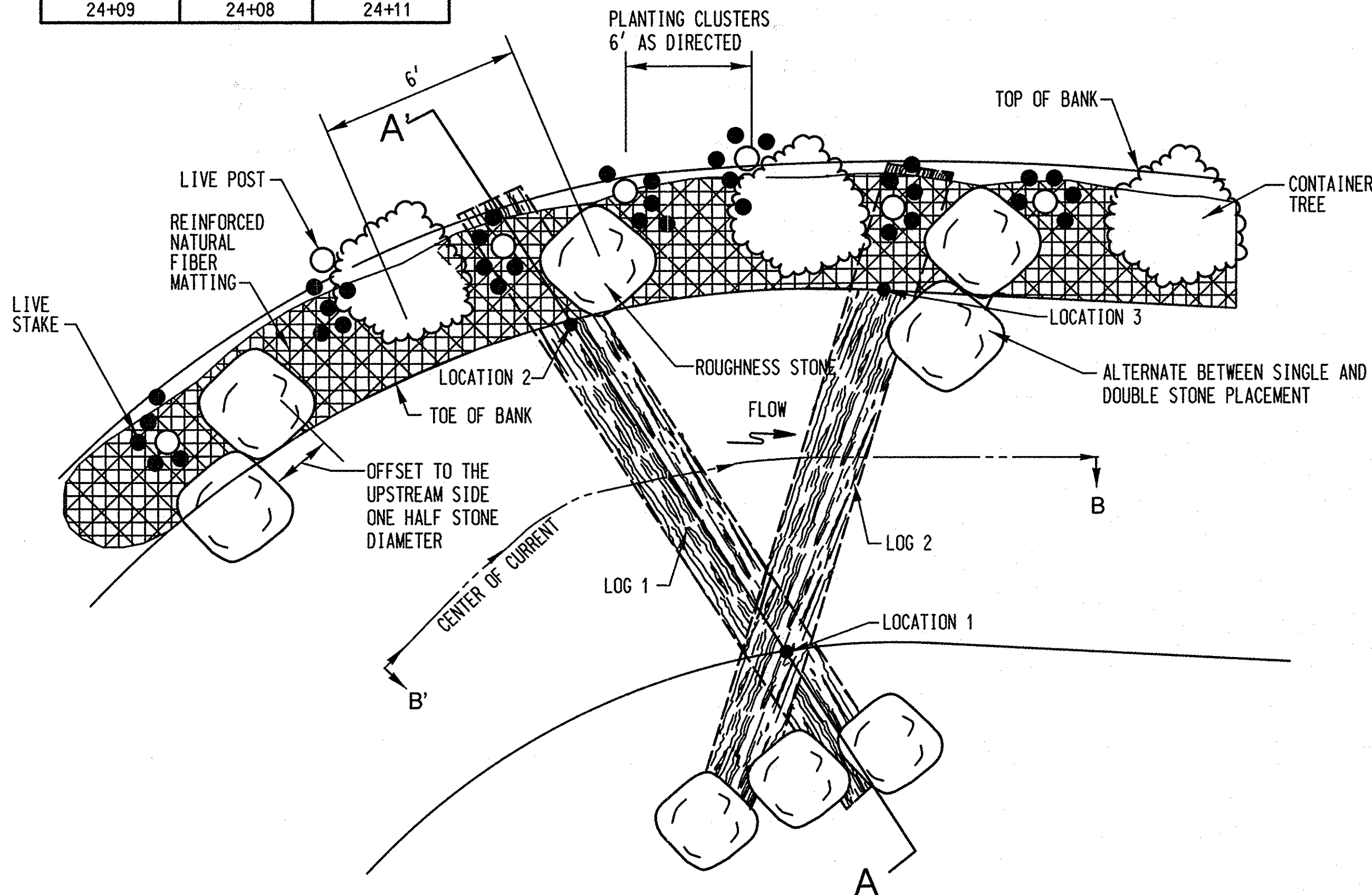
NOTE: LOGS SHALL BE 6 TO 10 INCHES IN DIAMETER. LOGS SHALL CONSIST OF SALVAGED MATERIAL. IF SALVAGED MATERIAL IS DETERMINED UNSUITABLE BY THE ENGINEER, FURNISHED MATERIAL MAY BE USED. ALL MATERIALS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. THE CONTRACTOR SHALL WORK WITH THE ENGINEER FOR FINAL PLACEMENT OF THE STONE AND LOGS.

### EMBEDDED LOG SCHEDULE

STATION OF RELATIVE LOG PLACEMENT	LOCATION 1	LOCATION 2	LOCATION 3
13+61	13+59	13+65	
14+49	14+46	14+53	
15+75	15+74	15+77	
16+07	16+05	16+09	
24+09	24+08	24+11	



PROFILE VIEW B-B'

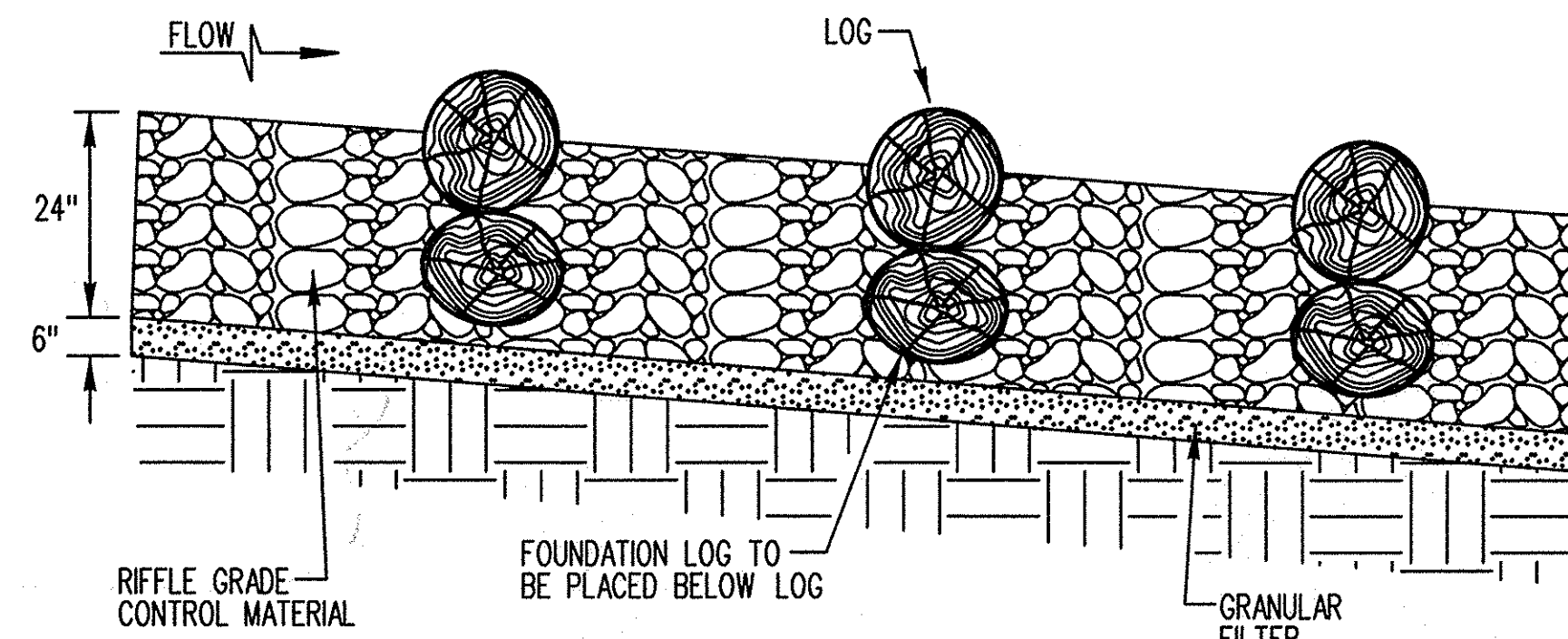


NOTE: LOG LOCATIONS MAY BE ALTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL WORK WITH THE ENGINEER FOR EXACT PLACEMENT.

ALTERNATING ROUGHNESS WITH EMBEDDED LOGS PLAN VIEW

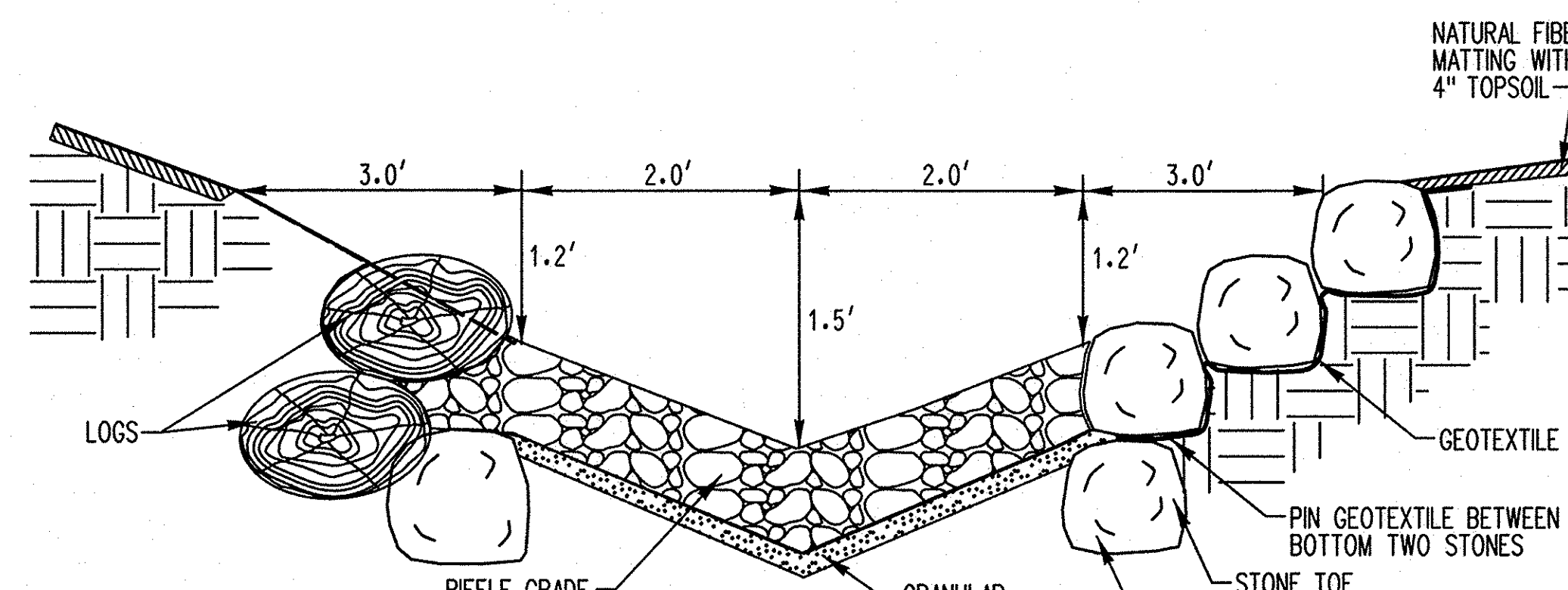
NOT TO SCALE

# LOG ROLL DETAILS



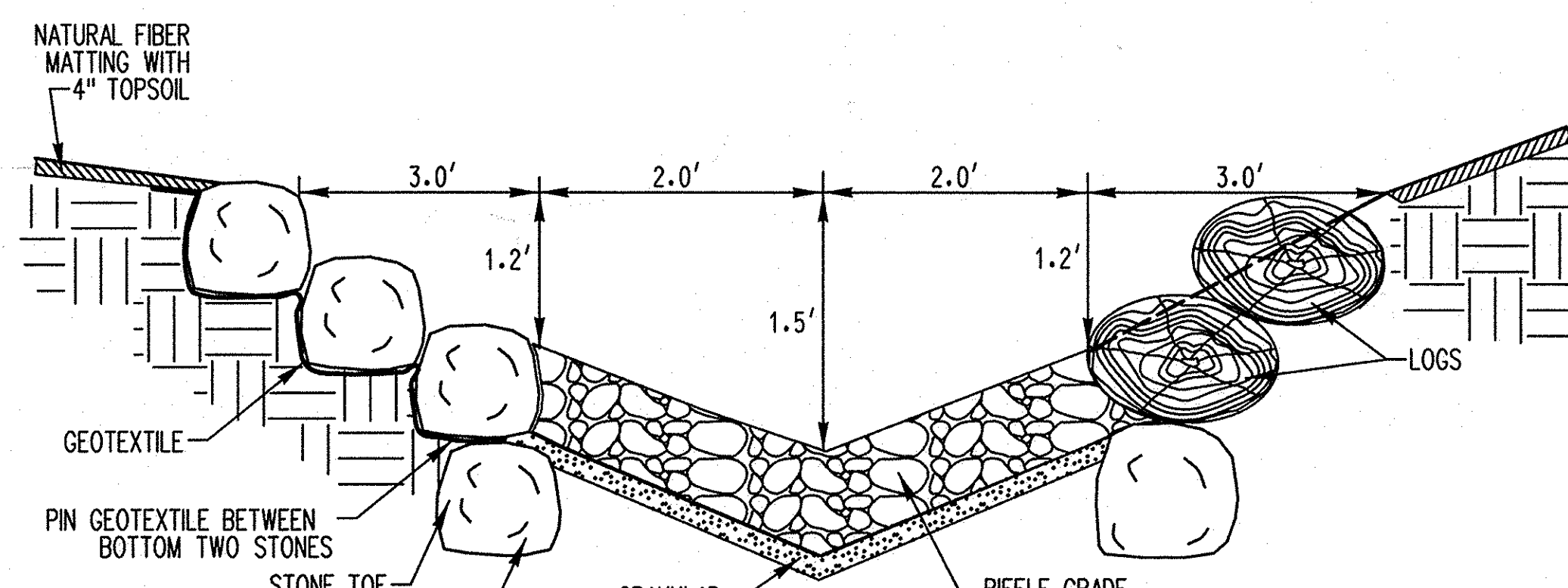
LOG ROLL PROFILE

NOT TO SCALE



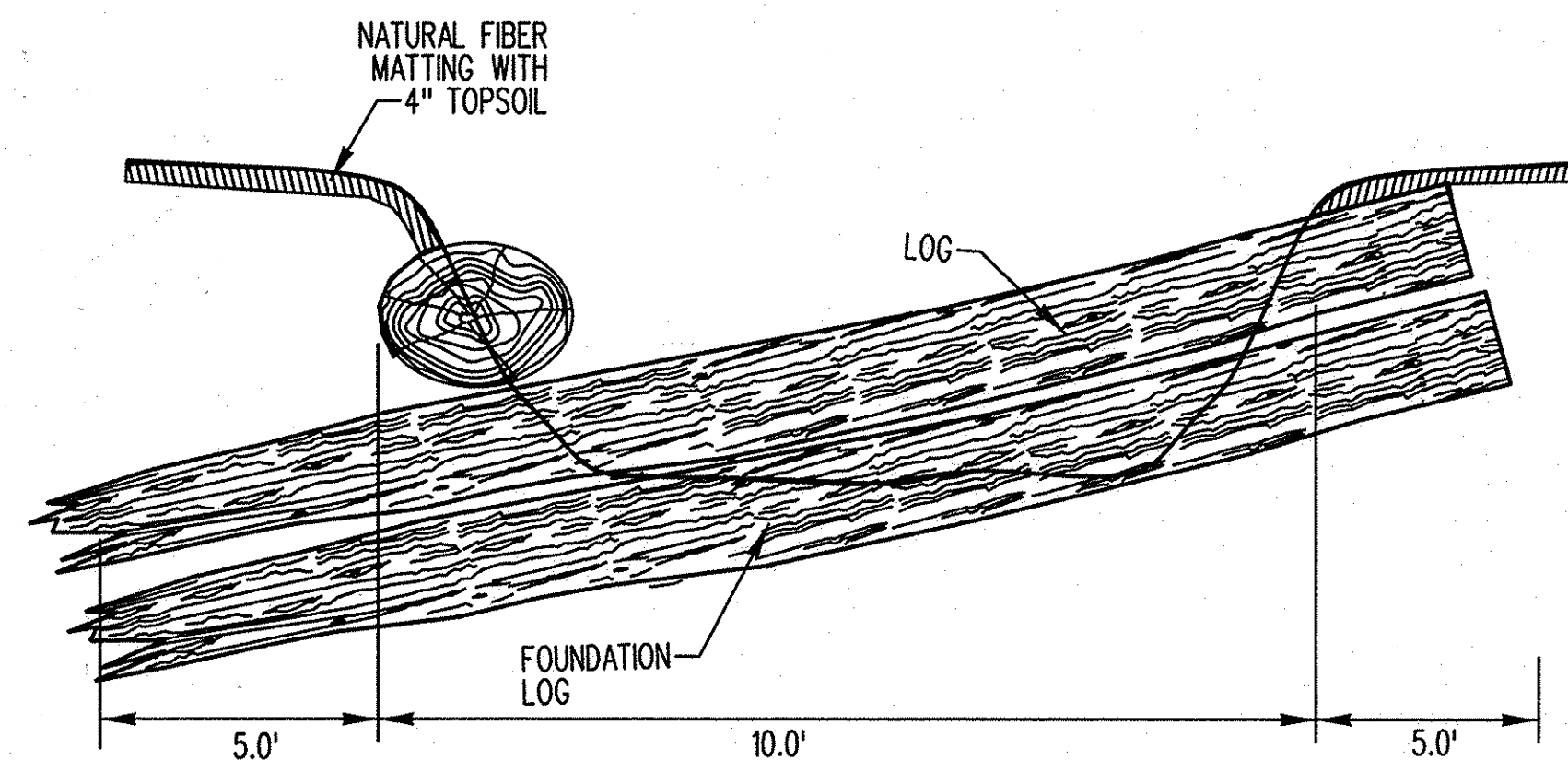
SECTION A-A'

NOT TO SCALE



SECTION B-B'

NOT TO SCALE

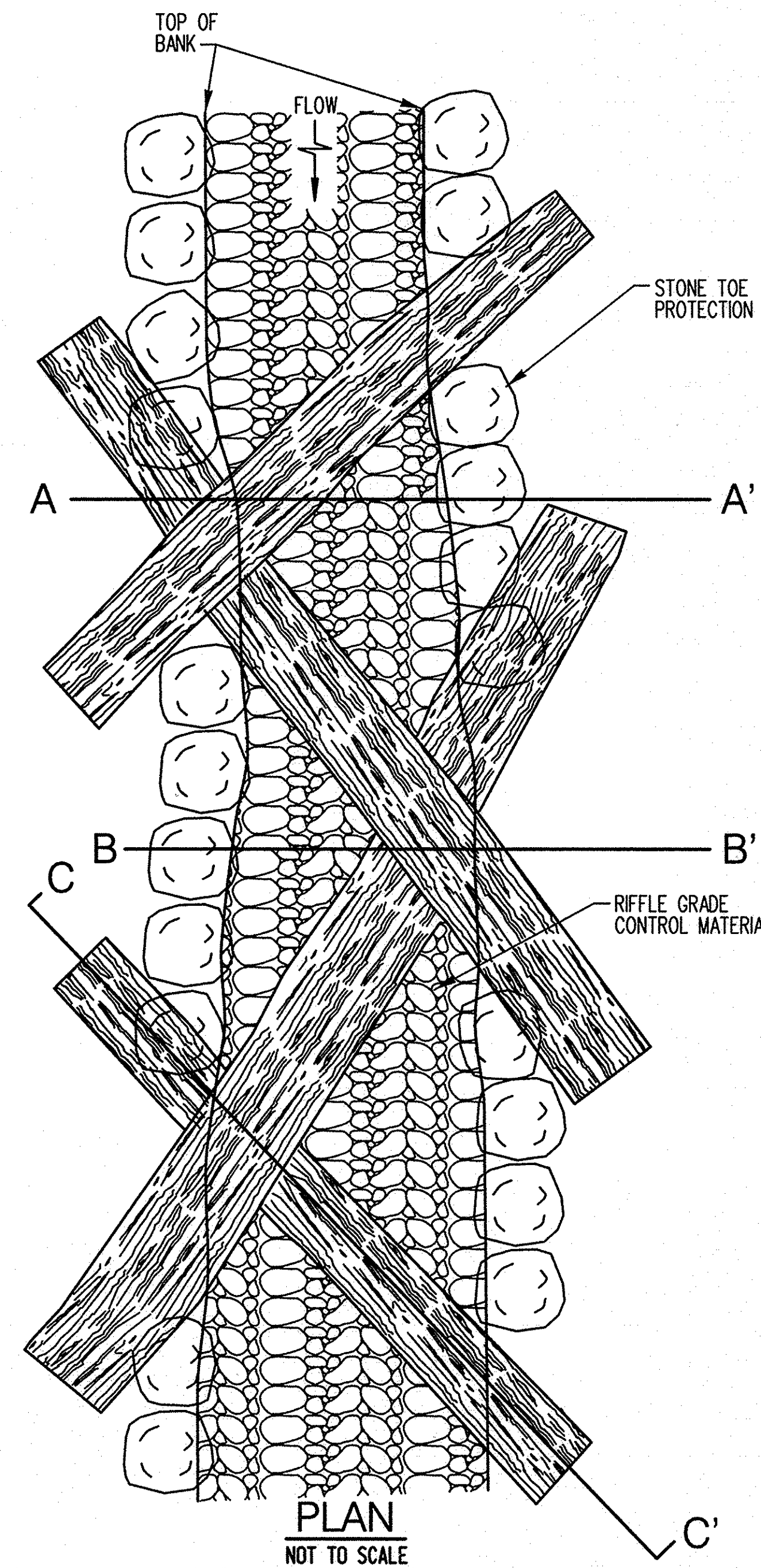


SECTION C-C'

NOT TO SCALE

### LOG ROLL SCHEDULE

FROM STATION	TO STATION
60+17	60+37
10+77	11+20
16+85	17+32



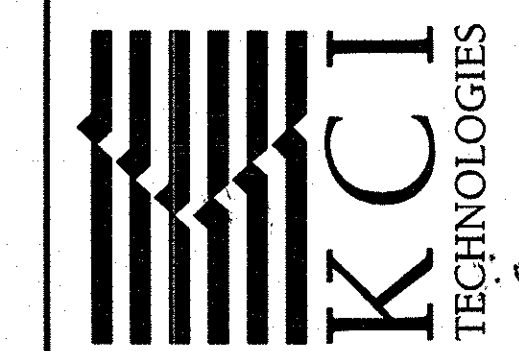
PLAN

NOT TO SCALE

NOTE: LOGS SHALL BE 8 TO 16 INCHES IN DIAMETER. PLACE STONE TOE PROTECTION ON BANKS, AS SHOWN ON GRADING PLANS. STONE TOE PROTECTION CAN BE FOUND ON SHEET DE-03. LOGS SHALL CONSIST OF SALVAGED MATERIAL. IF SALVAGED MATERIAL IS DETERMINED UNSUITABLE BY THE ENGINEER, FURNISHED MATERIAL MAY BE USED. ALL MATERIALS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. THE CONTRACTOR SHALL WORK WITH THE ENGINEER FOR FINAL PLACEMENT OF THE STONE AND LOGS.

NO.	REVISIONS DESCRIPTION	DATE

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CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

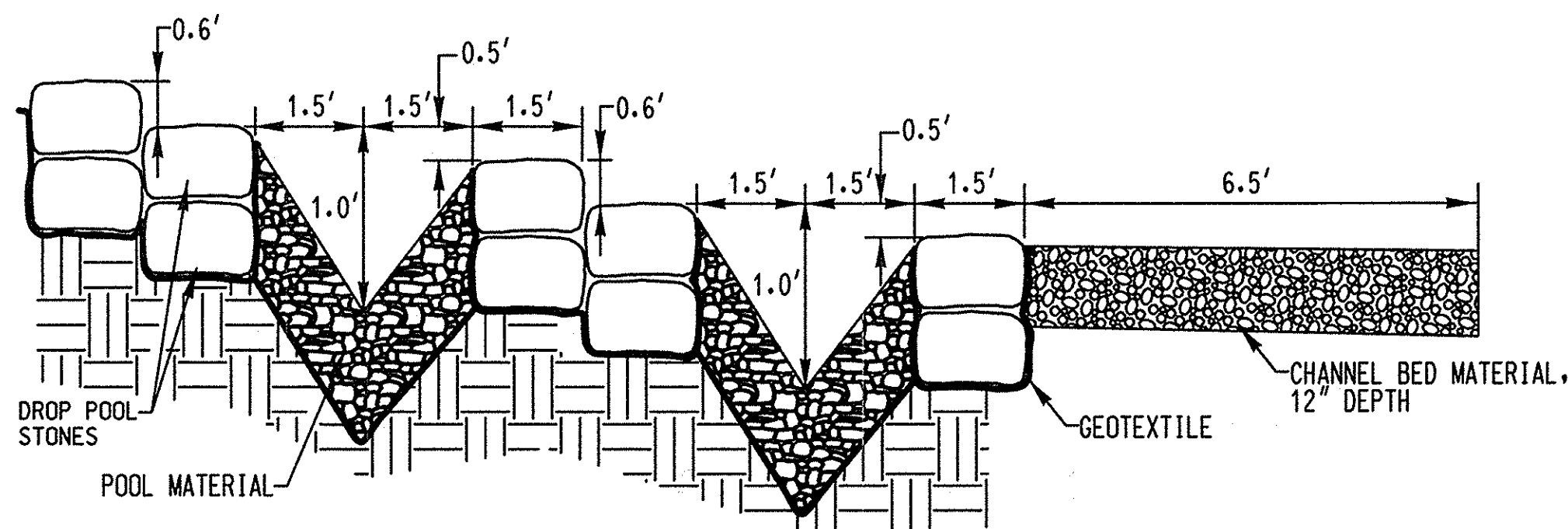
STREAM DETAILS

SCALE:	NOT TO SCALE
DATE:	AUGUST 2014
KCI JOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

DE-04  
SHEET NO.: 16 OF 44

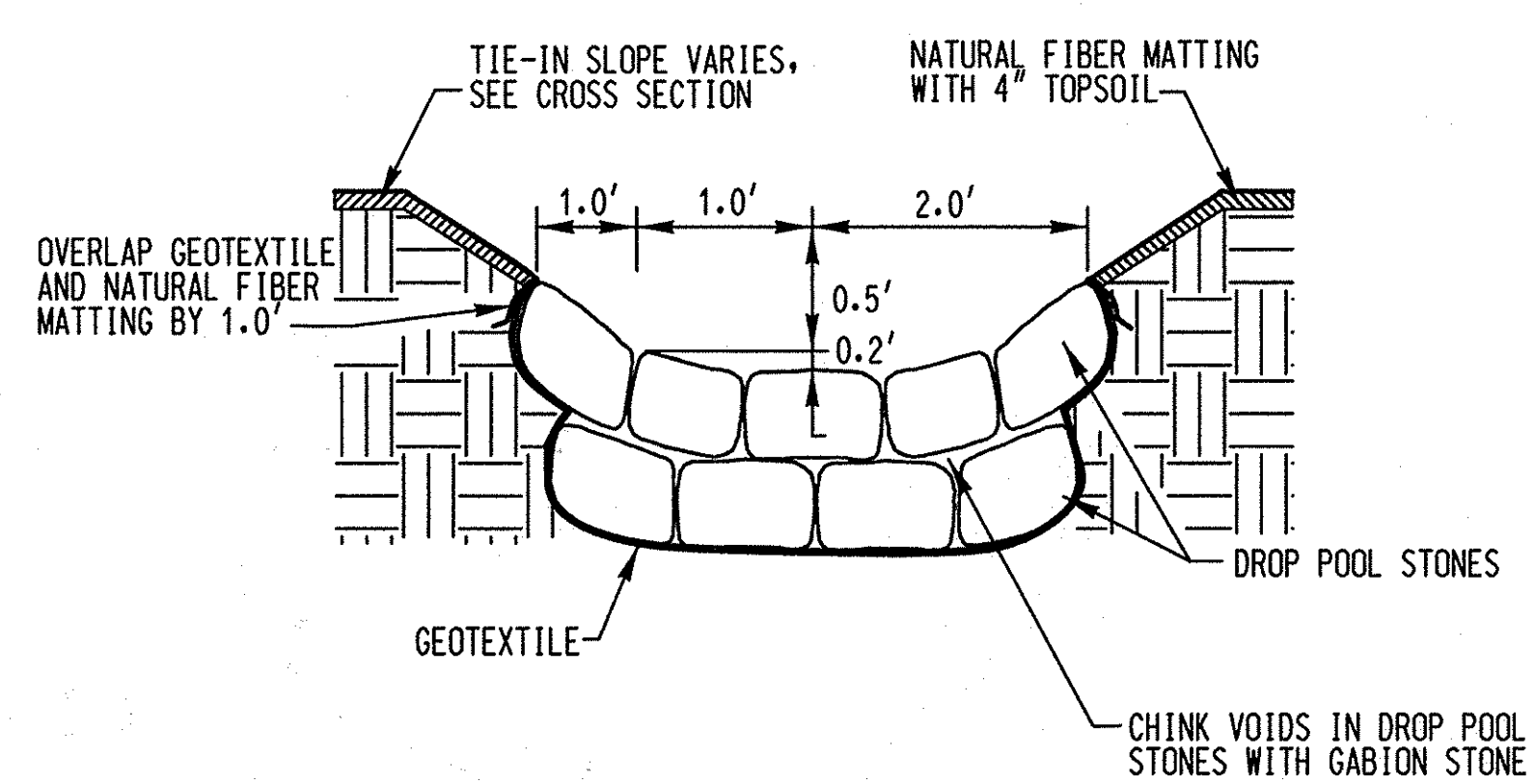
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
Chief, Bureau of Environmental Services  
8/26/14  
DATE



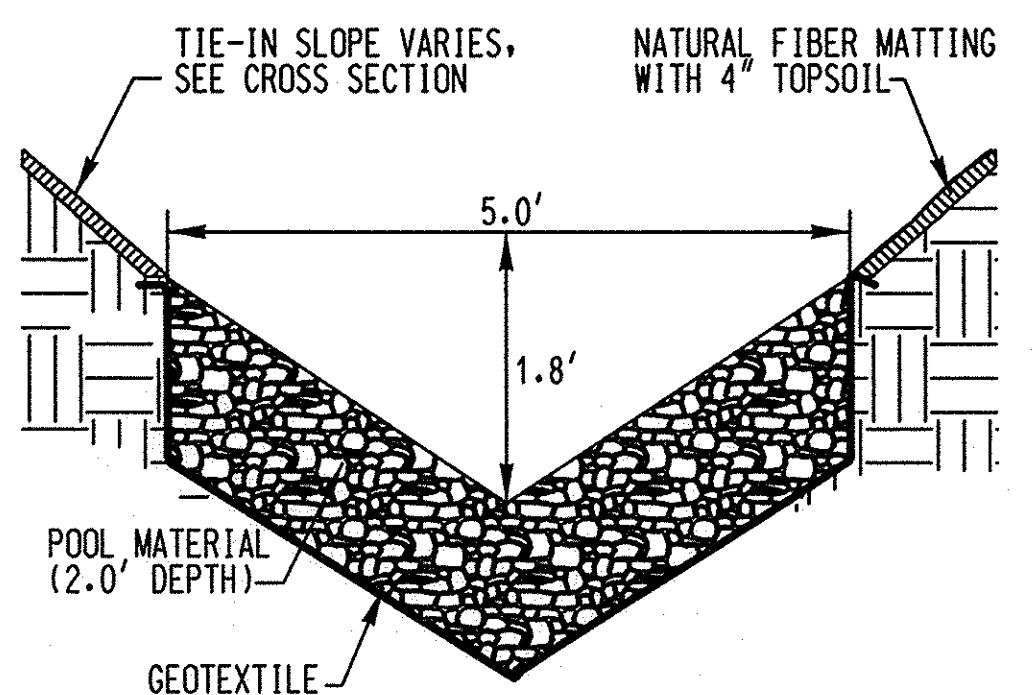


**TYPICAL PROFILE**  
NOT TO SCALE

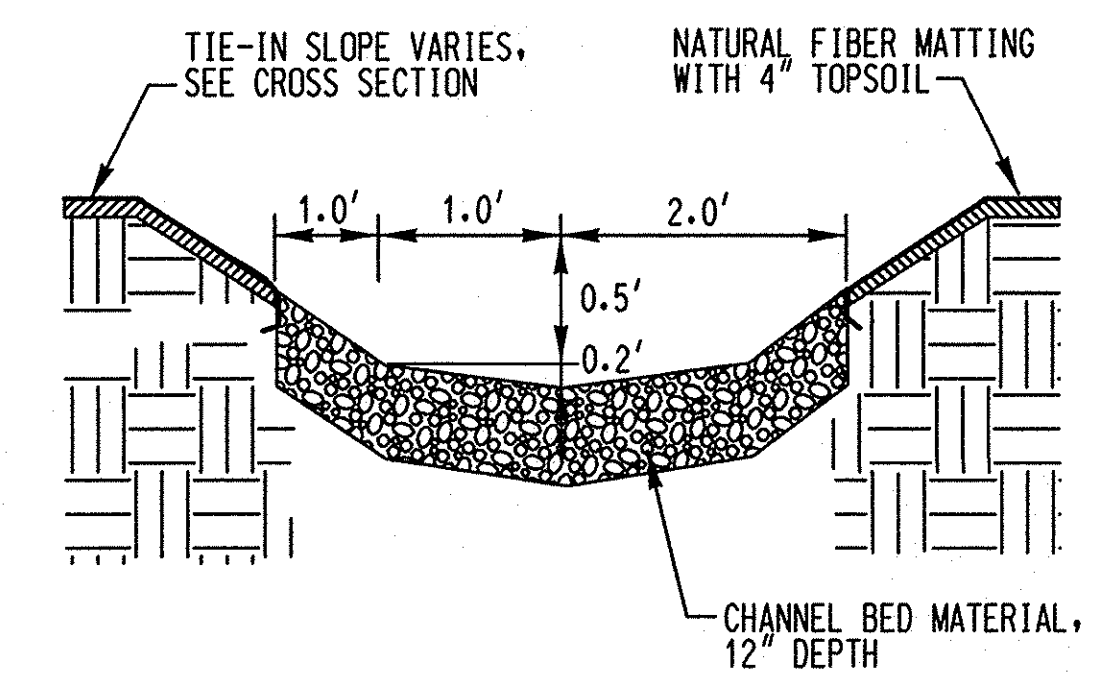
OUTFALL 'E' STONE SIZES	
DROP POOL STONES	2.0' x 1.5'-2.0' x 1.0'
POOL MATERIAL	50% CLASS I RIPRAP 50% CLASS II RIPRAP



**TYPICAL CREST CROSS-SECTION**  
NOT TO SCALE

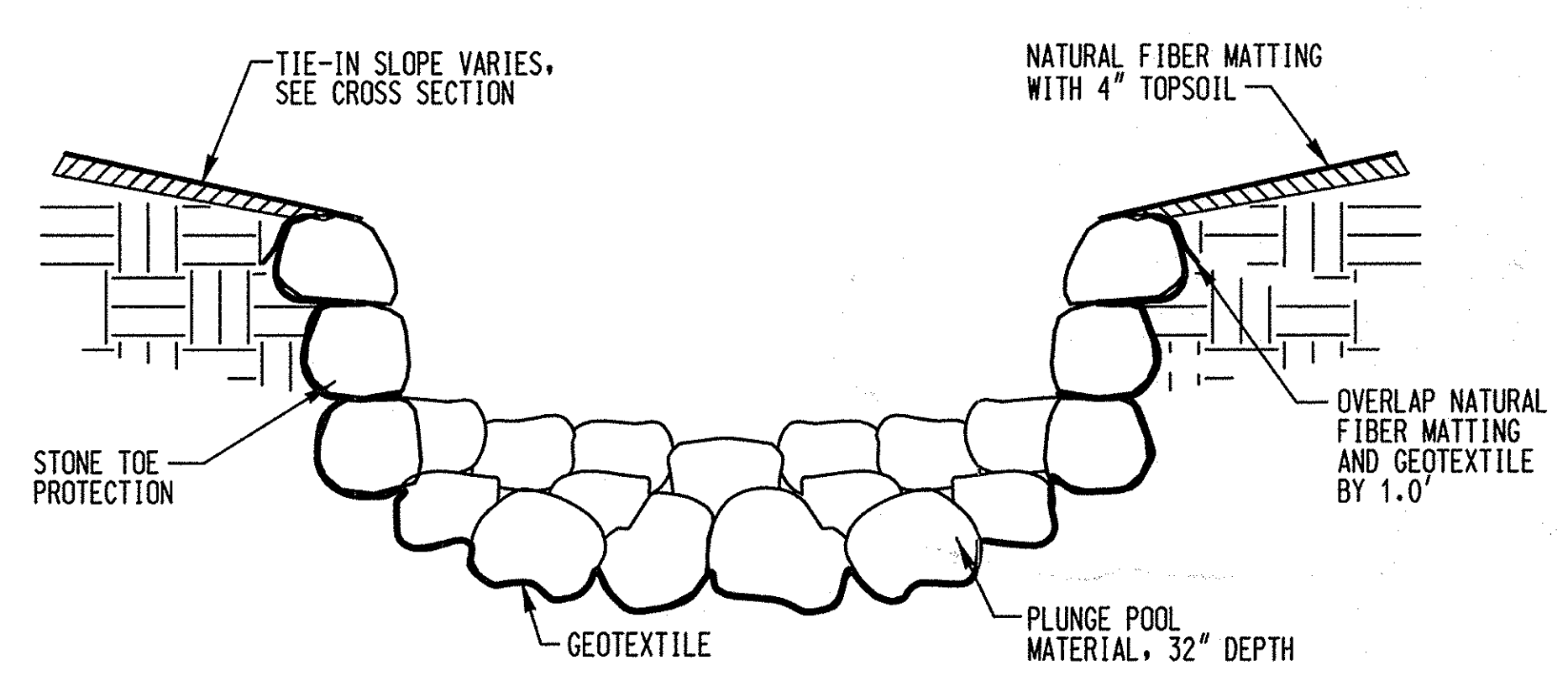


**TYPICAL POOL CROSS-SECTION**  
NOT TO SCALE



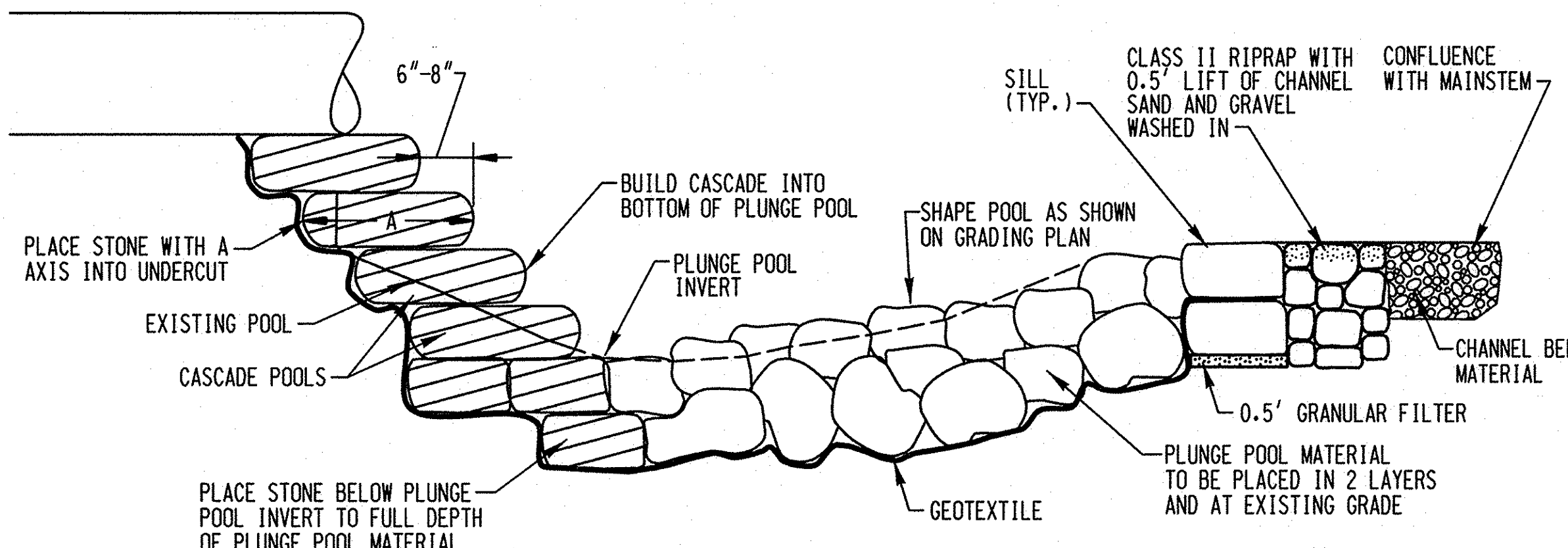
**TYPICAL RIFFLE CROSS-SECTION**  
NOT TO SCALE

**OUTFALL F CHANNEL: CASCADE AND PLUNGE POOL**



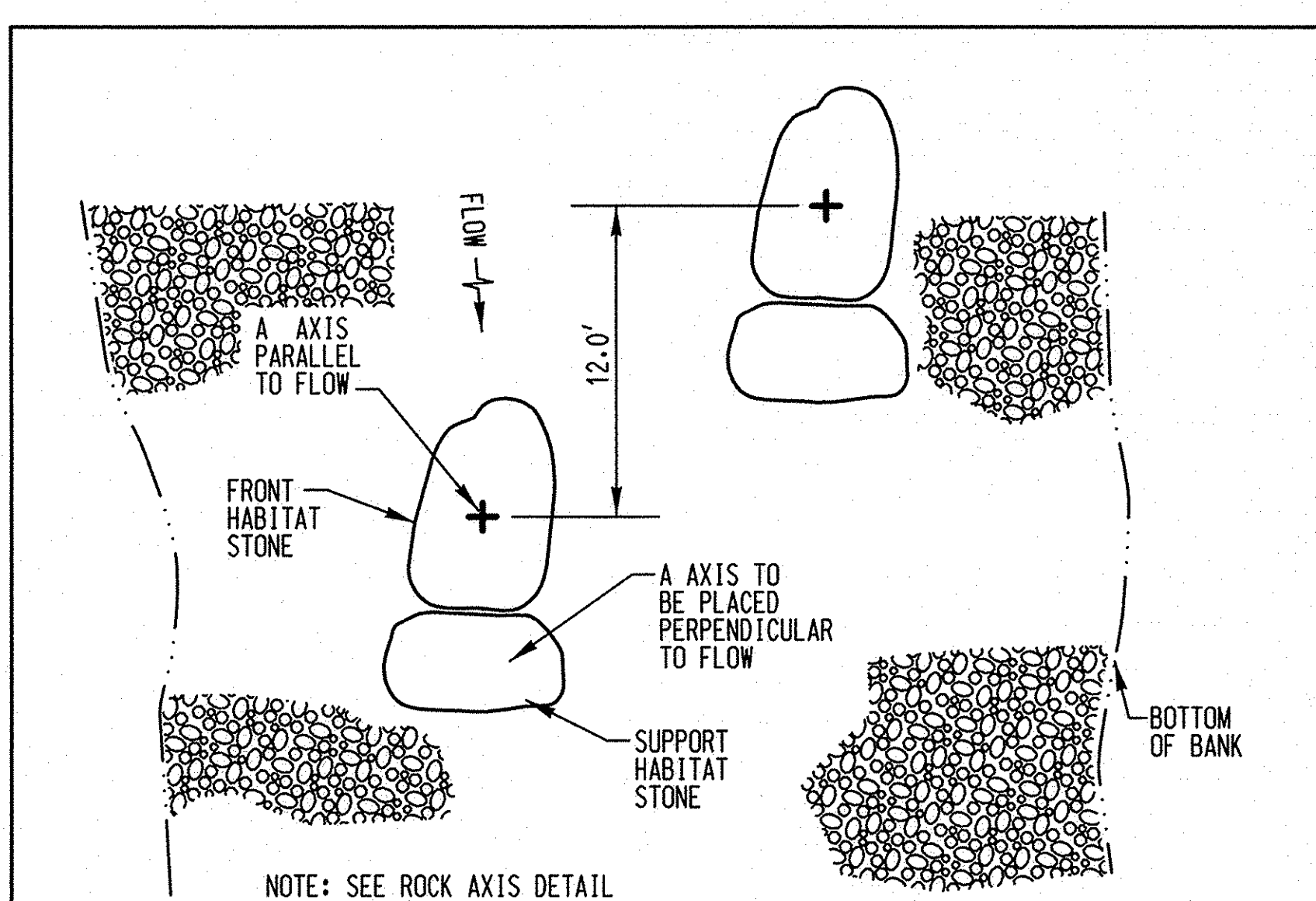
**PLUNGE POOL CROSS SECTION**  
NOT TO SCALE

OUTFALL 'F' STONE SIZES	
CASCADE STONES	2.0' x 1.5'-2.0' x 1.0'
PLUNGE POOL	CLASS II

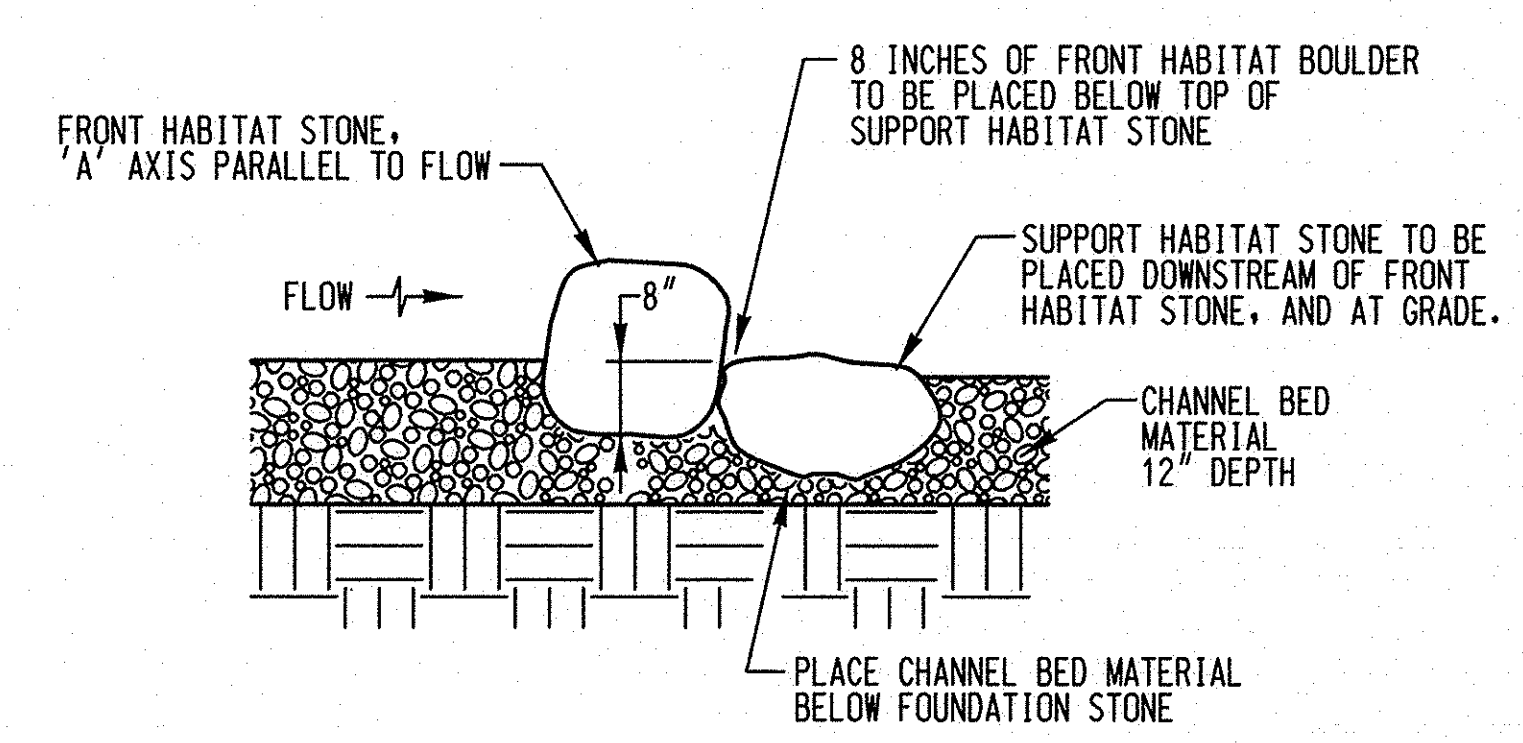


**CASCADE AND PLUNGE POOL PROFILE**  
NOT TO SCALE

NOTE: ENGINEER TO BE ON-SITE DURING THE CONSTRUCTION OF THE CASCADE TO APPROVE PLACEMENT OF STONE.

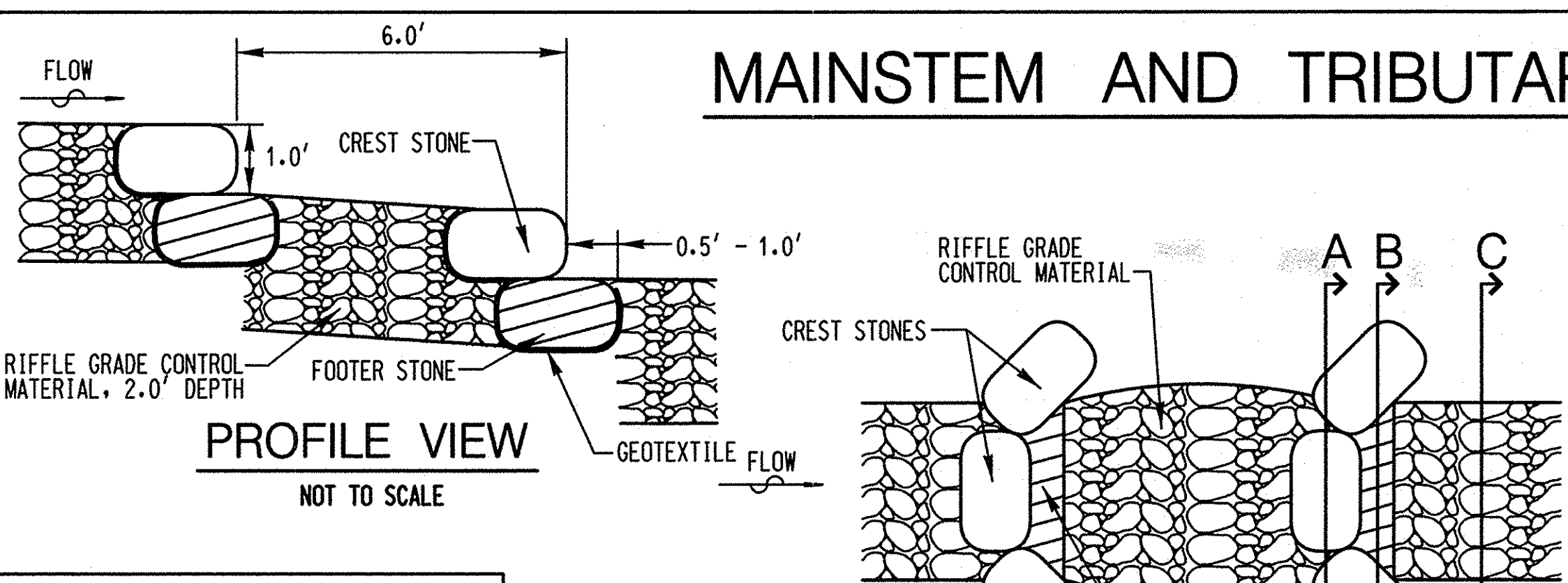


**HABITAT BOULDER: PLAN VIEW**  
NOT TO SCALE

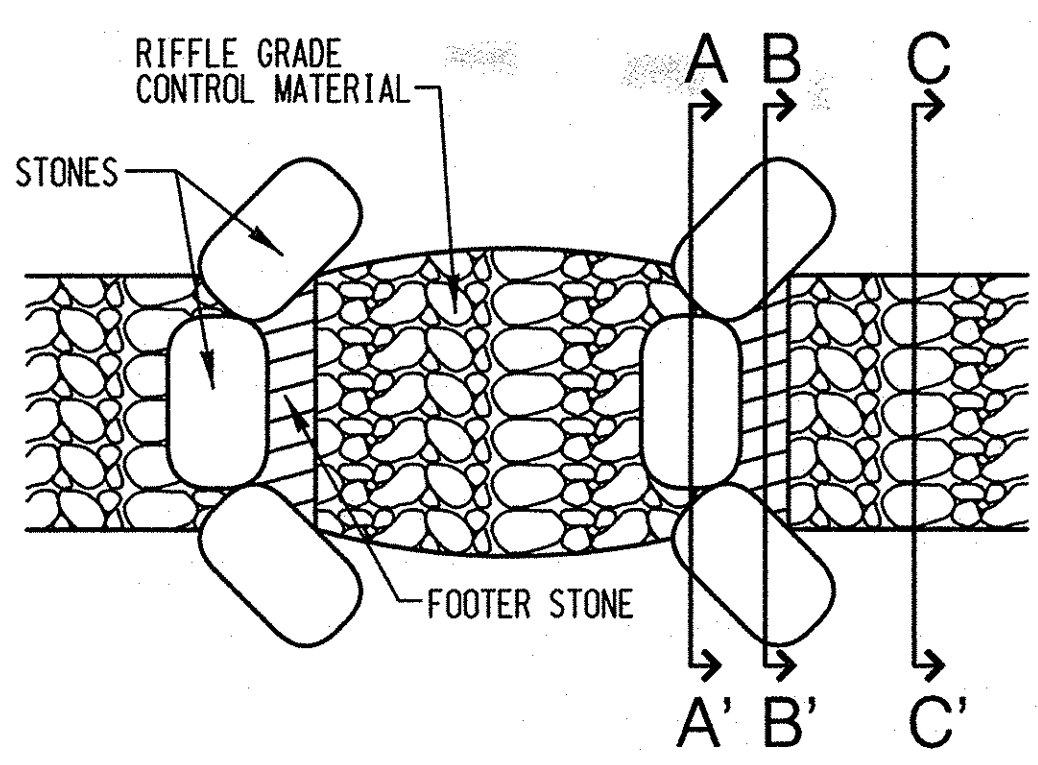


**HABITAT BOULDER PROFILE**  
NOT TO SCALE

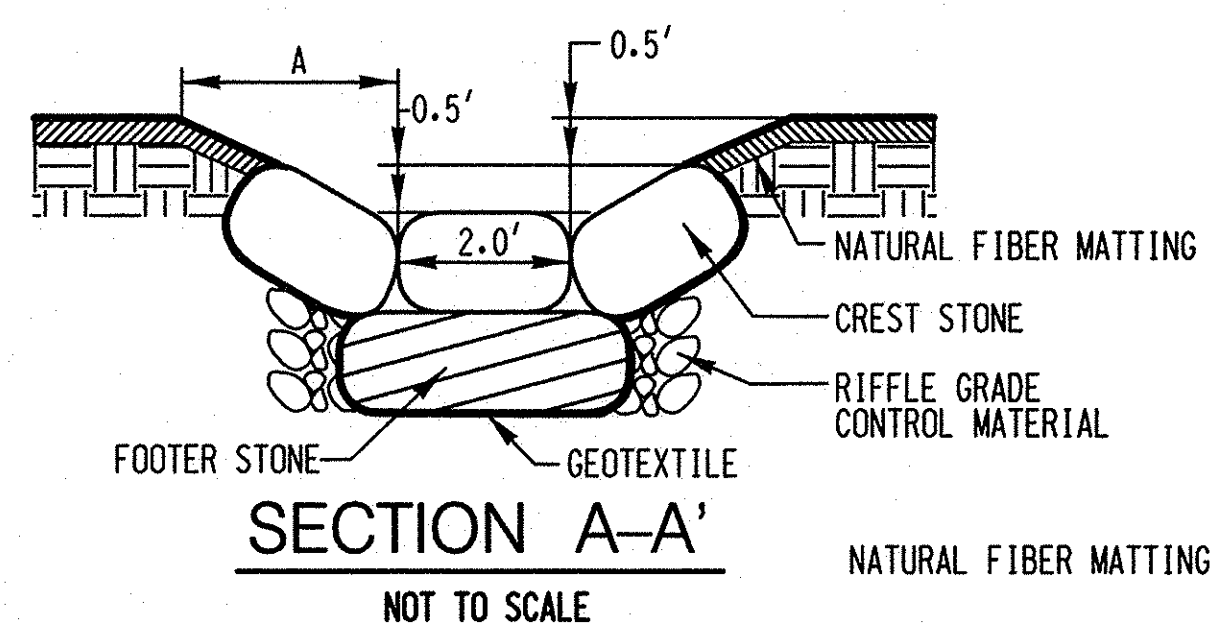
**MAINSTEM AND TRIBUTARY STEP STRUCTURES**



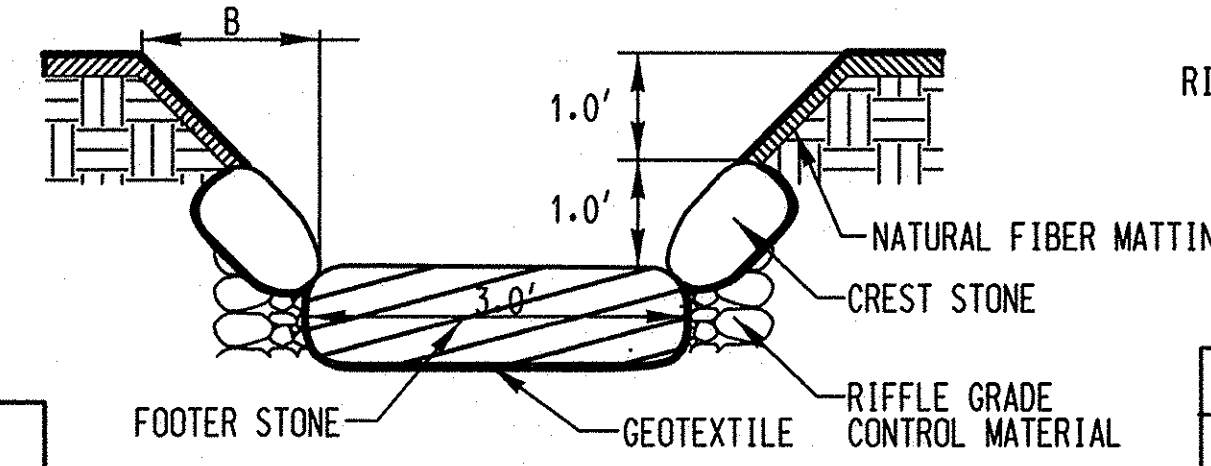
**PROFILE VIEW**  
NOT TO SCALE



**PLAN VIEW**  
NOT TO SCALE

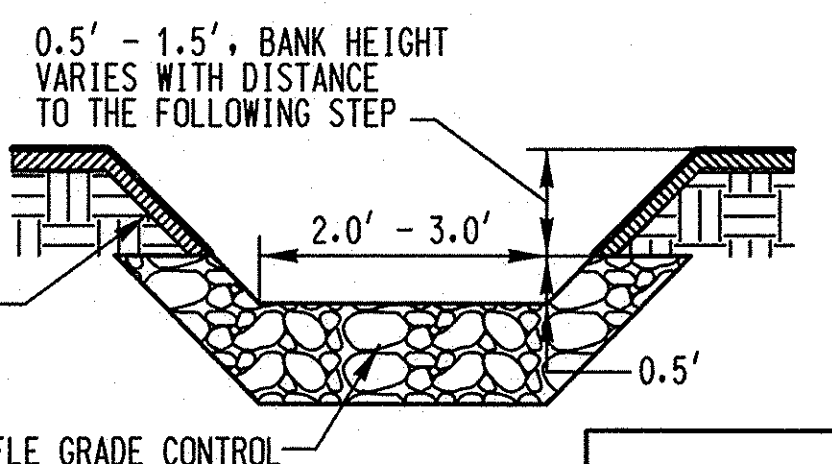


**SECTION A-A'**  
NOT TO SCALE



**SECTION B-B'**  
NOT TO SCALE

STEP STRUCTURE SCHEDULES	
MAINSTEM	TRIBUTARY
70+59.9	61+07
70+65.9	61+13
70+71.9	61+19
70+82.4	61+25
70+88.3	61+31
	61+37



**SECTION C-C'**  
NOT TO SCALE

STATION	A	B
61+07 - 61+37	3.0'	2.5'
70+59 - 70+88	2.0'	1.5'

SIZES FOR STONE TYPES			
AXIS	A (LONGEST)	B (INTERMEDIATE)	C (SHORTEST)
STONE TYPE	MAX.	RANGE	MIN.
CREST STONES (STEP)*	2.0'	1.5' - 2.0'	1.0'
FOOTER STONES (STEP)	3.5'	2.5'	1.5'
HABITAT BOULDERS**	1.5'	1.0' - 1.5'	1.0'

\* SILL, DROP, AND STEP STONES SHALL BE BLOCKY IN SHAPE AND GREY OR BROWN IN COLOR.  
\*\* HABITAT BOULDERS SHALL BE NATURAL STREAM MATERIAL, ROUNDED IN SHAPE AND GREY OR BROWN IN COLOR.

HABITAT BOULDER SCHEDULE	
FROM STATION	TO STATION
13+10	13+50
14+70	15+03
18+20	18+38
18+80	19+25
20+55	20+72

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
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**SOUTHVIEW ROAD  
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PARCELS 399, 489, 562, 211, 386, 495, 530  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**STREAM DETAILS**

SCALE:	NOT TO SCALE
DATE:	AUGUST 2014
KCI JOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

DE-05

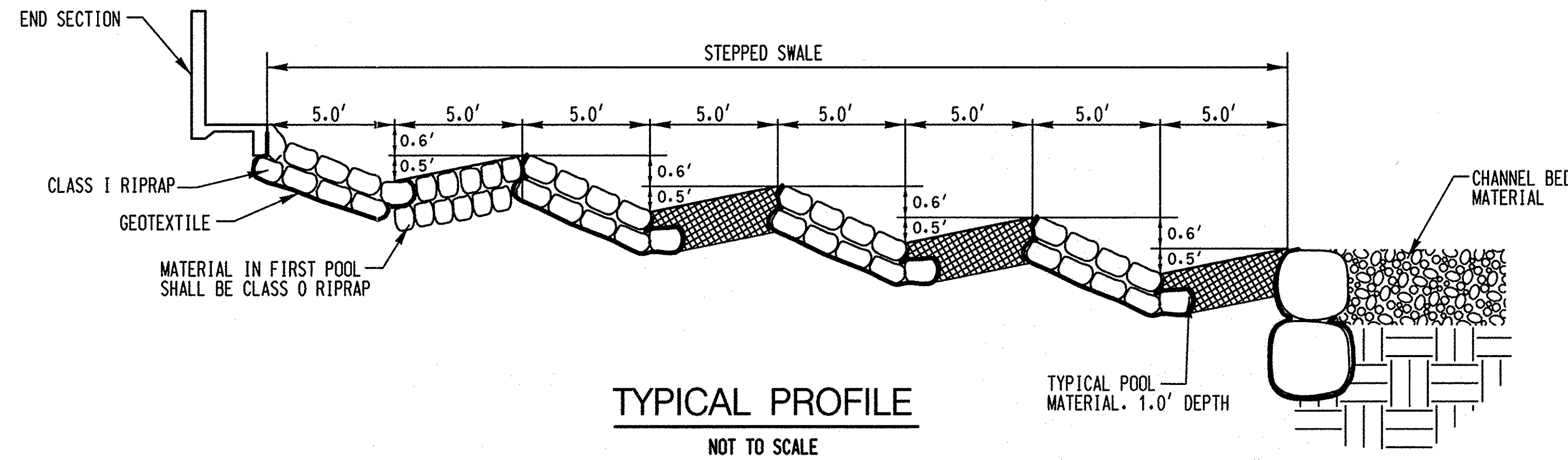
STATE OF MARYLAND  
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY  
PROFESSIONAL ENGINEER  
Kathy [Signature]  
8/17/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
[Signature]  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
8/26/14  
DATE

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016



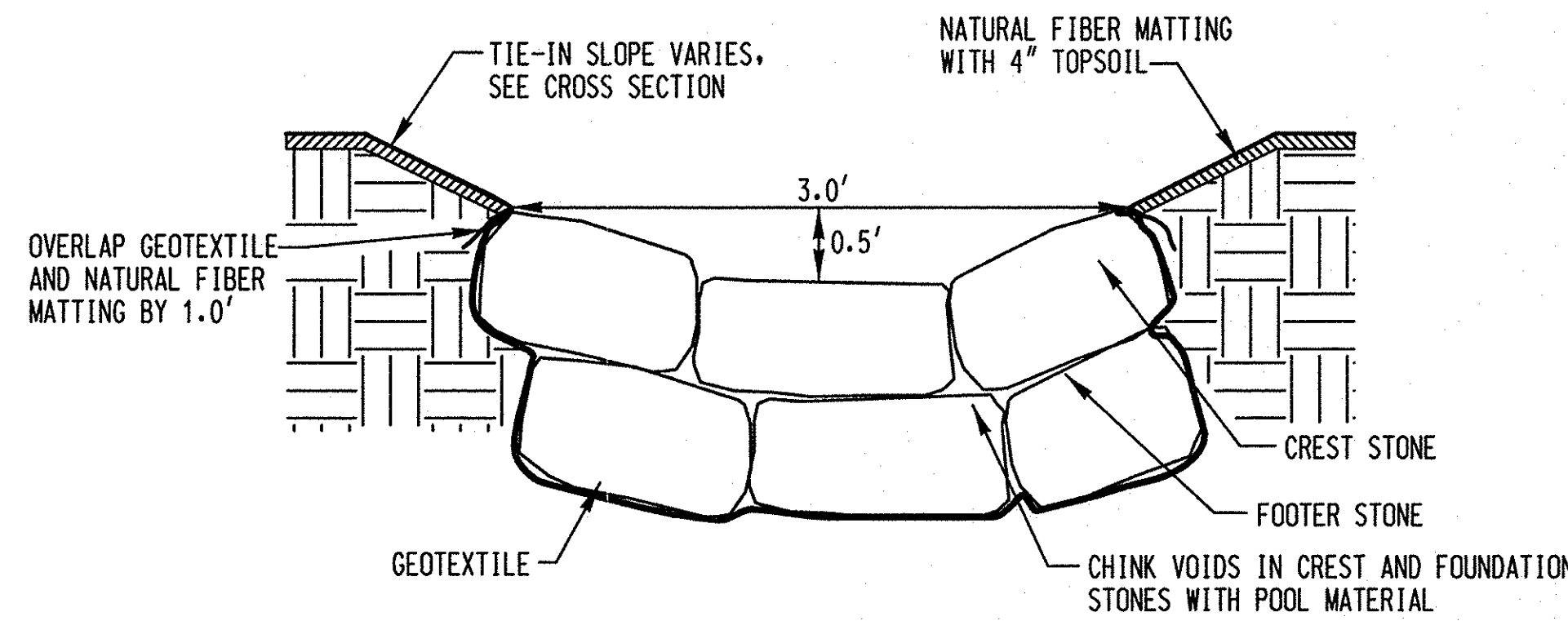
# OUTFALL B CHANNEL: STEPPED SWALE



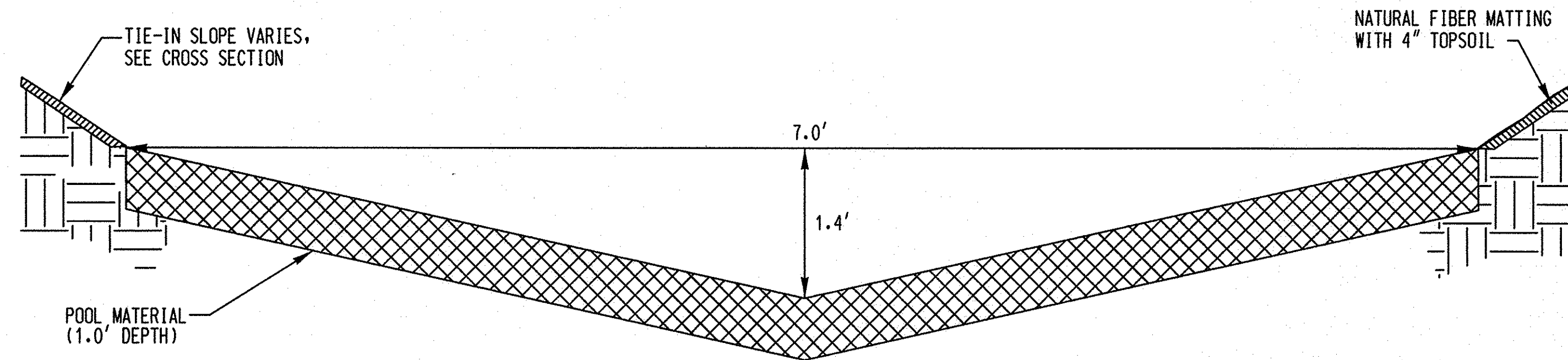
**TYPICAL PROFILE**  
NOT TO SCALE

TYPICAL OUTFALL 'B' POOL MATERIAL	
15%	COMPOST
40%	SAND (0.04" - 0.08")
45%	COBBLES (2 - 4" ROUNDED STONES)

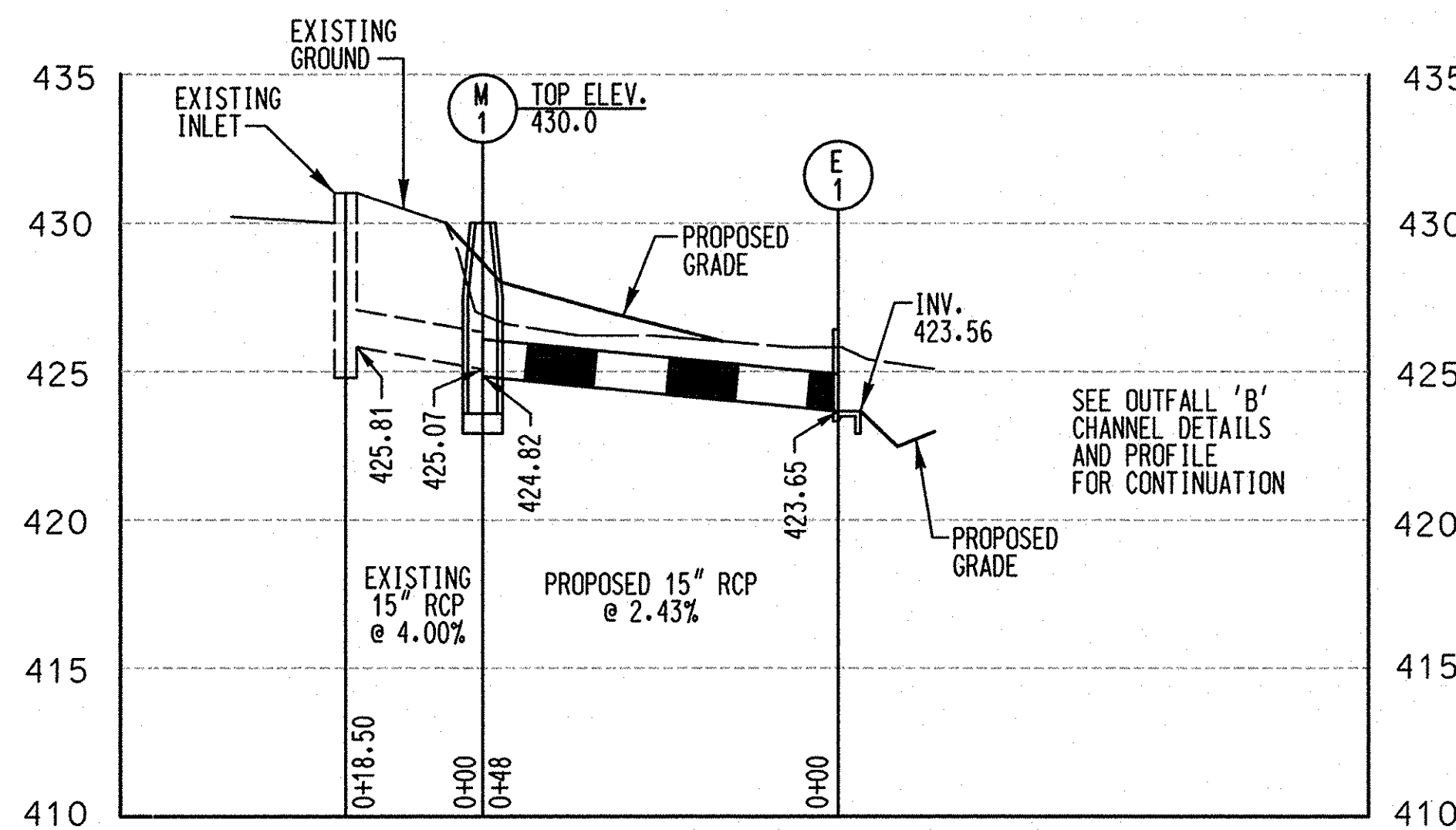
OUTFALL 'B' STONE SIZES	
TYPICAL POOL MATERIAL	2 - 4" ROUNDED COBBLES, SAND, AND COMPOST MIX
FIRST POOL MATERIAL	CLASS 0



**TYPICAL CREST CROSS-SECTION**  
NOT TO SCALE



**TYPICAL POOL CROSS-SECTION**  
NOT TO SCALE



**SOUTHVIEW ROAD STORM DRAIN PROFILE**

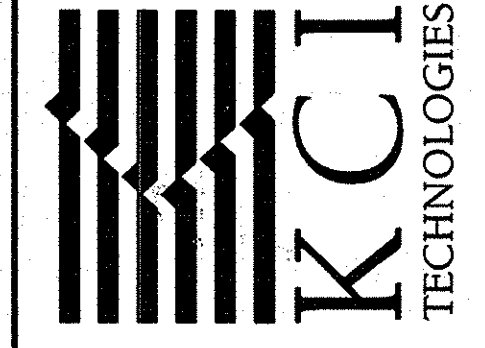
SCALE: 1" = 5' (VERTICAL)  
1" = 20' (HORIZONTAL)

**STORM DRAIN STRUCTURE TABLE**

STRUCTURE	STD. NO.	TYPE	INVERT OUT	SIZE	INVERT	
					NORTHING	EASTING
E-1	HOWARD CO. D-5.11	TYPE 'A' ENDWALL	423.65	2' 9"	1,358,678.62	591,399.66
M-1	HOWARD CO. G-5.12	STANDARD PRECAST MANHOLE	424.82	48"	1,358,725.47	591,410.11

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com



**SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT**  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 562, 211, 386, 495, 630 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**STREAM  
DETAILS**

SCALE:	AS SHOWN
DATE:	AUGUST 2014
KCIJOB NO.:	17133314.10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016

BY: Christopher D. Bane, Division: P&E, Notary of Res. Emp. FILE: M:\2013\17133314.10\Drawings\DE-06\_Southview.dgn

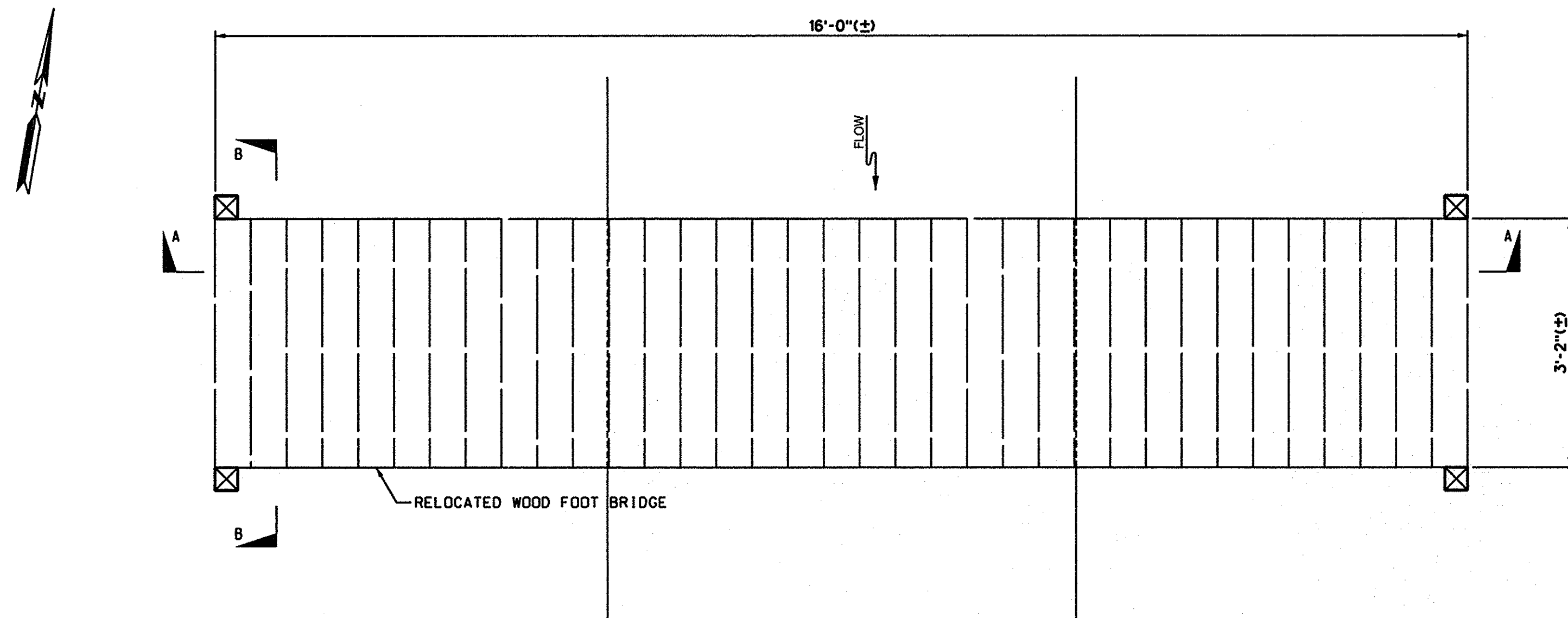
**STATE OF MARYLAND**  
DIVISION OF PROFESSIONAL ENGINEERS  
NO. 38311  
8/19/14

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

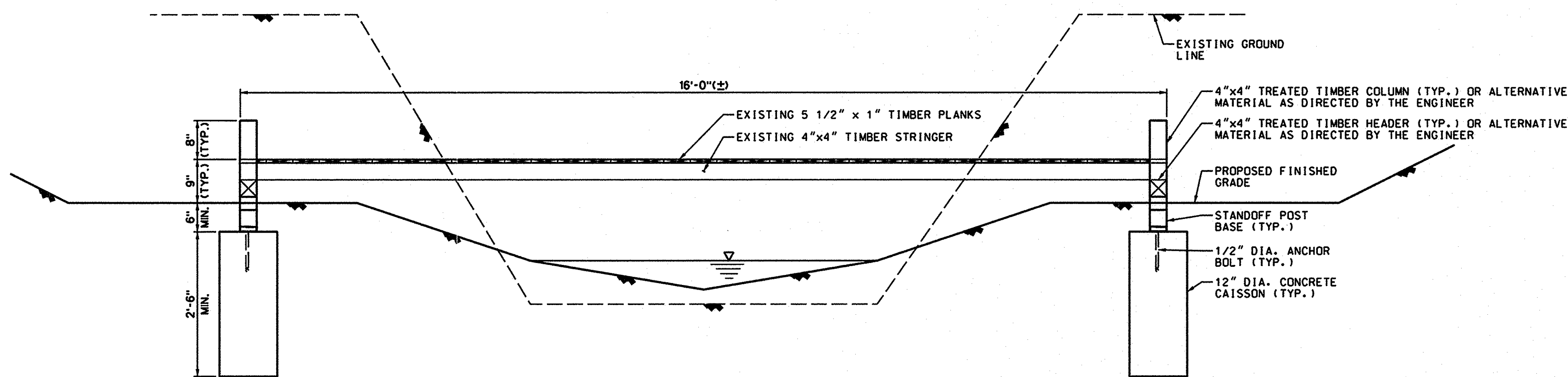
Chief, Bureau of Environmental Services

8/26/14  
DATE

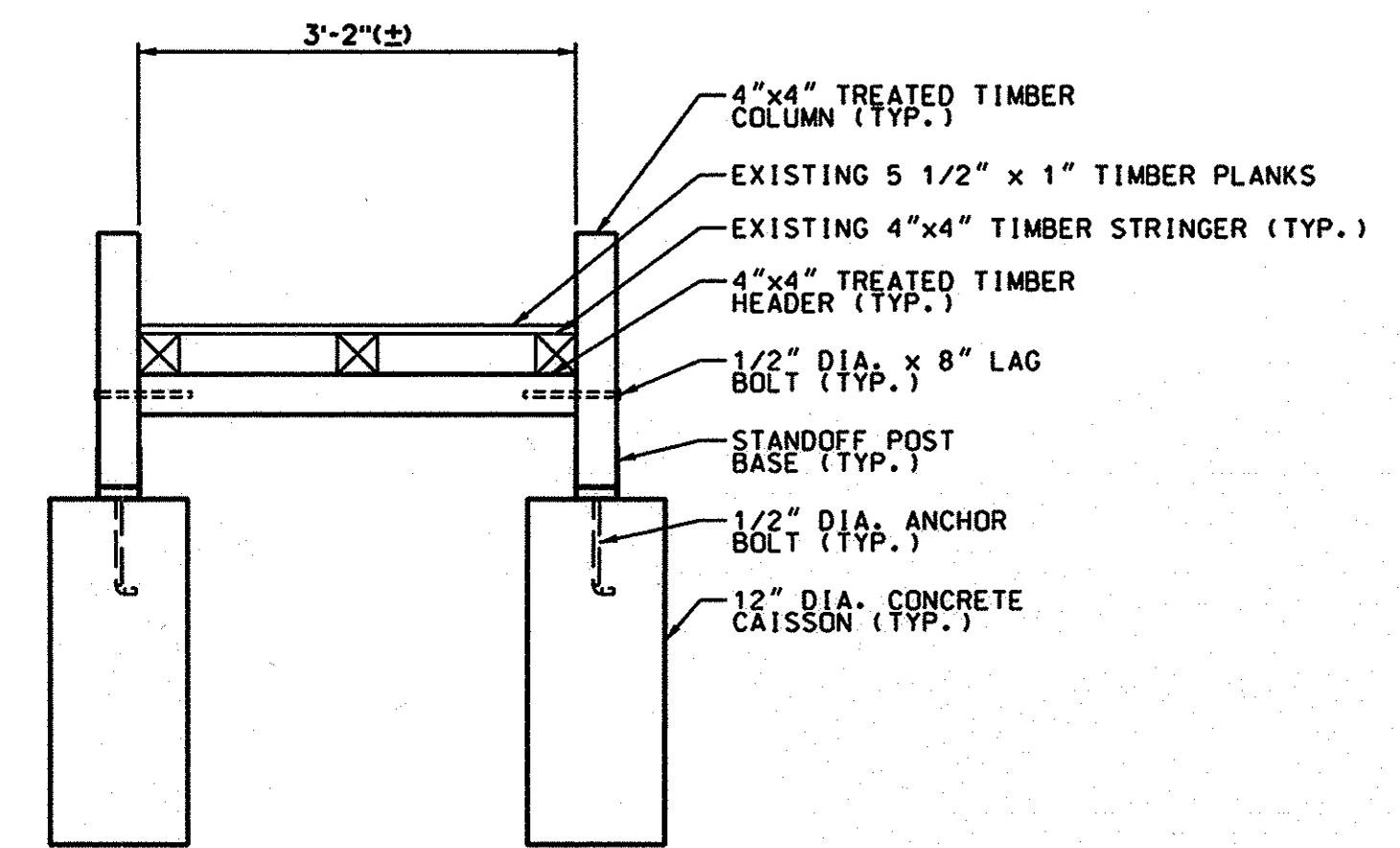




PLAN  
SCALE: 3/4" = 1'-0"



SECTION A-A  
SCALE: 3/4" = 1'-0"



SECTION B-B  
SCALE: 3/4" = 1'-0"

NOTES:

1. ALL LUMBER SHALL BE #2 SOUTHERN PINE OR BETTER. LUMBER SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE ABOVE GROUND AND GROUND CONTACT STANDARDS ISSUED BY THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA).
2. ABOVE GRADE FASTENERS SHALL BE HOT-DIP GALVANIZED WITH A MINIMUM COATING OF 2 OUNCES OF ZINC PER SQUARE FOOT, ACCORDING TO ASTM A 153, OR STAINLESS STEEL. PROPRIETARY THIN-PLATE CONNECTORS SHALL BE HOT-DIP GALVANIZED STEEL WITH A MINIMUM COATING OF 1.85 OUNCES OF ZINC PER SQUARE FOOT, ACCORDING TO ASTM A 653, OR STAINLESS STEEL.
3. DO NOT MIX GALVANIZED AND STAINLESS STEEL CONNECTORS.
4. CONCRETE FOR CAISSONS SHALL BE MIX NO. 3 (3,500 PSI).
5. EXISTING FOOT BRIDGE IS LOCATED AT STATION 24+38. IT IS TO BE RELOCATED AT THE DIRECTION OF THE ENGINEER. LOCATION SHALL BE DETERMINED PRIOR TO INSTALLATION OF THE CONCRETE FOOTERS.

NO.	REVISIONS DESCRIPTION	DATE

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SPARKS, MARYLAND 21152  
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FAX: (410) 316-7818  
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SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 562, 211, 386, 495, 630 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

RELOCATED  
WOOD FOOT  
BRIDGE  
PLAN AND  
SECTIONS

SCALE:	AS SHOWN
DATE:	AUGUST 2014
KCI JOB NO.:	17133314.10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

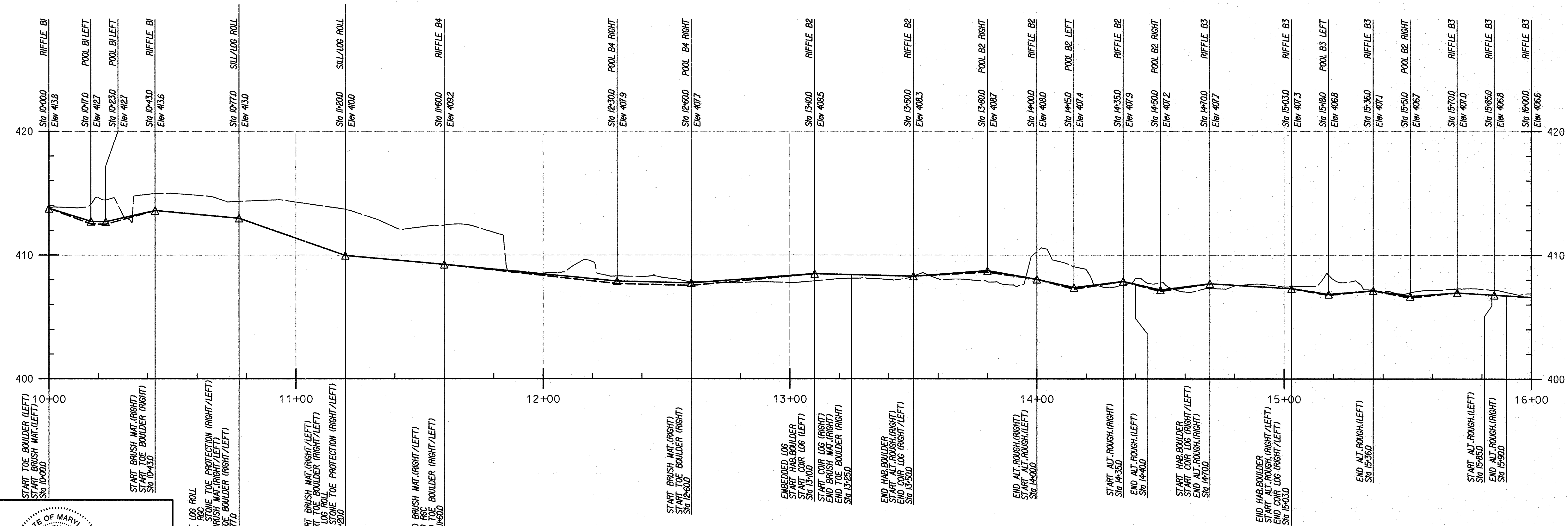
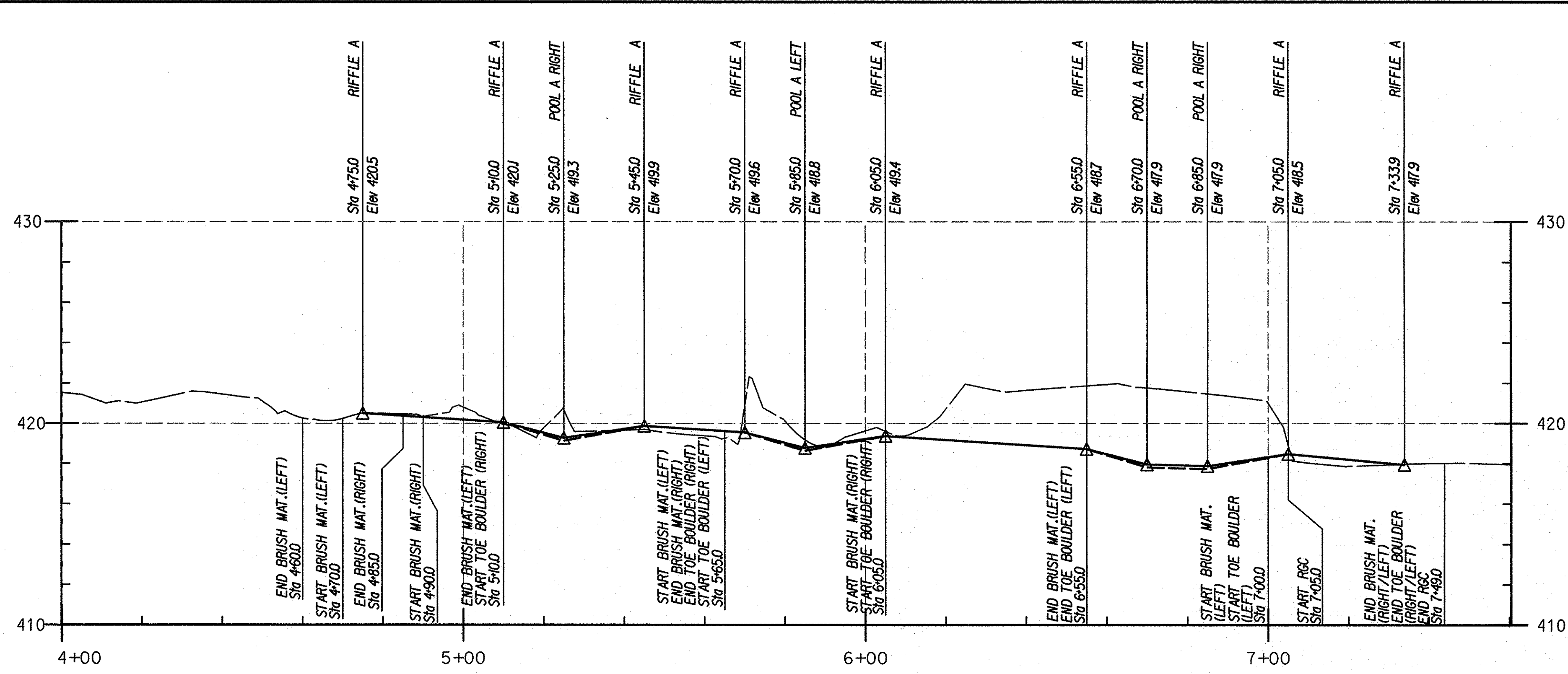
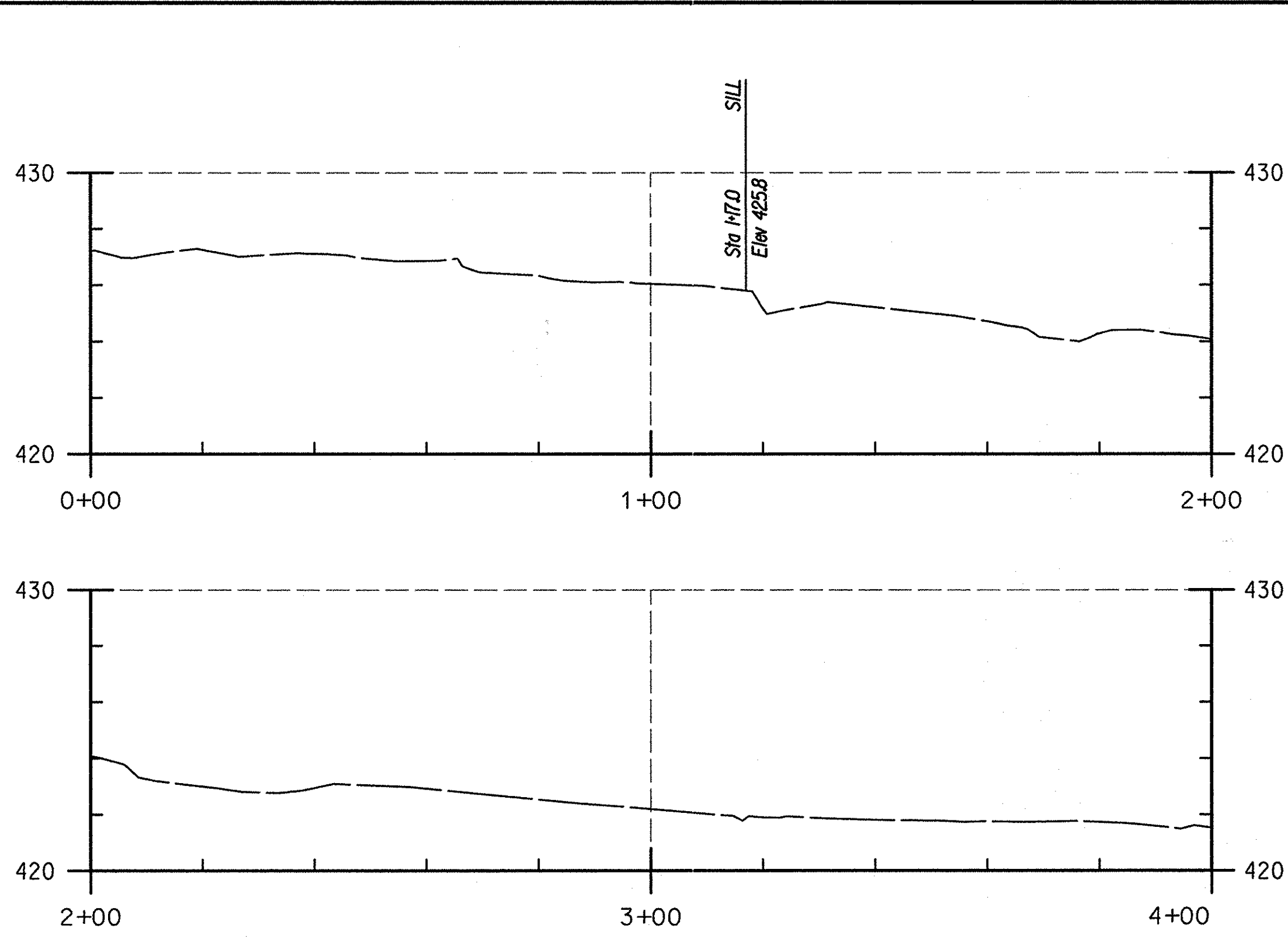
DE-07



PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*Christopher D. DeBevoise*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
8/26/14  
DATE





**LEGEND**

EXISTING GROUND ALONG BASELINE \_\_\_\_\_

PROPOSED GRADE ALONG BASELINE \_\_\_\_\_

PROPOSED THALWEG OFFSET TO BASELINE - - - - -

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 No. 98311  
 8/26/14

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311 EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**PROFILE**

SCALE: HOR. 1" = 20'  
 VERT. 1" = 4'

DATE: AUGUST 2014

KCI JOB NO.: 17133314.10

CAPITAL PROJECT NO.: D-1158

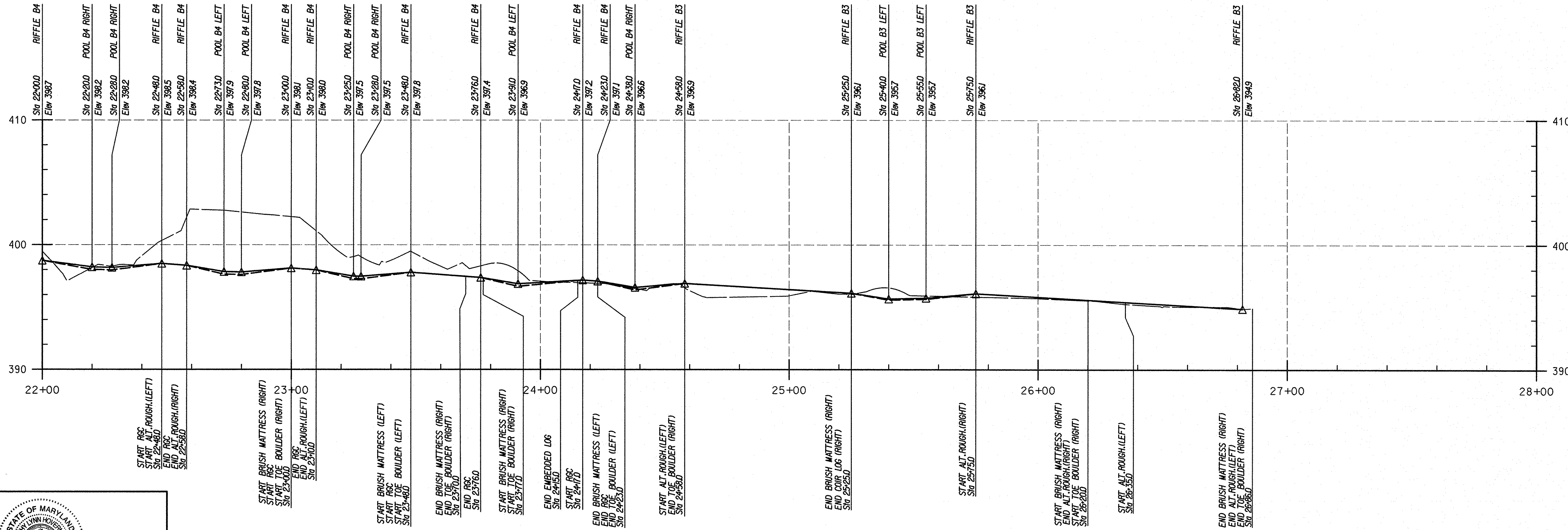
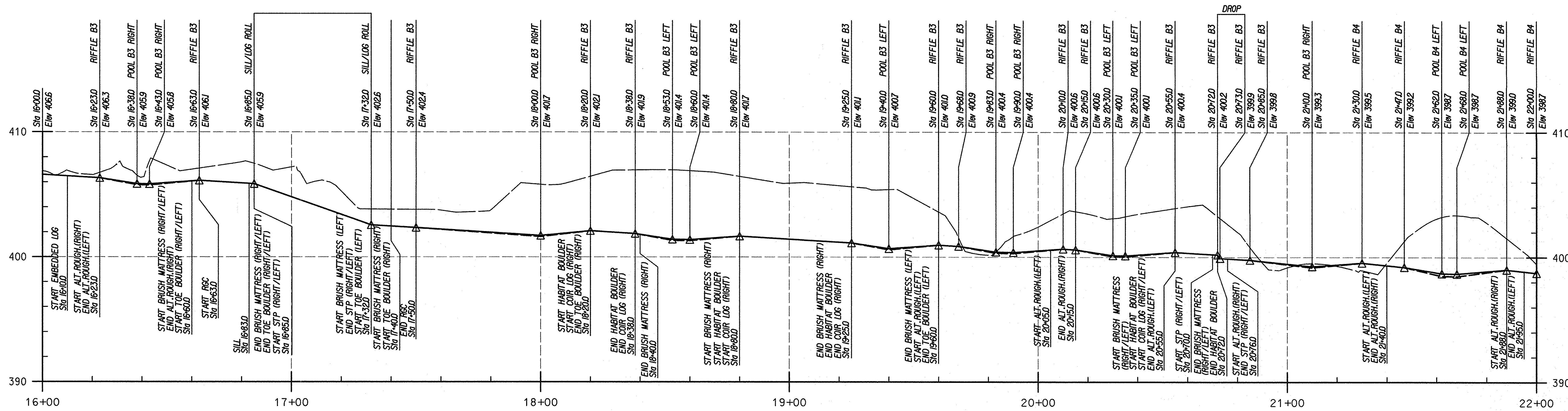
PERMIT ISSUE:

CONSTRUCTION ISSUE:

**PR-01**

SHEET NO.: 20 OF 44





**LEGEND**

EXISTING GROUND ALONG BASELINE

PROPOSED GRADE ALONG BASELINE

PROPOSED THALWEG OFFSET FROM BASELINE

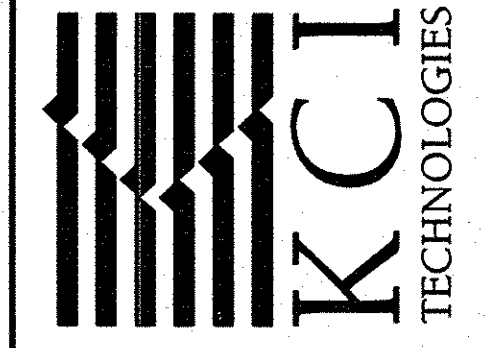
STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 No. 38311  
 8/26/14

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 03, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**PROFILE**

SCALE: HOR. 1" = 20'  
 VERT. 1" = 4'

DATE: AUGUST 2014

KCI JOB NO.: 17133314.10

CAPITAL PROJECT NO.: D-1158

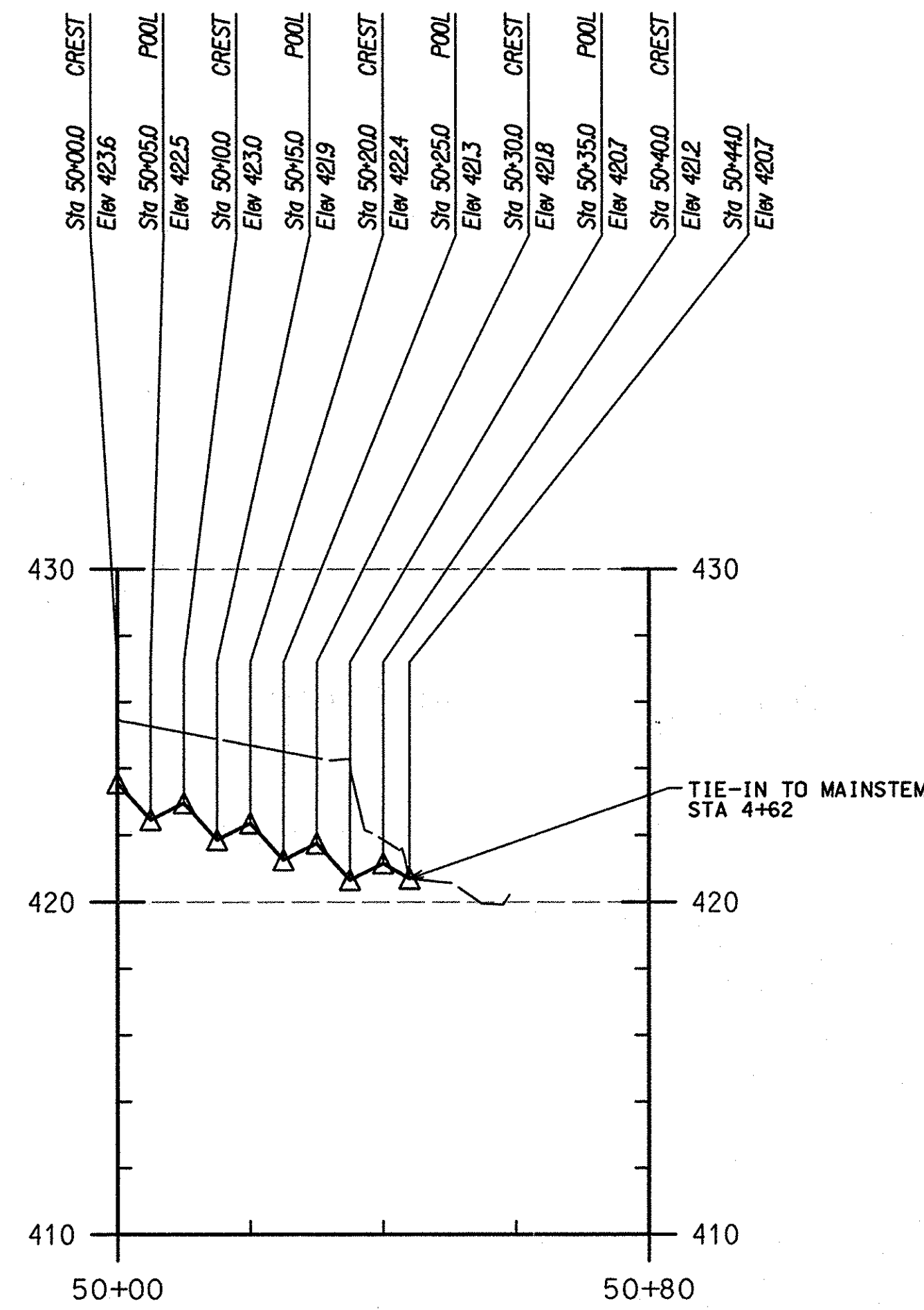
PERMIT ISSUE:

CONSTRUCTION ISSUE:

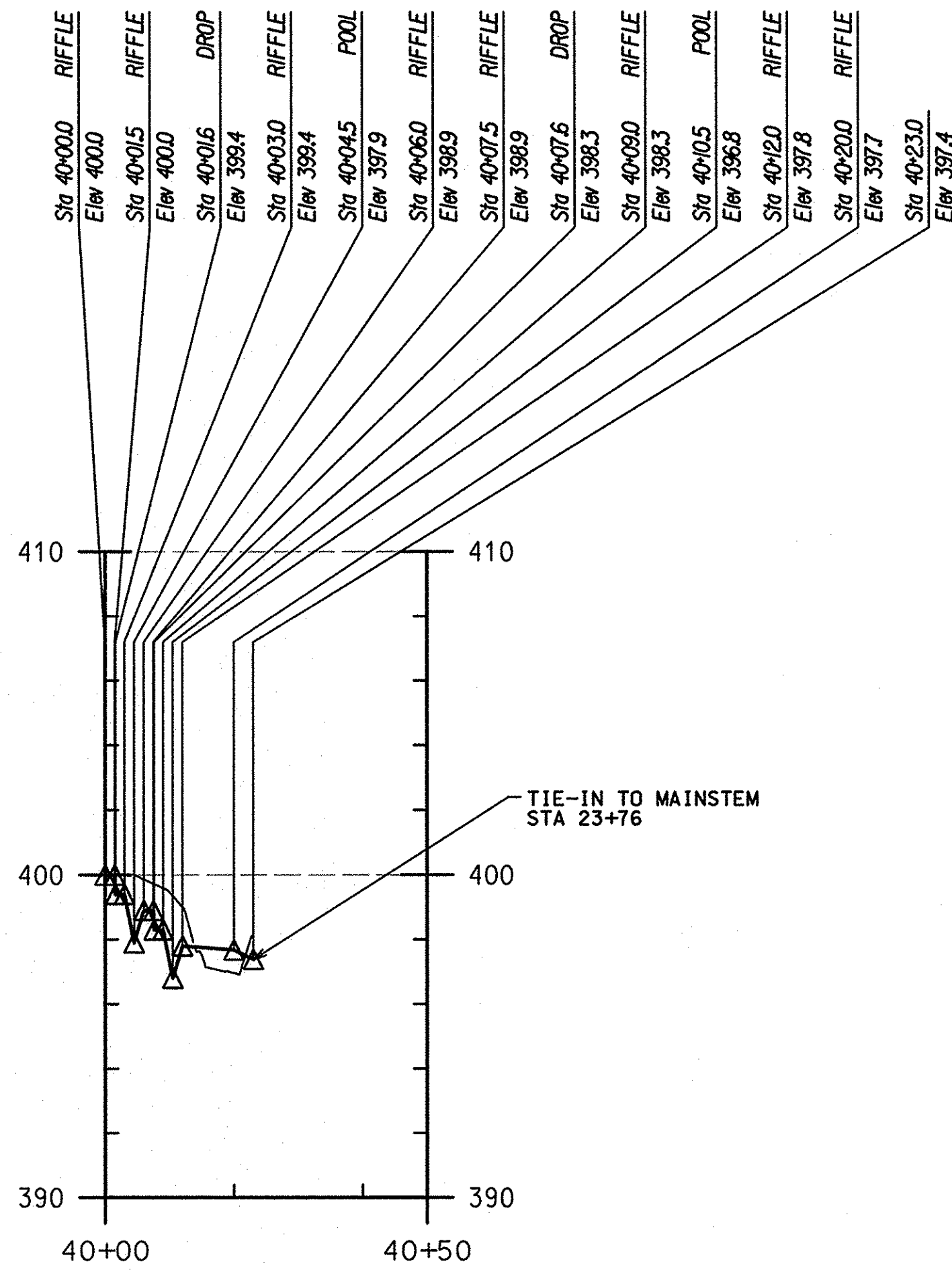
**PR-02**

SHEET NO.: 21 OF 44

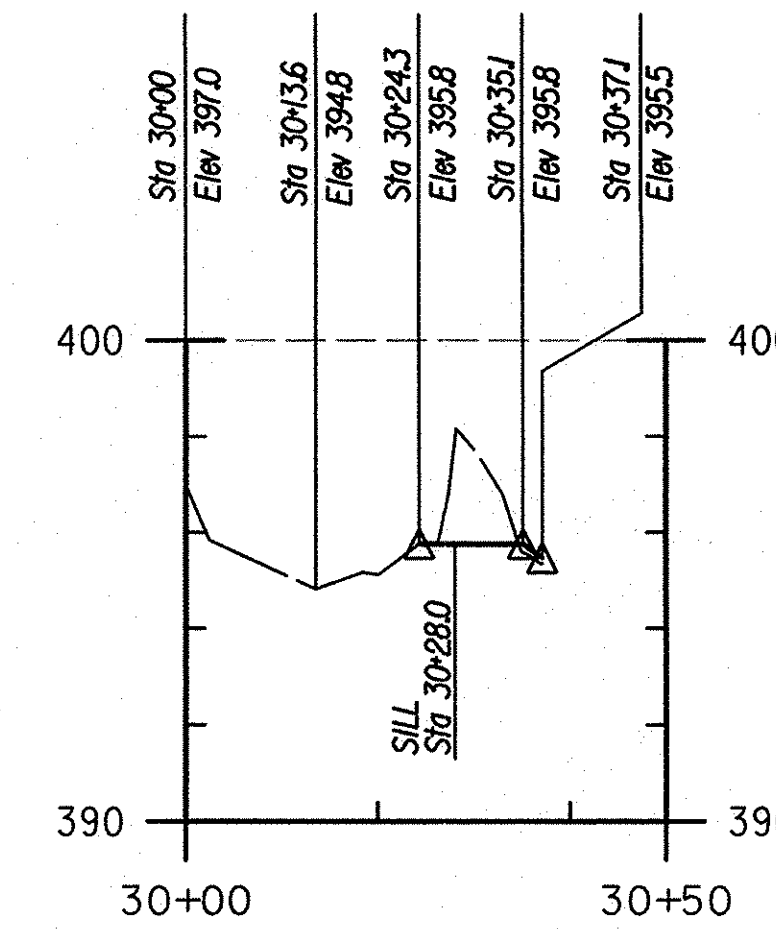




**OUTFALL B CHANNEL: STEPPED SWALE**

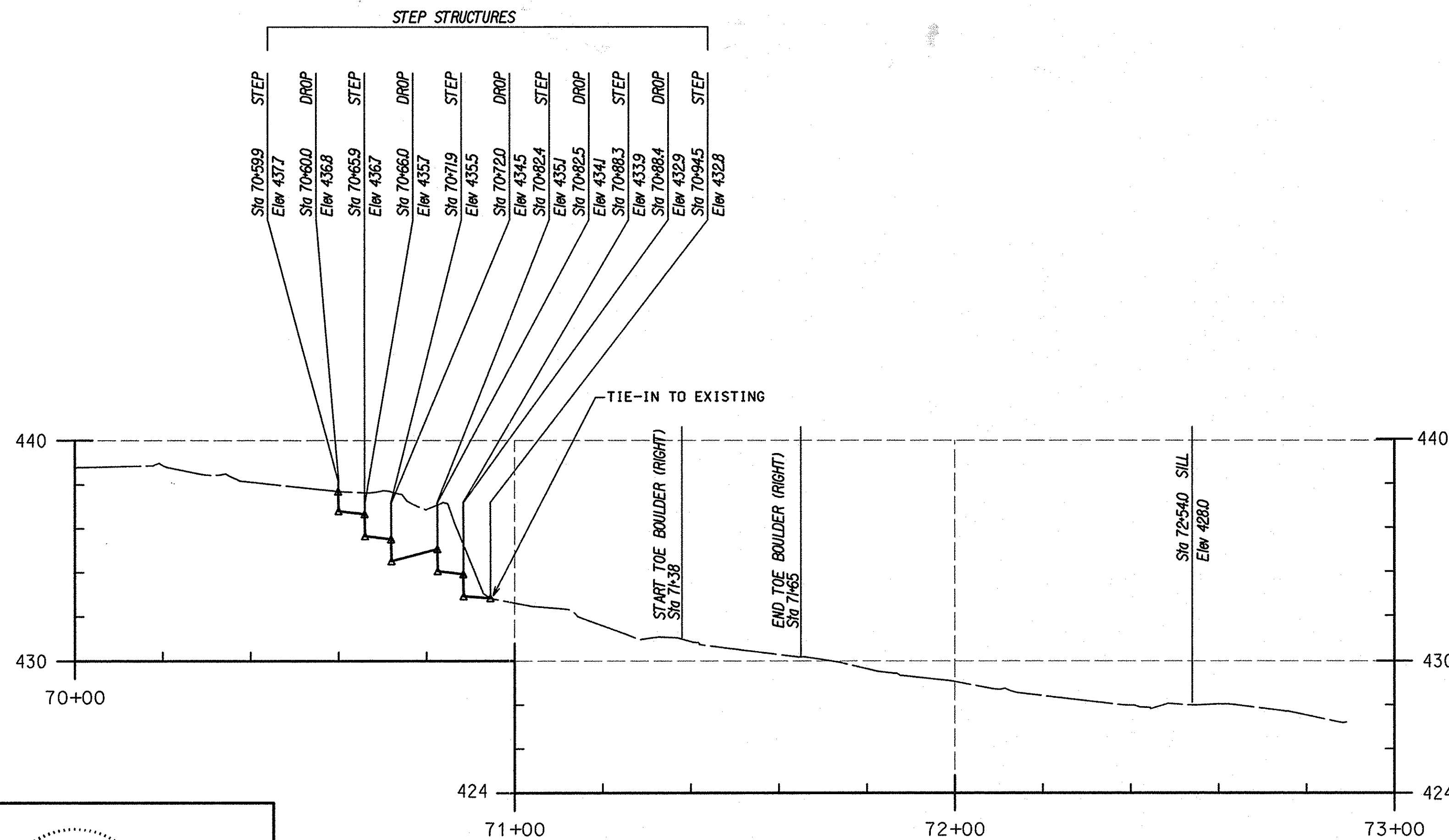


**OUTFALL E CHANNEL: DROP POOLS**



**OUTFALL F CHANNEL: CASCADE AND PLUNGE POOL**

NOTE: STONES WILL BE PLACED TO MATCH EXISTING GROUND AT OUTFALL F.

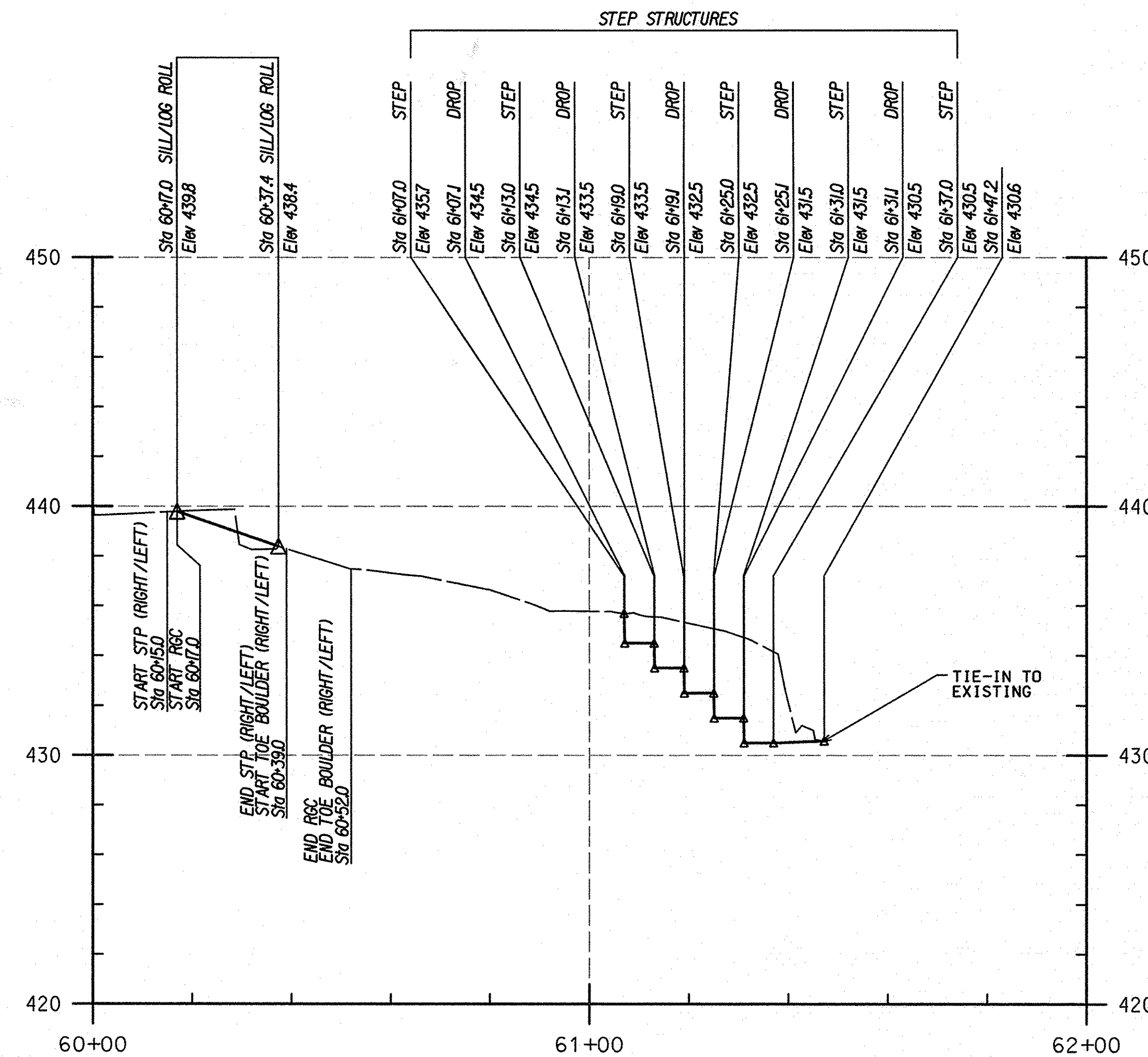


**MAINSTEM, UPPER EXTENSION**

**LEGEND**

EXISTING GROUND ALONG BASELINE \_\_\_\_\_

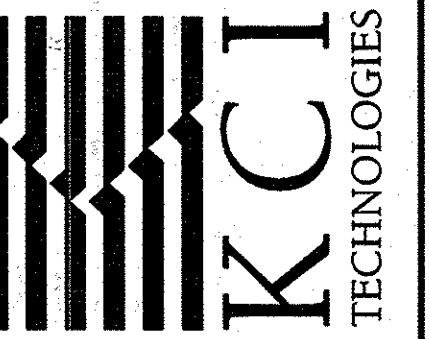
PROPOSED GRADE ALONG BASELINE \_\_\_\_\_



**TRIBUTARY, UPPER EXTENSION**

NO.	REVISIONS DESCRIPTION	DATE

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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 399, 489, 582, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**PROFILE**

SCALE:	HOR. 1" = 20'
	VERT. 1" = 4'
DATE:	AUGUST 2014
KCI JOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

**PR-03**

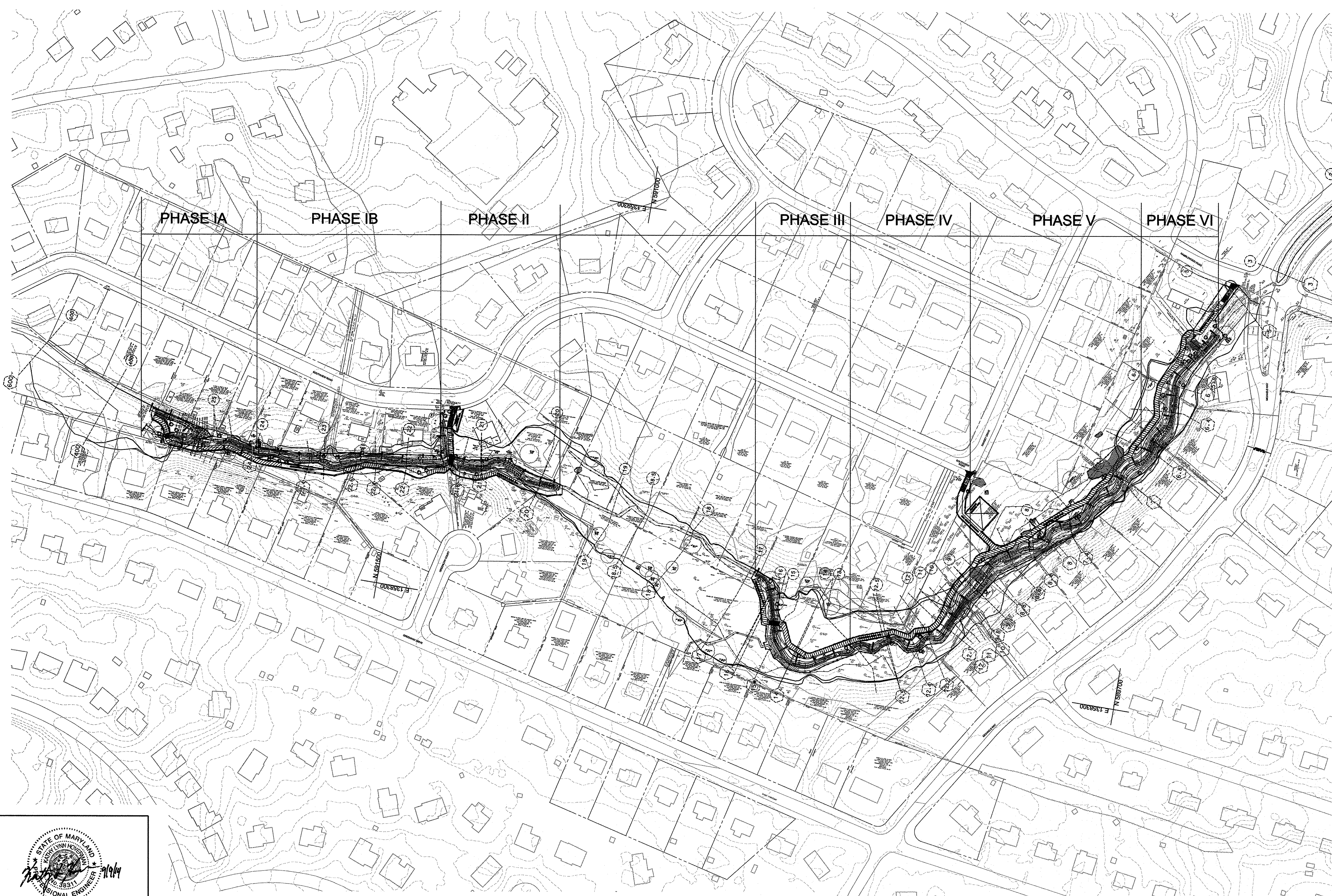
BY: Christopher Debra, License No. 3831, State of Maryland  
 PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3831, EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*M. R. P...*  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

FILE: M:\2013\17133314\DW\Drawings\PR-03\_Southview.dgn  
 BY: Christopher Debra, License No. 3831, State of Maryland  
 PROFESSIONAL ENGINEER

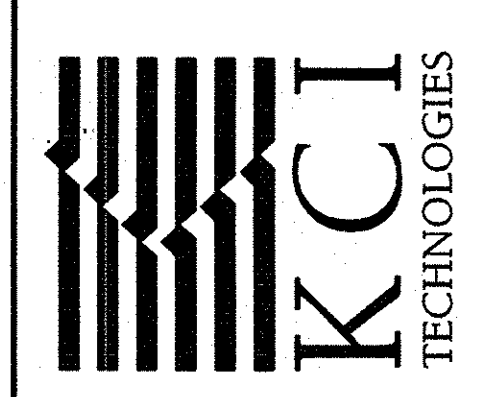




PHASE IA      PHASE IB      PHASE II      PHASE III      PHASE IV      PHASE V      PHASE VI

NO.	REVISIONS DESCRIPTION	DATE

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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**EROSION &  
 SEDIMENT  
 CONTROL  
 OVERVIEW**

SCALE:	1" = 100'
DATE:	AUGUST 2014
KCI JOB NO.:	17133314.10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

**ES-00**  
 SHEET NO.: 23 OF 44

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STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 No. 38311  
 9/16/14

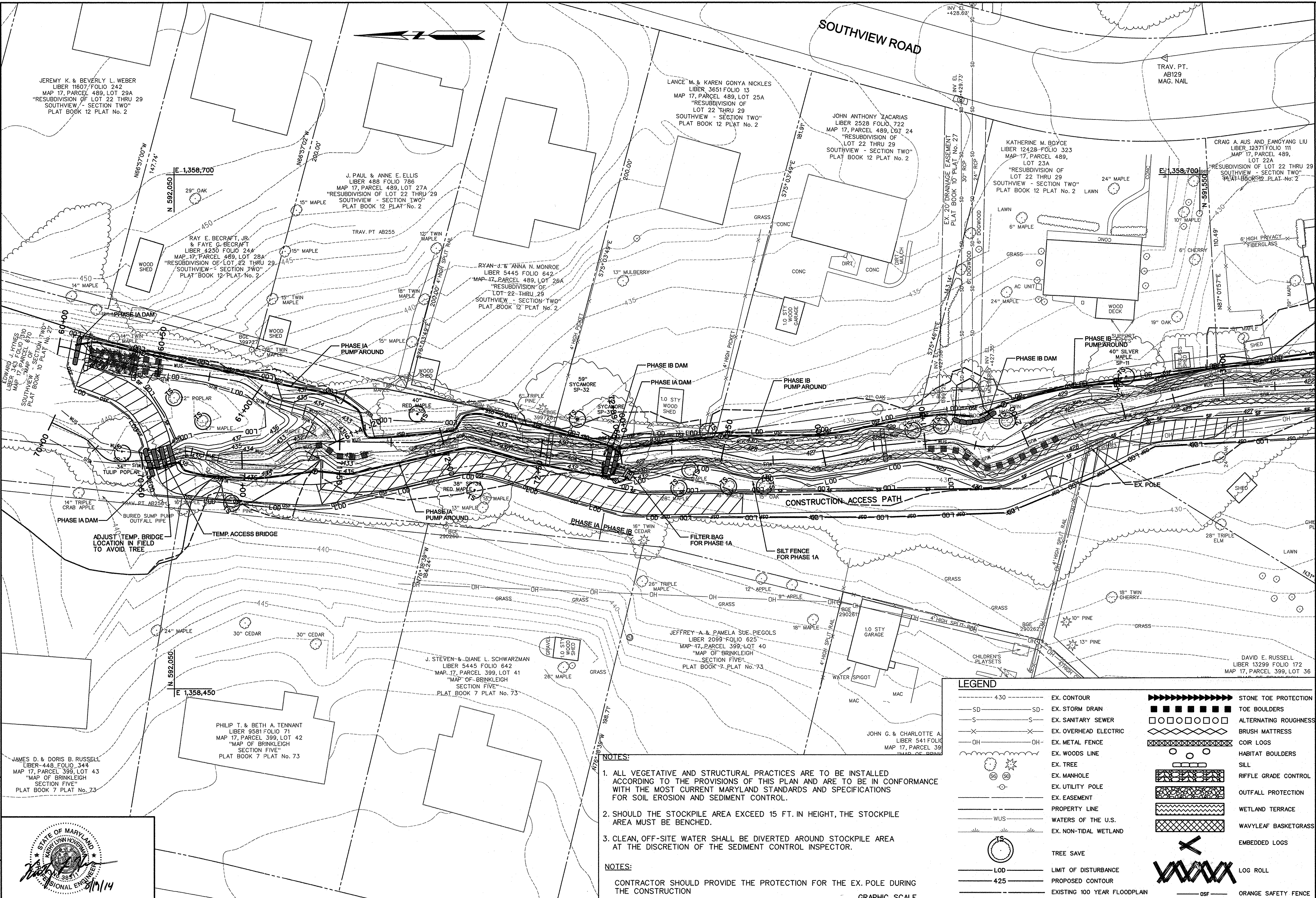
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 9/16/14  
 DATE

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

John K. Whitton  
 Chief, SCD  
 9/16/14  
 DATE

PLOTTED: 10:31 AM on Thursday, September 11, 2014  
 BY: Christopher Deibel Division: P1030 - Natural Res. Emp  
 FILE: M:\2013\17133314\_ID Drawings\WR PES-00\_Southview-E&S.dgn





JEREMY K. & BEVERLY L. WEBER  
LIBER 11607, FOLIO 242  
MAP 17, PARCEL 489, LOT 29A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

J. PAUL & ANNE E. ELLIS  
LIBER 488 FOLIO 786  
MAP 17, PARCEL 489, LOT 27A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

RAY E. BECRAFT, JR.  
& FAYE Q. BECRAFT  
LIBER 4230 FOLIO 244  
MAP 17, PARCEL 489, LOT 28A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

EDWARD J. HYNES  
LIBER 343 FOLIO 130  
MAP 17, PARCEL 670  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

JEFFREY A. & PAMELA SUE PIEGOLS  
LIBER 2099 FOLIO 625  
MAP 17, PARCEL 399, LOT 43  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

PHILIP T. & BETH A. TENNANT  
LIBER 9581 FOLIO 71  
MAP 17, PARCEL 399, LOT 42  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

JAMES D. & DORIS B. RUSSELL  
LIBER 448 FOLIO 344  
MAP 17, PARCEL 399, LOT 43  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

J. STEVEN & DIANE L. SCHWARZMAN  
LIBER 5445 FOLIO 642  
MAP 17, PARCEL 399, LOT 41  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

DAVID E. RUSSELL  
LIBER 13299 FOLIO 172  
MAP 17, PARCEL 399, LOT 36

JOHN G. & CHARLOTTE A.  
LIBER 541 FOLIO 1  
MAP 17, PARCEL 399  
"MAP OF BRINKLEIGH  
SECTION FIVE"  
PLAT BOOK 7 PLAT No. 73

LANCE M. & KAREN GONYA NICKLES  
LIBER 3651 FOLIO 13  
MAP 17, PARCEL 489, LOT 25A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

JOHN ANTHONY ZACARIAS  
LIBER 2528 FOLIO 722  
MAP 17, PARCEL 489, LOT 24  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

KATHERINE M. BOYCE  
LIBER 12428 FOLIO 323  
MAP 17, PARCEL 489,  
LOT 23A  
"RESUBDIVISION OF  
LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2

CRAIG A. AUS AND FANGYANG LIU  
LIBER 12371 FOLIO 111  
MAP 17, PARCEL 489,  
LOT 22A  
"RESUBDIVISION OF LOT 22 THRU 29  
SOUTHVIEW - SECTION TWO"  
PLAT BOOK 12 PLAT No. 2



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CERTIFY THAT THESE DOCUMENTS WERE  
PREPARED OR APPROVED BY ME AND THAT  
I AM A DULY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND, LICENSE NO. 38311  
EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/26/14

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL  
BY THE HOWARD SOIL CONSERVATION DISTRICT.  
HOWARD SCD  
DATE: 9/16/14

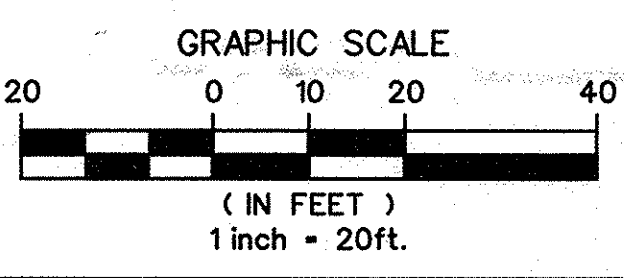
CONTRACTOR SHOULD PROVIDE THE PROTECTION FOR THE EX. POLE DURING  
THE CONSTRUCTION

**NOTES:**

1. 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.
2. SHOULD THE STOCKPILE AREA EXCEED 15 FT. IN HEIGHT, THE STOCKPILE AREA MUST BE BENCHED.
3. CLEAN, OFF-SITE WATER SHALL BE DIVERTED AROUND STOCKPILE AREA AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.

**NOTES:**

CONTRACTOR SHOULD PROVIDE THE PROTECTION FOR THE EX. POLE DURING THE CONSTRUCTION



LEGEND			
--- 430 ---	EX. CONTOUR	■■■■■■■■■■	STONE TOE PROTECTION
—SD—	EX. STORM DRAIN	□□□□□□	TOE BOULDERS
—S—	EX. SANITARY SEWER	▤▤▤▤▤▤	ALTERNATING ROUGHNESS
—X—	EX. OVERHEAD ELECTRIC	▧▧▧▧▧▧	BRUSH MATTRESS
—OH—	EX. METAL FENCE	▩▩▩▩▩▩	COIR LOGS
—	EX. WOODS LINE	○	HABITAT BOULDERS
—	EX. TREE	—	SILL
—	EX. MANHOLE	—	RIFFLE GRADE CONTROL
—	EX. UTILITY POLE	—	OUTFALL PROTECTION
—	EX. EASEMENT	—	WETLAND TERRACE
—WUS—	PROPERTY LINE	—	WAVYLEAF BASKETGRASS
—	WATERS OF THE U.S.	—	EMBEDDED LOGS
—	EX. NON-TIDAL WETLAND	—	LOG ROLL
○	TREE SAVE	—	ORANGE SAFETY FENCE
—LOD—	LIMIT OF DISTURBANCE	—	SANDBAG DAM
—425—	PROPOSED CONTOUR	—	PUMP
—	EXISTING 100 YEAR FLOODPLAIN	—	FLEXIBLE PIPE
—	PROPOSED 100 YEAR FLOODPLAIN	—	FILTER BAG
—	TEMPORARY ACCESS BRIDGE	—	
—	TEMPORARY WOOD MAT		

NO.	REVISIONS DESCRIPTION	DATE

**KCI TECHNOLOGIES**

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com

MATCH LINE - SEE SHEETES -02

**SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT**

CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 582, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

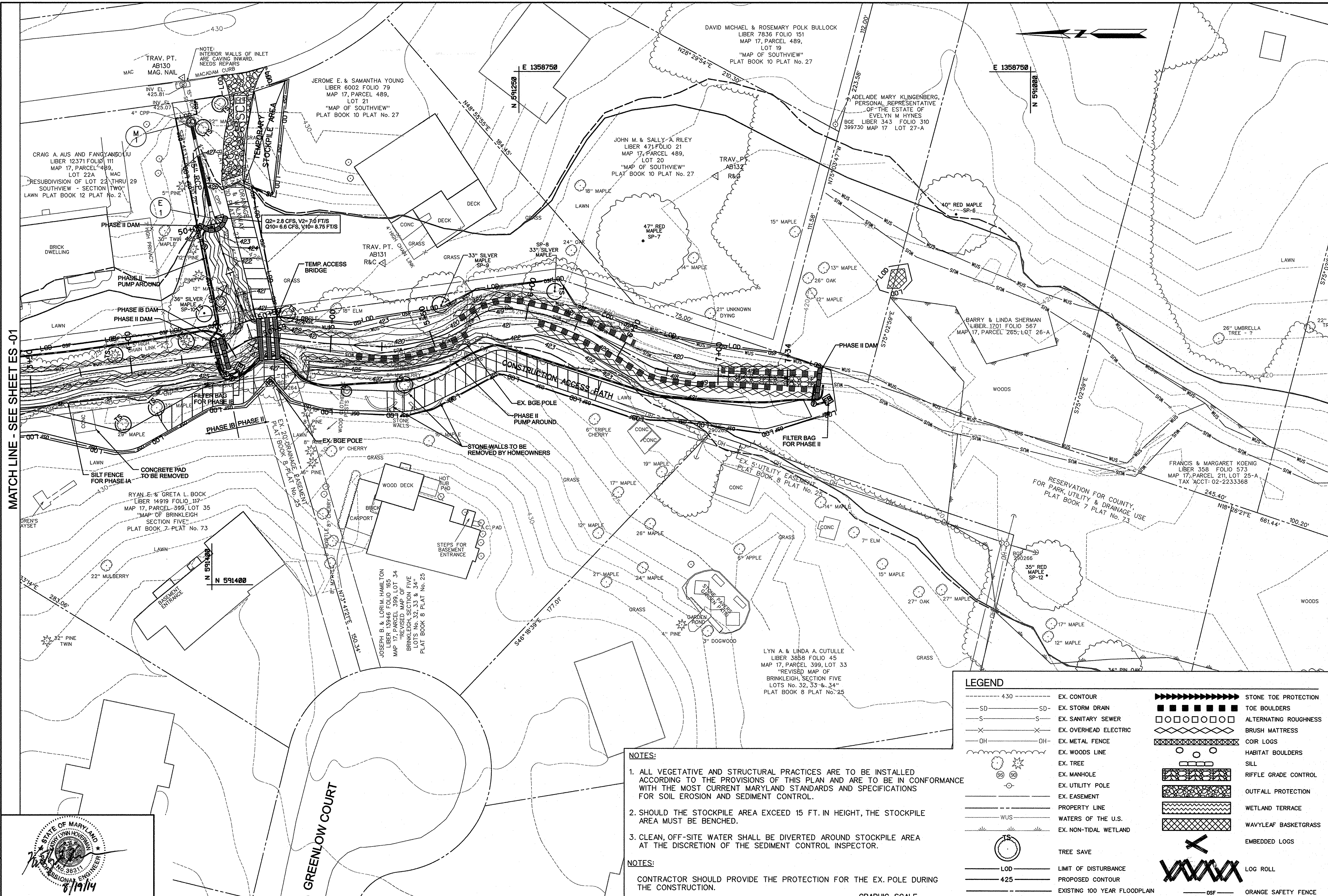
**EROSION & SEDIMENT CONTROL PLAN PHASE I**

SCALE: 1" = 20'  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

**ES-01**

SHEET NO.: 24 OF 44





MATCH LINE - SEE SHEETS -01

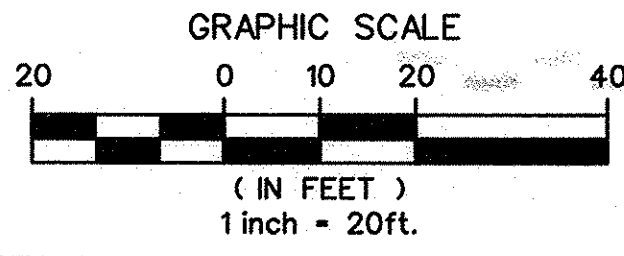
**NOTES:**

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2. SHOULD THE STOCKPILE AREA EXCEED 15 FT. IN HEIGHT, THE STOCKPILE AREA MUST BE BENCHED.
3. CLEAN, OFF-SITE WATER SHALL BE DIVERTED AROUND STOCKPILE AREA AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.

**NOTES:**

CONTRACTOR SHOULD PROVIDE THE PROTECTION FOR THE EX. POLE DURING THE CONSTRUCTION.

LEGEND			
--- 430 ---	EX. CONTOUR	■■■■■■■■■■	STONE TOE PROTECTION
---SD---	EX. STORM DRAIN	□□□□□□□□	TOE BOULDERS
---S---	EX. SANITARY SEWER	◇◇◇◇◇◇◇◇	ALTERNATING ROUGHNESS
---X---	EX. OVERHEAD ELECTRIC	○	BRUSH MATTRESS
---OH---	EX. METAL FENCE	○	COIR LOGS
---	EX. WOODS LINE	○	HABITAT BOULDERS
○	EX. TREE	○	SILL
○	EX. MANHOLE	○	RIFFLE GRADE CONTROL
---	EX. UTILITY POLE	○	OUTFALL PROTECTION
---	EX. EASEMENT	○	WETLAND TERRACE
---	PROPERTY LINE	○	WAVYLEAF BASKETGRASS
---	WATERS OF THE U.S.	○	EMBEDDED LOGS
---	EX. NON-TIDAL WETLAND	○	LOG ROLL
○	TREE SAVE	○	ORANGE SAFETY FENCE
---	LIMIT OF DISTURBANCE	○	SANDBAG DAM
---	PROPOSED CONTOUR	○	FLEXIBLE PIPE
---	EXISTING 100 YEAR FLOODPLAIN	○	FILTER BAG
---	PROPOSED 100 YEAR FLOODPLAIN	○	
---	TEMPORARY ACCESS BRIDGE	○	
---	TEMPORARY WOOD MAT	○	



NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 WWW.KCI.COM

**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**

CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**EROSION & SEDIMENT CONTROL PLAN PHASE II**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314-10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

**ES-02**  
 SHEET NO.: 25 OF 44

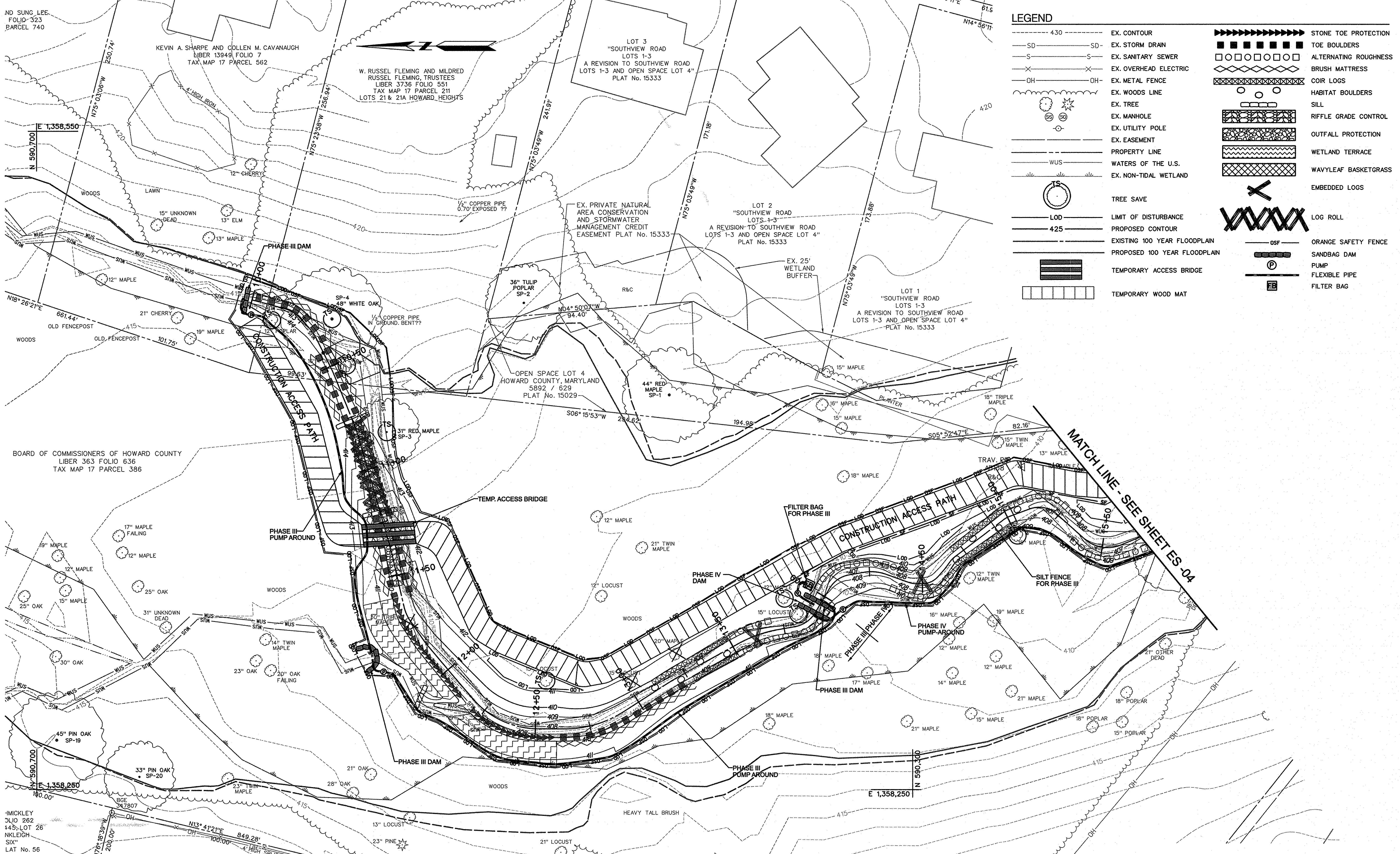
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 98531, EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Mark A. DeLuca  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.  
 John R. Walters  
 DATE: 9/10/14  
 HOWARD COUNTY

BY: Christopher J. Deibel, Division: P&E, Notary Public, License No. 201317133314, 10 Greening Way, P&E-02, Southview-E&S.dgn



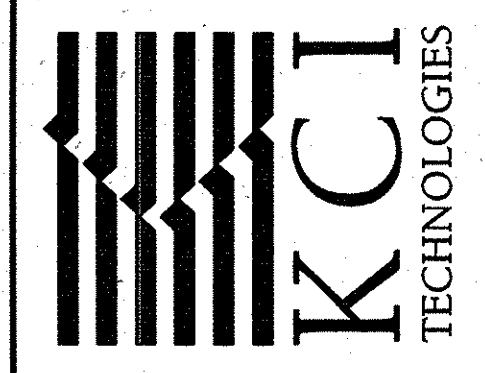


**LEGEND**

---	4.30	EX. CONTOUR	=====	STONE TOE PROTECTION
SD	SD	EX. STORM DRAIN	■■■■■■■■■■	TOE BOULDERS
S	S	EX. SANITARY SEWER	□□□□□□□□	ALTERNATING ROUGHNESS
---	---	EX. OVERHEAD ELECTRIC	◇◇◇◇◇◇◇◇	BRUSH MATTRESS
OH	OH	EX. METAL FENCE	XXXXXXXXXX	COIR LOGS
---	---	EX. WOODS LINE	○ ○ ○ ○ ○ ○	HABITAT BOULDERS
---	---	EX. TREE	○ ○ ○ ○ ○ ○	SILL
---	---	EX. MANHOLE	--- --- ---	RIFLE GRADE CONTROL
---	---	EX. UTILITY POLE	--- --- ---	OUTFALL PROTECTION
---	---	EX. EASEMENT	--- --- ---	WETLAND TERRACE
---	---	PROPERTY LINE	--- --- ---	WAVYLEAF BASKETGRASS
---	---	WATERS OF THE U.S.	--- --- ---	EMBEDDED LOGS
---	---	EX. NON-TIDAL WETLAND	---	
○	○	TREE SAVE	---	
---	---	LIMIT OF DISTURBANCE	---	
---	---	PROPOSED CONTOUR	---	
---	---	EXISTING 100 YEAR FLOODPLAIN	---	
---	---	PROPOSED 100 YEAR FLOODPLAIN	---	
---	---	TEMPORARY ACCESS BRIDGE	---	
---	---	TEMPORARY WOOD MAT	---	
---	---		---	

NO.	REVISIONS DESCRIPTION	DATE

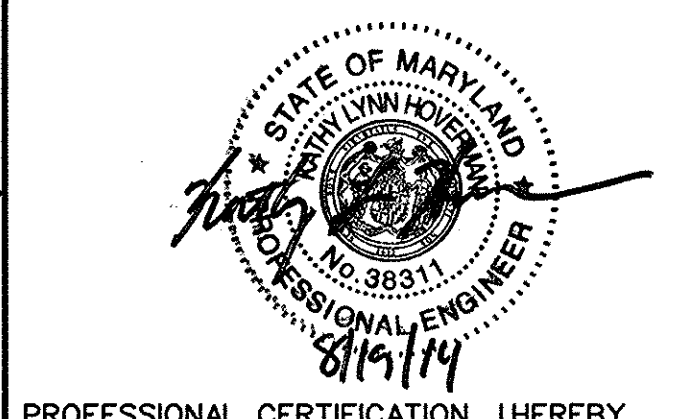
936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 www.kci.com



**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**EROSION & SEDIMENT CONTROL PLAN  
 PHASE III**

SCALE:	1" = 20'
DATE:	AUGUST 2014
KCIJOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

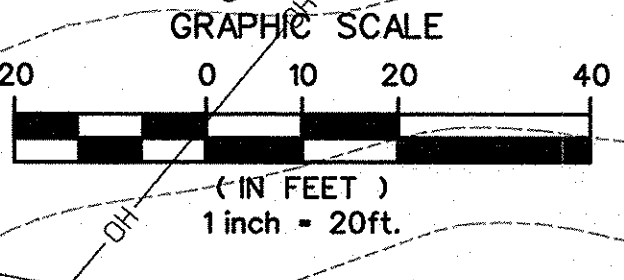


LYNN M. GLAESER AND CHRISTOPHER T. MULLER  
 LIBER 3466 FOLIO 202  
 MAP 17, PARCEL 445, LOT 25  
 "MAP OF BRINKLEIGH SECTION SIX"  
 PLAT BOOK 8 PLAT No. 56

CARLA S. DAHLE, TRUSTEE  
 LIBER 4067 FOLIO 303  
 MAP 17, PARCEL 445, LOT 24  
 "MAP OF BRINKLEIGH SECTION SIX"  
 PLAT BOOK 8 PLAT No. 56

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 DATE: 9/1/14  
 HOWARD SCD



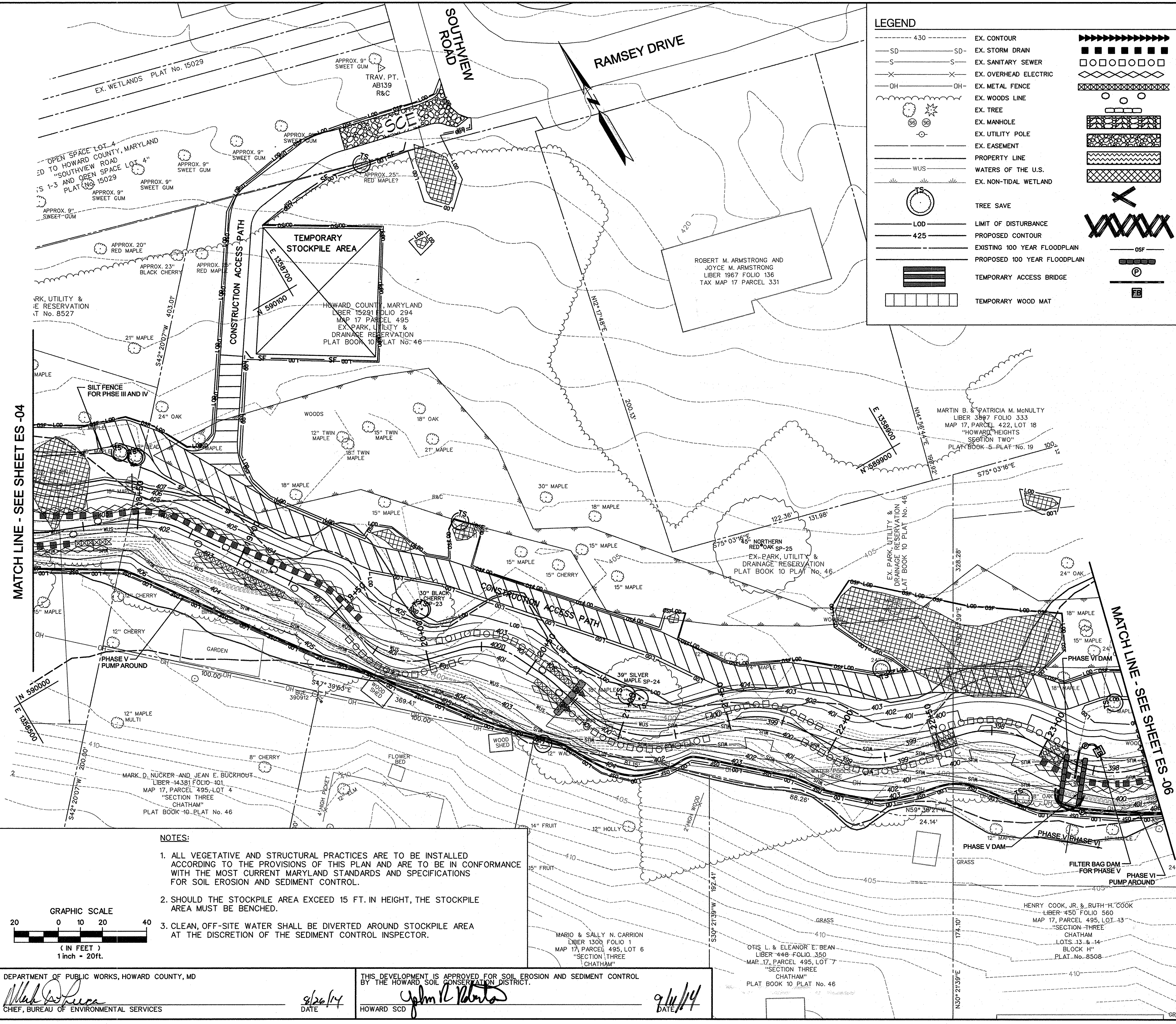
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**LEGEND**

---	430	EX. CONTOUR	██████████	STONE TOE PROTECTION
SD	SD	EX. STORM DRAIN	□□□□□□	TOE BOULDERS
S	S	EX. SANITARY SEWER	◇◇◇◇◇◇	ALTERNATING ROUGHNESS
X	X	EX. OVERHEAD ELECTRIC	▨▨▨▨▨▨	BRUSH MATTRESS
OH	OH	EX. METAL FENCE	▩▩▩▩▩▩	COIR LOGS
○	○	EX. WOODS LINE	○	HABITAT BOULDERS
○	○	EX. TREE	○	SILL
○	○	EX. MANHOLE	▩▩▩▩▩▩	RIFFLE GRADE CONTROL
○	○	EX. UTILITY POLE	▩▩▩▩▩▩	OUTFALL PROTECTION
---	---	EX. EASEMENT	▩▩▩▩▩▩	WETLAND TERRACE
---	---	PROPERTY LINE	▩▩▩▩▩▩	WAVYLEAF BASKETGRASS
---	---	WATERS OF THE U.S.	▩▩▩▩▩▩	EMBEDDED LOGS
---	---	EX. NON-TIDAL WETLAND	▩▩▩▩▩▩	LOG ROLL
○	○	TREE SAVE	▩▩▩▩▩▩	ORANGE SAFETY FENCE
---	---	L100	▩▩▩▩▩▩	SANDBAG DAM
---	---	425	▩▩▩▩▩▩	PUMP
---	---	PROPOSED CONTOUR	▩▩▩▩▩▩	FLEXIBLE PIPE
---	---	EXISTING 100 YEAR FLOODPLAIN	▩▩▩▩▩▩	FILTER BAG
---	---	PROPOSED 100 YEAR FLOODPLAIN	▩▩▩▩▩▩	
---	---	TEMPORARY ACCESS BRIDGE		
---	---	TEMPORARY WOOD MAT		

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 WWW.KCI.COM

**KCI**  
 TECHNOLOGIES

**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**EROSION & SEDIMENT CONTROL PLAN PHASE V**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314-10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

**ES-05**  
 SHEET NO.: 28 OF 44

**NOTES:**

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GRAPHIC SCALE  
 20 0 10 20 40  
 ( IN FEET )  
 1 inch = 20ft.

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 No. 38311  
 8/19/14

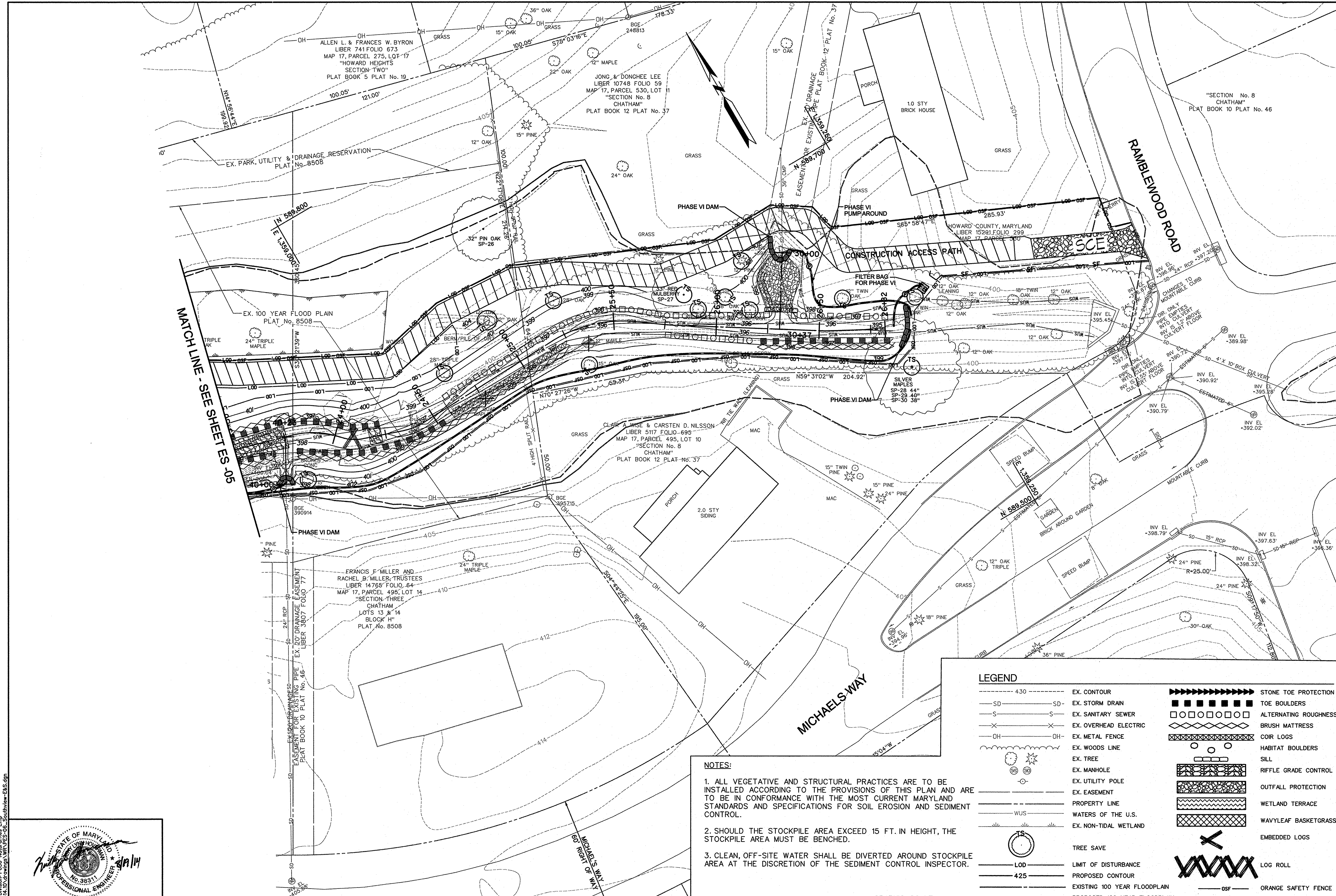
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 8/26/14  
 DATE

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 John R. Roberts  
 8/14/14  
 DATE

BY: Christopher J. DeBevoise, P.E., No. 17133314-10, Gridblock 02, Southview-ES-05, FILE: M:\2013\17133314-10\Drawings\WR\ES-05\_Southview-ES.dgn



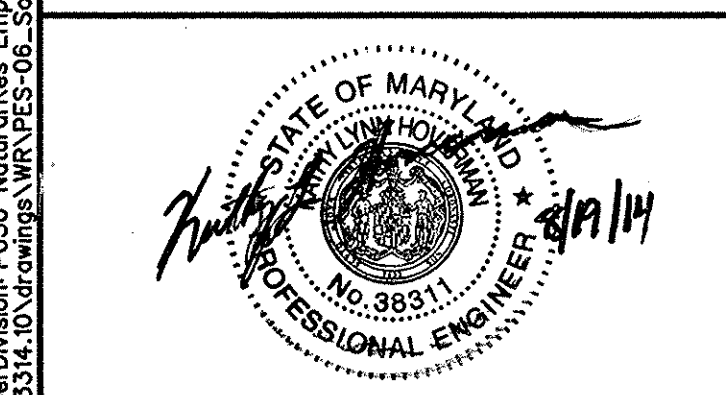
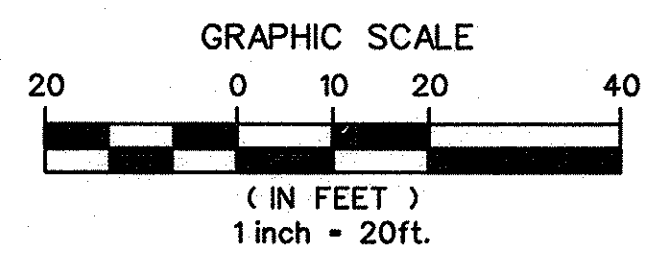


MATCH LINE - SEE SHEETS ES-05

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LEGEND			
	EX. CONTOUR		STONE TOE PROTECTION
	EX. STORM DRAIN		TOE BOULDERS
	EX. SANITARY SEWER		ALTERNATING ROUGHNESS
	EX. OVERHEAD ELECTRIC		BRUSH MATTRESS
	EX. METAL FENCE		COIR LOGS
	EX. WOODS LINE		HABITAT BOULDERS
	EX. TREE		SILL
	EX. MANHOLE		RIFFLE GRADE CONTROL
	EX. UTILITY POLE		OUTFALL PROTECTION
	EX. EASEMENT		WETLAND TERRACE
	PROPERTY LINE		WAVYLEAF BASKETGRASS
	WATERS OF THE U.S.		EMBEDDED LOGS
	EX. NON-TIDAL WETLAND		LOG ROLL
	TREE SAVE		ORANGE SAFETY FENCE
	LIMIT OF DISTURBANCE		SANDBAG DAM
	PROPOSED CONTOUR		FLEXIBLE PIPE
	EXISTING 100 YEAR FLOODPLAIN		FILTER BAG
	PROPOSED 100 YEAR FLOODPLAIN		
	TEMPORARY ACCESS BRIDGE		
	TEMPORARY WOOD MAT		



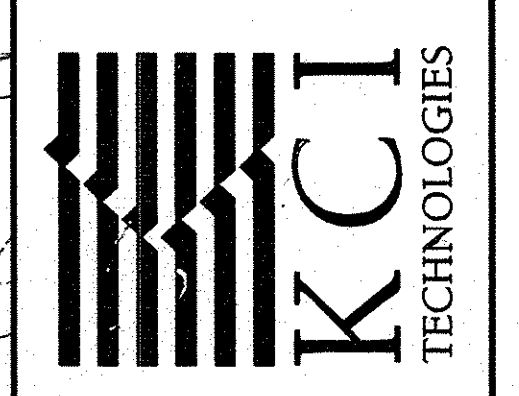
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DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Howard SCD  
 DATE: 9/1/14

NO.	REVISIONS DESCRIPTION	DATE

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 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

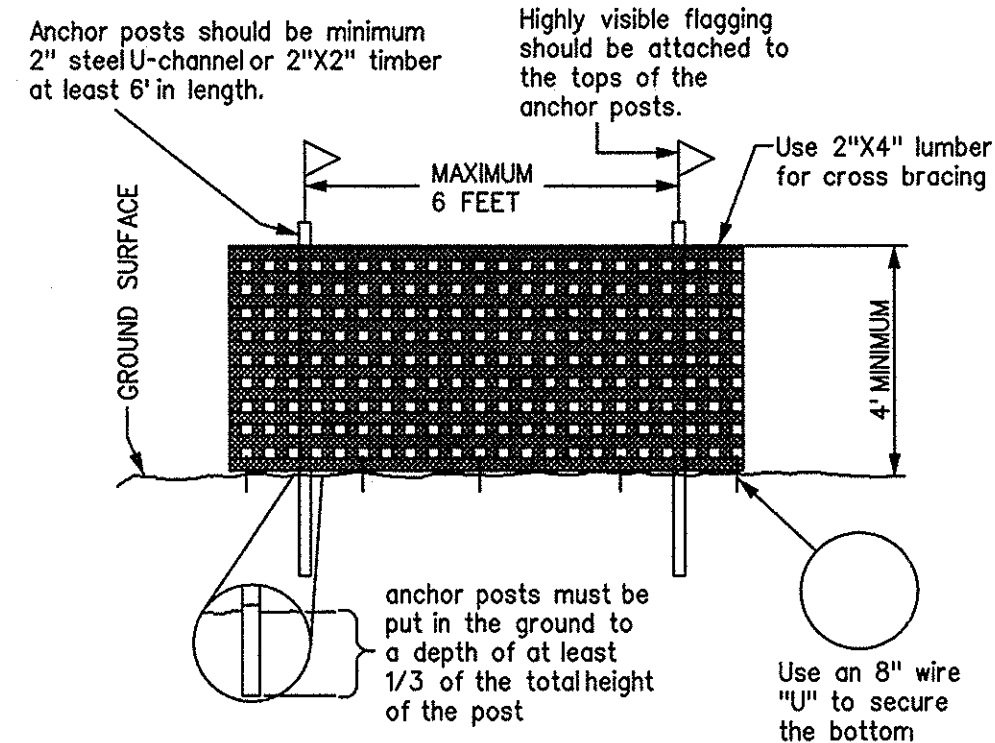
**EROSION & SEDIMENT CONTROL PLAN PHASE VI**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314-10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

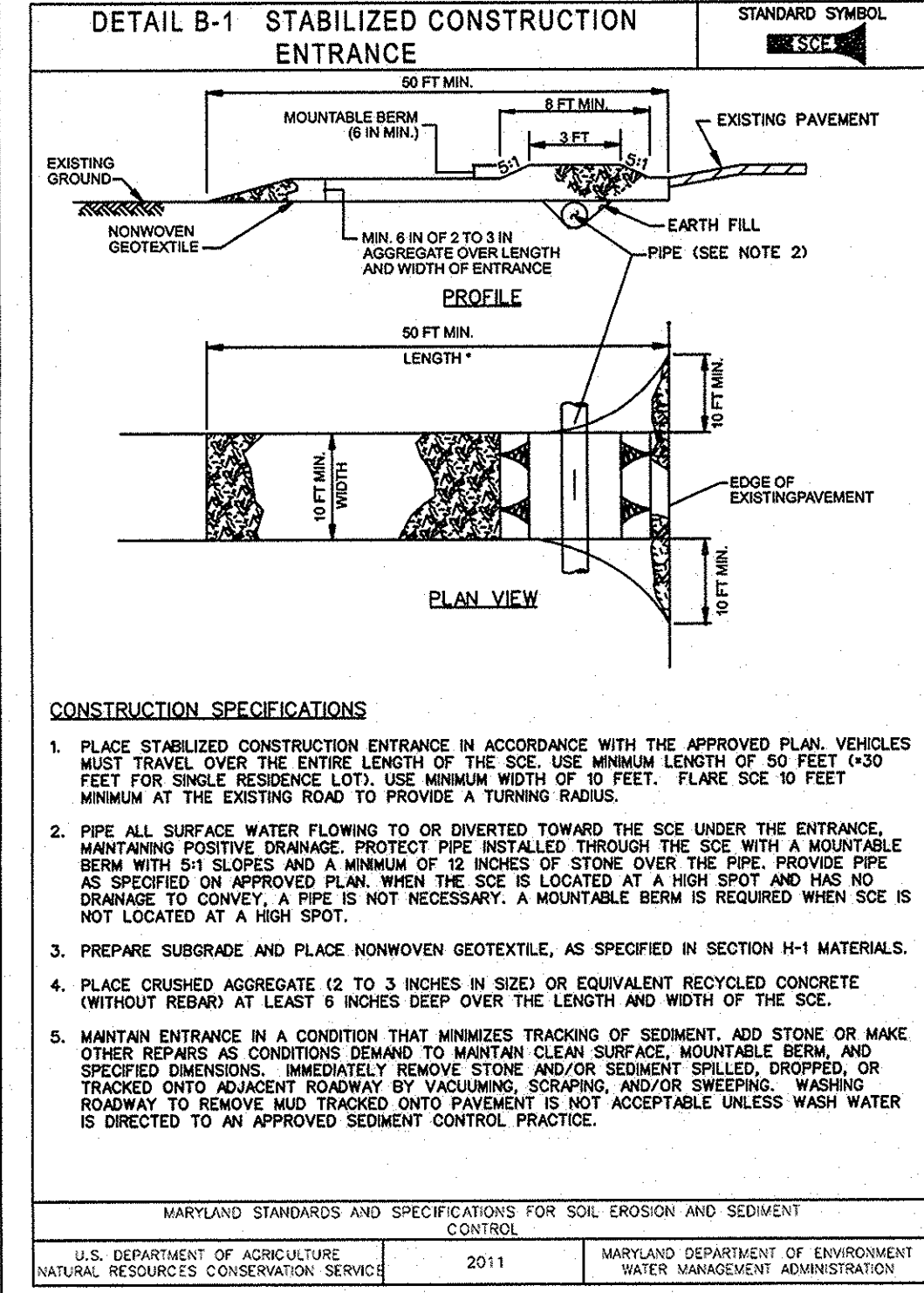
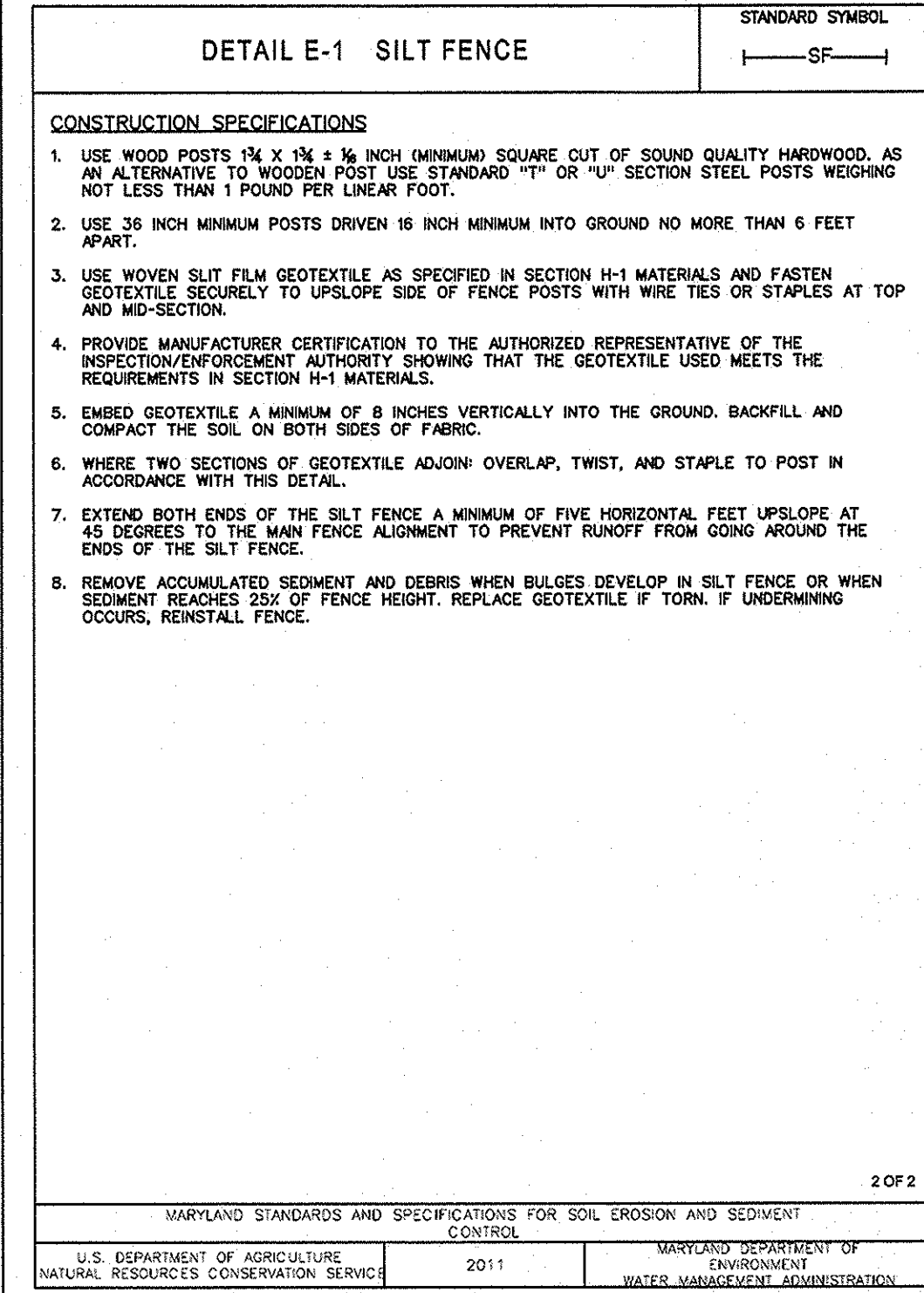
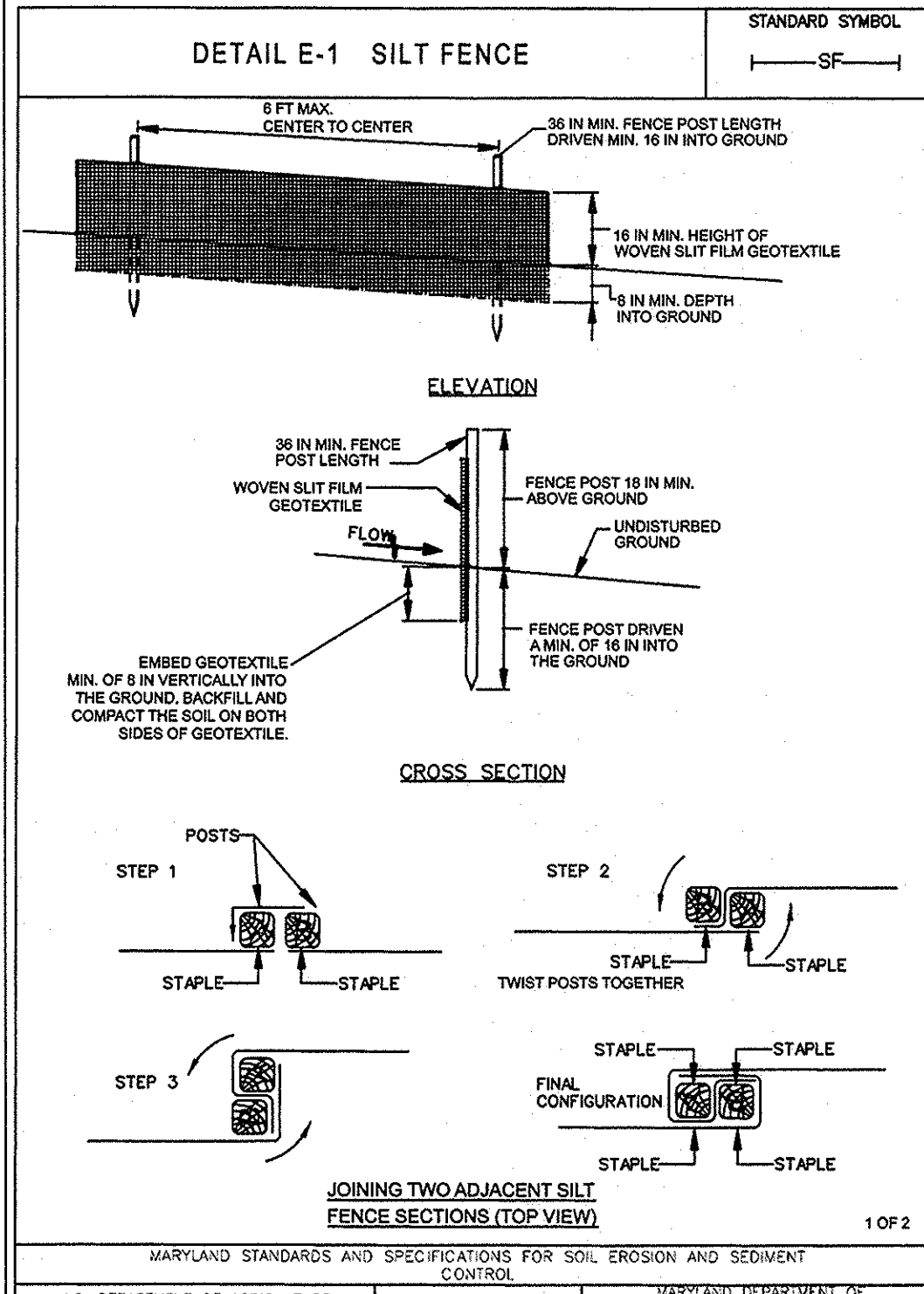
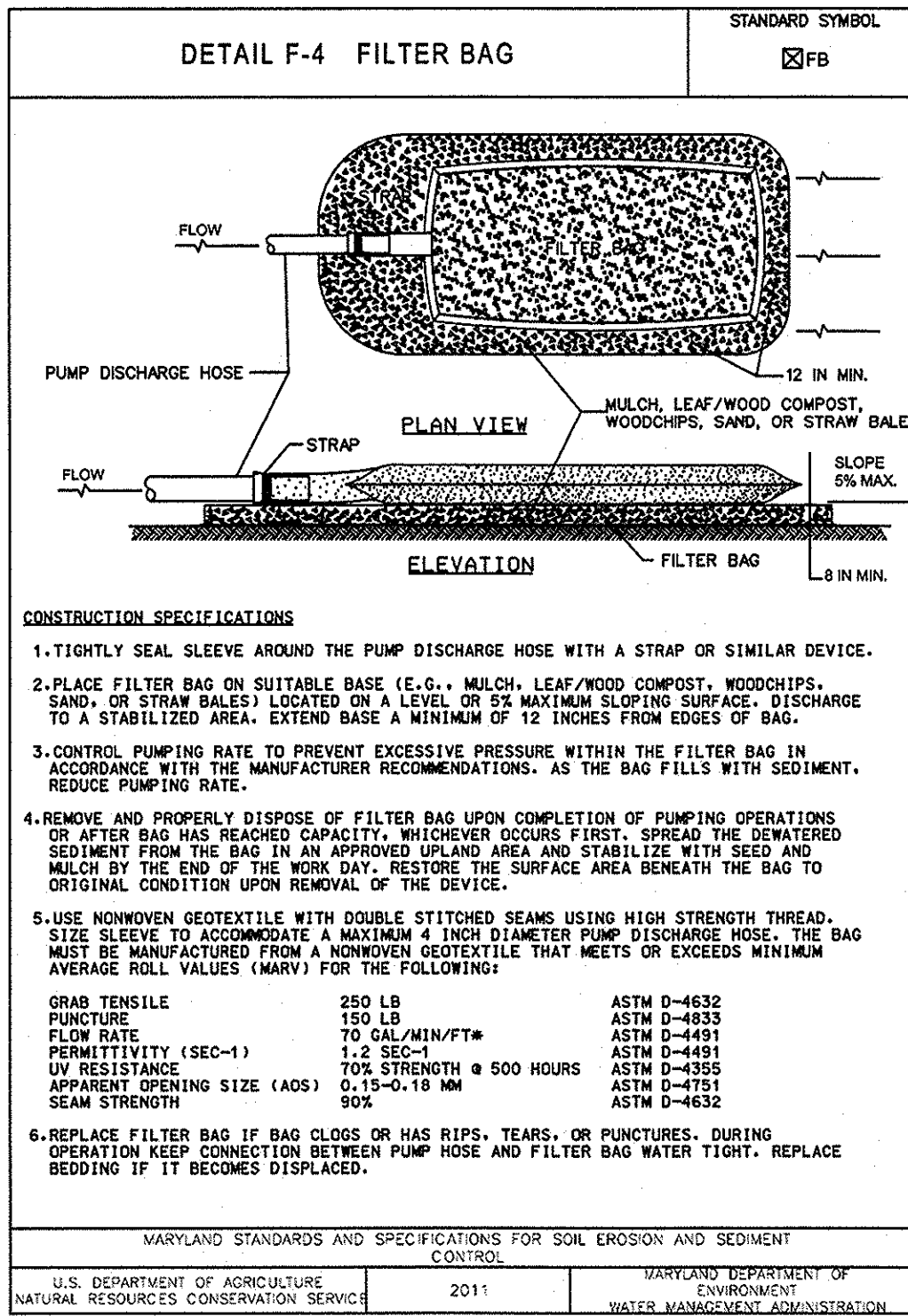
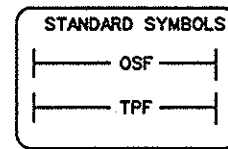
ES-06  
 SHEET NO.: 29 OF 44

KCI FILE: M:\2013\17133314-10



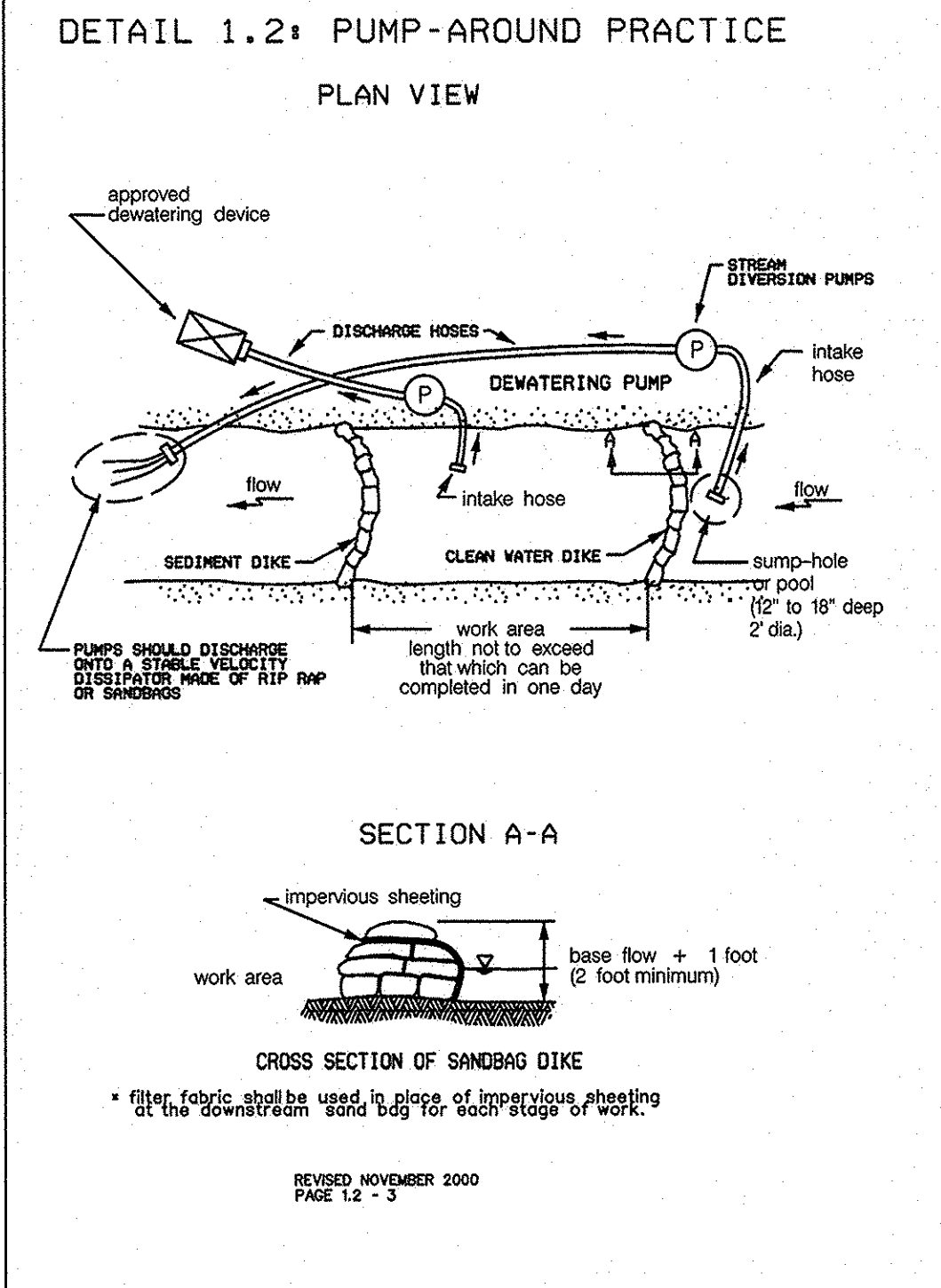
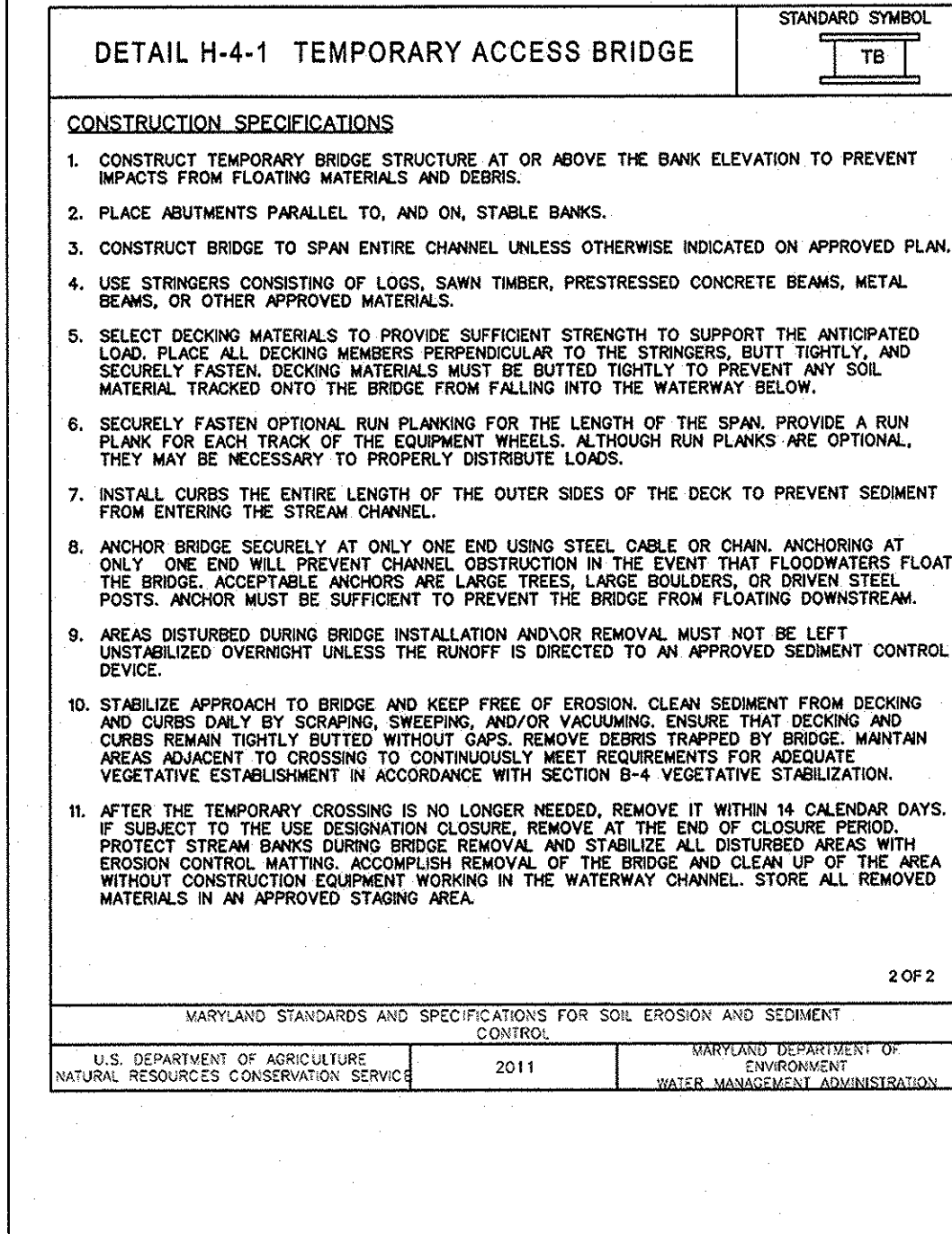
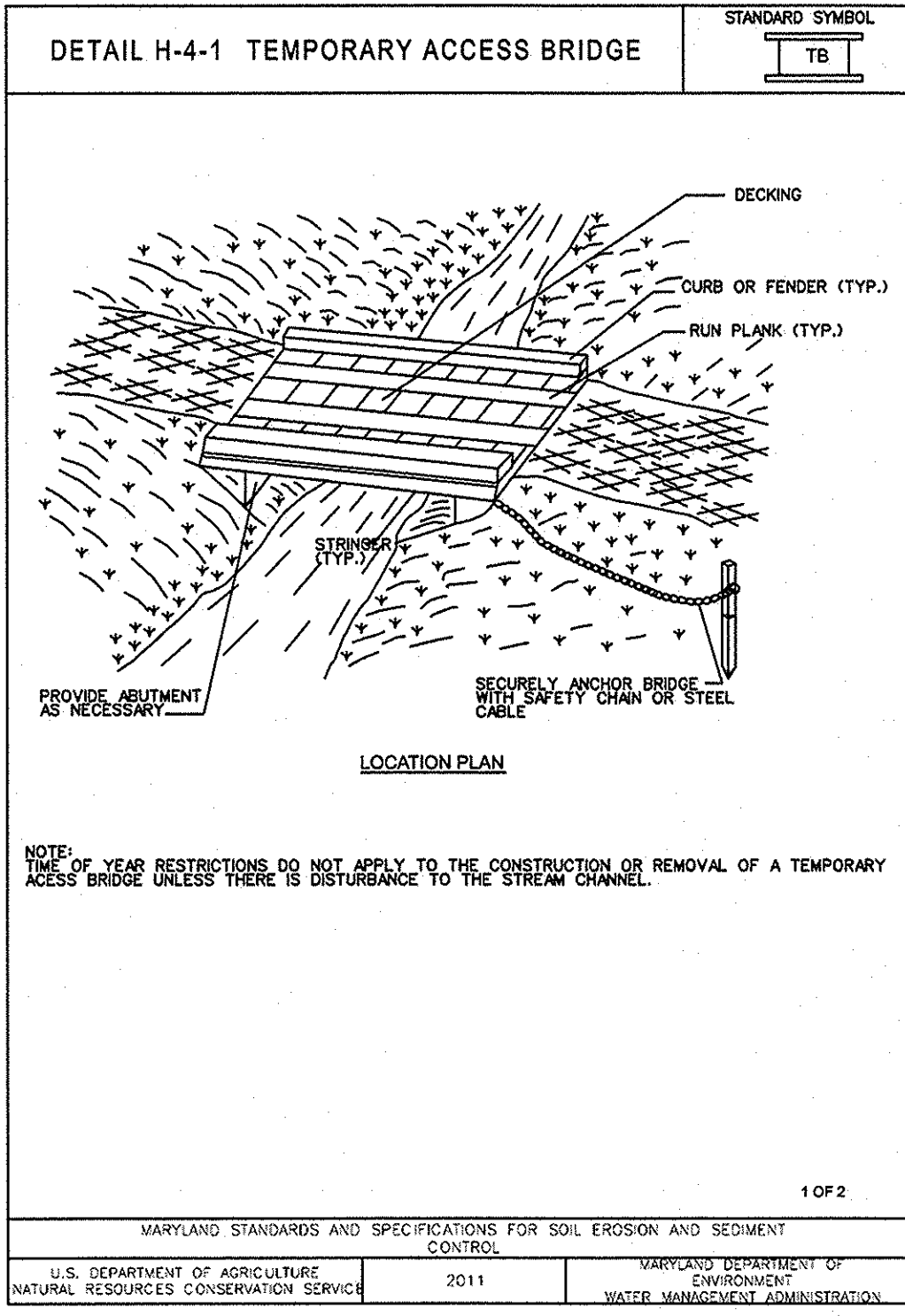


DETAIL FOR BLAZE ORANGE PLASTIC MESH SAFETY FENCE  
NOT TO SCALE



**BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS**

- No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal 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 nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
- Do not use the excavated materials as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill 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 nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
- Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal 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 nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
- All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Setaria italica*), Barley (*Hordeum sp.*), Oats (*Urtica sp.*), and/or Rye (*Secale 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 Nontidal Wetlands and Waterways Division, Kentucky 31 fescue shall 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 to be 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 I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
  - Use II waters: In-stream work shall not be conducted during the period October 1 through April 30, inclusive, during any year.
  - Use IV waters: In-stream work shall not be conducted during the period March 1 through 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.



**MOW 1.2: PUMP-AROUND PRACTICE**

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures should not begin until necessary assessments and/or right-of-way have been completed. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should report the damage to his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector before beginning construction. The contractor should inform the local environmental protection and resource management inspection and enforcement division of the project of localities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will designate the contractor's staging area and rig storage within the limit of disturbance, which will be approved for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all erosion and sediment control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream. Beginning with the establishment of stabilized construction entrances, in some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including any sediment to the channel. At the end of each workday, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream end of the work area as shown on the plans and stream flow should be pumped around the work area. The pump should discharge into a stable velocity dissipater made of riprap or sandbags.
- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossing, Maryland Guidelines to Stormwater Construction).
- Atstream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment filter has been installed, the clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
- A pump around must be installed on any tributary or storm drain outfall, which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

NOTE: REPLACE STANDARD SILT FENCE WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

8/26/14

DATE

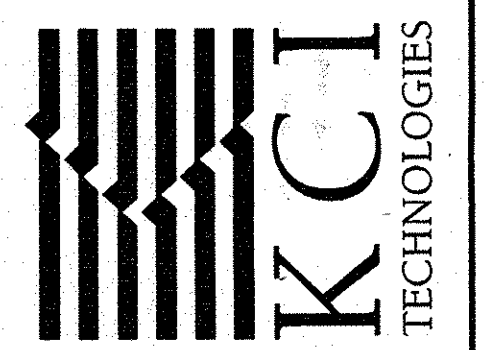
THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

9/4/14

DATE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
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SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 562, 211, 396, 495, 530  
ZONING P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

EROSION & SEDIMENT CONTROL DETAILS

SCALE: NOT TO SCALE  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:

ESD-01  
SHEET NO.: 30 OF 44



SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT. STREAM IS USE IV-P WITH CLOSURE PERIOD FROM MARCH 1-MAY 31, INCLUSIVE. (MDE PERMIT TRACKING #14-NT-3108/201460610). PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, A VIDEOTAPE AND PHOTOGRAPHS OF THE PROPOSED WORK AREA SHALL BE TAKEN. (1 DAY)
2. CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING THAT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. THE LIMIT OF DISTURBANCE SHALL BE STAKED PRIOR TO THE MEETING. (1 DAY)
3. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S NONTIDAL WETLANDS AND WATERWAYS INSPECTIONS AND COMPLIANCE DIVISION AT LEAST FIVE (5) DAYS PRIOR TO ANY EARTH MOVING CONSTRUCTION WITHIN NONTIDAL WETLANDS AND/OR THEIR BUFFERS. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410-313-1880) A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. (5 DAYS)
4. CONSTRUCT ORANGE SAFETY FENCE AS SHOWN ON THE PLANS. HOWARD COUNTY STORMWATER MANAGEMENT DIVISION SHALL REVIEW AND APPROVE THE LOCATION OF THE ORANGE SAFETY FENCE PRIOR TO ANY EARTH MOVING OR REMOVAL OF EXISTING TREES OR SHRUBS. (5 DAYS)
5. CLEAR AND GRUB ONLY AS NECESSARY FOR INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. INSTALL THE STABILIZED CONSTRUCTION ENTRANCES AT SOUTHWAY ROAD AND RAMBLEWOOD ROAD, TEMPORARY ACCESS BRIDGES AND SILT FENCE DOWNSTREAM OF THE TEMPORARY STOCKPILE AREAS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. THE ACCESS PATH SHALL BE STABILIZED OR LINED WITH SILT FENCE AT THE INSPECTOR'S DISCRETION. WITH PERMISSION FROM INSPECTOR, CONTRACTOR SHALL PROCEED WITH PHASE 1. (5 DAYS)

PHASE IA
6. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-01. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 1A STREAM WORK. (1 DAY)

7. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

8. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 1A AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 1B. (2 DAYS)

PHASE IB
9. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-01&02. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 1B STREAM WORK. (1 DAY)

10. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

11. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 1B AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 2. (2 DAYS)

PHASE II
12. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-02. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 2 STREAM WORK. (1 DAY)

13. INSTALL NEW STORM DRAIN SYSTEM FROM MANHOLE M-1 TO END SECTION E-1 AS SHOWN AND PERMANENTLY STABILIZE THE AREA DISTURBED BY THIS PROCESS. REMOVE THE PUMP AROUND SYSTEM INCLUDING THE SANDBAG DAM AND FILTER BAG INSTALLED FOR THE STORM DRAIN CONSTRUCTION. (2 DAYS)

14. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

15. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 2 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 3. (2 DAYS)

PHASE III
16. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-03. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 3 STREAM WORK. (1 DAY)

17. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON SHEET ES-03, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

18. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 3 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 4. (2 DAYS)

PHASE IV
19. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-03 & 04. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 4 STREAM WORK. (1 DAY)

20. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

21. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 4 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 5. (2 DAYS)

PHASE V
22. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-04 & 05. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 5 STREAM WORK. (1 DAY)

23. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

24. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 5 AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, PROCEED WITH PHASE 6. (2 DAYS)

PHASE VI
25. INSTALL PUMP-AROUND PRACTICES AS SHOWN ON SHEET ES-05 & 06. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, COMMENCE PHASE 6 STREAM WORK. (1 DAY)

26. PERFORM STREAM GRADING AND STREAM RESTORATION WORK ON CHANNEL AS SHOWN ON PLANS, AND STABILIZE ALL DISTURBED AREAS AT FINAL GRADE. PUMP-AROUNDS MAY BE SHIFTED AS NECESSARY TO PERFORM GRADING AND STREAM WORK WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. CONTRACTOR SHALL DISTURB ONLY THAT MUCH AREA THAT CAN BE BROUGHT TO FINAL GRADE AND STABILIZED BY THE END OF EACH DAY. (2 WEEKS)

27. PERMANENTLY STABILIZE WORK AREA WITHIN PHASE 6. (2 DAYS)

28. WHEN VEGETATION IS ESTABLISHED AND WITH PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND PERMANENTLY STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS. (3 DAYS)

29. CONDUCT FINAL "AS-BUILT" SURVEY OF STREAM RESTORATION MEASURES, STREAM PROFILE WITHIN RESTORATION AREAS, AND STORM DRAIN AND SUBMIT "AS-BUILT" PLANS TO THE DEPARTMENT OF PUBLIC WORKS, STORMWATER MANAGEMENT DIVISION WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION. (30 DAYS)

NOTES:

- 1. BEFORE ANY CONSTRUCTION WORK BEGINS THERE NEEDS TO BE SOME SPRAYING OF AN INVASIVE PLANT, THE WAVYLEAF BASKETGRASS. IT NEEDS ABOUT 2 WEEKS TO SIT BEFORE CONSTRUCTION. IT NEEDS TO BE APPLIED BETWEEN APRIL AND SEPTEMBER.
2. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR MAY PERFORM CONSTRUCTION FOR PHASES III THROUGH VI PRIOR TO PHASES I AND II.
3. REPLACE STANDARD SILT FENCE WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

Temporary Seeding Summary

Table with columns: No., Species, Application Rate (lb/ac), Seeding Dates, Seeding Depths. Includes rows for Cool-Season Grasses (Annual Ryegrass, Barley, Oats, Wheat, Cereal Rye) and Warm-Season Grasses (Foxtail Millet, Pearl Millet).

NOTES:

- 1/ 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.
2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.
4/ Four inches of topsoil should cover all disturbed soil in order to provide adequate fertility for seeding establishment.

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

- 1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. 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 and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
5. 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.
6. Site Analysis:
Total Area of Site: 3.37 Acres
Area Disturbed: 3.37 Acres
Area to be roofed or paved: 0.00 Acres
Area to be vegetatively stabilized: 3.37 Acres
Total Cut: 2574.48 Cu. Yds.
Total Fill: 620.70 Cu. Yds.
Offsite waste/borrow area location: To Be Determined\*
7. Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
9. 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 building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.
11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
12. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per 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 the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.
\* Offsite waste/ borrow area, if needed, shall have an approved erosion and sediment control plan and active permit.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition
To stabilize disturbed soils with permanent vegetation.
Purpose
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.
Conditions Where Practice Applies
Exposed soils where ground cover is needed for 6 months or more.

Criteria

- A. Seed Mixtures
1. General Use
a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
2. Turfgrass Mixtures
a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

Definition
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.
Purpose
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

- 1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition
To stabilize disturbed soils with vegetation for up to 6 months.

Purpose
To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION (continued)

- iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified materials is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

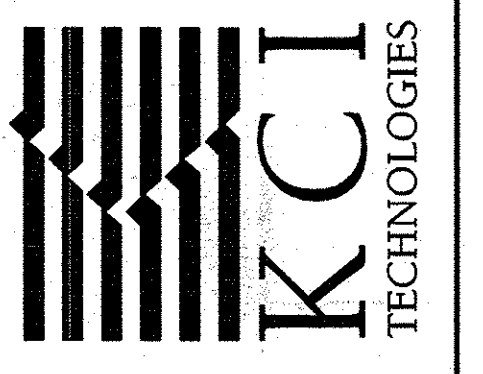
- c. Ideal Times of Seeding for Turf Grass Mixtures
Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
e. If soil moisture is deficient, supply new seedlings with adequate water for plant growth 1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

NOTE:

Permanent seeding shall be applied throughout LOD, as shown on Landscape Plans. Should further seeding measures be necessary, the standards and specifications above shall be followed, at a minimum.

Table with columns: NO., REVISIONS DESCRIPTION, DATE

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SPARKS, MARYLAND 21152
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SOUTHWAY ROAD
STREAM RESTORATION PROJECT
CAPITAL PROJECT D-1158
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046
PARCELS 389, 489, 562, 211, 386, 485, 630
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

EROSION & SEDIMENT CONTROL NOTES

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CONSTRUCTION ISSUE:

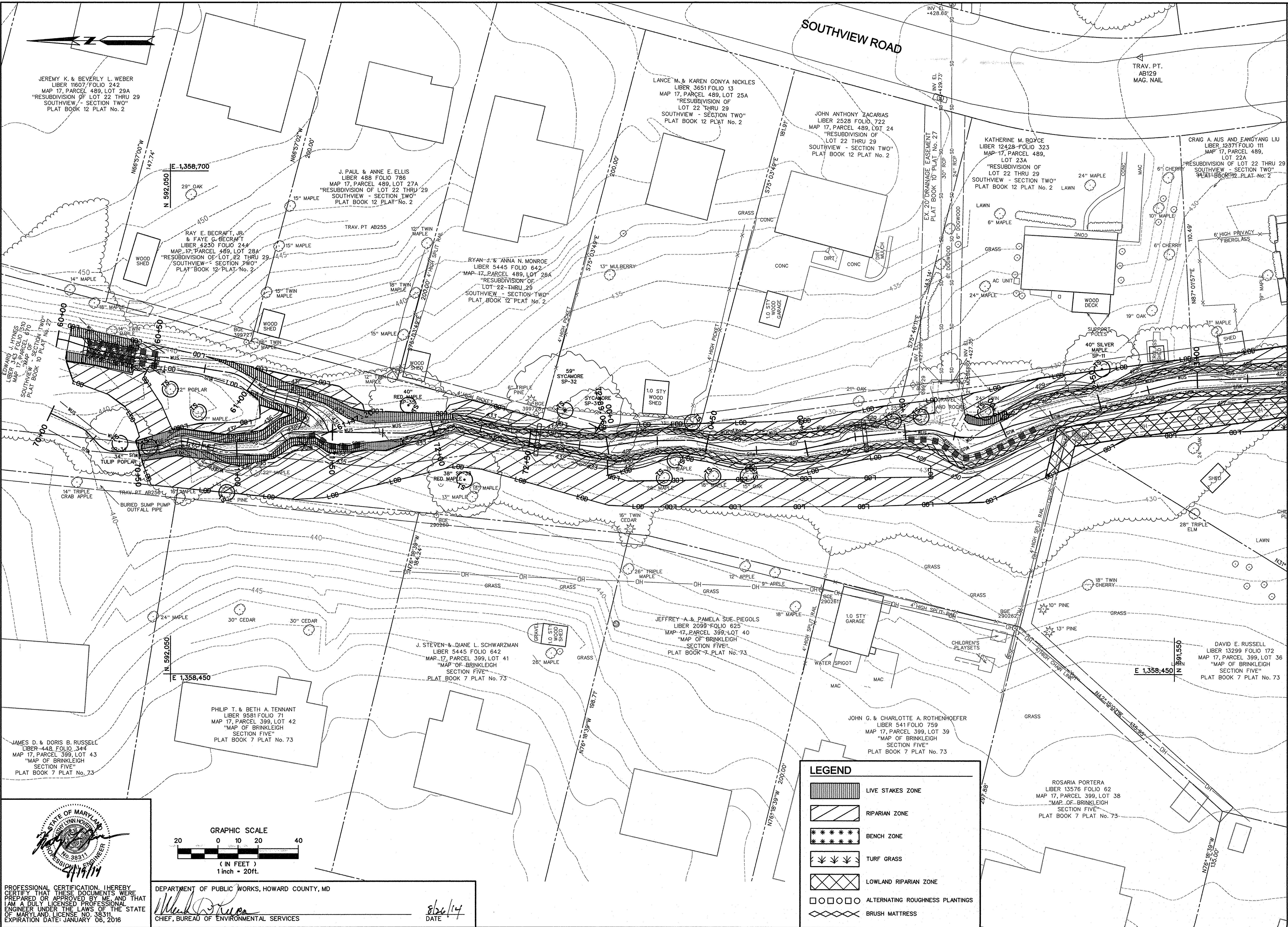
Professional certification stamp for Mark D. Deane, State of Maryland Professional Engineer, License No. 3831, Expiration Date: January 08, 2016.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
Chief, Bureau of Environmental Services
Date: 9/11/14

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
John H. DeWitt
Date: 9/11/14

Plotted: 10:30 AM, 05 Thursday, September 11, 2014
By: Christopher DeBee, Division: P030, Natural Resources/EMP
File: M:\2013\17133314\_ID\Drawings\WR\_VES-N002\_notes.dgn





MATCH LINE - SEE SHEET LS - 02

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
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**SOUTHVIEW ROAD  
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 COLUMBIA, MD 21046  
 PARCELS 399, 489, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

LANDSCAPE PLAN	
SCALE:	1" = 20'
DATE:	AUGUST 2014
KCI JOB NO.:	17133314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	
<b>LS-01</b>	
SHEET NO.: 32 OF 44	

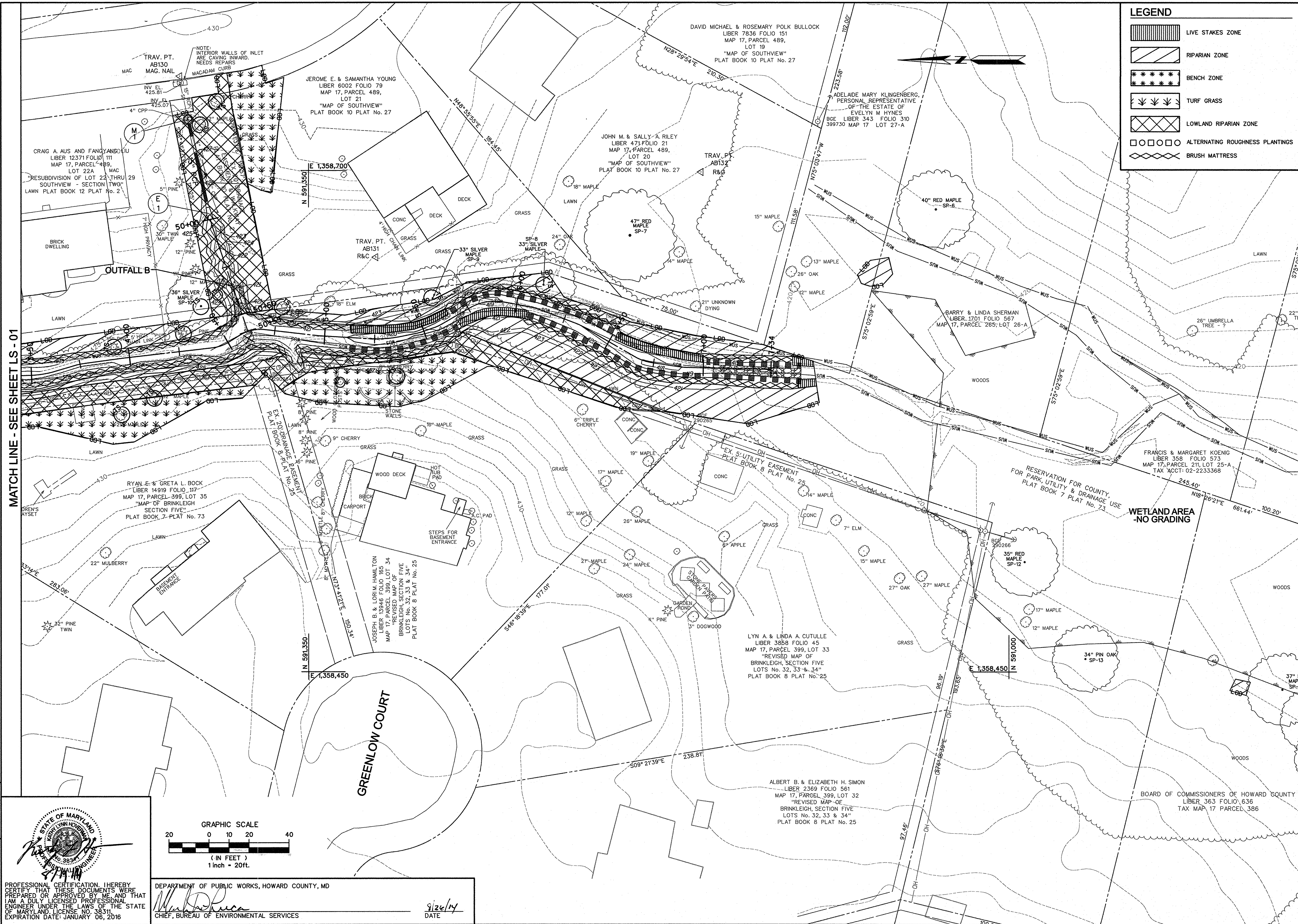
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38311, EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

LEGEND	
	LIVE STAKES ZONE
	RIPARIAN ZONE
	BENCH ZONE
	TURF GRASS
	LOWLAND RIPARIAN ZONE
	ALTERNATING ROUGHNESS PLANTINGS
	BRUSH MATTRESS



MATCH LINE - SEE SHEET LS - 01



**LEGEND**

	LIVE STAKES ZONE
	RIPARIAN ZONE
	BENCH ZONE
	TURF GRASS
	LOWLAND RIPARIAN ZONE
	ALTERNATING ROUGHNESS PLANTINGS
	BRUSH MATTRESS

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**LANDSCAPE PLAN**

SCALE: 1" = 20'

DATE: AUGUST 2014

KCI JOB NO.: 17133314-10

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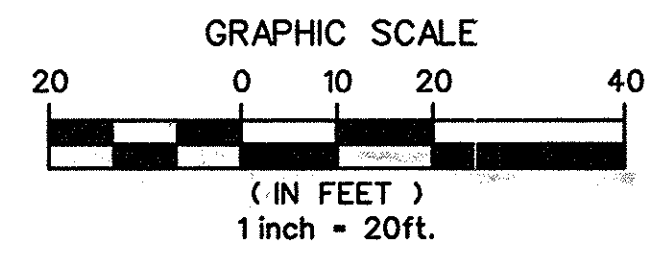
PERMIT ISSUE: CONSTRUCTION ISSUE:

**LS-02**

SHEET NO.: 33 OF 44

STATE OF MARYLAND  
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311 EXPIRATION DATE: JANUARY 08, 2016

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 DATE: 8/26/14



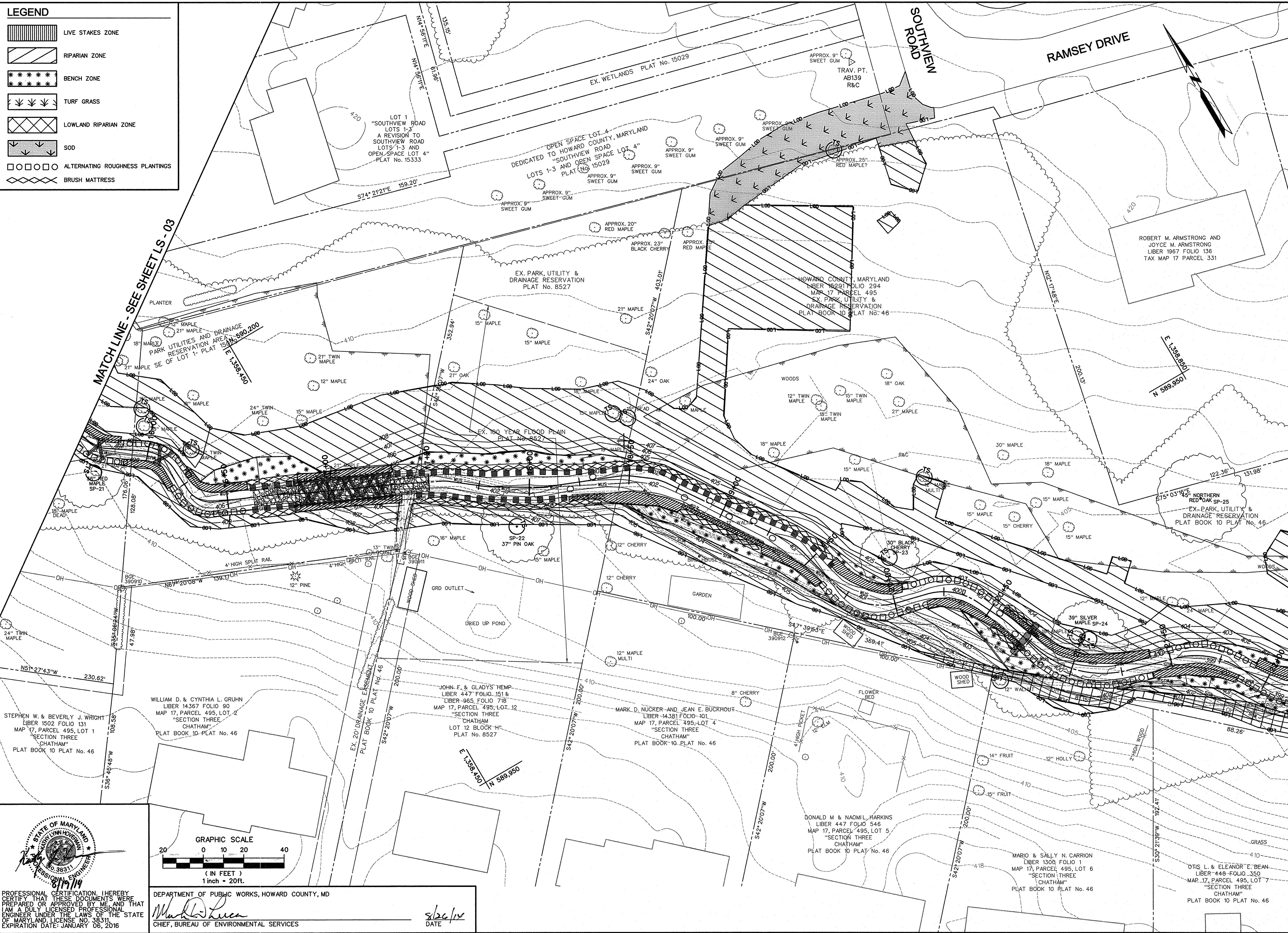




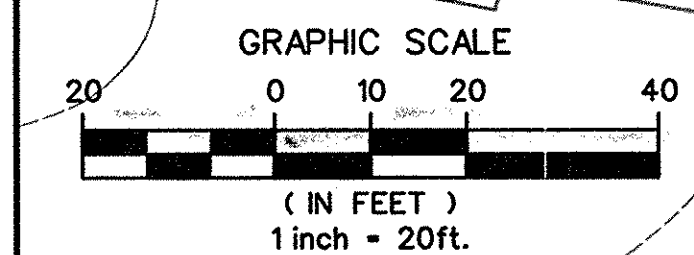


**LEGEND**

	LIVE STAKES ZONE
	RIPARIAN ZONE
	BENCH ZONE
	TURF GRASS
	LOWLAND RIPARIAN ZONE
	SOD
	ALTERNATING ROUGHNESS PLANTINGS
	BRUSH MATTRESS



STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 Christopher Deibel  
 License No. 3831  
 EXPIRATION DATE: JANUARY 06, 2016



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 s/bc/lx  
 DATE

NO.	REVISIONS DESCRIPTION	DATE

**KCI TECHNOLOGIES**

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818  
 www.kci.com

**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**

CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046

PARCELS: 899, 486, 562, 211, 386, 495, 530 TAX MAP 17  
 ZONING R20 ELECTION DISTRICT 02 GRIDLOCK 0022

**LANDSCAPE PLAN**

SCALE:	1" = 20'
DATE:	AUGUST 2014
KCI JOB NO.:	17133314.10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

**LS-04**

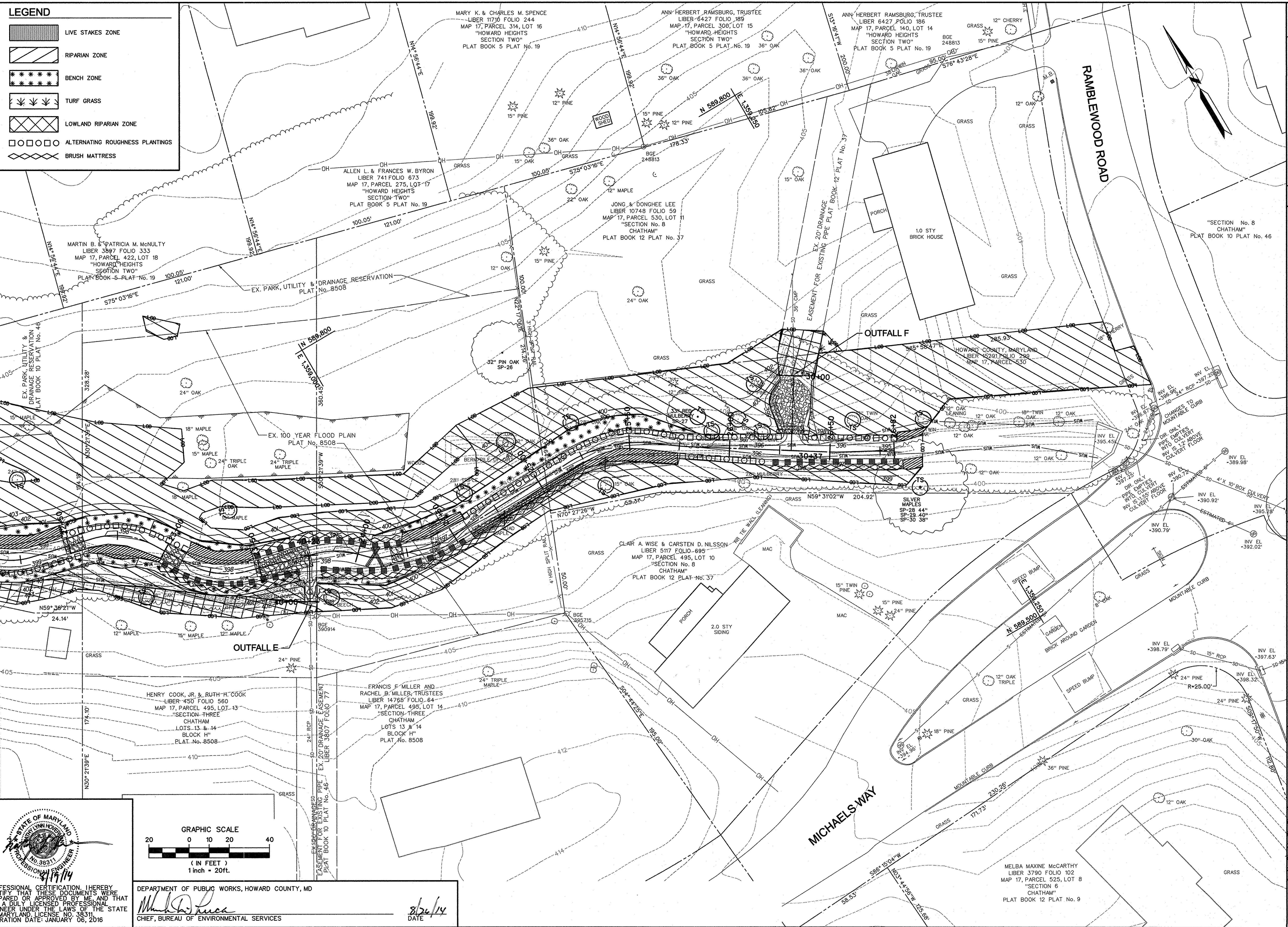
SHEET NO.: 35 OF 44



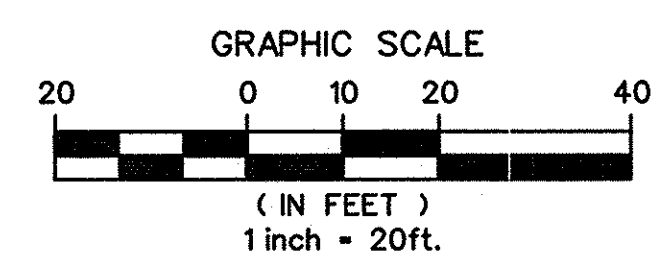
**LEGEND**

- LIVE STAKES ZONE
- RIPARIAN ZONE
- BENCH ZONE
- TURF GRASS
- LOWLAND RIPARIAN ZONE
- ALTERNATING ROUGHNESS PLANTINGS
- BRUSH MATTRASS

MATCHLINE - SEE SHEETS LS - 04



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311. EXPIRATION DATE: JANUARY 06, 2016.



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*Christopher Deibel*  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
 DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6751 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS 389, 489, 582, 211, 386, 495, 530 TAX MAP 17  
 ZONING P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**LANDSCAPE PLAN**

SCALE:	1" = 20'
DATE:	AUGUST 2014
KCI JOB NO.:	17133314.10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

KCI FILE: M\3 2013\17133314.10\



# MASTER PLANT SCHEDULE +

## RIPARIAN ZONE (SHEETS 32 - 36)

(83,883 SQ FT/1.93 AC)

Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>TREES</b>					
70	Quercus rubra	Northern Red Oak	5' Height	Container	11' O.C.
70	Quercus alba	White Oak	5' Height	Container	11' O.C.
70	Carya cordiformis	Bitternut hickory	5' Height	Container	11' O.C.
70	Diospyros virginiana	Persimmon	5' Height	Container	11' O.C.
70	Celtis occidentalis	Common Hackberry	5' Height	Container	11' O.C.
70	Betula nigra	River Birch	5' Height	Container	11' O.C.
<b>SHRUBS</b>					
115	Magnolia virginiana	Sweetbay Magnolia	3' Height	Container	6'-8' O.C.
115	Carpinus caroliniana	Muscledwood	3' Height	Container	6'-8' O.C.
115	Aesculus flava	Yellow Buckeye	3' Height	Container	6'-8' O.C.
115	Amelanchier canadensis	Serviceberry	3' Height	Container	6'-8' O.C.
115	Chionanthus virginicus	White Fringetree	3' Height	Container	6'-8' O.C.
115	Magnolia tripetala	Umbrella Magnolia	3' Height	Container	6'-8' O.C.

## LIVE STAKES ZONE (SHEETS 32 - 36)

(7,880 SQ FT/0.18 AC)

Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
329	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
329	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
329	Viburnum dentatum	Arrowwood Viburnum	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
329	Cephalanthus occidentalis	Buttonbush	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
329	Alnus incana	Speckled Alder	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
329	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.

## BENCH ZONE (SHEETS 32 - 36)

(5,804 SQ FT/0.13 AC)

Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>LIVE STAKES</b>					
59	Cornus racemosa	Gray dogwood	3' Length 0.5"-1.5" dia.	Dormant stems	4' - 6' O.C.
59	Cornus amomum	Silky dogwood	3' Length 0.5"-1.5" dia.	Dormant stems	4' - 6' O.C.
59	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant stems	4' - 6' O.C.
59	Alnus incana	Speckled Alder	3' Length 0.5"-1.5" dia.	Dormant stems	4' - 6' O.C.

## LOWLAND RIPARIAN ZONE (SHEETS 32 - 36)

(10,331 SQ FT/0.24 AC)

Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>SHRUBS</b>					
71	Hamamelis virginiana	Witchhazel	3' Height	Container	6'-8' O.C.
71	Cephalanthus occidentalis	Buttonbush	3' Height	Container	6'-8' O.C.
71	Rhus aromatica	Fragrant Sumac	3' Height	Container	6'-8' O.C.

## ALTERNATING ROUGHNESS PLANTINGS (SHEETS 32 - 36)

(3,704 SQ FT/0.09 AC, 926 LF)

Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>TREES</b>					
20	Celtis occidentalis	Hackberry	2" Caliper	Container	12' O.C.
20	Quercus bicolor	Swamp White Oak	2" Caliper	Container	12' O.C.
20	Platanus occidentalis	Sycamore	2" Caliper	Container	12' O.C.
20	Acer saccharinum	Silver Maple	2" Caliper	Container	12' O.C.
<b>LIVE STAKES</b>					
193	Cornus racemosa	Gray Dogwood	3' Length 0.5"-1.5" dia.	Dormant stems	5/cluster/6 LF
193	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant stems	5/cluster/6 LF
193	Salix sericea	Silky Willow	3' Length 0.5"-1.5" dia.	Dormant stems	5/cluster/6 LF
193	Alnus incana	Speckled Alder	3' Length 0.5"-1.5" dia.	Dormant stems	5/cluster/6 LF
<b>LIVE POSTS</b>					
78	Alnus incana ssp rugosa	Speckled alder	6' Length 2" min. dia.	Dormant stems	1/cluster/6 LF
78	Salix sericea	Silky Willow	6' Length 2" min. dia.	Dormant stems	1/cluster/6 LF

Note: Alternate Roughness Planting locations shall be staked for approval by the engineer, prior to installation. Dormant stem quantities represent the total number of individual stems.

## BRUSH MATTRESS ZONE (SHEETS 32 - 36)

(7,752 SQ FT/0.18 AC, 2,584 LF)

Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>LIVE STAKES</b>					
323	Viburnum dentatum	Arrowwood Viburnum	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
323	Cornus sericea	Red Osier Dogwood	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
323	Alnus incana	Speckled Alder	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
323	Cornus amomum	Silky dogwood	3' Length 1"-1.5" dia.	Dormant stems	2' O.C.
<b>LIVE BRANCHES</b>					
15,504	Platanus occidentalis	American Sycamore	3' Length, 3/8" - 3" dia.	Dormant stems	24 STEMS/LF
15,504	Salix sericea	Silky willow	3' Length, 3/8" - 3" dia.	Dormant stems	24 STEMS/LF
15,504	Salix discolor	Pussy willow	3' Length, 3/8" - 3" dia.	Dormant stems	24 STEMS/LF
15,504	Cephalanthus occidentalis	Buttonbush	3' Length, 3/8" - 3" dia.	Dormant stems	24 STEMS/LF

Note: Dormant stem quantities represent the total number of individual stems.

## WETLAND TERRACE ZONE (SHEETS 32 - 36)

(1200 SQ FT/0.03 AC, 100 LF)

Quantity	Botanical Name	Common Name	Size	Form	Spacing/Rate
<b>LIVE POSTS</b>					
38	Viburnum dentatum	Arrowwood Viburnum	6' Length 2" min. dia.	Dormant stems	4' O.C.
38	Cornus sericea	Red Osier Dogwood	6' Length 2" min. dia.	Dormant stems	4' O.C.
38	Alnus incana	Speckled Alder	6' Length 2" min. dia.	Dormant stems	4' O.C.
38	Cornus amomum	Silky dogwood	6' Length 2" min. dia.	Dormant stems	4' O.C.
<b>LIVE BRANCHES FOR LAYERING</b>					
1800	Platanus occidentalis	American Sycamore	6' Length	Dormant stems	12 BRANCHES/LF
1800	Salix sericea	Silky willow	6' Length	Dormant stems	12 BRANCHES/LF

Note: Dormant stem quantities represent the total number of individual stems.

## PERMANENT SEEDING FOR WETLAND TERRACE, LIVE STAKES, LOWLAND RIPARIAN, BRUSH MATTRESS, AND ALTERNATING ROUGHNESS ZONES (SHEETS 32 - 36)

(36,591 SQ FT/0.84 AC)

Qty(lbs)*	Botanical Name
12.6	ERNMX-723

\*Seeding shall be applied at a 15 lbs/AC seeding rate.

## PERMANENT SEEDING FOR RIPARIAN ZONE (SHEETS 32 - 36)

(83,883 SQ FT/1.93 AC)

Qty(lbs)*	Botanical Name
29.0	ERNMX-722

\*Seeding shall be applied at a 15 lbs/AC seeding rate.

## TURF GRASS ZONE (SHEETS 32 - 36)

(4,337 SQ FT/0.10 AC)

Qty(lbs)*	Botanical Name
20.0	Seed mix No. 1 (920.06.07 a)

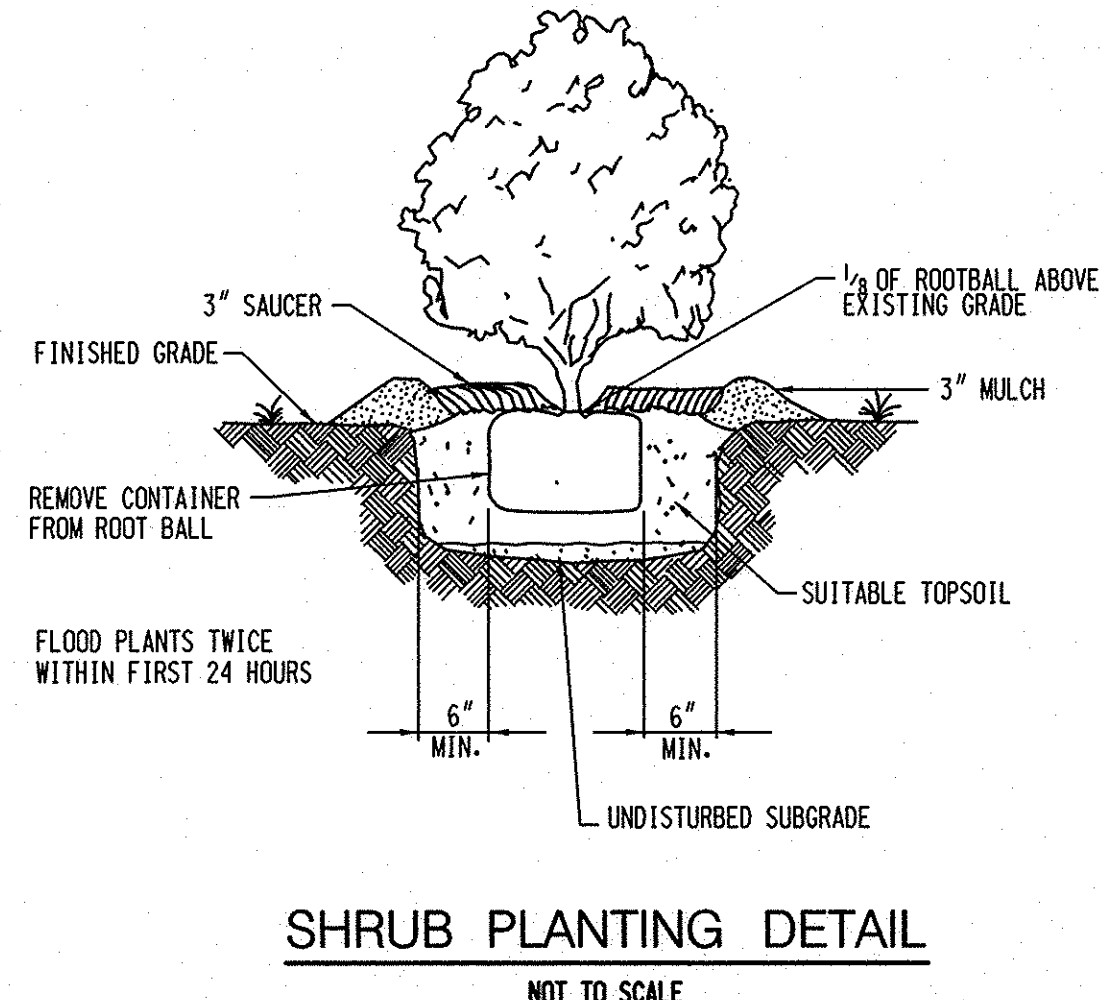
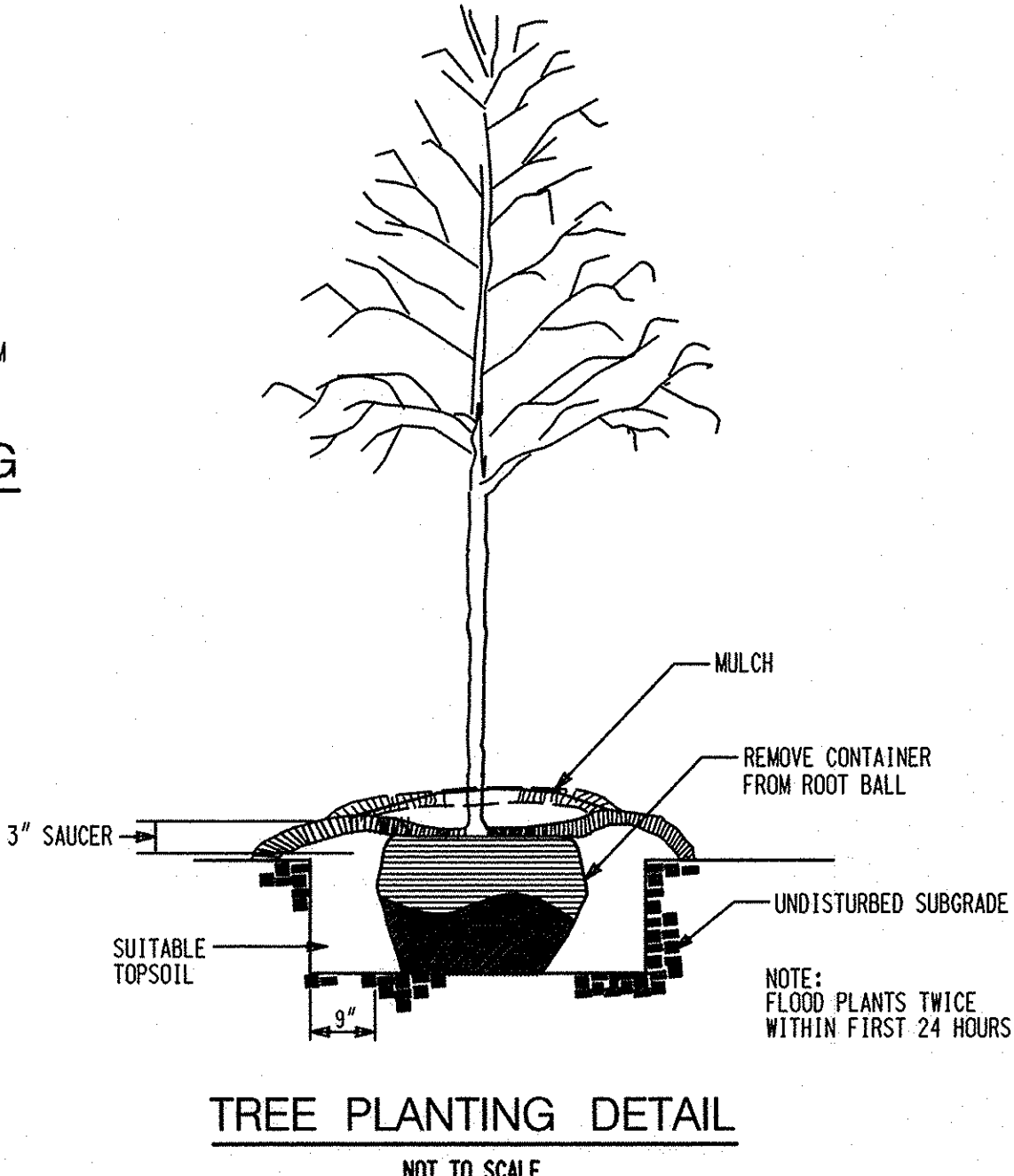
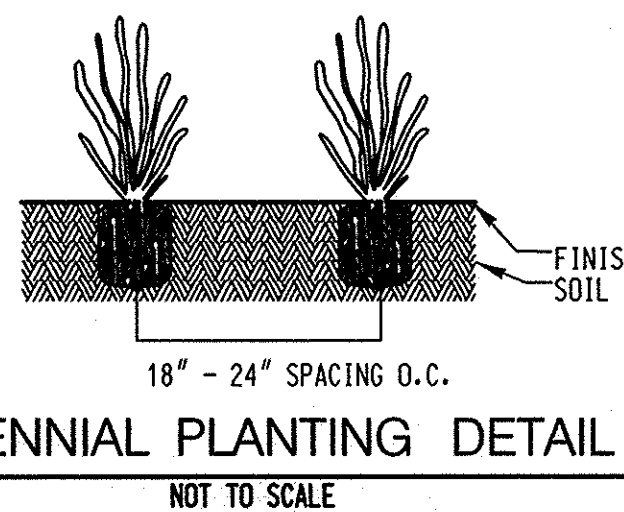
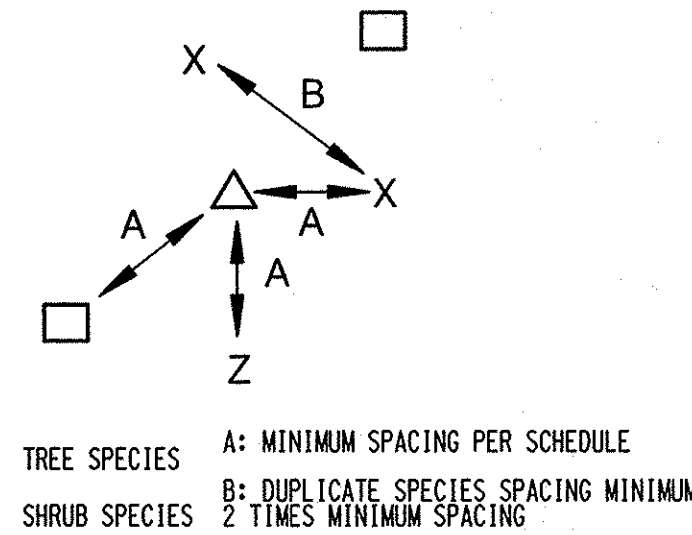
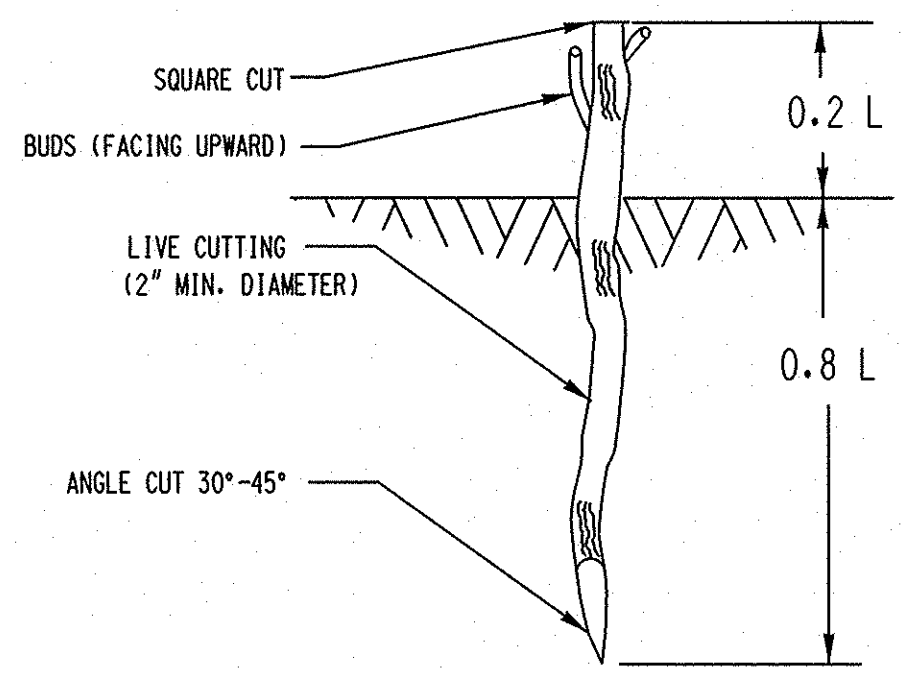
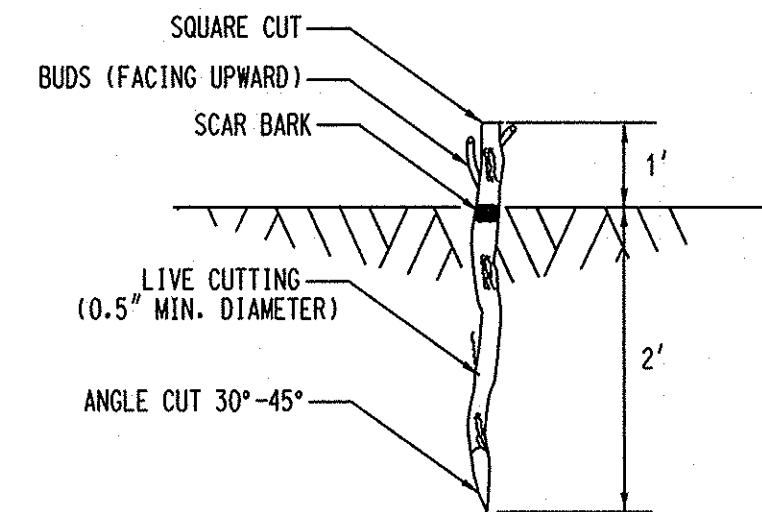
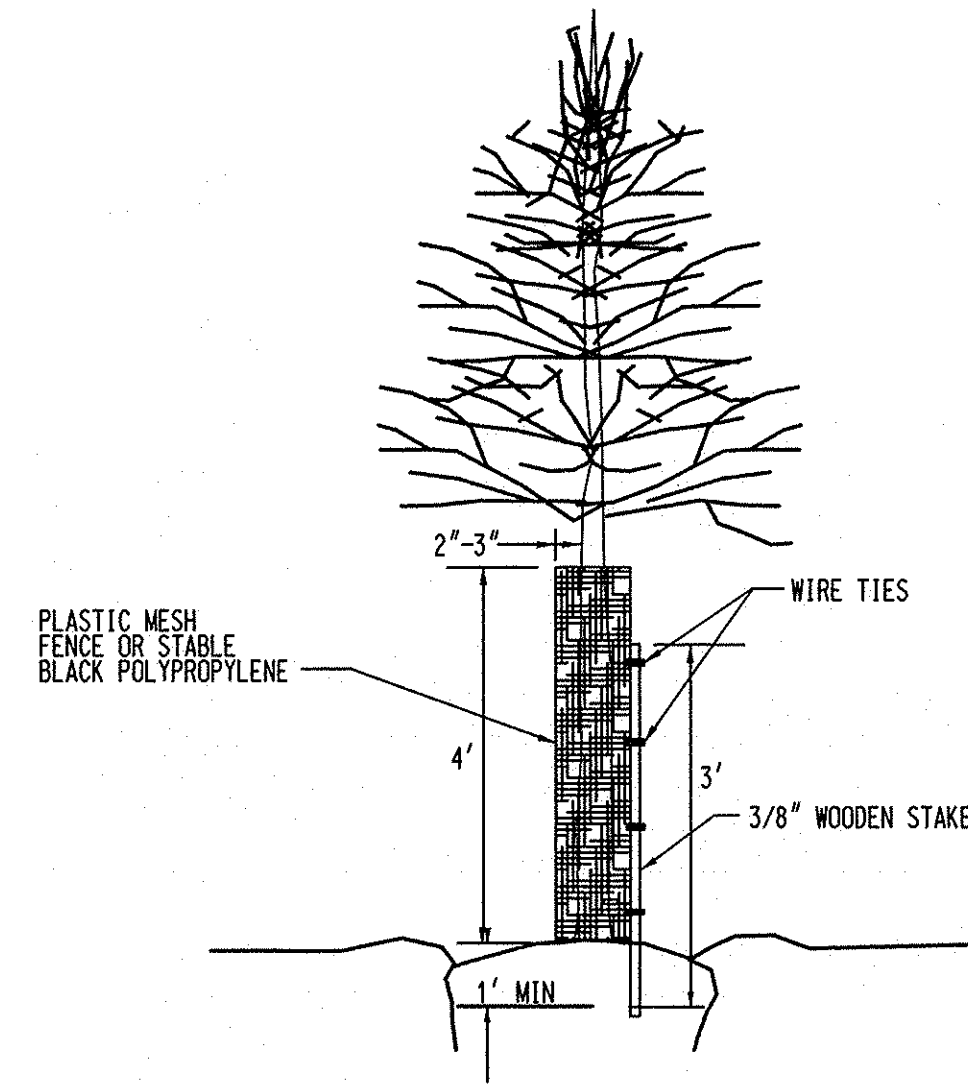
\*Seeding shall be applied at a 200 lbs/AC seeding rate.

## SOD (SHEETS 32 - 36)

(2,529 SQ FT/0.06 AC)

Qty (SY)	Botanical Name
94	Sod

\*Seeding shall be applied at a 200 lbs/AC seeding rate.



+ NOTE: 4 INCHES OF TOPSOIL SHALL BE PLACED THROUGHOUT THE SITE TO INCREASE SOIL FERTILITY.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/26/14

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
WWW.KCI.COM



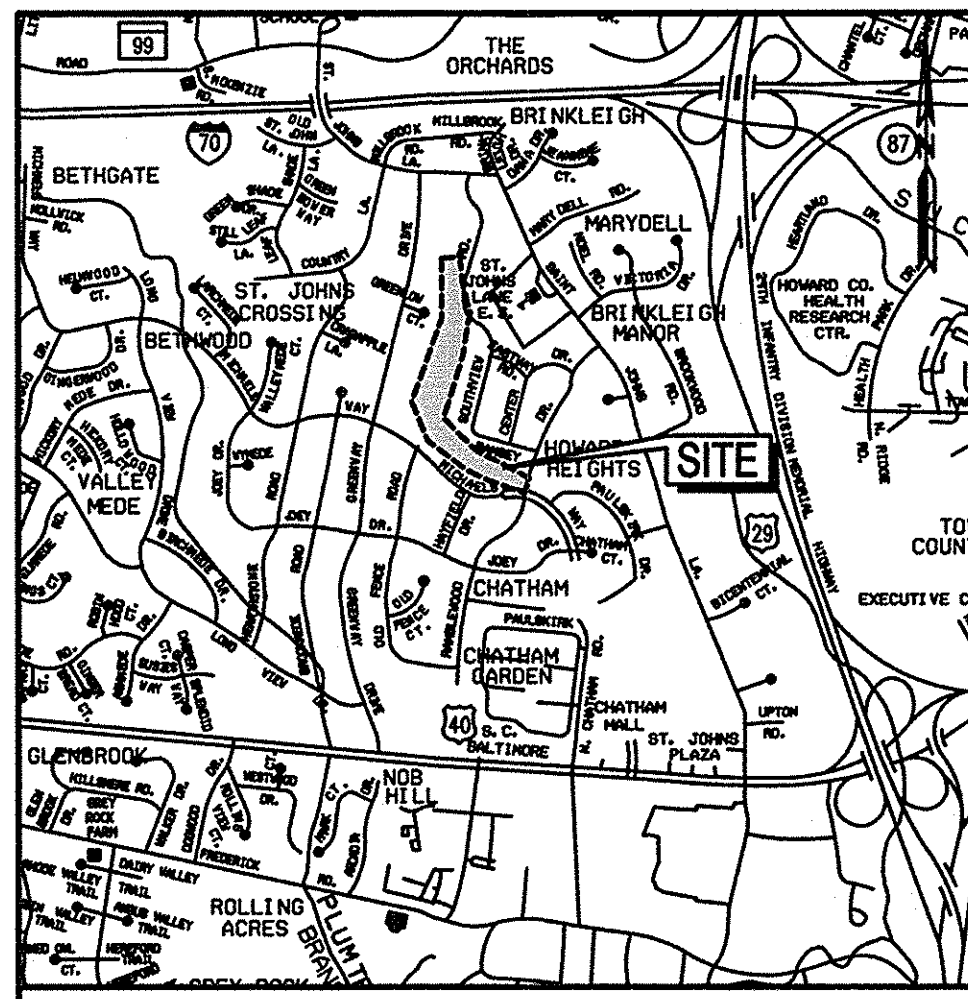
SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 582, 211, 386, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

## LANDSCAPE DETAILS

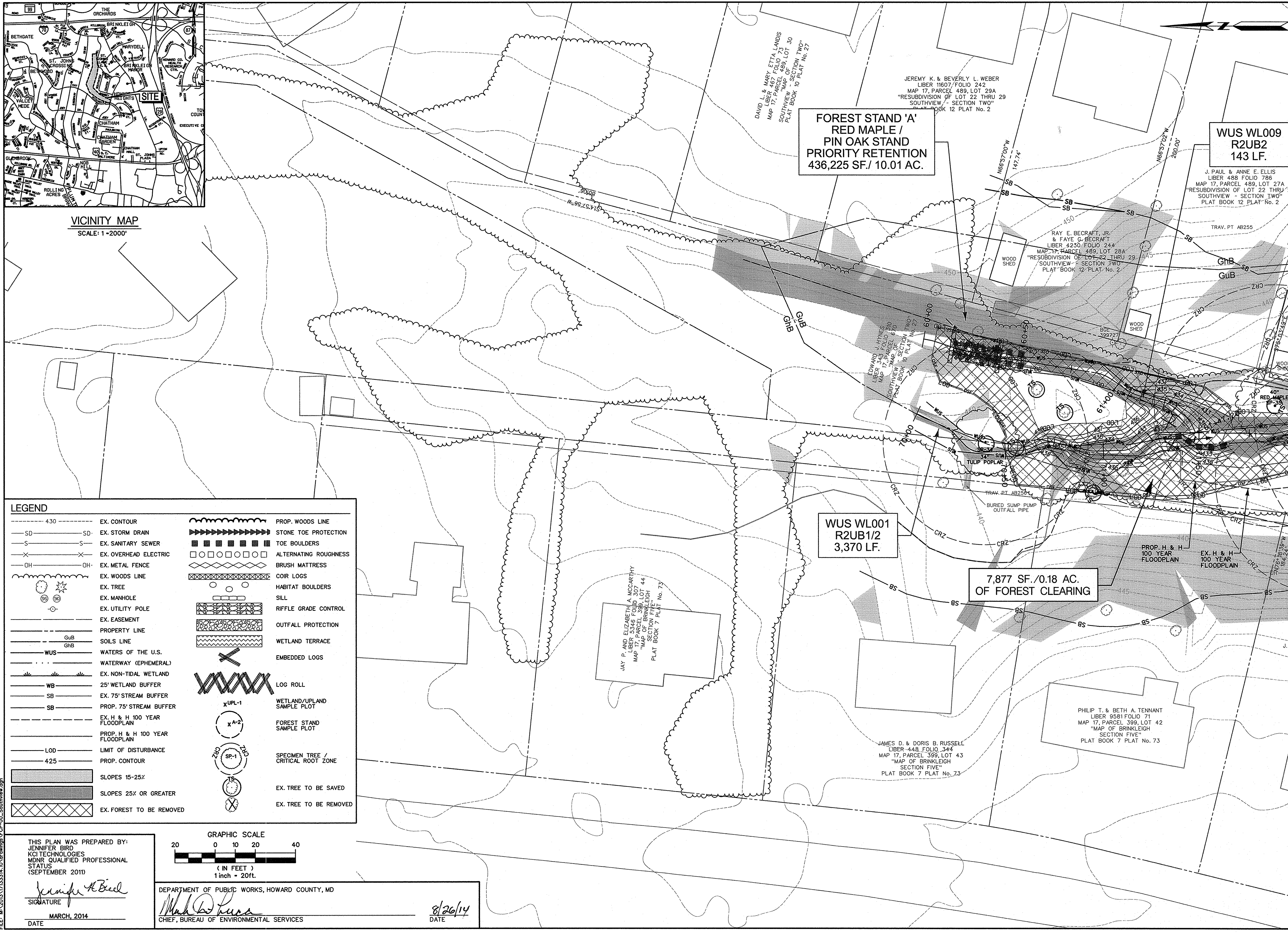
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DATE:	AUGUST 2014
KCI JOB NO.:	17153314-10
CAPITAL PROJECT NO.:	D-1158
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 38311. EXPIRATION DATE: JANUARY 06, 2016.

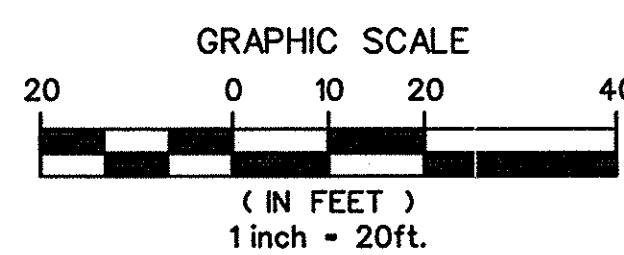




VICINITY MAP  
SCALE: 1" = 2000'



LEGEND	
--- 430 ---	EX. CONTOUR
--- SD ---	EX. STORM DRAIN
--- S ---	EX. SANITARY SEWER
--- X ---	EX. OVERHEAD ELECTRIC
--- OH ---	EX. METAL FENCE
---	EX. WOODS LINE
○	EX. TREE
○	EX. MANHOLE
○	EX. UTILITY POLE
---	EX. EASEMENT
---	PROPERTY LINE
---	SOILS LINE
---	WATERS OF THE U.S.
---	WATERWAY (EPHEMERAL)
---	EX. NON-TIDAL WETLAND
---	25' WETLAND BUFFER
---	EX. 75' STREAM BUFFER
---	PROP. 75' STREAM BUFFER
---	EX. H & H 100 YEAR FLOODPLAIN
---	PROP. H & H 100 YEAR FLOODPLAIN
---	LIMIT OF DISTURBANCE
---	PROP. CONTOUR
---	SLOPES 15-25%
---	SLOPES 25% OR GREATER
---	EX. FOREST TO BE REMOVED
---	PROP. WOODS LINE
---	STONE TOE PROTECTION
---	TOE BOULDERS
---	ALTERNATING ROUGHNESS
---	BRUSH MATTRESS
---	COIR LOGS
---	HABITAT BOULDERS
---	SILL
---	RIFFLE GRADE CONTROL
---	OUTFALL PROTECTION
---	WETLAND TERRACE
---	EMBEDDED LOGS
---	LOG ROLL
---	WETLAND/UPLAND SAMPLE PLOT
---	FOREST STAND SAMPLE PLOT
---	SPECIMEN TREE / CRITICAL ROOT ZONE
---	EX. TREE TO BE SAVED
---	EX. TREE TO BE REMOVED



THIS PLAN WAS PREPARED BY:  
JENNIFER BIRO  
KCI TECHNOLOGIES  
MDNR QUALIFIED PROFESSIONAL STATUS  
(SEPTEMBER 2011)

*Jennifer A. Biro*  
SIGNATURE

MARCH, 2014  
DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*Mark D. Lucas*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

8/26/14  
DATE

NO.	REVISIONS DESCRIPTION	DATE

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SPARKS, MARYLAND 21152  
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**KCI TECHNOLOGIES**

MATCH LINE - SEE SHEET FCP - 01

SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 489, 582, 211, 396, 495, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**FOREST CONSERVATION PLAN**

SCALE: 1" = 20'  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314.10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:

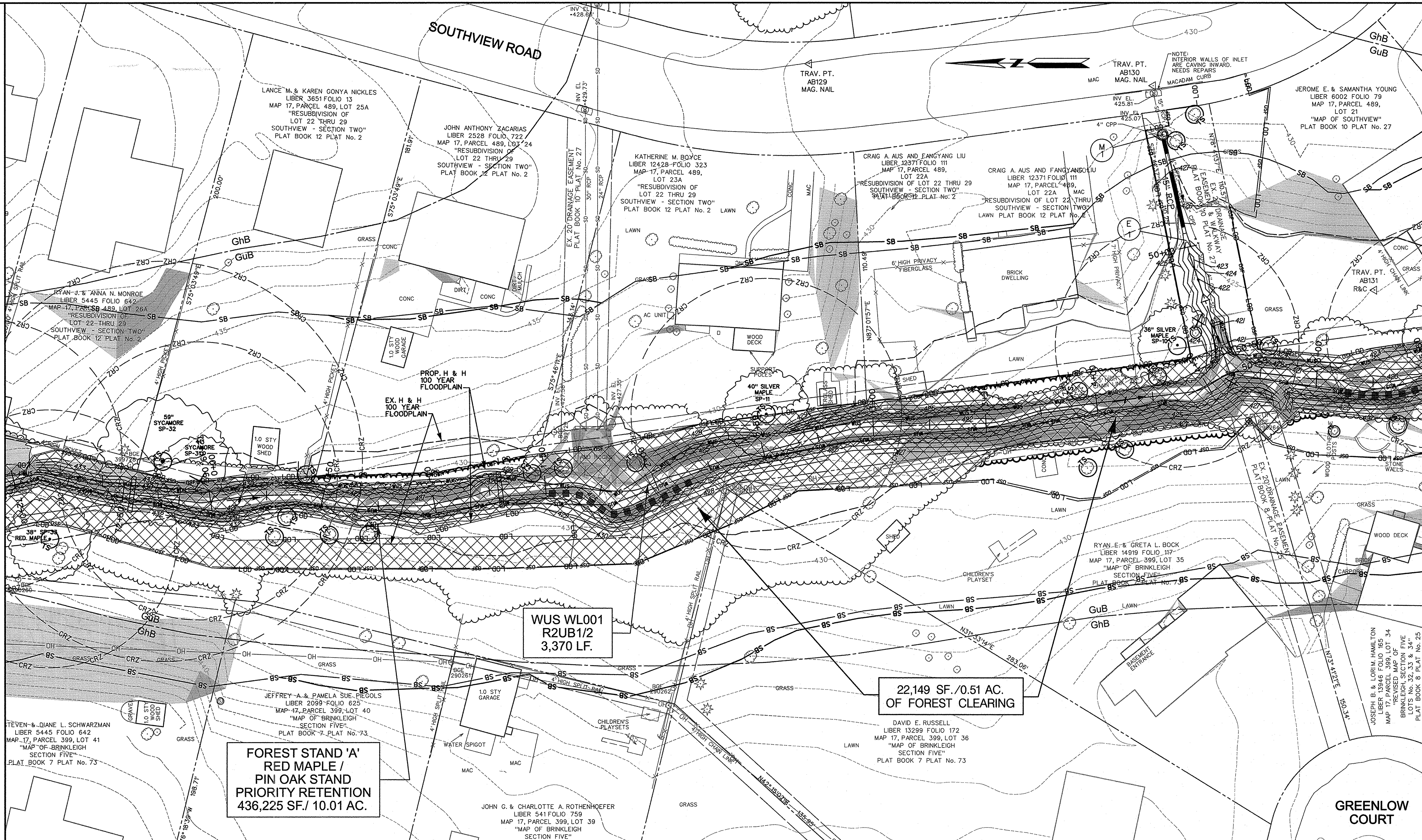
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**FCP-00**  
SHEET NO.: 38 OF 44

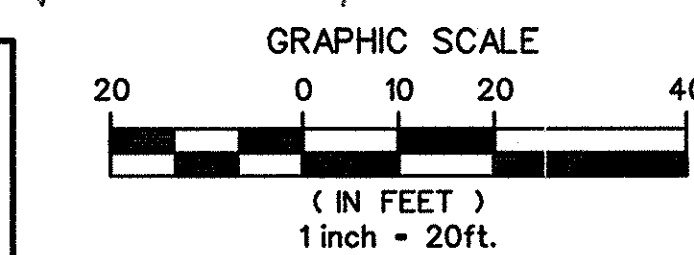


MATCH LINE - SEE SHEET FCP - 00

MATCH LINE - SEE SHEET FCP - 02



THIS PLAN WAS PREPARED BY:  
 JENNIFER BIRO  
 KCI TECHNOLOGIES  
 MDR- QUALIFIED PROFESSIONAL  
 STATUS  
 (SEPTEMBER 2011)  
 Signature: Jennifer Biro  
 DATE: MARCH, 2014

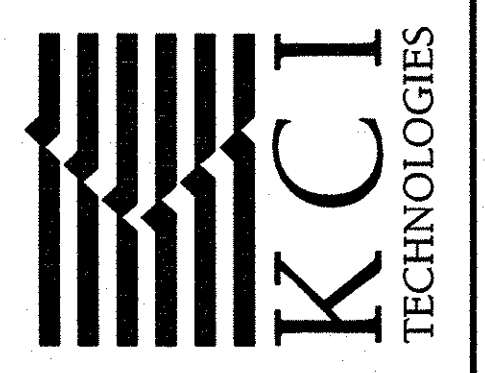


DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 Chief, Bureau of Environmental Services  
 Signature: [Signature]  
 DATE: 8/26/14

LEGEND	
	EX. CONTOUR
	EX. STORM DRAIN
	EX. SANITARY SEWER
	EX. OVERHEAD ELECTRIC
	EX. METAL FENCE
	EX. WOODS LINE
	EX. TREE
	EX. MANHOLE
	EX. UTILITY POLE
	EX. EASEMENT
	PROPERTY LINE
	SOILS LINE
	WATERS OF THE U.S.
	WATERWAY (EPHEMERAL)
	EX. NON-TIDAL WETLAND
	25' WETLAND BUFFER
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	LIMIT OF DISTURBANCE
	EX. CONTOUR
	SLOPES 15-25%
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	BRUSH MATTRESS
	COIR LOGS
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	OUTFALL PROTECTION
	WETLAND TERRACE
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	EX. TREE TO BE SAVED
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**SOUTHVIEW ROAD  
 STREAM RESTORATION PROJECT**  
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 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
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 6757 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS: 399, 489, 582, 211, 396, 495, 530 TAX MAP 17  
 ZONING P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

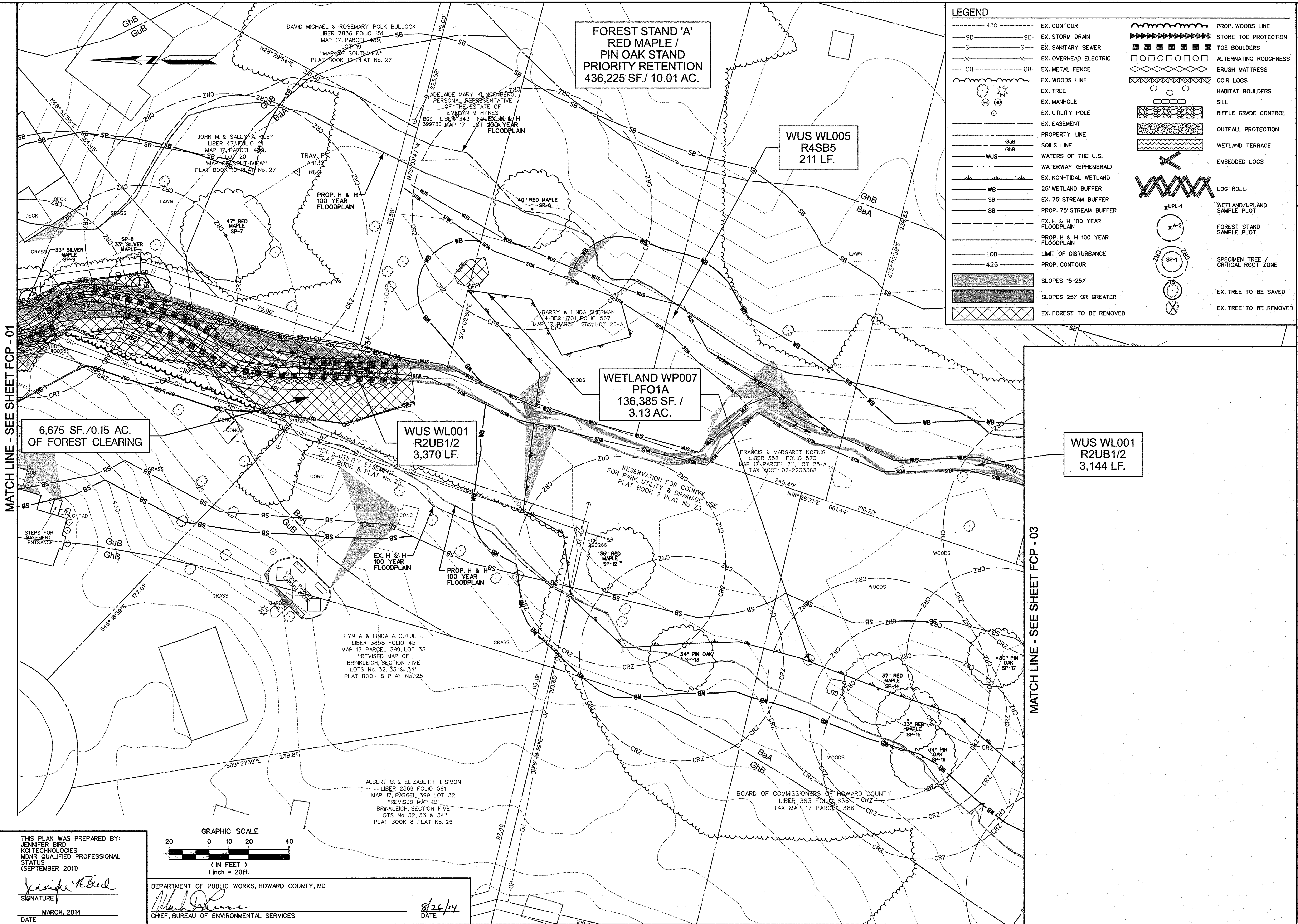
**FOREST CONSERVATION PLAN**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314.10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:

CONSTRUCTION ISSUE:  
**FCP-01**  
 SHEET NO.: 39 OF 44

KCI FILE: M\316\17133314.10





**FOREST STAND 'A'  
RED MAPLE /  
PIN OAK STAND  
PRIORITY RETENTION  
436,225 SF./ 10.01 AC.**

**WUS WL005  
R4SB5  
211 LF.**

**WETLAND WP007  
PFO1A  
136,385 SF. /  
3.13 AC.**

**WUS WL001  
R2UB1/2  
3,370 LF.**

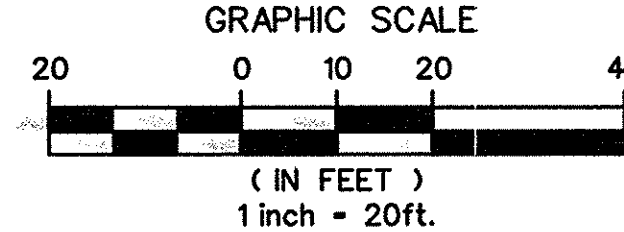
**WUS WL001  
R2UB1/2  
3,144 LF.**

**6,675 SF./0.15 AC.  
OF FOREST CLEARING**

LEGEND	
--- 430 ---	EX. CONTOUR
--- SD ---	EX. STORM DRAIN
--- S ---	EX. SANITARY SEWER
--- X ---	EX. OVERHEAD ELECTRIC
--- OH ---	EX. METAL FENCE
---	EX. WOODS LINE
---	EX. TREE
---	EX. MANHOLE
---	EX. UTILITY POLE
---	EX. EASEMENT
---	PROPERTY LINE
---	SOILS LINE
---	WATERS OF THE U.S.
---	WATERWAY (EPHEMERAL)
---	EX. NON-TIDAL WETLAND
---	25' WETLAND BUFFER
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---	PROP. 75' STREAM BUFFER
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---	PROP. H & H 100 YEAR FLOODPLAIN
---	LIMIT OF DISTURBANCE
---	PROP. CONTOUR
---	SLOPES 15-25%
---	SLOPES 25% OR GREATER
---	EX. FOREST TO BE REMOVED
---	PROP. WOODS LINE
---	STONE TOE PROTECTION
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---	RIFLE GRADE CONTROL
---	OUTFALL PROTECTION
---	WETLAND TERRACE
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---	LOG ROLL
---	WETLAND/UPLAND SAMPLE PLOT
---	FOREST STAND SAMPLE PLOT
---	SPECIMEN TREE / CRITICAL ROOT ZONE
---	EX. TREE TO BE SAVED
---	EX. TREE TO BE REMOVED

MATCH LINE - SEE SHEET FCP - 01

MATCH LINE - SEE SHEET FCP - 03



THIS PLAN WAS PREPARED BY:  
JENNIFER BIRO  
KCI TECHNOLOGIES  
MDNR QUALIFIED PROFESSIONAL  
STATUS  
(SEPTEMBER 2011)

*Jennifer A. Biro*  
SIGNATURE

MARCH, 2014  
DATE

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*Mark D. ...*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

8/26/14  
DATE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
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**KCI**  
TECHNOLOGIES

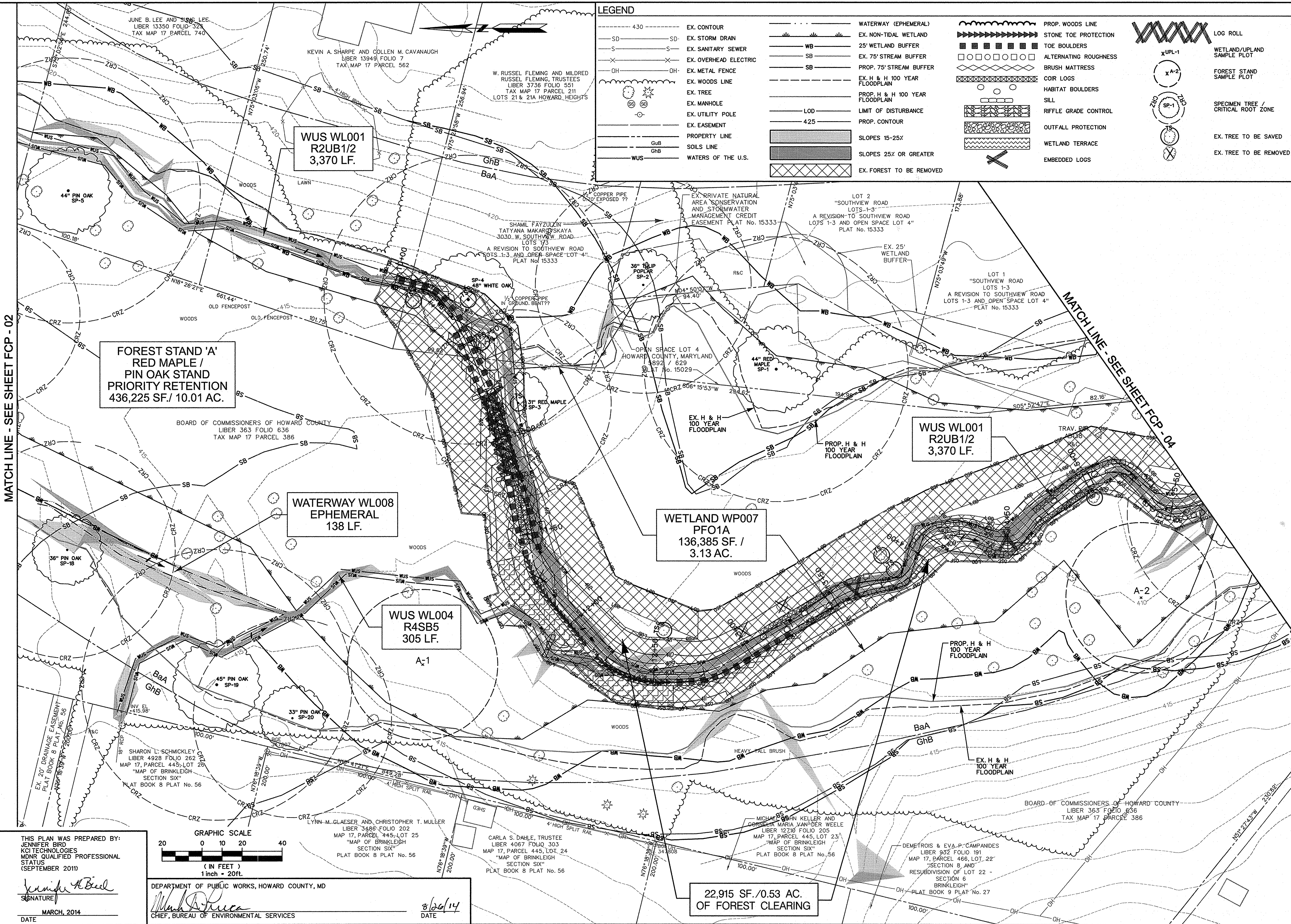
SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 488, 582, 211, 386, 495, 530 TAX MAP 17  
ZONING P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**FOREST  
CONSERVATION  
PLAN**

SCALE: 1" = 20'  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

**FCP-02**  
SHEET NO.: 40 OF 44





LEGEND			
430	EX. CONTOUR	WATERWAY (EPHEMERAL)	PROP. WOODS LINE
SD	EX. STORM DRAIN	EX. NON-TIDAL WETLAND	STONE TOE PROTECTION
S	EX. SANITARY SEWER	25' WETLAND BUFFER	TOE BOULDERS
X	EX. OVERHEAD ELECTRIC	EX. 75' STREAM BUFFER	ALTERNATING ROUGHNESS
OH	EX. METAL FENCE	PROP. 75' STREAM BUFFER	BRUSH MATTRESS
	EX. WOODS LINE	EX. H & H 100 YEAR FLOODPLAIN	COIR LOGS
	EX. TREE	PROP. H & H 100 YEAR FLOODPLAIN	HABITAT BOULDERS
	EX. MANHOLE	LIMIT OF DISTURBANCE	SILL
	EX. UTILITY POLE	425	RIFFLE GRADE CONTROL
	EX. EASEMENT	SLOPES 15-25%	OUTFALL PROTECTION
	PROPERTY LINE	SLOPES 25% OR GREATER	WETLAND TERRACE
GUB	SOILS LINE	EX. FOREST TO BE REMOVED	EMBEDDED LOGS
GHB	WATERS OF THE U.S.		
WUS			

NO.	REVISIONS DESCRIPTION	DATE

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MATCH LINE - SEE SHEET FCP - 02

MATCH LINE - SEE SHEET FCP - 04

**FOREST STAND 'A'**  
 RED MAPLE /  
 PIN OAK STAND  
 PRIORITY RETENTION  
 436,225 SF / 10.01 AC.

**WUS WL001**  
 R2UB1/2  
 3,370 LF.

**WUS WL001**  
 R2UB1/2  
 3,370 LF.

**WATERWAY WL008**  
 EPHEMERAL  
 138 LF.

**WETLAND WP007**  
 PFO1A  
 136,385 SF. /  
 3.13 AC.

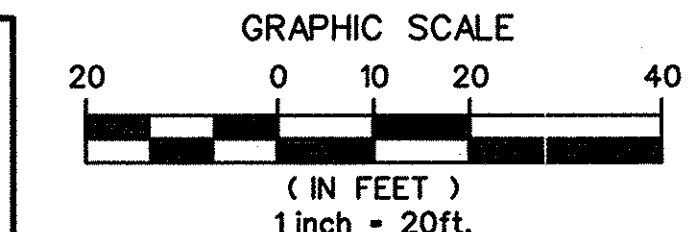
**WUS WL004**  
 R4SB5  
 305 LF.

**22,915 SF. / 0.53 AC.**  
**OF FOREST CLEARING**

THIS PLAN WAS PREPARED BY:  
 JENNIFER BIRO  
 KCI TECHNOLOGIES  
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 STATUS  
 (SEPTEMBER 2011)

*Jennifer Biro*  
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MARCH, 2014  
 DATE



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

*Michael P. Pica*  
 SIGNATURE

8/26/14  
 DATE

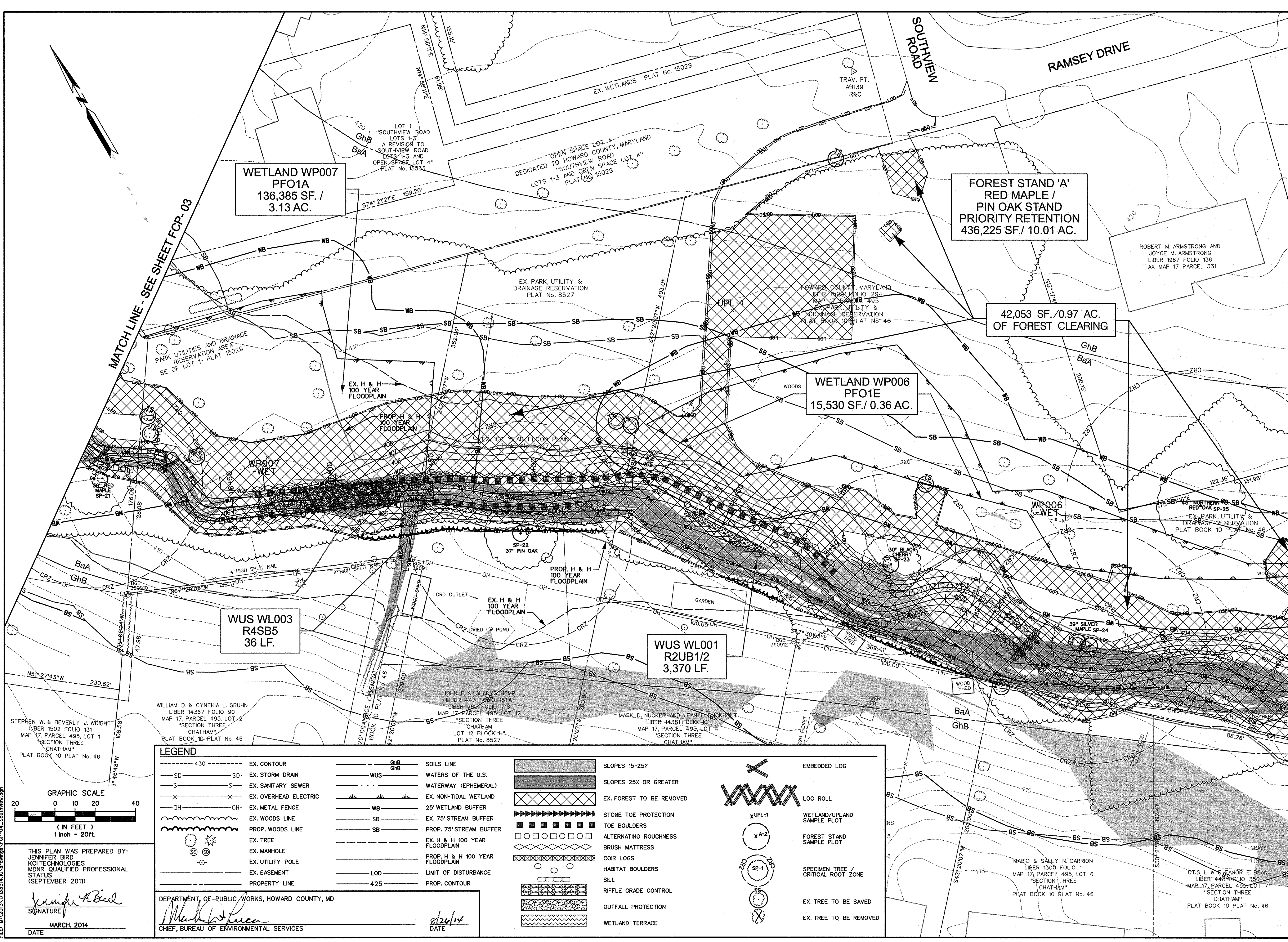
**SOUTHVIEW ROAD**  
**STREAM RESTORATION PROJECT**  
 CAPITAL PROJECT D-1158  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 STORMWATER MANAGEMENT DIVISION  
 6757 COLUMBIA GATEWAY DRIVE  
 COLUMBIA, MD 21046  
 PARCELS: 399, 489, 582, 211, 396, 495, 530 TAX MAP 17  
 ZONING: P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**FOREST CONSERVATION PLAN**

SCALE: 1" = 20'  
 DATE: AUGUST 2014  
 KCI JOB NO.: 17133314-10  
 CAPITAL PROJECT NO.: D-1158  
 PERMIT ISSUE:  
 CONSTRUCTION ISSUE:

**FCP-03**  
 SHEET NO.: 41 OF 44





**WETLAND WP007**  
PFO1A  
136,385 SF. /  
3.13 AC.

**FOREST STAND 'A'**  
RED MAPLE /  
PIN OAK STAND  
PRIORITY RETENTION  
436,225 SF. / 10.01 AC.

**42,053 SF. / 0.97 AC.**  
OF FOREST CLEARING

**WETLAND WP006**  
PFO1E  
15,530 SF. / 0.36 AC.

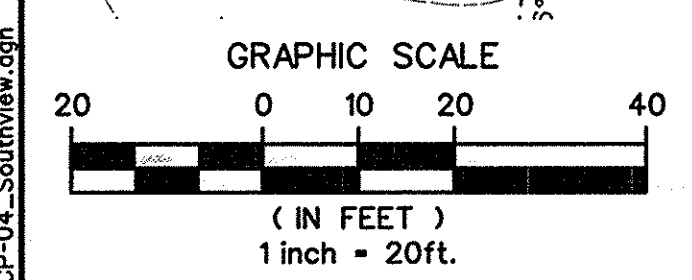
**WUS WL003**  
R4SB5  
36 LF.

**WUS WL001**  
R2UB1/2  
3,370 LF.

**LEGEND**

-SD-	EX. CONTOUR	---	GhB	SOILS LINE	[Pattern]	SLOPES 15-25%	X	EMBEDDED LOG
-S-	EX. STORM DRAIN	---	WUS	WATERS OF THE U.S.	[Pattern]	SLOPES 25% OR GREATER	X	LOG ROLL
-X-	EX. SANITARY SEWER	---	WB	WATERWAY (EPHEMERAL)	[Pattern]	EX. FOREST TO BE REMOVED	X UPL-1	WETLAND/UPLAND SAMPLE PLOT
-OH-	EX. OVERHEAD ELECTRIC	---	SB	EX. NON-TIDAL WETLAND	[Pattern]	STONE TOE PROTECTION	X A-2	FOREST STAND SAMPLE PLOT
-X-	EX. METAL FENCE	---	SB	25' WETLAND BUFFER	[Pattern]	TOE BOULDERS	SP-1	SPECIMEN TREE / CRITICAL ROOT ZONE
-X-	EX. WOODS LINE	---	SB	EX. 75' STREAM BUFFER	[Pattern]	ALTERNATING ROUGHNESS		EX. TREE TO BE SAVED
-X-	PROP. WOODS LINE	---	SB	PROP. 75' STREAM BUFFER	[Pattern]	BRUSH MATTRESS		EX. TREE TO BE REMOVED
-X-	EX. TREE	---	SB	EX. H & H 100 YEAR FLOODPLAIN	[Pattern]	COIR LOGS		
-X-	EX. MANHOLE	---	SB	PROP. H & H 100 YEAR FLOODPLAIN	[Pattern]	HABITAT BOULDERS		
-X-	EX. UTILITY POLE	---	SB	EX. H & H 100 YEAR FLOODPLAIN	[Pattern]	SILL		
-X-	EX. EASEMENT	---	SB	PROP. H & H 100 YEAR FLOODPLAIN	[Pattern]	RIFFLE GRADE CONTROL		
-X-	PROPERTY LINE	---	SB	PROP. CONTOUR	[Pattern]	OUTFALL PROTECTION		
			L0D	LIMIT OF DISTURBANCE	[Pattern]	WETLAND TERRACE		
			425		[Pattern]			

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 3/26/14



THIS PLAN WAS PREPARED BY:  
JENNIFER BIRO  
KCI TECHNOLOGIES  
MNR QUALIFIED PROFESSIONAL STATUS  
(SEPTEMBER 2011)  
DATE: MARCH, 2014

REVISIONS		DATE
NO.	DESCRIPTION	

KCI FILE: M\2013\17133314-10\

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**KCI TECHNOLOGIES**

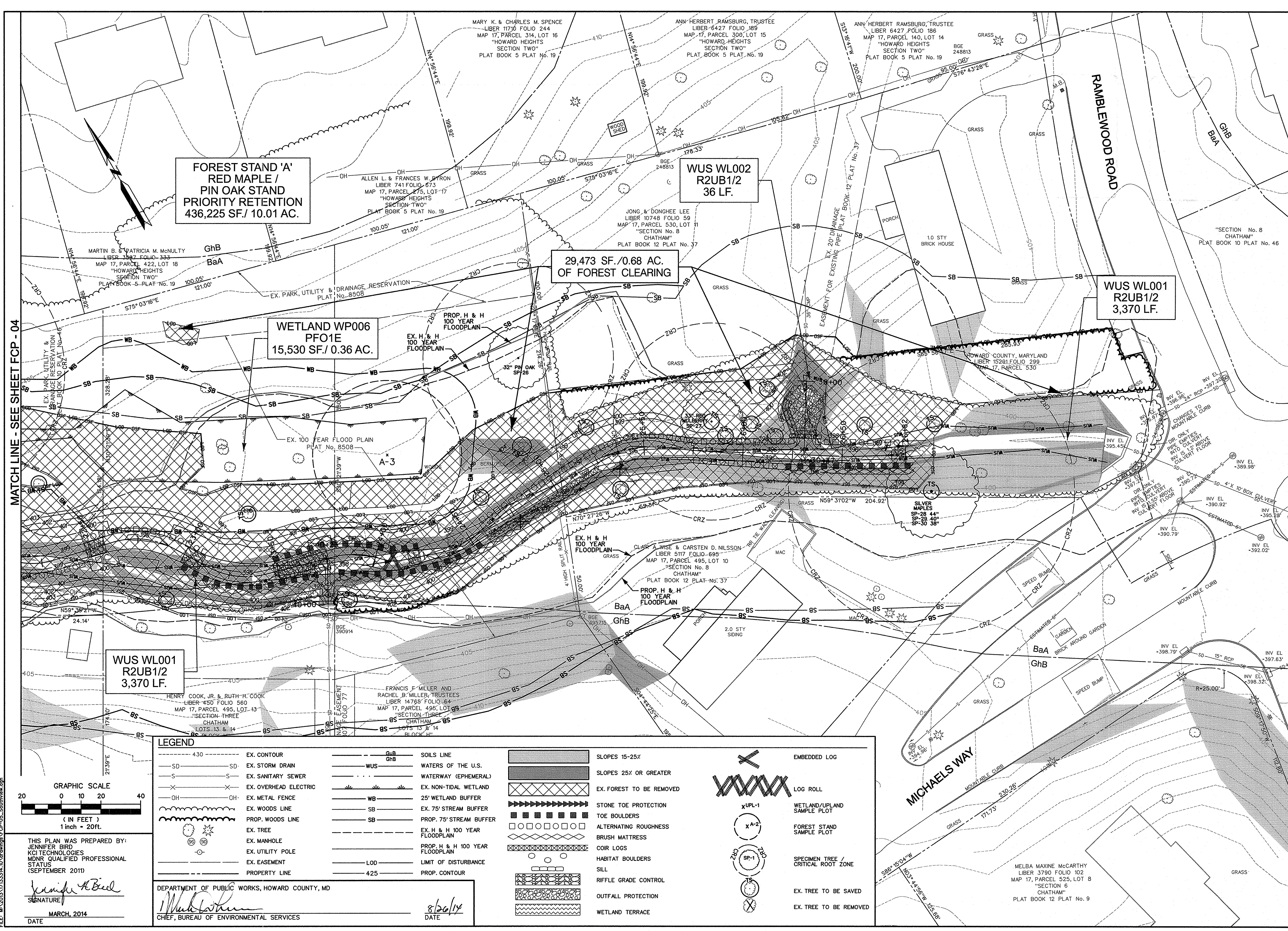
**STREAM RESTORATION PROJECT**  
SOUTHVIEW ROAD  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6757 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 399, 488, 582, 211, 396, 495, 530 TAX MAP 17  
ZONING P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**FOREST CONSERVATION PLAN**

SCALE: 1" = 20'  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

**FCP-04**  
SHEET NO.: 42 OF 44





MATCH LINE - SEE SHEET FCP - 04

**FOREST STAND 'A'  
RED MAPLE /  
PIN OAK STAND  
PRIORITY RETENTION  
436,225 SF / 10.01 AC.**

**WUS WL002  
R2UB1/2  
36 LF.**

**29,473 SF / 0.68 AC.  
OF FOREST CLEARING**

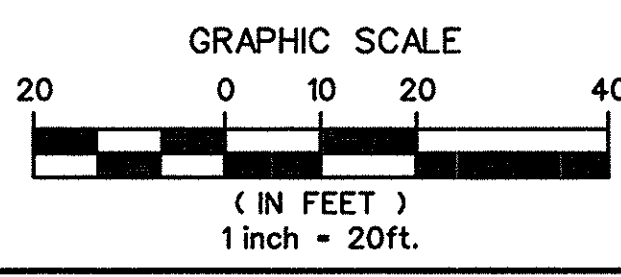
**WUS WL001  
R2UB1/2  
3,370 LF.**

**WETLAND WP006  
PFO1E  
15,530 SF / 0.36 AC.**

**WUS WL001  
R2UB1/2  
3,370 LF.**

**LEGEND**

430	EX. CONTOUR	GhB	SOILS LINE	[Symbol]	SLOPES 15-25%	[Symbol]	EMBEDDED LOG
SD	EX. STORM DRAIN	WUS	WATERS OF THE U.S.	[Symbol]	SLOPES 25% OR GREATER	[Symbol]	LOG ROLL
S	EX. SANITARY SEWER	WB	WATERWAY (EPHEMERAL)	[Symbol]	EX. FOREST TO BE REMOVED	[Symbol]	WETLAND/UPLAND SAMPLE PLOT
X	EX. OVERHEAD ELECTRIC	SB	EX. NON-TIDAL WETLAND	[Symbol]	STONE TOE PROTECTION	[Symbol]	FOREST STAND SAMPLE PLOT
OH	EX. METAL FENCE	SB	25' WETLAND BUFFER	[Symbol]	TOE BOULDERS	[Symbol]	SPECIMEN TREE / CRITICAL ROOT ZONE
OH	EX. WOODS LINE	SB	EX. 75' STREAM BUFFER	[Symbol]	ALTERNATING ROUGHNESS	[Symbol]	EX. TREE TO BE SAVED
[Symbol]	PROP. WOODS LINE	SB	PROP. 75' STREAM BUFFER	[Symbol]	BRUSH MATTRESS	[Symbol]	EX. TREE TO BE REMOVED
[Symbol]	EX. TREE	L0D	EX. H & H 100 YEAR FLOODPLAIN	[Symbol]	COIR LOGS	[Symbol]	
[Symbol]	EX. MANHOLE	425	PROP. H & H 100 YEAR FLOODPLAIN	[Symbol]	HABITAT BOULDERS	[Symbol]	
[Symbol]	EX. UTILITY POLE		PROP. H & H 100 YEAR FLOODPLAIN	[Symbol]	SILL	[Symbol]	
[Symbol]	EX. EASEMENT		PROP. H & H 100 YEAR FLOODPLAIN	[Symbol]	RIFLE GRADE CONTROL	[Symbol]	
[Symbol]	PROPERTY LINE		PROP. CONTOUR	[Symbol]	OUTFALL PROTECTION	[Symbol]	
				[Symbol]	WETLAND TERRACE	[Symbol]	



THIS PLAN WAS PREPARED BY:  
JENNIFER BIRO  
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MDNR QUALIFIED PROFESSIONAL STATUS  
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*Jennifer A. Birol*  
SIGNATURE

MARCH, 2014  
DATE

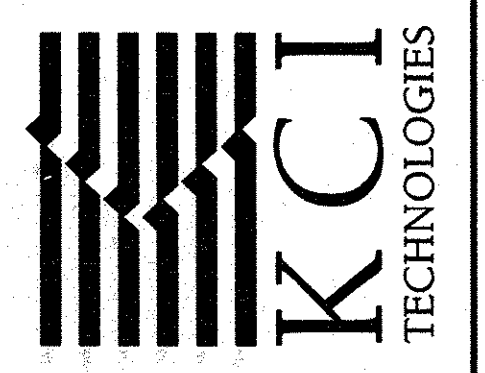
DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

*Mark P. ...*  
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**SOUTHVIEW ROAD  
STREAM RESTORATION PROJECT**  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
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PARCELS 389, 489, 582, 211, 386, 495, 530 TAX MAP 17  
ZONING P20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**FOREST CONSERVATION PLAN**

SCALE: 1" = 20'  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

**FCP-05**  
SHEET NO.: 43 OF 44



**FOREST CONSERVATION NOTES**

1. THE LOD (LIMIT OF DISTURBANCE) WAS USED AS THE TOTAL TRACT FOR FOREST CONSERVATION CALCULATIONS AS APPROVED UNDER WAIVER PETITION WP-15-009.
2. 2.42 ACRES OF CLEARING WILL BE WITHIN THE 100-YEAR FLOODPLAIN. THESE AREAS WILL BE REPLANTED AS SEEN ON THE LANDSCAPE PLANS, SHEETS 32 THROUGH 36 AND THE LANDSCAPE DETAILS ON SHEET 37.
3. ALL EFFORTS TO MINIMIZE THE AREA OF DISTURBANCE WILL BE MADE.
4. THE 0.44 ACRES OF FOREST MITIGATION WILL BE SATISFIED THROUGH FEE-IN-LIEU. FEE-IN-LIEU WILL BE PAID AT \$0.75/SF. (19,166 SF. X \$0.75 = \$14,375).
5. CURRENT ACREAGE OF FOREST WITHIN THE LOD IS 3.01 ACRES. THE ENTIRE LOD WILL BE REPLANTED AND AN ADDITIONAL 0.17 ACRE WILL BE PLANTED OUTSIDE THE EXISTING STAND; THEREFORE TOTAL ACREAGE OF FOREST AFTER PROJECT COMPLETION IS 3.18 ACRES.

**GENERAL NOTES**

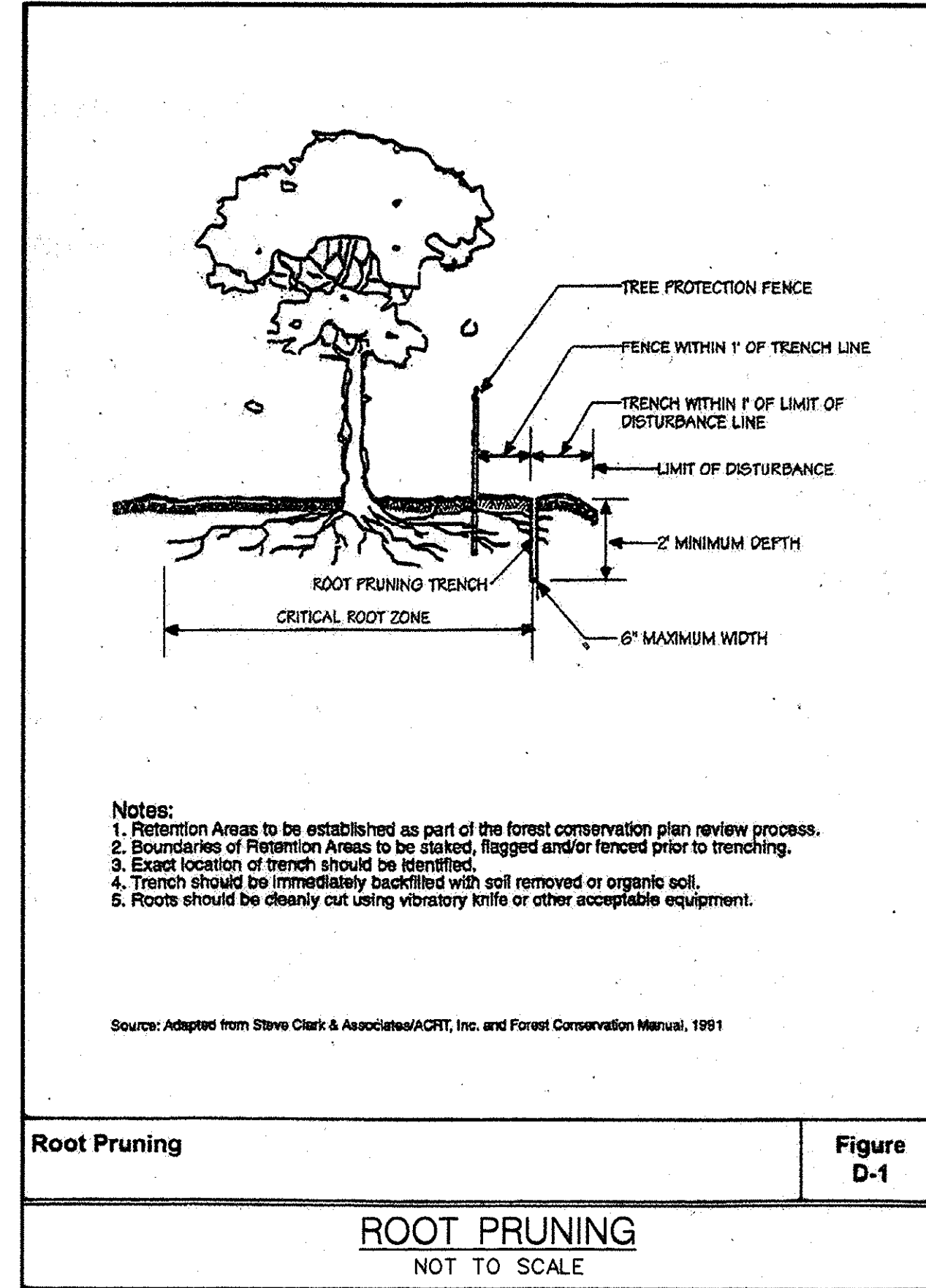
1. THE PROJECT AREA IS LOCATED ON PROPERTIES OWNED BY HOWARD COUNTY RECREATION AND PARKS AND SEVERAL PRIVATE PROPERTIES (MAP 17, GRID 0022, PARCELS 489, 399, 562, 211, 386, 495, 530).
2. EXISTING ZONING: R-20 - RESIDENTIAL - SINGLE
3. EXISTING LAND USE: RESIDENTIAL - HIGH DENSITY
4. WATERS OF THE UNITED STATES (WUS) AND WETLANDS WERE DELINEATED BY KCI TECHNOLOGIES, INC. IN JULY 2013 AND JANUARY 2014. TWO NONTIDAL WETLAND, SIX WUS AND ONE EPHEMERAL CHANNEL WERE IDENTIFIED WITHIN THE STUDY AREA. WETLANDS SHOWN REPRESENT THE UNVERIFIED USACE BOUNDARIES.
5. TOTAL AREA OF NONTIDAL WETLANDS WITHIN THE PROJECT AREA: 3.49 AC.
6. TOTAL LINEAR FEET OF PERENNIAL AND INTERMITTENT STREAMS: 4,101 LF.
7. TOTAL FORESTED AREA WITHIN LIMITS OF DISTURBANCE BUT OUTSIDE THE 100 YEAR FLOODPLAIN IS: 0.59 ACRES.
8. NO RARE, THREATENED OR ENDANGERED SPECIES WERE ENCOUNTERED DURING THE FIELD INVESTIGATIONS. CORRESPONDENCE WITH THE THE MARYLAND HISTORICAL TRUST INDICATE NO HISTORIC RESOURCES WITHIN THE STUDY AREA. IN ADDITION, CORRESPONDENCE WITH THE U.S. FISH & WILDLIFE SERVICE AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES INDICATE NO RARE, THREATENED OR ENDANGERED SPECIES WITHIN THE STUDY AREA.
9. ONE (01) SPECIMEN TREE WILL BE REMOVED.
10. TREE SAVE IS SHOWN ON TREES WITHIN THE LOD BECAUSE AN ATTEMPT WILL BE MADE TO SAVE THESE TREES. TREES WILL ONLY BE REMOVED IF NECESSARY FOR GRADING OR ACCESS.
11. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 17 HA & 17 ID WERE USED FOR THIS SITE. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES, INC., IN NOVEMBER 2012.
12. ALL WETLAND AND WUS SYSTEMS DENOTED WITH AN ASTERISK (\*) CONTINUE BEYOND THE LIMITS OF THE STUDY AREA.

**SPECIMEN TREES**

Number	Species	Common Name	Size, DBH (in)	Condition
SP-1	<i>Acer rubrum</i>	Red maple	44.0	Good
SP-2	<i>Liriodendron tulipifera</i>	Tulip poplar	36.0	Good
SP-3	<i>Acer rubrum</i>	Red maple	31.0	Fair
SP-4	<i>Quercus alba</i>	White oak	48.0	Good
SP-5	<i>Quercus palustris</i>	Pin oak	44.0	Fair
SP-6	<i>Acer rubrum</i>	Red maple	40.0	Fair
SP-7	<i>Acer rubrum</i>	Red maple	47.0	Good
SP-8	<i>Acer saccharinum</i>	Silver maple	33.0	Good
SP-9	<i>Acer saccharinum</i>	Silver maple	33.0	Good
SP-10	<i>Acer saccharinum</i>	Silver maple	36.0	Good
SP-11	<i>Acer saccharinum</i>	Silver maple	40.0	Good
SP-12	<i>Acer rubrum</i>	Red maple	35.0	Good
SP-13	<i>Quercus palustris</i>	Pin oak	34.0	Good
SP-14	<i>Acer rubrum</i>	Red maple	37.0	Poor
SP-15	<i>Acer rubrum</i>	Red maple	33.0	Good
SP-16	<i>Quercus palustris</i>	Pin oak	34.0	Fair
SP-17	<i>Quercus palustris</i>	Pin oak	30.0	Good
SP-18	<i>Quercus palustris</i>	Pin oak	36.0	Fair
SP-19	<i>Quercus palustris</i>	Pin oak	45.0	Good
SP-20	<i>Quercus palustris</i>	Pin oak	33.0	Good
SP-21	<i>Acer rubrum</i>	Red maple	36.0	Fair
SP-22	<i>Quercus palustris</i>	Pin oak	37.0	Good
SP-23	<i>Prunus serotina</i>	Black cherry	30.0	Good
SP-24	<i>Acer saccharinum</i>	Silver maple	39.0	Good
SP-25	<i>Quercus rubra</i>	Northern red oak	45.0	Poor
SP-26	<i>Quercus palustris</i>	Pin oak	32.0	Fair
SP-27	<i>Morus rubra</i>	Red mulberry	33.0	Good
SP-28	<i>Acer saccharinum</i>	Silver maple	44.0	Good
SP-29	<i>Acer saccharinum</i>	Silver maple	40.0	Good
SP-30	<i>Acer saccharinum</i>	Silver maple	38.0	Good
SP-31	<i>Platanus occidentalis</i>	Sycamore	41.0	Poor
SP-32	<i>Platanus occidentalis</i>	Sycamore	59.0	Fair
SP-33	<i>Acer rubrum</i>	Red maple	38.0	Fair
SP-34	<i>Liriodendron tulipifera</i>	Tulip poplar	34.0	Good
SP-35	<i>Acer rubrum</i>	Red maple	40.0	Fair

**SOILS TABLE**

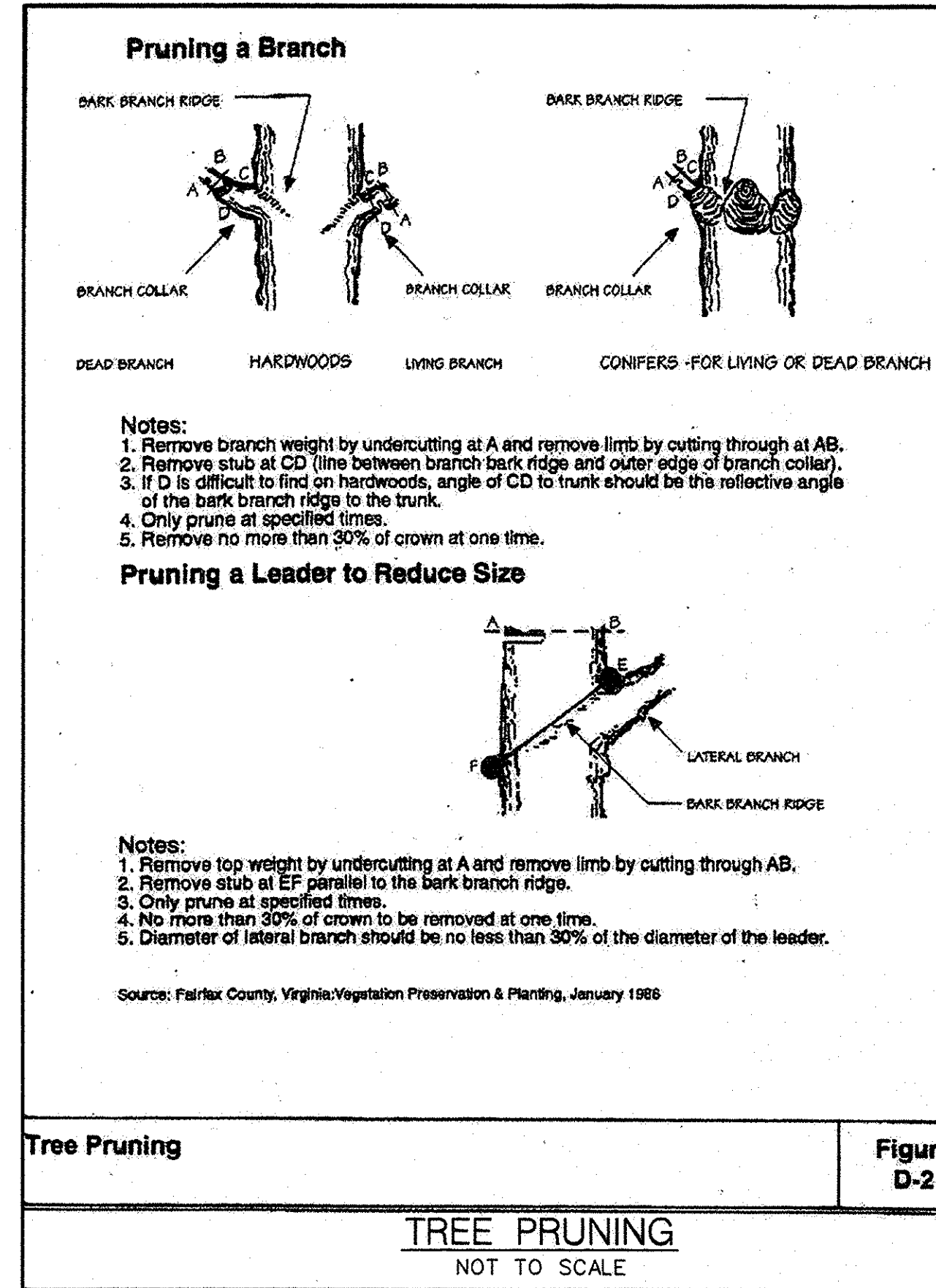
Soil Symbol	Soil Unit Name	Percent Slope	K <sub>s</sub> value	Hydric (Y/N)
BaA	Balle silt loam	0-3	0.32	Y
GhB	Glencel-Urban land complex	0-8	N/A	N
GhB	Glencel-Urban land-Udorthents complex	0-8	0.37	N



- Notes:**
1. Retention Areas to be established as part of the forest conservation plan review process.
  2. Boundaries of Retention Areas to be staked, flagged and/or fenced prior to trenching.
  3. Exact location of trench should be identified.
  4. Trench should be immediately backfilled with soil removed or organic soil.
  5. Roots should be clearly cut using vibratory knife or other acceptable equipment.

Source: Adapted from Steve Clark & Associates/AGRT, Inc. and Forest Conservation Manual, 1991

**Root Pruning** Figure D-1  
**ROOT PRUNING**  
NOT TO SCALE



- Notes:**
1. Remove branch weight by undercutting at A and remove limb by cutting through at AB.
  2. Remove stub at CD (line between branch bark ridge and outer edge of branch collar).
  3. If D is difficult to find on hardwoods, angle of CD to trunk should be the reflective angle of the bark branch ridge to the trunk.
  4. Only prune at specified times.
  5. Remove no more than 30% of crown at one time.

**Pruning a Leader to Reduce Size**

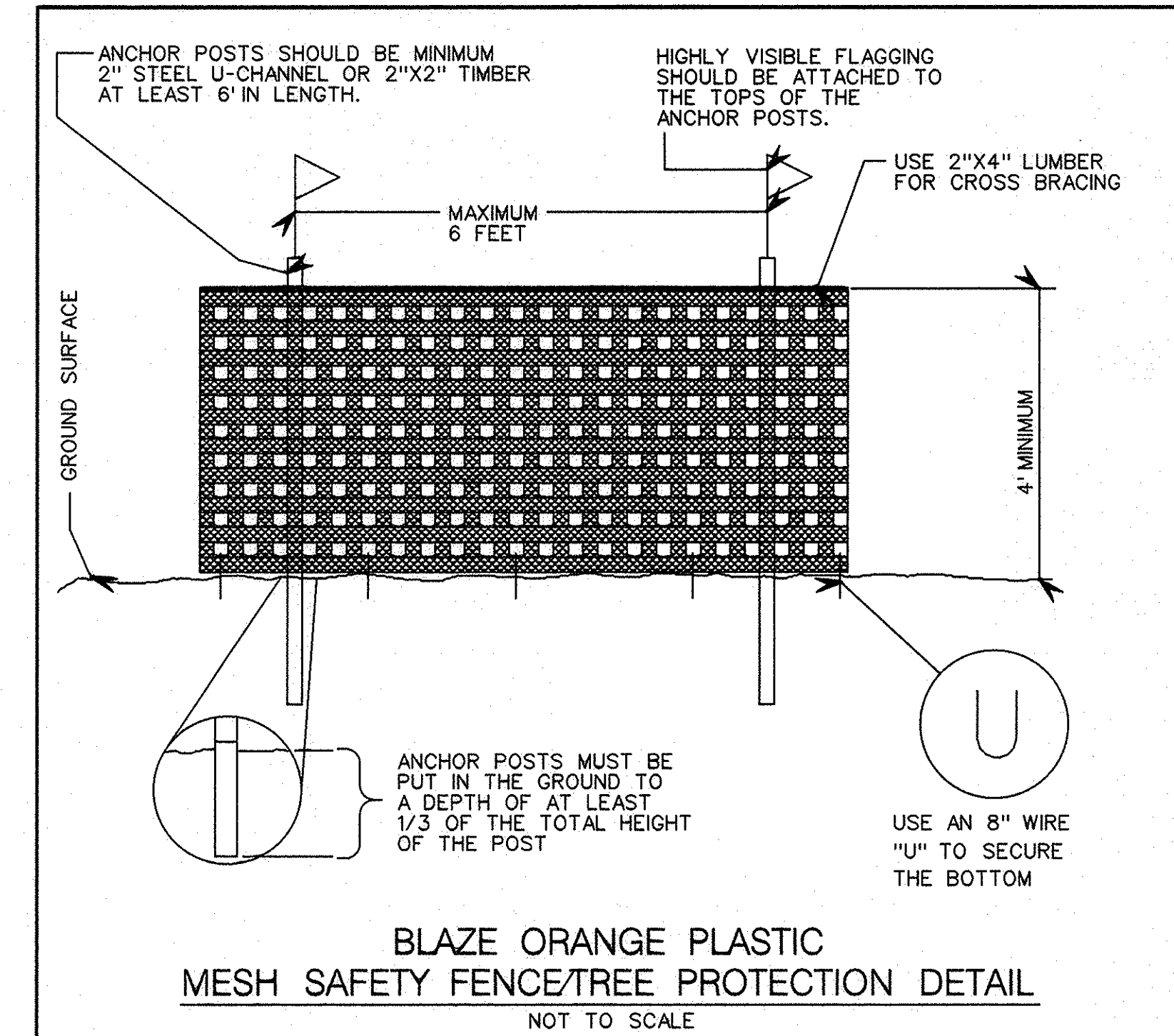
- Notes:**
1. Remove top weight by undercutting at A and remove limb by cutting through AB.
  2. Remove stub at EF parallel to the bark branch ridge.
  3. Only prune at specified times.
  4. No more than 30% of crown to be removed at one time.
  5. Diameter of lateral branch should be no less than 30% of the diameter of the leader.

Source: Fairfax County, Virginia, Vegetation Preservation & Planning, January 1986

**Tree Pruning** Figure D-2  
**TREE PRUNING**  
NOT TO SCALE

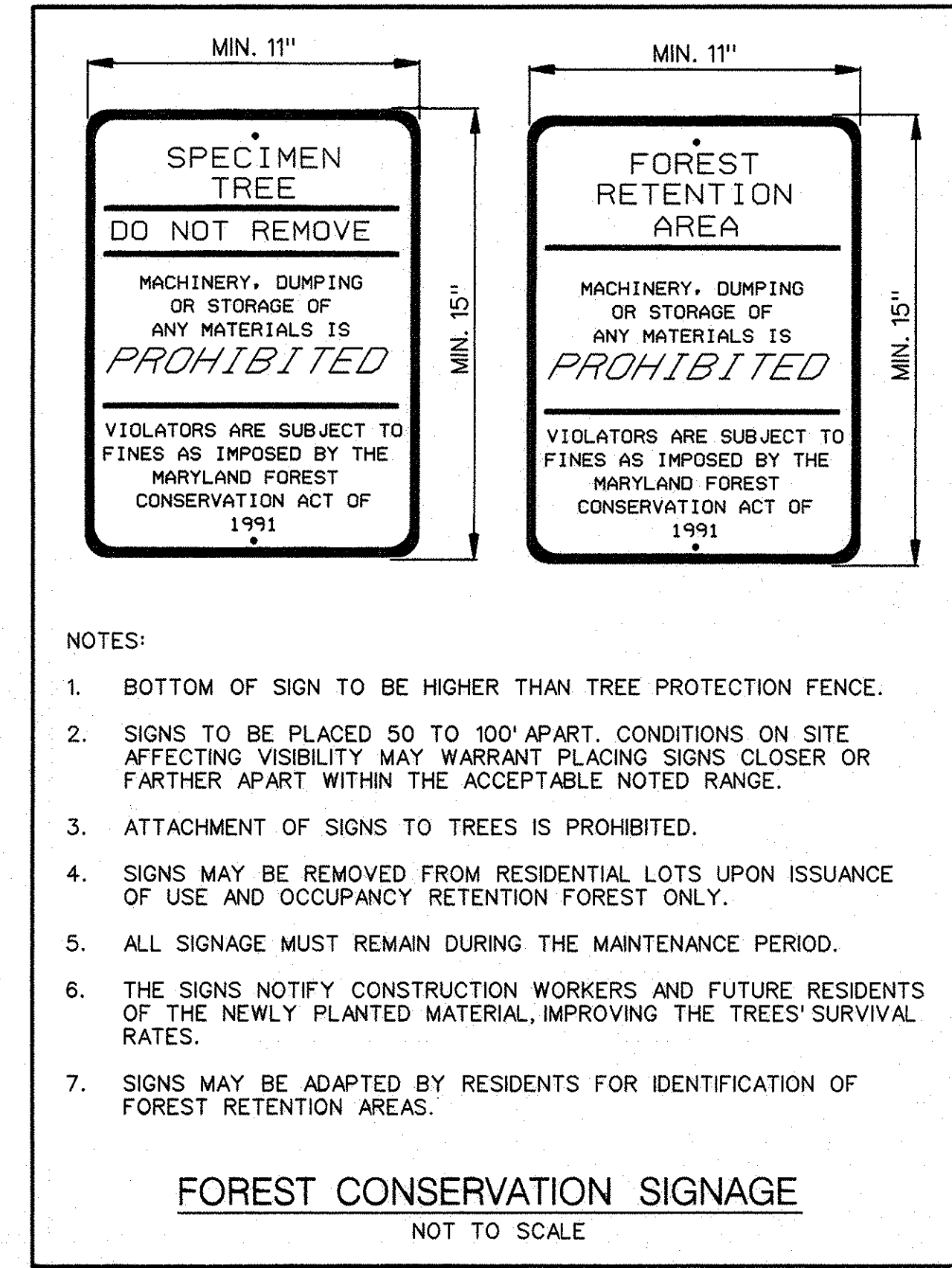
Forest Conservation Worksheet			
<b>Net Tract Area</b>			
A.	Total Tract Area	A=	3.41 ac.
B.	Area within 100-year Floodplain	B=	2.58 ac.
C.	Area to Remain in Agricultural Production	C=	0.00 ac.
D.	Net Tract Area (D=A-B-C)	D=	0.83 ac.
<b>Land Use Category</b>			
E.	Afforestation Threshold (D x 15%)	E=	0.12 ac.
F.	Conservation Threshold (D x 20%)	F=	0.17 ac.
<b>Existing Forest Cover</b>			
G.	Existing Forest Cover (excluding floodplain)	G=	0.59 ac.
H.	Area of Forest Above Afforestation Threshold	H=	0.47 ac.
(1) If G<=E then H=0 and I=0, go to L			
(2) If G>E then H=G-E, go to I			
I.	Area of Forest Above Conservation Threshold	I=	0.42 ac.
(1) If G<=F then I=0, go to L			
(2) If G>F then I=G-F, go to J			
<b>Break Even Point</b>			
J.	Forest Retention Above Threshold with no Mitigation	J=	0.25 ac.
(1) If I>0 then J=(0.2 x I) + F, go to K			
(2) If I=0, J=0, go to L			
K.	Clearing Permitted Without Mitigation (K=G-J)	K=	0.34 ac.
<b>Proposed Forest Clearing</b>			
L.	Total Area of Forest to be Cleared	L=	0.59 ac.
M.	Total Area of Forest to be Retained (M=G-L)	M=	0.00 ac.
<b>Planting Requirements</b>			
N.	Reforestation for Clearing Above the Conservation Threshold	N=	0.11 ac.
(1) If L=K then N=0, P=0, Q=0, R=0, S=0, go to T			
(2) If M>F then N=L x 0.25, P=0, go to Q			
(3) If M<=F then N=L x 0.025, go to P			
P.	Reforestation for Clearing Below the Conservation Threshold	P=	0.33 ac.
(1) If G>F and M>F then P=0, Q=0, go to R			
(2) If G>F and M<=F then P=2.0 x (F-M), Q=0, go to R			
(3) If G<=F then P=2.0 x L, Q=0, go to R			
Q.	Credit for Retention Above the Conservation Threshold	Q=	0.00 ac.
(1) If M>F then Q=M-F, go to R			
(2) If M<=F then Q=0, go to R			
R.	Total Reforestation Required	R=	0.44 ac.
(1) If Q>N and M>E then R=0, S=0, go to T			
(2) If Q<=N and M>E then R=(N-P) x Q, S=0, go to T			
(3) If Q<=N and M<=E then R=N+P, go to S			
S.	Total Afforestation Required	S=	0.00 ac.
(1) If G<=E and M<=E then S=E-G, go to T			
(2) If G>E and M>E then S=0, go to T			
T.	Total Reforestation and Afforestation Requirement T=(R+S)	T=	0.44 ac.
<b>Note:</b> Use 0 for all negative numbers that result from the calculations.			

TOTAL FOREST CLEARING WITHIN THE LOD = 3.01 AC.  
CLEARING OUTSIDE THE FLOODPLAIN BUT WITHIN THE LOD = 0.59 AC.



- BLAZE ORANGE PLASTIC MESH SAFETY FENCE/TREE PROTECTION DETAIL**  
NOT TO SCALE
- PLACEMENT OF ORANGE HIGH VISIBILITY FENCE:
1. ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE LIMITS OF DISTURBANCE, WHERE THAT LIMIT IS WITHIN 50' OF THE FOREST CONSERVATION/FOREST BUFFER EASEMENTS AND SHALL FUNCTION AS A FOREST PROTECTION DEVICE.
  2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
  3. BOUNDARIES OF THE RETENTION AREA SHALL BE STAKES AND FLAGGED PRIOR TO INSTALLING THE DEVICE.
  4. ROOT DAMAGE SHALL BE AVOIDED.
  5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
  6. DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

STANDARD SYMBOL  
— OSF —

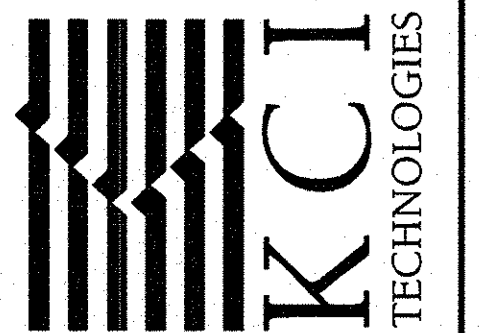


- NOTES:**
1. BOTTOM OF SIGN TO BE HIGHER THAN TREE PROTECTION FENCE.
  2. SIGNS TO BE PLACED 50 TO 100' APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FURTHER APART WITHIN THE ACCEPTABLE NOTED RANGE.
  3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
  4. SIGNS MAY BE REMOVED FROM RESIDENTIAL LOTS UPON ISSUANCE OF USE AND OCCUPANCY RETENTION FOREST ONLY.
  5. ALL SIGNAGE MUST REMAIN DURING THE MAINTENANCE PERIOD.
  6. THE SIGNS NOTIFY CONSTRUCTION WORKERS AND FUTURE RESIDENTS OF THE NEWLY PLANTED MATERIAL, IMPROVING THE TREES' SURVIVAL RATES.
  7. SIGNS MAY BE ADAPTED BY RESIDENTS FOR IDENTIFICATION OF FOREST RETENTION AREAS.

**FOREST CONSERVATION SIGNAGE**  
NOT TO SCALE

NO.	REVISIONS DESCRIPTION	DATE

936 RIDGEBROOK ROAD  
SPARKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818  
www.kci.com



SOUTHWEST ROAD  
STREAM RESTORATION PROJECT  
CAPITAL PROJECT D-1158  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
STORMWATER MANAGEMENT DIVISION  
6751 COLUMBIA GATEWAY DRIVE  
COLUMBIA, MD 21046  
PARCELS 389, 489, 562, 211, 386, 486, 530 TAX MAP 17  
ZONING R20 ELECTION DISTRICT 02 GRIDBLOCK 0022

**FOREST CONSERVATION NOTES AND DETAILS**

SCALE: AS SHOWN  
DATE: AUGUST 2014  
KCI JOB NO.: 17133314-10  
CAPITAL PROJECT NO.: D-1158  
PERMIT ISSUE:  
CONSTRUCTION ISSUE:

FCP-06  
SHEET NO.: 44 OF 44

THIS PLAN WAS PREPARED BY:  
JENNIFER BIRD  
KCI TECHNOLOGIES  
MDNR QUALIFIED PROFESSIONAL  
STATUS  
(SEPTEMBER 2011)

*Jennifer Bird*  
SIGNATURE  
DATE: MARCH, 2014

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD  
*Mark Doherty*  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES  
DATE: 8/26/14