

ALLEGANY COUNTY, MARYLAND  
 ALLEGANY COUNTY COMMISSIONERS  
 EVITTS CREEK STREAM RESTORATION/  
 SEWER REALIGNMENT

CONTRACT NO. AC-16-SR-01  
 JUNE 2016



VICINITY MAP  
 SCALE: 1" = 1 MILE

LIST OF DRAWINGS	
DRAWING	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES
3	LOCATION MAP/SITE ACCESS
4	SITE PLAN
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ALLEGANY COUNTY COMMISSIONERS  
 JACOB C. SHADE, PRESIDENT  
 CREADE V. BRODIE JR., COMMISSIONER  
 WILLIAM R. VALENTINE, COMMISSIONER

DAVID A. EBERLY – COUNTY ADMINISTRATOR  
 PAUL F. KAHL, P.E. – DIRECTOR OF PUBLIC WORKS  
 ADAM PATTERSON, P.E. – COUNTY ENGINEER  
 MARK W. YODER, P.E. – UTILITIES DIVISION CHIEF

ALLEGANY COUNTY

APPROVAL RECOMMENDED  
*Paul F. Kahl* 6/29/16  
 DIRECTOR OF PUBLIC WORKS DATE

APPROVAL RECOMMENDED  
*Adam Patterson* 6/20/16  
 COUNTY ENGINEER DATE

APPROVAL RECOMMENDED  
*Mark W. Yoder* 6/29/16  
 UTILITIES DIVISION CHIEF DATE

APPROVAL STORMWATER MANAGEMENT  
*Greg Pahl* 6/29/16  
 LAND USE AND PLANNING ENGINEER DATE

APPROVAL SEDIMENT & EROSION CONTROL  
*Bonnie Cannon* 6/29/16  
 SOIL CONSERVATION DISTRICT DATE



NO.	DATE	REVISIONS

JUNE 2016	DESIGNED:	DRAWN:	CHECKED:
	DSD	DSD	AP

CONTRACT NO. AC-16-SR-01  
 EVITTS CREEK STREAM RESTORATION  
 COVER SHEET

ALLEGANY COUNTY COMMISSIONERS  
 701 KELLY ROAD  
 CUMBERLAND, MARYLAND 21502  
 ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS  
 ATTN: DANIEL S. DEWITT, P.E. PHONE: 301-876-9560  
 701 KELLY ROAD, SUITE 300  
 CUMBERLAND, MARYLAND 21502

OWNER:  
 ENGINEER:



DRAWING NO.  
 01 OF 06

FOR INFORMATION ONLY

CONTACT LIST

- 1. ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS - ENGINEERING
ALLEGANY COUNTY OFFICE COMPLEX
701 KELLY ROAD, SUITE 300
CUMBERLAND, MARYLAND 21501
PHONE: 301-777-5933
FAX: 301-777-2001
CONTACT: ADAM PATTERSON, P.E.
2. ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS - ROADS DIVISION
ALLEGANY COUNTY OFFICE COMPLEX
701 KELLY ROAD
CUMBERLAND, MARYLAND 21501
PHONE: 301-777-5955
FAX: 301-777-1439
CONTACT: PAUL GOLDSWORTHY
3. ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS - UTILITIES DIVISION (WATER & SANITARY)
ALLEGANY COUNTY OFFICE COMPLEX
701 KELLY ROAD, SUITE 300
CUMBERLAND, MARYLAND 21501
PHONE: 301-729-3311
FAX: 301-777-2001
CONTACT: JAMES TAYLOR
4. ALLEGANY COUNTY DIVISION OF PERMITS AND COMPLIANCE
ALLEGANY COUNTY OFFICE COMPLEX
701 KELLY ROAD, SUITE 400
CUMBERLAND, MARYLAND 21501
PHONE: 301-777-5951
FAX: 301-777-2001
CONTACT: JAMES SQUIRES
5. MDE - NON-TIDAL WETLANDS & WATERWAY DIVISION
160 SOUTH WATER STREET
FROSTBURG, MARYLAND 21532
PHONE: 301-689-1486
FAX: 301-689-6543
CONTACT: SCOTT BOYLAN
6. FIRST ENERGY
700 FOURTH STREET @ SOMERVILLE AVENUE
CUMBERLAND, MARYLAND 21502
PHONE: 301-759-5757
7. COLUMBIA GAS OF MARYLAND
1000 INDUSTRIAL BOULEVARD
CUMBERLAND, MARYLAND 21502
PHONE: 301-784-3363
FAX: 301-759-9331
CONTACT: DAVE YATES
8. MISS UTILITY
HANOVER, MARYLAND 21076
PHONE: 1-800-257-7777
9. ATLANTIC BROADBAND
201 SOUTH MECHANIC STREET
CUMBERLAND, MARYLAND 21502
PHONE: 301-758-4806
CONTACT: DAN FEIERTAG
10. ALLEGANY COLLEGE OF MARYLAND
12401 WILLOWBROOK RD SE
CUMBERLAND, MARYLAND 21502
PHONE: 301-784-5221
CONTACT: DAVID DEWITT

- 1. THE CONTRACTOR SHALL NOTIFY ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS AT 301-777-5943 PRIOR TO ENTERING THE SITE.
2. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL THE UTILITIES, SHOWN HEREON OR OTHERWISE, AND VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO ASSURE THEMSELVES THAT NO HAZARD EXISTS OR DAMAGE WILL OCCUR TO THE UTILITIES. IT IS REQUIRED THAT "MISS UTILITY" (1-800-257-7777) AND ALL APPLICABLE UTILITY COMPANIES BE CONTACTED AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF WORK.
3. JOB SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE THAT MIGHT OCCUR TO ANY EXISTING PRIVATE OR PUBLIC PROPERTY. SHOULD ANY DAMAGE OCCUR AS THE RESULT OF CONTRACTOR'S ACTIVITIES, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF SAID PROPERTY AT NO COST TO THE OWNER. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS PRIOR TO BEGINNING WORK ON THE PROPERTY.
5. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND THE ACTUAL FIELD CONDITIONS.
6. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN THE SCALED AND FIGURED DIMENSIONS SHOWN ON THE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
7. IN CASE OF A DISCREPANCY BETWEEN THE SPECIAL PROVISIONS INCLUDED IN THIS CONTRACT, THE ENGINEER SHALL BE THE SOLE AUTHORITY AS TO THE PROPER PROCEDURE TO FOLLOW.
8. ALL CONSTRUCTION MATERIALS AND METHODS TO BE IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
9. THE CONTRACTOR SHALL COORDINATE HIS WORK SCHEDULE WITH THE ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS. ALLEGANY COUNTY SHALL HAVE FINAL AUTHORITY ON THE CONTRACTOR'S WORK SCHEDULE.
10. ALLEGANY COUNTY IS NOT RESPONSIBLE FOR THE CONTRACTOR'S UTILIZATION OF WORKERS, MATERIALS, EQUIPMENT OR SAFETY MEASURES IN THE PERFORMANCE OF ANY WORK ON THIS PROJECT. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR PERFORMING THE WORK CORRECTLY AND IN CONFORMANCE WITH ALL APPLICABLE CODES AND REGULATIONS.
11. THE PLANS PROVIDE A GENERAL APPROACH FOR THE CONTRACTOR TO ACCESS THE SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR FULLY IMPLEMENTING A PLAN TO ACCESS ALL NECESSARY EQUIPMENT, MATERIALS, AND MANPOWER INTO THE SITE, AND FOR COMPLETELY DEMOBILIZING ALL EQUIPMENT AND EXCESS MATERIALS FROM THE SITE ONCE CONSTRUCTION IS COMPLETE.
12. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL EQUIPMENT AND MATERIALS NECESSARY FOR COMPLETE CONSTRUCTION OF THIS PROJECT.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR REMOVING ALL EXCESS MATERIALS, SOIL, ROCK, TRASH, AND CONSTRUCTION DEBRIS FROM THE SITE ONCE CONSTRUCTION IS COMPLETE. THE SITE SHALL BE CLOSED AND LEFT IN A CONDITION TO THE COMPLETE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST.
14. SHOULD THE CONTRACTOR WISH TO DEVIATE FROM THE MAINTENANCE OF TRAFFIC PLAN IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL FORMULATE A TRAFFIC CONTROL PLAN AND SUBMIT SAME TO ALLEGANY COUNTY FOR APPROVAL. ALL MAINTENANCE OF TRAFFIC WORK SHALL BE IN ACCORDANCE WITH THE MD SHA BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE "MD MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION AVAILABLE AT THE TIME OF THE NOTICE TO PROCEED.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REPLACING ANY PROPERTY CORNERS, DRIVEWAYS AND DRAINS DAMAGED OR REMOVED DURING CONSTRUCTION AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE ENGINEER.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING AND/OR CLEANING UP DUST AND MUD ON ALL ROADS DUE TO VEHICLES ARRIVING AND LEAVING THE JOB SITE AS PART OF THIS WORK.
17. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
18. EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN LOCATED FROM THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS MADE FOR THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL

- REQUIRED STANDARD SEDIMENT AND EROSION CONTROL NOTES
1. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
2. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIME AS PERMANENT STABILIZATION OF EXPOSED SOIL OCCURS.
3. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRIP MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROJECTS SHALL BE APPLIED BY APRIL 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.
4. THE SITE'S APPROVED EROSION AND SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE.
5. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ALL OTHER FEDERAL, STATE, AND LOCAL AUTHORIZATIONS WHICH MAY BE REQUIRED.
6. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROL DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. THIS DOES NOT APPLY TO THOSE AREAS WHICH ARE SHOWN ON THE PLAN AND ARE CURRENTLY BEING USED FOR MATERIAL STORAGE OR FOR THOSE AREAS ON WHICH ACTIVE CONSTRUCTION ACTIVITIES ARE CURRENTLY PERFORMED. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO INSURE THAT STABILIZED AREAS CONTINUOUSLY MEET THE APPROPRIATE REQUIREMENTS OF THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
7. THE APPROVAL OF THIS PLAN MAKES NO REPRESENTATION AS TO THE EXISTENCE OR NON-EXISTENCE OF ANY UTILITIES AT THIS SITE. IT IS THE RESPONSIBILITY OF THE LANDOWNERS OR OPERATORS AND CONTRACTORS TO ASSURE THAT NO HAZARD EXISTS OR DAMAGE WILL OCCUR TO UTILITIES. IT IS SUGGESTED THAT "MISS UTILITY" BE CONTACTED AT: PHONE 1-800-257-7777.
8. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL COMPLY WITH THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
9. ALL DISTURBED AREAS TO BE SEEDED WITHIN 14 DAYS OF INITIAL GRADING. FOR TEMPORARY SEEDING SPECIFICATIONS, SEE SECTION G-20, "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL". COST FOR TEMPORARY SEEDING SHALL BE INCLUDED IN BID ITEM NO. 5, EROSION AND SEDIMENT CONTROL.

GENERAL NOTES

- UTILITIES IN THE VICINITY OF THE WORK TO HIS OWN SATISFACTION. COST OF REPAIR AND / OR REPLACEMENT OF ALL DAMAGED UTILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
19. THE CONTRACTOR SHALL MAINTAIN FLOW IN ALL EXISTING WATER, STORM SEWER, AND SANITARY SEWER LINES AFFECTED BY THIS PROJECT.
20. DEWATERING OF EXCAVATIONS IS INCIDENTAL TO UNIT PRICES BID.

TRAFFIC CONTROL NOTES

- 1. WHEN CONSTRUCTION WORK NECESSITATES THE CLOSURE OF A LANE OF TRAFFIC ON ANY ROAD, TEMPORARY TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE APPROPRIATE MARYLAND STATE HIGHWAY ADMINISTRATION (MD SHA) STANDARD FOR TEMPORARY LANE CLOSURES AND FLAGGING INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
MD-104.02.09 FLAGGING OPERATION, 2-LANE, 2-WAY, GREATER THAN 40 MPH
MD-104.02.10 FLAGGING OPERATION, 2-LANE, 2-WAY, LESS THAN 40 MPH
MD-104.02.13 INTERSECTION FLAGGING OPERATION, 2-LANE, 2-WAY, GREATER THAN 40 MPH
MD-104.02.14 INTERSECTION FLAGGING OPERATION, 2-LANE, 2-WAY, LESS THAN 40 MPH
2. ALTERNATE TRAFFIC CONTROL PLANS MAY BE UTILIZED SUBJECT TO THE APPROVAL OF THE ENGINEER AND THE MD SHA DISTRICT OFFICE WHEN APPLICABLE.

CONSTRUCTION NOTES

- 1. CONTRACTOR RESPONSIBLE FOR KEEPING EXISTING WALKING TRAIL OPEN AS MUCH AS POSSIBLE DURING EVENING HOURS AND WEEKENDS. ORGANIZED EVENTS (RUNNING RACES, ETC.) SHOULD BE DISCUSSED WITH CONTRACTOR AHEAD OF TIME TO PROVIDE ADEQUATE NOTICE FOR NECESSARY SITE CLEANUP. ALL ACTIVITIES NECESSARY TO ALLOW FOR SAFE PEDESTRIAN PASSAGE THROUGH SITE AT REQUIRED INTERVALS SHALL BE DONE WITH NO ADDITIONAL COST TO THE CONTRACTOR.
2. UNIT BID PRICES FOR APPLICABLE ITEMS SHALL BE THE SAME FOR ANY DEVIATION FROM THE ALIGNMENT SHOWN ON THE CONTRACT DRAWINGS.
3. ENGINEER SHALL MAKE FINAL DETERMINATION REGARDING ANY DEVIATION FROM ALIGNMENT/PLANS SHOWN ON CONTRACT DRAWINGS.

DESIGN CERTIFICATION

"I HEREBY CERTIFY THAT THIS PLAN OF EROSION & SEDIMENT CONTROL AND/OR POND DESIGN IS/ARE IN ACCORDANCE WITH THE 2011 STANDARDS AND SPECIFICATIONS AND ANY OTHER LOCAL OR STATE REQUIREMENTS. ANY STORMWATER STRUCTURES ARE DESIGNED IN ACCORDANCE WITH THE ALLEGANY COUNTY STORMWATER MANAGEMENT ORDINANCE AND ACCEPTED STANDARDS OF ENGINEERING PRACTICE."

6/23/2016 DATE 301-876-9560 PHONE Daniel DeWitt, P.E. DESIGNER SIGNATURE
44893 MD REG. NO. (P.E.) R.L.S. R.L.A. Daniel S. DeWitt, P.E. PRINTED NAME

SITE DATA
TOTAL SITE AREA: 3.74 ACRES ±
TOTAL AREA OF DISTURBANCE: 0.89 ACRE ±
EXISTING IMPERVIOUS AREA: NO
PROPOSED IMPERVIOUS AREA: CHANCE

NOTE: QUANTITIES ARE FOR INFORMATION ONLY. CONTRACTOR SHALL INDEPENDENTLY DETERMINE QUANTITIES FOR BID IF NECESSARY.

PREDOMINANT SOIL TYPES: VARIES
Reference: NRCS Websoil Survey

OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS."

6/29/16 DATE 301-777-5927 PHONE Paul F. Kahl, P.E. OWNER/DEVELOPER SIGNATURE
701 Kelly Rd, Cumberland, Md ADDRESS Paul F. Kahl, P.E. - Director of Public Works PRINTED NAME AND TITLE

SEQUENCE OF OPERATIONS

- 1. NOTIFY MARYLAND DEPARTMENT OF THE ENVIRONMENT SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK AT 301-689-8150.
2. CONTRACTOR SHALL BACKFILL TRENCH WITHIN SAME WORKDAY AS EXCAVATION OF TRENCH OCCURS. DO NOT LEAVE BACKFILL MATERIAL STOCKPILES OVERNIGHT. IF BACKFILL STOCKPILES CANNOT BE AVOIDED, INSTALL SILT FENCE AROUND PERIMETER OF STOCKPILE AREA.
3. MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES DURING THE COURSE OF CONSTRUCTION.
4. SEED AND MULCH FOR PERMANENT VEGETATIVE STABILIZATION.
5. UPON COMPLETION OF CONSTRUCTION AND SUCCESSFUL ESTABLISHMENT OF VEGETATIVE COVER, REMOVE EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES.
6. STABILIZE ALL AREAS DISTURBED BY CLEANUP AND REMOVAL.
7. THOROUGHLY CLEAN SITE REMOVING ALL DEBRIS AND MISCELLANEOUS CONSTRUCTION MATERIAL.

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. 44893, EXPIRATION DATE: 12/22/2017
Daniel DeWitt SIGNATURE

REVISIONS table with columns for NO., DATE, DESIGNED, DRAWN, CHECKED. Includes contract information: CONTRACT NO. AC-16-SR-01, EVITTS CREEK STREAM RESTORATION, ALLEGANY COUNTY COMMISSIONERS, OWNER: DANIEL S. DEWITT, P.E., ENGINEER: DANIEL S. DEWITT, P.E., DRAWING NO. 02 OF 06.





# SITE PLAN

## STREAM RESTORATION/SEWER REALIGNMENT



**GRADING PLAN:**

NOTE: STATIONING PROVIDED ABOVE IS APPROXIMATE. GRADING PLAN SHALL BE DISCUSSED AT PRE-BID CONFERENCE AND ANY APPROVED CHANGES SHALL BE INCORPORATED IN BID ADDENDA, AS APPROPRIATE.

1. AT STA 0+80, BEGIN TRANSITION GRADING FROM EXISTING SECTION U-U TO PROPOSED SECTION P-P (AS SEEN ON SHEET 5). FINISH TRANSITION GRADING AT STA 1+90.
2. CONTINUE GRADING CHANNEL TO MATCH PROPOSED SECTION P-P (STA 1+90 TO STA 3+20).
3. AT STA 3+20, BEGIN TRANSITION GRADING FROM PROPOSED SECTION P-P TO EXISTING SECTION U-U. FINISH TRANSITION GRADING AT STA 3+80.
4. ALL CUT MATERIAL NOT NEEDED AS (OR SUITABLE FOR) FILL IN NEW SECTION SHALL BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED SITE AT NO ADDITIONAL COST TO OWNER.
5. CONTRACTOR MAY SUGGEST ALTERNATE GRADING PLAN. ANY VARIATIONS OF THE ABOVE MUST BE APPROVED IN WRITING BY THE OWNER PRIOR TO CONSTRUCTION. ANY DEVIATIONS FROM THE ABOVE MAY BE CAUSE FOR OWNER TO ORDER REMOVAL/REPLACEMENT OF SAME AT NO COST TO OWNER.

**LEGEND**

	PROP STREAMBANK
	EX GRAVITY SEWER
	EX GRAVITY MANHOLE
	PROP BUFFER AREA
	PROP STREAM DIVERSION
	PROP GRAVITY SEWER
	PROP GRAVITY MANHOLE

**GENERAL NOTES:**

1. FOLLOW SEQUENCE OF CONSTRUCTION AS INCLUDED WITH WATERWAY PERMIT.
2. CONTRACTOR MUST GRANT ACCESS TO SITE TO ENGINEER, PROPERTY OWNER, AUTHORIZED STUDENTS, OR AUTHORIZED STATE REPRESENTATIVES AT ANY TIME AS PART OF CONTRACT AGREEMENT.

0' 20' 40' 60'

SCALE: 1" = 20'

**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. 44893, EXPIRATION DATE: 12/22/2017

*[Signature]*

REVISIONS	
NO.	DATE
JUNE 2016	DESIGNED: DSD
	DRAWN: DSD
	CHECKED: AP
CONTRACT NO. AC-16-SR-01	
EVITTS CREEK STREAM RESTORATION	
SITE PLAN	
OWNER:	ALLEGANY COUNTY COMMISSIONERS 701 KELLY ROAD CUMBERLAND, MARYLAND 21502
ENGINEER:	ALLEGANY COUNTY DEPARTMENT OF PUBLIC WORKS ATTN: DANIEL S. DEWITT, P.E. PHONE: 301-876-9560 701 KELLY ROAD, SUITE 300 CUMBERLAND, MARYLAND 21502
DRAWING NO. 04 OF 06	



MGWC 3.4: J-HOOK VANES

Rigid engineering techniques for bank stability and creation of flow diversity

DESCRIPTION

The work should consist of installing rock vanes to direct normal flows away from unstable stream banks and to improve/create aquatic habitat by enhancing flow diversity through the formation of scour pools.

EFFECTIVE USES & LIMITATIONS

J-hook vanes are single-arm structures whose tip is placed in a "J" configuration and partially embedded in the streambed such that they are submerged even during low flows. When properly positioned, J-hook vanes induce secondary circulation of the flow thereby promoting the development of scour pools. J-hook vanes can also be paired and positioned in a channel reach to initiate meander development or migration.

Additionally, the following limitations apply to J-hook vanes:

- J-hook vanes should not be used in unstable streams unless measures have been taken to promote stream stability so that it may retain a constant planform and dimension without signs of migration or incision.
J-hook vanes are ineffective in bedrock channels since minimal bed scouring occurs. Conversely, streams with fine sand, silt, or otherwise unstable substrate should be avoided since significant undercutting can destroy these measures.
J-hook vanes should not be used in stream reaches which exceed a 3% gradient.
J-hook vanes should not be used in streams with large sediment or debris loads.
J-hook vanes are best suited to Roegen types B2-B5 and C2-C4.
Banks opposite these structures should be monitored for excessive erosion.

MATERIAL SPECIFICATIONS

Materials for vanes should meet the following requirements:

Large rocks for vane construction should be sized to withstand the design flood according to MGWC 3.1 Riprap and Figure 2.1. In general, rock vanes should have a minimum of 3.2 inch diameter or equal to minimum of 200 pounds. Footer rocks should be long and flat.

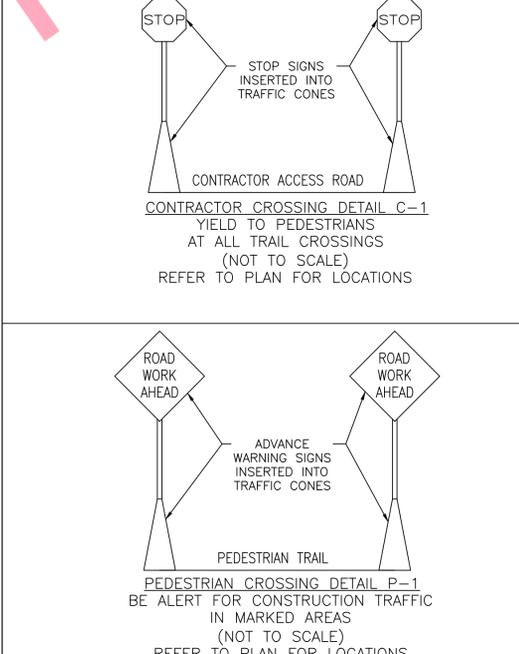
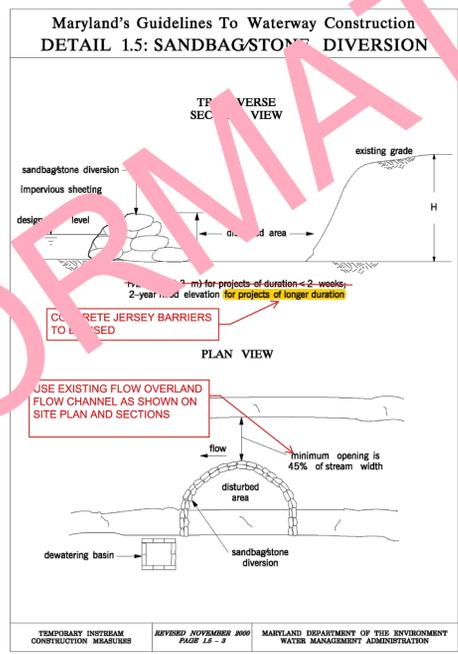
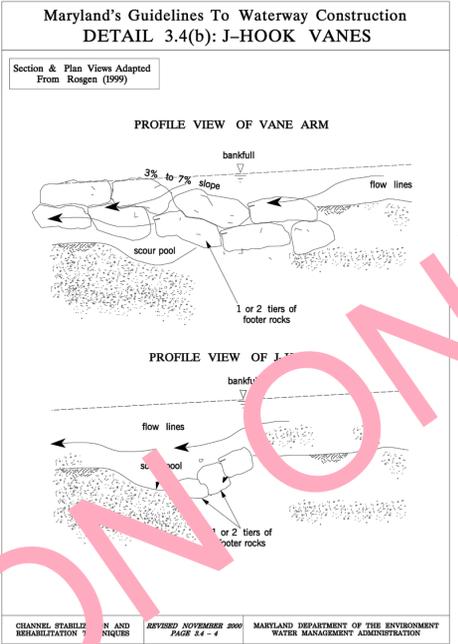
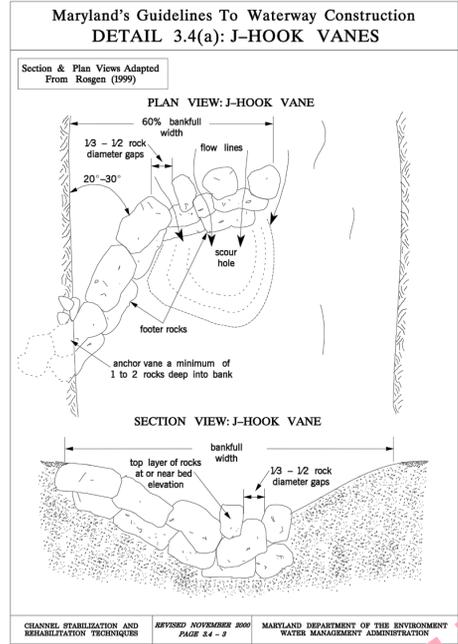
INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Recommended construction requirements for J-hook vanes are as follows (refer to Detail 3.4):

- The stream should be diverted according to an approved practice, and the construction area should be dewatered.
Combinations of J-hook vanes should be installed according to a plan approved by the WMA. When placed to initiate meander development, vanes should be spaced 5 to 7 bankfull widths apart and arranged on alternating banks. Vanes used for habitat creation should be spaced 1 or more channel widths apart depending upon the pattern of scour pools in natural reference reaches. Additionally, the following primary design criteria need to be satisfied: shape and orientation, height, and length.

MGWC 3.4: J-HOOK VANES

- Shape and orientation. Vanes should be angled 20 to 30 degrees from the upstream bank.
Height. The bank-end of the vane should be at the bankfull elevation and the tip of vane should be partially embedded in the streambed such that it is submerged even during low flows. This tip should be placed to form a semi-circular structure at the streambed. The vane arm should be placed at a vertical angle of 3% to 7%.
Length. Vanes should span a maximum of 1/3 of the channel width, depending on the channel size. J-hooks may span up to 60% of the channel width. The larger the channel, the shorter the vane should be relative to the channel width.
When installing vanes, the bank end of the structure should be firmly anchored a minimum of 1-2 rocks into the bank.
Vane rocks should be placed on top of footer rocks such that each vane rock touches adjacent rocks and rests upon two halves of each footer rock below it, and so that the vane rock is offset in the upstream direction. Vane rocks shall be shingled upstream.
All disturbed areas should be permanently stabilized in accordance with an approved sediment and erosion control plan.



MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporary measure may not be practical in large channels.

MATERIAL SPECIFICATIONS

Materials for sandbag and stone stream diversions should meet the following requirements:

- Riprap. Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
Sandbags. Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
Sheeting. Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Sandbag/stone diversions can be used independently or as components of other stream diversion techniques. Installation of this measure should proceed as follows (refer to Detail 1.5):

- The diversion structure should be installed from upstream to downstream.
The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach. For projects with a duration less than 2 weeks, the height of the diversion should be one half the streambank height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects with a duration of 2 weeks or longer, the height of the diversion should be one half the streambank height plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.
All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
Sediment-laden water from the construction area should be pumped to a dewatering basin.

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

- Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
Sandbag or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if project time is expected to last more than 2 weeks.
Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

Table with columns for REVISIONS, NO., DATE, DESIGNED, DRAWN, CHECKED, and project details including CONTRACT NO. AC-16-SR-01, EVITTS CREEK STREAM RESTORATION, and contact information for Allegheny County Commissioners and the Department of Public Works.

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. 44893, EXPIRATION DATE: 12/22/2017. Includes signature of Daniel S. Dewitt, P.E.

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