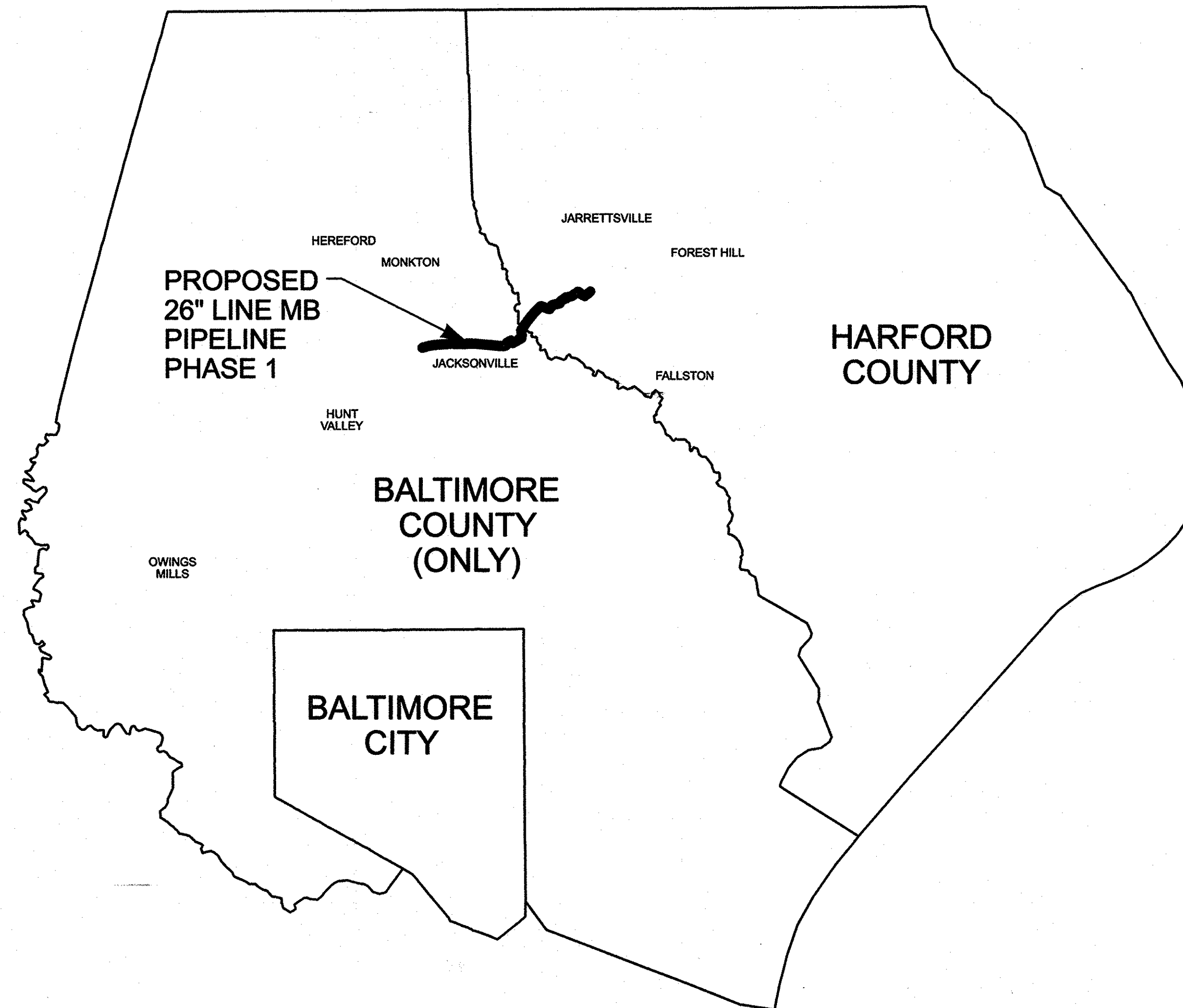


# BALTIMORE COUNTY GRADING \ EROSION AND SEDIMENT CONTROL PLAN COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1 BALTIMORE & HARFORD COUNTIES, MARYLAND

## SHEET INDEX

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GENERAL LEGEND	
----- 600 -----	EX. CONTOUR
----- 600 -----	PROP. CONTOUR
---SD---SD---	EX. STORM DRAIN
---S---S---	EX. SANITARY LINE
o CO.	EX. CLEANOUT
W	EX. WATER LINE
FO	EX. FIBER OPTIC LINE
///	EX. FOREIGN PIPELINE
OH	EX. OVERHEAD ELECTRIC
E	EX. UNDERGROUND ELECTRIC
T	EX. UNDERGROUND TELEPHONE
MA	EX. LINE MA GAS LINE
MB MB	PROPOSED LINE MB NATURAL GAS PIPELINE
~ ~ ~ ~ ~	EX. WOODS LINE
X X	EX. FENCE
	EX. TREES
---	EX. STREAM
---	PROPERTY LINE
---	EX. EASEMENT
---	LINE MB PERMANENT RIGHT-OF-WAY
---	LINE MB TEMPORARY WORKSPACE
---	LINE MB ADDITIONAL TEMPORARY WORKSPACE
---	EXISTING LINE MA RIGHT-OF-WAY
.....	PROPOSED ACCESS ROAD CENTERLINE
X X	PROPOSED CONTRACTOR STAGING AREA
---	100 YEAR FEMA FLOODPLAIN
Mb2-B	SOILS DELINEATION - HSG
	SLOPES 15-25%
	SLOPES 25% OR GREATER
WUS	FIELD DELINEATED WATERS OF THE U.S.
NRD	NATURAL RESOURCE DISTRICT
	NON-TIDAL WETLAND
WB	25' MDE REGULATED WETLAND BUFFER
	FOREST STAND TREE LINE
FB	FOREST BUFFER
XB	TIER II EXPANDED RIPARIAN BUFFER
---	EX. EDGE OF PAVEMENT
LOD	LIMIT OF DISTURBANCE
	HIGHLY ERODIBLE SOILS
	EX. BUILDING
LNMW0000	WETLAND ID
LNMS0000	STREAM ID
AR-0000	ACCESS ROAD ID
	MILEPOST
MD-BA-000.00	PROPERTY TRACT NUMBER



LOCATION MAP

N.T.S.

### OWNER/APPLICANT

NISOURCE / COLUMBIA GAS TRANSMISSION, LLC  
1700 MacCORKLE AVE, SE  
CHARLESTON, WV 25314  
TELE: (304) 357-2040  
CONTACT: JENNIFER L. CANNON

AREA DISTURBED IN BALTIMORE COUNTY: 1,716,709 SF. / 39.41 AC.

### GENERAL NOTES

- TOPOGRAPHICAL SURVEY DATA WAS PROVIDED BY BALTIMORE AND HARFORD COUNTIES IN 2012 (BALTIMORE COUNTY TOPOGRAPHIC CONTOUR DATA FROM 2005) (HARFORD COUNTY TOPOGRAPHIC CONTOUR DATA FROM 2008).
- BASE MAPPING SHOWN IS FROM A COMBINATION OF SOURCES BY OTHER FIRMS RESPONSIBLE FOR THE DESIGN OF THE PIPELINE. PROFESSIONAL RESPONSIBILITY OF KCI TECHNOLOGIES, INC. IS SOLELY THE CONSISTENCY OF THE EROSION CONTROL PLAN WITH THE BASE FILES PROVIDED, AND NOT THE ACCURACY OF THE BASE FILES THEMSELVES.
- ALL DISTURBED AREA IS INCLUDED WITHIN A TIER II WATERSHED.
- ALL DISTURBED AREA WITHIN THE TIER II EXPANDED RIPARIAN BUFFER IS WITHIN THE STREAMSIDE MANAGEMENT ZONE.
- EROSION AND SEDIMENT CONTROL PLANS FOR 2014 CONSTRUCTION WERE PREPARED PER THE DIRECTION OF COLUMBIA GAS TRANSMISSION, LLC.
- PROPERTY TRACT NUMBERS ARE SHOWN ON THE GRADING/EROSION AND SEDIMENT CONTROL PLAN DWG. NO. EC-52 THROUGH EC-60. DETAILED INFORMATION FOR INDIVIDUAL PROPERTIES IS PROVIDED ON THE PROPERTY OWNERS CHART DWG. NO. PO-1.4.

### NOTES

- THE PROPOSED GRADING SHOWN ON THIS PLAN MEETS THE REQUIREMENTS SET FORTH BY BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY AND COMPLIES WITH ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE. HOWEVER, DUE TO BUILDING TYPES AND LAYOUT, SOME FIELD ADJUSTMENTS MAY BE REQUIRED. ALL CHANGES MUST COMPLY WITH THE ABOVE MENTIONED REQUIREMENTS.
- ALL SWALES HAVE BEEN DESIGNED BY THE ENGINEER TO CONVEY RUNOFF ACCORDING TO BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARDS.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN FOREST BUFFER EASEMENT OR OTHER FOREST RETENTION AREAS, EXCEPT AS PERMITTED BY BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY.
- STORMWATER MANAGEMENT HAS BEEN ADDRESSED/APPROVED BY/THROUGH (PAYMENT OF A FEE IN LIEU TO THE BALTIMORE COUNTY STORMWATER MANAGEMENT FUND/ STORMWATER MANAGEMENT VARIANCE/STORMWATER MANAGEMENT EXEMPTION/ENVIRONMENTAL SITE DESIGN).

### -A. OWNER'S/DEVELOPER'S CERTIFICATION - GRADING

I/WE CERTIFY THAT ALL GRADING ON THIS SITE WILL BE DONE IN ACCORDANCE WITH THE CURRENT GRADING REQUIREMENTS AS SET FORTH BY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT AND WITH THE REQUIREMENTS SPECIFIED IN ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE.

*Jennifer Cannon* NRP Project Mgr. 6/5/2014  
OWNER'S/DEVELOPER'S CERTIFICATION TITLE DATE  
JENNIFER CANNON PRINT NAME

### -B. OWNER'S/DEVELOPER'S CERTIFICATION - AIR QUALITY

I ACKNOWLEDGE THAT I AM RESPONSIBLE UNDER THE CODE OF MARYLAND REGULATIONS (26.1106.03) TO PREVENT PARTICULATE MATTER FROM BECOMING AIRBORNE DUE TO GRADING, LAND CLEARING, EXCAVATION, CONSTRUCTION OR OTHER RELATED ACTIVITIES. I WILL CONTACT THE ENVIRONMENTAL HEALTH SECTION AT 887-4065 AT LEAST THREE DAYS PRIOR TO BEGINNING WORK.

*Jennifer Cannon* NRP Project Mgr. 6/5/2014  
OWNER'S/DEVELOPER'S CERTIFICATION TITLE DATE  
JENNIFER CANNON PRINT NAME

### OWNER'S / DEVELOPER'S CERTIFICATION

I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO CERTIFY THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL BE COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATIONS BY THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.

*Jennifer Cannon* 6/5/2014  
OWNER'S/DEVELOPER'S CERTIFICATION TITLE DATE  
JENNIFER CANNON PRINT NAME  
Natural Resources Permitting project mgr.

### CONSULTANT'S CERTIFICATION

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

*Karen Powell* 6-3-2014  
SIGNATURE DATE  
KAREN POWELL 14942  
PRINT NAME MD LICENSE NO.

### STORMWATER MANAGEMENT PERMIT NOT REQUIRED

R-2, 8-25-14 Relocated trap #58-1, removed TSS#59-3 and relocated traps 59-1, added #59-2

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL 6-11-14 DATE

*Jeffrey P. West* 045-14 A9-14 PLAN NO.

DISTRICT OFFICIAL

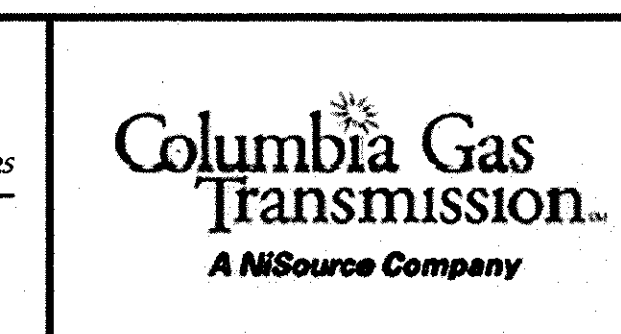
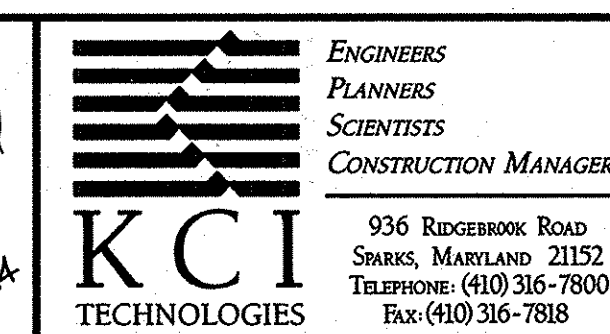
TECHNICAL REVIEW FOR THE DISTRICT BY:  
*Jeffrey P. West and Sara C. Dubina*

IF A GRADING PERMIT HAS NOT BEEN OBTAINED WITHIN TWO YEARS OF THIS APPROVAL, THIS PLAN SHALL BE RE-SUBMITTED TO THE DISTRICT.

R-1, 6-11-14, minor revisions to LOD, SF/SSF PL

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. MD 83 (NAD 83) VERT. NAVD 88

TEO BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY  
APPROVED FOR GRADING  
*Janet Hall* 6/23/14  
DATE

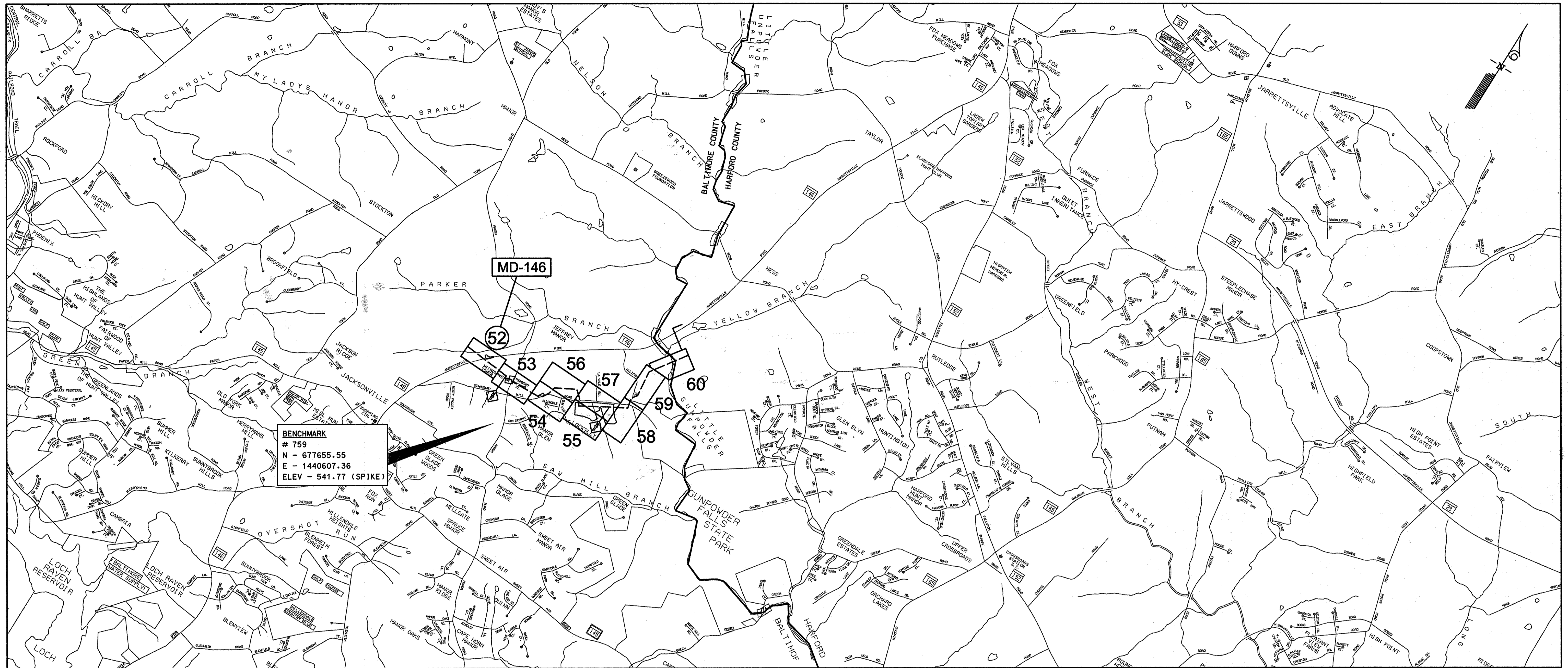


NO.	DATE	REVISIONS	DESCRIPTION	BY	DATE
1	MAY 2014	REVISED LOD, VIC-1.1, EC-53, EC-54, EC-56, EC-57, ECN-1.0	AS SHOWN	AS	APRIL 2014

BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN		DRAWING NO. <b>T-1.0</b>
FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1		
BALTIMORE & HARFORD COUNTIES, MARYLAND		SHEET 1 OF 22 KCI JOB NUMBER 16-121849

PLOTTED: 10:29 PM on Tuesday, June 03, 2014  
FILE: \\KCI\2014\16121849\16121849.dwg SHEET: ESC-BC-Phase1.dwg

R	0.03	T3	0.04			
R2		1				
0.004	S	T	T1	T2	T4	ID
	0.19	0.29	0.57	0.62	0.23	GRADING UNIT



**NOTE:**  
PLEASE REFER TO PLAN SHEETS EC-52 THROUGH EC-60 WHEN USING THE SHEET REFERENCE NUMBERS LISTED ABOVE.

**VICINITY MAP**  
1" = 2000'

**LEGEND**

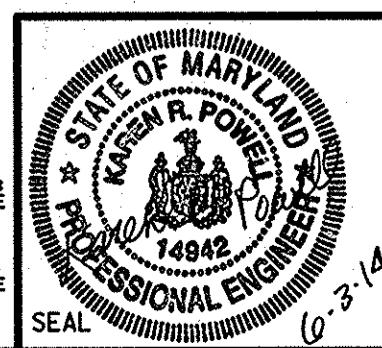
- PROPOSED LINE MB NATURAL GAS PIPELINE
- ① PLAN SHEET INCLUDES BOTH STATE AND COUNTY PROPERTY
- 2 PLAN SHEET INCLUDES COUNTY PROPERTY ONLY

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]*  
 DATE: 6-11-14

R-1, 6-11-14, 04  
 R-2, 8-25-14, 04  
 DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (NAD 83) VERT: NAVD 88

PLOTTED: 03:18 PM on Thursday, June 05, 2014  
 C:\Users\jphillips\Documents\Projects\16-121849\16-121849-01\16-121849-01.dwg  
 FILE: 16-121849-01.dwg

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. 14842  
 EXPIRATION DATE: 6/01/2016



**KCI**  
 TECHNOLOGIES  
 ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 936 ROCKBANK ROAD  
 SHARPS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818

**Columbia Gas Transmission**  
 A NiSource Company

NO.		DATE		DESCRIPTION	BY	DATE
1		MAY 2014	REVISED LOD	VIC-1.1, EC-53, EC-54, EC-56, EC-57, ECN-1.0	AS	APRIL 2014
						SCALE 1" = 2000'
						DESIGNED BY JS
						DRAWN BY JS

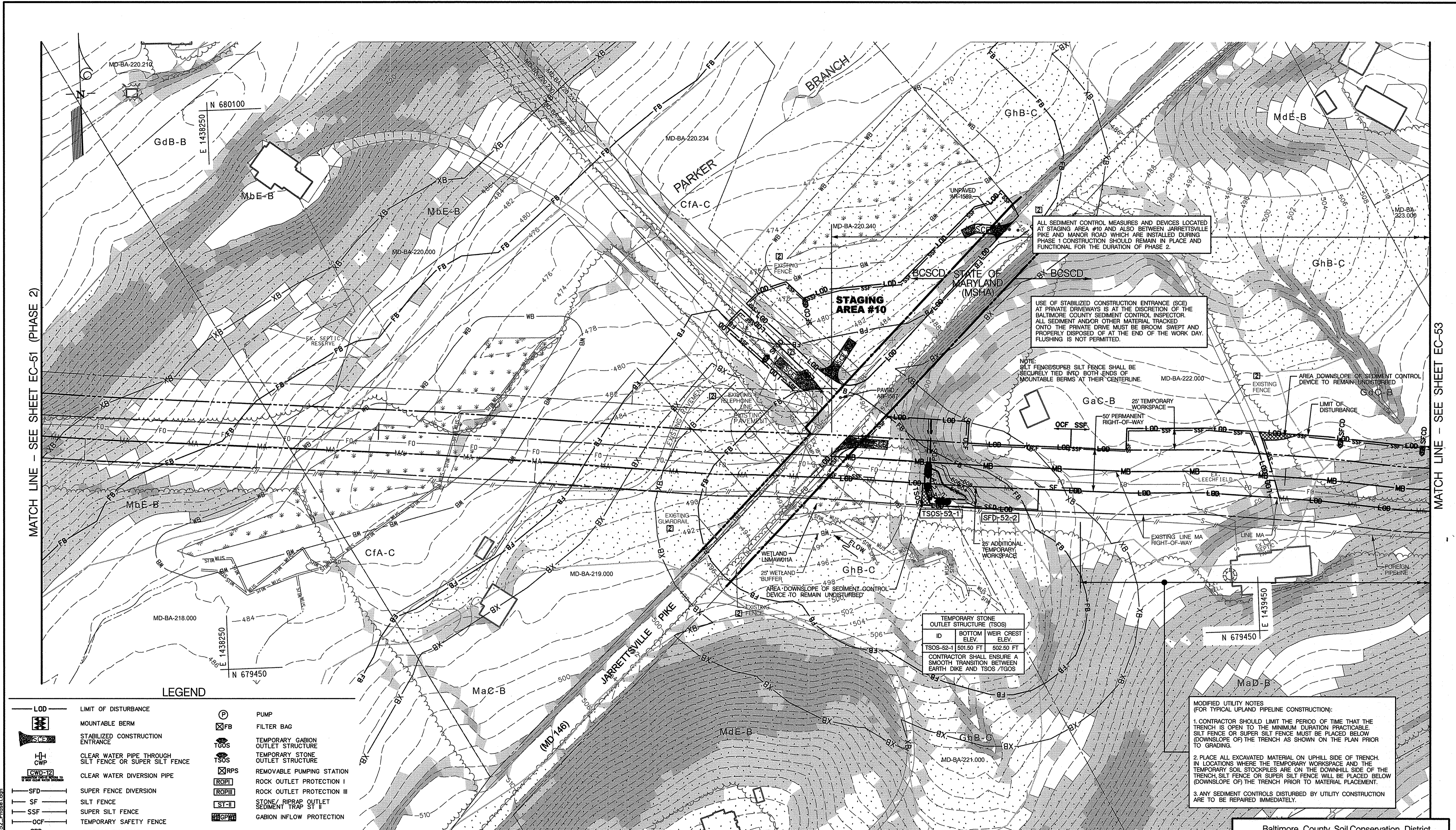
**BALTIMORE COUNTY VICINITY MAP**  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
 LINE MB EXTENSION PROJECT - PHASE 1  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

**VIC-1.1**  
 SHEET 2 OF 22  
 KCI JOB NUMBER  
 16-121849

DATE: 6-11-14

MATCH LINE - SEE SHEET EC-51 (PHASE 2)

MATCH LINE - SEE SHEET EC-53



LEGEND

- LIMIT OF DISTURBANCE
- MOUNTABLE BERM
- STABILIZED CONSTRUCTION ENTRANCE
- CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
- CLEAR WATER DIVERSION PIPE
- SUPER FENCE DIVERSION
- SILT FENCE
- SUPER SILT FENCE
- TEMPORARY SAFETY FENCE
- HYDROSTATIC TEST DEWATERING PIT
- PERIMETER DIKE / SWALE
- EARTH DIKE
- BAFFLE BOARDS
- TEMPORARY SWALE
- SILT FENCE CHECK DAM
- PUMP
- FILTER BAG
- TEMPORARY GABION OUTLET STRUCTURE
- TEMPORARY STONE OUTLET STRUCTURE
- REMOVABLE PUMPING STATION
- ROCK OUTLET PROTECTION I
- ROCK OUTLET PROTECTION III
- STONE/RIPRAP OUTLET
- SEDIMENT TRAP ST II
- GABION INFLOW PROTECTION

TEMPORARY STONE OUTLET STRUCTURE (TSOS)

ID	BOTTOM WEIR CREST ELEV.
TSOS-52-1	501.50 FT
TSOS-52-2	502.50 FT

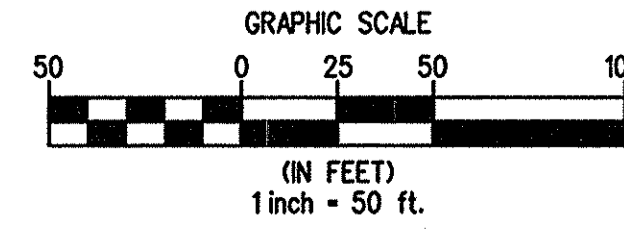
CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS/TGOS

MODIFIED UTILITY NOTES  
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

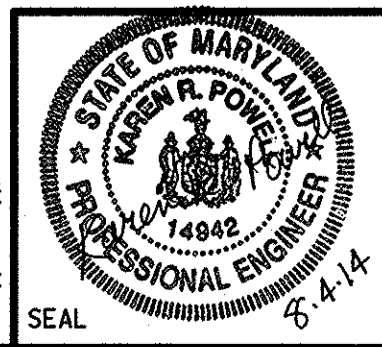
- CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
- PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
- ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

Baltimore County Soil Conservation District  
APPROVED FOR SEDIMENT CONTROL

*Signature*  
DATE: 8-25-14



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 14842  
EXPIRATION DATE: 6/30/2016



ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS

**KCI** TECHNOLOGIES

936 REVERBANK ROAD  
SINNES, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818

**Columbia Gas Transmission**  
A NiSource Company

NO.	DATE	REVISIONS DESCRIPTION	BY	DATE
[2]	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SCS(S)11 RELOCATED TRAP 58-1 & TGOS 59-11 REMOVED TSOS 59-11 REVISED NOTE & FOR STOCKPILES CORRECTED DETAIL C-91, EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, ECH-1.0, ECD-1.03, ECD-1.04	CW	APRIL 2014

SCALE: 1" = 50'

DESIGNED BY: JS  
DRAWN BY: JS

BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1 BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. **EC-52**  
SHEET 3 OF 22  
KCI JOB NUMBER 16-121849

PLOTTED: 11:42 AM on Friday, August 01, 2014  
FILE: M:\CDDA\212543\212543.dwg  
PLOT: M:\CDDA\212543\212543.dwg

**MODIFIED UTILITY NOTES**  
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

**CLEAR WATER DIVERSION NOTE:**

CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

**TEMPORARY STONE OUTLET STRUCTURE (TSOS)**

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-53-1	554.00 FT	555.00 FT
TSOS-53-2	568.50 FT	569.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS/TSOS

ALL SEDIMENT CONTROL MEASURES AND DEVICES LOCATED AT STAGING AREA #10 AND ALSO BETWEEN JARRETTVILLE PIKE AND MANOR ROAD WHICH ARE INSTALLED DURING PHASE 1 CONSTRUCTION SHOULD REMAIN IN PLACE AND FUNCTIONAL FOR THE DURATION OF PHASE 2.

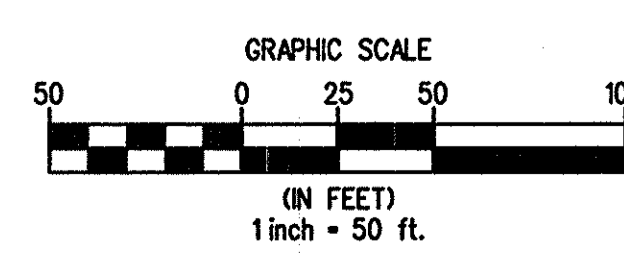
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3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

USE OF STABILIZED CONSTRUCTION ENTRANCE (SCE) AT PRIVATE DRIVEWAYS IS AT THE DISCRETION OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR. ALL SEDIMENT AND/OR OTHER MATERIAL TRACKED ONTO THE PRIVATE DRIVE MUST BE BROOM SWEEPED AND PROPERLY DISPOSED OF AT THE END OF THE WORK DAY. FLUSHING IS NOT PERMITTED.

**LEGEND**

LOD	LIMIT OF DISTURBANCE	P	PUMP
MB	MOUNTABLE BERM	FB	FILTER BAG
SCE	STABILIZED CONSTRUCTION ENTRANCE	TGOS	TEMPORARY GABION OUTLET STRUCTURE
CWP	CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE	TSOS	TEMPORARY STONE OUTLET STRUCTURE
CWD-12	CLEAR WATER DIVERSION PIPE	RPS	REMOVABLE PUMPING STATION
SFD	SUPER FENCE DIVERSION	ROP-I	ROCK OUTLET PROTECTION I
SF	SILT FENCE	ROP-III	ROCK OUTLET PROTECTION III
SSF	SUPER SILT FENCE	ST-II	STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
OCF	TEMPORARY SAFETY FENCE	GIP	GABION INFLOW PROTECTION
SBD	HYDROSTATIC TEST DEWATERING PIT		
PDS-1	PERIMETER DIKE / SWALE		
A-1	EARTH DIKE		
BB	BAFFLE BOARDS		
A-2	TEMPORARY SWALE		
SFC	SILT FENCE CHECK DAM		



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM AN ACTIVE LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 14942  
EXPIRATION DATE: 6/30/2016



**ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS**

**KCI TECHNOLOGIES**

936 Ricebrook Road  
Sinks, Maryland 21152  
Telephone: (410) 316-7800  
Fax: (410) 316-7818

**Columbia Gas Transmission**  
A NiSource Company

NO.	DATE	REVISIONS	DESCRIPTION	BY	DATE
[1]	MAY 2014	REVISED	LOD, VIC-1.1, EC-53, EC-54, EC-56, EC-57, ECN-1.0	AS	APRIL 2014
[2]	AUG. 2014	ADDED	NOTE TO COORDINATE PHASES 1 & 2; ADDED SCE(S)1; RELOCATED TRAP 58-1 & TSOS 53-1; REMOVED TSOS 53-1; REVISED NOTE & FOR STOCKPILES; CORRECTED DETAIL C-31 EC-52, EC-53, EC-54, EC-56 EC-58, EC-59, ECN-1.0, ECD-1.03, ECD-1.04	CW	

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**

*Signature*  
DATE: 8-25-14  
R-2, 8-25-14 QL

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (ADJ.) VERT: NAVD 88

**BALTIMORE COUNTY  
GRADING / EROSION AND SEDIMENT CONTROL PLAN**  
FOR  
**COLUMBIA GAS TRANSMISSION, LLC  
LINE MB EXTENSION PROJECT - PHASE 1**  
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. **EC-53**  
SHEET 4 OF 22  
KCI JOB NUMBER 16-121849

PLOTTED: 11:23:36 PM on Friday, August 01, 2014  
FILE: M:\CDDA\1622843\columbia\_gas\_transmission\_line\_mb\_exten.ecp

**MODIFIED UTILITY NOTES**  
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

NOTE:  
SILT FENCE/SUPER SILT FENCE SHALL BE SECURELY TIED INTO BOTH ENDS OF MOUNTABLE BERMS AT THEIR CENTERLINE.

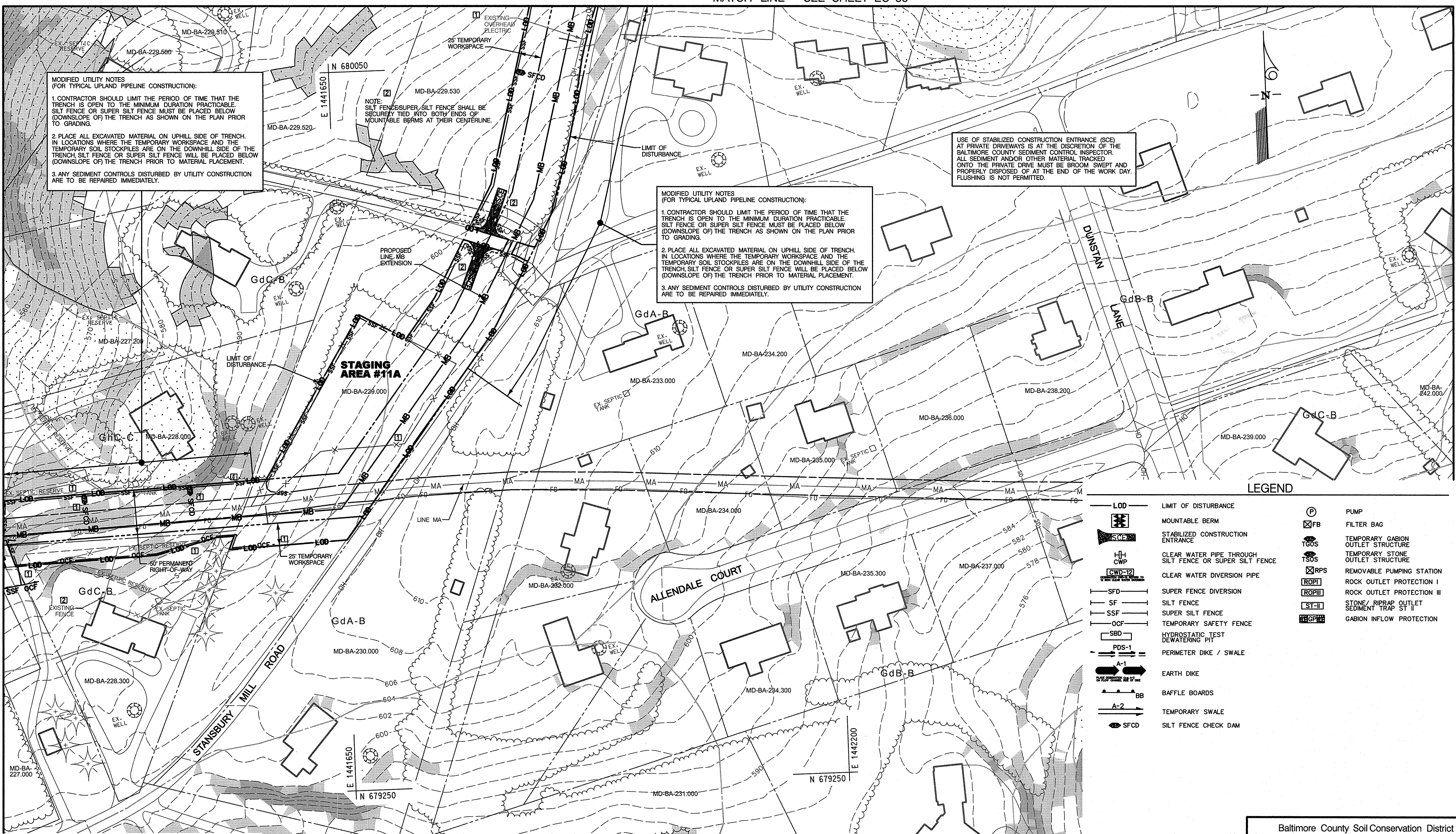
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(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

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2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

USE OF STABILIZED CONSTRUCTION ENTRANCE (SCE) AT PRIVATE DRIVEWAYS IS AT THE DISCRETION OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR. ALL SEDIMENT AND/OR OTHER MATERIAL TRACKED ONTO THE PRIVATE DRIVE MUST BE BROOM SWEEPED AND PROPERLY DISPOSED OF AT THE END OF THE WORK DAY. FLUSHING IS NOT PERMITTED.

MATCH LINE - SEE SHEET EC-53

MATCH LINE - SEE SHEET EC-55

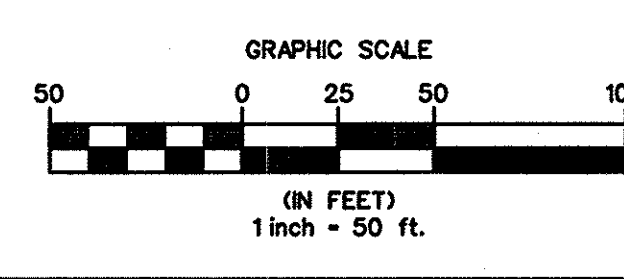


**LEGEND**

- LOD - LIMIT OF DISTURBANCE
- MOUNTABLE BERM
- STABILIZED CONSTRUCTION ENTRANCE
- CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
- CLEAR WATER DIVERSION PIPE
- SUPER FENCE DIVERSION
- SILT FENCE
- SUPER SILT FENCE
- TEMPORARY SAFETY FENCE
- HYDROSTATIC TEST DEWATERING PIT
- PERIMETER DIKE / SWALE
- EARTH DIKE
- BAFFLE BOARDS
- TEMPORARY SWALE
- SILT FENCE CHECK DAM
- PUMP
- FILTER BAG
- TEMPORARY GABION OUTLET STRUCTURE
- TEMPORARY STONE OUTLET STRUCTURE
- REMOVABLE PUMPING STATION
- ROCK OUTLET PROTECTION I
- ROCK OUTLET PROTECTION III
- STONE / RIPRAP OUTLET SEDIMENT TRAP ST II
- GABION INFLOW PROTECTION

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*Lat. J. Howell*  
 8-25-14  
 DATE

PLOTTED: 12:49 PM on Friday, August 01, 2014  
 FILE: M:\2014\122843\122843.dwg  
 FILE: M:\2014\122843\122843.dwg



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR THAT I AM A NOT LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 14942  
 EXPIRATION DATE: 6/01/2016



**KCI TECHNOLOGIES**  
 ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 936 RECORDER ROAD  
 SINKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818

**Columbia Gas Transmission**  
 A NiSource Company

NO.	DATE	DESCRIPTION	BY	DATE
[1]	MAY 2014	REVISED LOD, VIC-1.1, EC-53, EC-54, EC-56, EC-57, ECN-1.0	AS	APRIL 2014
[2]	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED TSSC 59-1; RELOCATED TRAP 58-1 & TOS 59-1; REMOVED TSSC 59-1; REVISED NOTE & FOR STONELESS; CORRECTED DETAIL C-91 EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, ECN-1.0, ECD-1.03, ECD-1.04	CW	SCALE 1" = 50'

**BALTIMORE COUNTY**  
**GRADING / EROSION AND SEDIMENT CONTROL PLAN**  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
**LINE MB EXTENSION PROJECT - PHASE 1**  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

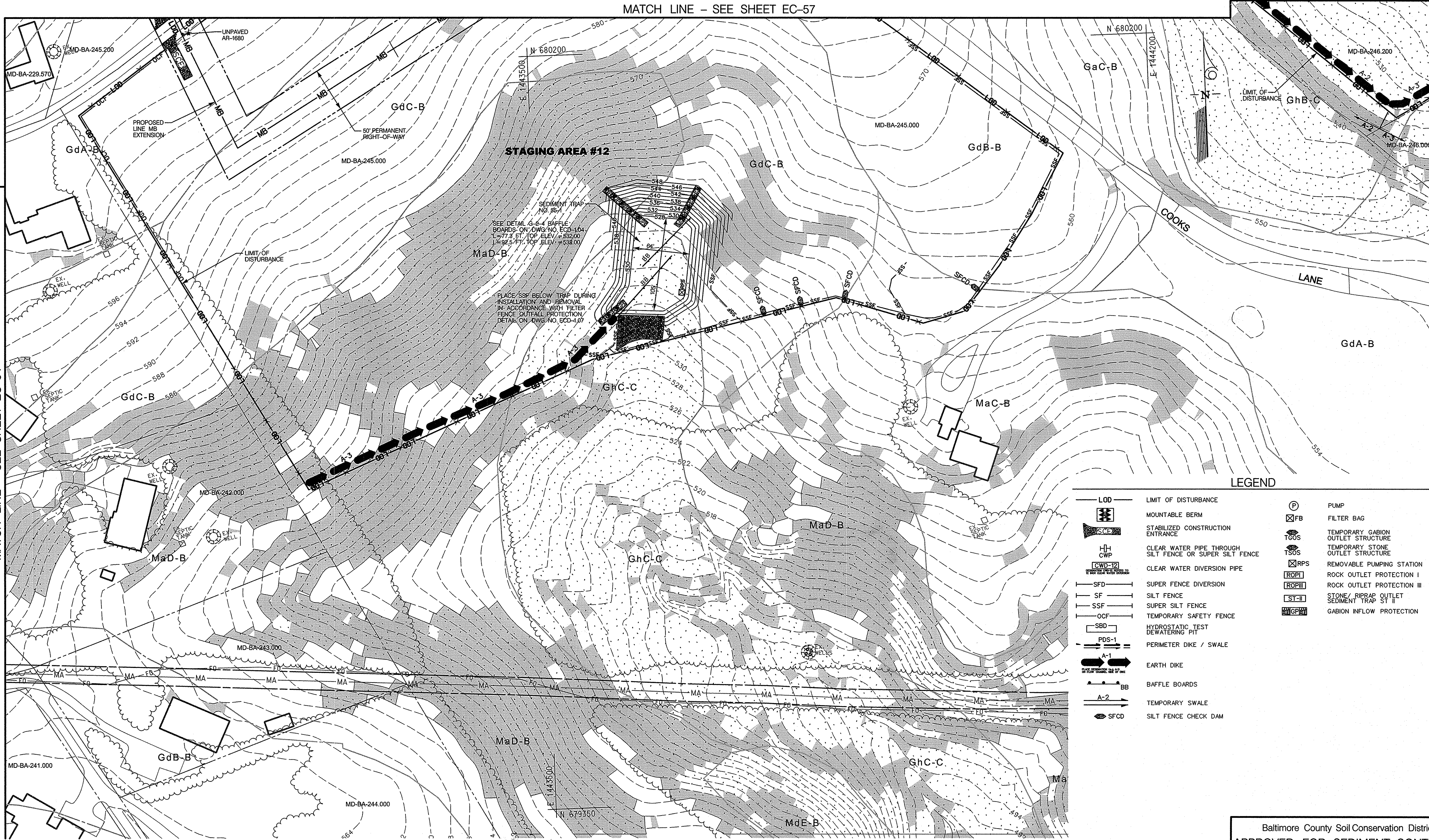
**EC-54**  
 SHEET 5 OF 22  
 KCI JOB NUMBER  
 16-121849

MATCH LINE - SEE SHEET EC-57

MATCH LINE - SEE SHEET EC-56

MATCH LINE - SEE SHEET EC-58

MATCH LINE - SEE SHEET EC-54



**STAGING AREA #12**

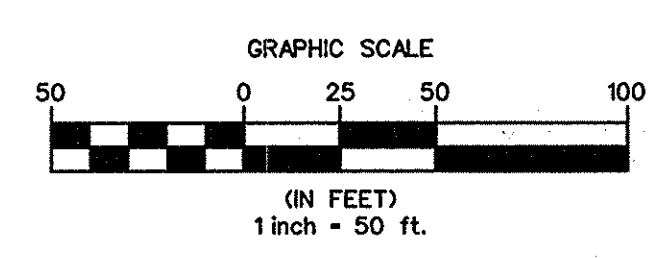
SEDIMENT TRAP NO. 557

SEE DETAIL G-2-4 Baffle BOARDS ON DWG NO. ECD-104 L=77.3 FT. TOP ELEV. = 532.00 V=52.5 FT. TOP ELEV. = 538.00

PLACE/SSF BELOW TRAP DURING INSTALLATION AND REMOVAL IN ACCORDANCE WITH FILTER FENCE OUTFALL PROTECTION DETAIL ON DWG NO. ECD-107

LEGEND

- LOD LIMIT OF DISTURBANCE
- MOUNTABLE BERM
- STABILIZED CONSTRUCTION ENTRANCE
- CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
- CLEAR WATER DIVERSION PIPE
- SUPER FENCE DIVERSION
- SILT FENCE
- SUPER SILT FENCE
- OCF TEMPORARY SAFETY FENCE
- SBD HYDROSTATIC TEST DEWATERING PIT
- PDS-1 PERIMETER DIKE / SWALE
- EARTH DIKE
- Baffle Boards
- TEMPORARY SWALE
- SILT FENCE CHECK DAM
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- FILTER BAG
- TEMPORARY GABION OUTLET STRUCTURE
- TEMPORARY STONE OUTLET STRUCTURE
- REMOVABLE PUMPING STATION
- ROCK OUTLET PROTECTION I
- ROCK OUTLET PROTECTION III
- STONE/RIPRAP OUTLET SEDIMENT TRAP ST II
- GABION INFLOW PROTECTION



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER SERVING THE STATE OF MARYLAND. LICENSE NO. 14942 EXPIRATION DATE: 6/01/2014



**KCI TECHNOLOGIES**

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

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

**Columbia Gas Transmission**

A NiSource Company

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: APRIL 2014  
SCALE: 1" = 50'  
DESIGNED BY: JS  
DRAWN BY: JS

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**

*Signature* 4-10-14  
DATE

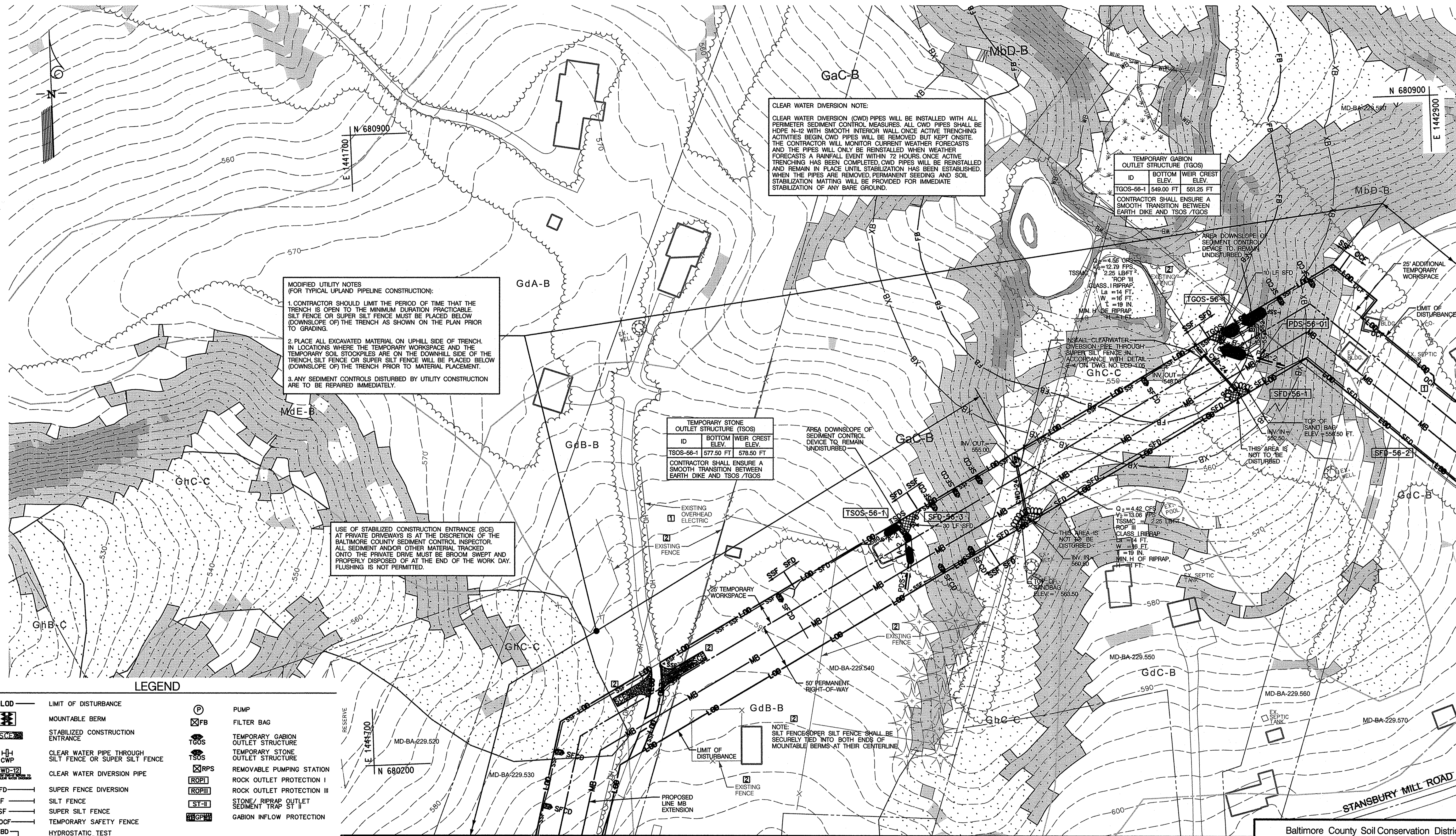
R-1,6-11-14a DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. NAD 83 (NAD 83) VERT. NAVD 88

BALTIMORE COUNTY  
GRADING / EROSION AND SEDIMENT CONTROL PLAN  
FOR  
COLUMBIA GAS TRANSMISSION, LLC  
LINE MB EXTENSION PROJECT - PHASE 1  
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. **EC-55**

SHEET 6 OF 22  
KCI JOB NUMBER 16-121849

PLOTTED: 03:37 PM on Thursday, March 27, 2014  
FILE: \\KCI\023\1621849\Drawings\WBS\ESS-PLAN-ESS.dgn



**CLEAR WATER DIVERSION NOTE:**  
 CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ON SITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

TEMPORARY GABION OUTLET STRUCTURE (TGOS)		
ID	BOTTOM WEIR CREST ELEV.	WEIR CREST ELEV.
TGOS-56-1	549.00 FT	551.25 FT

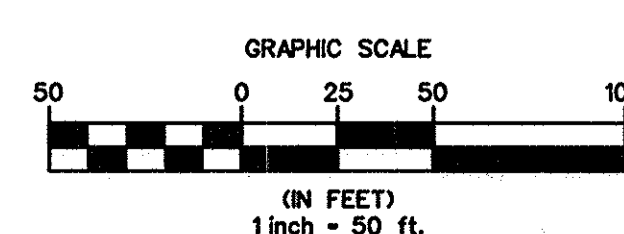
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TEMPORARY STONE OUTLET STRUCTURE (TSOS)		
ID	BOTTOM WEIR CREST ELEV.	WEIR CREST ELEV.
TSOS-56-1	577.50 FT	578.50 FT

**USE OF STABILIZED CONSTRUCTION ENTRANCE (SCE) AT PRIVATE DRIVEWAYS IS AT THE DISCRETION OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR. ALL SEDIMENT AND/OR OTHER MATERIAL TRACKED ONTO THE PRIVATE DRIVE MUST BE BROOM SWEEPED AND PROPERLY DISPOSED OF AT THE END OF THE WORK DAY. FLUSHING IS NOT PERMITTED.**

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- TEMPORARY GABION OUTLET STRUCTURE
- TEMPORARY STONE OUTLET STRUCTURE
- REMOVABLE PUMPING STATION
- ROCK OUTLET PROTECTION I
- ROCK OUTLET PROTECTION III
- STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
- GABION INFLOW PROTECTION



MATCH LINE - SEE SHEET EC-54

MATCH LINE - SEE SHEET EC-57

MATCH LINE - SEE SHEET EC-55

Baltimore County Soil Conservation District  
 APPROVED FOR SEDIMENT CONTROL

*Signature*  
 8-25-14  
 DATE

R-2, 8-25-14 q/c



**KCI TECHNOLOGIES**  
 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS  
 936 REEBROOK ROAD  
 SINKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818

**Columbia Gas Transmission**  
 A NiSource Company

REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	APRIL 2014
[1]	MAY 2014	REVISED LOD, VIC-1.1, EC-53, EC-54, EC-56,	AS	SCALE 1" = 50'
[2]	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SPTS 1; RELATED TRAP 58-1 & TGOS 59-1; REMOVED TSOS 59-3; REVISED NOTE 8 FOR STOCKPILES; CORRECTED DETAIL C-91 EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, EON-1.0, ECD-1.03, ECD-1.04	CW	DESIGNED BY JS DRAWN BY JS

**BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1**  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

**EC-56**  
 SHEET 7 OF 22  
 KCI JOB NUMBER 16-121849

PLOTTED: 10:05 PM on Friday, August 01, 2014  
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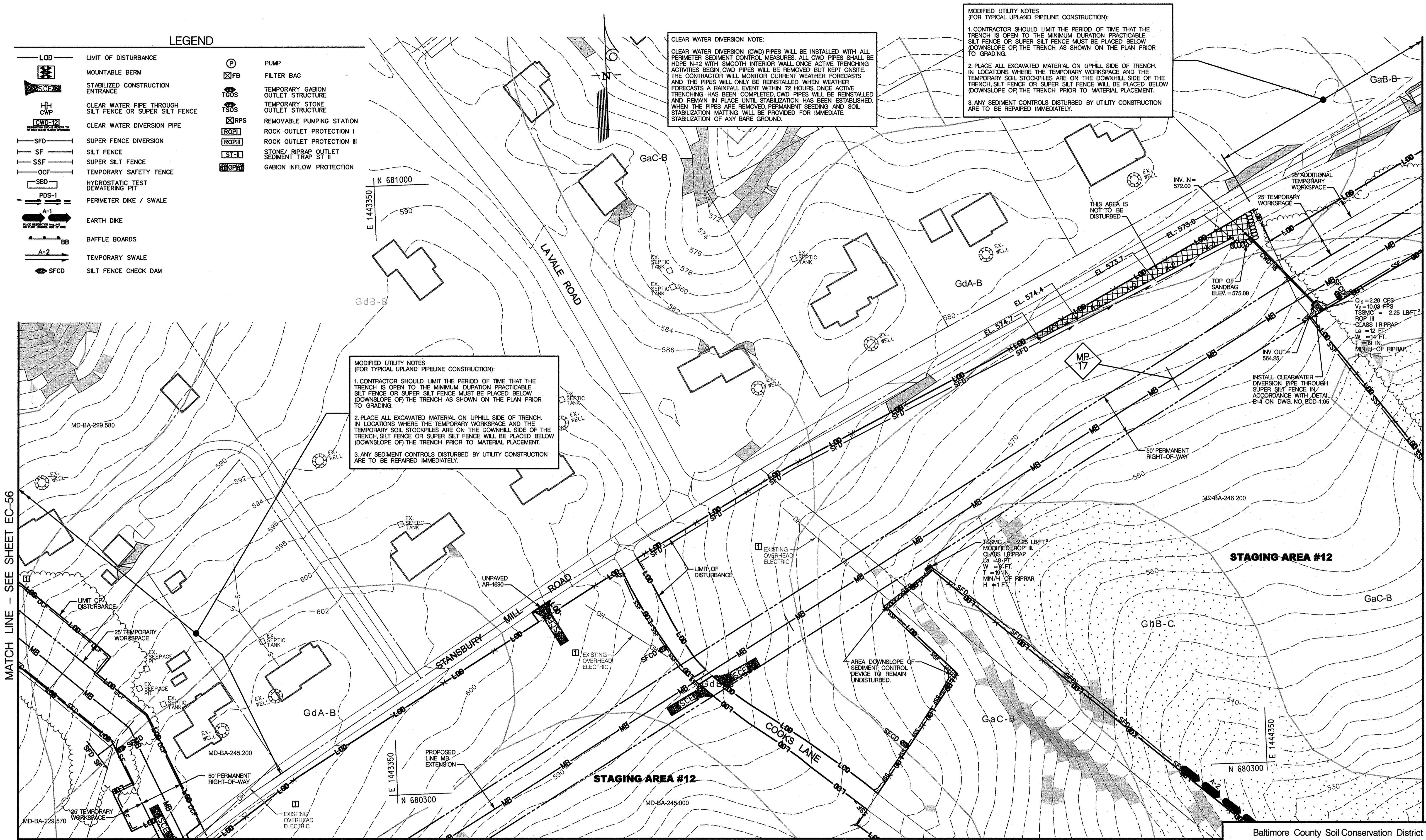
**LEGEND**

- LIMIT OF DISTURBANCE
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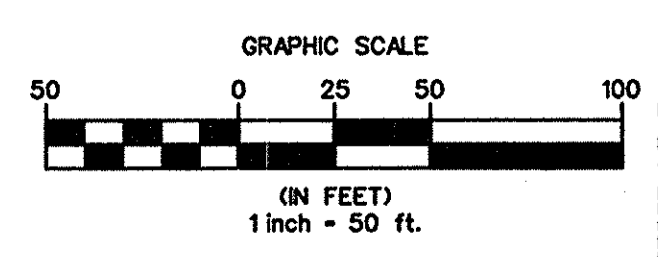
MATCH LINE - SEE SHEET EC-56

MATCH LINE - SEE SHEET EC-58

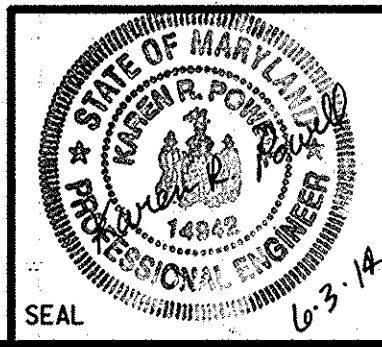
MATCH LINE - SEE SHEET EC-55

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]*  
 DATE 6-11-14

PLOTTED: 03:06 PM on Thursday, June 05, 2014  
 FILE: M:\2014\16121849\16121849.dwg  
 USER: JG  
 PLOTTER: HP DesignJet 2400



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 14842  
 EXPIRATION DATE: 6/01/2016



**KCI TECHNOLOGIES**  
 ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS  
 936 RIDGEWOOD ROAD  
 SPARKS, MARYLAND 21152  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818

**Columbia Gas Transmission**  
 A NiSource Company

REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	DATE
(1)	MAY 2014	REVISED LOD, VIC-1.1, EC-53, EC-54, EC-56, EC-57, ECM-1.0	AS	APRIL 2014

SCALE: 1" = 50'  
 DESIGNED BY: JS  
 DRAWN BY: JS

**BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN**  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
 LINE MB EXTENSION PROJECT - PHASE 1  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

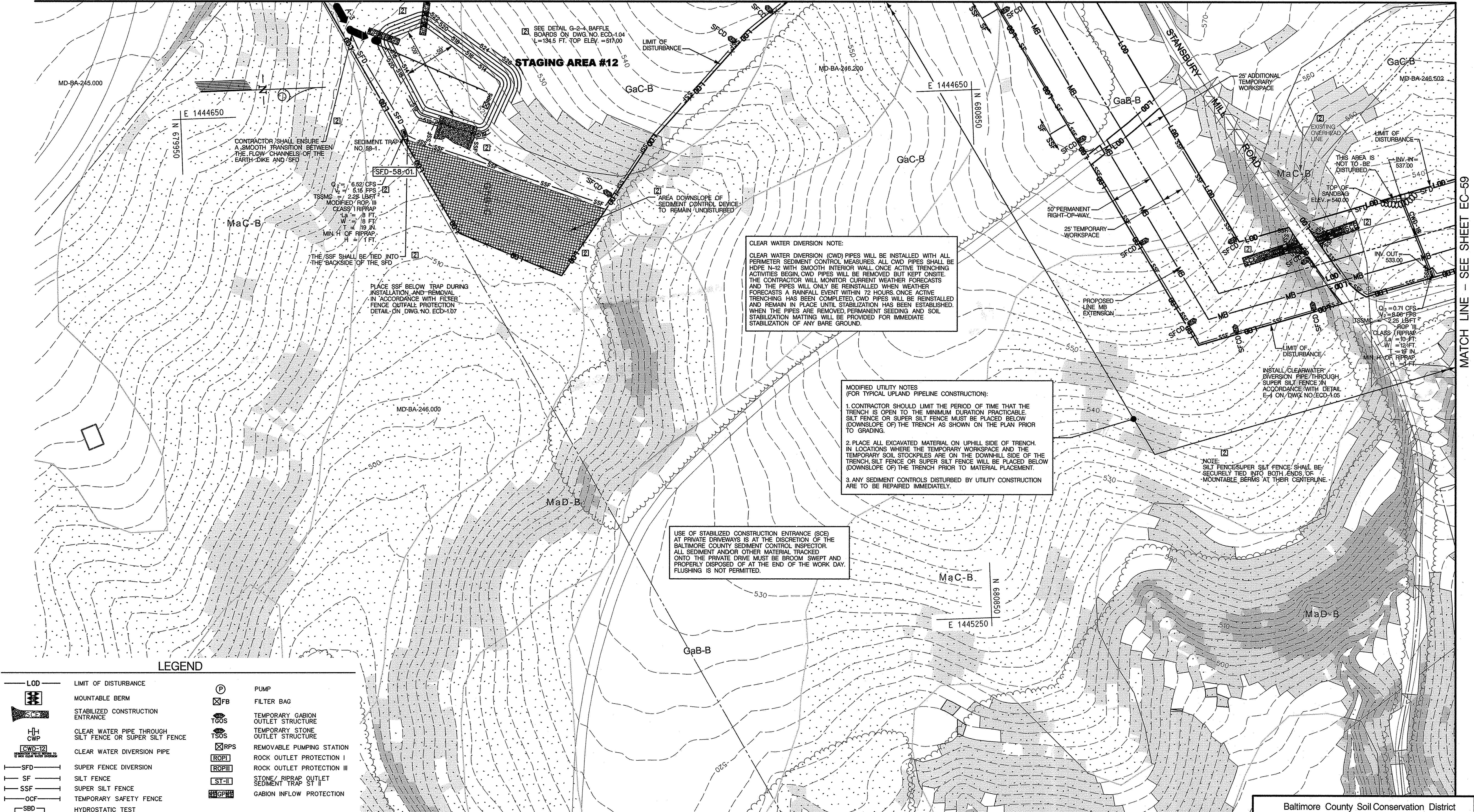
**EC-57**  
 SHEET 8 OF 22  
 RCI JOB NUMBER 16-121849

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. MD 83 (ADA 97) VERT. NAVD 88



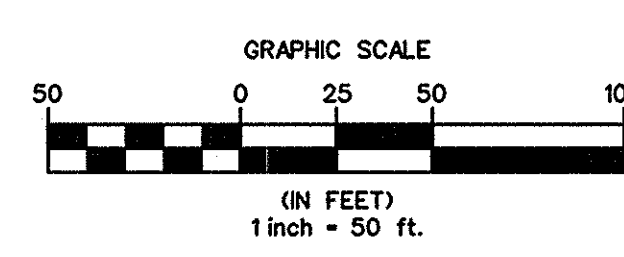
MATCH LINE - SEE SHEET EC-55

MATCH LINE - SEE SHEET EC-57

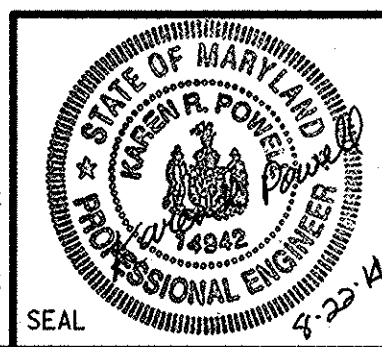


LEGEND

- LIMIT OF DISTURBANCE
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- STABILIZED CONSTRUCTION ENTRANCE
- CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
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PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY  
APPROVED BY ME, AND THAT  
I AM A LICENSED PROFESSIONAL ENGINEER  
UNDER THE LAWS OF THE STATE  
LICENSE NO. 14942  
EXPIRATION DATE: 6/01/2016



**KCI TECHNOLOGIES**  
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936 RIDGEBROOK ROAD  
SINNS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818

**Columbia Gas Transmission**  
A NISource Company

NO.	DATE	DESCRIPTION	BY	DATE
01	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SCS(1); RELOCATED TRAP 58-1 & TOS 59-1; REMOVED TOS 59-3; REVISED NOTE 8 FOR STOCKPILES; CORRECTED DETAIL C-91 EC-52, EC-53, EC-54, EC-56 EC-58; EC-59, ECD-1.0, ECD-1.03, ECD-1.04	CW	APRIL 2014

BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1 BALTIMORE & HARFORD COUNTIES, MARYLAND

APPROVED FOR SEDIMENT CONTROL  
*Sandy A. Russell*  
DATE: 8-25-14  
R-2, B-25-14/c

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (ADJ. 307) VERT: NAVD 88

DRAWING NO. EC-58  
SHEET 9 OF 22  
KCI JOB NUMBER 16-121849

**CLEAR WATER DIVERSION NOTE:**  
CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES. ALL CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

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**INSTALL CLEARWATER DIVERSION PIPE THROUGH SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-4 ON DWG NO. ECD-1.05**

**NOTE:** SILT FENCE/SUPER SILT FENCE SHALL BE SECURELY TIED INTO BOTH ENDS OR MOUNTABLE BERMS AT THEIR CENTERLINE.

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN THE FLOW CHANNELS OF THE EARTH DIKE AND SFD

SEDIMENT TRAP NO. 58-1  
Q<sub>2</sub> = 6.52 CFS  
V<sub>2</sub> = 5.15 FPS  
TSSMC = 2.25 LB/FT  
MODIFIED ROP III  
CLASS I RIPRAP  
L<sub>1</sub> = 8 FT  
W = 18 IN.  
T = 19 IN.  
MIN. H. OF RIPRAP = 1 FT

THE SSF SHALL BE TIED INTO THE BACKSIDE OF THE SFD

PLACE SSF BELOW TRAP DURING INSTALLATION AND REMOVAL IN ACCORDANCE WITH FILTER FENCE OUTFALL PROTECTION DETAIL ON DWG NO. ECD-1.07

AREA DOWNSLOPE OF SEDIMENT CONTROL DEVICE TO REMAIN UNDISTURBED

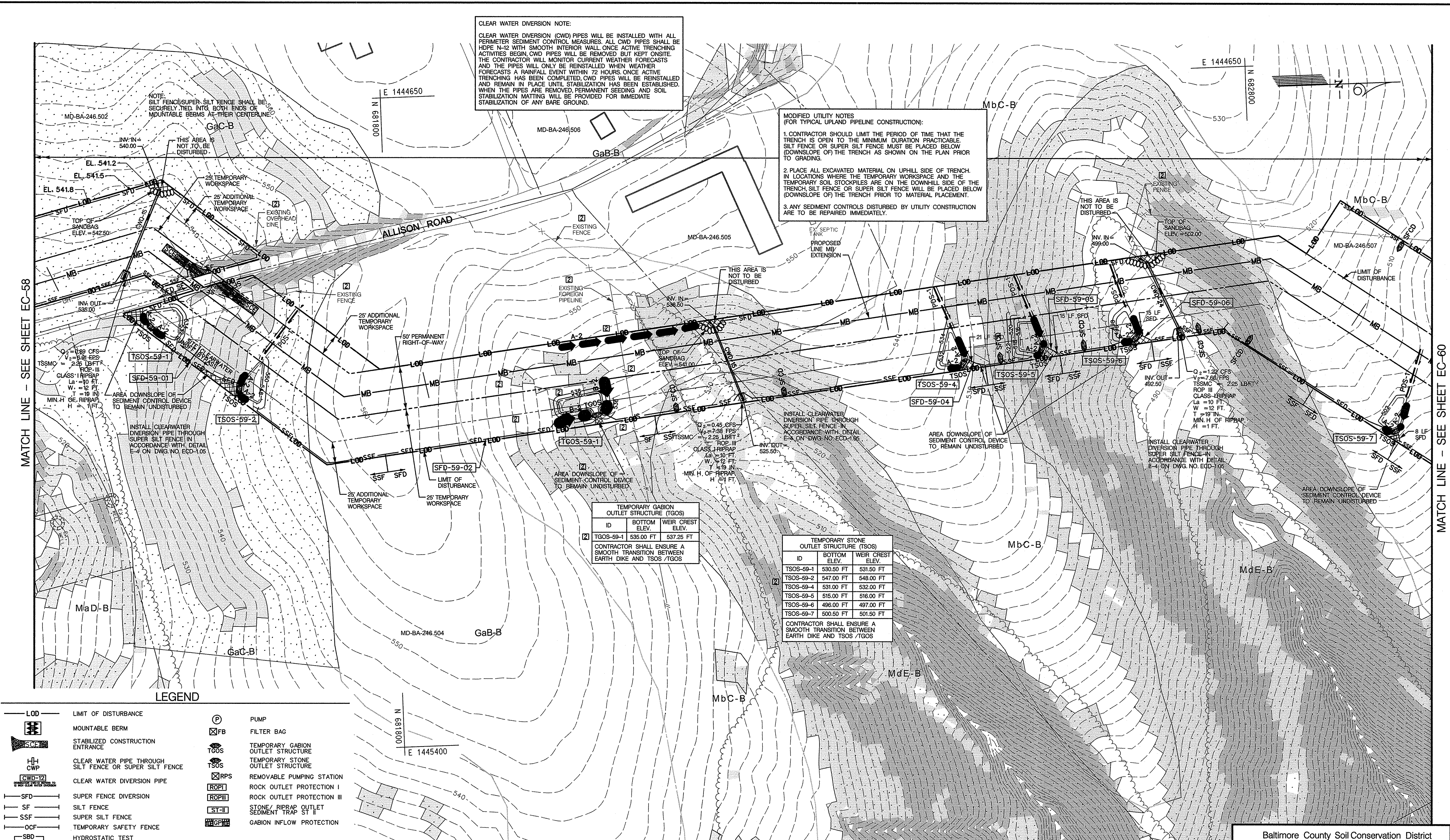
THIS AREA IS NOT TO BE DISTURBED  
TOP OF SANDBAG ELEV. = 540.00  
INV. IN = 537.00  
INV. OUT = 533.00

PLOTTED: 10:56 PM on Thursday, August 21, 2014  
FILE: M:\2014\16121849\columbia\_gas\_esc-plan\_188.dgn

MATCH LINE - SEE SHEET EC-59

**CLEAR WATER DIVERSION NOTE:**  
 CLEAR WATER DIVERSION (CWD) PIPES WILL BE INSTALLED WITH ALL PERIMETER SEDIMENT CONTROL MEASURES AND CWD PIPES SHALL BE HDPE N-12 WITH SMOOTH INTERIOR WALL. ONCE ACTIVE TRENCHING ACTIVITIES BEGIN, CWD PIPES WILL BE REMOVED BUT KEPT ONSITE. THE CONTRACTOR WILL MONITOR CURRENT WEATHER FORECASTS AND THE PIPES WILL ONLY BE REINSTALLED WHEN WEATHER FORECASTS A RAINFALL EVENT WITHIN 72 HOURS. ONCE ACTIVE TRENCHING HAS BEEN COMPLETED, CWD PIPES WILL BE REINSTALLED AND REMAIN IN PLACE UNTIL STABILIZATION HAS BEEN ESTABLISHED. WHEN THE PIPES ARE REMOVED, PERMANENT SEEDING AND SOIL STABILIZATION MATTING WILL BE PROVIDED FOR IMMEDIATE STABILIZATION OF ANY BARE GROUND.

**MODIFIED UTILITY NOTES (FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):**  
 1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE) OF THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.  
 2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE) OF THE TRENCH PRIOR TO MATERIAL PLACEMENT.  
 3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



**TEMPORARY GABION OUTLET STRUCTURE (TGOS)**

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TGOS-59-1	535.00 FT	537.25 FT

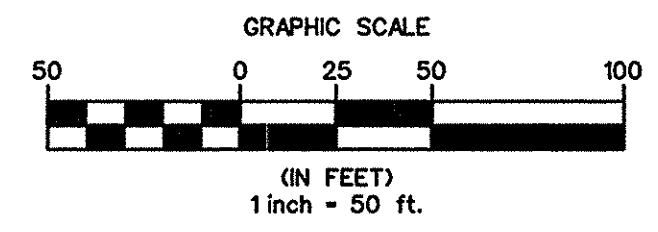
CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

**TEMPORARY STONE OUTLET STRUCTURE (TSOS)**

ID	BOTTOM ELEV.	WEIR CREST ELEV.
TSOS-59-1	530.50 FT	531.50 FT
TSOS-59-2	547.00 FT	548.00 FT
TSOS-59-4	531.00 FT	532.00 FT
TSOS-59-5	515.00 FT	516.00 FT
TSOS-59-6	496.00 FT	497.00 FT
TSOS-59-7	500.50 FT	501.50 FT

CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION BETWEEN EARTH DIKE AND TSOS /TGOS

- LEGEND**
- LOD — LIMIT OF DISTURBANCE
  - [Symbol] MOUNTABLE BERM
  - [Symbol] STABILIZED CONSTRUCTION ENTRANCE
  - [Symbol] CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE
  - [Symbol] CLEAR WATER DIVERSION PIPE
  - SFD — SUPER FENCE DIVERSION
  - SF — SILT FENCE
  - SSF — SUPER SILT FENCE
  - OCF — TEMPORARY SAFETY FENCE
  - SBD — HYDROSTATIC TEST DEWATERING PIT
  - PDS-1 — PERIMETER DIKE / SWALE
  - A-1 — EARTH DIKE
  - BB — BAFFLE BOARDS
  - A-2 — TEMPORARY SWALE
  - SFCD — SILT FENCE CHECK DAM
  - [Symbol] PUMP
  - [Symbol] FILTER BAG
  - TGOS — TEMPORARY GABION OUTLET STRUCTURE
  - TSOS — TEMPORARY STONE OUTLET STRUCTURE
  - [Symbol] RPS — REMOVABLE PUMPING STATION
  - [Symbol] ROP I — ROCK OUTLET PROTECTION I
  - [Symbol] ROP III — ROCK OUTLET PROTECTION III
  - [Symbol] ST II — STONE/ RIPRAP OUTLET SEDIMENT TRAP ST II
  - [Symbol] GPPB — GABION INFLOW PROTECTION



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 14242  
 EXPIRATION DATE: 6/01/2016



**KCI TECHNOLOGIES**  
 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS  
 936 RIDGEBROOK ROAD  
 SHAWNS, MARYLAND 21153  
 TELEPHONE: (410) 316-7800  
 FAX: (410) 316-7818

**Columbia Gas Transmission**  
 A NiSource Company

NO.	DATE	REVISIONS	BY	DATE
1	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SCS(S)F; RELOCATED TRAP 58-1 & TGOS 59-1; REMOVED TSOS 59-3; REVISED NOTE B FOR STOCKPILES; CORRECTED DETAIL C-91, EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, ECH-1.0, ECD-1.03, ECD-1.04	CW	APRIL 2014

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]* 8-25-14  
 R-2, B-25-114 DC  
 DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (ADJ. 07) VERT: NAVD 88

**BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1**  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

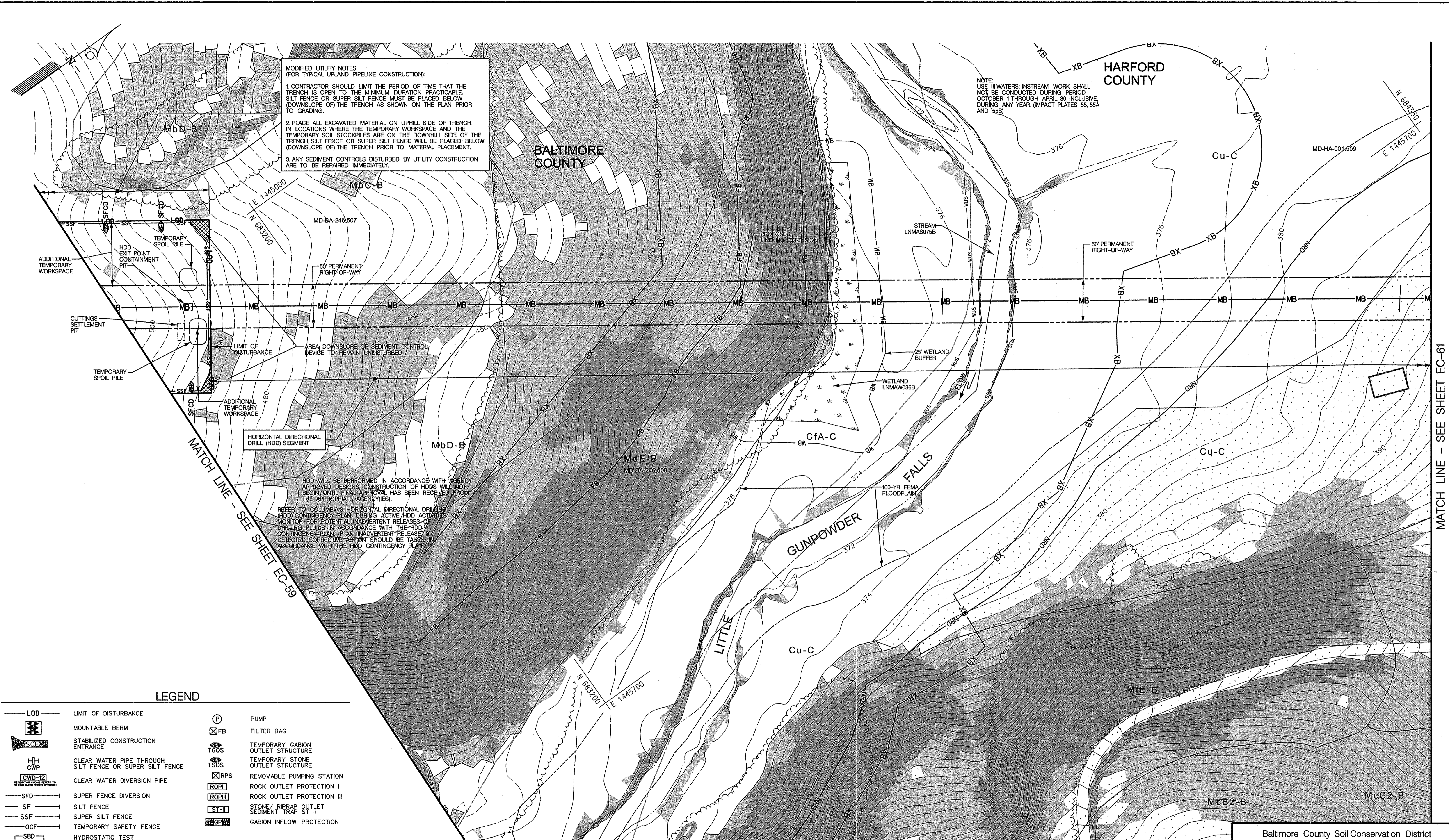
**EC-59**  
 SHEET 10 OF 22  
 KCI JOB NUMBER 16-121849

PLOTTED: 09:24 AM on Friday, August 22, 2014  
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**MODIFIED UTILITY NOTES**  
(FOR TYPICAL UPLAND PIPELINE CONSTRUCTION):

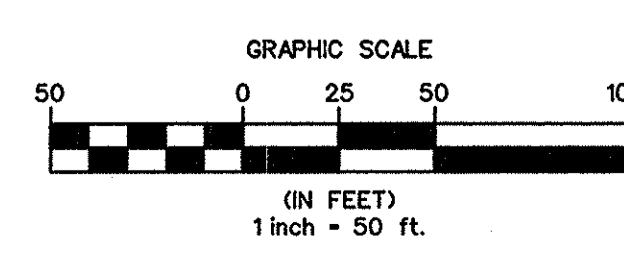
1. CONTRACTOR SHOULD LIMIT THE PERIOD OF TIME THAT THE TRENCH IS OPEN TO THE MINIMUM DURATION PRACTICABLE. SILT FENCE OR SUPER SILT FENCE MUST BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH AS SHOWN ON THE PLAN PRIOR TO GRADING.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH. IN LOCATIONS WHERE THE TEMPORARY WORKSPACE AND THE TEMPORARY SOIL STOCKPILES ARE ON THE DOWNHILL SIDE OF THE TRENCH, SILT FENCE OR SUPER SILT FENCE WILL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH PRIOR TO MATERIAL PLACEMENT.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

**NOTE:**  
USE III WATERS. INSTREAM WORK SHALL NOT BE CONDUCTED DURING PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR, (IMPACT PLATES 55, 55A AND 55B)

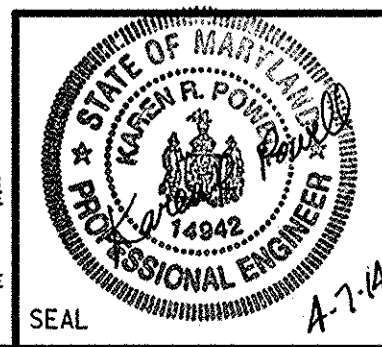


**LEGEND**

- |  |                |   |    |            |
|--|----------------|---|----|------------|
|  | LOD            | LIMIT OF DISTURBANCE                                    |    | PUMP       |
|  | MOUNTABLE BERM |   | FB | FILTER BAG |
|  | SCC            | STABILIZED CONSTRUCTION ENTRANCE                        |    | TGOS       |
|  | CWP            | CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE |    | TSOS       |
|  | CWD-12         | CLEAR WATER DIVERSION PIPE                              |    | RPS        |
|  | SFD            | SUPER FENCE DIVERSION                                   |    | ROPI       |
|  | SF             | SILT FENCE  |    | ROPIII     |
|  | SSF            | SUPER SILT FENCE  |    | ST-II      |
|  | OCF            | TEMPORARY SAFETY FENCE                                  |    | GPI        |
|  | SBD            | HYDROSTATIC TEST DEWATERING PIT                         |    |            |
|  | PDS-1          | PERIMETER DIKE / SWALE                                  |    |            |
|  | A-1            | EARTH DIKE  |    |            |
|  | BB             | BAFFLE BOARDS   |    |            |
|  | A-2            | TEMPORARY SWALE   |    |            |
|  | SFCD           | SILT FENCE CHECK DAM                                    |    |            |



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 14942 EXPIRATION DATE: 6/30/2014



**KCI TECHNOLOGIES**  
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936 RICEBROOK ROAD  
SINKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818

**Columbia Gas Transmission**  
A NiSource Company

REVISIONS			DATE
NO.	DATE	DESCRIPTION	BY

DATE: APRIL 2014  
SCALE: 1" = 50'  
DESIGNED BY: JS  
DRAWN BY: JS

**BALTIMORE COUNTY GRADING / EROSION AND SEDIMENT CONTROL PLAN**  
FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
LINE MB EXTENSION PROJECT - PHASE 1  
BALTIMORE & HARFORD COUNTIES, MARYLAND

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]*  
4-10-14  
DATE

DRAWING NO. **EC-60**  
SHEET 11 OF 22  
KCI JOB NUMBER 16-121849

PLOTTED: 03:39 PM on Thursday, March 27, 2014  
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MATCH LINE - SEE SHEET EC-61

**GENERAL EROSION AND SEDIMENT CONTROL NOTES**

- REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
- WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS CAN AND WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT. CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT.
- AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN: A.) THREE CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND B.) SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE-SUBMISSION TO BALTIMORE COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.
- DUST CONTROL WILL BE PROVIDED FOR ALL DISTURBED AREAS. REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PG. H-22, FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
- ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE INITIATION OF THE CHANGE.
- EXCESS CUT OR BORROW MATERIAL SHALL GO TO, OR COME FROM, RESPECTIVELY, A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.
- THE FOLLOWING ITEM MAY BE USED AS APPLICABLE: REFER TO "MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION" BY THE WATER MANAGEMENT ADMINISTRATION (WMA) OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT DATED, NOVEMBER, 2000, FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN FOR WATERWAY CONSTRUCTION.
- PUMPING SEDIMENT LADEN WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED. ANY PORTABLE DEWATERING DEVICE MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE.

**PROJECT DESCRIPTION**

THIS PROJECT IS A LINEAR UNDERGROUND UTILITY INSTALLATION, CONSISTING OF EXTENSION OF A 26-INCH NATURAL GAS PIPELINE (LINE MB) FOR APPROXIMATELY 21 MILES FROM EXISTING OWINGS MILLS METER AND REGULATOR STATION IN BALTIMORE COUNTY, MARYLAND TO THE EXISTING RUTLEDGE COMPRESSOR STATION IN HARFORD COUNTY, MARYLAND. THE PROJECT WILL BE CO-LOCATED WITH EXISTING RIGHT-OF-WAY (ROWS), TO THE GREATEST EXTENT PRACTICABLE, INCLUDING COLUMBIA'S ROW FOR THE EXISTING LINE MA PIPELINE.

**EROSION AND SEDIMENT CONTROL NOTES**

- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. REFERENCE MANUALS INCLUDE: 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MARYLAND GUIDELINES FOR WATERWAY CONSTRUCTIONS, DATED 2000, AND COLUMBIA GAS TRANSMISSION ENVIRONMENTAL CONSTRUCTION STANDARDS, DATED JANUARY 2009.
- COLUMBIA SHALL NOT BEGIN CONSTRUCTION ON ANY INDIVIDUAL PARCEL OF LAND UNTIL IT HAS OBTAINED THE LEGAL RIGHTS FOR THAT PARCEL AND HAS RECEIVED NOTICE TO PROCEED AUTHORIZATION FROM THE FEDERAL ENERGY REGULATORY COMMISSION (FERC).
- SEQUENCE OF CONSTRUCTION
  - A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS (DPAI, SC) (410-887-3226); MARYLAND DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE PROGRAM (410-537-3510) AND NONTIDAL WETLANDS DIVISION (410-537-3911); AND U.S. ARMY CORPS OF ENGINEERS (410-962-6080). NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS (DPAI, SC) (410-887-3226) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. NOTIFY MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM (410-537-3510) AT LEAST 5 DAYS PRIOR TO BEGINNING WORK.
  - THE LIMIT OF DISTURBANCE (LOD) WILL BE CLEARLY DEFINED IN THE FIELD. THIS DEMARCATION SHALL BE INSPECTED AND APPROVED BY BALTIMORE COUNTY PAI AT THE PRE-CONSTRUCTION MEETING.
  - CLEAR AND GRUB AS NECESSARY FOR THE INSTALLATION OF ALL SEDIMENT CONTROL MEASURES OR DEVICES ONLY AT STAGING AREA NOS. 10, 11, 11A AND 12 ONLY. SEDIMENT TRAPS MUST BE INSTALLED AND FUNCTIONAL PRIOR TO ANY FLOW DIVERSION MEASURES DIRECTING FLOW TO THEM. INSTALL REMOVABLE PUMPING STATIONS TO BE USED FOR MAINTENANCE, AND AT THE TIME OF TRAP REMOVAL.
  - INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES FOR THE STAGING AREAS.
  - NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
  - WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB THE REMAINDER OF THE STAGING AREAS.
  - CLEAR THE REMAINING WORKSPACE AS NECESSARY. CLEARING ACTIVITIES ARE LIMITED TO ABOVE GROUND VEGETATION REMOVAL THAT DOES NOT RESULT IN DISTURBANCE OF THE ROOT ZONE. ANY DISTURBANCE SHALL BE STABILIZED BY THE END OF EACH WORKING DAY.
  - CLEAR AND GRUB FOR, AND INSTALL ALL REMAINING SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES.
  - NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL (DPAI, SC) UPON COMPLETION OF SAID INSTALLATION.
  - WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, AND THE SEDIMENT CONTROL INSPECTOR, BEGIN GRUBBING ACTIVITIES, GRADING AND TRENCHING THE REMAINDER OF THE WORKSPACE. TOPSOIL SHALL BE STOCKPILED AND REAPPLIED PRIOR TO PERMANENT STABILIZATION.
  - INSTALL LINE MB. SEE ALL OTHER NOTES /GUIDELINES ON PLAN VIEW SHEETS.
  - BACKFILL THE TRENCH, FINE GRADE, REAPPLY TOPSOIL, AND PERMANENTLY STABILIZE ALL DISTURBED AREAS. FINAL RESTORATION INCLUDES THE IMPLEMENTATION OF THE APPROVED FOREST BUFFER PROTECTION PLAN. SEE "SOIL COMPACTION MITIGATION" NOTES ON THIS SHEET.
  - UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY MAINTAINED AND ADEQUATELY FUNCTIONING AT THE END OF EACH WORKDAY AND AFTER EVERY STORM EVENT. ANY EXISTING MEASURES THAT ARE DAMAGED SHALL BE PROPERLY REPAIRED AT THE END OF EACH WORKDAY. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO THE REMOVAL OF ALL ACCUMULATED SEDIMENT. GEOTEXTILE FABRIC SHALL BE REPLACED AS NEEDED TO ENSURE PROPER FUNCTION.
- EXCAVATED TOPSOIL AND SUBSOIL SHALL BE KEPT SEPARATE AND PROTECTED AS FOLLOWS:
  - TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN THE LIMIT OF DISTURBANCE
  - TEMPORARY STOCKPILES SHALL DRAIN TO A FUNCTIONING SEDIMENT CONTROL DEVICE.
  - TEMPORARY STOCKPILES SHALL BE POSITIONED TO NOT IMPEDE UPON, OR IMPAIR THE FUNCTION OF SAID DEVICE.
  - TEMPORARY STOCKPILES SHALL BE POSITIONED TO NOT ALTER DRAINAGE DIVIDES.
- POINT OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT THE TRACKING OF SOIL ONTO PUBLIC WAYS BY USING STABILIZED CONSTRUCTION ENTRANCE AT THE INTERFACES WITH PUBLIC ROADWAYS.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1).
  - SEVEN (7) CALENDAR DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- ANY DEWATERING DISCHARGE SHALL BE PLACED INTO AN APPROVED DEWATERING STRUCTURE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD DETAILS.

**FILTER BAG NOTES**

- APPROXIMATE LOCATIONS OF FILTER BAGS ARE SHOWN AT ALL STREAM CROSSINGS ON THE PLAN SHEETS. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD AND RELOCATE AS NEEDED, IN ACCORDANCE WITH THE FILTER BAG DETAIL NOTE 2 AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR.
- SHOULD IT BECOME NECESSARY TO DEWATER THE TRENCH IN UPLAND AREAS, A STANDARD F-4 FILTER BAG WILL TREAT THE DISCHARGE PRIOR TO RELEASE. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD AND RELOCATE AS NEEDED, IN ACCORDANCE WITH THE FILTER BAG DETAIL NOTE 2 AND WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR. TRENCH DEWATERING SHALL BE DONE IN A MANNER THAT DOES NOT CAUSE EROSION, DOES NOT RESULT IN SILT-LADEN WATER DISCHARGING FROM THE WORK AREA, AND WHERE WATER WILL NOT DRAIN TO DISTURBED AREAS.

**STABILIZED CONSTRUCTION ENTRANCE (SCE) NOTE**

THE LOCATIONS OF THE STABILIZED CONSTRUCTION ENTRANCES SHOWN ON THE PLAN SHEETS ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS IN THE FIELD AND RELOCATE AS NEEDED IN ACCORDANCE WITH BALTIMORE COUNTY GENERAL EROSION AND SEDIMENT CONTROL NOTE NO. 2 AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.

**SOIL COMPACTION MITIGATION**

- TEST TOPSOIL AND SUBSOIL FOR COMPACTION AT REGULAR INTERVALS IN AREAS OF CONCERN (i.e., HAUL ROADS, ETC.). CONDUCT TESTS ON THE SAME SOIL TYPE UNDER SIMILAR MOISTURE CONDITIONS IN UNDISTURBED AREAS IMMEDIATELY ADJACENT TO THE CONSTRUCTION AREA TO APPROXIMATE PRECONSTRUCTION CONDITIONS. PENETROMETERS OR OTHER APPROPRIATE DEVICES WILL BE USED TO CONDUCT THE TESTS.
- PLOW ALL SEVERELY COMPACTED AREAS WITHIN THE DISTURBED AREA WITH A PARAPLOW, SUBSOILER, OR OTHER DEEP TILLAGE IMPLEMENT. TILLAGE DEPTH SHALL BE A MINIMUM OF 12 INCHES. IN AREAS WHERE TOPSOIL HAS BEEN SEGREGATED, DEEP TILL THE SUBSOIL BEFORE REPLACING THE SEGREGATED TOPSOIL. IF SUBSEQUENT CONSTRUCTION AND CLEANUP ACTIVITIES RESULT IN FURTHER COMPACTION, CONDUCT ADDITIONAL DEEP TILLING.

SUMMARY OF GRADING UNITS						
ID	FROM	TO	LOD Area (sf)	LOD Area(ac)	GRADING UNIT (20 ac)	NOTES
R1		Staging Area #10	EC-52	22,317	0.51	0.03
R2		Staging Area #10	EC-52	3,351	0.08	0.004
S	SR 146 (Jarrettsville Rd)	EC-52 Manor Rd	EC-53	169,314	3.89	0.19
T	Manor Rd	EC-53 Stansbury Mill Rd	EC-55	249,529	5.73	0.29 [1]
T1	Stansbury Mill Rd	EC-55 Cooks Lane	EC-57	495,726	11.38	0.57
T2	Cooks Lane	EC-57 Stansbury Mill Rd	EC-58	539,388	12.38	0.62
T3	Stansbury Mill Rd	EC-58 Allison Rd	EC-59	37,718	0.87	0.04
T4	Allison Rd	EC-59 County Line	EC-60	199,366	4.58	0.23
		<b>TOTAL</b>		<b>1,716,709</b>	<b>39.41</b>	<b>1.97 [1]</b>

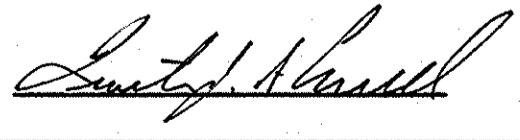
\*WITH THE APPROVAL OF THE BALTIMORE COUNTY SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR MAY WORK IN MULTIPLE GRADING UNITS CONCURRENTLY.

SITE INFORMATION	
TOTAL AREA OF FACILITY	41.09 ACRES
AREA DISTURBED	39.41 ACRES (1,716,709 SQ. FT) [1]
AREA TO BE ROOFED OR PAVED	0 ACRES
TOTAL CUT	0 CUBIC YARDS
TOTAL FILL	0 CUBIC YARDS
OFF-SITE WASTE /BORROW AREA LOCATION	NONE

**ENHANCED BEST MANAGEMENT PRACTICES FOR WORKING IN TIER II WATERSHEDS**

- AT A MINIMUM, THE CONTRACTOR MUST INSPECT ALL SEDIMENT CONTROL MEASURES AND DEVICES ONCE EVERY SEVEN (7) CALENDAR DAYS, AND WITHIN 24 HOURS OF THE OCCURRENCE OF A STORM EVENT OF 0.25 INCHES OR GREATER. THE CONTRACTOR SHALL PREPARE A WRITTEN INSPECTION REPORT FOR EACH INSPECTION, AND MAINTAIN A LOG BOOK FOR ALL REPORTS. ALL CORRECTIVE ACTION SHOULD BE INITIATED WITHIN 24 HOURS AND COMPLETED WITHIN 72 HOURS OF BEING NOTED.
- THE CONTRACTOR MUST INSPECT ALL SEDIMENT CONTROL MEASURES AND DEVICES PRIOR TO A NOAA FORECASTED EVENT OF 0.25 INCHES OR GREATER. THE CONTRACTOR SHALL PERFORM REPAIRS AND MAINTENANCE TO THE MAXIMUM EXTENT PRACTICABLE TO ASSURE ALL DEVICES ARE IN GOOD WORKING ORDER PRIOR TO THE EVENT.
- ALL POINTS OF INGRESS AND EGRESS TO THE TIER II WATERSHED WILL BE CLEARLY MARKED AS SUCH.
- ALL WETLANDS, WATERWAYS, AND 100-YR FLOODPLAINS SHALL BE CLEARLY MARKED AS SUCH. VEHICLES OPERATING WITHIN 100 FT OF THESE AREAS SHALL CARRY EMERGENCY SPILL KITS.
- ALL FOREST BUFFER AND FOREST CONSERVATION AREAS SHALL BE CLEARLY MARKED AS SUCH.
- WITHIN THE EXPANDED RIPARIAN BUFFER (XB), CUT VEGETATION OFF JUST ABOVE GROUND LEVEL, LEAVING THE EXISTING ROOT SYSTEMS IN PLACE, AND REMOVE VEGETATION FROM THE XB FOR DISPOSAL. MINIMIZE GRADING WITHIN THE XB TO ONLY WHAT IS REQUIRED TO SAFELY AND EFFICIENTLY OPERATE EQUIPMENT. LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER THE TRENCHLINE EXCEPT WHERE THE CHIEF INSPECTOR AND ENVIRONMENTAL INSPECTOR DETERMINE THAT SAFETY RELATED CONSTRUCTION CONSTRAINTS REQUIRE REMOVAL OF TREE STUMPS FROM UNDER THE WORKING SIDE OF THE CONSTRUCTION WORK AREA.
- MULCH DEPTH APPLICATION SHALL NOT EXCEED 6 INCHES.
- STOCKPILES WILL BE LOCATED WITHIN THE LOD AND SHALL DRAIN TO AN APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICE (I.E., SILT FENCE). STOCKPILES THAT ARE LOCATED WITHIN 100 FT. OF STREAM RESOURCES AND ARE INACTIVE (THOSE UNTOUCHED FOR SEVEN (7) DAYS OR LONGER) WILL BE SEEDED OR COVERED WITH AN IMPERMEABLE COVER WHEN INACTIVE.
- REDUNDANT CONTROLS SHALL BE USED FOR DEWATERING DISCHARGES WITHIN THE XB (I.E., FILTER BAG SURROUNDED WITH SILT FENCE OR HAY BALE STRUCTURE).
- HYDROSEEDING SHALL BE CONDUCTED WITH FLEXITERRA HIGH PERFORMANCE-FLEXIBLE GROWTH MEDIUM, OR APPROVED EQUIVALENT, USED IN CONJUNCTION WITH FIBER ROLLS IN AREAS OF 15% SLOPE OR GREATER. WITHIN 100-FT OF WETLANDS OR WATERBODIES, THE MEDIUM MUST BE CERTIFIED ENVIRONMENTALLY NON-TOXIC BY THE APPROPRIATE STATE OR FEDERAL AGENCY. THE FIBER ROLLS WILL BE LOCATED IN THE FIELD BY THE CONTRACTOR AND IN ACCORDANCE WITH THE DETAIL ON DWG. NO. ECD-1.08 AND SUBJECT TO APPROVAL BY THE SEDIMENT CONTROL INSPECTOR.
- TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION (TSSMS 2.25 LBS/ SF) IN ACCORDANCE WITH DETAIL B-4-6-B ON DWG. NO. ECD-1.06 SHALL BE UTILIZED IN AREAS WITH HIGHLY ERODIBLE SOILS AND LESS THAN 15% SLOPE.

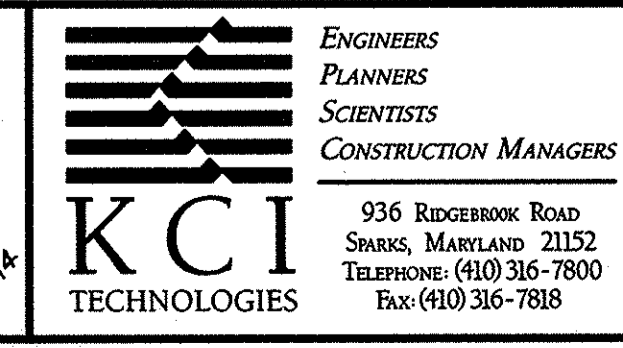
**EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED.**

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
  
 8-25-14  
 DATE

R-2, B-26-14.pl DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (ADJ. 07); VERT: NAVD 88

PLOTTED: 10:09 PM on Friday, August 01, 2014  
 By: Christopher Deibel Division: Pogo - Natural Res. Emp.  
 FILE: M:\2014\15787849.dwg User: ESC-Gordon-D

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. 14842  
 EXPIRATION DATE: 6/01/2016



REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	SCALE
[1]	MAY 2014	REVISED LOD, VIC-1.1, EC-53, EC-54, EC-56, EC-57, ECN-1.0	AS	N.T.S.
[2]	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SCE(S); RELOCATED TRAP 58-1 & TGS 59-1; REMOVED TGS 59-3; REVISED NOTE 8 FOR STOCKPILES; CORRECTED DETAIL C-9: EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, ECN-1.0, ECD-1.03, ECD-1.04	CW	AS

**BALTIMORE COUNTY**  
**EROSION AND SEDIMENT CONTROL NOTES**  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
**LINE MB EXTENSION PROJECT - PHASE 1**  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.  
**ECN-1.0**  
 SHEET 12 OF 22  
 KCT JOB NUMBER  
 16-121849

**B-4 STANDARDS AND SPECIFICATIONS**

**FOR  
VEGETATIVE STABILIZATION**

**Definition**

Using vegetation as cover to protect exposed soil from erosion.

**Purpose**

To promote the establishment of vegetation on exposed soil.

**Conditions Where Practice Applies**

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

**Effects on Water Quality and Quantity**

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

**Adequate Vegetative Establishment**

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

- Adequate vegetative stabilization requires 95 percent groundcover.
- If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
- If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
- Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B.9

**B-4.1 STANDARDS AND SPECIFICATIONS**

**FOR  
INCREMENTAL STABILIZATION**

**Definition**

Establishment of vegetative cover on cut and fill slopes.

**Purpose**

To provide timely vegetative cover on cut and fill slopes as work progresses.

**Conditions Where Practice Applies**

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

**Criteria**

- A. Incremental Stabilization - Cut Slopes**
- Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
  - Construction sequence example (Refer to Figure B.1):
    - Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
    - Perform Phase 1 excavation, prepare seedbed, and stabilize.
    - Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
    - Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

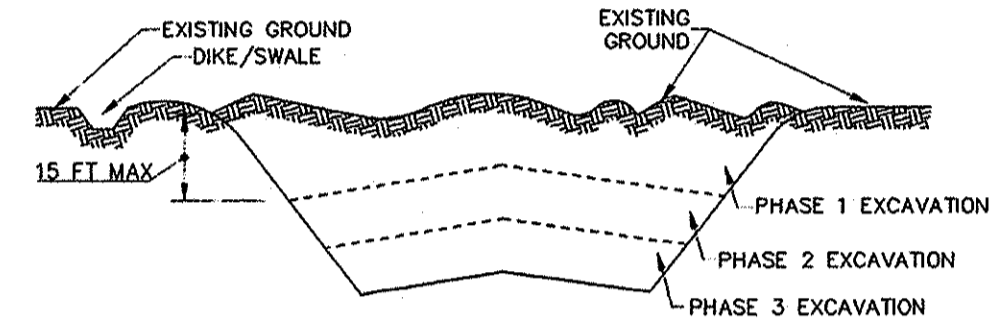


Figure B.1: Incremental Stabilization - Cut

B.10

**B. Incremental Stabilization - Fill Slopes**

- Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
- Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
- At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
- Construction sequence example (Refer to Figure B.2):
  - Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
  - At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
  - Place Phase 1 fill, prepare seedbed, and stabilize.
  - Place Phase 2 fill, prepare seedbed, and stabilize.
  - Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

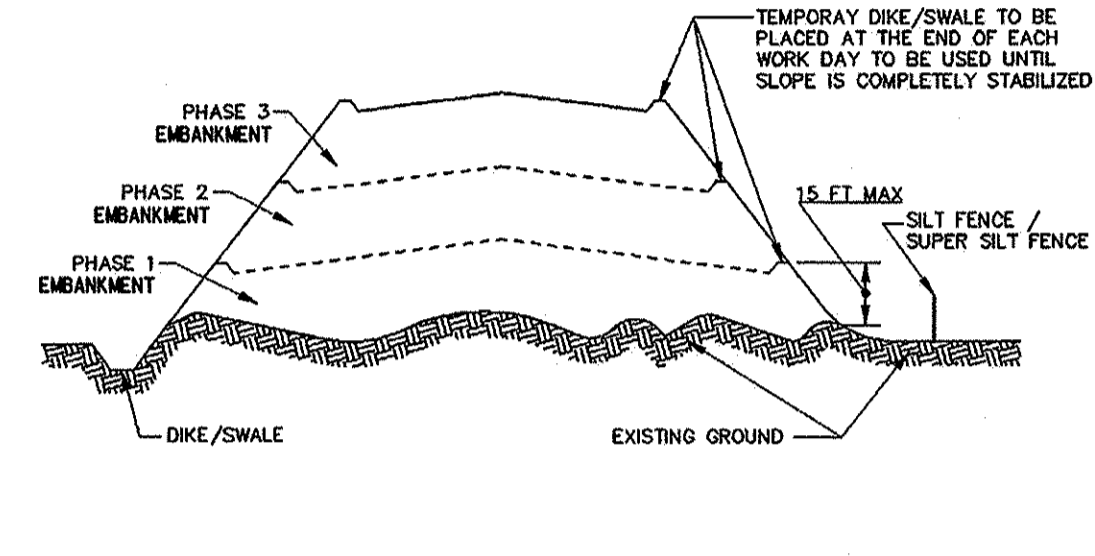


Figure B.2: Incremental Stabilization - Fill

B.11

**B-4.2 STANDARDS AND SPECIFICATIONS**

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

**Definition**

The process of preparing the soils to sustain adequate vegetative stabilization.

**Purpose**

To provide a suitable soil medium for vegetative growth.

**Conditions Where Practice Applies**

Where vegetative stabilization is to be established.

**Criteria**

- A. Soil Preparation**
- Temporary Stabilization
    - Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
    - Apply fertilizer and lime as prescribed on the plans.
    - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
  - Permanent Stabilization
    - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      - Soil pH between 6.0 and 7.0.
      - Soluble salts less than 500 parts per million (ppm).
      - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      - Soil contains 1.5 percent minimum organic matter by weight.
      - Soil contains sufficient pore space to permit adequate root penetration.
    - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
    - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

B.12

**B-4.3 STANDARDS AND SPECIFICATIONS**

**FOR  
SEEDING AND MULCHING**

**Definition**

The application of seed and mulch to establish vegetative cover.

**Purpose**

To protect disturbed soils from erosion during and at the end of construction.

**Conditions Where Practice Applies**

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

**Criteria**

- A. Seeding**
- Specifications
    - All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
    - Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
    - Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
    - Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
  - Application
    - Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      - Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

B.15

- Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
  - Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
  - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
  - If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P<sub>2</sub>O<sub>5</sub> (phosphorus), 200 pounds per acre; K<sub>2</sub>O (potassium), 200 pounds per acre.
  - Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
  - Mix seed and fertilizer on site and seed immediately and without interruption.
  - When hydroseeding do not incorporate seed into the soil.

**B. Mulching**

- Mulch Materials (in order of preference)
  - Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
  - Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
    - WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
    - WCFM, including dye, must contain no germination or growth inhibiting factors.
    - WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
    - WCFM material must not contain elements or compounds at concentration levels that will be phytotoxic.
    - WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

B.16

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]*  
 4-10-14  
 DATE

R-1, 6-11-14 pc  
 R-2, B-23-14 pc  
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		BY
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		DESIGNED BY
		JS
		DRAWN BY
		JS

BALTIMORE COUNTY  
 EROSION AND SEDIMENT CONTROL DETAILS  
 FOR  
 COLUMBIA GAS TRANSMISSION, LLC  
 LINE MB EXTENSION PROJECT - PHASE 1  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.  
**ECD-1.00**  
 SHEET 13 OF 22  
 PCT JOB NUMBER  
 16-121849

2. Application
- Apply mulch to all seeded areas immediately after seeding.
  - When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
  - Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
- Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
    - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
    - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
    - Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroret, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
    - Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B.17

**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**

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness 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.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 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.

**Temporary Seeding Summary**

No.	Species	Hardiness Zone (from Figure B.3): <u>6B</u>		Seed Mixture (from Table B.1):		Fertilizer Rate (10-20-20)	Lime Rate
		Application Rate (lb/ac)	Seeding Dates	Seeding Depth	Seeding Rate		
	Note: See Table B.1 this sheet.					436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

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**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
- General Use
    - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness 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.
    - 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.
    - For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
    - For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ 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.
  - Turfgrass Mixtures
    - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
    - 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.
      - 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.
      - Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where

B.21

- 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.
- 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.
  - 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: 1½ 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 material 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)

- 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 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- If soil moisture is deficient, supply new seedlings with adequate water for plant growth (½ 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.

B.22

**Permanent Seeding Summary**

No.	Species	Hardiness Zone (from Figure B.3): <u>6B</u>		Seed Mixture (from Table B.3):		Fertilizer Rate (10-20-20)			Lime Rate
		Application Rate (lb/ac)	Seeding Dates	Seeding Depth	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O		
Mix #3	Deertongue	20	Mar 1-June 15	1/4-1/2 in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)	
	Canada Wild Rye	3							
	Redtop	1							
Mix #10	Common Lespedeza	10	Mar 1-May 15 Aug 1-Oct 15	1/4-1/2 in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)	
	Orchard Grass	25							
	Creeping Red Fescue	10							
	Redtop	1							
Mix #12	Alsike Clover	3	Mar 1-May 15 Aug 1-Oct 15	1/4-1/2 in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)	
	White Clover	3							
	Creeping Red Fescue	25							
	Hard Fescue	25							
	Sheep Fescue	25							
	Red Clover	3							

\*For the period May 16-July 31, add either Foxtail or Pearl Millet to the permanent mix  
 - 2 lbs./acre to mix #10  
 - 4 lbs./acre to mix #12

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

**1. General Specifications**

- Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

**2. Sod Installation**

- During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
- Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
- Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
- Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

**3. Sod Maintenance**

- In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- After the first week, sod watering is required as necessary to maintain adequate moisture content.
- Do not mow until the sod is firmly rooted. No more than ¼ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B.24

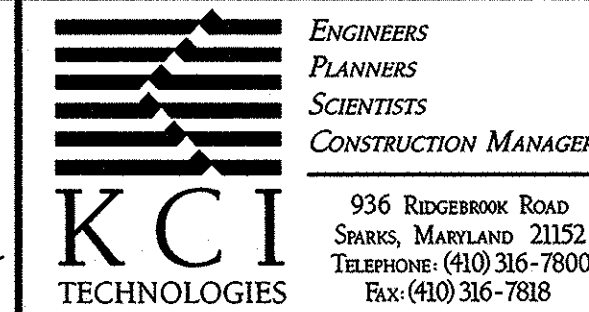
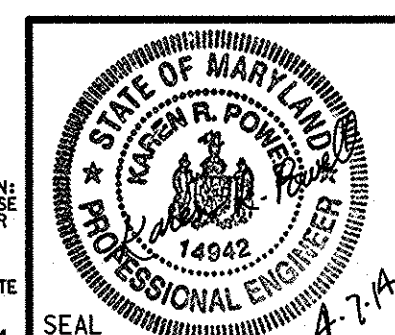
**Table B.1: Temporary Seeding for Site Stabilization**

Plant Species	Seeding Rate <sup>1/</sup>		Seeding Depth (inches)	Recommended Seeding Dates by Plant Hardiness Zone <sup>3/</sup>		
	lb/ac	lb/1000 ft <sup>2</sup>		Seeding Date		
				5b and 6a	6b	7a and 7b
<b>Cool-Season Grasses</b>						
Annual Ryegrass ( <i>Lolium perenne ssp. multiflorum</i> )	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley ( <i>Hordeum vulgare</i> )	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats ( <i>Avena sativa</i> )	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat ( <i>Triticum aestivum</i> )	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye ( <i>Secale cereale</i> )	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
<b>Warm-Season Grasses</b>						
Foxtail Millet ( <i>Setaria italica</i> )	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet ( <i>Pennisetum glaucum</i> )	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

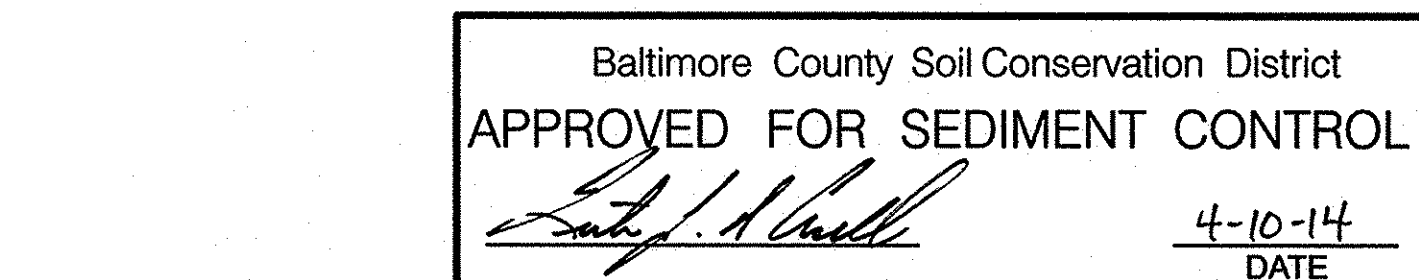
NOTES:  
 1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.  
 Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/2 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 1/2 of the rate listed above.  
 Oats are the recommended nurse crop for warm-season grasses.  
 2/ For stony 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 zones.

B.20

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				APRIL 2014
				SCALE N.T.S.
				DESIGNED BY JS
				DRAWN BY JS



DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. AND 83 (ADA) VTY. VERT. NAVD 83

BALTIMORE COUNTY  
 EROSION AND SEDIMENT CONTROL DETAILS  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
 LINE MB EXTENSION PROJECT - PHASE 1  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. **ECD-1.01**

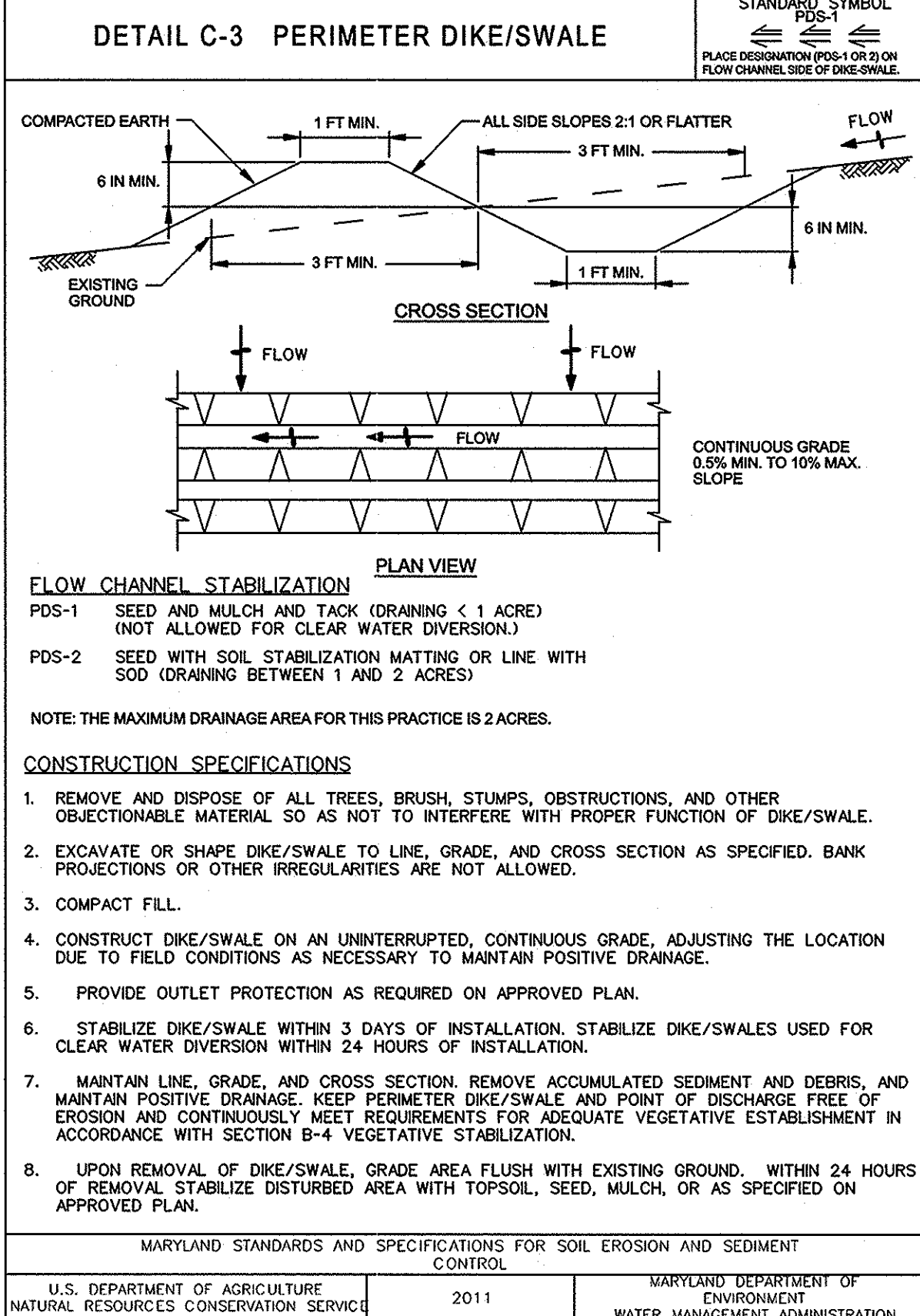
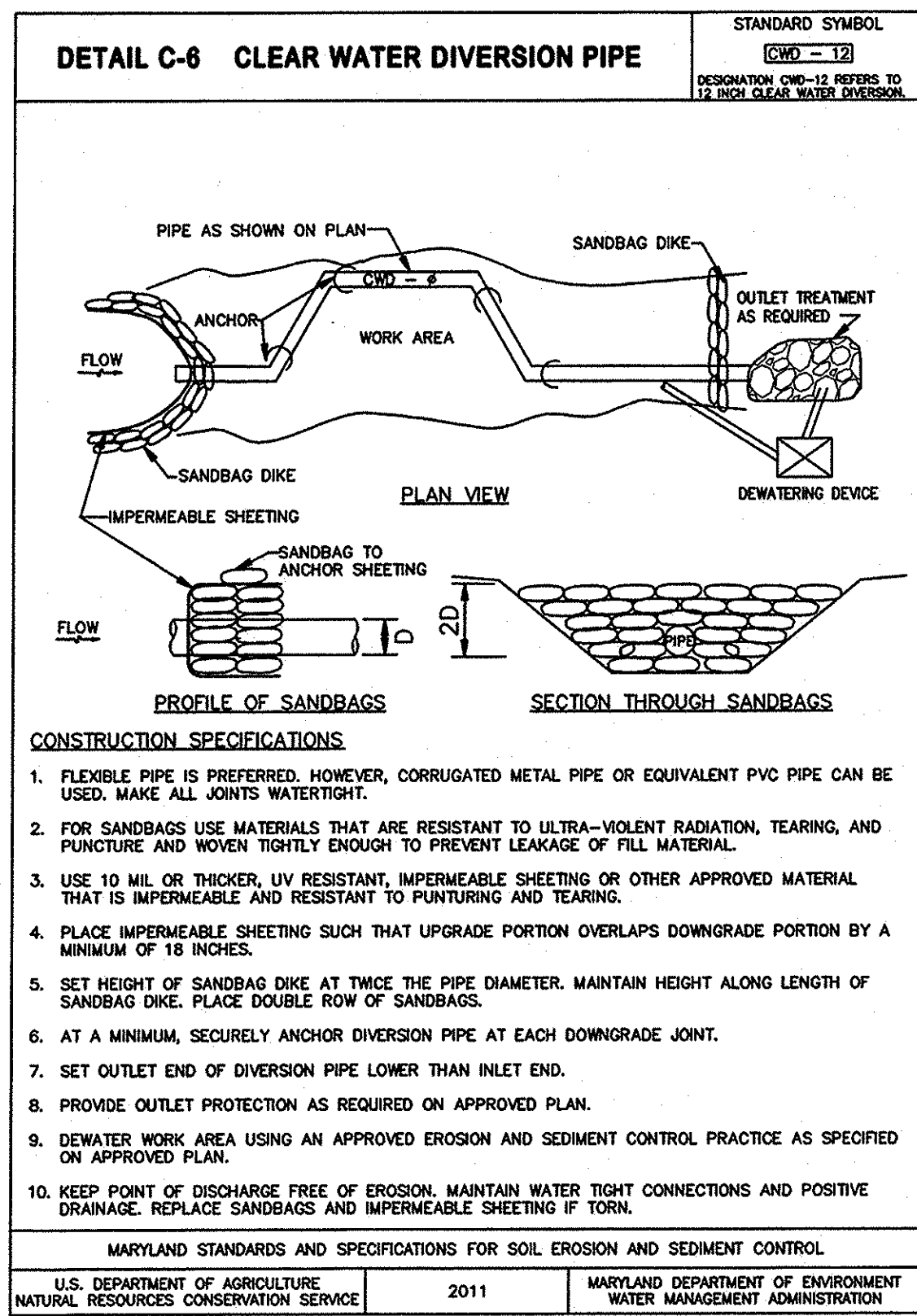
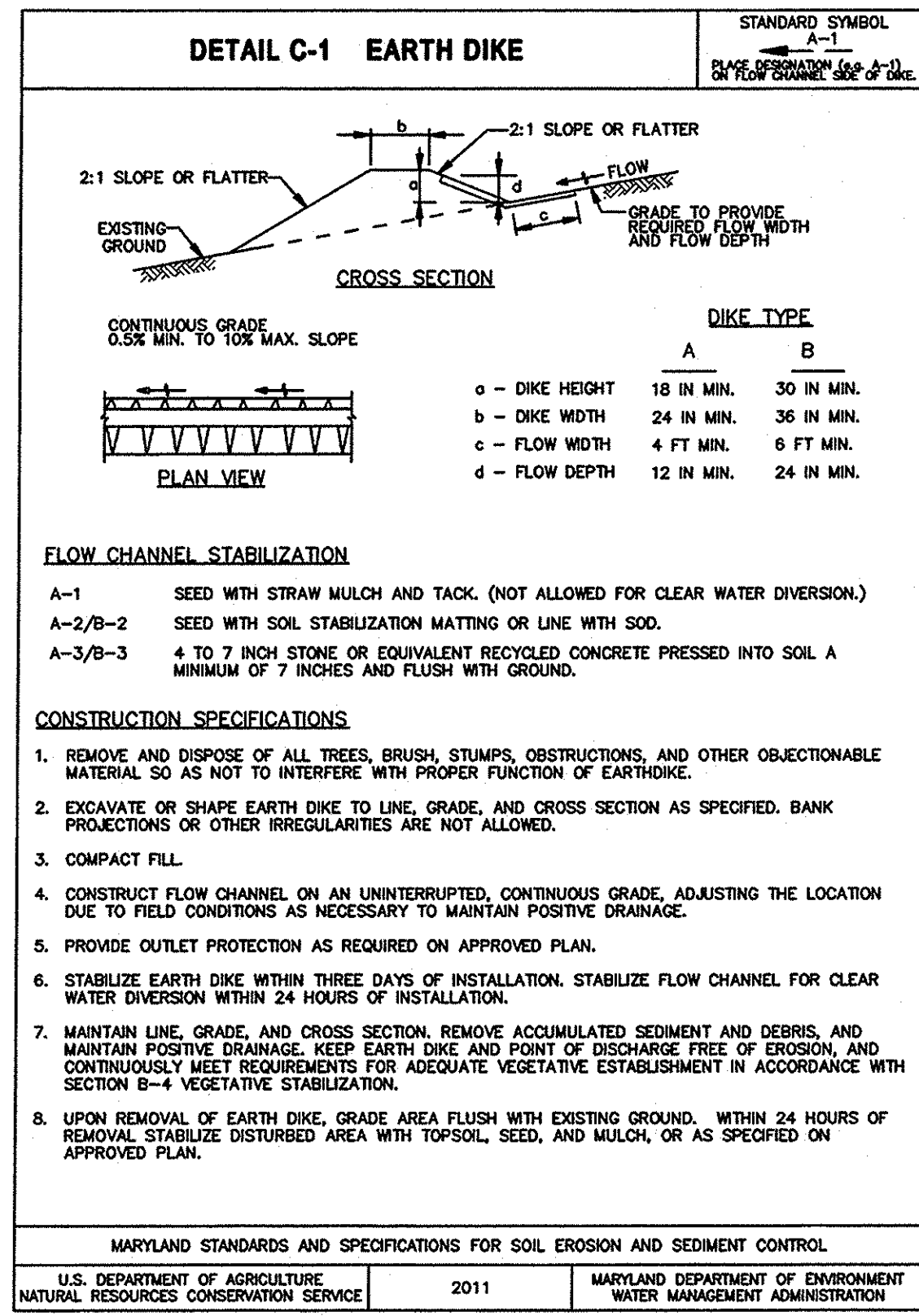
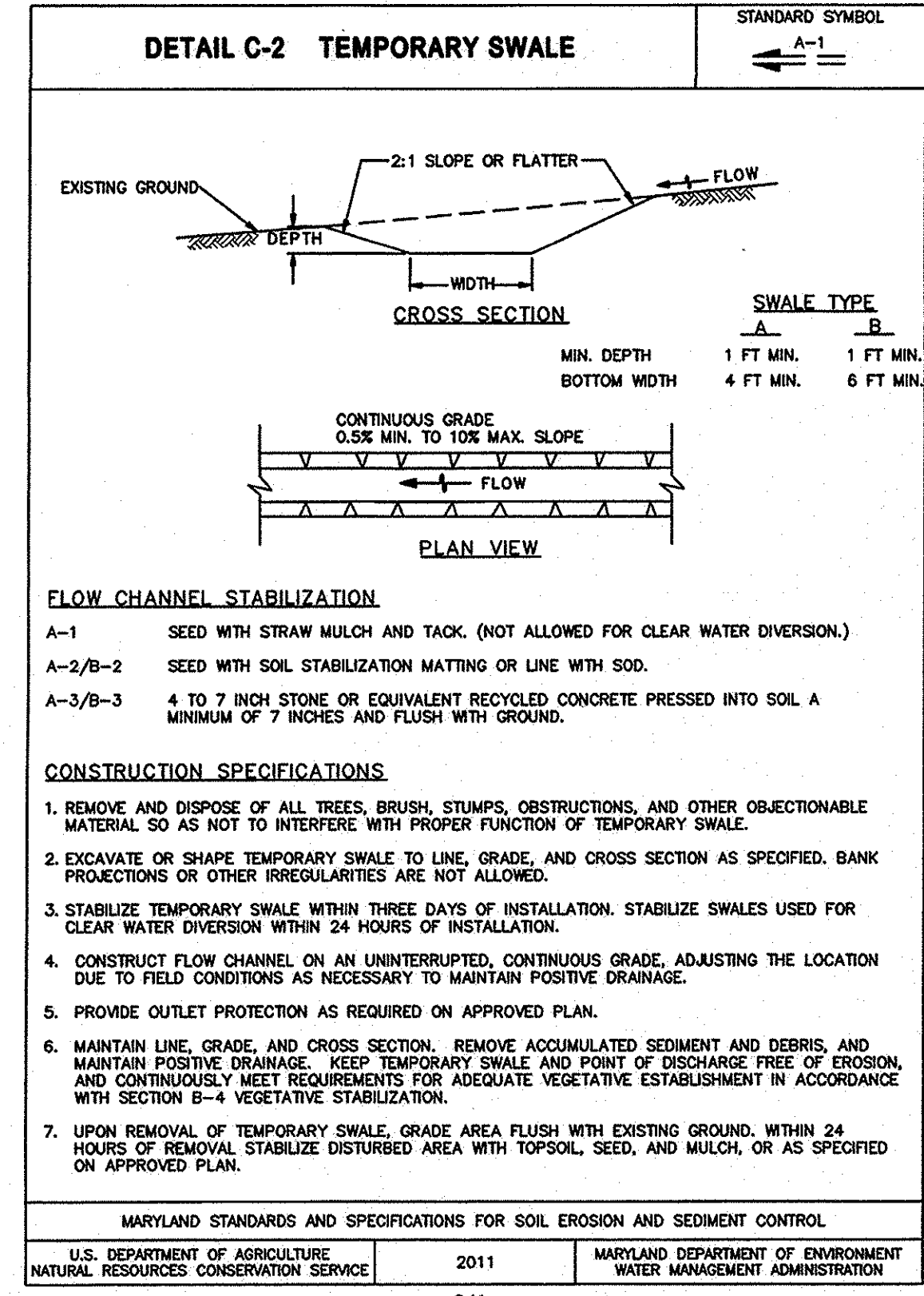
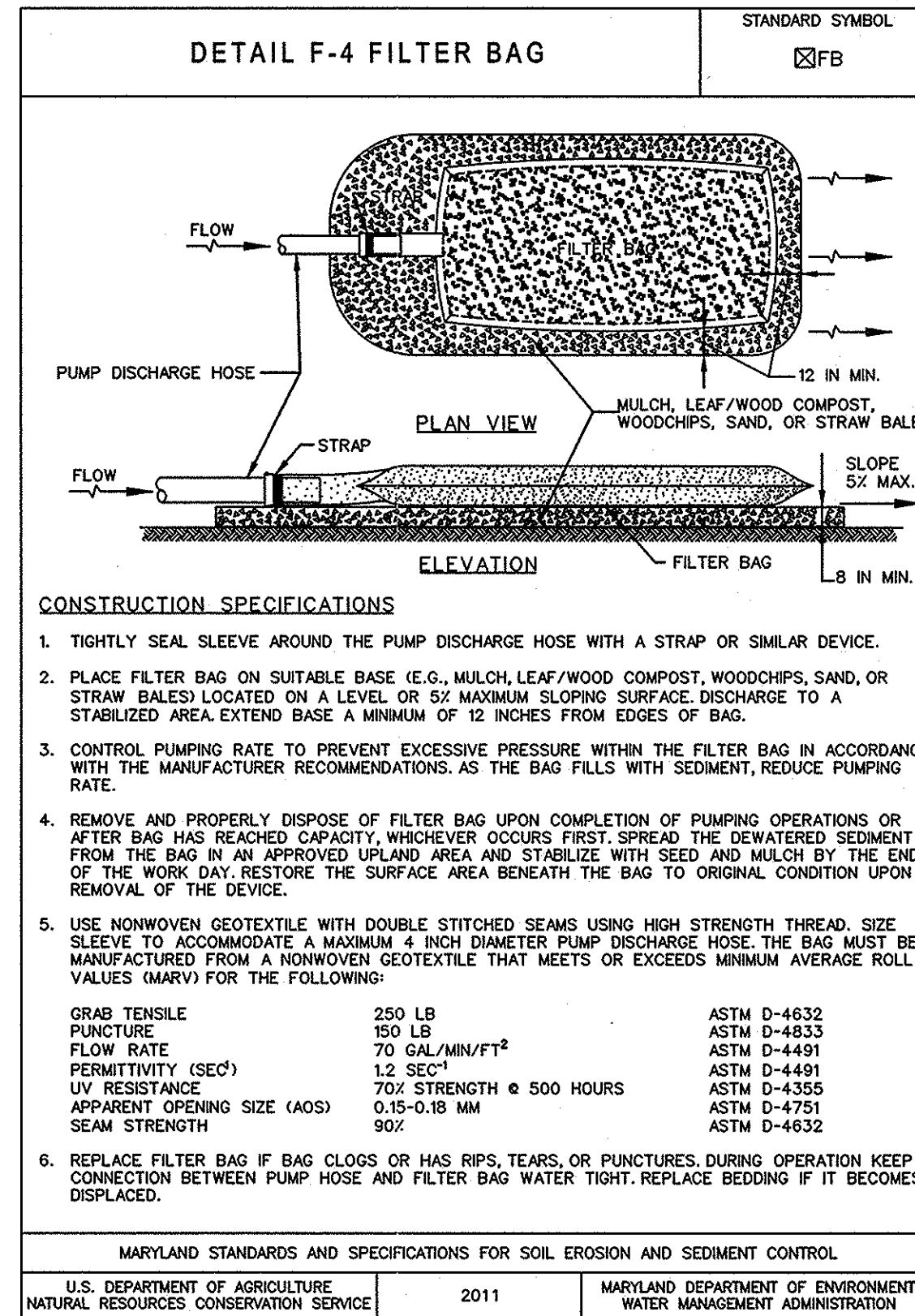
SHEET 14 OF 22  
 KCI JOB NUMBER 16-121849

12-NT-0433/201261660  
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 MATERIAL 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 (UNOLA 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 SEEDING AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.  
USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.  
USE II WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.  
USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF 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.

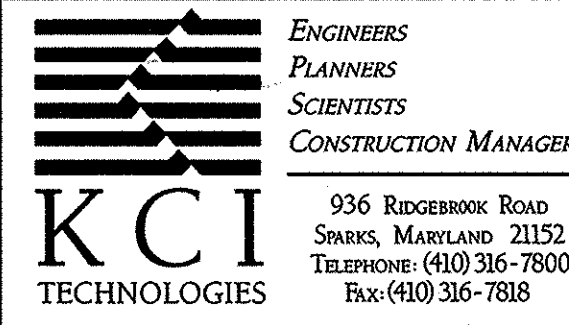
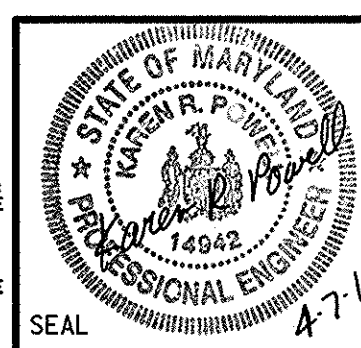
COLUMBIA GAS  
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS,  
NONTIDAL WETLAND BUFFERS, WATERWAYS  
AND 100-YEAR FLOODPLAINS

- DISCONNECT OR OTHERWISE PROTECT ALL HOSES FROM DAMAGE BY CROSSING EQUIPMENT. FILTER BAG FOR DEWATERING MUST BE PLACED WITHIN THE LOD.
- STREAMS WITH NO PERCEIVABLE FLOW AT THE TIME OF CROSSING WILL BE CROSSED USING THE OPEN-CUT CROSSING METHOD WITH NO WATER DIVERSION. A DIVERSION PIPE WILL BE KEPT ON SITE AND INSTALLED IN ACCORDANCE WITH MGWC 1.4 IF FLOW BEGINS. THE CONTRACTOR WILL UTILIZE THE DAM AND PUMP (PUMP-AROUND) METHOD FOR ALL PERENNIAL STREAMS AND INTERMITTENT STREAMS WITH SIGNIFICANT FLOW IN ACCORDANCE WITH MGWC 1.2.
- THE PLACEMENT OF TIMBER MATS WITHIN THE 100-YEAR FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOODPLAIN IS SHOWN ON THE PLAN. HOWEVER, COLUMBIA MAY REQUEST THAT THE APPROVING AGENCIES REDLINE THE PLAN TO INDICATE THAT NO MATTING IS NEEDED.
- STREAMS IDENTIFIED WITHIN THE LINE MB EXTENSION PROJECT SURVEY CORRIDOR ARE NOT DESIGNATED AS TIER II OR TIER III STREAMS BY THE CODE OF MARYLAND REGULATIONS (COMAR) SECTIONS 26.08.02.04-1. AS OUTLINED IN THE COMAR, ALL WATERBODIES NOT LISTED AS TIER II OR TIER III WATERS ARE TIER I, AS SUCH, ALL WATERBODIES IDENTIFIED WITHIN THE LINE MB EXTENSION PROJECT SURVEY CORRIDOR ARE TIER I STREAMS. HOWEVER, THE PROPOSED PROJECT WILL CROSS TIER I WATERSHEDS. IN ORDER TO LIMIT POTENTIAL IMPACTS TO TIER I WATERSHEDS, COLUMBIA WILL USE CONSTRUCTION AND EROSION CONTROL METHODS AS SPECIFIED IN THE FERC PLAN AND PROCEDURES AND COLUMBIA'S ECS MANUAL. ADDITIONALLY, COLUMBIA WILL UTILIZE ENHANCED BMPs AS REQUIRED FOR CONSTRUCTION ACTIVITIES IN TIER I WATERSHEDS. EXAMPLES OF ENHANCED BMPs INCLUDE ACCELERATED STABILIZATION, ENHANCED SCHEDULING (E.G., REVIEWING THE WEATHER FORECAST TO AVOID WORK DURING TIMES OF HIGH SEDIMENT TRANSPORT RISK), ENHANCED INSPECTIONS, AND USING SUPER SILT FENCE IN PLACE OF SILT FENCE. ENHANCED BMPs HAVE BEEN INCORPORATED INTO THE PROJECT PLAN WHICH WILL BE SUBMITTED TO MDE FOR REVIEW AND APPROVAL.
- BLASTING WILL BE CONDUCTED UNDER A SPECIFIC BLASTING PLAN AS APPROVED BY MDE, WHICH INCLUDES INFORMATION ON AVOIDING AND STRICTLY MINIMIZING SURFACE DISTURBANCE. BLASTING WILL BE OVERSEEN BY A CERTIFIED PERSON/PROJECT MANAGER. BLASTING DESIGN, BMPs, AND MONITORING WILL ENSURE THAT NO SIGNIFICANT VIBRATIONS, EXCESSIVE SOUND WAVES, OR DISTURBANCES OF SIGNIFICANCE OCCUR WITHIN THE WATER COLUMN OF THE STREAM. STREAM DIVERSIONS, DRILLING PROCEDURES, CAPPING OF HOLES, MATTING, ETC. WILL BE UTILIZED TO AVOID BLASTING IMPACTS TO THE FLOWING STREAM.
- UTILITY STREAM CROSSINGS SHALL BE IN ACCORDANCE WITH THE MARYLAND GUIDELINES FOR WATERWAY CONSTRUCTION (MGWC) DETAIL 4.2 (c).



Baltimore County Soil Conservation District  
APPROVED FOR SEDIMENT CONTROL  
*[Signature]*  
4-10-14  
DATE

R-1, 6-11-14, 02  
R-2, 8-25-14, 02  
DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. NAD 83 (ADJ. YD.) VERT. NAVD 88



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NO.	DATE	DESCRIPTION	BY	
				APRIL 2014
				SCALE N.T.S.
				DESIGNED BY JS
				DRAWN BY JS

BALTIMORE COUNTY  
EROSION AND SEDIMENT CONTROL DETAILS  
FOR  
COLUMBIA GAS TRANSMISSION, LLC  
LINE MB EXTENSION PROJECT - PHASE 1  
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.  
**ECD-1.02**  
SHEET 15 OF 22  
KCI JOB NUMBER  
16-121849

### DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (+30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL E-1 SILT FENCE

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- USE WOOD POSTS 1 1/2 X 1 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 3/8 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN, OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL E-1 SILT FENCE

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- USE WOOD POSTS 1 1/2 X 1 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 3/8 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN, OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 1/2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. LAY THE GEOTEXTILE IN THE BOTTOM OF THE 24 INCH WIDE TRENCH.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE UPSLOPE A MINIMUM OF 3 VERTICAL FEET TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL B-3-1 BENCHING

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- USE FILL MATERIAL FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- DO NOT INCORPORATE FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL SLOPES OR STRUCTURAL FILLS. DO NOT PLACE FILL ON A FROZEN FOUNDATION.
- PLACE ALL FILL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND THEN COMPACT.
- COMPACT ALL FILLS AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC., IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- HANDLE SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION H-2 SUBSURFACE DRAINS OR OTHER APPROVED METHODS.
- MAINTAIN LINE, GRADE, AND CROSS SECTION OF BENCHING. STABILIZE IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION CRITERIA OR AS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. INSTALLATION OF EROSION CONTROL MATTING MAY BE NECESSARY IN BENCH/SWALE INVERTS. CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- KEEP ALL BENCHES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
- PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
- PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL C-9 SUPER FENCE DIVERSION

STANDARD SYMBOL:

**CONSTRUCTION SPECIFICATIONS**

- USE 42 INCH HIGH, 6 GAUGE OR HEAVIER CHAIN LINK FENCING. (2 1/2 INCH MAXIMUM OPENING).
- USE 2 1/2 INCH DIAMETER, GALVANIZED STEEL POSTS. THE POSTS SHALL BE SIX FEET IN LENGTH SPACED NO FURTHER THAN TEN FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
- FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
- SECURE THE MIRAFI NT-100 OR APPROVED EQUIVALENT TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, 18 INCHES BELOW THE TOP AND BELOW THE GROUND.
- FLOW CHANNEL TO BE STABILIZED WITH SEED AND SOIL STABILIZATION MATTING A MINIMUM OF 4 FEET WIDE. EMBED THE ENDS OF THE MATTING A MINIMUM OF 8 INCHES INTO THE GROUND. THE SOIL STABILIZATION MATTING SHALL HAVE A SHEAR STRESS RATING OF 2.25 LB/FT.
- WHEN TWO SECTIONS OF MIRAFI ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
- KEEP FLOW SURFACE ALONG THE FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE MIRAFI FABRIC IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPENDIX 17

Baltimore County Soil Conservation District  
 APPROVED FOR SEDIMENT CONTROL

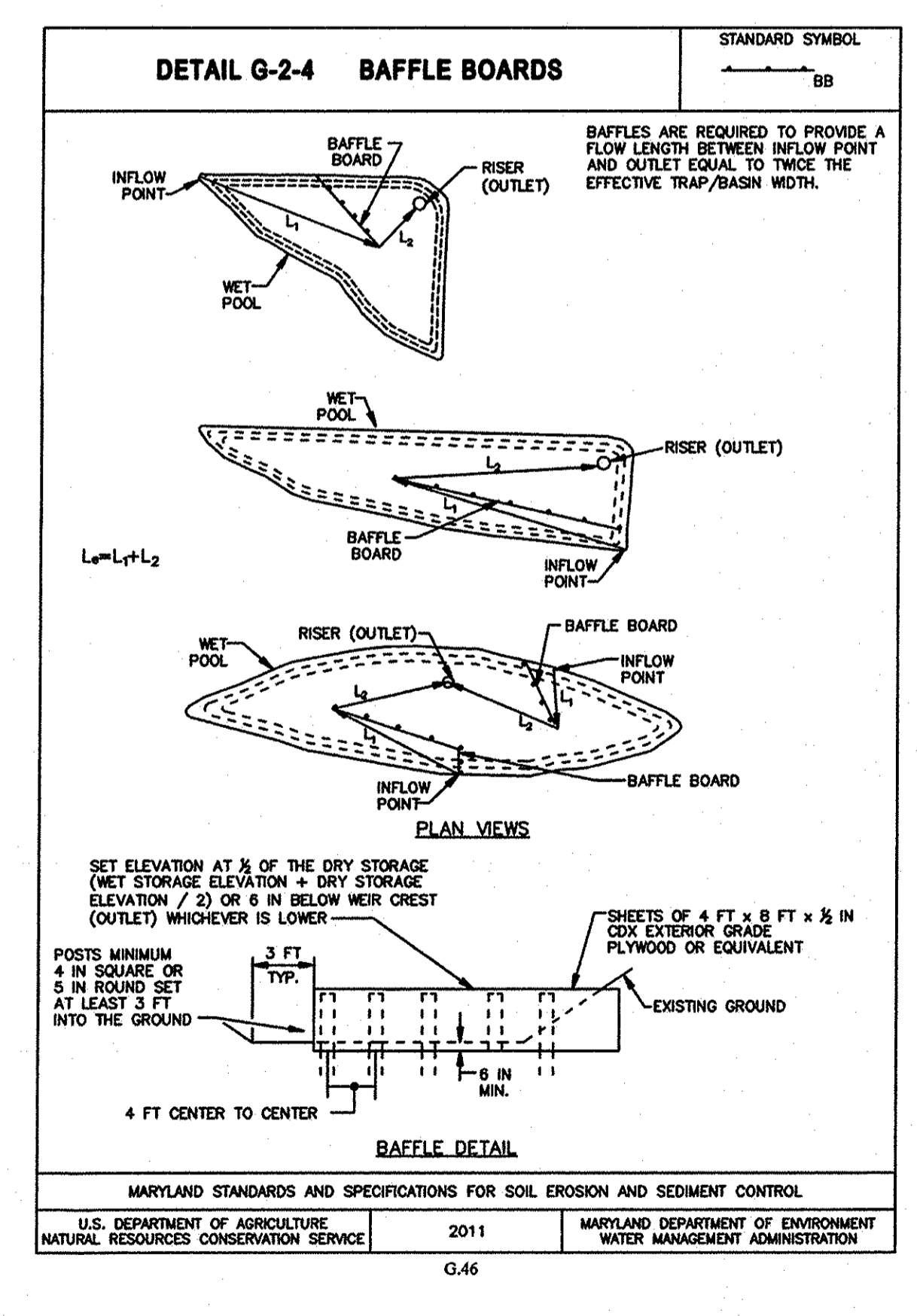
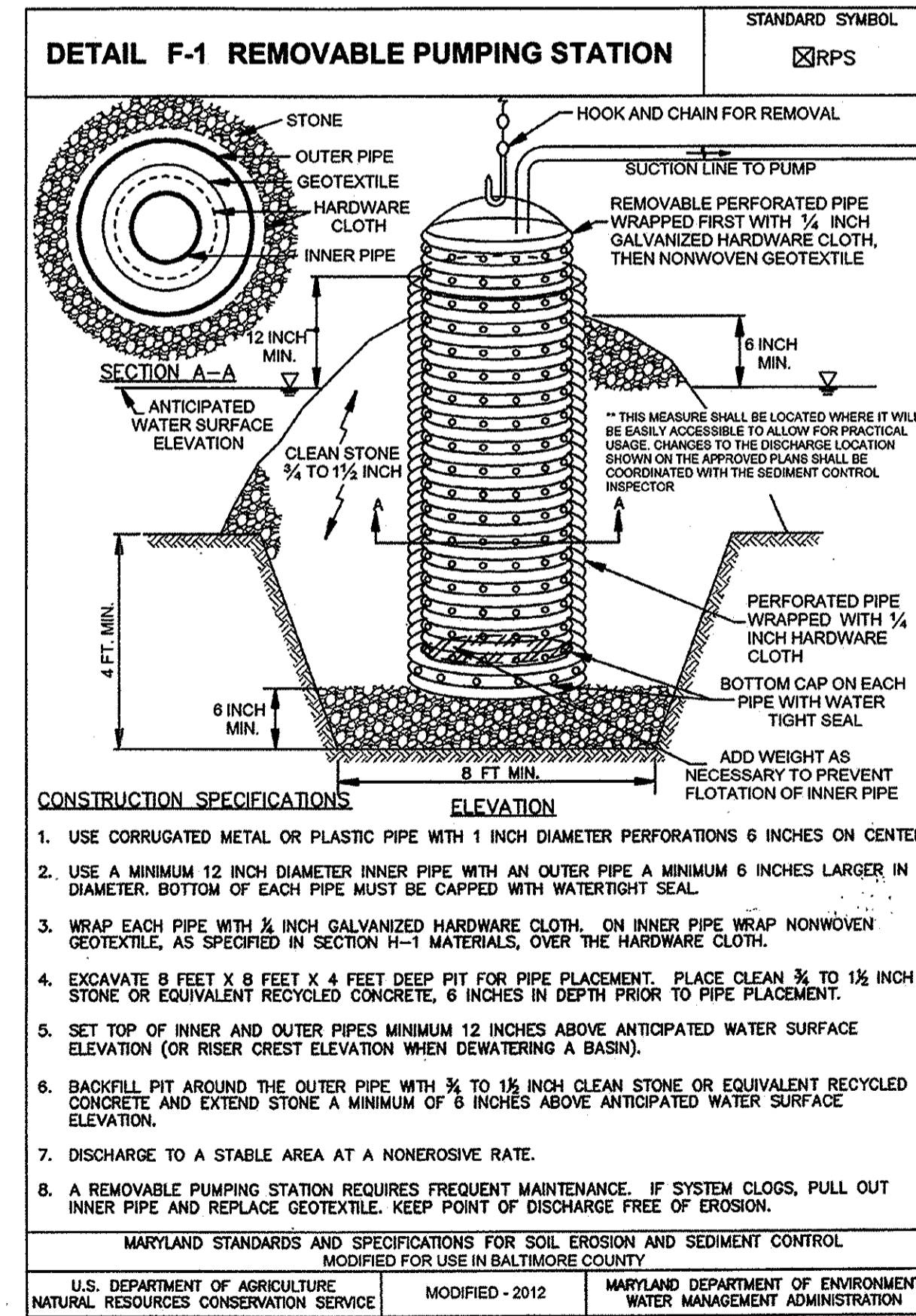
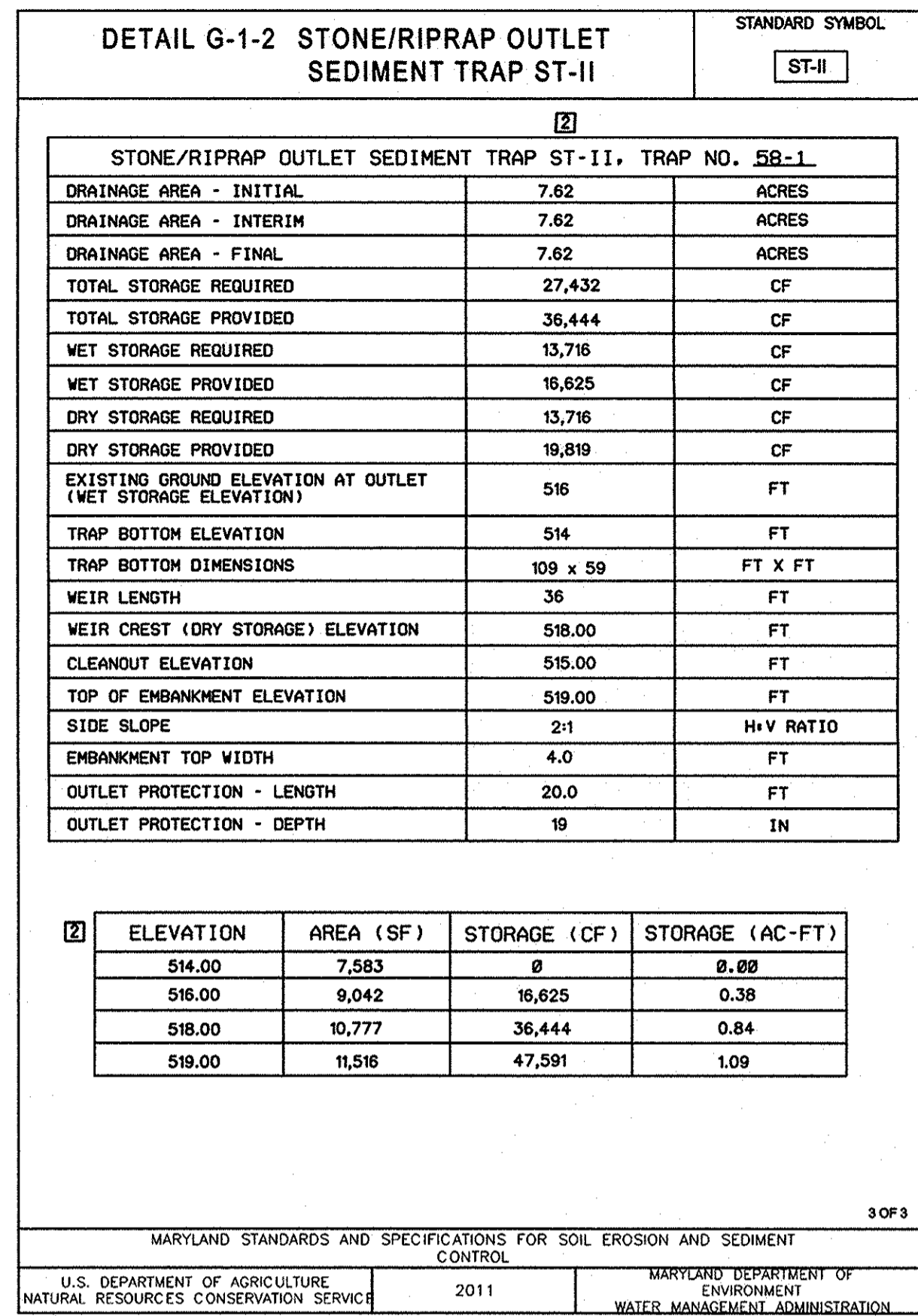
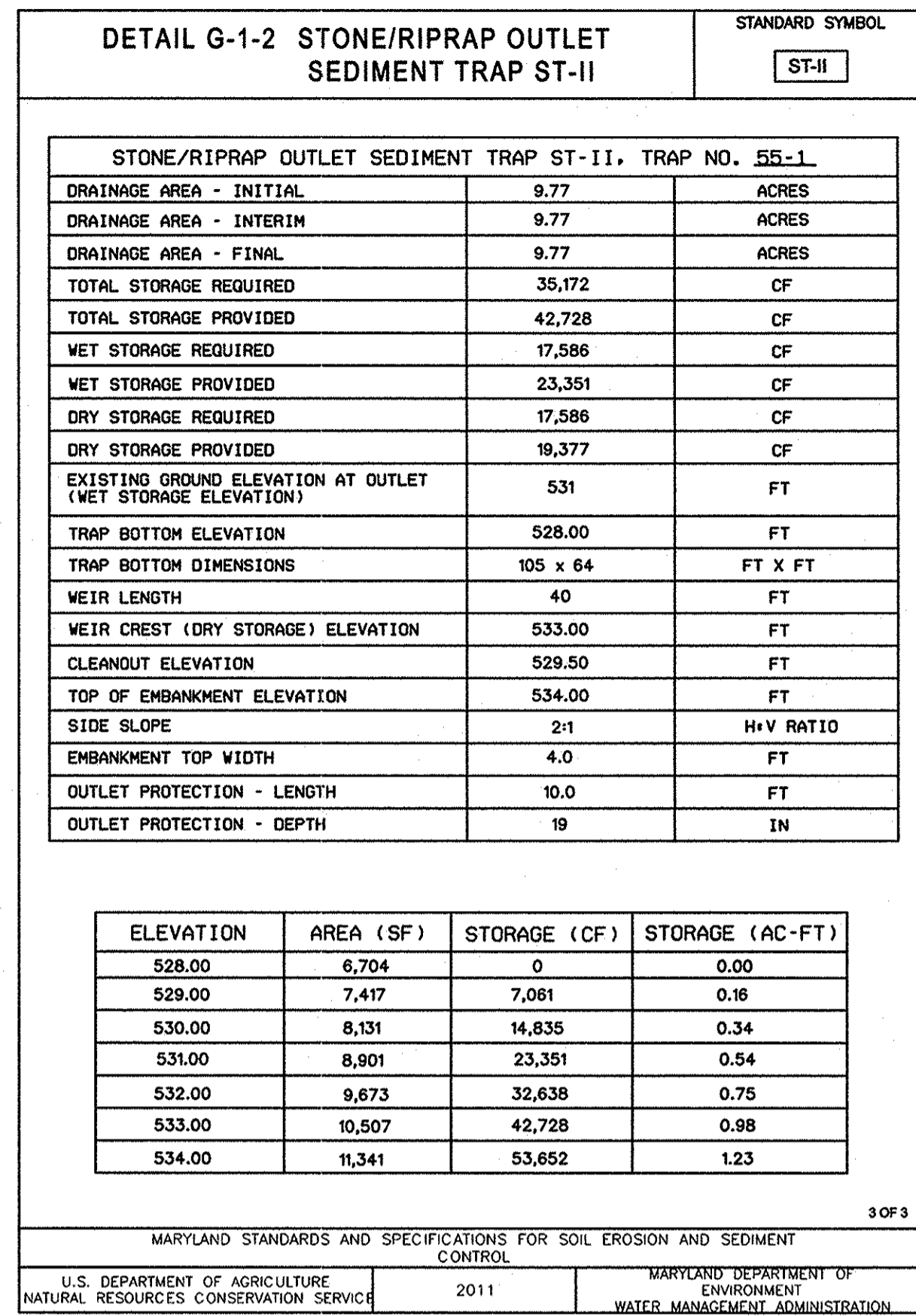
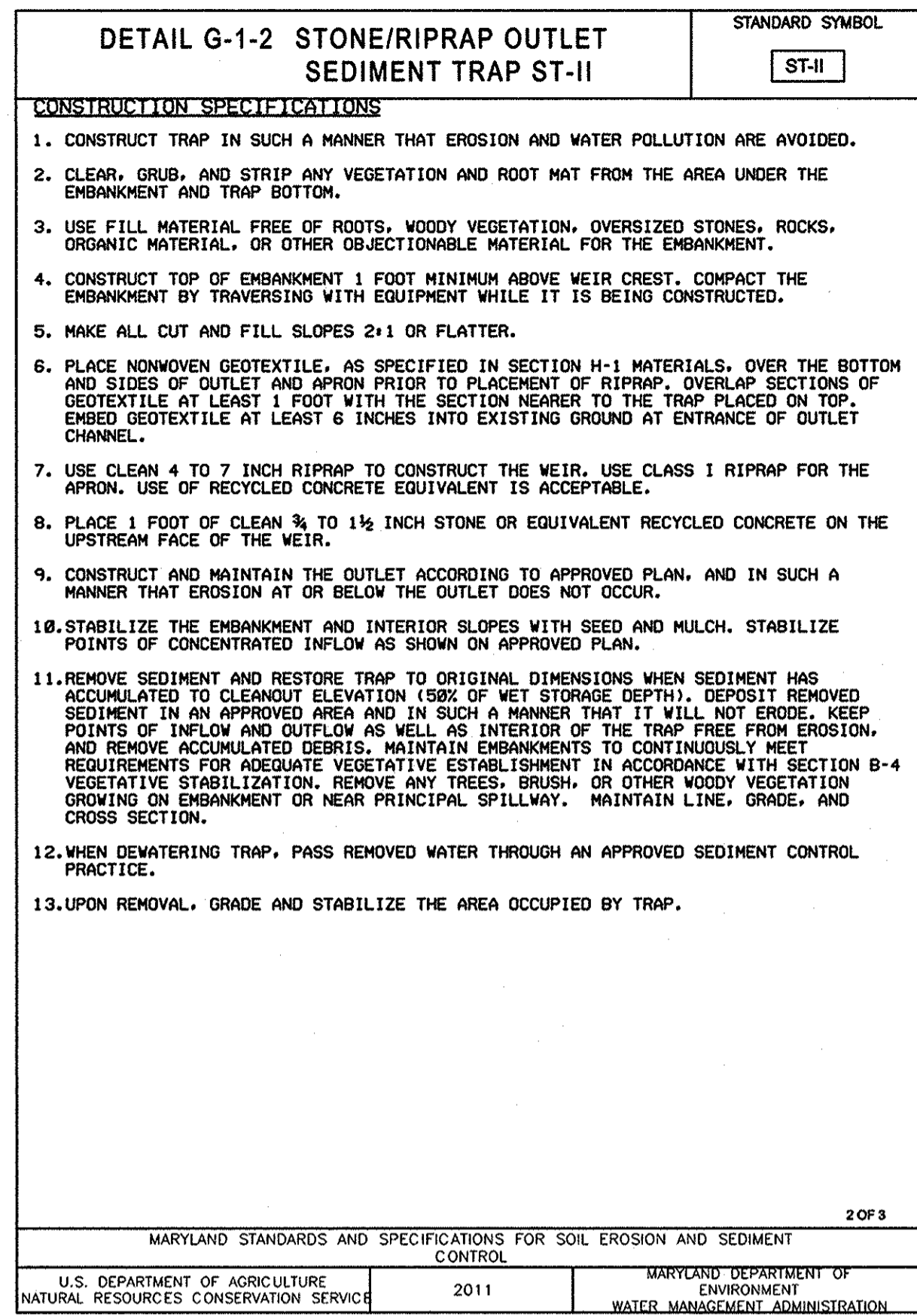
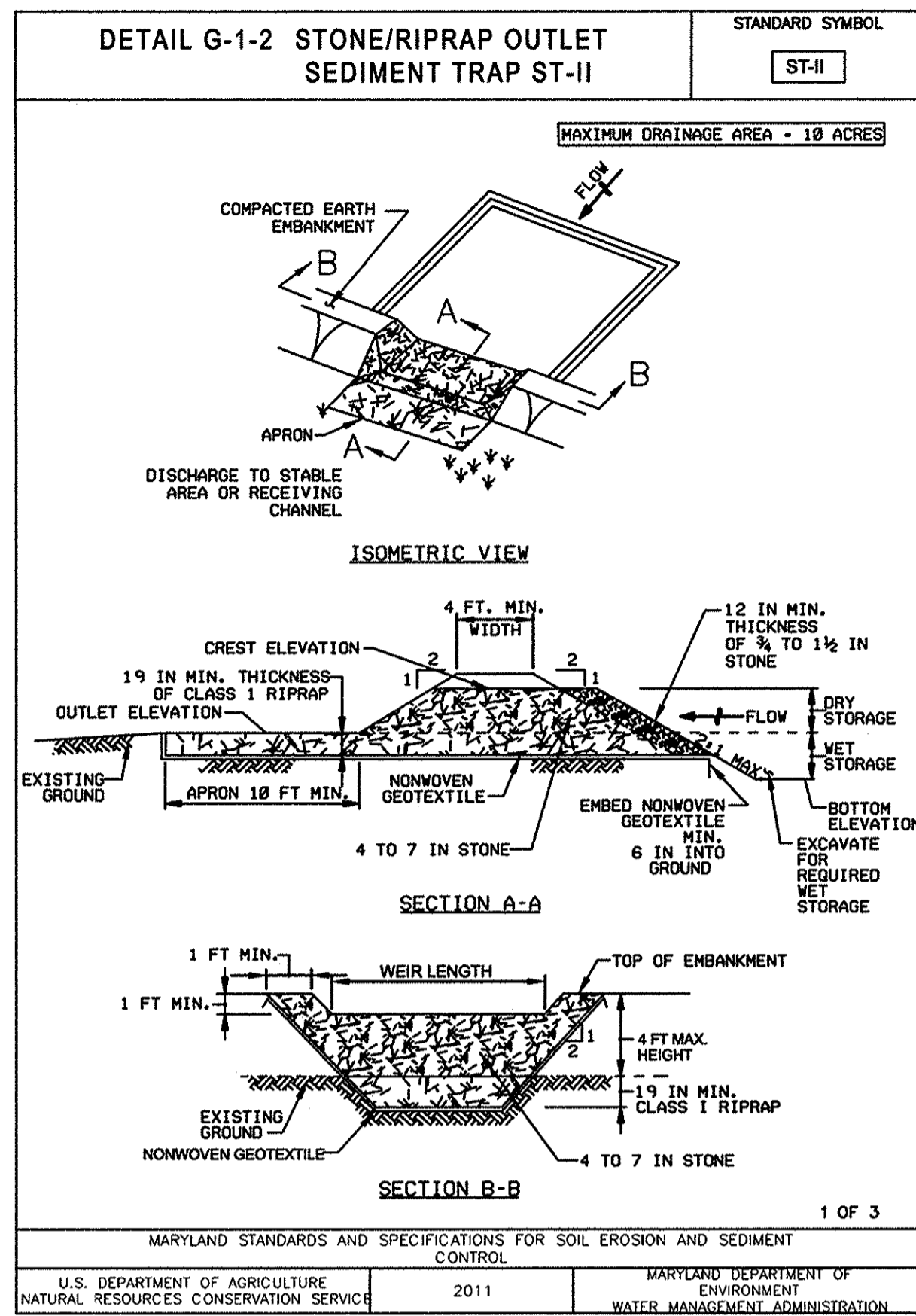
*[Signature]* 8-25-14  
 DATE

R-2, B-25-14

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 PLOT: M:\0314\B2514\0314\B2514.dwg

		<b>ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS</b>  936 RIDGEBROOK ROAD SHARPS, MARYLAND 21152 TELEPHONE: (410) 316-7800 FAX: (410) 316-7818	<b>Columbia Gas Transmission</b> A NiSource Company	<b>REVISIONS</b>				DATE: APRIL 2014 SCALE: N.T.S. DESIGNED BY: JS DRAWN BY: JS	<b>BALTIMORE COUNTY EROSION AND SEDIMENT CONTROL DETAILS</b>  <b>FOR COLUMBIA GAS TRANSMISSION, LLC LINE MB EXTENSION PROJECT - PHASE 1</b> BALTIMORE & HARFORD COUNTIES, MARYLAND	<b>DRAWING NO. ECD-1.03</b>  SHEET 16 OF 22 KCI JOB NUMBER 16-121849
				NO. DATE DESCRIPTION BY CW [2] AUG. 2014 ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SCS(S1) RELOCATED TRAP 58-1 & TGS 59-11 REMOVED TGS 59-31 REVISED NOTE 8 FOR STOCKPILES; CORRECTED DETAIL C-9; EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, ECD-1.01, ECD-1.03, ECD-1.04						





**TRAP/BASIN FLOW DIVERSION NOTE**

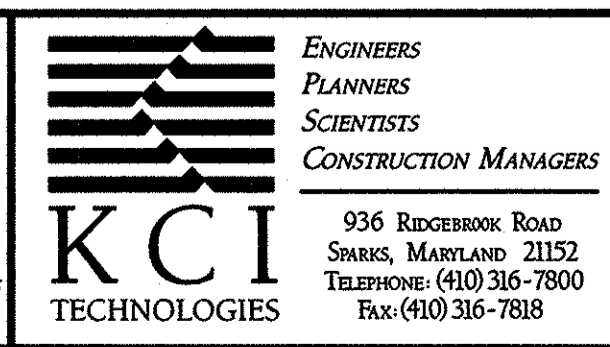
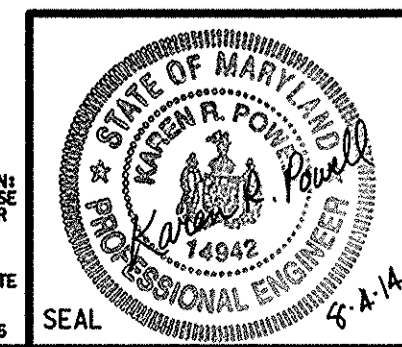
TO PREVENT SLOPE EROSION, WITHIN SEDIMENT TRAPPING DEVICES, ADEQUATELY SIZED AND STABILIZED FLOW DIVERSION MEASURES (I.E. EARTH DIKE, TEMPORARY SWALE, PERIMETER DITCH/SWALE, SUPER FENCE DIVERSION, ETC) SHALL BE INSTALLED AT THE UPSLOPE EXTENT OF TRAP AND BASIN STORAGE AREAS TO DIVERT ALL FLOWS TO APPROPRIATE INFLOW PROTECTION DEVICES. THESE MEASURES WILL BE LOCATED BY THE CONTRACTOR AND THEREFORE NOT SHOWN ON THE PLAN VIEW.

Baltimore County Soil Conservation District  
APPROVED FOR SEDIMENT CONTROL

*Signature* 8-25-14  
DATE

R-2, 8-25-14 DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (ADJ. 37); VERT: NAVD 83

PLOTTED: 02:17 PM on Friday, August 01, 2014  
BY: Christopher Deibel/Division: POGO Natural Res. Emp.  
FILE: M:\V\A\212843\Drawings\NRC\30-0015-06-EC-Phase1.dgn

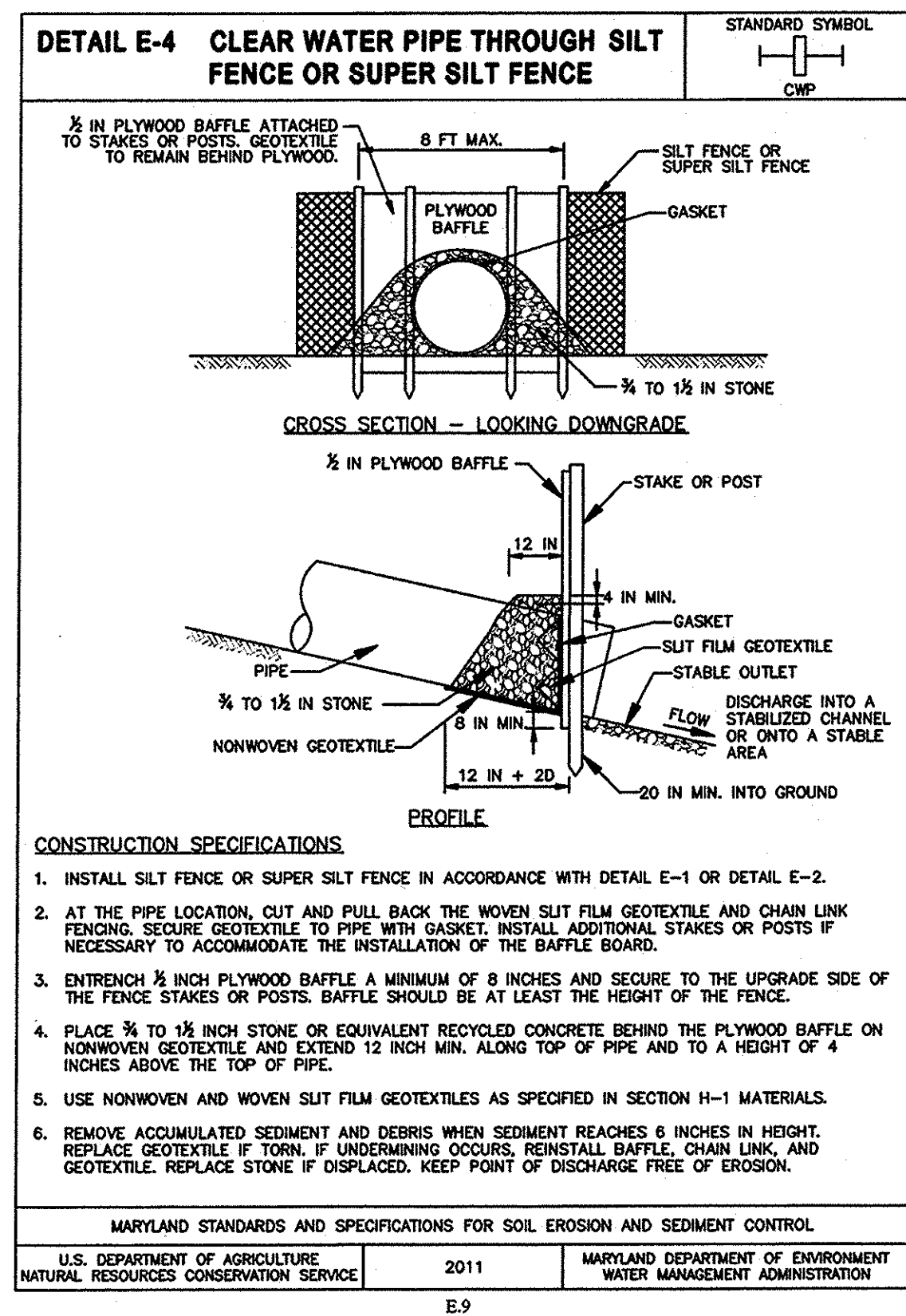
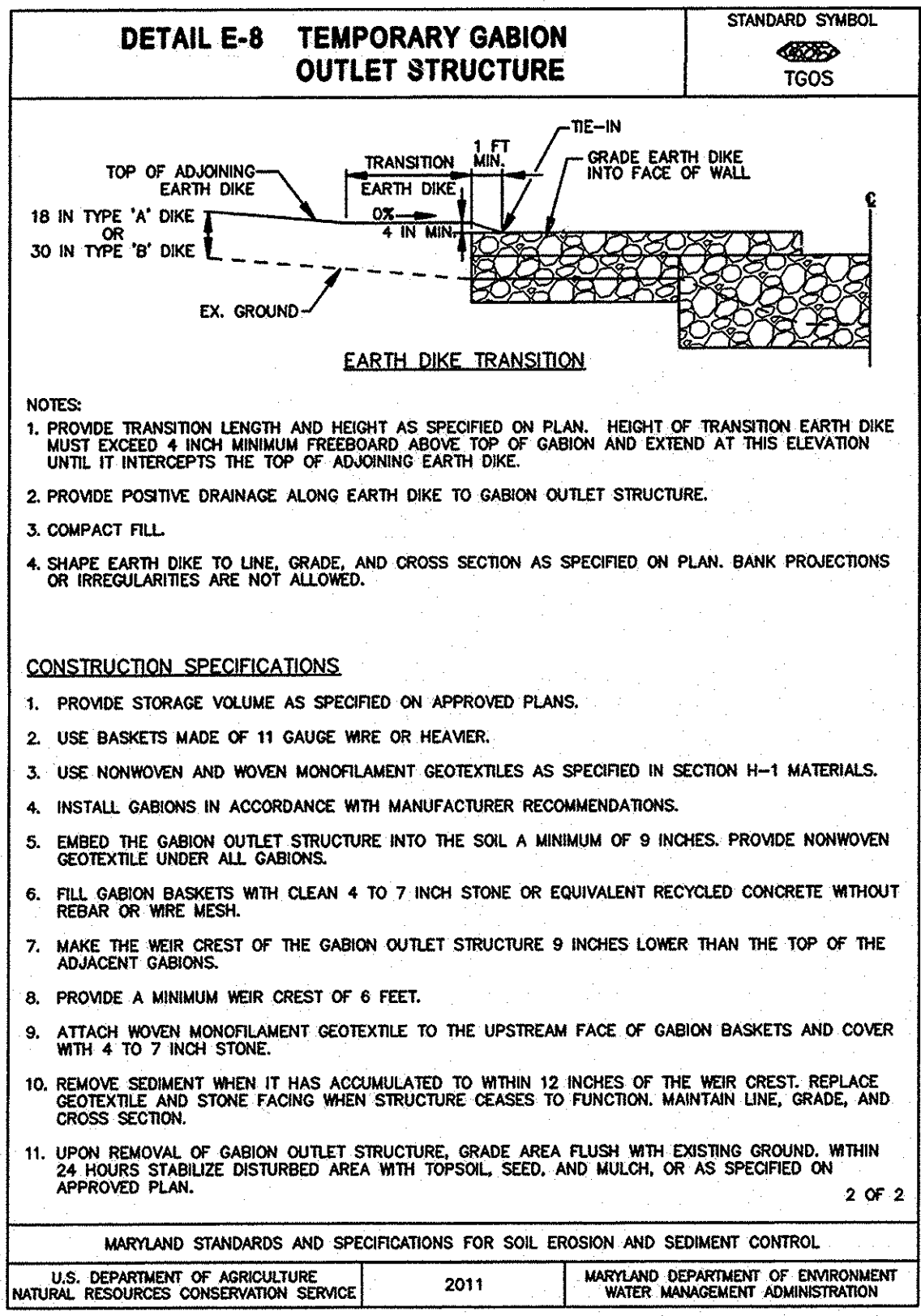
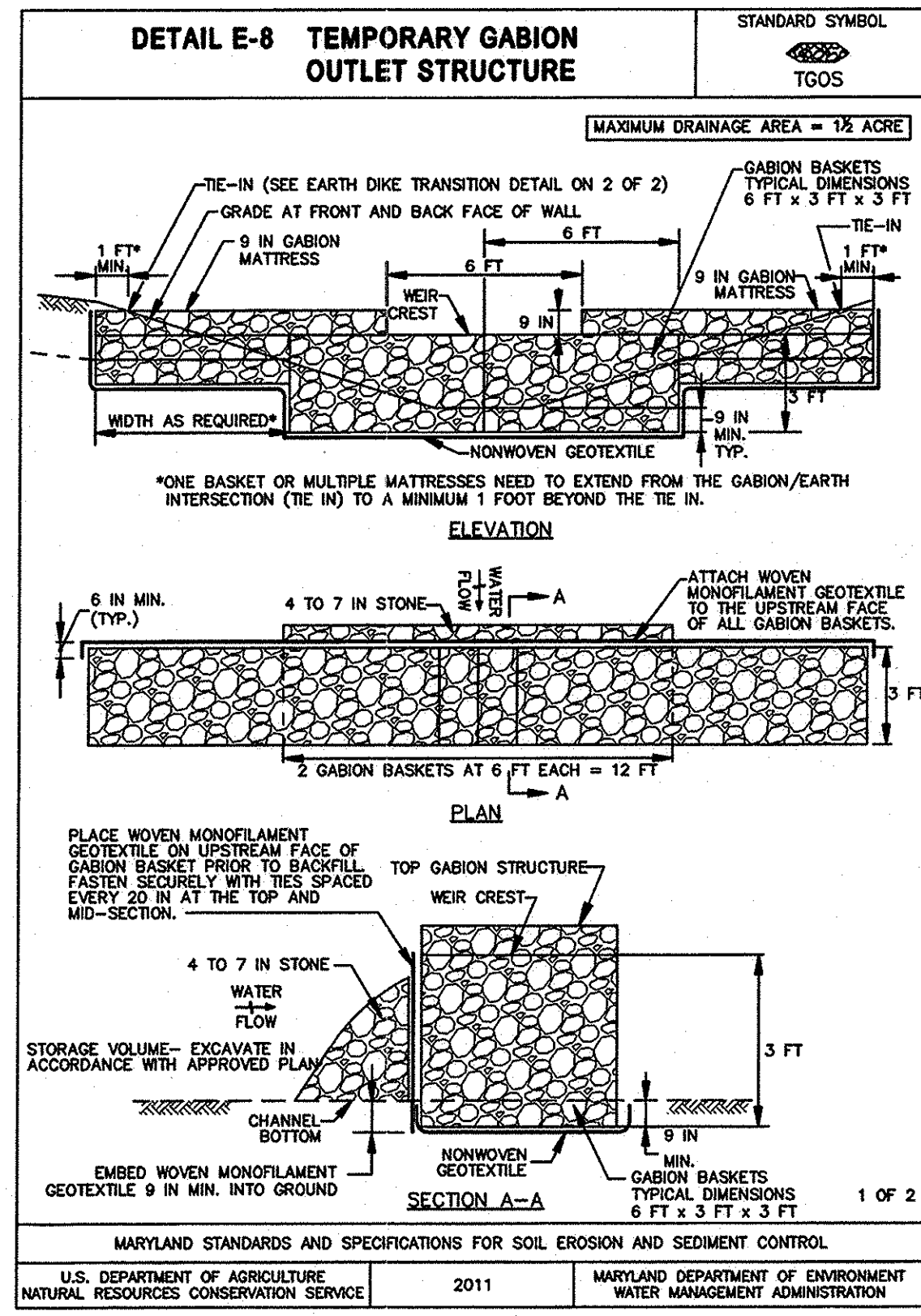
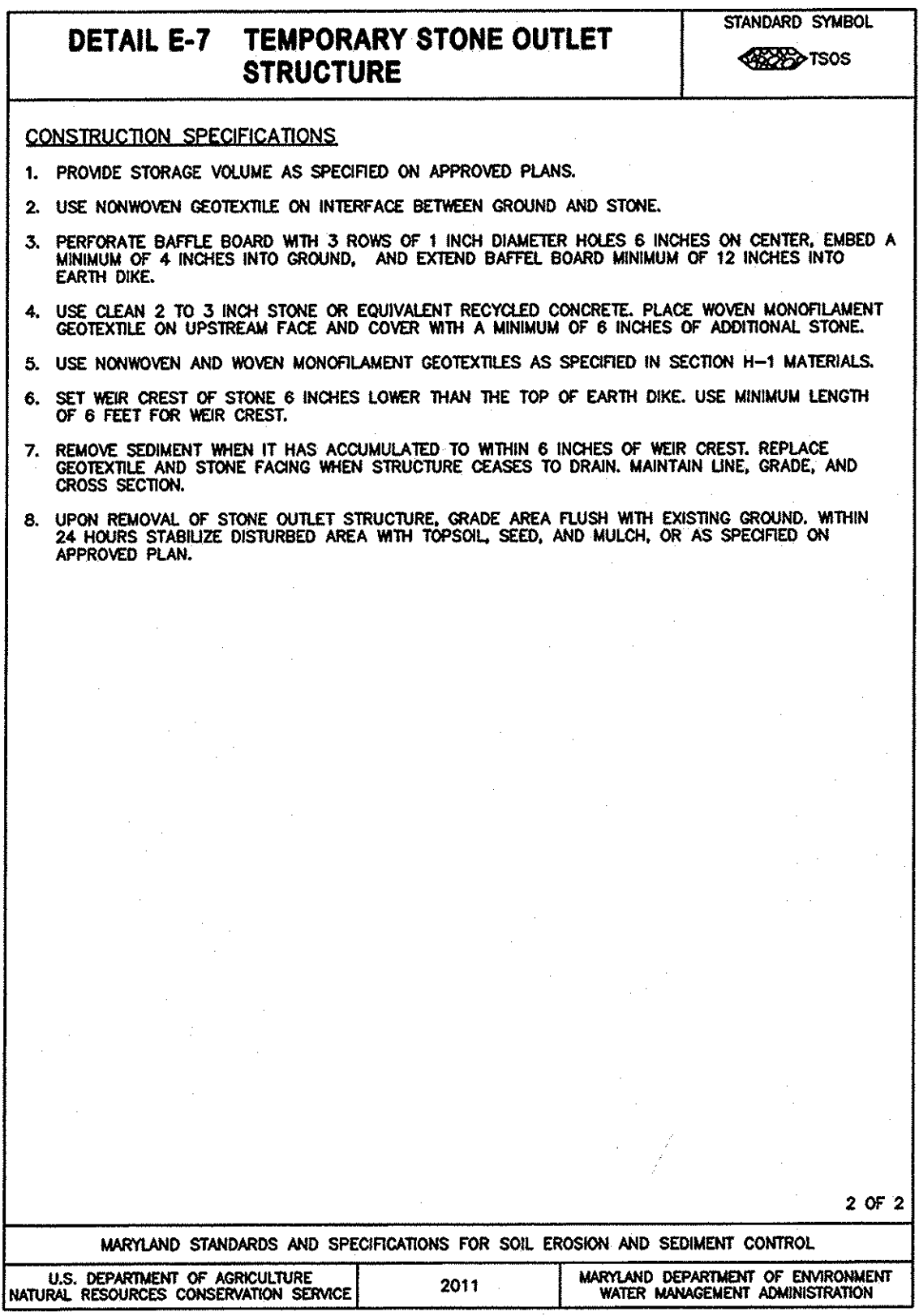
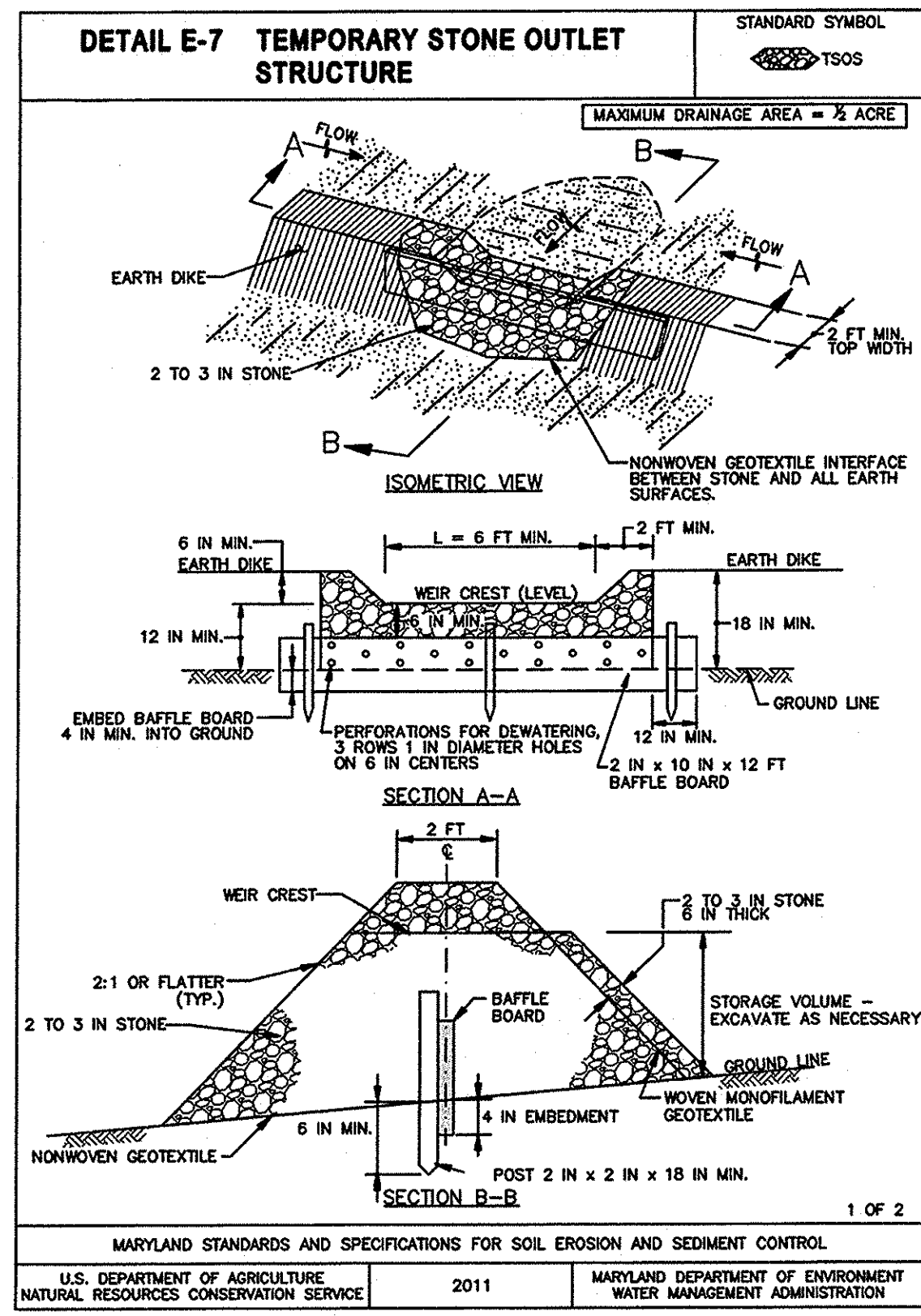


NO.	DATE	REVISIONS	DESCRIPTION	BY	DATE
2	AUG. 2014	ADDED NOTE TO COORDINATE PHASES 1 & 2; ADDED SCS(1) RELOCATED TRAP 58-1 & TGS 59-1; REMOVED TGS 59-3; REVISED NOTE 8 FOR STOODKILLS; CORRECTED DETAIL C-91 EC-52, EC-53, EC-54, EC-56, EC-58, EC-59, ECH-1.0, ECD-1.03, ECD-1.04		CW	APRIL 2014
				JS	SCALE: N.T.S.
				JS	DESIGNED BY
				JS	DRAWN BY

BALTIMORE COUNTY  
EROSION AND SEDIMENT CONTROL DETAILS  
FOR  
COLUMBIA GAS TRANSMISSION, LLC  
LINE MB EXTENSION PROJECT - PHASE 1  
BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO.  
**ECD-1.04**

SHEET 17 OF 22  
KCI JOB NUMBER  
16-121849



**H-1. STANDARDS AND SPECIFICATIONS FOR MATERIALS**

**Table H.1: Geotextile Fabrics**

PROPERTY	TEST METHOD	WOVEN SPLIT FILM GEOTEXTILE				WOVEN MONOLAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE <sup>1</sup>							
		MD	CD	MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb			
Apparent Opening Size <sup>2</sup>	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec <sup>-1</sup>		0.28 sec <sup>-1</sup>		1.1 sec <sup>-1</sup>		1.1 sec <sup>-1</sup>	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength		70% strength		70% strength		70% strength	

<sup>1</sup> All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

<sup>2</sup> Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPPEP) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

**Table H.2: Stone Size**

TYPE	SIZE RANGE	d <sub>10</sub>	d <sub>30</sub>	AASHTO	MIDSIZE WEIGHT <sup>1</sup>
NUMBER 57 <sup>1</sup>	3/8 to 1 1/2 inch	1/2 in	1 1/2 in	M-43	N/A
NUMBER 1	2 to 3 inch	2 1/2 in	3 in	M-43	N/A
RIPRAP <sup>2</sup> (CLASS 0)	4 to 7 inch	5 1/2 in	7 in	N/A	N/A
CLASS I	N/A	9 1/2 in	15 in	N/A	40 lb
CLASS II	N/A	16 in	24 in	N/A	200 lb
CLASS III	N/A	23 in	34 in	N/A	600 lb

<sup>1</sup> This classification is to be used on the upstream face of stone outlets and check dams.

<sup>2</sup> This classification is to be used for gabions.

<sup>3</sup> Optimum gradation is 50 percent of the stone being above and 50 percent below the midsize.

Stone must be composed of a well graded mixture of stone sized so that fifty (50) percent of the pieces by weight are larger than the size determined by using the charts. A well graded mixture, as used herein, is defined as a mixture composed primarily of larger stone sizes but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone in such a mixture must not exceed the respective d<sub>50</sub> selected from Table H.2. The d<sub>50</sub> refers to the median diameter of the stone. This is the size for which 50 percent, by weight, will be smaller and 50 percent will be larger.

Note: Recycled concrete equivalent may be substituted for all stone classifications for temporary control measures only. Concrete broken into the sizes meeting the appropriate classification, containing no steel reinforcement, and having a minimum density of 150 pounds per cubic foot may be used as an equivalent.

**H-5. STANDARDS AND SPECIFICATIONS FOR DUST CONTROL**

**Definition**  
Controlling the suspension of dust particles from construction activities.

**Purpose**  
To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

**Conditions Where Practice Applies**  
Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

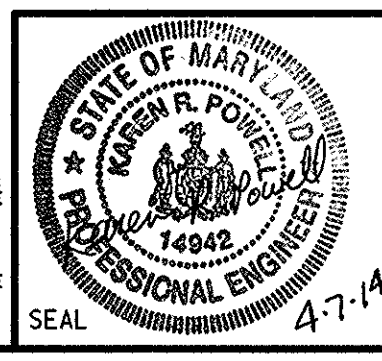
**Specifications**

- Mulch:** See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
- Vegetative Cover:** See Section B-4-4 Temporary Stabilization.
- Tillage:** Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
- Irrigation:** Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
- Barriers:** Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
- Chemical Treatment:** Use of chemical treatment requires approval by the appropriate plan review authority.

Baltimore County Soil Conservation District  
APPROVED FOR SEDIMENT CONTROL  
*[Signature]*  
4-10-14  
DATE

R-1, 6-11-14  
R-2, 8-25-14  
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**KCI TECHNOLOGIES**  
ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS  
936 REEBERSON ROAD  
SINKS, MARYLAND 21152  
TELEPHONE: (410) 316-7800  
FAX: (410) 316-7818

**Columbia Gas Transmission**  
A NiSource Company

REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	
				APRIL 2014
				SCALE
				N.T.S.
				DESIGNED BY
				JS
				DRAWN BY
				JS

**BALTIMORE COUNTY**  
EROSION AND SEDIMENT CONTROL DETAILS  
FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
LINE MB EXTENSION PROJECT - PHASE 1  
BALTIMORE & HARFORD COUNTIES, MARYLAND

**ECD-1.05**  
SHEET 18 OF 22  
KCI JOB NUMBER  
16-121849

**B-4.7 STANDARDS AND SPECIFICATIONS FOR HEAVY USE AREA PROTECTION**

**FOR HEAVY USE AREA PROTECTION**

**Definition**

The stabilization of areas frequently and intensively used by surfacing with suitable materials (e.g., mulch and aggregate).

**Purpose**

To provide a stable, non-eroding surface for areas frequently used and to improve the water quality from the runoff of these areas.

**Conditions Where Practice Applies**

This practice applies to intensively used areas (e.g., equipment and material storage, staging areas, heavily used travel lanes).

**Criteria**

- A minimum 4-inch base course of crushed stone or other suitable materials including wood chips over nonwoven geotextile should be provided as specified in Section H-1 Materials.
- Select the stabilizing material based on the intended use, desired maintenance frequency, and runoff control.
- The transport of sediments, nutrients, oils, chemicals, particulate matter associated with vehicular traffic and equipment, and material storage needs to be considered in the selection of material. Additional control measures may be necessary to control some of these potential pollutants.
- Surface erosion can be a problem on large heavy use areas. In these situations, measures to reduce the flow length of runoff or erosive velocities need to be considered.

**Maintenance**

The heavy use areas must be maintained in a condition that minimizes erosion. This may require adding suitable material, as specified on the approved plans, to maintain a clean surface.

B.42

**B-4.8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA**

**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**

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- 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.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the upgrade side.
- 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.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 37 day stabilization requirement as well as Standard B-4.1 Incremental Stabilization and Standard B-4.4 Temporary Stabilization.
- 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.

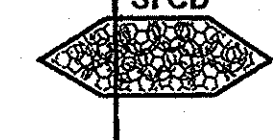
**Maintenance**

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.43

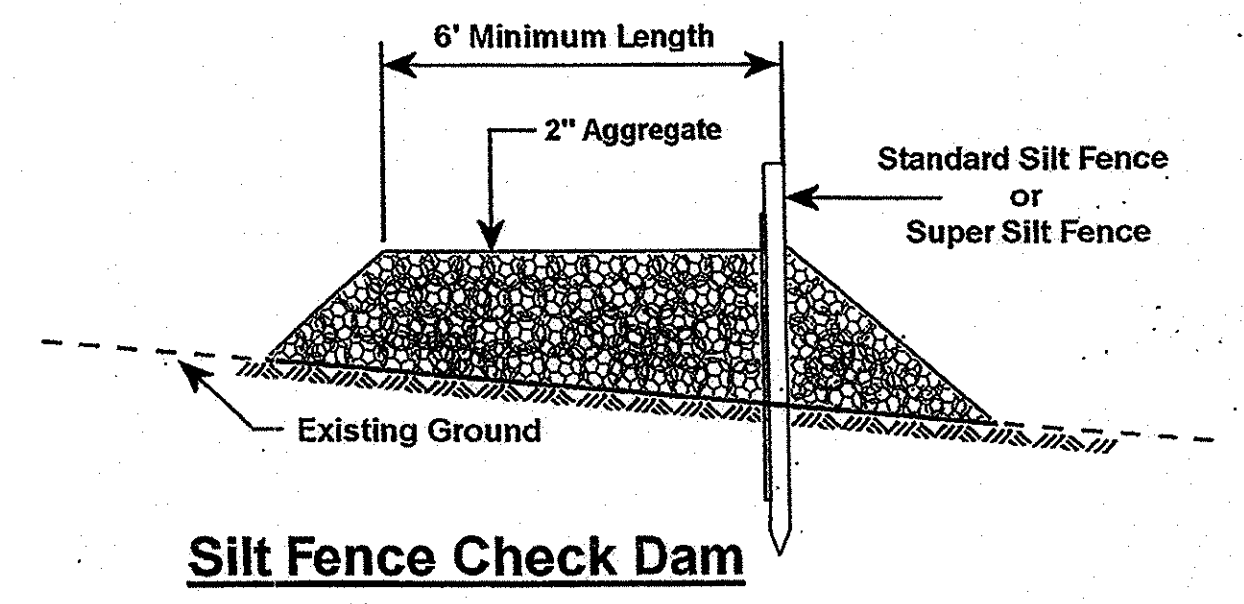
Standard Silt Fence	Super Silt Fence
# 2 Stone	# 2 Stone
12" High	24" High
24" Wide	36" Wide

Placement Engineered Based on Slope Gradient



Standard Symbol

\* AT THE DISCRETION OF THE INSPECTOR EXTRA POST(S) MAY BE REQUIRED ON THE DOWNSLOPE SIDE OF THE FENCE IN LIEU OF STONE.

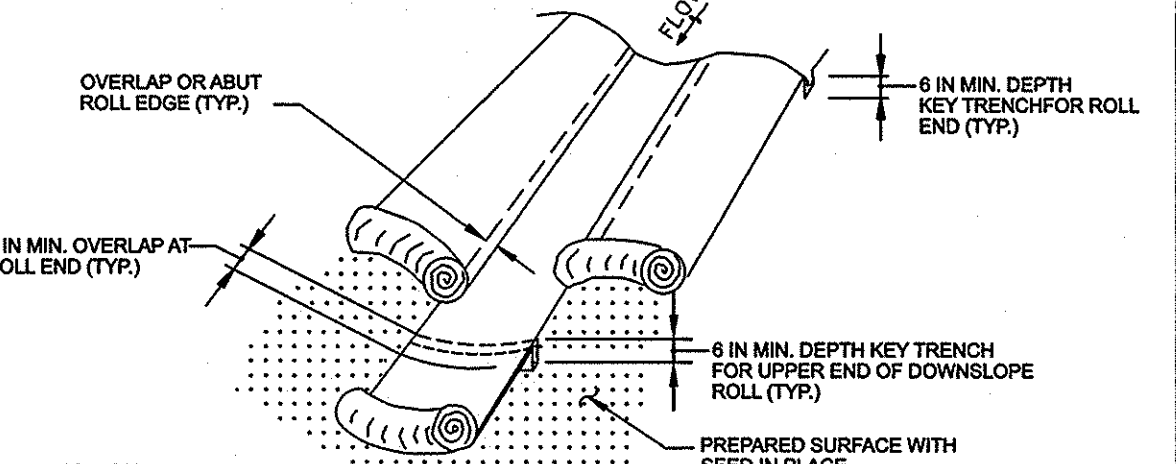


Silt Fence Check Dam Not To Scale

APPENDIX 18

**DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION**

STANDARD SYMBOL  
TSSMC - \* 2.25 lb/ft²  
(\* INCLUDE SHEAR STRESS)



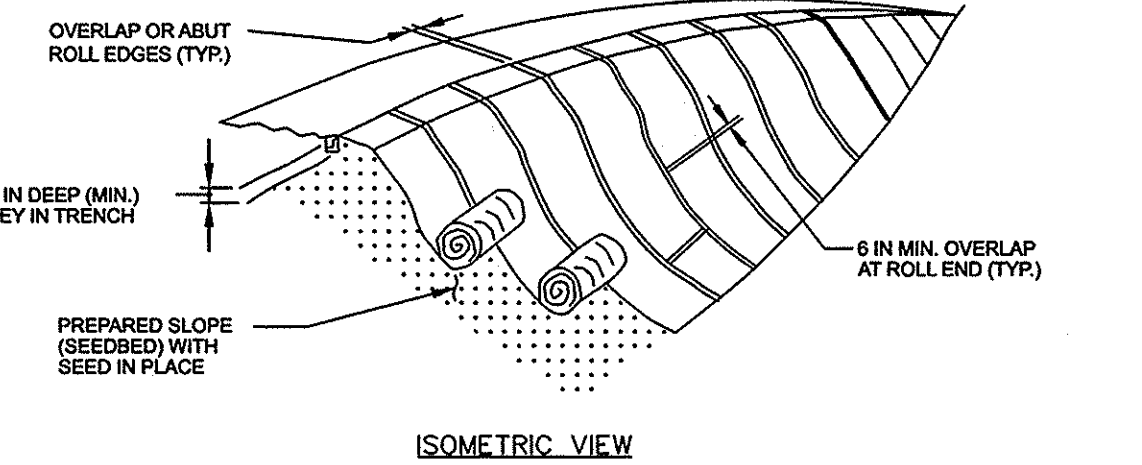
CONSTRUCTION SPECIFICATIONS ISOMETRIC VIEW

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
- OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION**

STANDARD SYMBOL  
TSSMS - \* 2.25 lb/ft²  
(\* INCLUDE SHEAR STRESS)



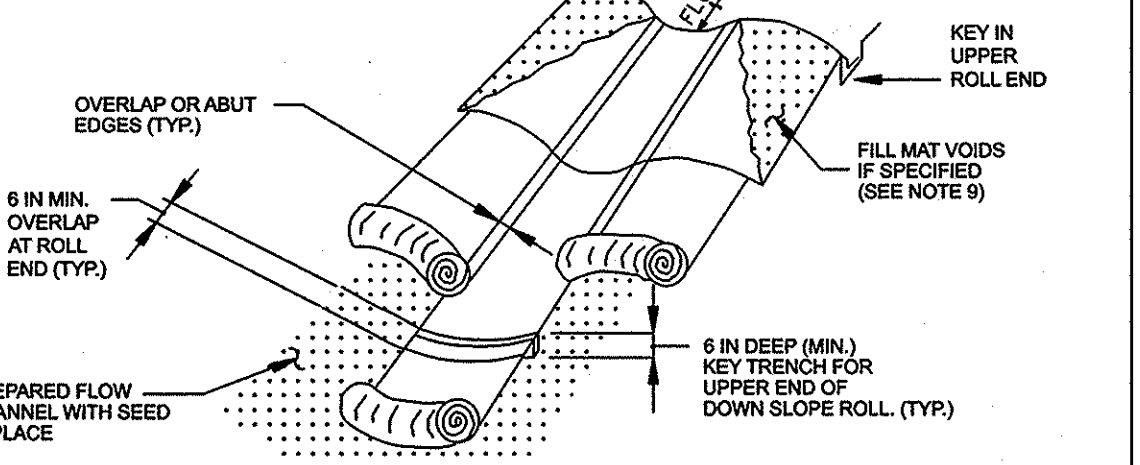
CONSTRUCTION SPECIFICATIONS ISOMETRIC VIEW

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
- KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION**

STANDARD SYMBOL  
PSSMC - 2.50 lb/ft²  
(\* INCLUDE SHEAR STRESS)



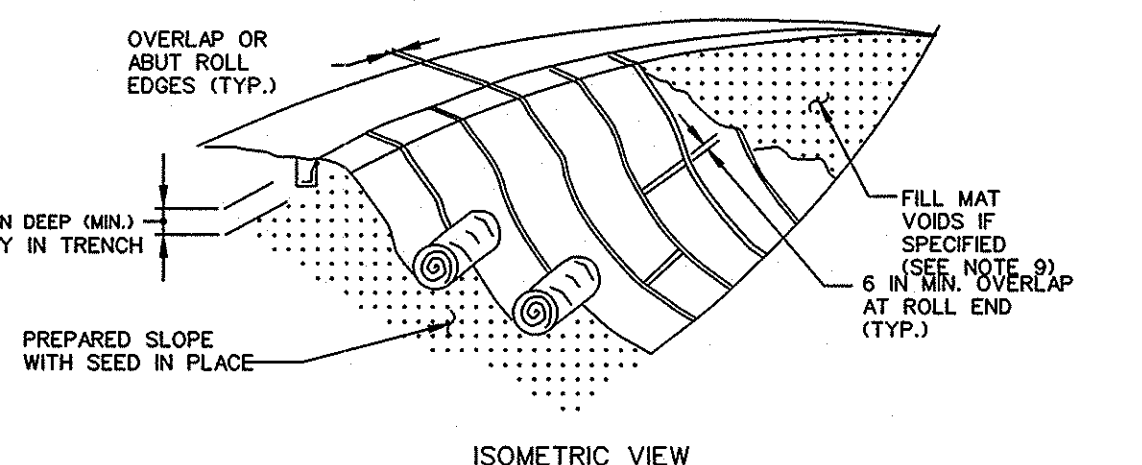
CONSTRUCTION SPECIFICATIONS ISOMETRIC VIEW

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYPED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION**

STANDARD SYMBOL  
PSSMS - \* lb/ft²  
(\* INCLUDE SHEAR STRESS)



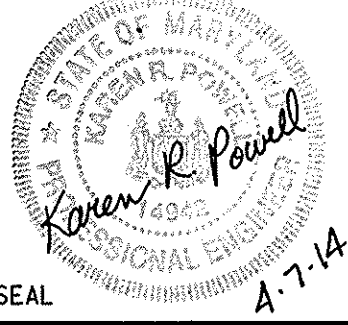
CONSTRUCTION SPECIFICATIONS ISOMETRIC VIEW

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
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- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Baltimore County Soil Conservation District  
APPROVED FOR SEDIMENT CONTROL  
*Scott J. A. Hall*  
4-10-14  
DATE

R-1, 6-11-14-02 DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. NAD 83 (MAY 2011) VERT. NAVD 88



**KCI TECHNOLOGIES**  
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936 RIDGEBROOK ROAD  
SENAKS, MARYLAND 21152  
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FAX: (410) 316-7818

**Columbia Gas Transmission**  
A NiSource Company

REVISIONS			DATE
NO.	DATE	DESCRIPTION	BY

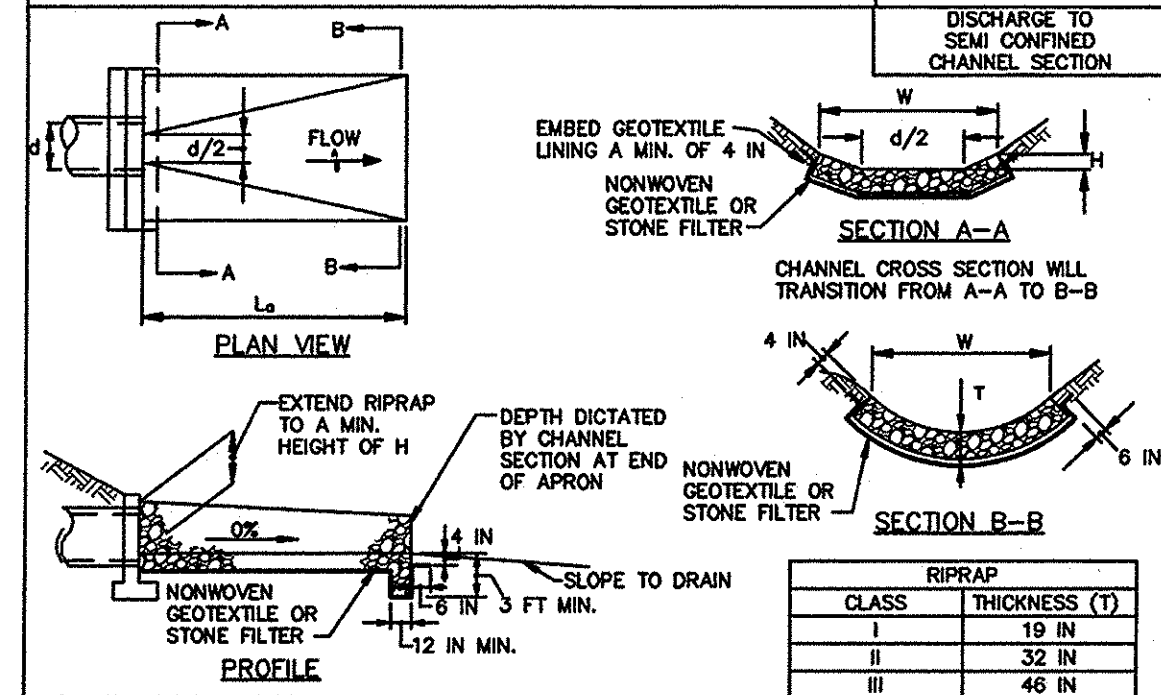
**BALTIMORE COUNTY EROSION AND SEDIMENT CONTROL DETAILS**  
FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
LINE MB EXTENSION PROJECT - PHASE 1  
BALTIMORE & HARFORD COUNTIES, MARYLAND

SCALE: N.T.S.  
DESIGNED BY: JS  
DRAWN BY: JS

**ECD-1.06**  
SHEET 19 OF 22  
KCI JOB NUMBER: 16-121849

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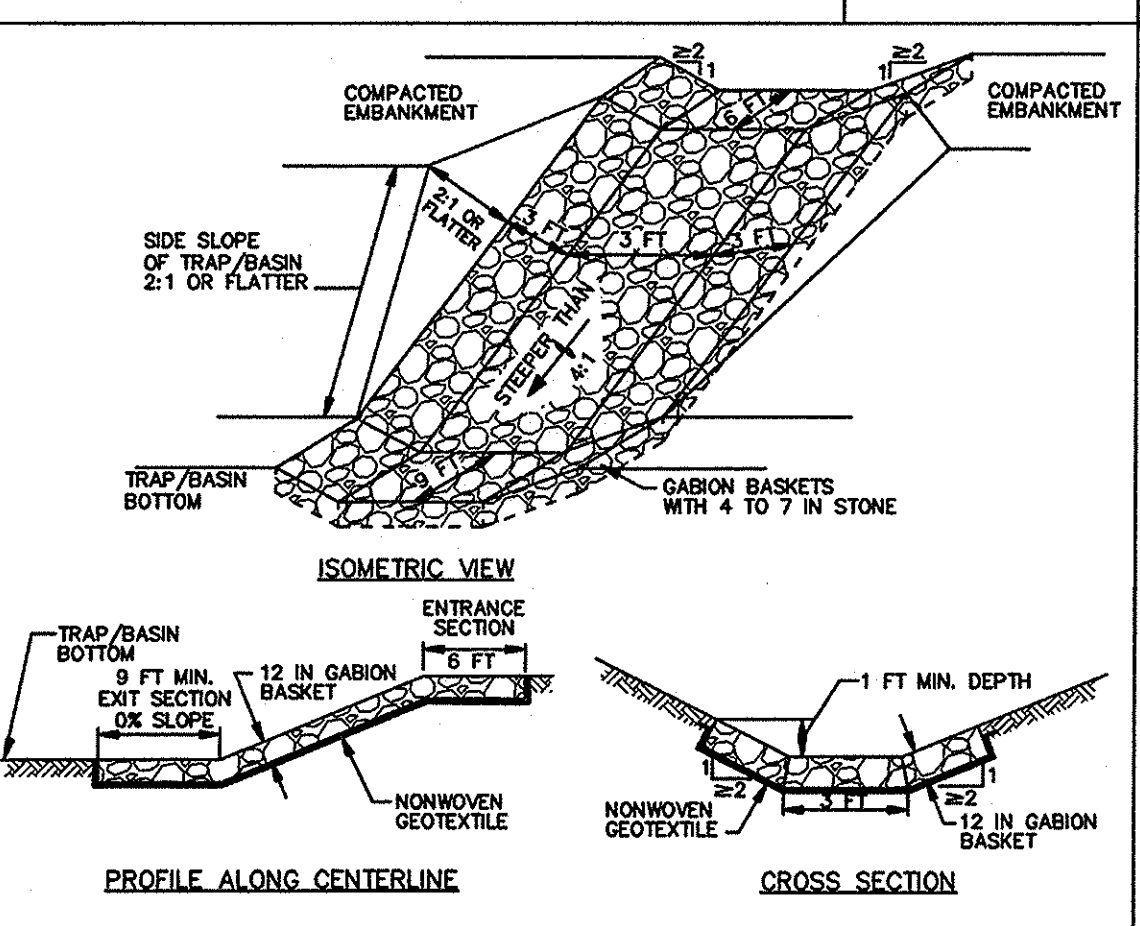
**DETAIL D-4-1-A ROCK OUTLET PROTECTION I**



- CONSTRUCTION SPECIFICATIONS**
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
  2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
  3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/4 TO 1 1/2 INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
  5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
  6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
  7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
  8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION  
 D.20

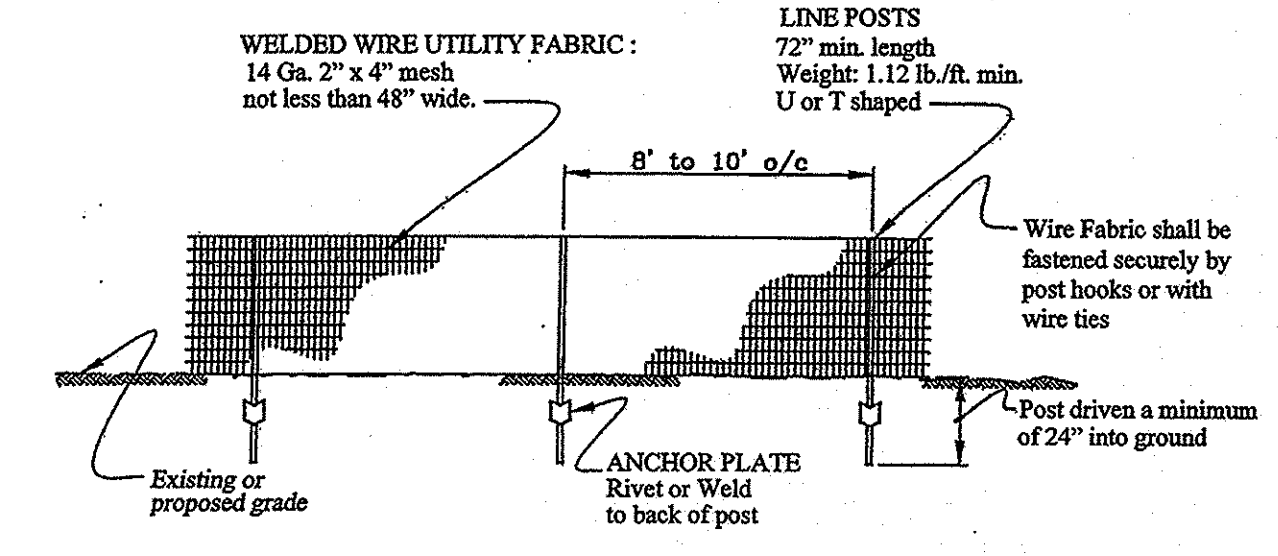
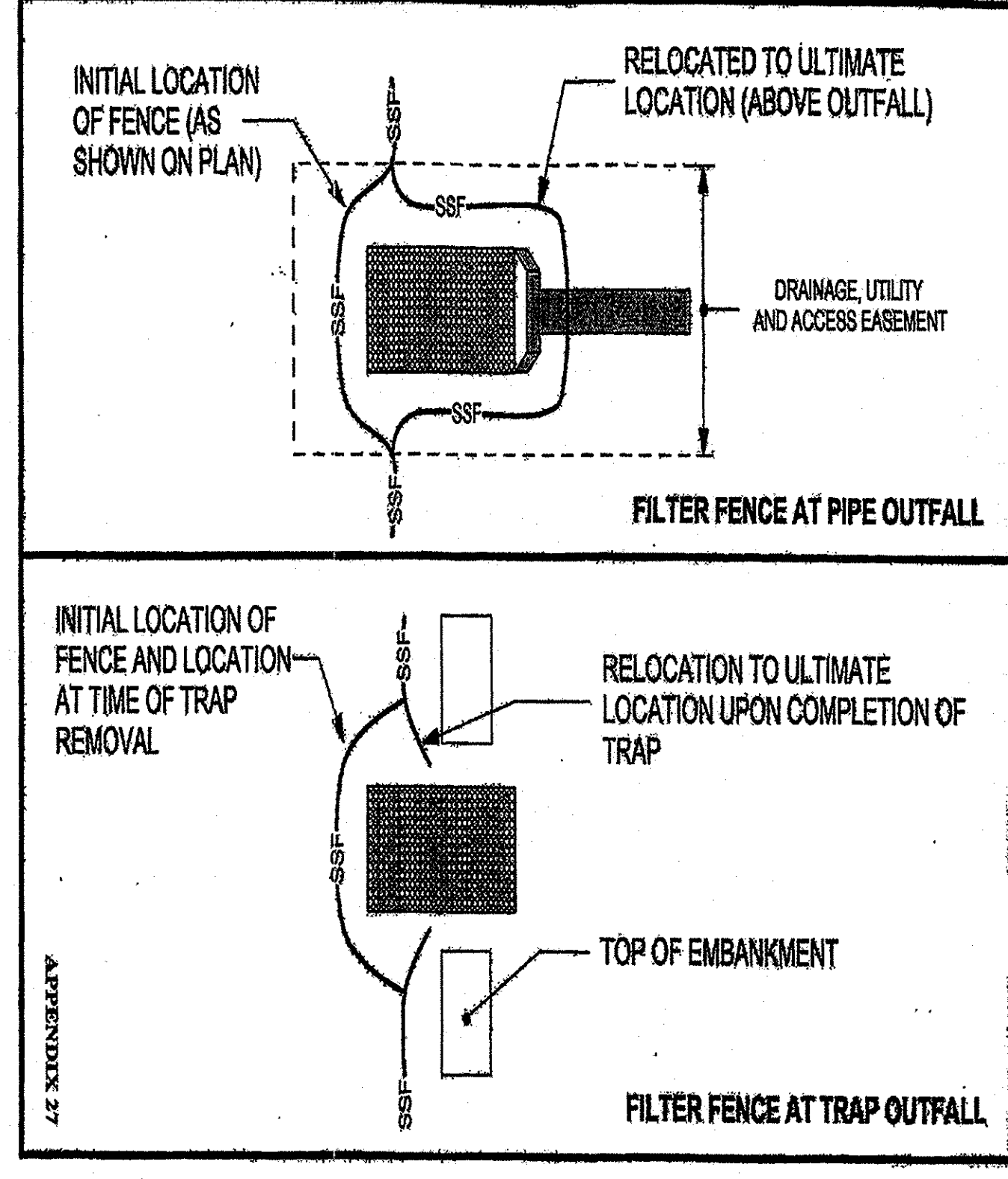
**DETAIL D-3-2 GABION INFLOW PROTECTION**



- CONSTRUCTION SPECIFICATIONS**
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
  2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
  3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
  4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
  5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
  6. BLEND GABIONS INTO EXISTING GROUND.
  7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION  
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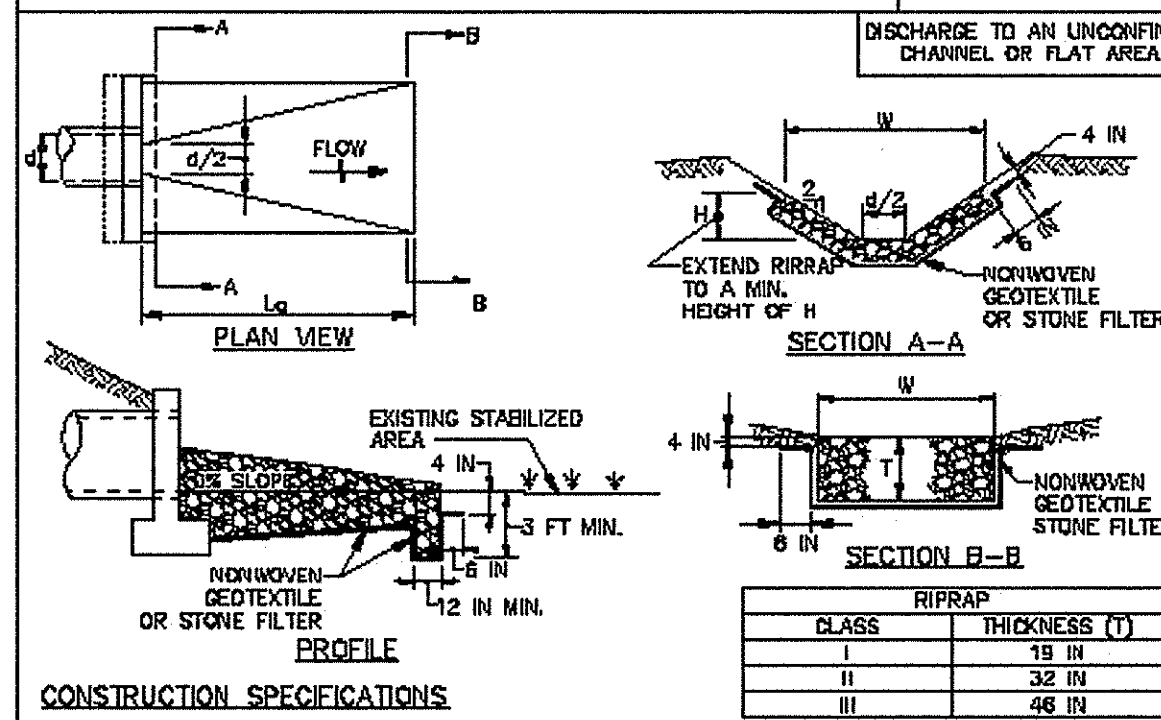
**FILTER FENCE OUTFALL PROTECTION**



**TEMPORARY SAFETY FENCE FOR SEDIMENT TRAPPING DEVICES**  
 NOT TO SCALE

Baltimore County Department of Environmental Protection and Resource Management

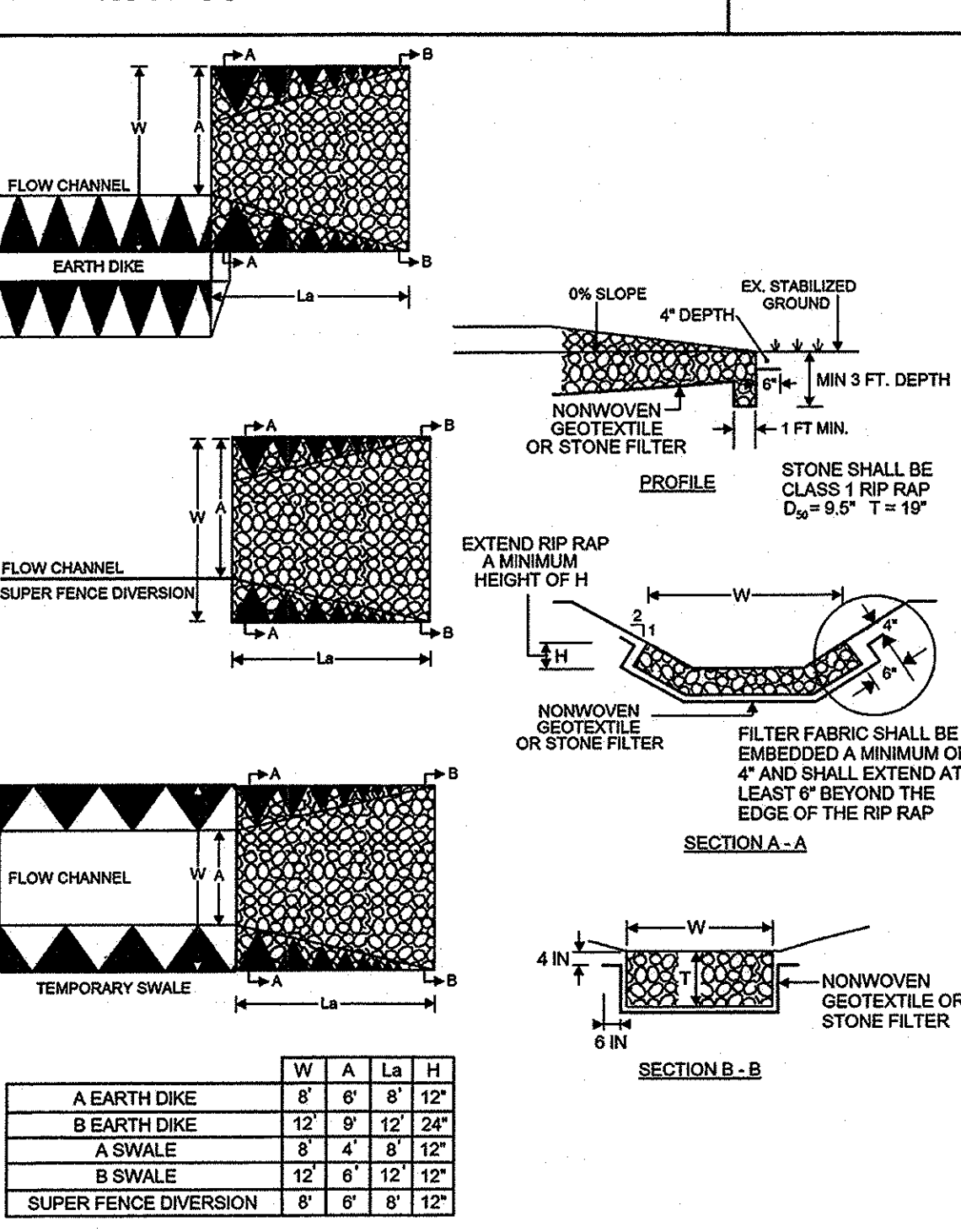
**DETAIL D-4-1-C ROCK OUTLET PROTECTION III**



- CONSTRUCTION SPECIFICATIONS**
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
  2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
  3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/4 TO 1 1/2 INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
  5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
  6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
  7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
  8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**ROCK OUTLET PROTECTION III**



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

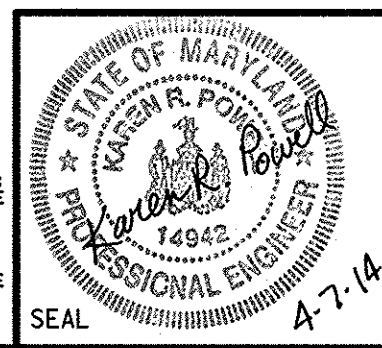
**ROCK OUTLET PROTECTION III**

- CONSTRUCTION SPECIFICATIONS**
1. RIP RAP AND STONE MUST CONFORM TO SPECIFIED CLASS.
  2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS AND PROTECT FROM PUNCTURING, CUTTING OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
  3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/4 TO 1 1/2 INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  4. EXTEND THE GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIP RAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIP RAP.
  5. CONSTRUCT RIP RAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIP RAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIP RAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
  6. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
  7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIP RAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]*  
 DATE: 4-10-14

R-1, 6-11-14  
 R-2, 8-25-14  
 DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ: NAD 83 (ADA 107); VERT: NAVD 88



**KCI TECHNOLOGIES**  
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 936 RIDGEBROOK ROAD  
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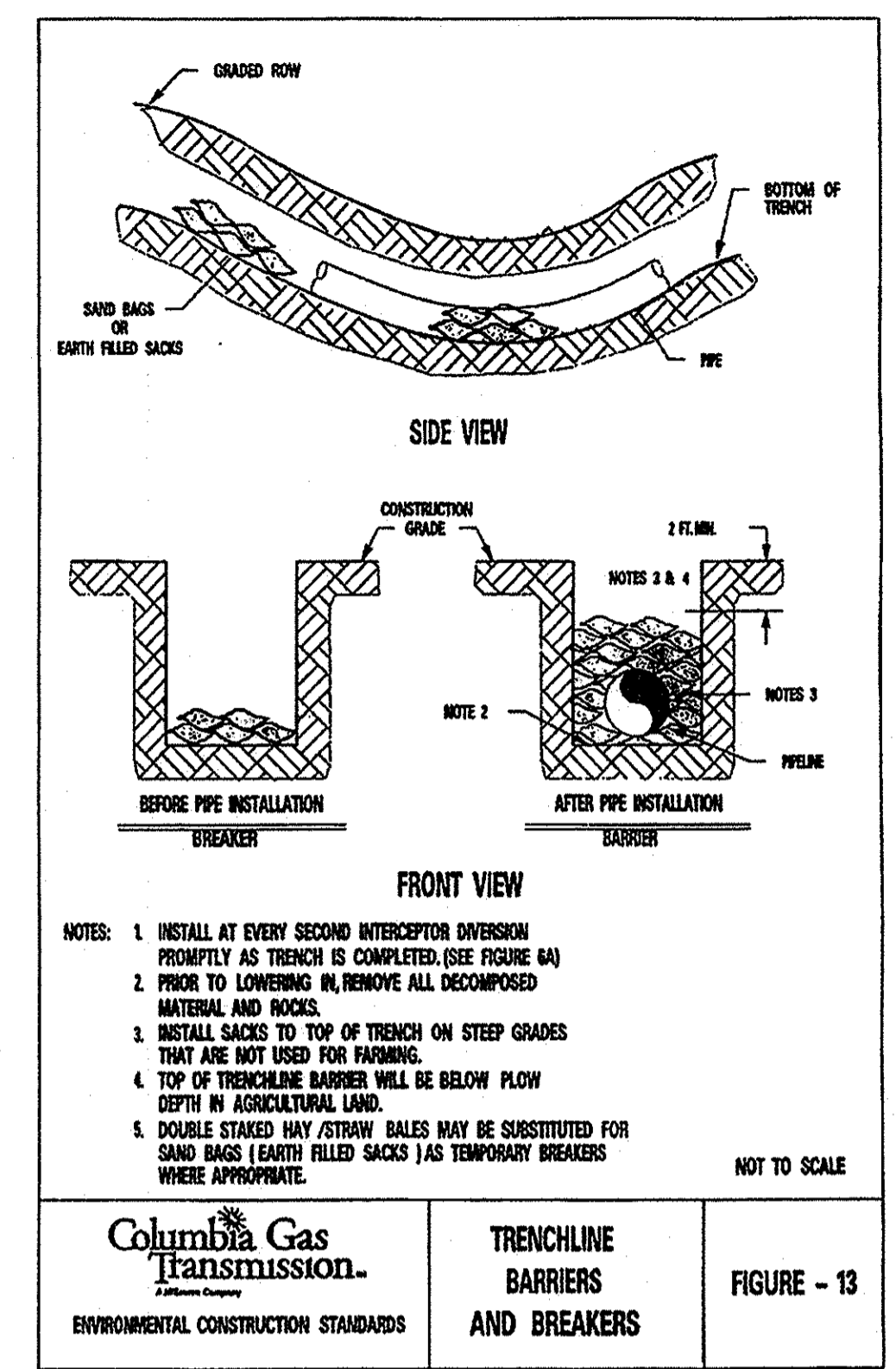
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				DRAWN BY: JS

**BALTIMORE COUNTY EROSION AND SEDIMENT CONTROL DETAILS**  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
 LINE MB EXTENSION PROJECT - PHASE 1  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

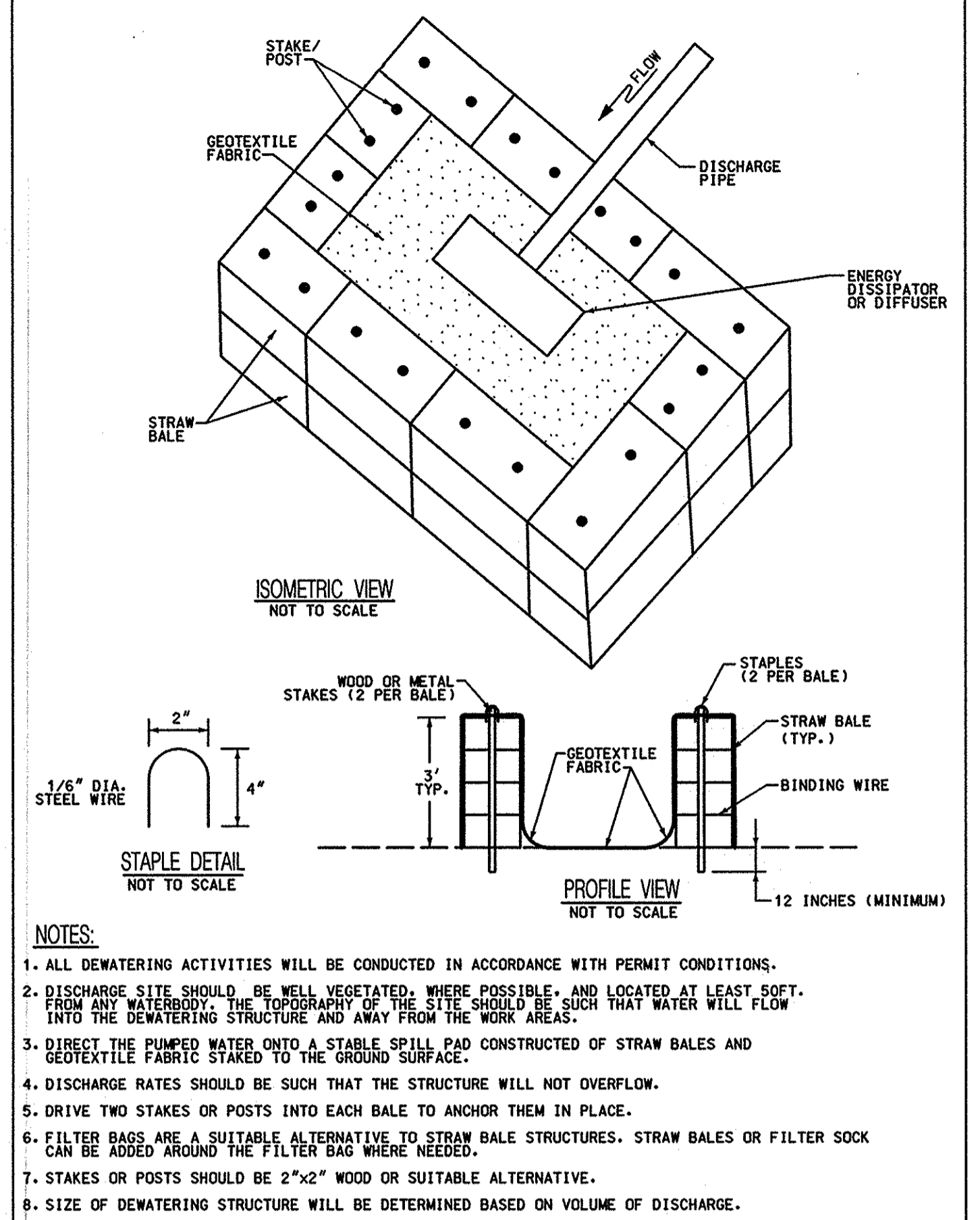
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N. Figure 13 - Trenchline Barriers and Breakers



HYDROSTATIC TEST DEWATERING PIT



A. Figure 1 - Typical Upland Pipeline Construction Sequence

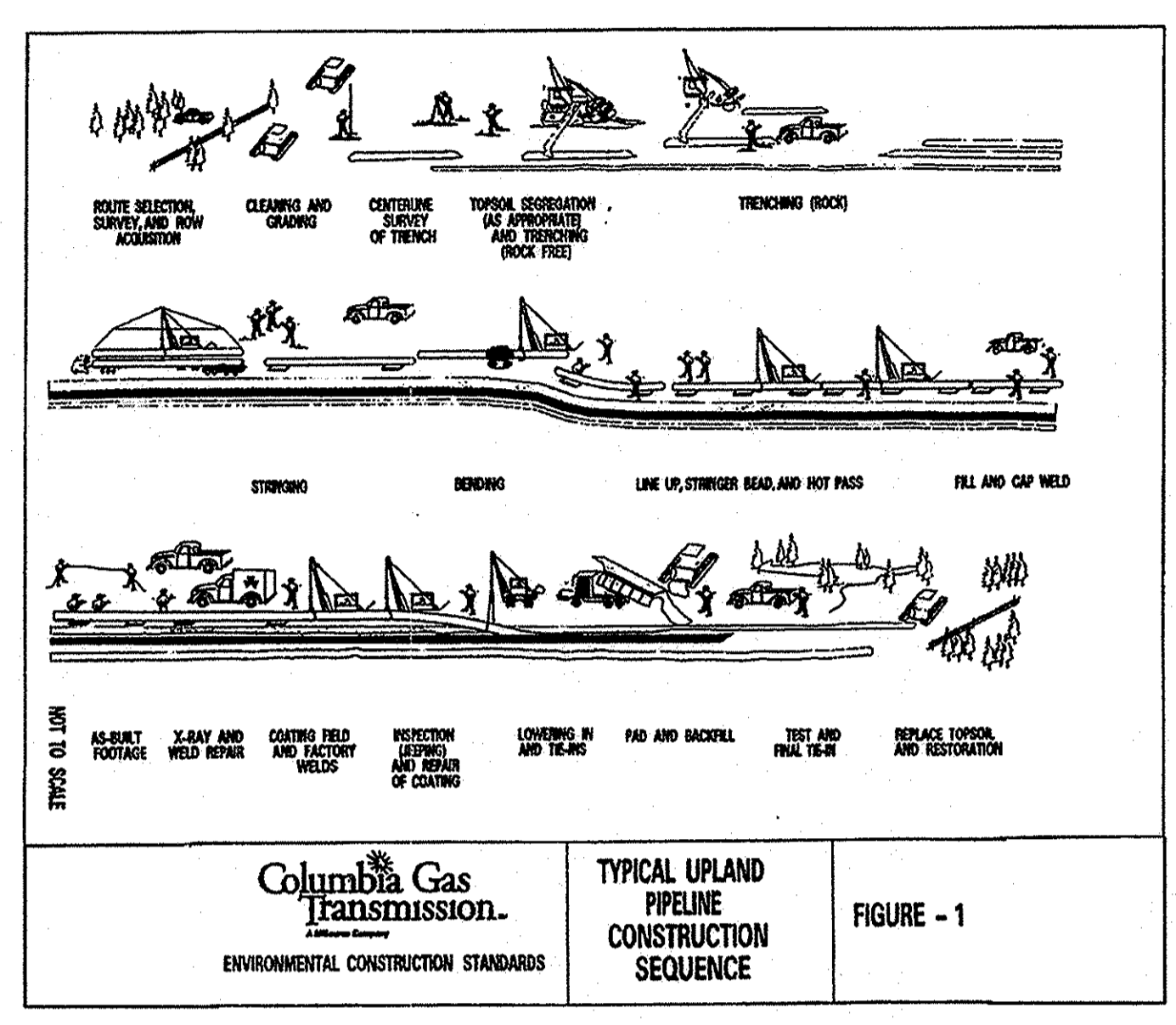


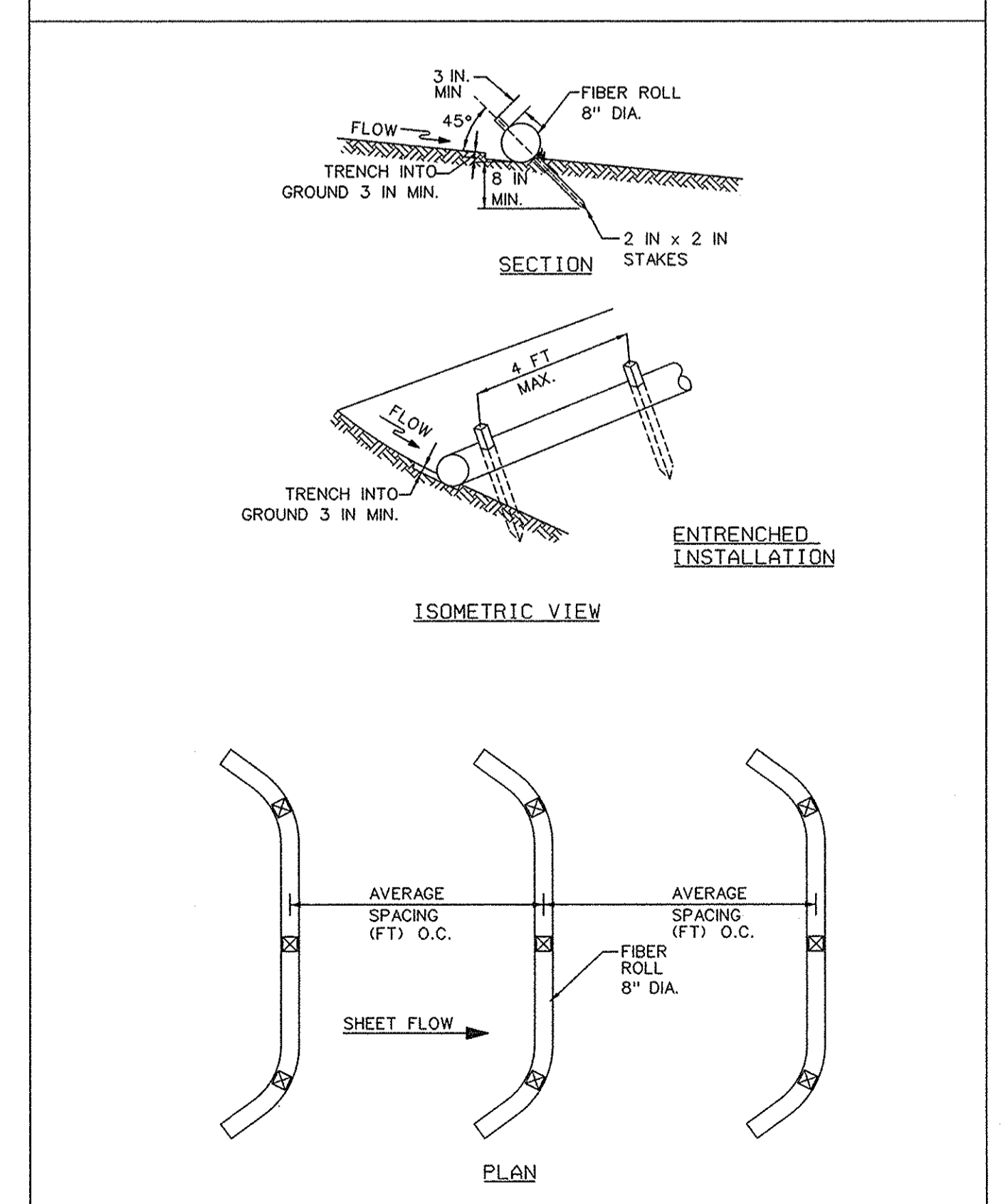
Table H.3: Compost

Parameters <sup>1</sup>	Acceptable Range
pH	5.0 - 8.5
Moisture content	30% - 60%, wet weight basis
Organic matter content	25% - 65%, dry weight basis
Particle size	% passing a selected mesh size, dry weight basis
	3 in (75 mm), 100% passing
	1 in (25 mm), 90 - 100% passing
	0.75 in (19 mm), 70 - 100% passing
	0.25 in (6.4 mm), 30 - 60% passing
	0.04 in (1 mm), 30% min. passing
Physical contaminants (manmade inerts)	<1% dry weight basis

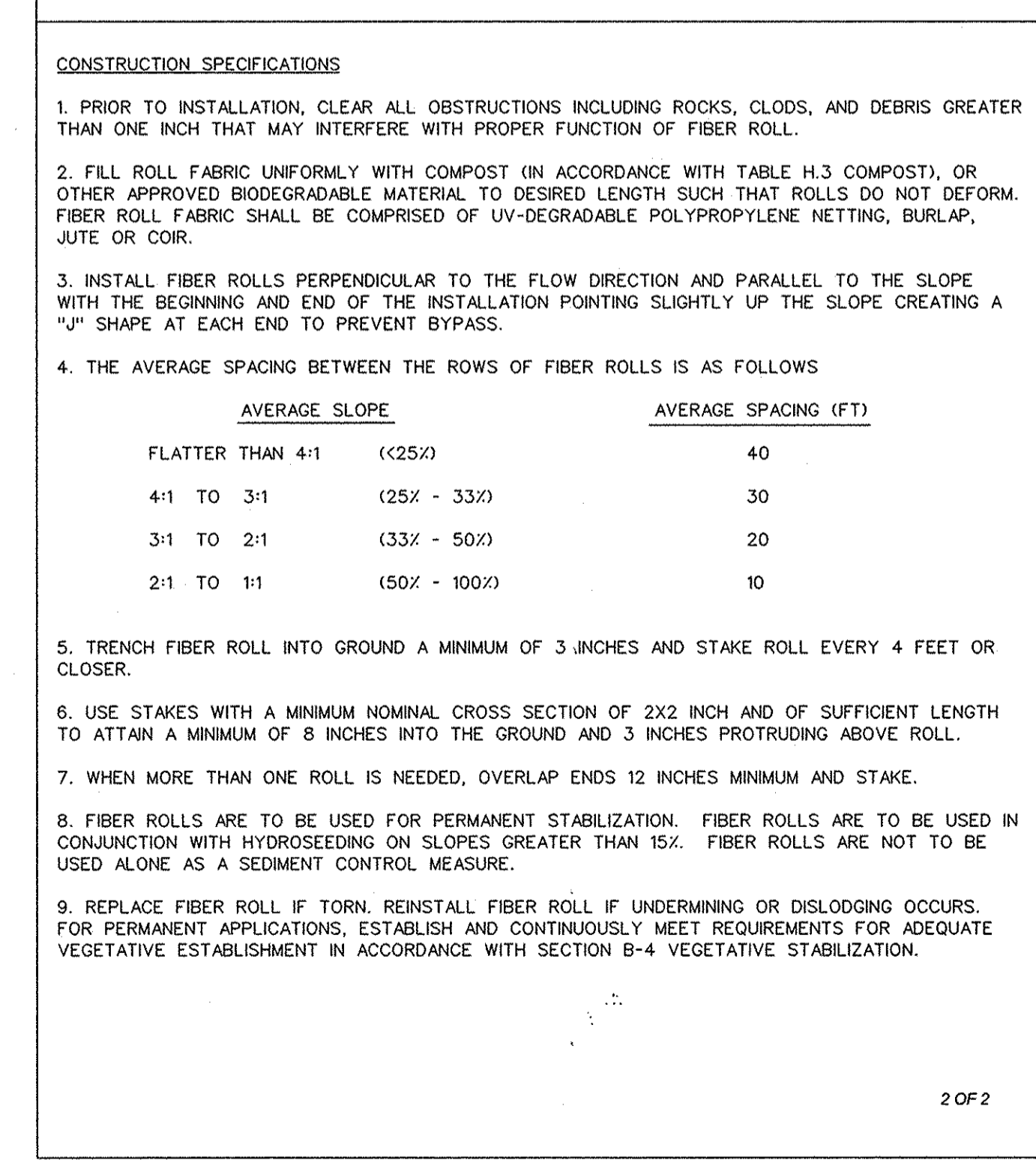
Adapted from AASHTO Standards Specs for Compost Filter Socks and EPA Example Compost Filter Parameters.

<sup>1</sup> Recommended test methodologies are provided in Test Methods for the Examination of Composting and Compost (IMEC, The U.S. Composting Council).

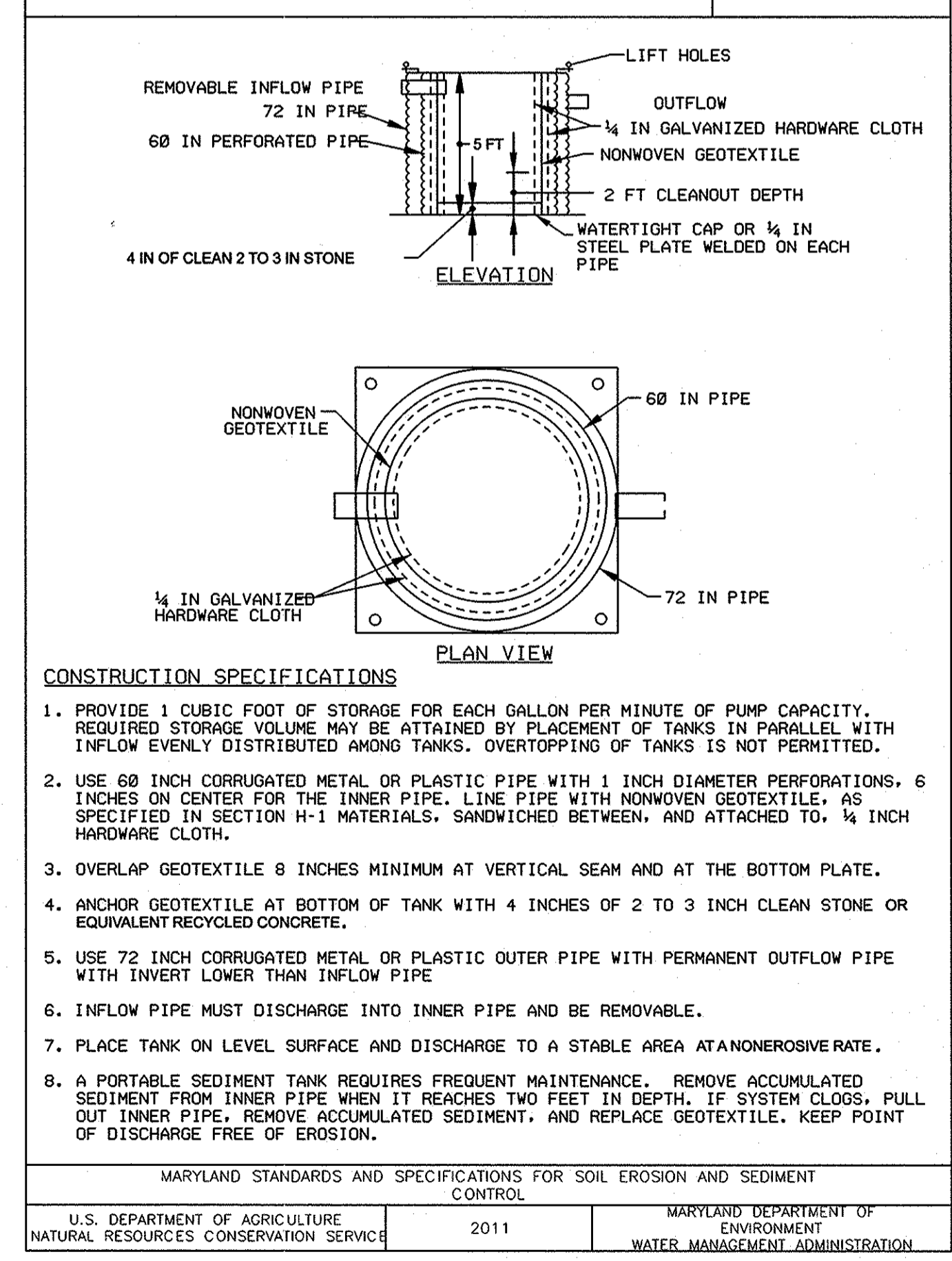
FIBER ROLL



FIBER ROLL



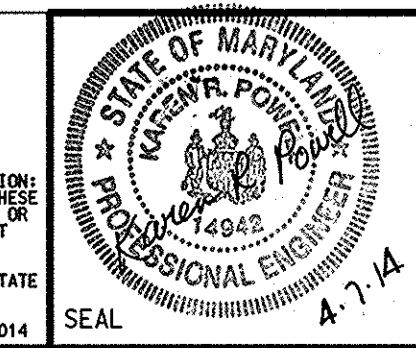
DETAIL F-3 PORTABLE SEDIMENT TANK



Baltimore County Soil Conservation District  
**APPROVED FOR SEDIMENT CONTROL**  
*[Signature]* 4-10-14  
 DATE

DESIGN & DRAWING BASED ON MARYLAND STATE COORDINATE SYSTEM - HORIZ. NAD 83 (NAD 83); VERT. NAVD 88

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**Columbia Gas Transmission**  
 A NiSource Company

REVISIONS			DATE
NO.	DATE	DESCRIPTION	BY

DATE: APRIL 2014  
 SCALE: N.T.S.  
 DESIGNED BY: JS  
 DRAWN BY: JS

**BALTIMORE COUNTY EROSION AND SEDIMENT CONTROL DETAILS**  
 FOR  
**COLUMBIA GAS TRANSMISSION, LLC**  
**LINE MB EXTENSION PROJECT - PHASE 1**  
 BALTIMORE & HARFORD COUNTIES, MARYLAND

DRAWING NO. **ECD-1.08**  
 SHEET 21 OF 22  
 KCI JOB NUMBER  
 16-121849

