SHEET INDEX

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION (1)	INV. IN	INV. OUT	RIM ELEV.	REMARKS
MH-P70A	~~4' PRECAST MANHOLE~~	~~REPLACE EXISTING~~ EXISTING	150.98 (16")	150.73 (15")	166.62	HO. CO. STD. DETAIL G-5.12
MH-70A	4' PRECAST MANHOLE	~~REPLACE EXISTING~~ ~~N 585398.43 E 1370800.82~~	~~152.48~~ (16") ~~152.18~~	~~152.38~~ (16") ~~152.56~~	~~161.39~~ ~~161.39~~	HO. CO. STD. DETAIL G-5.12
MH-71A	5' PRECAST MANHOLE w/NEW FLOW METER	N 585370.16 E 1370711.74	~~155.04~~ (16") 154.16	~~154.26~~ (16") 154.96	165.55 ~~165.49~~ (2)	SEE DETAIL SHEETS 12 & 13

NOTES:

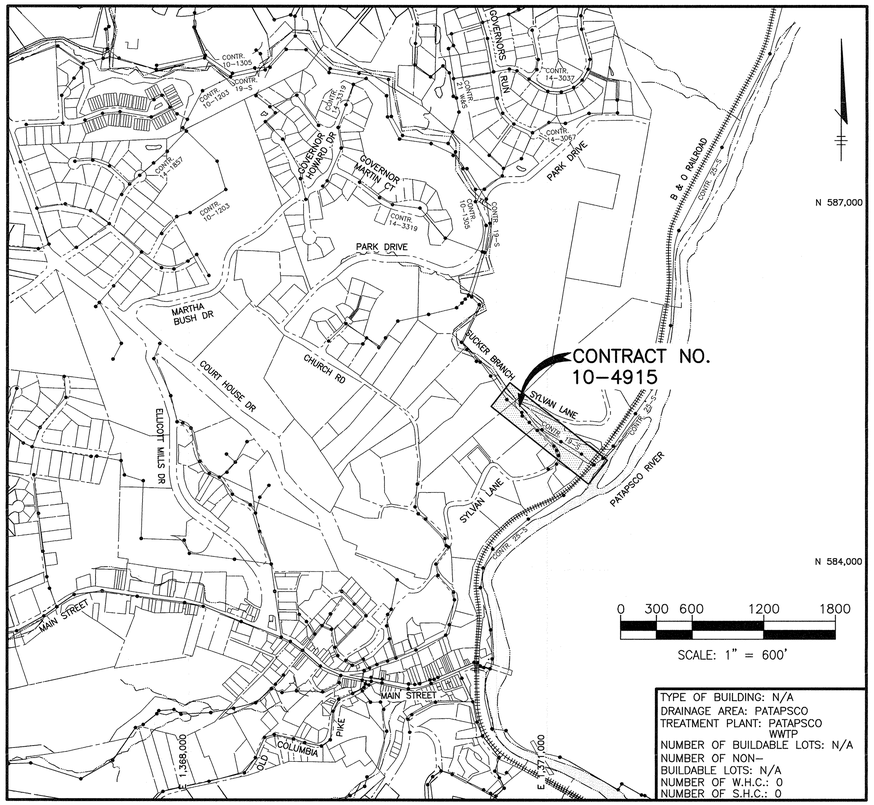
(1) LOCATION OF MANHOLES IS GIVEN AT CENTER OF STRUCTURE.

(2) RIM ELEVATION IS SET 1'-6" ABOVE EXISTING GROUND PER STD. DETAIL G-5.41.

(3) MANHOLE NUMBERS P69, 69, 68A AND 68 ARE TO BE LINED IN ACCORDANCE WITH THE SPECIFICATIONS.

TRAVERSE TABLE

NO.	LOCATION	
TP-110	N 585489.68	E 1370617.66
TP-111	N 585338.20	E 1370752.83
TP-112	N 585230.10	E 1370998.58
TP-113	N 585139.60	E 1371170.39
TP-114	N 585018.64	E 1371275.78
TP-115	N 584959.92	E 1371413.45



TYPE OF BUILDING: N/A
DRAINAGE AREA: PATAPSCO
TREATMENT PLANT: PATAPSCO WWTP
NUMBER OF BUILDABLE LOTS: N/A
NUMBER OF NON-BUILDABLE LOTS: N/A
NUMBER OF W.H.C.: 0
NUMBER OF S.H.C.: 0

VICINITY MAP

GENERAL NOTES

1. Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
2. Topographic field surveys were performed during May and June, 2014, by Navarro & Wright Consulting Engineers, Inc.
3. Horizontal and Vertical Survey Controls:

   The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/'91 as projected by Howard County Geodetic Control Station Nos. 24C2 and 24FA.
   All vertical controls are based on NAVD '88. Vertical Controls on the drawings are based on Howard County Geodetic Control Station No. 24C2.

   24C2 – N 588648.340, E 1366038.209, Elev. 354.022
   24FA – N 583751.408, E 1366091.890, Elev. 262.818

4. All pipe elevations shown are invert elevations unless otherwise noted on the plans.
5. Clear all utilities by a minimum of 12 inches. Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from monies owed the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
6. For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (Latest Edition). The contractor shall have a copy of Volume IV on the job.
7. Where test pits have been made on existing utilities, they are noted by the symbol ⬒ at the locations of the test pits. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the contractor two weeks in advance of construction operations at his own expense.
8. The contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:

AT&T	1-800-252-1133
BGE (Construction Services)	410-850-4620
BGE (Emergency)	410-685-1400
Bureau of Utilities	410-313-4900
Colonial Pipeline Co.	410-795-1390
Miss Utility	1-800-257-7777
State Highway Administration	410-531-5533
Verizon	1-800-743-0033 / 410-224-9210
CSX	904-279-3843
CSX Flagging Coordinater	904-279-3805

9. The contractor shall install tree protection fence along the limit of disturbance (LOD) for the entire project. In areas where Super Silt Fence (SSF) is required along the LOD, tree protection fence is not also required to be furnished and installed. Trees within the temporary construction strips and temporary construction easements shall not be removed or damaged by the contractor. Shrubs within the temporary construction strips and temporary construction easements shall be protected from damage to the maximum extent possible.
10. The contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the Lump Sum prices bid for Tree Removal and Clearing and Grubbing.
11. The contractor shall notify the Bureau of Highways, Howard County, at 410-313-7450 at least five working days before open cutting or boring/jacking of any County road for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per Section 18.114(a) of the Howard County Code.
12. Spoil from trenching operations is to be placed on the uphill side of the trench.
13. The contractor shall be responsible for acquiring any additional staging and/or stockpile areas that the contractor deems necessary.
14. The contractor shall be responsible for repairing and replacing any existing fences, signs, concrete curb, driveways, paving, curb and gutter pan, walkways, etc., damaged or removed during construction. All disturbed areas shall be returned to their original or better condition.
15. This project is exempt from Forest Conservation requirements under section 16.1202.b.1.x of the Howard County Forest Conservation Code.
16. MDE Authorization No.: 201560104/15-NT-3019.
17. CSXT Agreement No.: BO L48696
18. Contractor shall provide adequate notification to CSX prior to beginning any work within the rail corridor. The Contractor shall be responsible for all coordination and costs associated with working within the CSX rail corridor including, but not limited to, providing CSX flagmen and/or CSX inspectors, safety training and any additional insurance requirements. all work within the rail corridor shall meet CSXT Specifications.
19. The site is not located within a Tier II watershed.
20. The site is located within an impaired waterway with respect to total suspended solids, sulfates and chlorides.

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
HOWARD COUNTY, MARYLAND

SEWER NOTES

1. Sewer mains for stream crossings shall be CL. 54 DIP with lining. All other sewer mains shall be AWWA C-905/DR-25 PVC unless otherwise noted.
2. All manholes shall be 4'-0" or 5'-0" inside diameter as noted in the Structure Schedule.
3. Manholes designated W.T. in profile shall have watertight frames and covers. Where watertight manhole frames and covers are used, set top of manhole with embedded frame 1'-6" above finished grade unless otherwise noted on the drawings.
4. The existing sewer shall remain in service at all times and be protected during construction.

BILL OF MATERIALS

ITEMS	QUANTITIES ESTIMATED	AS-BUILT QUANTITIES	AS-BUILT TYPE	AS-BUILT MANUFACTURER / SUPPLIER
16" PVC SEWER	247 LF	245 LF	C-900 PIPE	NATIONAL PIPE
4' DIA. PRECAST MANHOLES	2 EA.	1 EA.		CONTR'S. PRECAST CORP.
5' DIA PRECAST MANHOLES	1 EA.	1 EA.		CONTR'S PRECAST CORP.
4' DIA. MH ADDITIONAL DEPTH	13 V.F.	3 V.F.		CONTR'S PRECAST CORP.
5' DIA. MH ADDITIONAL DEPTH	5 V.F.			CONTR'S PRECAST CORP.
LINING OF 15" SEWER	656 LF	715 LF		LAYNE
6" SHC	15 LF	8 LF	6DR-35 PIPE	NATIONAL PIPE

NAME OF UTILITY CONTRACTOR : W. F. WILSON

Sediment control measures for this contract will be implemented in accordance with Section 308 of the Specifications and as shown on these plans.

EP-16-010

This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT 6/7/17 DATE

CHECKBOX	
AS-BUILT DATE	
SURVEY AND DRAFTING DIVISION	

BY THE DEVELOPER :

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

Wes Davis 6-5-2017
DEVELOPER DATE

BY THE ENGINEER :

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

David A Vanderbeek 5.31.17
ENGINEER DATE

PROFESSIONAL CERTIFICATION :

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27909, EXPIRATION DATE AUGUST 23, 2018.

David A. Vanderbeek
DAVID A. VANDERBEEK, P.E.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS 6/6/17 DATE
CHIEF, BUREAU OF ENGINEERING 6/5/17 DATE
CHIEF, BUREAU OF UTILITIES 5/5/17 DATE
CHIEF, UTILITY DESIGN DIVISION WP 6.2.17 DATE

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND · DAVID ANDREW VANDERBEEK · 27909 · REGISTERED PROFESSIONAL ENGINEER

DES: D.A.V.			
DRN: M.A.D.			
CHK: W.B.F.			
DATE: 05/17	BY	NO.	REVISION

TITLE SHEET

600 SCALE MAP NO. 25 BLOCK NO. 8

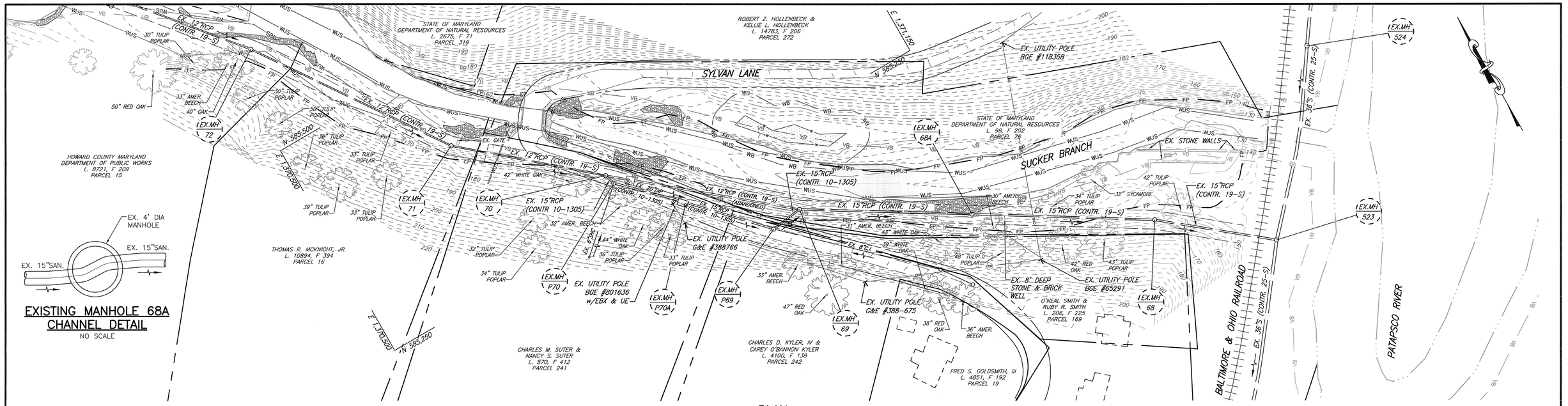
SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 12

AS-BUILT: 01/30/2019

C:\DRAWINGS\10141 TIBER SUCKER BRANCH INTERCEPTOR SEWER IMPROVEMENTS\CURRENT\Sylvan Lane\C - 01 - TITLE.dwg, 5/26/2017 12:16:45 PM, HP Designjet T530 PS MyArc.pc3

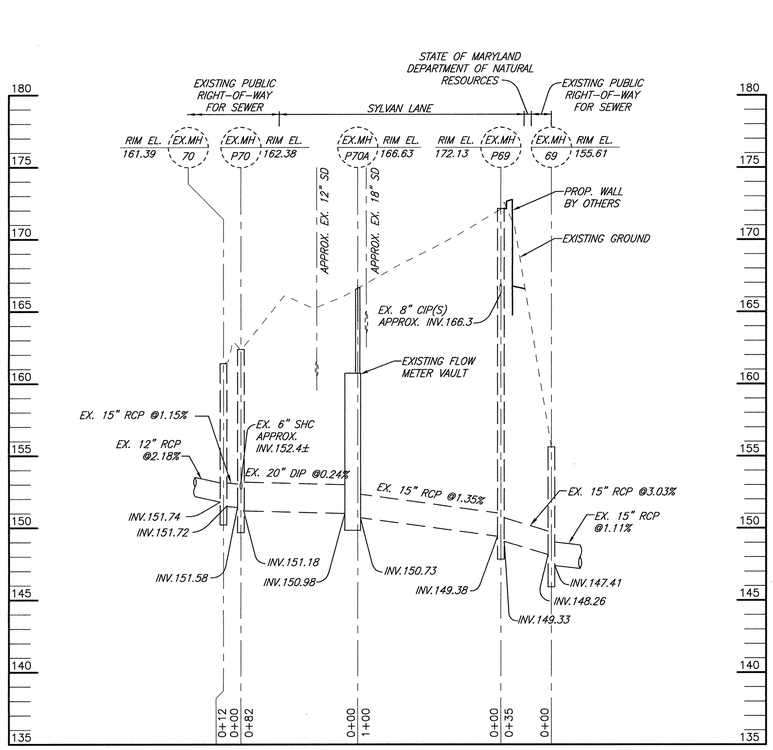


EXISTING MANHOLE 68A CHANNEL DETAIL

NO SCALE

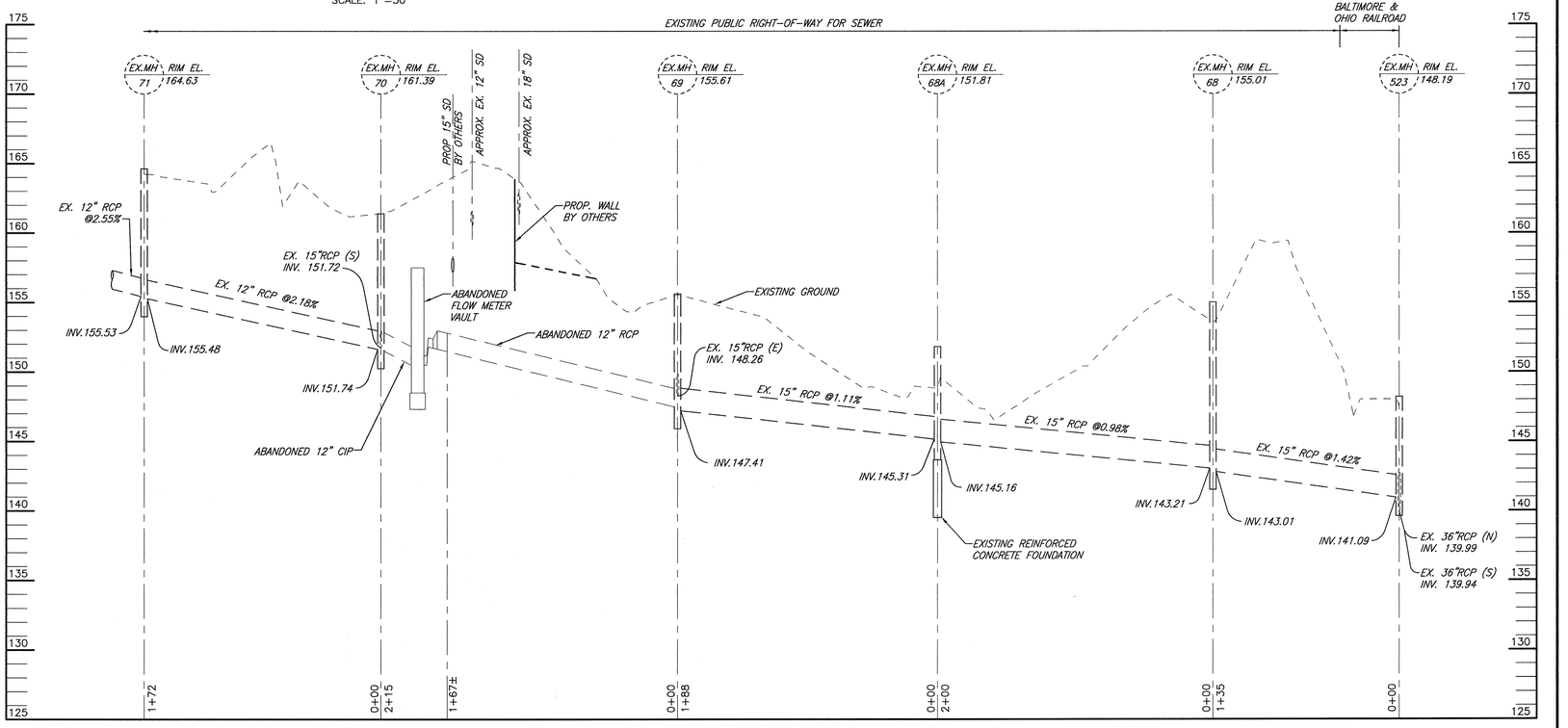
PLAN

SCALE: 1"=50'



SEWER PROFILE (CONTRACT 10-1305)

SCALE: HOR.: 1"=50'
VERT.: 1"=5'



SEWER PROFILE (CONTRACT 19-S)

SCALE: HOR.: 1"=50'
VERT.: 1"=5'

THIS SHEET IS FOR REFERENCE ONLY

50 0 25 50 100
1 inch = 50 ft.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 5/6/17
CHIEF, UTILITY DESIGN DIVISION — DATE 6.2.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — CHRISTOPHER WILLIAM DEBELIS — 27909 — REGISTERED PROFESSIONAL ENGINEER

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

EXISTING CONDITIONS PLAN AND PROFILE

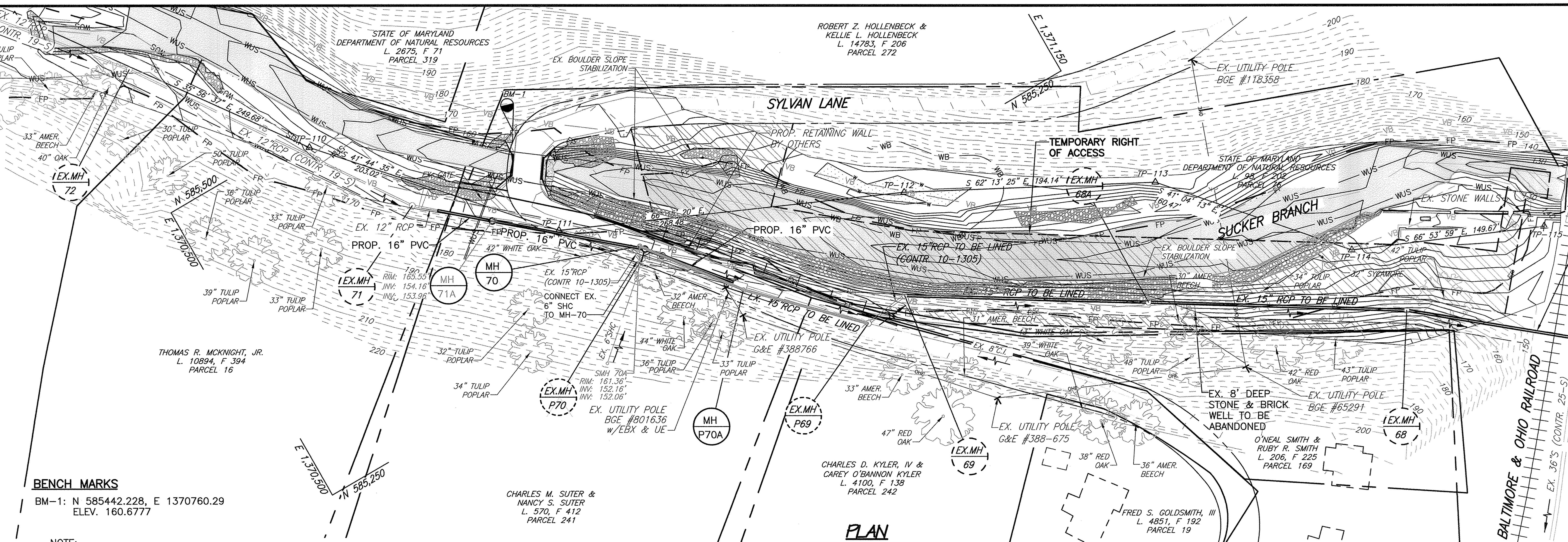
600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

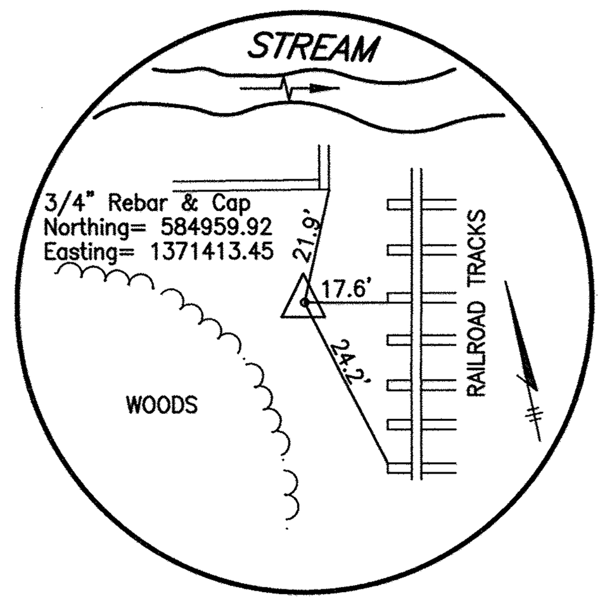
SCALE AS SHOWN

SHEET 2 OF 12

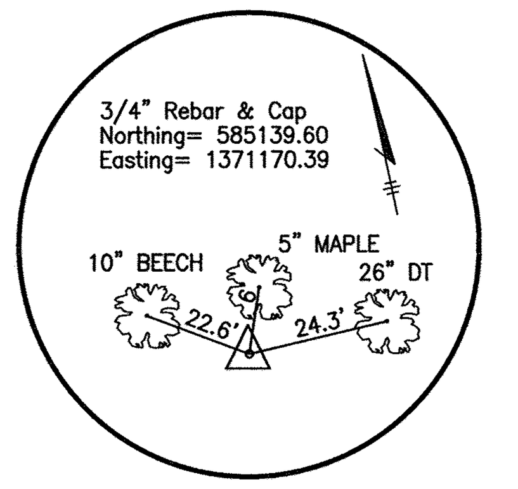
G:\DRAWINGS\13041 TIBER SUCKER BRANCH INTERCEPTOR SEWER IMPROVEMENTS\CURRENT\Sylvan Lane\C 02 PLAN.dwg, 5/26/2017 11:25:37 AM, HP Designjet T1530 PS MyPlot.pc3



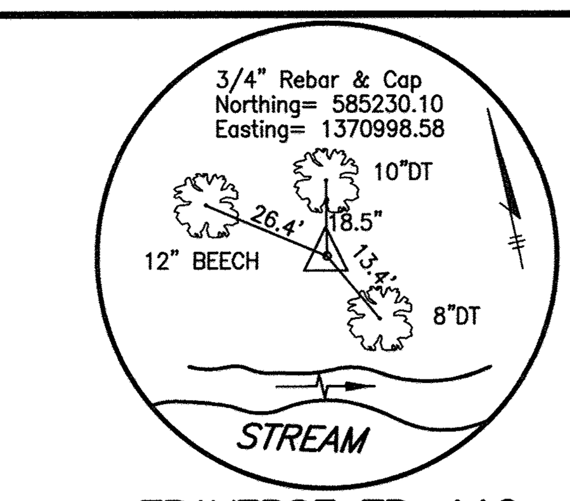
PLAN
SCALE: 1"=50'



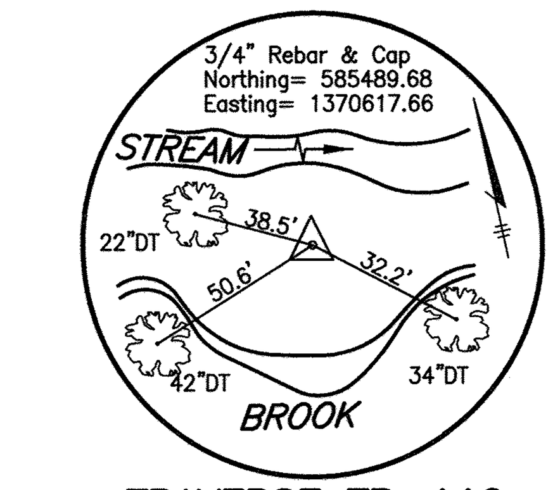
TRAVERSE TP-115
NO SCALE



TRAVERSE TP-113
NO SCALE



TRAVERSE TP-112
NO SCALE

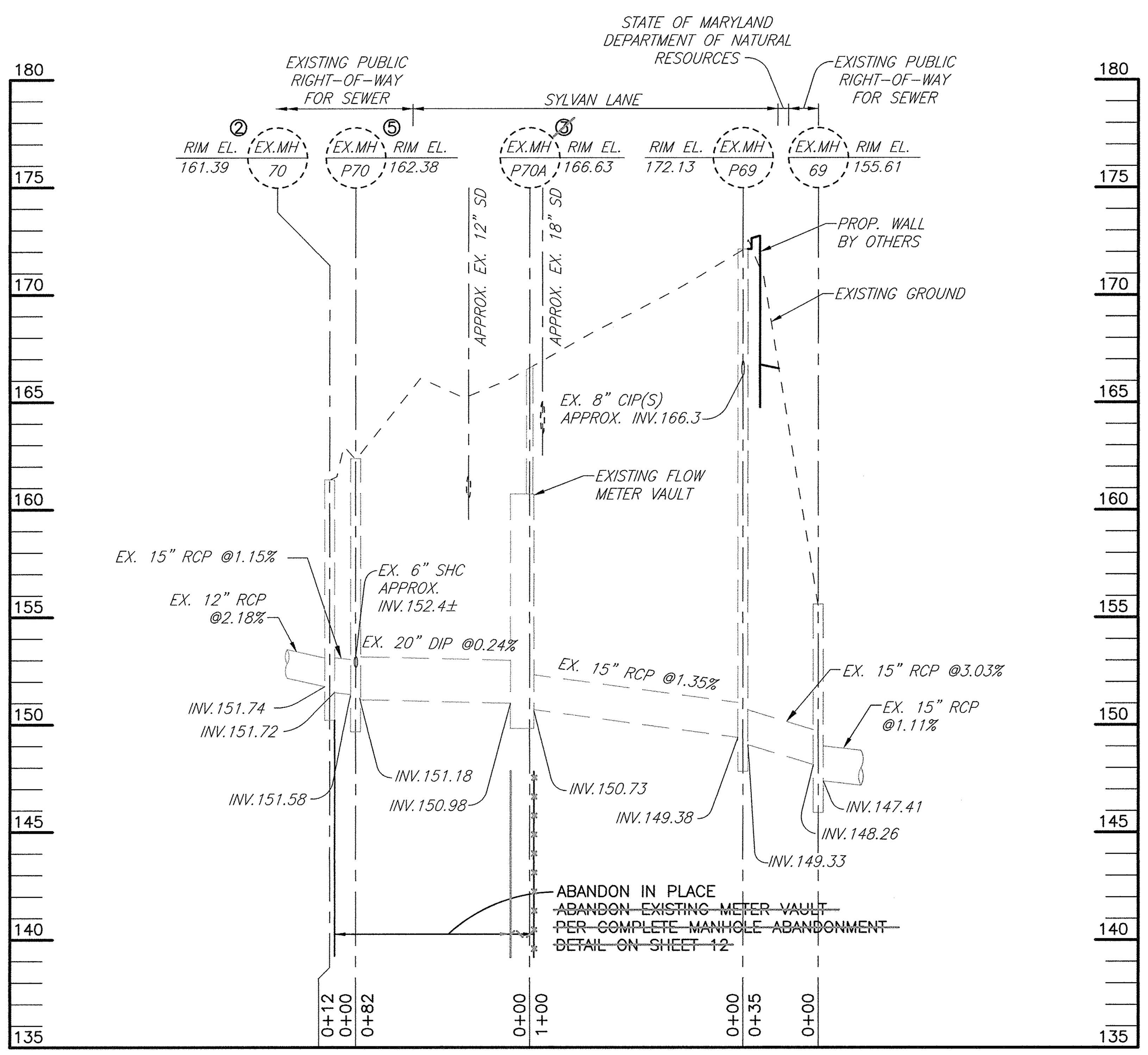


TRAVERSE TP-110

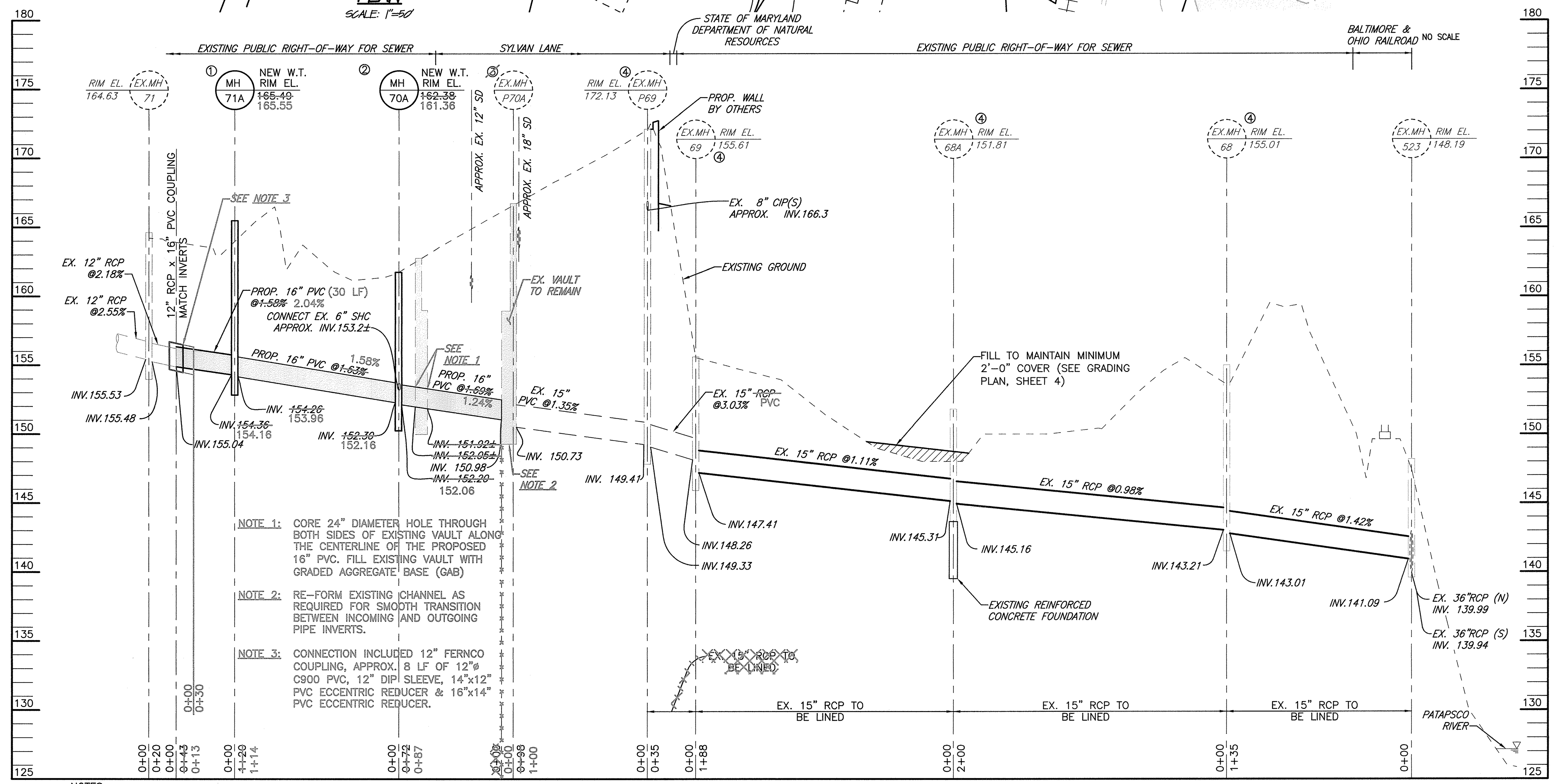
BENCH MARKS

BM-1: N 585442.228, E 1370760.29
ELEV. 160.6777

NOTE:
ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED, EXCEPT AS SHOWN ON SHEET 4, ONCE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMITS OF DISTURBANCE ANYWHERE ELSE ON SITE.



SEWER PROFILE (CONTRACT 10-1305)
SCALE: HOR.: 1"=50'
VERT.: 1"=5'



SEWER PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

NOTES:
① INSTALL NEW 5'-0" DIA. MANHOLE & FLOW METER, SEE DETAILS SHEETS ON 11 & 12.
② REMOVE EXISTING MANHOLE AND INSTALL NEW 4'-0" I.D. MANHOLE PER HO.CO. STD. DETAIL.
③ ~~REMOVE EXISTING MANHOLE, ABANDON EXISTING FLOW METER VAULT AND REPLACE WITH NEW 4'-0" DIA. MANHOLE PER HO.CO. STD. DETAIL.~~
④ MANHOLES TO REMAIN IN PLACE AND BE GROUTED AND LINED. MANHOLE 68A DOES NOT REQUIRE GROUTING BUT SHALL BE LINED.
⑤ MANHOLE NUMBER P70 TO BE ABANDONED IN PLACE.

50 0 25 50 100
1 inch = 50 ft.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 6/5/17
CHIEF, UTILITY DESIGN DIVISION — DATE 6.8.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

PROPOSED IMPROVEMENTS
PLAN AND PROFILE

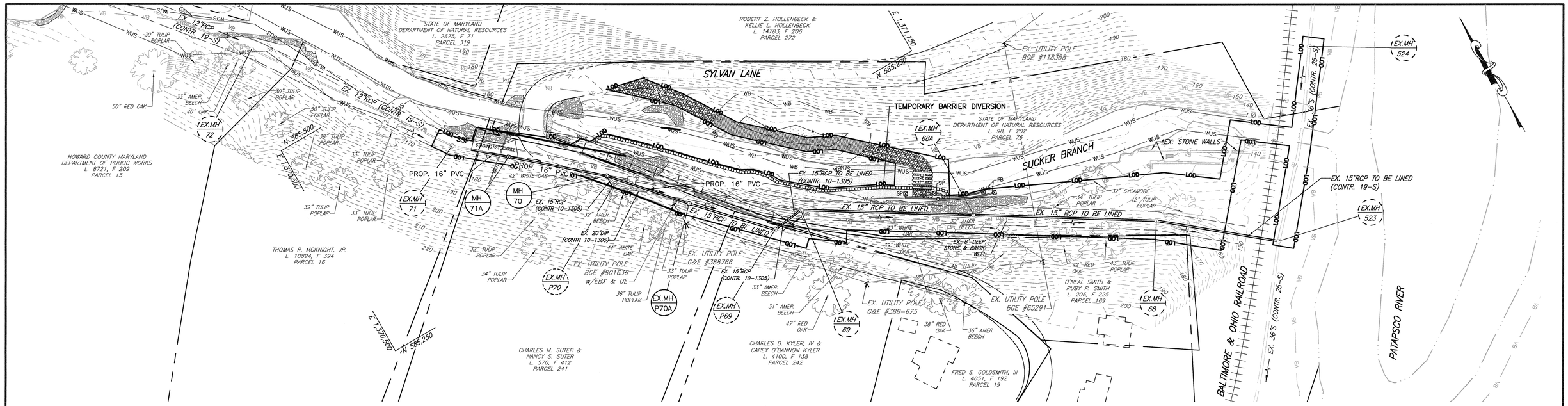
600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 12

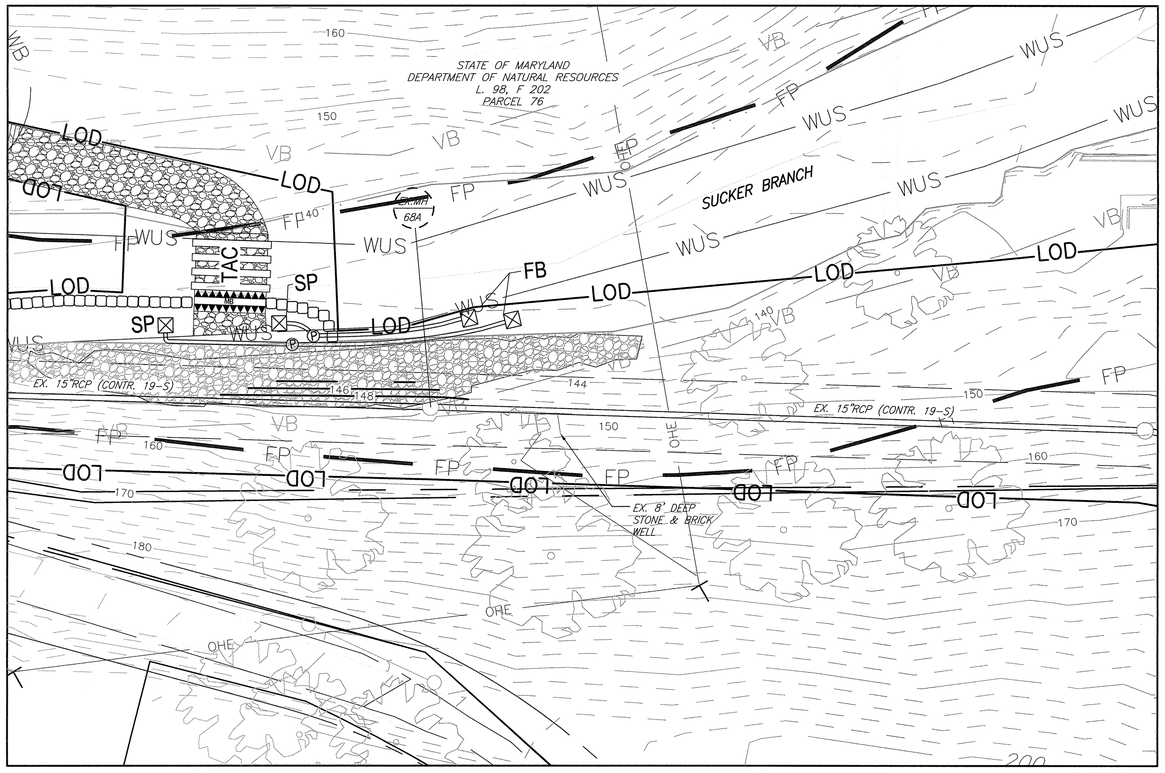
AS-BUILT: 01/30/2019



PLAN

SCALE: 1"=50'

* DO NOT DISTURB EXISTING STONE WALLS



CONSTRUCTION ACCESS FROM SYLVAN LANE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING, MAINTAINING AND REMOVING ANY KIND OF ACCESS ROAD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE ACCESS ROAD DURING ITS USE AND, WHEN DONE, SHALL RESTORE THE AREA TO ITS ORIGINAL OR BETTER CONDITION.

CONSTRUCTION ACCESS TO MANHOLE 523

THE CONTRACTOR SHALL HAVE ONLY LIMITED ACCESS TO MANHOLE 523 AND THE EAST SIDE OF THE RAILROAD CORRIDOR. ALL ACCESS SHALL BE VIA SUCKER BRANCH CULVERT ONLY. NO ACCESS IS ALLOWED ACROSS THE RAILROAD TRACKS AT ANY TIME. ALL WORK WITHIN THE CSX RAIL CORRIDOR SHALL BE IN ACCORDANCE WITH THE CSX PERMIT. THERE SHALL BE NO ACCESS ALLOWED TO THE EAST SIDE OF THE RAILROAD CORRIDOR OR MANHOLE 523 FOR ANY HEAVY EQUIPMENT, BOILER TRUCKS OR EQUIPMENT OTHER THAN THAT WHICH CAN BE HAND-CARRIED BY PERSONNEL VIA THE CULVERT ACCESS. NO PIPELINES MAY BE LAID ACROSS THE TRACKS SUCH AS BYPASS PUMPING FORCE MAINS OR RECIRCULATING PIPES FOR THE CIPP LINING.

50 0 25 50 100
1 inch = 50 ft.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 6/5/17
CHIEF, UTILITY DESIGN DIVISION — DATE 6.2.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — ANDREW W. MACNEAL — No. 27906 — PROFESSIONAL ENGINEER

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

EROSION & SEDIMENT CONTROL PLAN

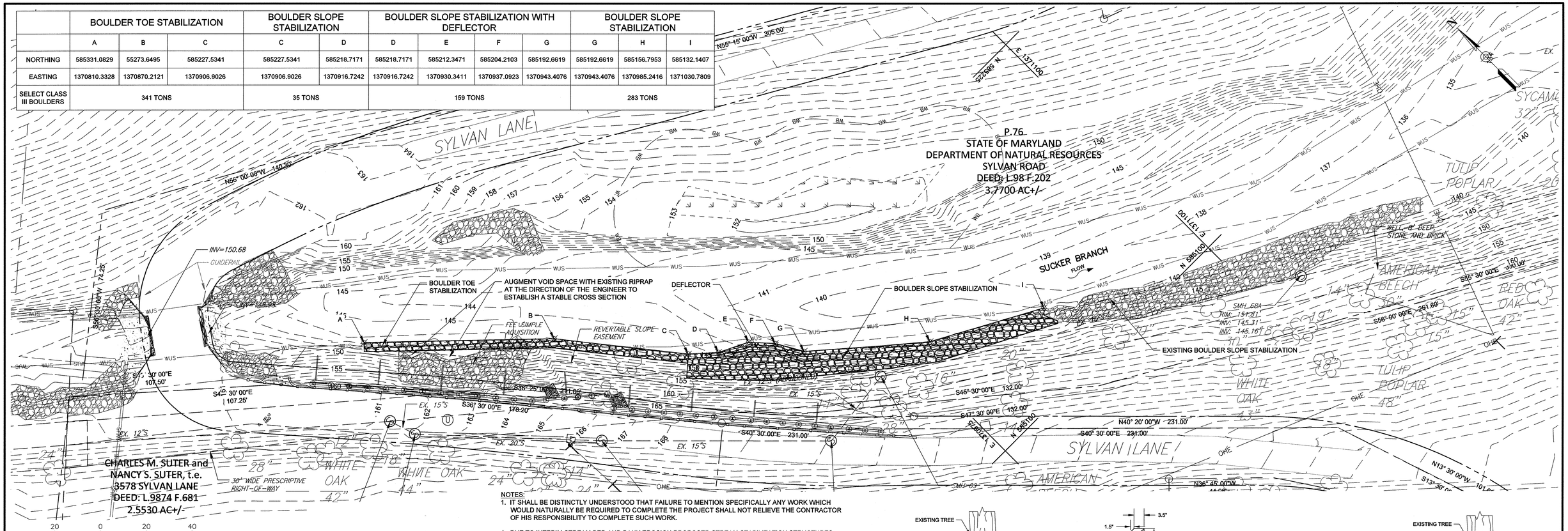
600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

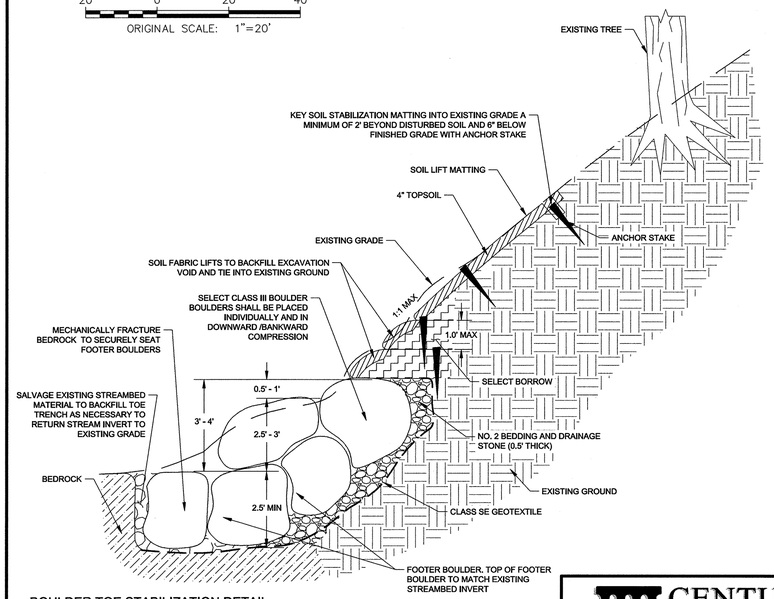
SCALE AS SHOWN

SHEET 4 OF 12

	BOULDER TOE STABILIZATION			BOULDER SLOPE STABILIZATION		BOULDER SLOPE STABILIZATION WITH DEFLECTOR				BOULDER SLOPE STABILIZATION		
	A	B	C	C	D	D	E	F	G	G	H	I
NORTHING	585331.0829	55273.6495	585227.5341	585227.5341	585218.7171	585218.7171	585212.3471	585204.2103	585192.6619	585192.6619	585156.7953	585132.1407
EASTING	1370810.3328	1370870.2121	1370906.9026	1370906.9026	1370916.7242	1370916.7242	1370930.3411	1370937.0923	1370943.4076	1370943.4076	1370985.2416	1371030.7809
SELECT CLASS III BOULDERS	341 TONS			35 TONS		159 TONS				283 TONS		

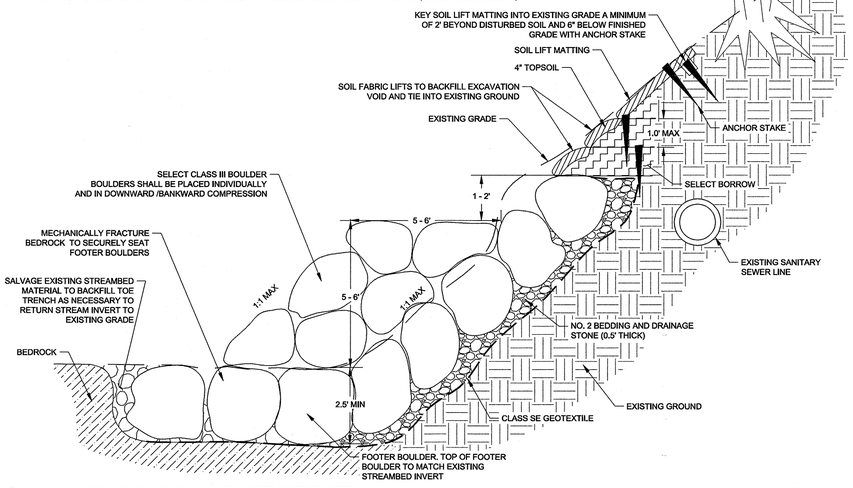


NOTES:
1. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
2. DUE TO INTERIM STREAM BED AND BANK EROSION PROPOSED STREAM STABILIZATION STRUCTURES SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER IN THE FIELD.
3. SUCKER BRANCH IS DESIGNATED AS STREAM USE I. IN STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR (COMAR 26.08.02.11).



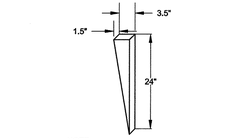
BOULDER TOE STABILIZATION DETAIL

NOT TO SCALE



BOULDER SLOPE STABILIZATION WITH DEFLECTOR DETAIL

NOT TO SCALE



NOTE:
ANCHOR STAKES SHALL BE TAPERED TWO FOOT LONG WOODEN STAKES CONSISTING OF STANDARD 2" X 4" WOODEN BOARDS CUT DIAGONALLY.

ANCHOR STAKE DETAIL

NOT TO SCALE

BOULDER SLOPE STABILIZATION DETAIL

NOT TO SCALE

SELECT CLASS III BOULDERS		
WEIGHT (IBS.)	MIN. % FINER	DIAMETER (IN.)
2,200	100	36
1,600	50	32
1,200	0	29

NOTES:
1. BEDROCK SHALL BE MECHANICALLY FRACTURED TO PROVIDE ADEQUATE ROOM TO SECURELY SEAT THE FOOTER BOULDERS A MINIMUM OF 2.5 FEET BELOW THE CHANNEL INVERT AS ILLUSTRATED.
2. SELECT CLASS III BOULDERS SHALL BE MECHANICALLY PLACED WITH STAGGERED JOINTS SUCH THAT EACH BOULDER RESTS FIRMLY ON TWO BOULDERS IN THE TIER BELOW WITH MINIMUM TO NO VOID SPACES. STONE SHALL NOT BE PLACED BY DUMPING OR SIMILAR METHODS.
3. THE FOOTER AND TOE BOULDER MUST BE PROPERLY SEATED WITH SUBSEQUENT BOULDERS PLACED IN A DOWNWARD AND BANKWARD COMPRESSION WITH MINIMAL OPPORTUNITY FOR MOVEMENT.
4. SELECT CLASS III BOULDERS SHALL BE TIED INTO THE EXISTING CHANNEL SUBSTRATE / BEDROCK AT THE DIRECTION OF THE ENGINEER TO ESTABLISH A STABLE CROSS SECTION. THE EXISTING CROSS-SECTIONAL AREA OF THE CHANNEL SHALL BE MAINTAINED TO THE GREATEST EXTENT POSSIBLE. CHANNEL FILL OR ANY REDUCTION IN CHANNEL CROSS-SECTIONAL AREA WILL NOT BE PERMITTED.
5. THE UPSTREAM AND DOWNSTREAM EXTENTS OF THE BOULDER SLOPE STABILIZATION SHALL BE KEYED INTO THE EXISTING BANK OR REVETMENT TO ESTABLISH A SMOOTH CROSS SECTION IN TRANSITION AREAS.

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 Gilroy Road, Hunt Valley, MD 21031
Phone: 443.589.2400 Fax: 443.589.2401
www.centuryeng.com

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 6/5/17
CHIEF, UTILITY DESIGN DIVISION W/D — DATE 6.2.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — DAVID A. LYNCH — No. 28511 — PROFESSIONAL ENGINEER — 5/31/17

DES: A.E.B.
DRN: S.E.H.
CHK: C.A.L.
DATE: 5/31/17

BY	NO.	REVISION	DATE

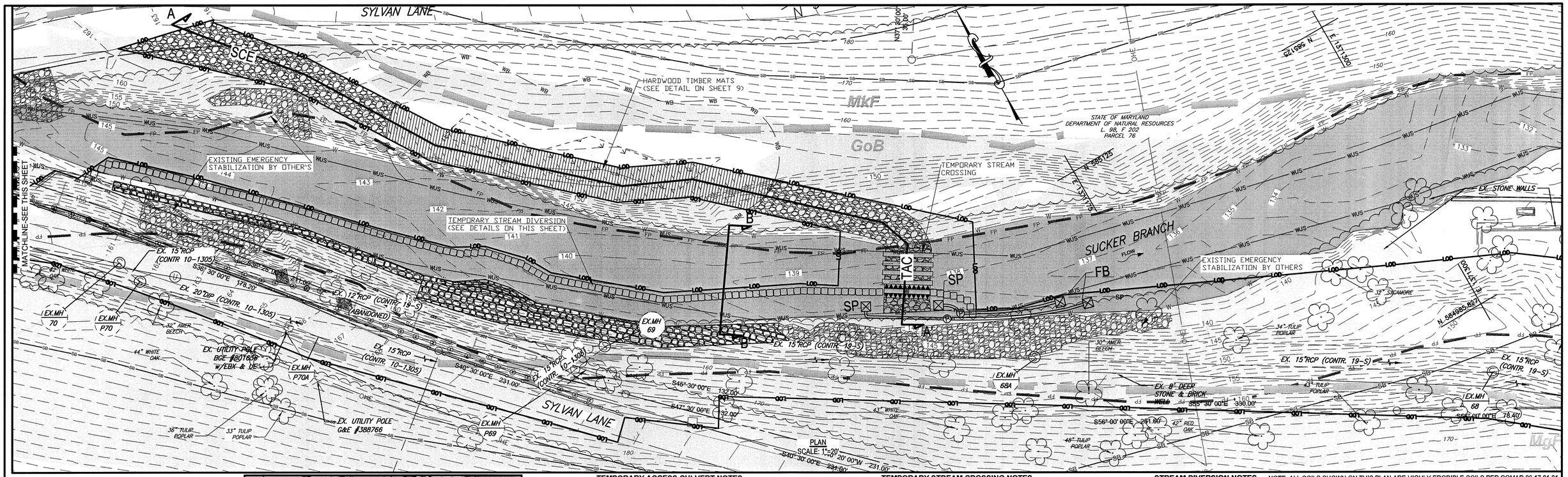
STREAM SLOPE STABILIZATION PLAN

600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE 1"=20'

SHEET 5 OF 12



PLAN
SCALE: 1"=20'

PLAN
SCALE: 1"=20'

TEMPORARY ACCESS CULVERT NOTES

1. THE CONTRACTOR SHALL USE FOUR 24" CORRUGATED METAL PIPES (CMP 14 GA.) OR FOUR 24" REINFORCED CONCRETE PIPE (RCP).
2. THE MINIMUM LENGTH OF EACH PIPE SHALL BE 16'. THE MAXIMUM LENGTH OF EACH PIPE SHALL BE 20'.
3. THE TEMPORARY ACCESS CULVERTS SHALL BE PLACED PARALLEL TO THE STREAM CHANNEL.
4. THE TOP ELEVATION OF THE TEMPORARY ACCESS CULVERTS SHALL BE LOWER THAN THE TEMPORARY STREAM DIVERSION TO ALLOW HIGHER STREAM FLOWS TO PASS OVER THE TEMPORARY ACCESS CULVERT INSTEAD OF THE SAND BAG DIVERSION.

TEMPORARY STREAM CROSSING NOTES

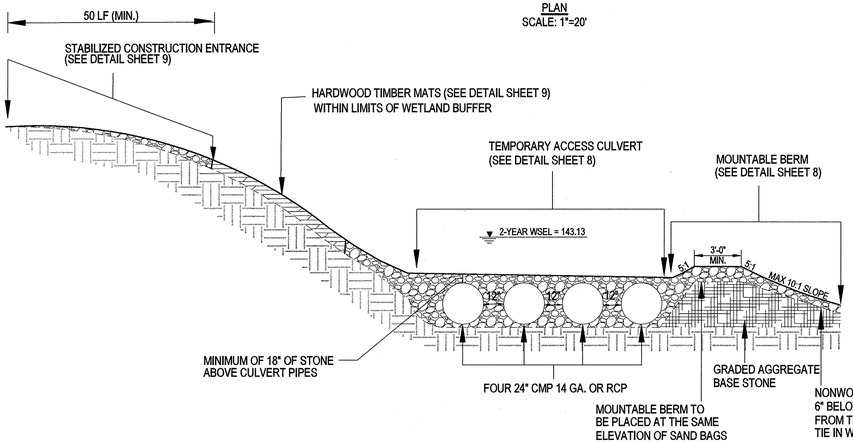
1. ANY DAMAGE TO STREAM CROSSING OR EXISTING STREAM CHANNEL DURING BASEFLOW OR FLOOD EVENTS SHALL BE PROMPTLY REPAIRED.
2. INSPECT TEMPORARY STREAM CROSSING AND SANDBAG DIVERSION EACH DAY AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF STRUCTURES SHALL BE PROACTIVE, NOT REACTIVE. THE STREAM CROSSING AND SANDBAGS SHALL BE INSPECTED WITHIN 24 HOURS OF RAIN EVENTS AND, IF NECESSARY, PERFORM MAINTENANCE IMMEDIATELY.
3. THE STREAM CROSSING AND SANDBAGS SHALL REMAIN IN PLACE UNTIL NO LONGER NEEDED AND SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION.

STREAM DIVERSION NOTES

NOTE: ALL SOILS SHOWN ON THIS PLAN ARE HIGHLY ERODIBLE SOILS PER COMAR 26.17.01.01

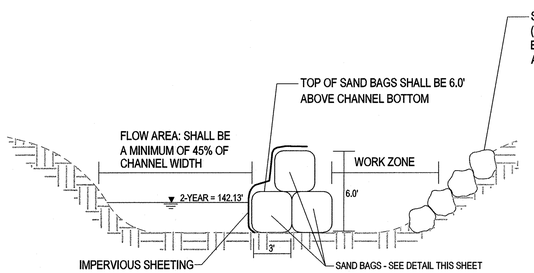
1. CONTRACTOR MAY USE EITHER SANDBAGS OR TEMPORARY BARRIER DIVERSIONS (DETAIL C-7). PROVIDED THE CONTRACTOR CAN PROVE STABILITY OF THE TEMPORARY BARRIER DIVERSIONS AGAINST THE 2-YEAR FLOW DEPTH (5.36').

20 0 10 20 40
1 inch = 20 ft.



SECTION A-A': STABILIZED CONSTRUCTION ENTRANCE, ACCESS ROAD, AND TEMPORARY ACCESS CULVERT DETAIL

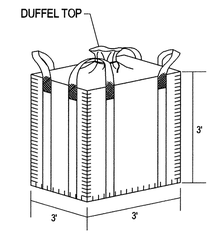
NOT TO SCALE



NOTES:
1. SEE MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION FOR CONSTRUCTION AND SPECIFICATIONS.
2. ALL POOLED WATER WITHIN THE WORK ZONE SHALL BE PUMPED THROUGH A FILTER BAG OR PST (DETAIL F-4) BEFORE BEING DISCHARGED TO A STABLE OUTFALL.

SECTION B-B': TEMPORARY STREAM DIVERSION DETAIL

NOT TO SCALE



BAG TO BE CONSTRUCTED OF MATERIALS WHICH ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE. THE BAGS SHALL BE WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF THE FILL MATERIAL.

SAND BAG DETAIL

NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 6/5/17
CHIEF, UTILITY DESIGN DIVISION — DATE 6.8.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — JOSHUA A. TOMLINSON — No. 28371 — PROFESSIONAL ENGINEER — 5/31/17

DES: J.B.
DRN: D.Y.
CHK: C.L.
DATE: 5/31/17

BY	NO.	REVISION	DATE
CEI	1	REVISE PER STREAM STREAM GEOMORPH CHANGES	
CEI	2	REVISE PER DPW ARMORING REQUESTED CHANGES	

STREAM SLOPE STABILIZATION
EROSION & SEDIMENT
CONTROL PLAN

600 SCALE MAP NO. 25 BLOCK NO. 8

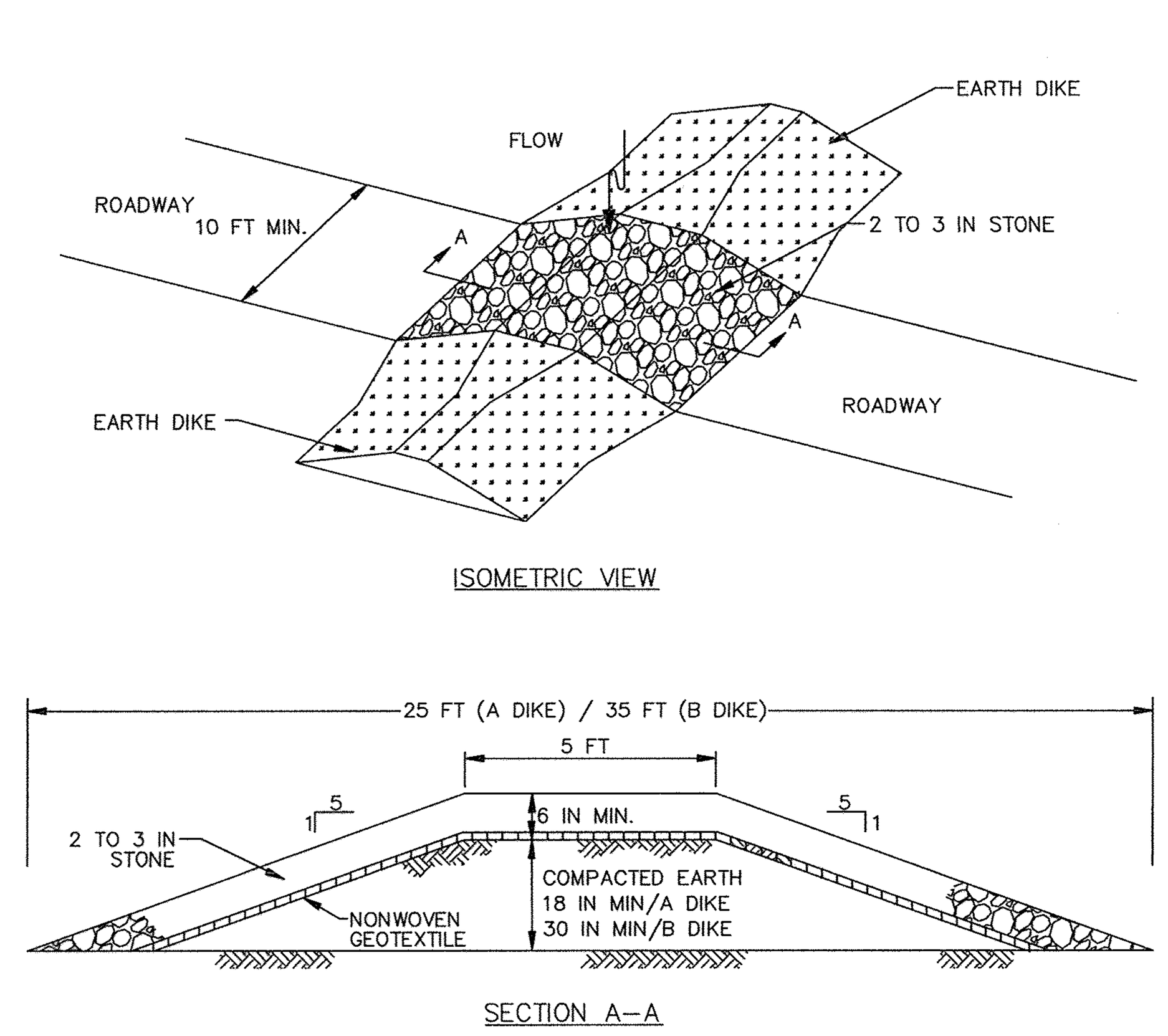
SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 6 OF 12

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL MB



CONSTRUCTION SPECIFICATIONS

1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. 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

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

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

EFFECTIVE USES & LIMITATIONS

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

MATERIAL SPECIFICATIONS

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

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

INSTALLATION GUIDELINES

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

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

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

TEMPORARY INSTREAM CONSTRUCTION MEASURES — *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

PAGE 1.5 - 1

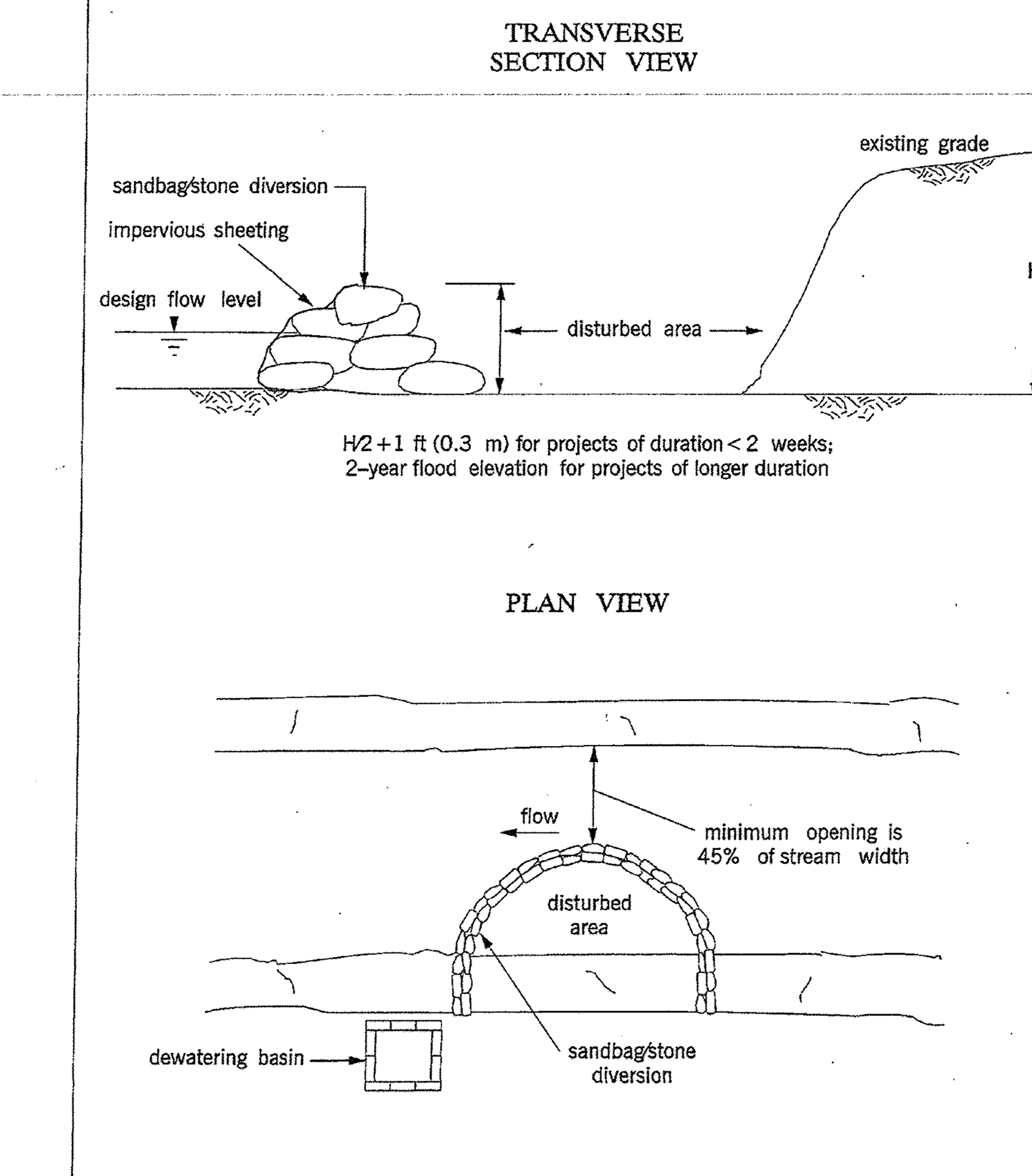
MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

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

TEMPORARY INSTREAM CONSTRUCTION MEASURES — *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

PAGE 1.5 - 2

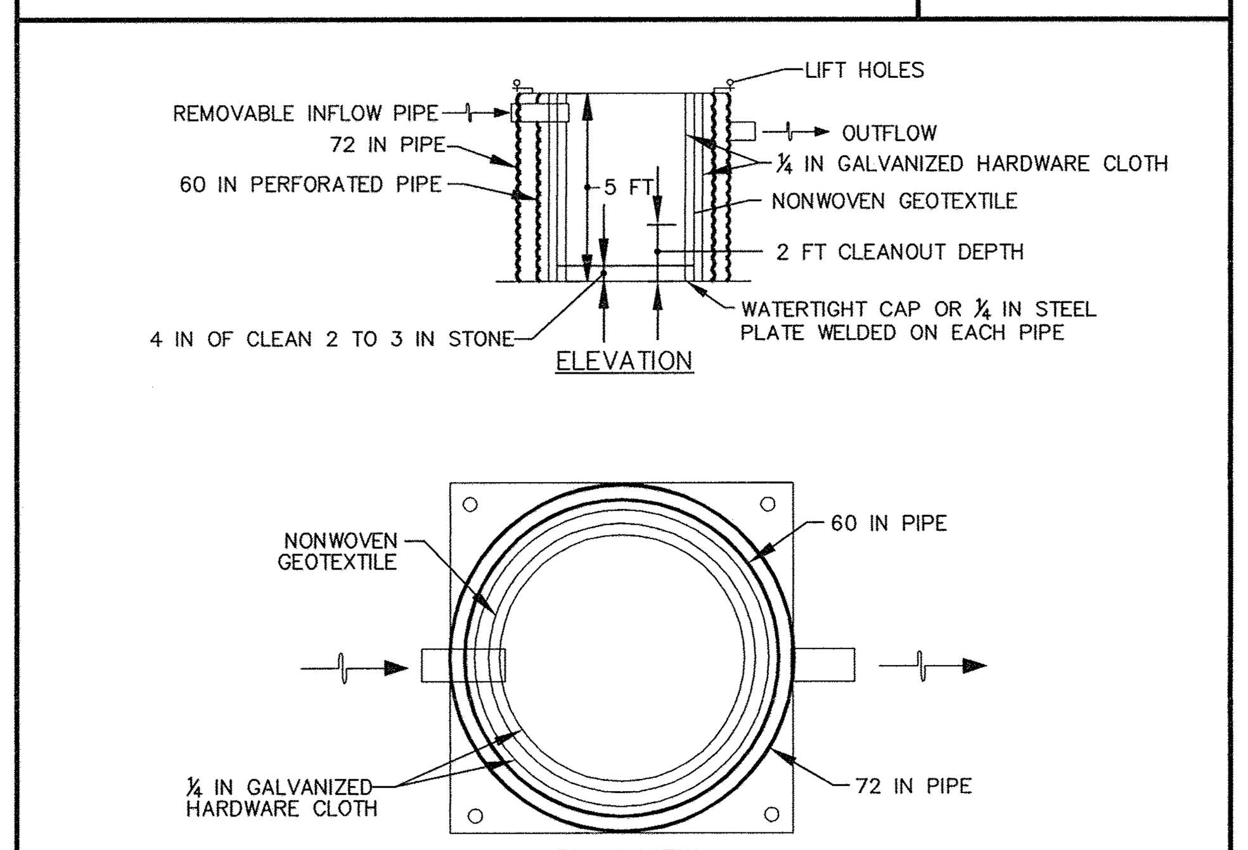
Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.5 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-3 PORTABLE SEDIMENT TANK

STANDARD SYMBOL PST



CONSTRUCTION SPECIFICATIONS

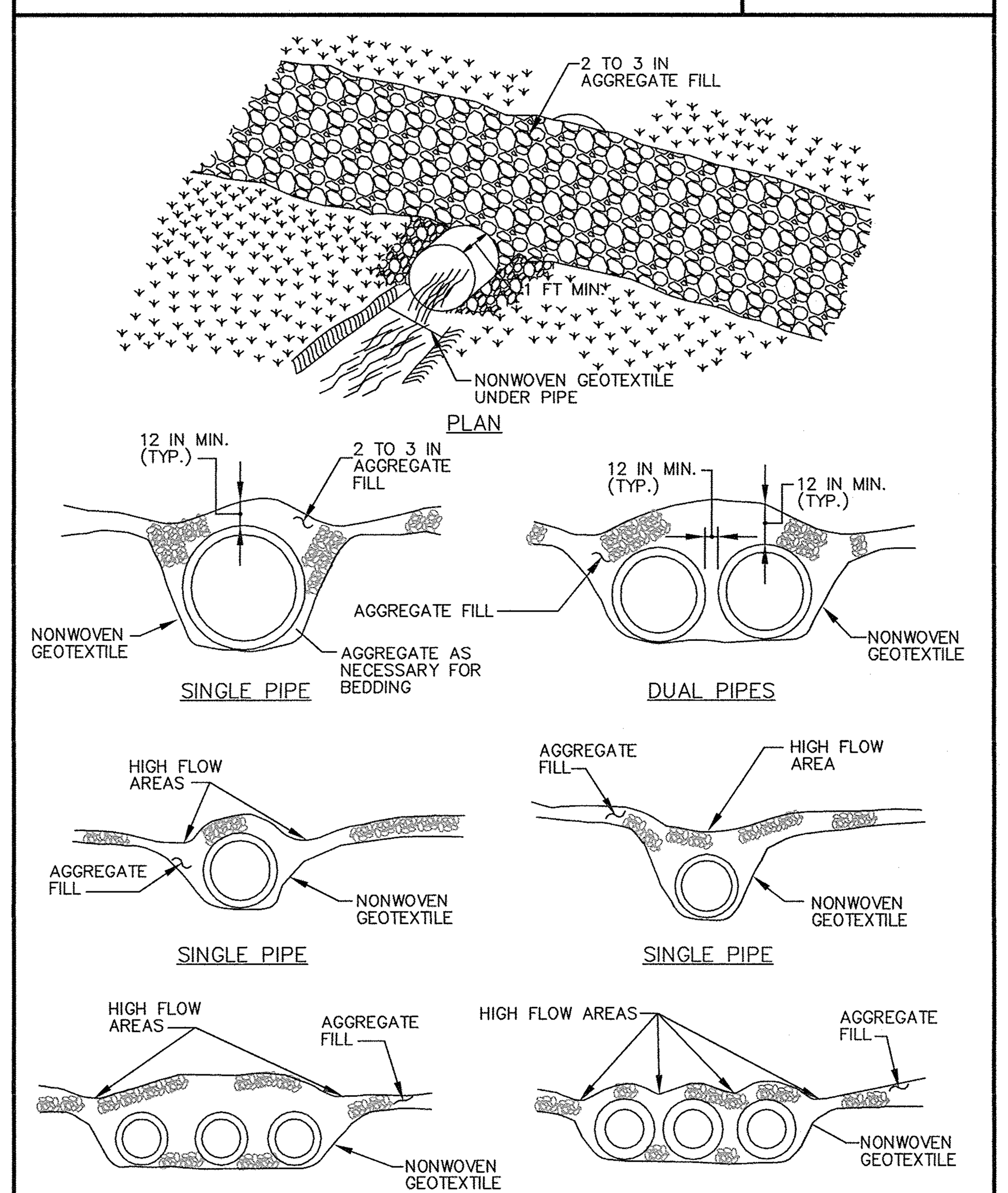
1. PROVIDE 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.
2. USE 60 INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER FOR THE INNER PIPE. LINE PIPE WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, SANDWICHED BETWEEN, AND ATTACHED TO, ¼ INCH HARDWARE CLOTH.
3. OVERLAP GEOTEXTILE 8 INCHES MINIMUM AT VERTICAL SEAM AND AT THE BOTTOM PLATE.
4. ANCHOR GEOTEXTILE AT BOTTOM OF TANK WITH 4 INCHES OF 2 TO 3 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE.
5. USE 72 INCH CORRUGATED METAL OR PLASTIC OUTER PIPE WITH PERMANENT OUTFLOW PIPE WITH INVERT LOWER THAN INFLOW PIPE
6. INFLOW PIPE MUST DISCHARGE INTO INNER PIPE AND BE REMOVABLE.
7. PLACE TANK ON LEVEL SURFACE AND DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A PORTABLE SEDIMENT TANK REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT FROM INNER PIPE WHEN IT REACHES TWO FEET IN DEPTH. IF SYSTEM CLOGS, PULL OUT INNER PIPE, REMOVE ACCUMULATED SEDIMENT, AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE 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

DETAIL H-4-2 TEMPORARY ACCESS CULVERT

STANDARD SYMBOL TAC



1 OF 2

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 H-4-2 TEMPORARY ACCESS CULVERT

STANDARD SYMBOL TAC

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCTION OR REMOVAL OF A TEMPORARY ACCESS CULVERT WILL NOT BE PERMITTED DURING THE FOLLOWING PERIODS:

USE I AND IP	MARCH 1 – JUNE 15
USE II	JUNE 1 – SEPTEMBER 30 AND DECEMBER 16 – MARCH 14
USE III AND IIIP	OCTOBER 1 – APRIL 30
USE IV	MARCH 1 – MAY 31
SAV* (ALL FLOWING STREAMS)	APRIL 15 – OCTOBER 15

*SUBMERGED AQUATIC VEGETATION

2. EXTEND THE CULVERT(S) A MINIMUM OF ONE FOOT BEYOND THE UPSTREAM AND DOWNSTREAM TOE OF THE AGGREGATE PLACED AROUND THE CULVERT.
3. PLACE NONWOVEN GEOTEXTILE ON THE STREAM BED AND STREAM BANKS PRIOR TO PLACEMENT OF THE PIPE CULVERT(S) AND AGGREGATE. COVER THE STREAM BED WITH THE GEOTEXTILE AND EXTEND IT A MINIMUM SIX INCHES AND A MAXIMUM OF ONE FOOT BEYOND THE END OF THE CULVERT AND BEDDING MATERIAL. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS. GEOTEXTILE REDUCES SETTLEMENT AND IMPROVES CROSSING STABILITY.
4. PLACE CULVERT(S) ON THE NATURAL STREAM BED GRADE TO MINIMIZE INTERFERENCE WITH FISH PASSAGE.
5. COVER THE CULVERT WITH A MINIMUM OF ONE FOOT OF WASHED AGGREGATE. FOR MULTIPLE CULVERTS PROVIDE AT LEAST 12 INCHES OF COMPACTED AGGREGATE FILL BETWEEN CULVERTS.
6. STABILIZE ALL AREAS DISTURBED DURING CULVERT INSTALLATION WITHIN 24 HOURS OF THE DISTURBANCE IN ACCORDANCE WITH STANDARDS FOR PERMANENT STABILIZATION, SECTION B–4–5, OR TEMPORARY STABILIZATION, SECTION B–4–4, AS APPLICABLE.
7. STABILIZE APPROACH TO CROSSING AND KEEP FREE OF EROSION. REPLACE DISPLACED STONE, AND MAINTAIN HIGH FLOW AREAS. REMOVE DEBRIS TRAPPED BY CULVERT. REPLACE DAMAGED PIPE(S). MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION.
8. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING CULVERT REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE CULVERT AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

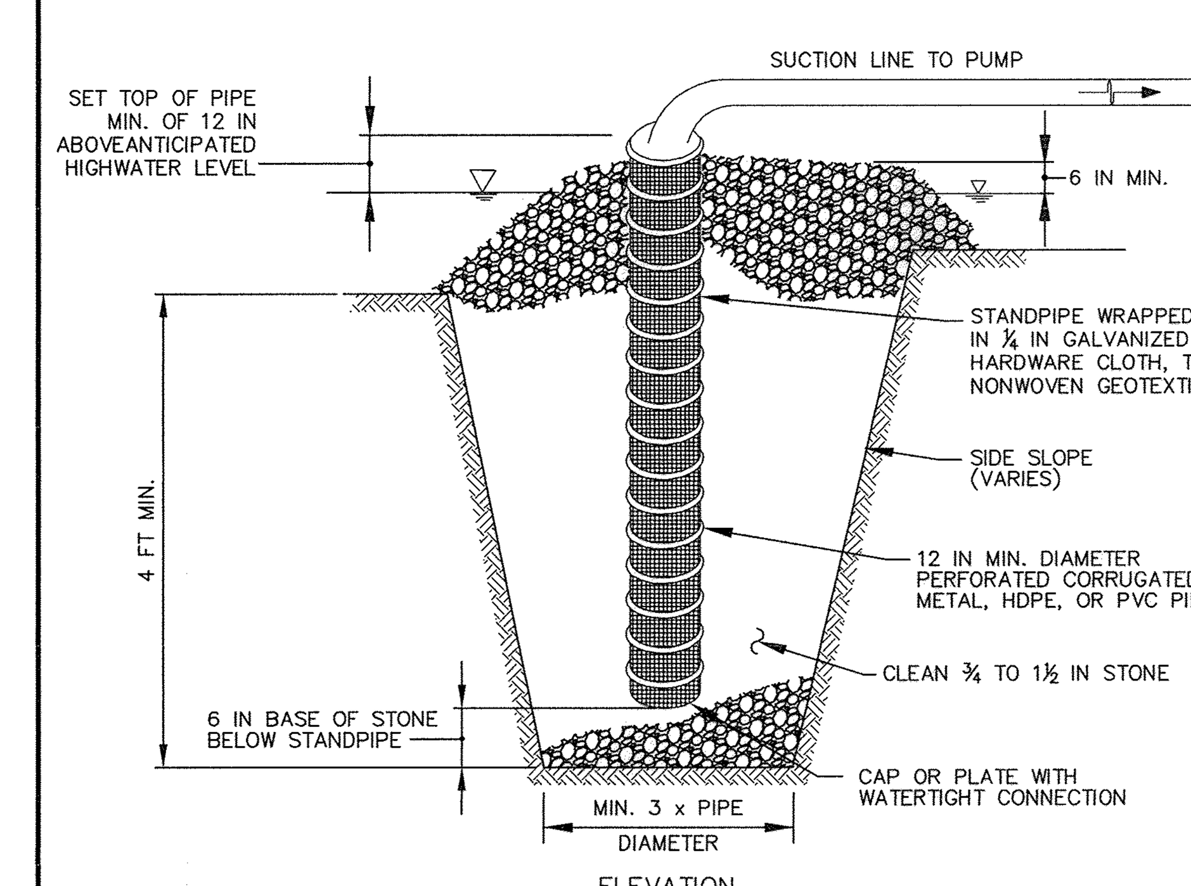
2 OF 2

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 F-2 SUMP PIT

STANDARD SYMBOL SP

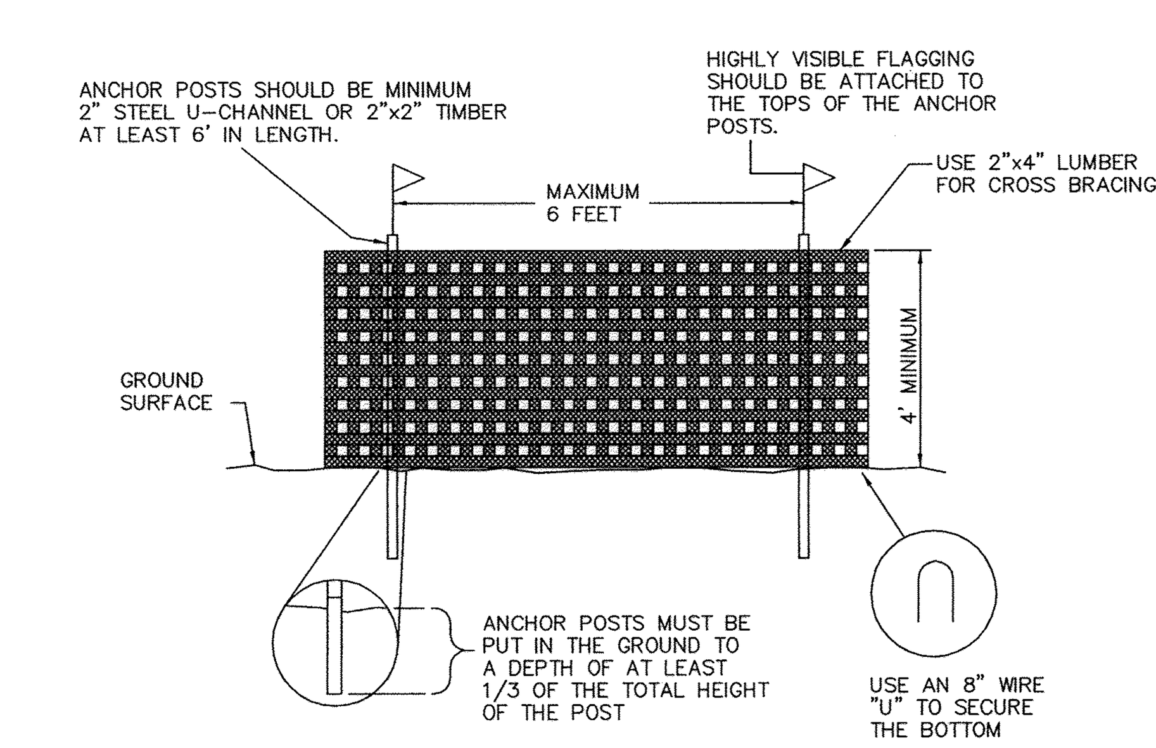


CONSTRUCTION SPECIFICATIONS

1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE 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



BLAZE ORANGE PLASTIC MESH FENCE

NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND			
DIRECTOR OF PUBLIC WORKS	DATE 6/6/17	CHIEF, BUREAU OF ENGINEERING	DATE 6/5/17
CHIEF, BUREAU OF UTILITIES	DATE 6/5/17	CHIEF, UTILITY DESIGN DIVISION	DATE 6-3-17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 27909

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL DETAILS

600 SCALE MAP NO. 25 BLOCK NO. 8

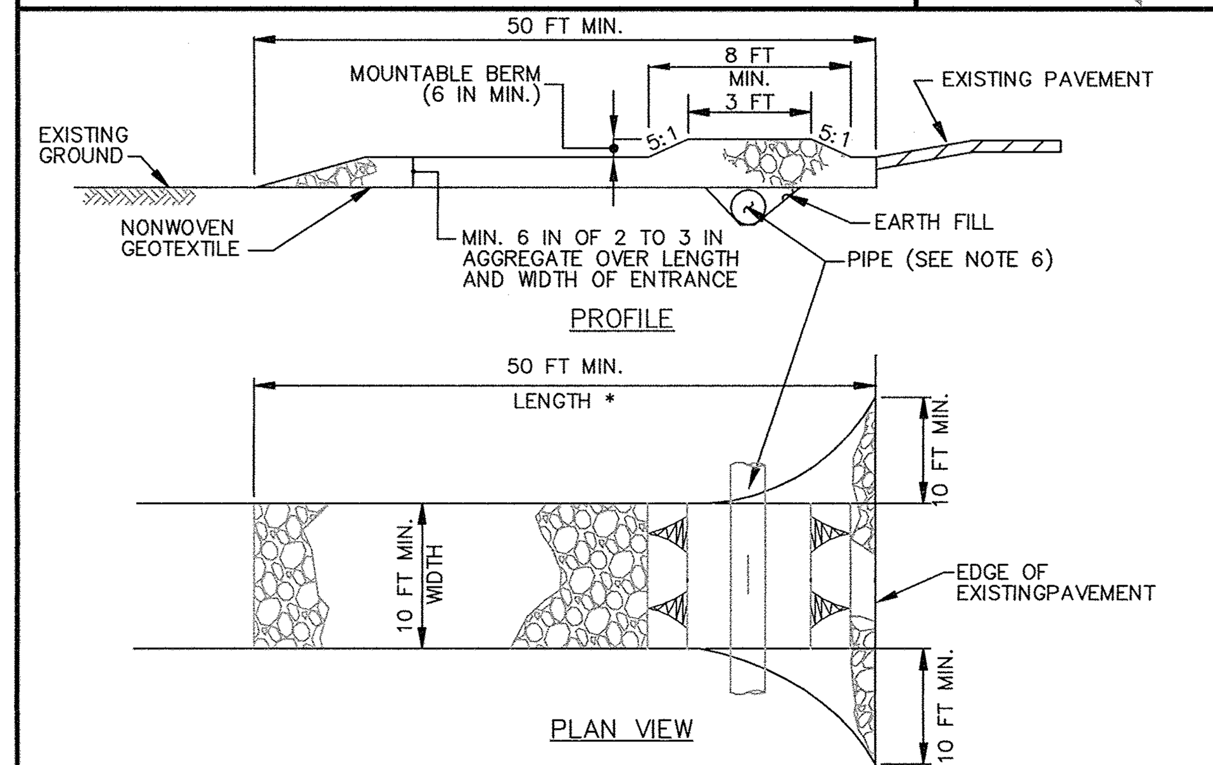
SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10–4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 7 OF 12

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

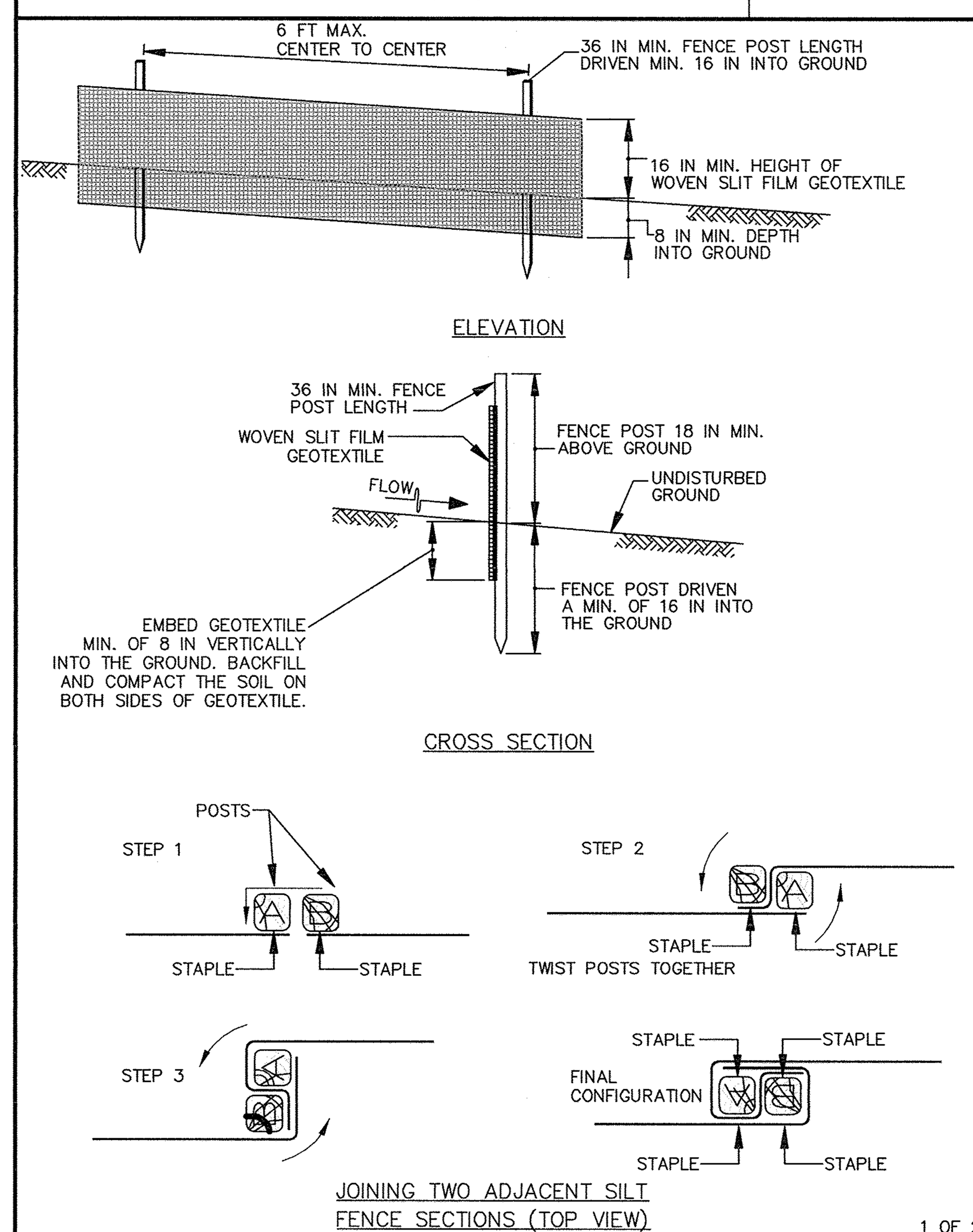
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. 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.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. 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.
5. 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: ⊢——SF——⊣



1 OF 2

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: ⊢——SF——⊣

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 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.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. 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.
4. 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.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. 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.
8. 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.

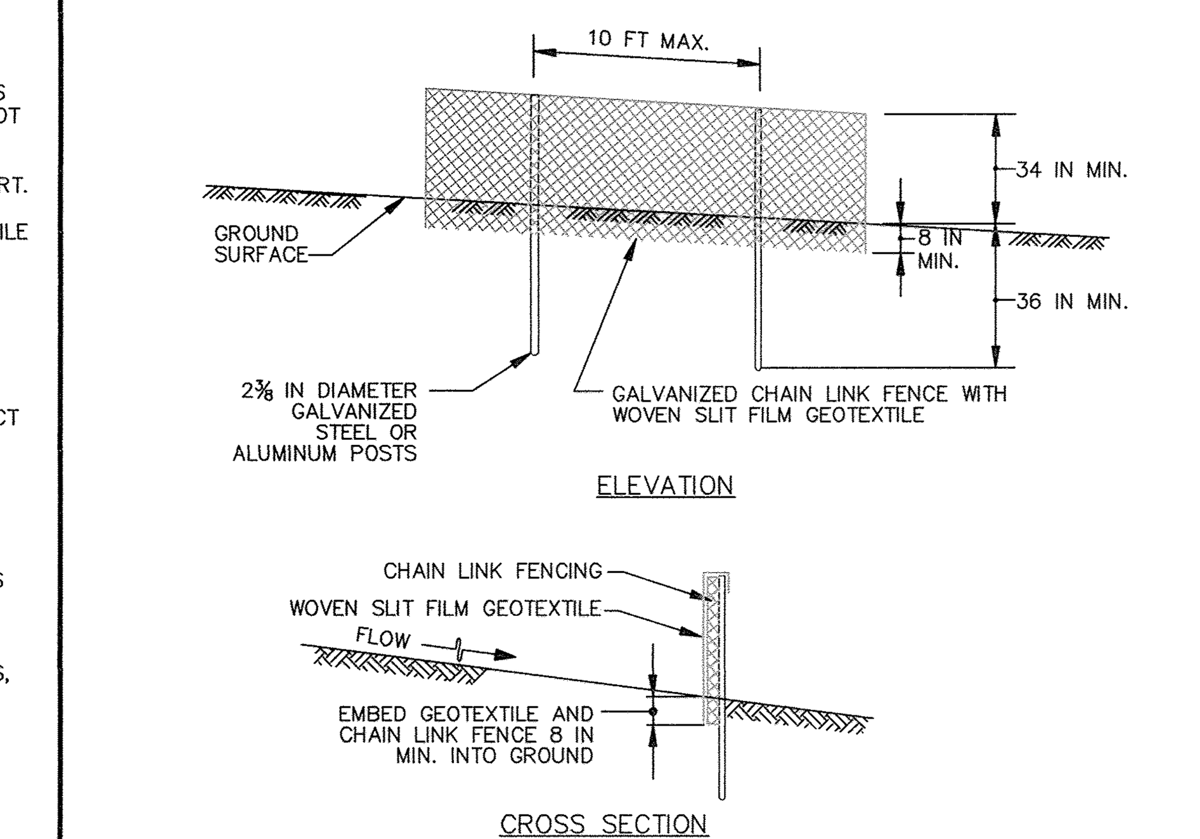
2 OF 2

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: ⊢——SSF——⊣



CONSTRUCTION SPECIFICATIONS

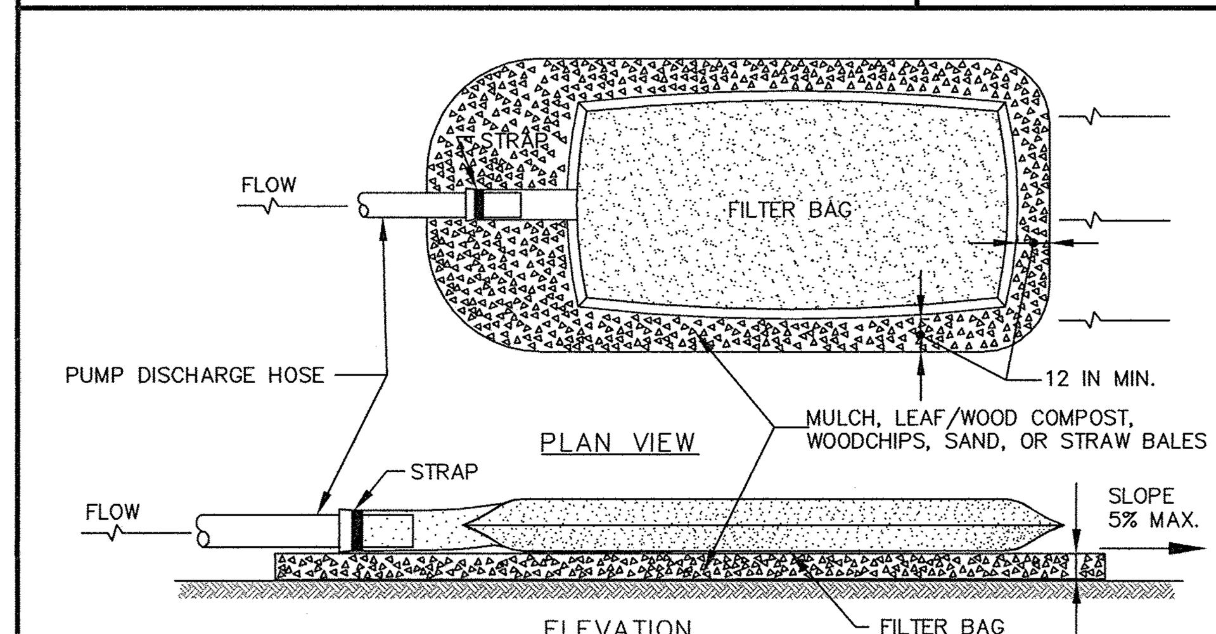
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF 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.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER 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 SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF 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	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ⊠FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT^2	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

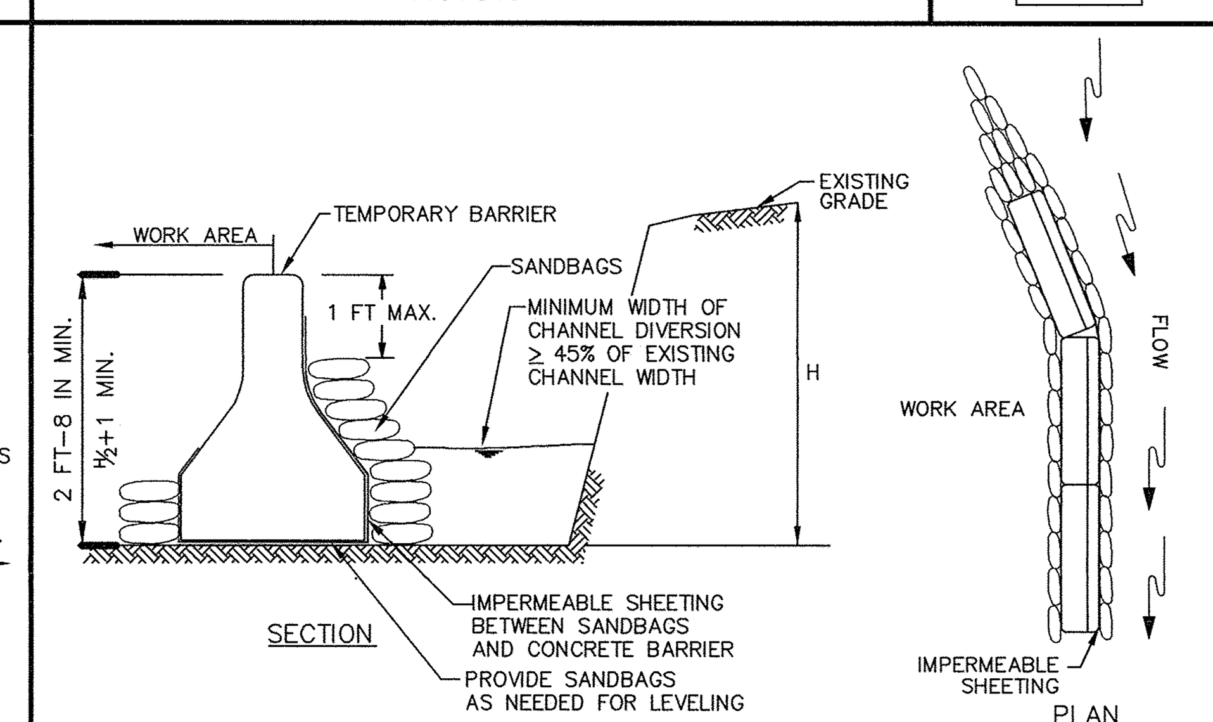
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

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-7 TEMPORARY BARRIER DIVERSION

STANDARD SYMBOL: TBD



CONSTRUCTION SPECIFICATIONS

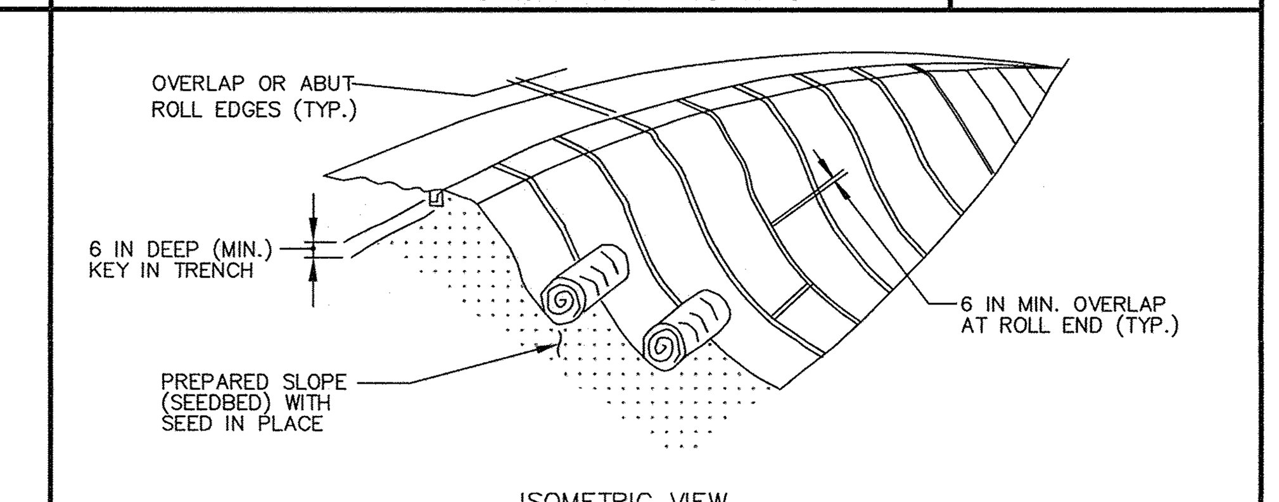
1. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
2. USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.
4. ESTABLISH TOP ELEVATION AT H/2 + 1 FOOT FOR PROJECTS OF DURATION LESS THAN 2 WEEKS OR AS SPECIFIED ON APPROVED PLAN.
5. INSTALL DIVERSION STRUCTURE FROM UPGRADE TO DOWNGRADE.
6. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
7. USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER AS REQUIRED.
8. DISPOSE OF ALL EXCAVATED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

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 – * lb/ft² (* INCLUDE SHEAR STRESS)

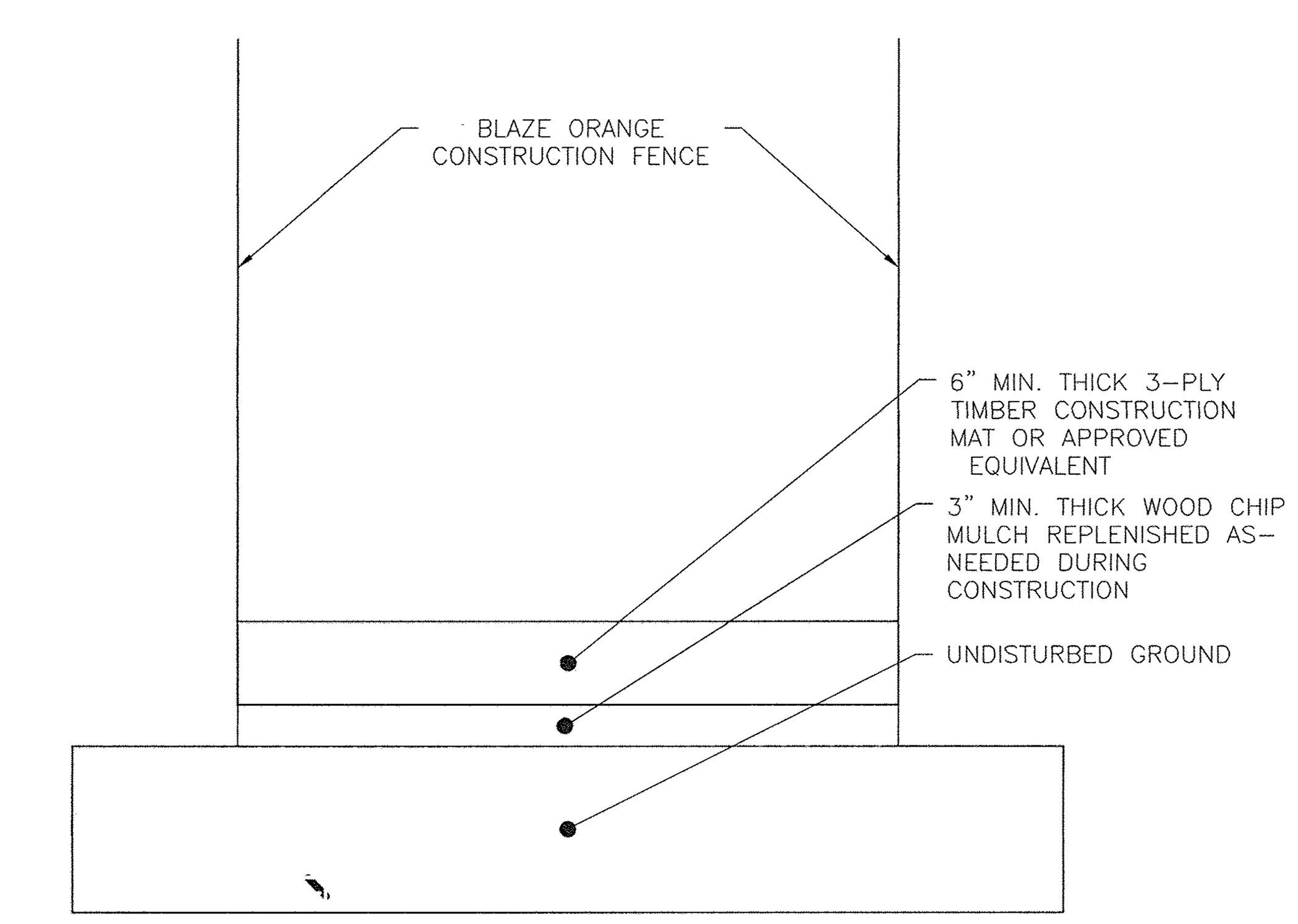


CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. 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 SMOLDER 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.
3. 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 1½ 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 STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED 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 & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. 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.
7. 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.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. 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



NOTES:
1. TIMBER MATS TO BE INSTALLED AS NEEDED AS SHOWN ON THE APPROVED PLAN AND OVER CRITICAL ROOT ZONES OF TREES, IN WETLANDS, AND OVER SANITARY PIPES AT THE DIRECTION OF THE ENGINEER.
2. MULCH AND TIMBER MATS SHALL BE PLACED PRIOR TO HEAVY EQUIPMENT TRAVERSING THE ACCESS ROUTE.
3. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER AND INSPECTORS.
5. THE CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION. UPON COMPLETION OF THE PROJECT, THE MULCH AND TIMBER MATTING SHALL BE REMOVED IN THEIR ENTIRETY AND THE ACCESS ROUTE RESTORED TO PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.

TEMPORARY TIMBER MATTING AND MULCH ACCESS ROUTE DETAIL
SCALE: N.T.S.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 6/6/17	CHIEF, BUREAU OF ENGINEERING	DATE 6/5/17
CHIEF, BUREAU OF UTILITIES	DATE 6/5/17	CHIEF, UTILITY DESIGN DIVISION	DATE 6.3.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — DAVID ANDREW VANDERBEEK — No. 27909 — REGISTERED PROFESSIONAL ENGINEER

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL DETAILS

600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 12

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.

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

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

1. 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.
2. Construction sequence example (Refer to Figure B.1):
   a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
   b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
   c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
   d. 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.

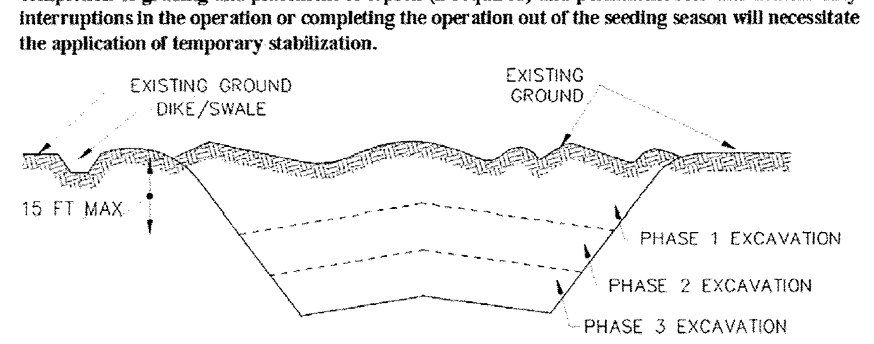


Figure B.1: Incremental Stabilization – Cut

B. Incremental Stabilization - Fill Slopes

1. 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.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. 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.
4. Construction sequence example (Refer to Figure B.2):
   a. 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.
   b. 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.
   c. Place Phase 1 fill, prepare seedbed, and stabilize.
   d. Place Phase 2 fill, prepare seedbed, and stabilize.
   e. 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.

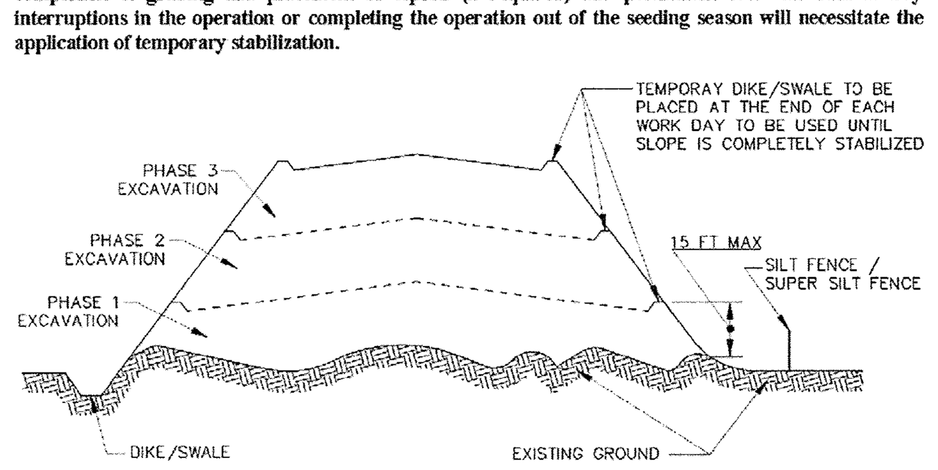


Figure B.2: Incremental Stabilization – Fill

B-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

1. Temporary Stabilization
   a. 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.
   b. Apply fertilizer and lime as prescribed on the plans.
   c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
   a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      i. Soil pH between 6.0 and 7.0.
      ii. Soluble salts less than 500 parts per million (ppm).
      iii. 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.
      iv. Soil contains 1.5 percent minimum organic matter by weight.
      v. Soil contains sufficient pore space to permit adequate root penetration.
   b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
   c. 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.
   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
   c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsoil Application
   a. Erosion and sediment control practices must be maintained when applying topsoil.
   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
   c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

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

1. Specifications
   a. 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.
   b. 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.
   c. 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.
   d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. 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.
      ii. 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. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking 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.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. 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_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
      ii. 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.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
   a. 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.**
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. 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.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. 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.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. 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.
2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. 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.
   c. 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
   a. 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:
      i. 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.
      ii. 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.
      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, 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.**
      iv. 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-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

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

Purpose

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

Conditions Where Practice Applies

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

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant 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.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): ________ Seed Mixture (from Table B.1): ________					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
	ANNUAL RYE	40	3/1–5/31; 8/1–10/15	1"	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	BARLEY	96	3/1–5/31; 8/1–10/15	1/2"		
	FOXTAIL MILLET	30	5/16–7/31	1/2"		

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant 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.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 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 .
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 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)
   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings 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 seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25					FERTILIZER RATE (10–20–20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	SWITCH GRASS CREEPING RED FESCUE PARTRIDGE PEA	10 15 4	3/1–5/15 AND 8/15–10/15	1/12" TO 1/4"	45 lb/ac (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)
2	BIG BLUESTEM INDIAN GRASS LITTLE BLUESTEM CREEPING RED FESTCUE PARTRIDGE PEA	6 6 4 15 4	3/1–5/15 AND 8/15–10/15	1/12" TO 1/4"				
4	DEER TOUNGE CREEPING RED FESTCUE VIRGINIA WILD RYE	15 20 5	3/1–5/15 AND 8/15–10/15	1/12" TO 1/4"				

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

1. General Specifications
   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. 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.
   c. 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.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. 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
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. 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.
   c. 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.
   d. 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
   a. 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.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than ⅓ 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.

HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
   a. Prior to the start of earth disturbance,
   b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
   c. Prior to the start of another phase of construction or opening of another grading unit,
   d. Prior to the removal or modification of sediment control practices.

   Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.
6. Site Analysis:

Total Area of Site:	1.436	Acres
Area Disturbed:	1.436	Acres
Area to be roofed or paved:	0.10	Acres
Area to be vegetatively stabilized:	1.17	Acres
Total Cut:	810	Cu. Yds.
Total Fill:	974	Cu. Yds.
Offsite waste/borrow area location:	N/A	

7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
   - Inspection date
   - Inspection type (routine, pre-storm event, during rain event)
   - Name and title of inspector
   - Weather information (current conditions as well as time and amount of last recorded precipitation)
   - Brief description of project's status (e.g., percent complete) and/or current activities
   - Evidence of sediment discharges
   - Identification of plan deficiencies
   - Identification of sediment controls that require maintenance
   - Identification of missing or improperly installed sediment controls
   - Compliance status regarding the sequence of construction and stabilization requirements
   - Photographs
   - Monitoring/sampling
   - Maintenance and/or corrective action performed
   - Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.
10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of HSCD-approved field changes.
11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time.
12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.
15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
    - Use I and IP March 1 - June 15
    - Use III and IIIP October 1 - April 30
    - Use IV March 1 - May 31
16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

TABLE B.7: SOIL STABILIZATION ON SLOPES

SLOPE	20:1 OR FLATTER (<=5%)			<20:1 TO 4:1 (>5-25%)			<4:1 TO 3:1 (>25-33%)			<3:1 TO 2.5:1 (>33 - 40%)			<2.5:1 TO 2:1** (>40-50%)		
SLOPE LENGTH (FEET)*	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120
STRAW MULCH/WOOD CELLULOSE FIBER						FOR K<= 0.35***									
TEMPORARY MATTING WITH DESIGN STRESS >= 1.5 PSF															
TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 1.75 PSF															
TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 2.0 PSF															
TEMPORARY MATTING WITH DESIGN SHEAR STRESS >= 2.25 PSF													X		

** SLOPE LENGTH INCLUDES CONTRIBUTING FLOW LENGTH*

*** SLOPES STEEPER THAN 2:1 MUST BE ENGINEERED.*

**** SOIL HAVING A K FACTOR LESS THAN OR EQUAL TO 0.35 CAN BE STABILIZED EFFECTIVELY WITH STRAW MULCH OR WOOD CELLULOSE FIBER WHEN LOCATED ON SLOPES STEEPER THAN 5%. SOIL STBAILIZATION MATTING IS REQUIRED ON ALL SLOPES STEEPER THAN 5% THAT HAVE SOIL WITH A K FACTOR GREATER THAN 0.35.*

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 5/3/17
CHIEF, UTILITY DESIGN DIVISION — DATE 6.3.17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES:	D.A.V.
DRN:	M.A.D.
CHK:	W.B.F.
DATE:	05/17

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL NOTES

600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10–4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

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

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. 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.
3. 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.
4. 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.
5. 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 FLOOD PLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOOD PLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. 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 (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. **KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS.** THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY 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.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF THE AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

SEQUENCE OF CONSTRUCTION

NOTE: A MDE NONTIDAL WATERWAYS CONSTRUCTION AUTHORIZATION (201560104/15-NT-3019) HAS BEEN ISSUED FOR THIS PROJECT. NO WORK MAY BE PERFORMED IN STREAM BETWEEN MARCH 1 AND JUNE 15 INCLUSIVE OF ANY YEAR.

EROSION AND SEDIMENT CONTROL SETUP - 5 DAYS

1. (DAY 1) THE CONTRACTOR SHALL STAKE OUT THE LIMITS OF DISTURBANCE AS SHOWN ON THE GRADING PLAN.
2. (DAY 1) NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
3. (DAY 2) THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH THE SEDIMENT CONTROL INSPECTOR AND ENGINEER TO REVIEW THE LIMITS OF DISTURBANCE, STRUCTURE STAKEOUT, EROSION AND SEDIMENT CONTROL REQUIREMENTS, AND THE SEQUENCE OF CONSTRUCTION. THE PARTICIPANTS WILL ALSO VERIFY THE LOCATION OF THE TEMPORARY STOCKPILE AREA AND ANY NECESSARY STAGING AREA, AND FLAG ANY TREES WITHIN THE LIMITS OF DISTURBANCE WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS AND GRADING.
4. (DAY 3) THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND BLAZE ORANGE CONSTRUCTION FENCE AND TREE PROTECTION AREAS AS SHOWN ON THE GRADING PLANS.
5. (DAY 3) THE CONTRACTOR SHALL ESTABLISH THE TEMPORARY STOCKPILE AREA IN THE LOCATION INDICATED ON THE GRADING PLAN.
6. (DAY 4) INSTALL REMAINING PERIMETER EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLAN INCLUDING THE SUPER SILT FENCE .
7. (DAY 5) THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION SHALL BE NOTIFIED UPON COMPLETION OF CONTROLS. UPON COMPLETION OF CONTROL INSTALLATION, AND WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, THE CONTRACTOR MAY BEGIN OPERATIONS. CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND GRADING PLANS, AND EROSION AND SEDIMENT CONTROL STANDARD DETAILS AND NOTES.

CONSTRUCTION - 60 DAYS

PHASE 1

8. (DAY 6-12) INSTALL TEMPORARY ACCESS CULVERT, TEMPORARY STREAM CROSSING, AND STREAM DIVERSION ACCORDING TO THE PHASE 1 PLANS. THE STREAM DIVERSION MUST BE INSPECTED EVERY DAY AND BE MAINTAINED IN EFFECTIVE OPERATING CONDITION.
9. (DAY13-14) CLEAR AND GRUB AREA WITHIN THE LIMIT OF DISTURBANCE. ANY WATER PONDED WITHIN THE WORK ZONE MUST BE PUMPED THROUGH A FILTER BAG OR PORTABLE SEDIMENT TANK BEFORE BEING DISCHARGED TO A STABLE OUTFALL.
10. (DAY 15-30) CONSTRUCT PROPOSED BOULDER TOE, BOULDER SLOPE STABILIZATION, AND DEFLECTOR ACCORDING TO PHASE 1 PLANS. BEGIN EXCAVATING AND INSTALLATION OF UTILITIES. CONNECT TO EXISTING UTILITIES WHERE APPLICABLE. WORK SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED IN ONE DAY. ALL AREAS NOT DRAINING TO AN EROSION AND SEDIMENT CONTROL DEVICE MUST BE STABILIZED AT THE END OF THE WORK DAY.
11. (DAY 31-32) REMOVE STREAM DIVERSION AND TEMPORARY ACCESS CULVERT, AND RETURN THE STREAM TO ITS ORIGINAL CONDITIONS.

LEGEND

- EX. BUILDING
- EX. UNDERGROUND CABLE
- EX. UNDERGROUND ELECTRIC
- EX. OVERHEAD ELECTRIC LINES
- EX. 100 YR. FLOODPLAIN EASEMENT
- EX. UTILITY EASEMENT
- EX. CHAIN LINK FENCE
- EX. WOOD FENCE
- EX. 100 YR. FLOODPLAIN
- EX. UNDERGROUND GAS MAIN
- EX. 10 FOOT CONTOURS
- EX. 2 FOOT CONTOURS
- EX. FOOT PATH
- EX. PROPERTY BOUNDARY
- EX. ADJACENT PROPERTY BOUNDARY
- EX. BRIDGE
- EX. CENTERLINE ROAD
- EX. CURB & GUTTER
- EX. EDGE OF PAVEMENT
- EX. GUARDRAIL
- EX. PAVEMENT MARKINGS
- EX. ROAD RIGHT-OF-WAY
- EX. RAILROAD TRACKS
- EX. WATERS OF THE U.S.
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. VEGETATION BUFFER
- EX. UNDERGROUND TELEPHONE LINE
- EX. SIDEWALK
- EX. WALLS
- EX. WETLANDS
- EX. WETLAND BUFFER
- STEEP SLOPES (25% +)
- MgD / Co — SSURGO SOIL BOUNDARY
- 100-YEAR FLOODPLAIN
- EX. TREELINE
- EX. SPECIMEN TREE

- PROPOSED UTILITY EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- TEMPORARY CONSTRUCTION STRIP
- PROPOSED SANITARY SEWER MAIN
- PROPOSED CLAY DAM
- PROPOSED WATER MAIN, FIRE HYDRANT, VALVE & REDUCER
- 180 — PROPOSED 10 FOOT CONTOUR
- 182 — PROPOSED 2 FOOT CONTOUR
- EARTH DIKE
- LOD — LIMIT OF DISTURBANCE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- TP — TREE PROTECTION FENCE
- PROPOSED SANDBAG DIVERSION
- TAC — PROPOSED TEMPORARY ACCESS CULVERTS
- SP — PROPOSED SUMP PIT
- PST — PROPOSED PORTABLE SEDIMENT TANK
- FB — PROPOSED FILTER BAG
- PROPOSED BOLDER SLOPE PROTECTION
- STAGING/STOCKPILE — PROPOSED TEMPORARY STOCKPILE AREA
- EX. WATER MAIN, FIRE HYDRANT, VALVE & REDUCER
- EX. ELECTRICAL MANHOLE
- EX. SEWER MANHOLE
- EX. WATER METER
- EX. AIR RELEASE MANHOLE
- EX. STORM DRAIN MANHOLE
- EX. TELEPHONE MANHOLE
- EX. LIGHT POLE
- EX. GAS MANHOLE
- EX. UTILITY PEDESTAL
- EX. UTILITY POLE
- EX. SIGN
- BENCHMARK
- SOIL BORING
- TRAVERSE
- TEST PIT

Soil Name	Symbol	% Slopes	Hydric	Landform	Hydric Component	Kf
Glenville-Codorus silt loams	GoB	0-8%	N	~	~	0.43
Manor-Bannertown sandy loams, rocky	MgF	25-65%	N	~	~	0.20
Manor-Brinklow complex, rocky	MkF	25-65%	N	~	~	0.32

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/6/17
CHIEF, BUREAU OF ENGINEERING — DATE 6/5/17
CHIEF, BUREAU OF UTILITIES — DATE 6/5/17
CHIEF, UTILITY DESIGN DIVISION WD — DATE 6-8-17

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

STATE OF MARYLAND — PROFESSIONAL ENGINEER — NO. 27900

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

NOTES AND LEGEND

600 SCALE MAP NO. 25 BLOCK NO. 8

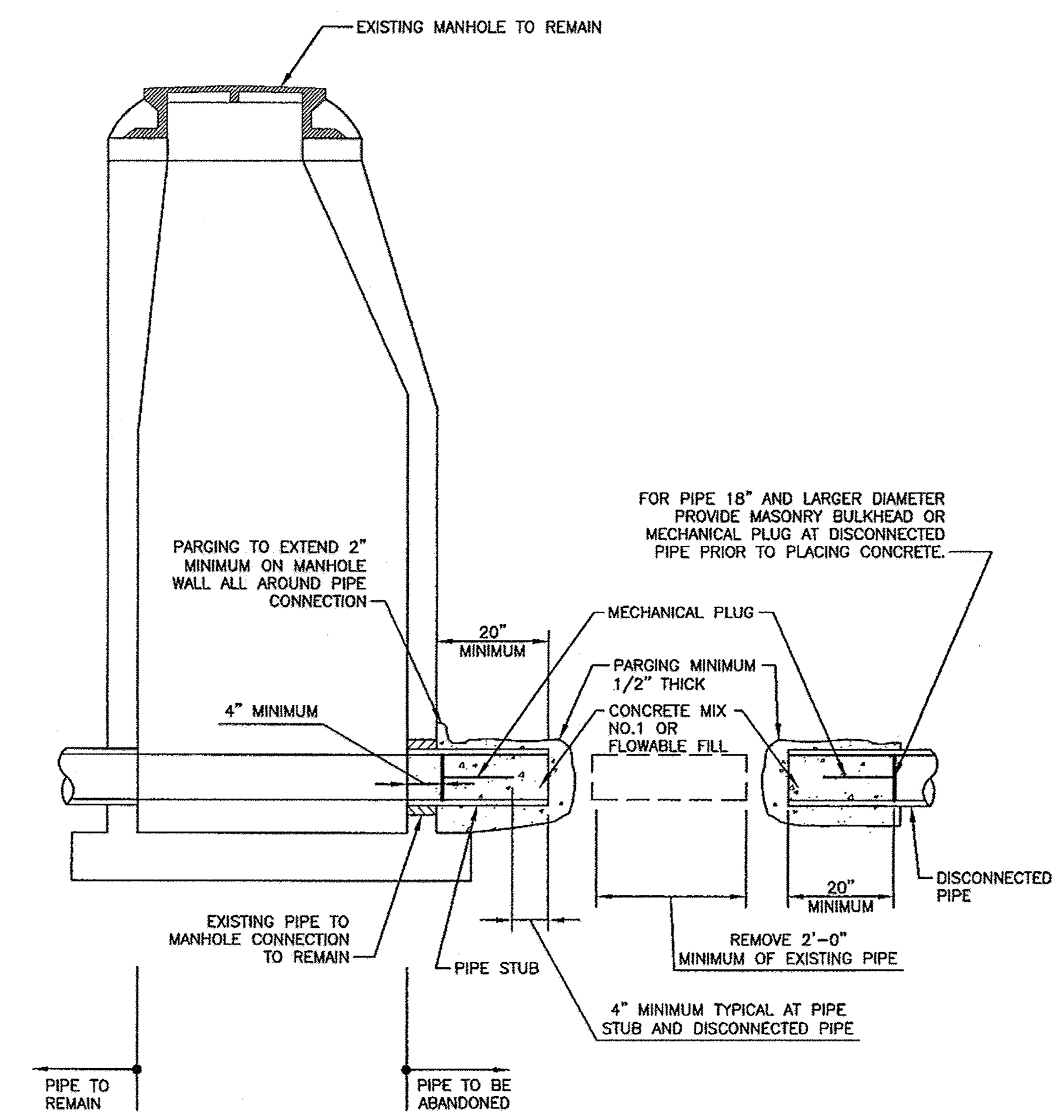
SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 10 OF 12

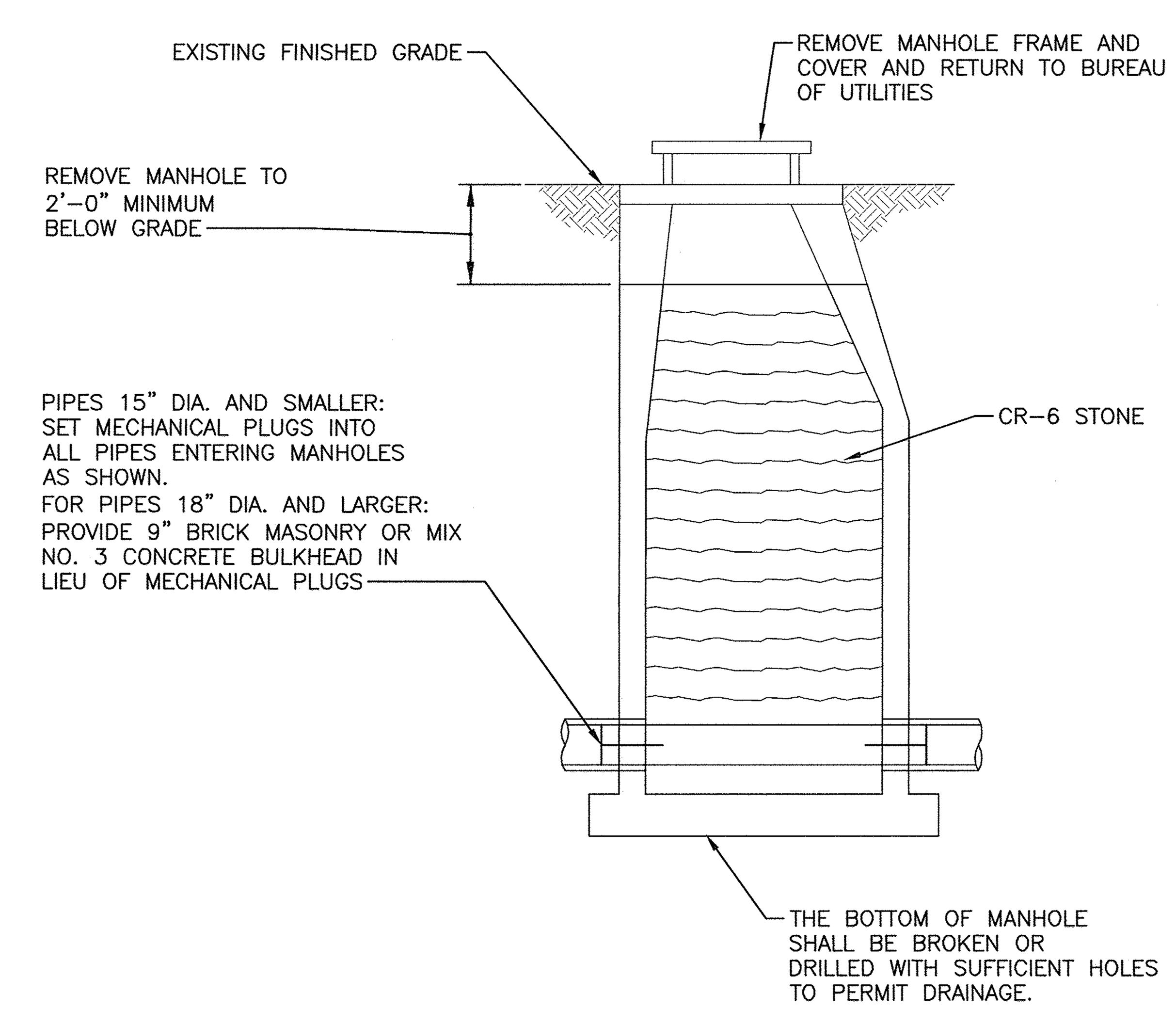
NOTES:

1. FOR SEWERS 15" AND SMALLER DIAMETER, DISCONNECT SEWER AS SHOWN, INSERT MECHANICAL PLUGS, PLACE CONCRETE, PARGING AND COAT WITH TWO COATS OF ASPHALT-BASED COATING.
2. FOR SEWER 18" AND LARGER DIAMETER SAME AS 15" AND SMALLER EXCEPT MASONRY BULKHEAD MAY BE SUBSTITUTED FOR MACHANICAL PLUG.
3. RESHAPE AND FILL EXISTING CHANNEL AS NECESSARY TO PROVIDE SMOOTH CONTOUR BETWEEN INCOMING AND OUTGOING PIPES.



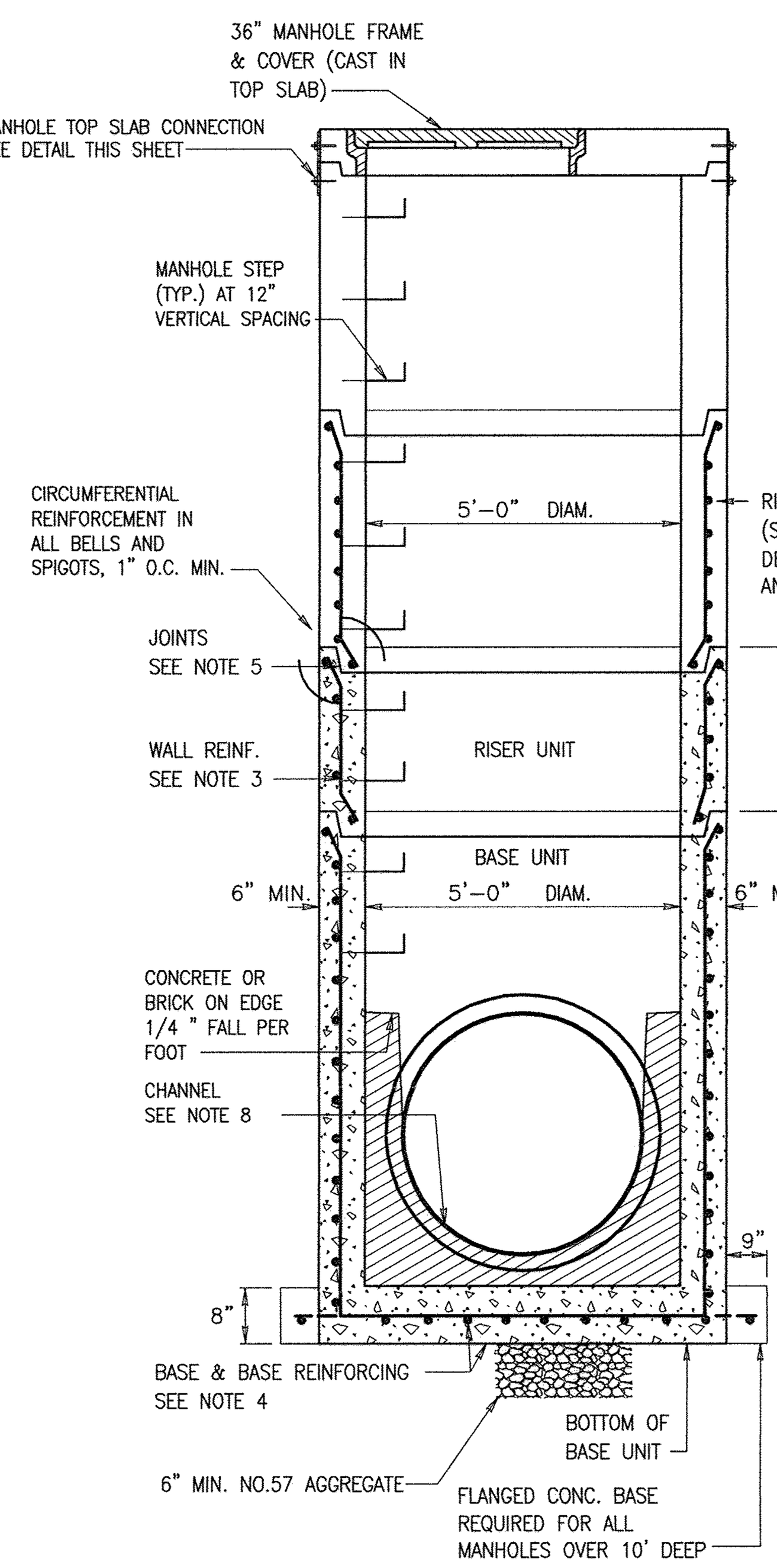
ABANDONMENT OF PIPE AT MANHOLE

NO SCALE

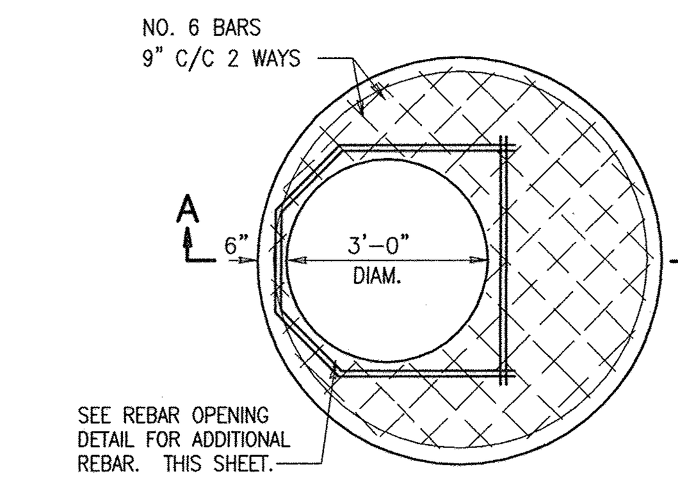


COMPLETE MANHOLE ABANDONMENT

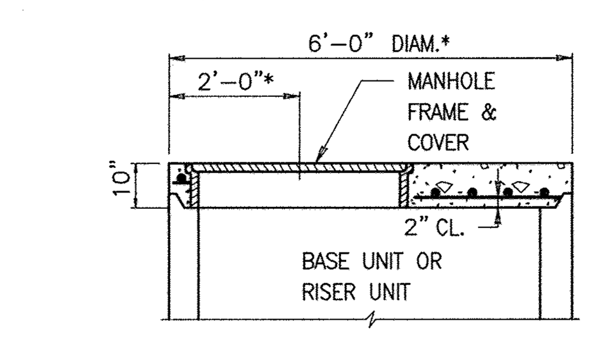
NO SCALE



SECTION VIEW



FLAT SLAB TOP
(SHOWN WITHOUT FRAME & COVER)



SECTION A-A

NOTES

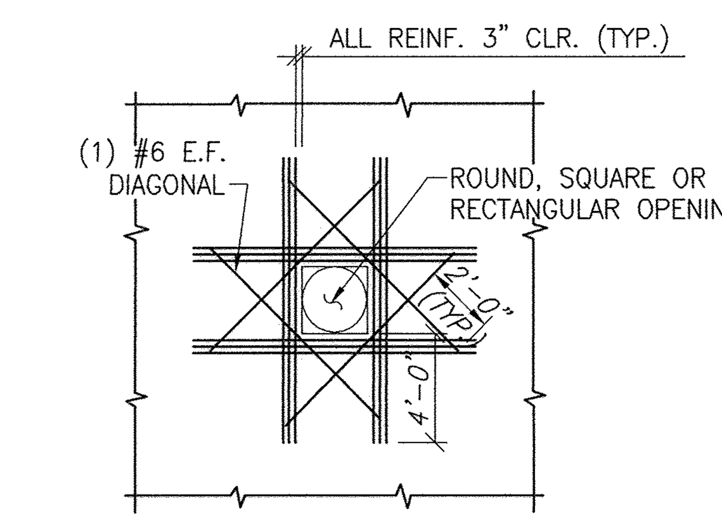
1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478 AND THE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON STANDARD DETAIL G-5.11.
2. CONCRETE SHALL BE MIX NO.6 (4500 PSI).
3. WALL REINFORCEMENT FOR BASE UNITS AND RISER UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.23 IN ^{2}/FT FOR THE 60" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND A-82. REINFORCEMENT BARS SHALL MEET ASTM A-615, GRADE 60.
4. BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.23 IN.^{2}/FT.THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINTED PER MANUFACTURER'S DESIGN.
5. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING RUBBER O-RING GASKETS METTING ASTM A-361 & C-443.
6. MINIMUM DISTANCE BETWEEN PIPE OPENINGS IN MANHOLE WALL SHALL BE 12 INCHES.
7. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
8. MIX NO. 6 PRECAST CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED AND SHALL SLOPE TOWARD OUTLET AS DIRECTED BY THE ENGINEER.
9. NO MORE THAN ONE 1' RISER SECTION MAY BE USED PER MANHOLE.
10. MANHOLE INTERIOR LINER IS REQUIRED. REFER TO "SANITARY SEWER MANHOLES" SECTION OF THE SPECIAL PROVISIONS.

* DIMENSIONS TO BE CONFIRMED BY THE MANUFACTURER

NOTE: "STANDARD DETAIL" REFERS TO DETAILS IN HOWARD COUNTY DESIGN MANUAL VOLUME IV – STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

5'-0" DIAMETER PRECAST MANHOLE

NO SCALE



NOTE:

1. PROVIDE ADDITIONAL REINFORCING, (MINIMUM OF ONE-HALF THE NUMBER OF PRINCIPLE REINFORCING, BARS BEING INTERRUPTED BY THE OPENING AT EACH FACE ON EACH SIDE.
2. FOR OPENINGS LESS THAN 12" DIA., NO ADDITIONAL REINFORCING IS REQUIRED PROVIDED, NO REINFORCING IS INTERRUPTED BY THE OPENING.

REBAR OPENING DETAIL

NO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS 6/6/17 DATE
CHIEF, BUREAU OF ENGINEERING 6/5/17 DATE
CHIEF, BUREAU OF UTILITIES 6/5/17 DATE
CHIEF, UTILITY DESIGN DIVISION 6.3.17 DATE

GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · SEAFORD
www.gmbnet.com

DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 05/17

BY	NO.	REVISION	DATE

CONSTRUCTION DETAILS

600 SCALE MAP NO. 25 BLOCK NO. 8

SYLVAN LANE
INTERCEPTOR SEWER IMPROVEMENTS
CONTRACT NO. 10-4915
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

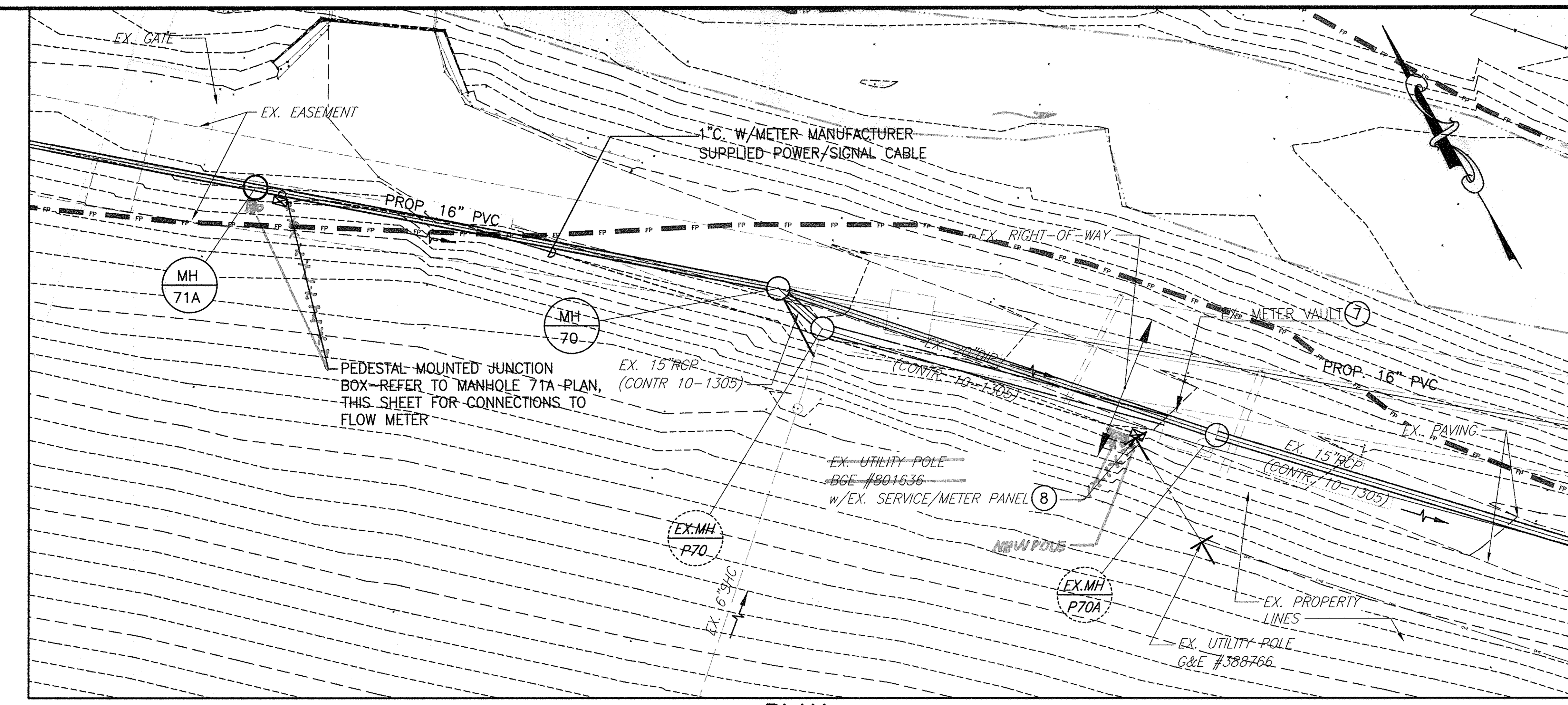
SCALE AS SHOWN

ELECTRICAL LEGEND:

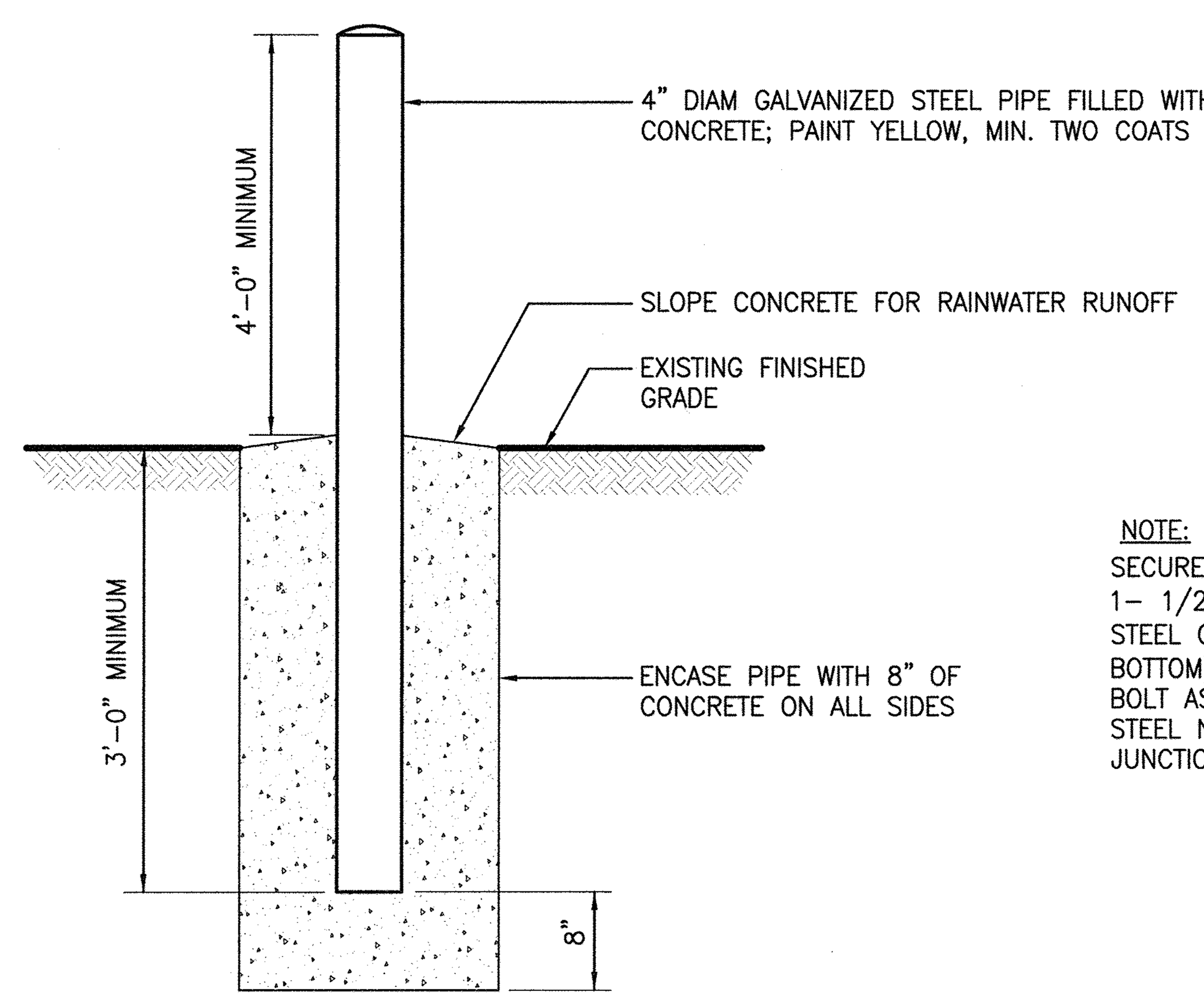
EX. EXISTING
C. CONDUIT
A. AMPERES
V. VOLTS
⊠ SPECIAL DEVICE AS NOTED.
(#) DENOTES REFERENCE TO SHEET NOTE NUMBER.
CONDUIT – UNDERGROUND IN PLAN

SHEET NOTES:

1. TERMINATE CONDUIT 3" BEYOND INTERIOR FACE OF MANHOLE. PROVIDE INSULATED BUSHING & STAINLESS STEEL CABLE STRAIN RELIEF DEVICE.
2. PROVIDE COMPOUND FILLED SEALING FITTING PRIOR TO CONDUIT ENTRY INTO JUNCTION BOX.
3. INSTALL METER MANUFACTURER SUPPLIED SIGNAL CABLE IN 1"C. FROM MANHOLE TO PIPE MOUNTED JUNCTION BOX & TIENET DEVICE.
4. INSTALL METER MANUFACTURER SUPPLIED POWER/SIGNAL CABLES IN 2"C. FROM JUNCTION BOX TO EXISTING SERVICE/METER PANEL & THE NEW FLOW METER RECEIVER.
5. MOUNT JUNCTION BOX ON BACK SIDE OF PEDESTAL AWAY FROM ROADWAY.
6. INSTALL TIENET DEVICE IN JUNCTION BOX. UTILIZE CORD-GRIP FITTINGS SUPPLIED BY METER MANUFACTURER FOR ALL CABLE CONNECTIONS TO TIENET DEVICE.
7. EXISTING METER VAULT TO BE TAKEN OUT OF SERVICE & ABANDONED IN PLACE. DISCONNECT ALL EXISTING POWER, INSTRUMENTATION & COMMUNICATION CIRCUITRY TO THE VAULT. REMOVAL ALL EXISTING WIRING COMING FROM THE EXISTING SERVICE/METER PANEL TO THE VAULT. ABANDON EXISTING CONDUITS IN PLACE.
8. NEW ~~EXISTING~~ SERVICE/METER PANEL ~~TO BE RE-USED TO~~ SERVE TO THE NEW FLOW SENSOR AT PROPOSED MANHOLE 71A. REMOVE EX. FLOW METER RECORDER & INSTALL THE NEW FLOW METER RECEIVER UNIT IN IT'S PLACE. UTILIZE EX. 120V. CIRCUIT FROM EX. PANEL "P" PRESENTLY SERVING THE EX. FLOW RECORDER TO SERVE THE NEW FLOW RECEIVER. EXTEND & CONNECT THE NEW FLOW METER POWER/SIGNAL CABLE TO THE NEW FLOW METER RECEIVER UNIT AS DIRECTED BY THE METER MANUFACTURER.



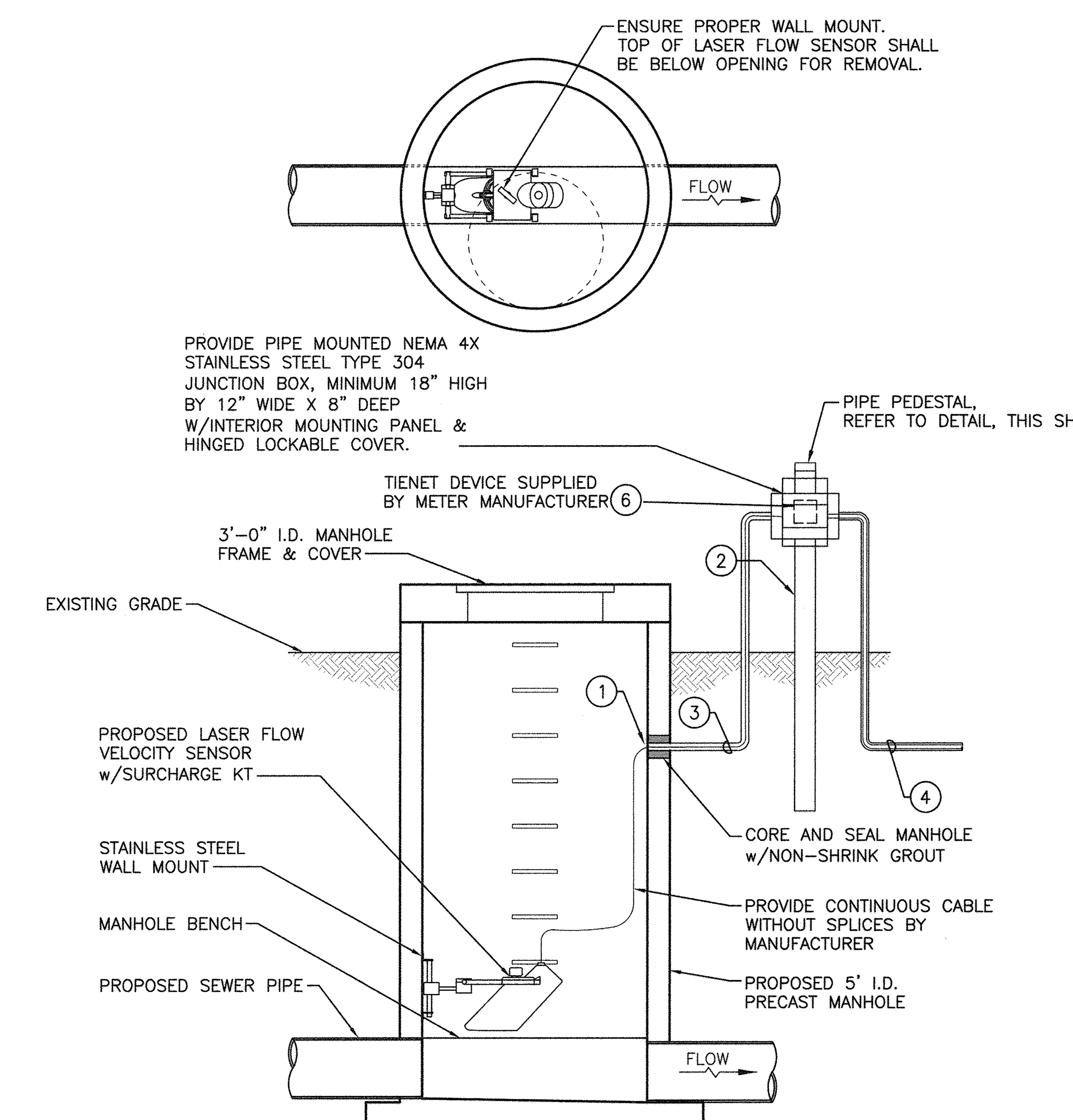
PLAN
SCALE: 1"=20'



DETAIL – PIPE PEDESTAL

NOTE: CONCRETE SHALL BE 3,500 PSI CONFORMING TO MSHA MIX NO.3 SPECIFICATIONS

NOTE:
SECURE JUNCTION BOX TO PIPE UTILIZING 1- 1/2"X1-1/2"X12 GAUGE STAINLESS STEEL CHANNEL (HORIZONTALLY TOP & BOTTOM), 3/8"DIA. STAINLESS STEEL "U" BOLT ASSEMBLIES & WITH STAINLESS STEEL NUT & BOLT ASSEMBLIES SECURING JUNCTION BOX TO CHANNEL.



PROPOSED MANHOLE 71A/FLOW METER DETAIL
SCALE: 3/8" = 1'-0"

SCALE: 3/8" = 1'-0"
2 0 3 6

20 0 10 20 40
1 inch = 20 ft.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		GMB GEORGE, MILES & BUHR, LLC ARCHITECTS & ENGINEERS SALISBURY · BALTIMORE · SEAFORD www.gmbnet.com	DES: DKJ		ELECTRICAL DETAILS	SYLVAN LANE INTERCEPTOR SEWER IMPROVEMENTS CONTRACT NO. 10-4915 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DIRECTOR OF PUBLIC WORKS 6/6/17 DATE	CHIEF, BUREAU OF ENGINEERING 6/5/17 DATE		DRN: JLP				
CHIEF, BUREAU OF UTILITIES 6/5/17 DATE	CHIEF, UTILITY DESIGN DIVISION WD 6-3-17 DATE		CHK: DKJ				SHEET 12 OF 12
			DATE: 06/16	BY / NO. / REVISION / DATE	600 SCALE MAP NO. 25 BLOCK NO. 8		

AS-BUILT: 01/30/2019