VICINITY MAP

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION

CAPITAL PROJECT S-6273
CONTRACT NO. 20-4881
HOWARD COUNTY, MARYLAND

TYPE OF BUILDING : N/A
DRAINAGE AREA : LITTLE PATUXENT
RECLAMATION PLANT : LITTLE PATUXENT WASTEWATER RECLAMATION PLANT
NUMBER OF BUILDING LOTS : N/A
NUMBER OF NON-BUILDING LOTS: N/A
NUMBER OF W.H.C. : 0
NUMBER OF S.H.C. : 0

BILL OF MATERIALS

ITEM	QUANTITY	MATERIALS	AS-BUILT QUANTITY	MANUFACTURER
LINING FOR 30" SEWER	13,260 LF			
60" MANHOLE LINERS	53			
60" MANHOLE REPLACEMENT TO BENCH	48			
60" MANHOLE CONE REPLACEMENT	2			
60" DOGHOUSE MANHOLE	1			

SHEET INDEX

NAME OF UTILITY CONTRACTOR:

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

EP-15-013

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISCTICT (SCD).

[signature] 12/4/14
HOWARD SOIL CONSERVATION DISTRICT 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. 24478, EXPIRATION DATE: 10/28/15."

ENGINEERS/ARCHITECT DESIGN CERTIFICATION

"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."

[signature] P.E. 24478 11/24/14
SIGNATURE REGISTRATION NUMBER DATE

OWNERS/DEVELOPERS CERTIFICATION

"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 PERODIC ON-SITE INSPECTION BY THR HOWARD SOIL CONSERVATION DISTRICT."

[signature] 12-3-2014
DATE

PROJECT PURPOSE:

THE SECTION OF THE ORIGINAL LITTLE PATUXENT INTERCEPTOR CONTAINED WITHIN THIS PROJECT, FROM MH1444 DOWN TO THE JUNCTION CHAMBER No. 7 WAS ORIGINALLY CONSTRUCTED IN 1966 UNDER CONTRACT No. 121-S, 122-S, 123-S & 124-S. THE MANHOLE INVERTS AND RIM ELEVATIONS SHOWN ON THESE DRAWINGS WERE SURVEYED IN 2006, HAVING HORIZONTAL DATUM NAD '83/'91 AND VERTICAL DATUM NAVD '88. THE PURPOSE OF THIS PROJECT WAS TO COUNTERACT H_2S DETERIORATION AND EXCESSIVE INFILTRATION AND INFLOW OF THE ORIGINAL INTERCEPTOR BY CONSTRUCTING A STRUCTURAL CIPP LINING WITHIN ALL PIPES, TO REPLACE SECTIONS OF MANHOLES WITH NEW PRECAST RISERS AND TOP SLABS AS REQUIRED AND THEN APPLY A STRUCTURAL LINER TO ALL MANHOLES.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

[signature] 12/4/14 — DIRECTOR OF PUBLIC WORKS, DATE
[signature] 12/2/14 — CHIEF, BUREAU OF ENGINEERING, DATE
[signature] 12/2/14 — CHIEF, BUREAU OF UTILITIES, DATE
[signature] 12/1/14 — CHIEF, UTILITY DESIGN DIVISION, DATE

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — PROFESSIONAL ENGINEER (seal) 11/24/14

DES: MB				
DRN: GG				
CHK: AC				
NOVEMBER 2014	BY	NO.	REVISION	DATE

TITLE SHEET

600 SCALE MAP NO. 42 | BLOCK NO. 8, 15, 16

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

AS-BUILT: 6-15-2017

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Nov 24, 2014 - 8:53am

SANITARY SEWER REHABILITATION NOTES:

1. REFER TO SPECIFICATIONS FOR CURED-IN-PLACE PIPE (CIPP) LINING REQUIREMENTS.
2. THE CONTRACTOR SHALL CLEAN AND CLOSED CIRCUIT TV (CCTV) INSPECT THE EXISTING SANITARY SEWER PRIOR TO CURED-IN-PLACE PIPE (CIPP) LINING TO VERIFY PIPE CHARACTERISTICS, AND IDENTIFY AND LOCATE ANY SEWER PIPE DEFECTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DEFECT THAT COULD AFFECT THE INSTALLATION OF CIPP LINING. THE CONTRACTOR SHALL REPAIR PIPE DEFECTS PER THE COUNTY'S DIRECTION PRIOR TO INSTALLING THE LINER. ANY DEBRIS, LARGE OBJECTS OR BLOCKAGES SHALL BE REMOVED FROM THE SEWER PRIOR TO LINING.
3. BY-PASS PUMPING SHALL BE CONDUCTED ACCORDING TO THE CONTRACT SPECIFICATIONS. SANITARY SEWER SERVICE SHALL BE MAINTAINED AT ALL TIMES. ALL KNOWN SEWER LINES THAT WILL REQUIRE BY-PASS PUMPING ARE SHOWN ON THE PLANS. THE PRIMARY INTERCEPTORS FLOW WILL BE DIVERTED INTO THE NEW PARALLEL INTERCEPTOR BY THE COUNTY PRIOR TO WORK COMMENCING.
4. EACH SECTION OF CIPP LINING SHALL BE INSTALLED AND CURED IN ONE MOBILIZATION AND REACH FROM MANHOLE TO MANHOLE OR MULTIPLE MANHOLE TO MANHOLE SEGMENTS.
5. POST-INSTALLATION CCTV INSPECTION MUST BE CONDUCTED FOR EACH SANITARY SEWER LINE TO CHECK FOR LINER DEFECTS OR WRINKLING.
6. REFER TO SPECIFICATIONS FOR CIPP LINING SUGGESTED SEQUENCE OF CONSTRUCTION.

MANHOLE REHABILITATION NOTES:

1. REFER TO SPECIFICATIONS FOR MANHOLE REHABILITATION REQUIREMENTS.
2. EACH MANHOLE SHALL BE POWER-WASHED PRIOR TO ANY REHABILITATION WORK.
3. FLOW DIVERSION, BY-PASS PUMPING, OR FLOW-THROUGH PLUGS SHALL BE UTILIZED AT EACH MANHOLE TO ENSURE PROPER FUNCTION OF THE SEWER INTERCEPTOR. SANITARY SEWER SERVICE SHALL BE MAINTAINED AT ALL TIMES.
4. POINT REPAIR/PATCH WORK SHALL BE COMPLETED AND CURED PRIOR TO ANY MANHOLE LINING.
5. INSTALLATION OF MANHOLE STEPS AND FRAME AND COVER, IF SHOWN, SHALL BE COMPLETED PRIOR TO LINING OF THE MANHOLE.
6. MANHOLE LINING SHALL BE COMPLETED AND CURED IN ONE SETUP.
7. EACH MANHOLE THAT IS LINED SHALL PASS HOLIDAY "SPARK" TEST PRIOR TO ACCEPTANCE PER THE CONTRACT SPECIFICATIONS.
8. REFER TO MANHOLE SCHEDULE ON SHEET 6 FOR SPECIFIC ITEMS FOR EACH MANHOLE.

GENERAL NOTES:

1. APPROXIMATE LOCATION 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. THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS ON THE DRAWINGS ARE BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS.
3. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
4. 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.
5. 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)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION (GENERAL)	410-531-5533
STATE HIGHWAY ADMINISTRATION (DISTRICT)	1-800-635-5119
VERIZON	1-800-837-4966 / 410-224-9210

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ANY ADDITIONAL STAGING AND/OR STOCKPILE AREAS THAT HE DEEMS NECESSARY.
7. 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.
8. MDE PERMIT TRACKING NO. 20076408/07-NT-3268.
9. CONTRACTOR SHALL NOTIFY STATE HIGHWAY ADMINISTRATION, RICK SHAGOGUE 240-409-4044, ONE WEEK PRIOR TO WORKING WITHIN SHA RIGHT-OF-WAY AT ROUTE 29, ROUTE 175, AND UTILIZING ACCESS AT ROUTE 108.
10. ALL WORK WITHIN THE GOLF COURSE SHALL BE PER STIPULATED ACCESS SHOWN ON THE PLANS AND SHALL NOT BE PERMITTED TO INTERFERE WITH THE PLAY OF GOLF ON ANY PORTION OF THE COURSE DESIGNATED FOR PLAY.
11. FOR WORK IN OR ACCESS THROUGH WETLAND AREAS AND WET AREAS, CONTRACTOR SHALL UTILIZE SPECIALITY MATTING OR TIMBER MATTING.
12. MOST PORTIONS OF THE UTILITY EASEMENT ARE IN THE LITTLE PATUXENT RIVER 100 YEAR FLOODPLAIN. MANY AREAS BECOME FLOODED IN A TWO YEAR STORM OR GREATER. THE CONTRACTOR SHALL REMAIN MINDFUL OF THE WEATHER AND IS RESPONSIBLE FOR SECURING HIS EQUIPMENT, MATERIALS OF CONSTRUCTION AND ALL FUEL TANKS OUTSIDE THE FLOOD ZONE IN THE EVENT OF IMPENDING STORMS.
13. THE WORK IN ROUTE 29 STATE HIGHWAY ADMINISTRATION RIGHT OF WAY TO BE COORDINATED WITH BRIAN PICKENS AT 301-674-4531.
14. WORK IN THE STATE HIGHWAY RIGHT OF WAY WILL BE PERFORMED UNDER AN AREA WIDE MAINTENANCE PERMIT, SHA-7-AW-0851-12.

LEGEND

EXISTING	PROPOSED	DESCRIPTION
77		CONTOUR
		CURB AND GUTTER
		SIGN
		TREELINE
		TREE
S		SANITARY INTERCEPTOR SEWER & MH
EX. MH ####		MANHOLE
	RIM 312.86 INV. 301.00 EX. MH ####	MANHOLE TO BE REHABILITATED
		REDUCER, TEE, VALVE & FIRE HYDRANT
W W		WATER MAIN
D D		STORM DRAIN
G G G		GAS MAIN AND MH
E E E		ELECTRICAL CONDUIT & MH
T T T		TELEPHONE CONDUIT & MH
CTV		CABLE TELEVISION
X		FENCE WIRE
//		FENCE WOOD
	LOD	LIMITS OF DISTURBANCE
	SF	SILT FENCE
	SSF	SUPER SILT FENCE
FP		100 YEAR FLOOD PLAIN
WUS		WATERS OF THE UNITED STATES
WET		WETLAND BOUNDARY
WB		WETLAND BUFFER
SB		STREAM BANK 25 FOOT BUFFER
		PROPERTY LINE
		PERMANENT EASEMENT
		PROPOSED ACCESS
		STABILIZED CONSTRUCTION ENTRANCE

"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. 24478, EXPIRATION DATE: 10/28/15."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14
CHIEF, BUREAU OF ENGINEERING — DATE 12/2/14
CHIEF, BUREAU OF UTILITIES — DATE 12/2/14
CHIEF, UTILITY DESIGN DIVISION — WD DATE 12/1/14

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND PROFESSIONAL ENGINEER

DES: MB
DRN: GG
CHK: AC
NOVEMBER 2014

BY	NO.	REVISION	DATE

GENERAL NOTES AND LEGEND

600 SCALE MAP NO. 42 BLOCK NO. 8, 15, 16

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

AS-BUILT: 6-15-2017

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NOTE:

1. THE PROPOSED ACCESS SHOWN MAY BE UTILIZED FOR STAGING, SEE NOTE 12 ON SHEET 2.
2. SUPER SILT FENCE TO BE INSTALLED ON THE DOWNSTREAM SLOPE OF ALL ACCESS AND STAGING AREAS AND/OR AS SHOWN. SUPER SILT FENCE SHOWN OFFSET FROM LOD FOR CLARITY PURPOSES, TO BE INSTALLED AT THE LOD LINE.
3. FOR SILT FENCE INSTALLATION AROUND THE EXISTING MANHOLES SEE TYPICAL DETAIL, SHEET 9.
4. SEE MANHOLE REHABILITATION TABLE, SHEET 6.

"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. 24478, EXPIRATION DATE: 10/28/15."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14
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CHIEF, BUREAU OF UTILITIES — DATE 12/2/14
CHIEF, UTILITY DESIGN DIVISION — WD — DATE 12/1/14

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND PROFESSIONAL ENGINEER 11/14/14

DES: MB				
DRN: GG				
CHK: AC				
NOVEMBER 2014	BY	NO.	REVISION	DATE

PLANS

600 SCALE MAP NO. | BLOCK NO.

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 10

AS-BUILT: 6-15-2017

MATCHLINE B-B, SEE SHEET 3

AMHERST AVE.

TEMPORARY ACCESS, SEE NOTE (4)

(EX. MH 4911)

(EX. MH 815)

EXISTING 8"S (CONTR. 365-S)

1WSB3 PERENNIAL STREAM

TED E. MARKLE & CANDACE B. MARKLE L.4857, F.475, PB.9, P.33 TM.36, P.262

(EX. MH 816)

(EX. MH 817)

STEVENS FOREST RD.

EXISTING GATE

EXISTING ACCESS

RIM 288.52 (EX. MH 1358)
INV. 278.72

EX 30" RCP (CONTR. 122-S)
533 LF TO BE CIPP LINED
CIPP THICKNESS = 17 mm

BRIDGE CLEARANCE 13'±

CIPP THICKNESS = 16 mm

EX 30" RCP (CONTR. 122-S)
14 LF TO BE CIPP LINED

RIM 290.33 (EX. MH 1358A)
INV. 279.39

EX 30" RCP (CONTR. 24-1947)
39 LF TO BE CIPP LINED
CIPP THICKNESS = 16 mm

RIM 292.55 (EX. MH 1359)
INV. 279.65

EX 30" RCP (CONTR. 24-1947)
239 LF TO BE CIPP LINED
CIPP THICKNESS = 16 mm

BRIDGE CLEARANCE 13'±

(EX. JC 901)

EXISTING 36"S (CONTR. 20-4539)

EXISTING 8"S (CONTR. 24-176-D)

(EX. MH 914)

(EX. MH 901)

(EX. MH 902)

(EX. MH 903)

LARGE RIP RAP

EX 30" RCP (CONTR. 122-S)
430 LF TO BE CIPP LINED
CIPP THICKNESS = 16 mm

EXISTING 8"S (CONTR. 24-1947)

RIM 292.11 (EX. MH 1360)
INV. 280.40

EX 30" RCP (CONTR. 24-1947)
100 LF TO BE CIPP LINED
CIPP THICKNESS = 16 mm

RIM 291.82 (EX. MH 1359C)
INV. 280.46

CONTRACTOR TO PROVIDE PLATED CROSSING OF RIP-RAP AREA

(EX. MH 904)

(EX. MH 905)

EXISTING 36"S (CONTR. 20-4539)

EX 30" RCP (CONTR. 122-S)
544 LF TO BE CIPP LINED
CIPP THICKNESS = 15 mm

RIM 291.58 (EX. MH 1361)
INV. 281.28

RIM 291.06 (EX. MH 1362)
INV. 282.23

EXISTING 8"S (CONTR. 319 W&S)

(EX. MH)

EX 30" RCP (CONTR. 122-S)
314 LF TO BE CIPP LINED

RIM 292.31 (EX. MH 1363)
INV. 282.77

LITTLE PATUXENT RIVER

BROKEN LAND PKWY.

(EX. MH 906)

(EX. MH 907)

CIPP THICKNESS = 15 mm

EX. 40' UTILITY EASEMENT

TRUCK TURN-AROUND AREA

TRUCK TURN-AROUND AREA, SEE NOTE (3)

(EX. MH 908)

(EX. MH 909)

(EX. MH 910)

(EX. MH 911)

EXISTING 36"S (CONTR. 20-4539)

EX 30" RCP (CONTR. 122-S)
422 LF TO BE CIPP LINED
CIPP THICKNESS = 15 mm

RIM 294.30 (EX. MH 1365)
INV. 284.45

EX 30" RCP (CONTR. 122-S)
545 LF TO BE CIPP LINED
CIPP THICKNESS = 15 mm

RIM 293.71 (EX. MH 1364)
INV. 283.76
SEE NOTE (3)

EX 30" RCP (CONTR. 122-S)
548 LF TO BE CIPP LINED

INTERMITTENT STREAM

AC ROAD

ROUTE 29

MATCHLINE C-C, SEE THIS SHEET

NOTES:

(1) CONTRACTOR SHALL UTILIZE THE EXISTING BRIDGE FOR ACCESS, IF AVAILABLE. OTHERWISE UTILIZE CULVERT PIPE WITH ACCESS ROAD, AS SHOWN ON DETAIL 1.3, SHEET 9, AT EXISTING PIPE CROSSING BETWEEN MANHOLES 1004 AND 1005.

(2) TO ISOLATE FLOW, REQUEST THAT THE COUNTY CLOSE THE EXISTING SLUICE GATE WITHIN JC-1001.

(3) TRUCK/VEHICLE ACCESS IS NOT RECOMMENDED UNDER ROUTE 29 DUE TO LARGE RIP-RAP/BOULDERS AND PROXIMITY TO RIVER. ACCESS MAY REQUIRE TEMPORARY CLEARING OF LARGE RIP-RAP.

(4) CONTRACTOR SHALL COORDINATE WITH THE OWNERS TED AND CANDACE MARKLE AND PROVIDE A MINIMUM 2-WEEK NOTIFICATION TO THE PROPERTY OWNER BEFORE MOBILIZING ON SITE.

(5) SEE MANHOLE REHABILITATION TABLE, SHEET 6.

(6) REPAIR PIPE IN THE LOCATION SHOWN. ALL REPAIR WORK TO BE COMPLETED PER CONTINGENT ITEMS A-27 AND A-28. REFER TO SPECIFICATIONS.

(7) FOR SILT FENCE INSTALLATION AROUND THE EXISTING MANHOLES SEE TYPICAL DETAIL SHEET 9.

(8) SUPER SILT FENCE TO BE INSTALLED ON THE DOWNSTREAM SLOPE OF ALL ACCESS AND STAGING AREAS AND/OR AS SHOWN. SUPER SILT FENCE SHOWN OFFSET FROM LOD FOR CLARITY PURPOSES, TO BE INSTALLED AT THE LOD LINE.

MATCHLINE C-C, SEE THIS SHEET

PERENNIAL STREAM

EXISTING 15"S (CONTR. 172 W&S)

(EX. MH 912)

EXISTING 36"S (CONTR. 20-4539)

EX 30" RCP (CONTR. 122-S)
482 LF TO BE CIPP LINED
CIPP THICKNESS = 15 mm

RIM 294.96 (EX. MH 1366)
INV. 285.30

RIM 294.43 (EX. MH 1366A)
INV. 285.83

DEPTH: 8.4' FOR BYPASS PUMPING

(EX. MH)

EXISTING 12"S (CONTR. 20-3991)

PROPOSED ACCESS

ACCESS ROAD

(EX. MH 913)

(EX. MH 1001)

EX. RIP RAP

TEMPORARY ACCESS

EXISTING 36"S (CONTR. 20-4540)

EX 30" RCP (CONTR. 122-S)
596 LF TO BE CIPP LINED
CIPP THICKNESS = 14 mm

RIM 296.69 (EX. MH 1362)
INV. 285.97

EX 30" RCP (CONTR. 122-S)
114 LF OF CIPP LINED
CIPP THICKNESS = 14 mm

ROUTE 29 (SOUTH)

ROUTE 29 (NORTH)

LITTLE PATUXENT RIVER

RIM 297.90 (EX. MH 1368)
INV. 286.89

EX. RIP RAP

ENTRANCE TO MERRIWEATHER POST PAVILION

S. ENTRANCE ROAD

ABANDONED ROAD

(EX. MH 1002)

EPHEMERAL STREAM

(EX. MH 1003)

EXISTING 8"S (CONTR. 24-1779-D)

CIPP THICKNESS = 14 mm

EX 30" RCP (CONTR. 122-S)
454 LF TO BE CIPP LINED

RIM 297.70 (EX. MH 1369)
INV. 286.92

EX 30" RCP (CONTR. 123-S)
423 LF TO BE CIPP LINED
CIPP THICKNESS = 16 mm

RIM 298.81 (EX. MH 1418)
INV. 288.06

(EX. MH 1004)

(EX. MH 1005)

EXISTING 16"S (CONTR. 169)

LAKE KITTAMAQUNDI

(EX. MH 1006)

ACCESS, SEE NOTE (1)

EXISTING 36"S (CONTR. 20-4540)

(6) REPAIR

EX 30" RCP (CONTR. 123-S)
311 LF TO BE CIPP LINED
CIPP THICKNESS = 16 mm

SEE NOTE (2)

(EX. JC 1001)

(EX. MH 1006A)

(EX. MH 1007)

EXISTING 42"S (CONTR. 20-4540)

(EX. MH 1008)

(EX. MH 1018)

(EX. MH 4684)

EXISTING 12"S (CONTR. 340 W&S)

EX 30" RCP (CONTR. 123-S)
26 LF TO BE CIPP LINED

(EX. MH 1006B)

LIMIT OF MANHOLE REHABILITATION AND CIPP LINED SEWER

MATCHLINE D-D, SEE SHEET C-5

GRAPHIC SCALE

0 50' 100' 200'

SCALE: 1" = 100'-0"

"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. 24478, EXPIRATION DATE: 10/28/15."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14

CHIEF, BUREAU OF UTILITIES — DATE 12/3/14

CHIEF, BUREAU OF ENGINEERING — DATE 12/4/14

CHIEF, UTILITY DESIGN DIVISION — WD — DATE 12/11/14

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DONALD KEN WATSON — 24478 — PROFESSIONAL ENGINEER — 12/4/14

DES:	MB
DRN:	GG
CHK:	AC
	NOVEMBER 2014

BY	NO.	REVISION	DATE

PLANS

600 SCALE MAP NO. | BLOCK NO.

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 4 OF 10

AS-BUILT: 6-15-2017

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Nov 24, 2014 - 8:55am


MATCHLINE D-D, SEE SHEET C-4
LAKE KITTAMAQUNDI
EX. MH 1009
EX. MH 1010
EX. MH 1011
EXISTING 42"S (CONTR. 20-4540)
EXISTING 42"S (CONTR. 20-4540)
EXISTING 30"S (CONTR. 20-4540)
LIMIT OF MANHOLE REHABILITATION
RIM 301.21 INV. 291.75 EX. MH 1423
EX. MH 1424 RIM 302.95 INV. 292.73
RIM 302.42 INV. 293.26 EX. MH 1425
SEE NOTE 3
MH 1425A DEPTH: 8' FOR BYPASS PUMPING
EX. MH 1524
RIM 303.94 INV. 293.68 EX. MH 1430
LITTLE PATUXENT RIVER
EXISTING 30"S (CONTR. 123-S)
EXISTING 30"S (CONTR. 123-S)
EXISTING 36"S (CONTR. 20-4540)
EXISTING 24"S (CONTR. 126-S)
EXISTING 30"S (CONTR. 124-S)
EXISTING 36"S (CONTR. 20-4540)
EX. 40' UTILITY EASEMENT
EX. MH 1012
EX. MH 1012A
EX. MH 1013
EX. MH 1014
EX. MH 1015
EX. MH 1016
PERENNIAL STREAM
EXISTING 15"S (CONTR. 295 W&S)
INTERMITTENT STREAM
EXISTING 10"S (CONTR. 295 W&S)
PERENNIAL STREAM
ROUTE 29 (NORTH)
ROUTE 29 (SOUTH)
MATCHLINE E-E, SEE THIS SHEET
GREAT BLUE HERON NESTING BUFFER (WORK IN THIS AREA IS PROHIBITED FROM FEBRUARY 15TH THROUGH JULY 31ST)
MATCHLINE E-E, SEE THIS SHEET
EX. MH 1431 RIM 304.71 INV. 294.06
RIM 305.27 INV. 294.34 EX. MH 1432
LEAFTREADER WAY
TEMPORARY ACCESS
EX. MH 1017
EXISTING 36"S (CONTR. 20-4540)
EX. MH 1101
EXISTING 36"S (CONTR. 20-4541)
RIM 306.59 INV. 295.20 EX. MH 1433
RIM 308.78 INV. 295.39 EX. MH 3264
RIM 310.06 INV. 295.52 EX. MH 3263
EX. MH 3265 RIM 308.15 INV. 295.53
EX. MH 3266 RIM 312.96 INV. 295.43
RIM 306.95 INV. 295.95 EX. MH 1434
RIM 308.25 INV. 296.25 EX. MH 1435
RIM 308.98 INV. 296.84 EX. MH 1436
GREAT BLUE HERON NESTING BUFFER (WORK IN THIS AREA IS PROHIBITED FROM FEBRUARY 15TH THROUGH JULY 31ST)
EXISTING 30"S (CONTR. 124-S)
EX. MH 1102
EX. MH 1103
SEE NOTE 1 9
(EBL)
(WBL)
LITTLE PATUXENT PKWY.
LITTLE PATUXENT RIVER
EX. MH
EXISTING 8"S (CONTR. 244 W&S)
EPHEMERAL STREAM
EXISTING 30"S (CONTR. 124-S)
EXISTING 36"S (CONTR. 20-4541)
EX. MH 1104A
EX. MH 1105
PERENNIAL STREAM 10
EXISTING 12"S (CONTR. 203 W&S)
GOLF COURSE, SEE NOTE 5
MATCHLINE G-G, SEE SHEET 6
SEE NOTE 2
EXISTING 8"S (CONTR. 206 W&S)
TEN MILLS ROAD
COLUMBIA RD.
EX. MH 1201
EX. MH 1106A
EX. JC 1101
EX. MH 1106
EX. MH 1107
EXISTING 30"S (CONTR. 20-4541)
EXISTING 27"S (CONTR. 124-S)
EXISTING 15"S (CONTR. 157-S)
MATCHLINE F-F, SEE SHEET C-6
EX. MH 1437 RIM 311.99 INV. 297.88
PERENNIAL STREAM
EX. MH 1711 DEPTH: 12' FOR BYPASS PUMPING
GRAPHIC SCALE
0 50' 100' 200'
SCALE: 1" = 100'-0"

NOTES:

1. REMOVE TREES/BRUSH ENCROACHING ON MANHOLES 3265 & 3266. LINE MANHOLE AND REPAIR THE CEMENT MORTAR AROUND FRAME AND COVER. PROVIDE A FLEXIBLE GASKET BETWEEN FRAME AND MANHOLE, AND A RUBBER GASKET BETWEEN FRAME AND COVER. COORDINATE WITH SHA PERMIT.
2. PROPOSED ACCESS TO MANHOLE 1436. CONTRACTOR SHALL PROTECT THE EXISTING BRIDGE AND VERIFY LOADING LIMIT OF 17,000LBS.
3. INSTALL A 60-INCH DOGHOUSE MANHOLE (1425A) OVER EXISTING SEWER PER HOWARD COUNTY STANDARD DETAIL G-5.13. RIM ELEVATION SHALL BE 18-INCHES ABOVE EXISTING GRADE. MANHOLE TO BE USED FOR BYPASS.
4. SEE MANHOLE REHABILITATION TABLE SHEET 6.
5. RESTRICTIONS FOR WORK IN GOLF COURSE APPLY, SEE SPECIFICATIONS.
6. PLACE ADDITIONAL CLASS II RIP RAP ON AN APPROXIMATE AREA OF 20-FEET BY 30-FEET. PLACE CLASS SE GEOTEXTILE UNDERNEATH.
7. CONTRACTOR TO MAINTAIN THE EXISTING GRAVEL ACCESS ROAD IN GOOD CONDITION.
8. FOR SILT FENCE INSTALLATION AROUND THE EXISTING MANHOLES SEE TYPICAL DETAIL, SHEET 9.
9. ANY CONCRETE SLOPE PROTECTION TILES DAMAGED DURING MANHOLE REHABILITATION (APPROXIMATE SIZE 4'x4') TO BE REPLACED AFTER COMPLETION OF MANHOLE REHABILITATION. COORDINATE WITH SHA PERMIT.
10. INSTALL A TEMPORARY CULVERT PIPE WITH ACCESS ROAD PER SHEET 9 TO REHABILITATE MANHOLE 1434.

MANHOLE SCHEDULE

STRUCTURE	NORTH	EAST
MH-1425A	565,951.44	1,354,325.67

"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. 24478, EXPIRATION DATE: 10/28/15."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS 12/4/14 DATE
CHIEF, BUREAU OF ENGINEERING 12/2/14 DATE
CHIEF, BUREAU OF UTILITIES 12/2/14 DATE
CHIEF, UTILITY DESIGN DIVISION WD 12/1/14 DATE

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND PROFESSIONAL ENGINEER 11/24/14

DES: MB				
DRN: GG				
CHK: AC				
NOVEMBER 2014	BY	NO.	REVISION	DATE

PLANS

600 SCALE MAP NO. | BLOCK NO.

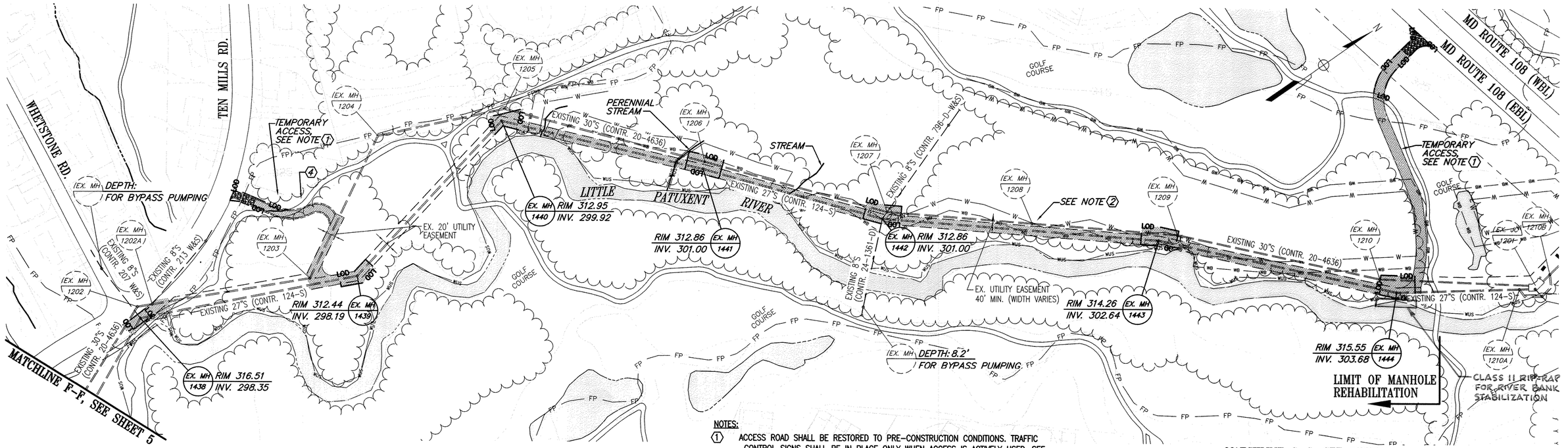
LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 10

N:\14257-000\CADD\1425700C1-03.dwg Nov 24, 2014 - 8:55am

AS-BUILT: 6-15-2017



NOTES:

1. ACCESS ROAD SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS. TRAFFIC CONTROL SIGNS SHALL BE IN PLACE ONLY WHEN ACCESS IS ACTIVELY USED. SEE SHEET 7, DETAIL 7 FOR TRAFFIC CONTROL DEVICES.
2. PROTECT THE EXISTING CABLE/POWER SERVICE AS NEEDED DURING CONSTRUCTION.
3. CONTRACTOR SHALL RESTORE THE EXISTING MACADAM CART PATH IF DAMAGED.
4. PROTECT AN EXISTING IRRIGATION LINE IN THIS LOCATION.
5. SEE MANHOLE REHABILITATION TABLE, SHEET 6.

MANHOLE REHABILITATION TABLE

Manhole ID	Ex. Depth to Invert (ft)	VERTICAL FT. Line Manhole	Existing Manhole Material	Raise Frame and Cover	Hydrophillic Grout	Manhole Replacement to Bench	Manhole Cone Removal Modifications	Other
1336	12.8	x 14.2	BRICK	x		x		
1337	13.6	x 13.5	BRICK	x		x		
1338	11.4	x 12.4	BRICK	x		x		
1338A	11.7	x 11	CONCRETE	x		x		
1339	11.6	x 12.1	BRICK	x		x		
1340	11.6	x 11.7	BRICK	x	-x-	x		
1341	10	x 11.4	BRICK	x	-x-	x		
1342	10.7	x 12.3	BRICK	x	-x-	x		
1343	10	x 10.5	BRICK	x		x		
1352	10.7	x 10.5	CONCRETE	x		x		
1353	9.2	x 10.5	CONCRETE	x		x		
1354	9.5	x 10.5	CONCRETE	x		x		
1355	10.7	x 11.1	CONCRETE	x		x		
1356	10.2	x 9.3	CONCRETE	x		x		
1357	11.3	x 12	CONCRETE	x		x		
1358	9.8	x 9.9	CONCRETE	x		x		
1358A	10.9	x 13.2	CONC./BRICK	x		x		
1359	12.9	x 11.2	CONC./BRICK	x	-x-	x		
1359C	11.4	x 12	CONCRETE	x		x		
1360	11.7	x 13.5	CONCRETE	x		x		
1361	10.3	x 13.8	CONCRETE	x		x		
1362	8.8	x 10.8	CONCRETE	x		x		
1363	9.5	x 11.3	CONCRETE	x		x		
1364	10	x 9.7	CONCRETE	x	-x-	X	x	
1365	9.9	x 10.6	CONCRETE	x		x		
1366	9.7	x 12.5	CONCRETE	x		x		
1366A	8.6	x 10.8	CONCRETE	x	-x-	x		
1367	10.7	x 11.6	CONCRETE	x		x		
1368	11	x 13.4	CONCRETE	x		x		
706D		3						
901A		2						

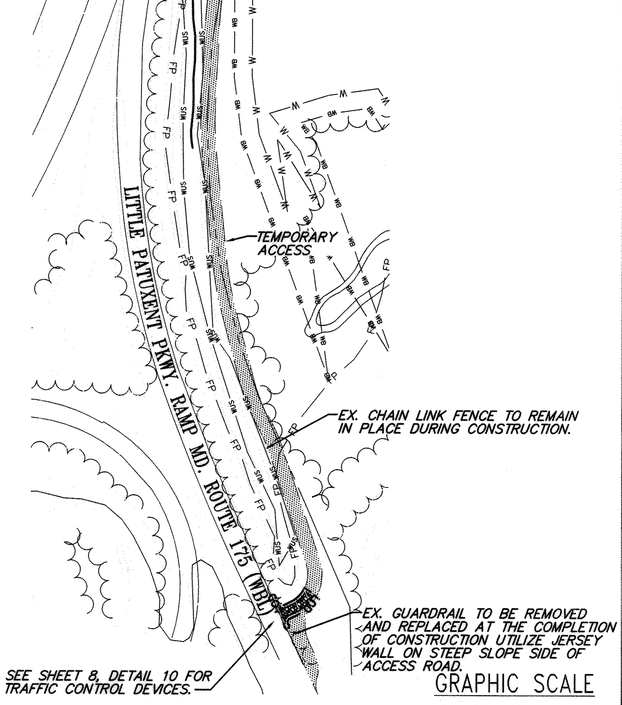
MANHOLE REHABILITATION TABLE (CONT'D)

Manhole ID	Ex. Depth to Invert (ft)	VERTICAL FT. Line Manhole	Existing Manhole Material	Raise Frame and Cover	Hydrophillic Grout	Manhole Replacement to Bench	Manhole Cone Removal Modifications	Other
1369	7.8	x 10.5	CONCRETE	x		x		
1418	10.8	x 11.5	CONCRETE	x		x		
1423	9.5	x 9.7	CONCRETE	x		x		
1424	10.2	x 10.5	BRICK	x	-x-	x		
1425	9.2	x 11.1	BRICK	x		x		
1430	10.3	x 10.3	BRICK	x		x		
1431	10.7	x 10.5	BRICK	x		x		
1432	10.9	x 10.8	BRICK	x		x		
1433	11.4	x 11.1	BRICK			x		
3263	14.5	x 15.1	BRICK		-x-	x		
3264	13.4	x 14	BRICK			x		
3265	12.6	x 11.3	BRICK		-x-			SEE NOTE 1, SHEET 5
3266	17.5	x 17.4	BRICK		-x-			SEE NOTE 1, SHEET 5
1434	11	x 13	BRICK			x		
1435	12	x 11.5	BRICK			x		
1436	12.1	x 10.8	CONC./BRICK					
1437	14.1	x 12	BRICK			x		
1438	18.2	x 19.2	BRICK			x		
1439	14.3	x 13.5	BRICK			x		
1440	13	x 13.2	BRICK				x	
1441	11.9	x 11.4	BRICK			x		
1442	11.9	x 12.3	BRICK			x		
1443	11.6	x 11.7	BRICK			x		
1444	11.9	x 13.2	BRICK			x		
1106					X			
1106A		2			X			
912		3						
1201		3						

NOTES:

~~1555~~ ~~11.1~~

1. THE LINER INSERTION MANHOLE LOCATIONS ARE TO BE INVESTIGATED AND SELECTED BY THE CONTRACTOR.
2. ANY BRICK REPAIR SHALL BE INCIDENTAL TO MANHOLE LINING. MANHOLE LINING SHALL BE PER SPECIFICATIONS.
3. SEE SPECIFICATIONS FOR HYDROPHILIC GROUT REQUIREMENTS.
4. FINAL DEPTH TO INVERT WILL BE INCREASED WHERE RAISED FRAME AND COVER IS REQUIRED.



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14
CHIEF, BUREAU OF ENGINEERING — DATE 12/8/14
CHIEF, BUREAU OF UTILITIES — DATE 12/2/14
CHIEF, UTILITY DESIGN DIVISION — DATE 12/11/14 WD

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DIVISION BLOCK MASON — PROFESSIONAL ENGINEER — 11/24/14

DES: MB
DRN: GG
CHK: AC
NOVEMBER 2014

BY	NO.	REVISION	DATE

PLAN AND MANHOLE SCHEDULES

600 SCALE MAP NO. | BLOCK NO.

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 6 OF 10

AS-BUILT: 6.15.2017

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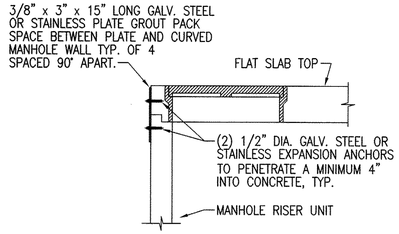
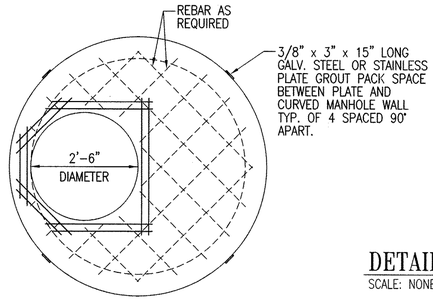
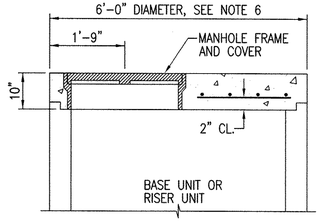


DETAIL 1 – MANHOLE SLAB TOP CONNECTION

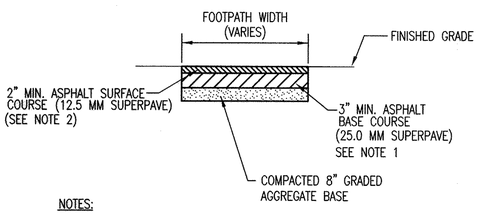
SCALE: NONE





DETAIL 2 – MANHOLE SLAB TOP REINFORCING

SCALE: NONE

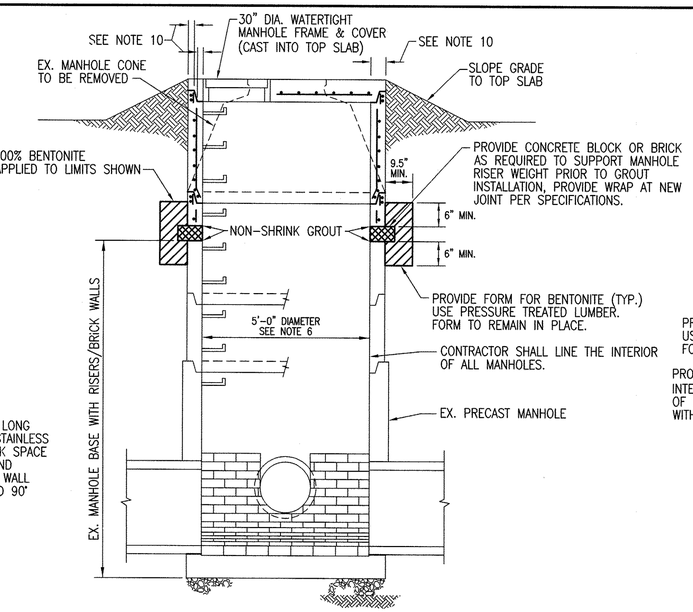


NOTES:

1. REMOVE EXISTING PAVEMENT TO FULL DEPTH.
2. ROLL EXISTING GRADED AGGREGATE BASE TO ACHIEVE MAXIMUM DENSITY.
3. INSTALL 3" MINIMUM ASPHALT BASE COURSE, PROVIDE A TACK COAT OF AE-4 EMULSION APPLIED AT THE RATE OF 0.05 GAL/SQ.YD. AND INSTALL 2" MINIMUM ASPHALT SURFACE COURSE.
4. SAWCUT JOINTS FULL DEPTH OF ASPHALT COURSES, TACK COAT JOINTS IN SURFACE COURSE.
5. FOOTPATH SHALL BE REPLACED TO THE EXISTING WIDTH.
6. WHERE DIRECTED BY THE ENGINEER, THE FOOTPATH MAY BE REPAIRED IN PLACE OF FULL REPLACEMENT. REFER TO SPECIFICATIONS FOR REPAIR DETAILS.

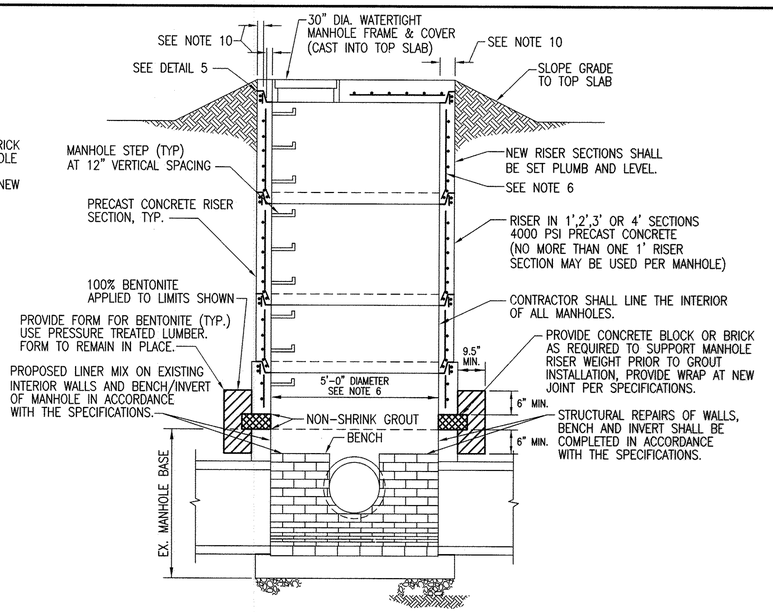
DETAIL 5 – FOOTPATH/ROADWAY REPLACEMENT

SCALE: NONE



DETAIL 3 – MANHOLE CONE REMOVAL MODIFICATIONS

SCALE: NONE

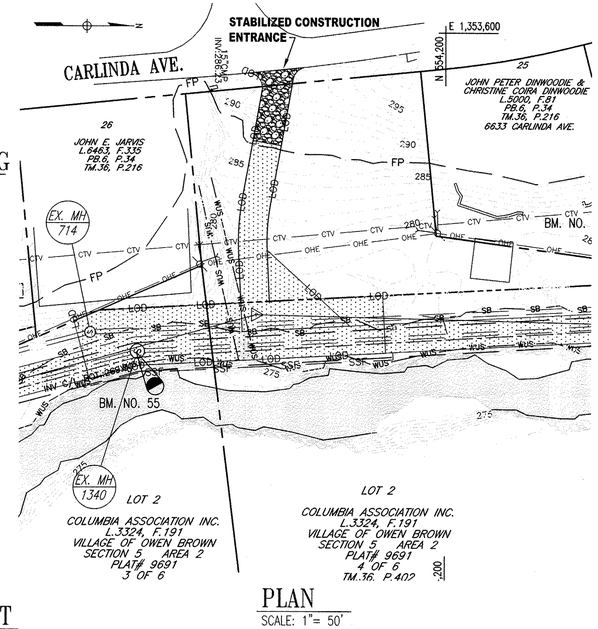


DETAIL 4 – MANHOLE REPLACEMENT TO BENCH

SCALE: NONE

NOTES FOR DETAIL 3 AND DETAIL 4:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON HOWARD COUNTY STANDARD DETAIL G-5.11.
2. MANHOLE DESIGN SPECIFICATIONS SHALL CONFORM TO PRECAST REINFORCED CONCRETE MANHOLES SECTION A.S.T.M. DESIGNATION C-478, LATEST REVISIONS. CONCRETE MIX SHALL BE MIX NO.6 (4500 PSI).
3. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATER TIGHT USING "O" RING RUBBER GASKETS MEETING A.S.T.M. C-443 AND C-361 OR APPROVED EQUAL. ANY EXCESSIVE OPENINGS WITHIN THE JOINTS SHALL BE FILLED USING A NON-SHRINK GROUT FILLER.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING MINIMUM REQUIREMENTS FOR REINFORCING. REINFORCING SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER REGISTERED IN THE STATE OF MARYLAND. REINFORCING SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED PRIOR TO MANUFACTURE OF MANHOLES.
5. MANHOLE FRAME AND COVER SHALL BE PER SPECIFICATIONS.
6. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS.
7. CONTRACTOR TO DEMOLISH MANHOLE STACK FROM GRADE TO 6"+/- ABOVE MANHOLE BENCH.
8. MANHOLE STACK SHALL BE REPLACED WITH PRECAST CONCRETE RISER SECTIONS TO 18-INCHES ABOVE EXISTING GRADE UNLESS CALLED OUT OTHERWISE IN THE REHABILITATION TABLE ON SHEET 6.
9. MANHOLE BENCH TO NEW MANHOLE STACK SHALL HAVE BENTONITE CLAY PLACED PER DETAIL.
10. ACTUAL THICKNESS DIMENSION OF FORMED CONCRETE MANHOLE WALLS AND JOINTS SHALL NOT VARY MORE THAN 1/8-INCH +/- FROM ONE SIDE OF THE MANHOLE TO THE OTHER AND FOR EACH SECTION. DESIGN THICKNESS. FAILURE TO MEET THIS REQUIREMENT WILL RESULT IN REJECTION OF PRECAST SEGMENT(S).

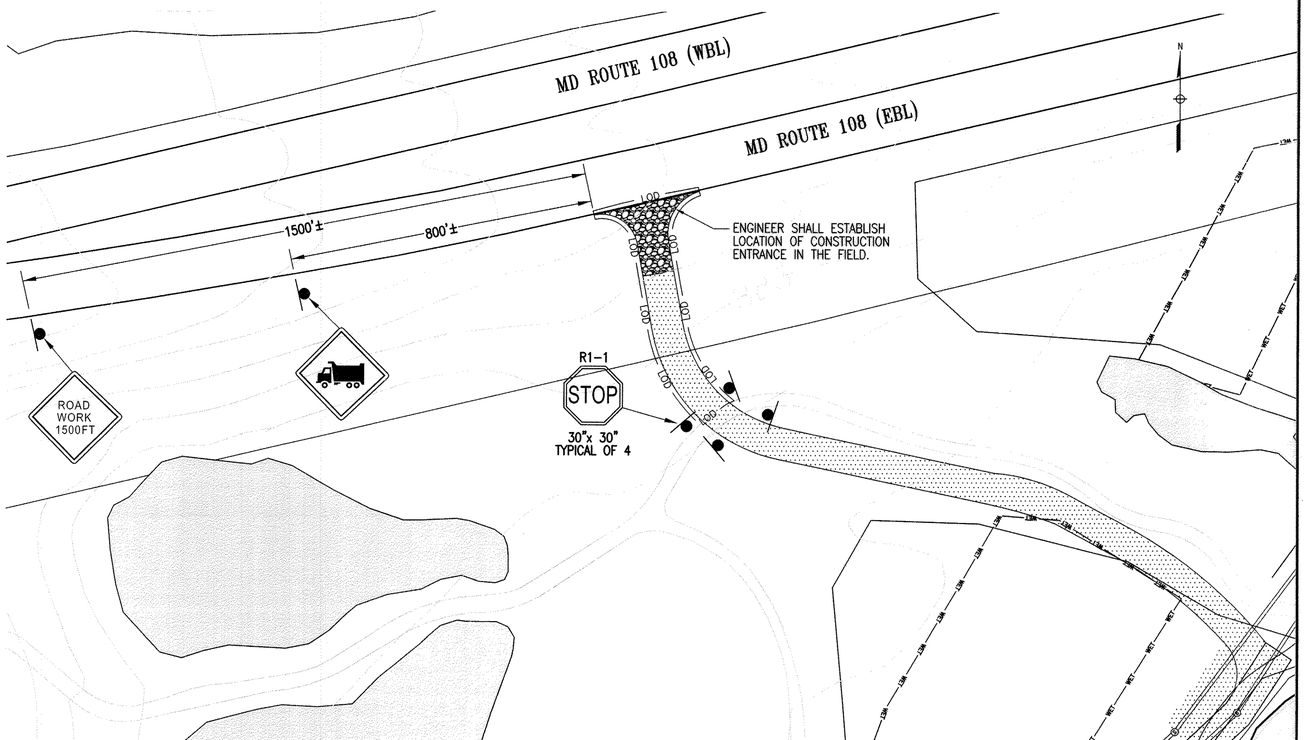


PLAN

SCALE: 1"= 50'

NOTE: 1. INSTALL SILT FENCE ALONG THE SIDE OF THE CONSTRUCTION ACCESS AS DIRECTED BY THE ENGINEER.

DETAIL 6 – CONSTRUCTION ACCESS



DETAIL 7 – ACCESS ROAD MAINTENANCE OF TRAFFIC

SCALE: 1"=50'

GRAPHIC SCALE

0 25' 50' 100'

SCALE: 1" = 50'

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14
CHIEF, BUREAU OF UTILITIES — DATE 12/4/14
CHIEF, BUREAU OF ENGINEERING — DATE 12/2/14
CHIEF, UTILITY DESIGN DIVISION — WD — DATE 12/11/14

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DONALD MARK WATSON — 24478 — PROFESSIONAL ENGINEER — 11/26/14

DES:	MB
DRN:	GG
CHK:	AC
	NOVEMBER 2014

BY	NO.	REVISION	DATE

MANHOLE, ACCESS AND MAINTENANCE OF TRAFFIC DETAILS

600 SCALE MAP NO. | BLOCK NO.

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 7 OF 10

AS-BUILT: 6.15.2017

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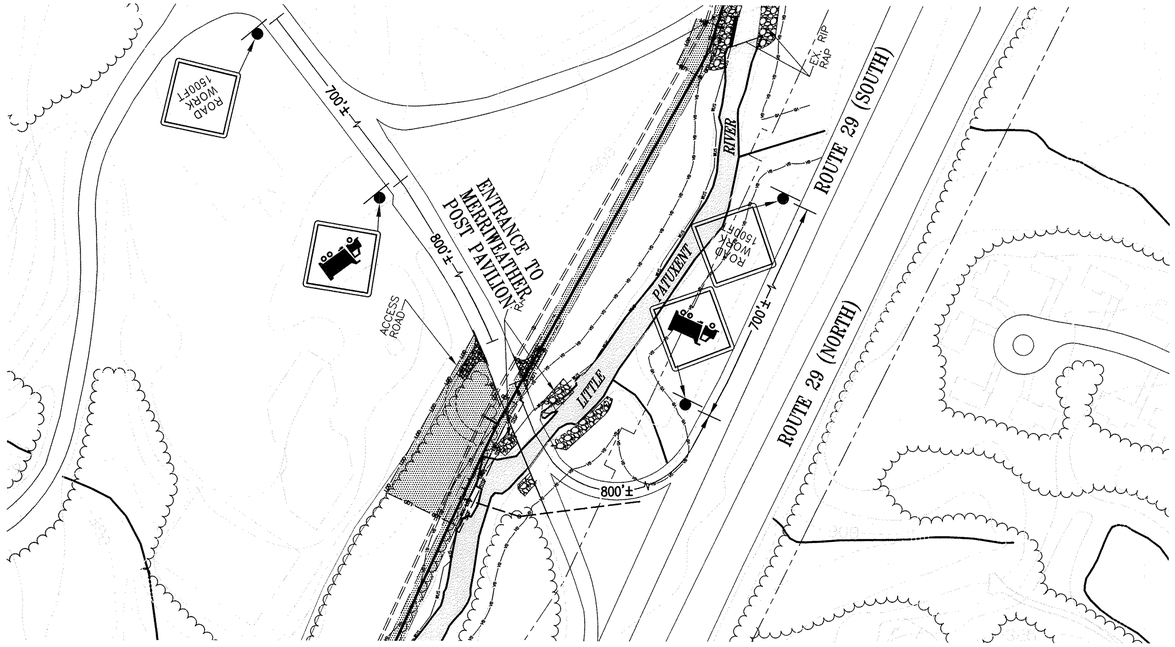
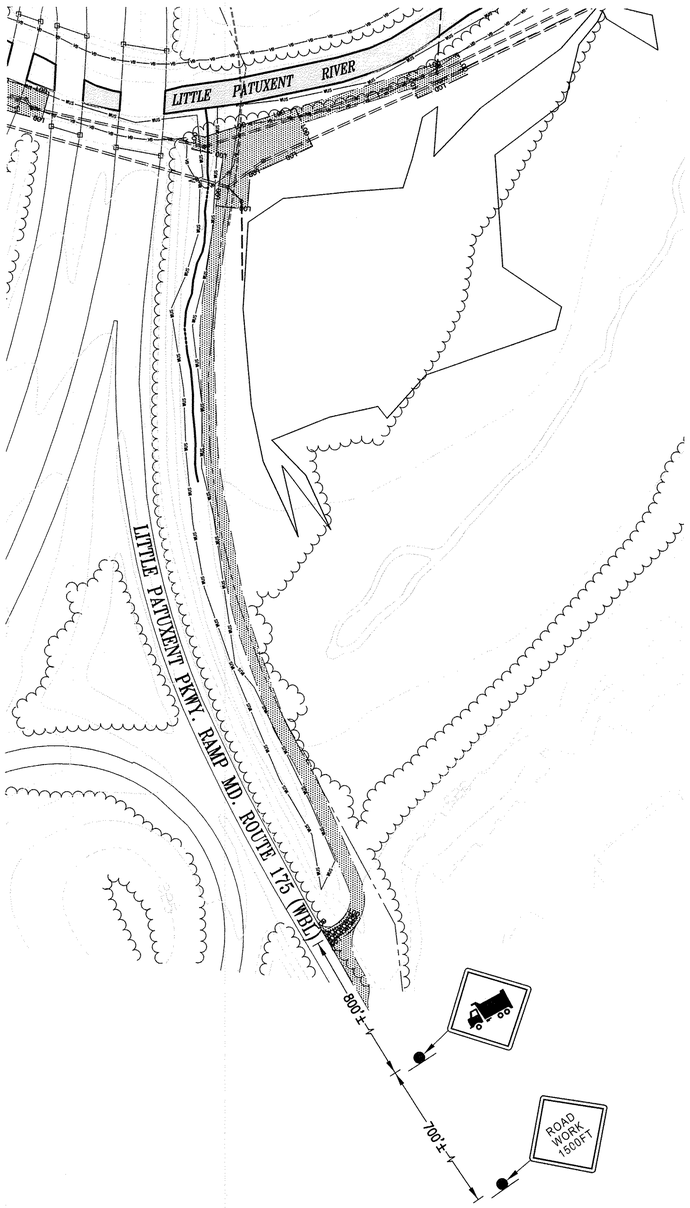
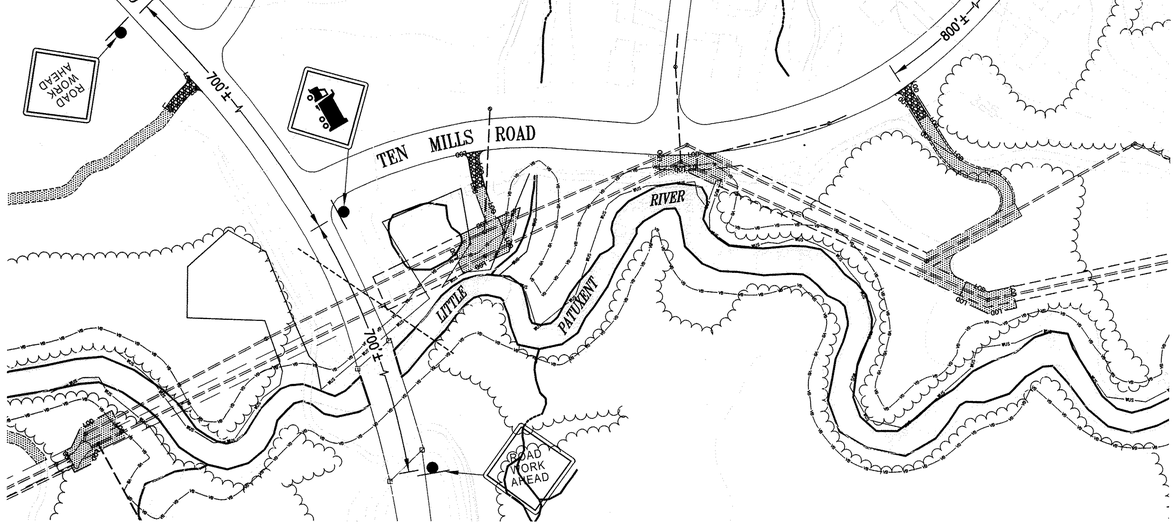


DETAIL 8 - ACCESS ROAD MAINTENANCE OF TRAFFIC (SOUTH ENTRANCE ROAD)
SCALE: 1"=100'



DETAIL 10 - ACCESS ROAD MAINTENANCE OF TRAFFIC (ROUTE 175)
SCALE: 1"=100'



DETAIL 9 - ACCESS ROAD MAINTENANCE OF TRAFFIC (TEN MILLS ROAD)
SCALE: 1"=100'

GRAPHIC SCALE
0 50' 100' 200'
SCALE: 1" = 100'

"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. 24478, EXPIRATION DATE: 10/28/15."

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HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14
CHIEF, BUREAU OF UTILITIES — DATE 12/2/14
CHIEF, BUREAU OF ENGINEERING — DATE 12/2/14
CHIEF, UTILITY DESIGN DIVISION — DATE 12/1/14 WD

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — PROFESSIONAL ENGINEER — 11/24/14

DES:	MB
DRN:	GG
CHK:	AC
	NOVEMBER 2014

BY	NO.	REVISION	DATE

600 SCALE MAP NO. | BLOCK NO.

ACCESS AND MAINTENANCE OF TRAFFIC DETAILS

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 10

AS-BUILT: 6-15-2017

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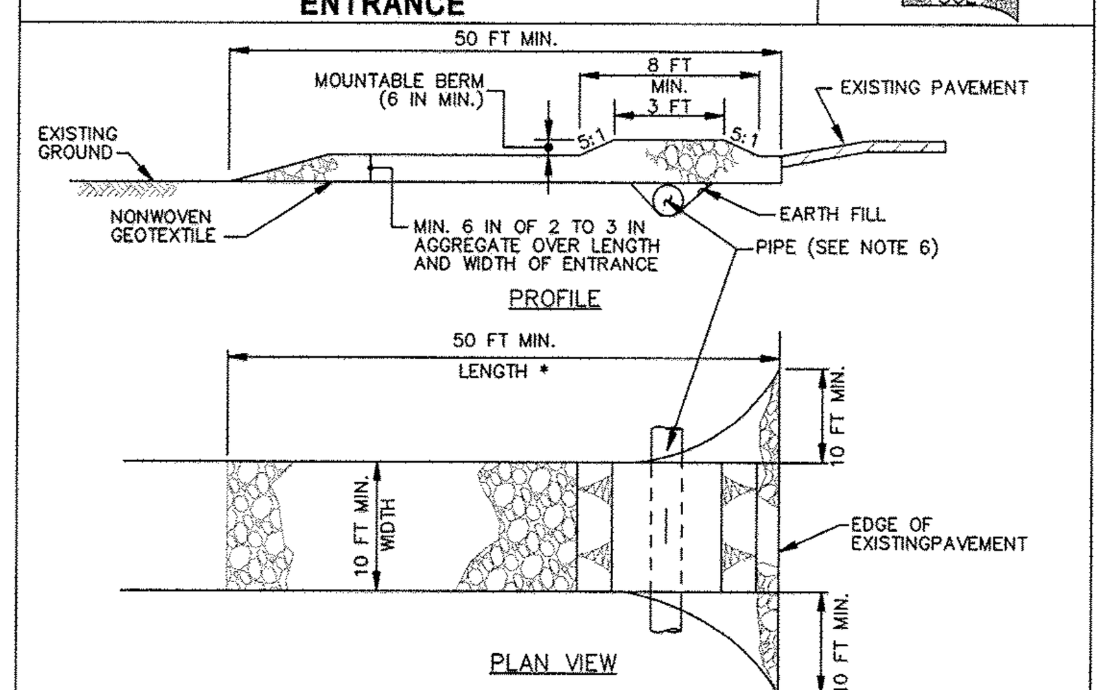
DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

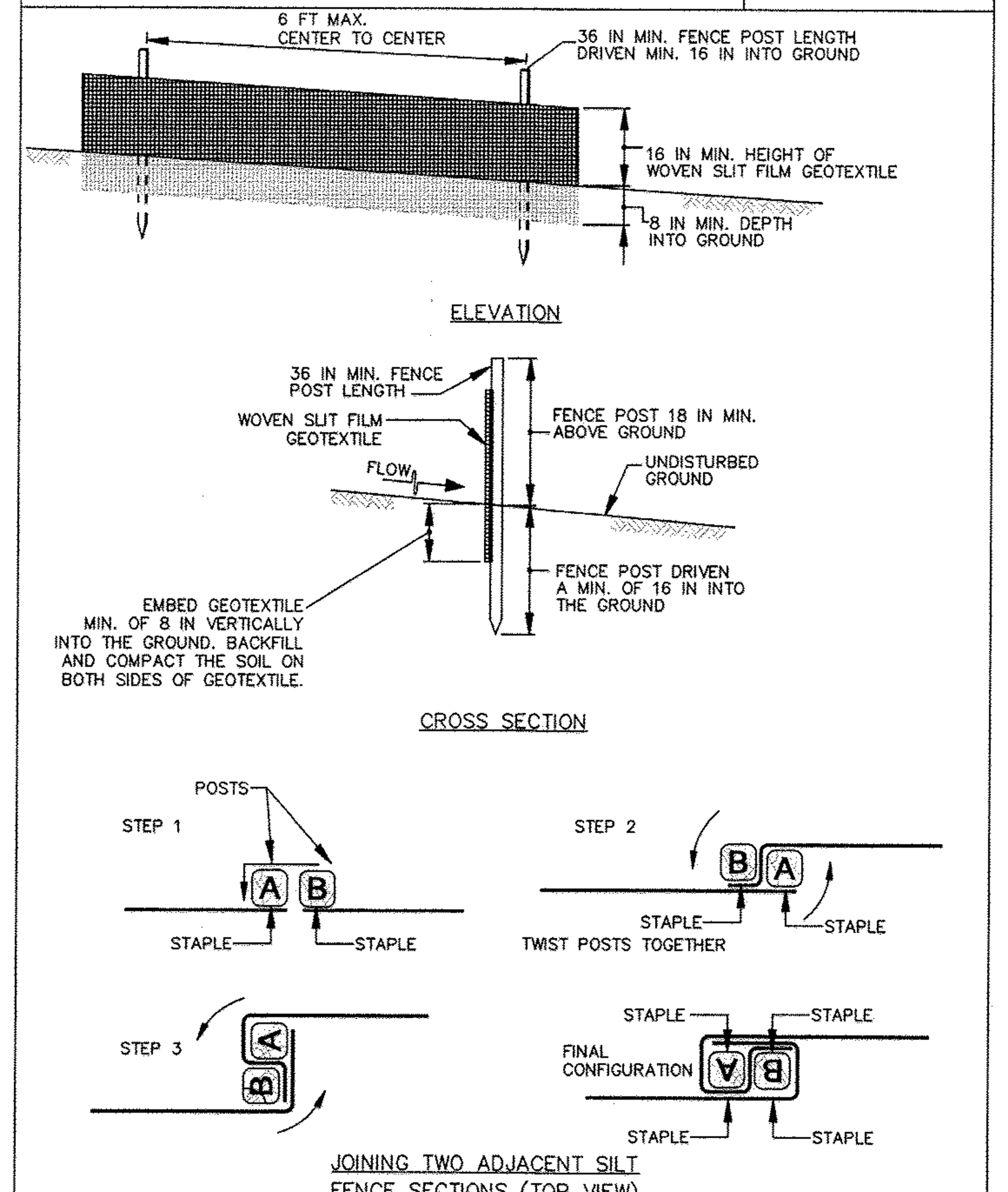
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING 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.

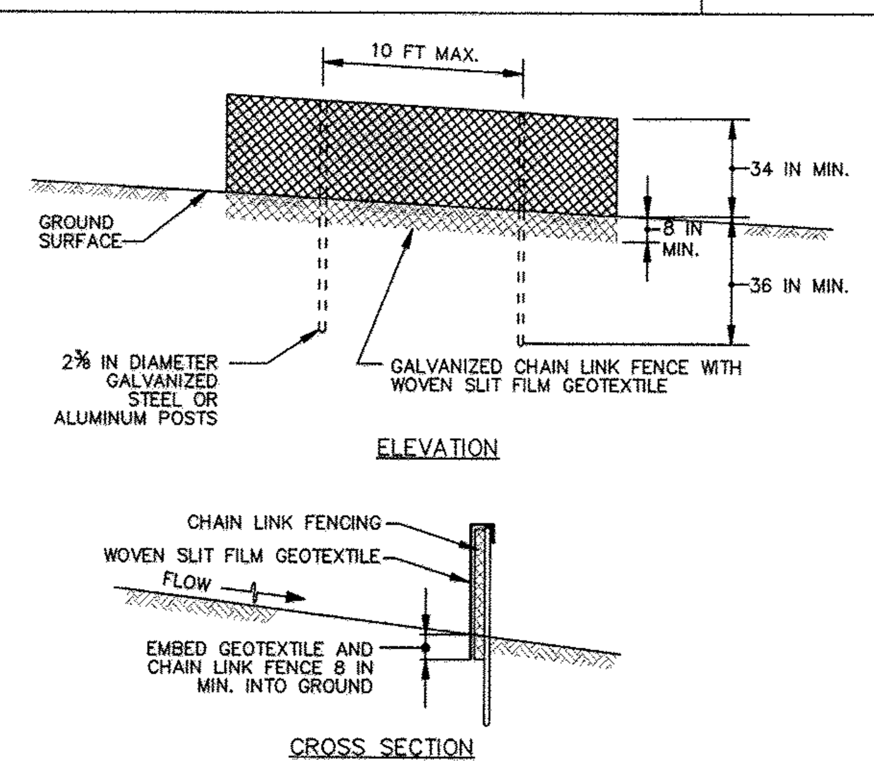
2 OF 2

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——



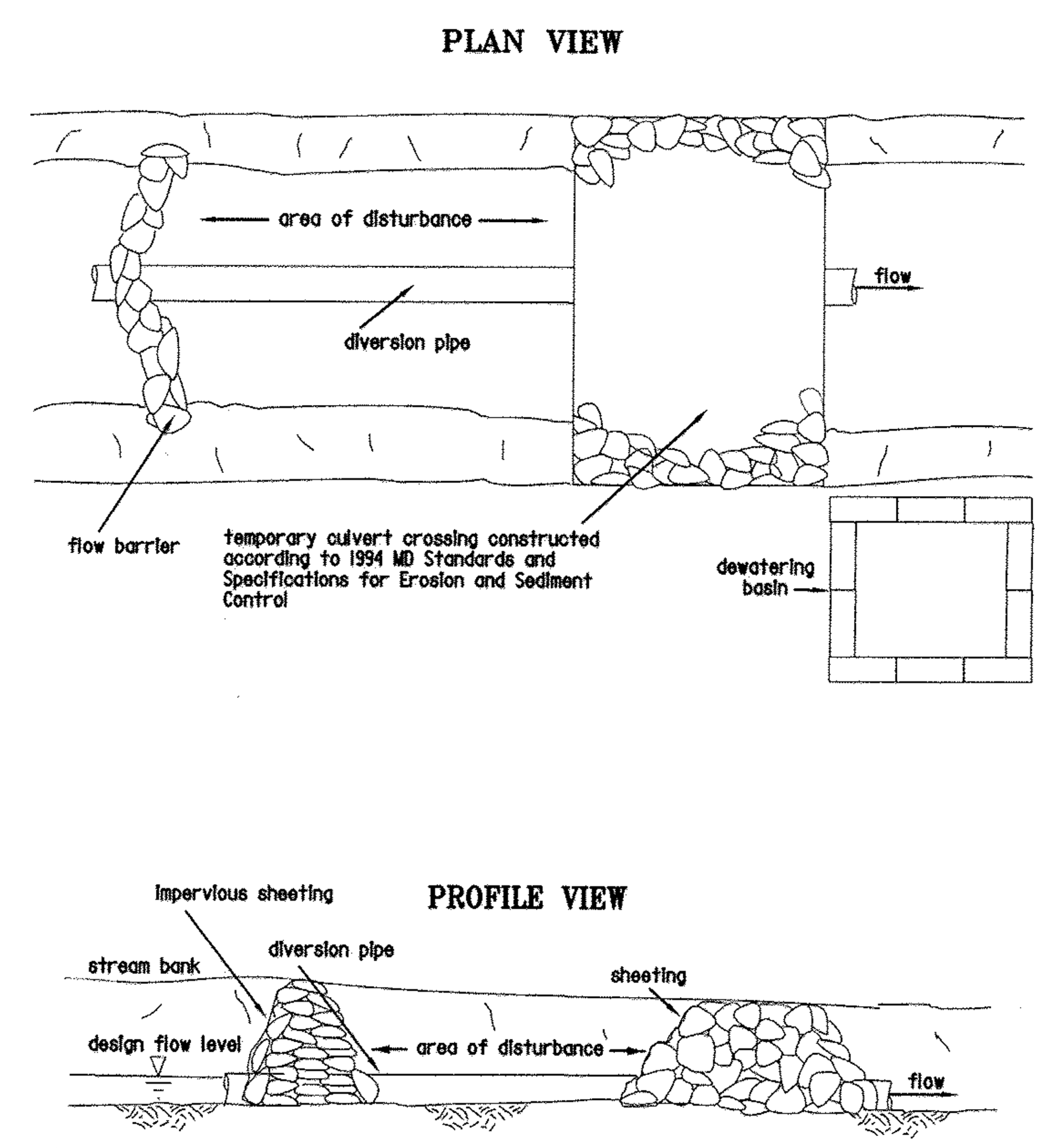
CONSTRUCTION SPECIFICATIONS

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.

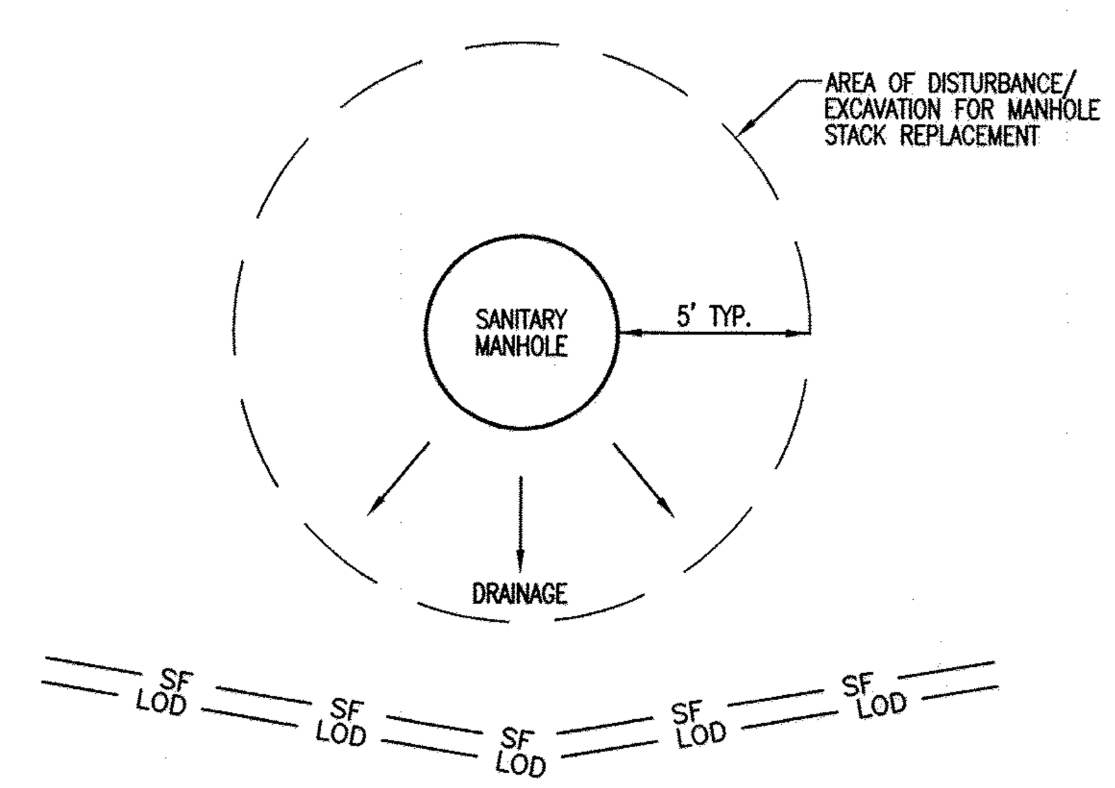
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction
DETAIL 1.3: CULVERT PIPE W/ ACCESS ROAD



TEMPORARY INSTREAM CONSTRUCTION MEASURES	*REVISED NOVEMBER 2000 PAGE 1.3 - 3*	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

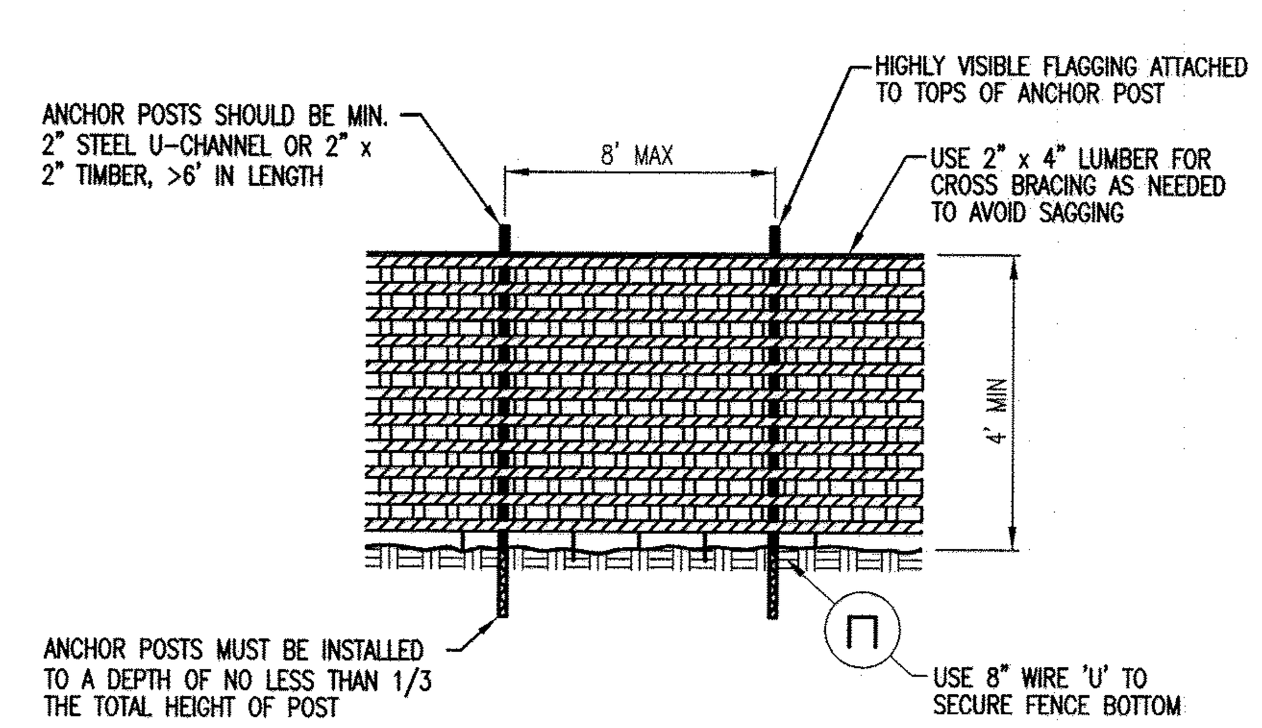


NOTE:

1. FOR MANHOLES REQUIRING EXCAVATION FOR STACK REPLACEMENT OR CIPP LINER INSTALLATION, SILT FENCE SHALL BE INSTALLED ON THE DOWNSTREAM SLOPE OF THE DISTURBED AREA.

TYPICAL DETAIL FOR EROSION & SEDIMENT CONTROL FOR MANHOLE

NO SCALE



NOTES:

1. BLAZE ORANGE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. FENCE BOUNDARIES SHALL BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
3. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
4. DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCE

NO SCALE

STANDARD EROSION AND SEDIMENT CONTROL NOTES

THE WATER MANAGEMENT ADMINISTRATION REQUIRES THAT THESE NOTES, IN THEIR ENTIRETY, BE INCLUDED ON THE EROSION AND SEDIMENT CONTROL PLAN. IT IS RECOGNIZED THAT EVERY NOTE MAY NOT APPLY TO ALL PROJECTS. THE REQUIREMENT OF ANY INDIVIDUAL NOTE NOT APPLICABLE TO THE SUBJECT PROJECT IS NOT BINDING UPON THE APPLICANT OR THE APPLICANT'S CONTRACTOR.

1. THE CONTRACTOR SHALL NOTIFY THE ADMINISTRATION (WMA) AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE ADMINISTRATION, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF WMA.
2. THE CONTRACTOR MUST NOTIFY WMA IN WRITING AND BY TELEPHONE AT THE FOLLOWING POINTS:
   A. THE REQUIRED PRE-CONSTRUCTION MEETING.
   B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES.
   C. DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN). NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.
   D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
   E. PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.
   F. PRIOR TO FINAL ACCEPTANCE.
3. THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE AGENCY INSPECTOR OR WMA INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE WMA INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR. THE CONTRACTOR MUST OBTAIN PRIOR AGENCY AND WMA APPROVAL FOR CHANGES TO THE SEDIMENT CONTROL PLAN AND / OR SEQUENCE OF CONSTRUCTION.
4. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
5. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR.
6. ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPES, PERIMETER DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT FOR STABILIZATION MAY BE REDUCED TO THREE (3) DAYS FOR SENSITIVE AREAS.)
7. THE CONTRACTOR SHALL APPLY SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS AND STOCKPILES WITHIN FOURTEEN (14) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT MAY BE REDUCED TO SEVEN (7) DAYS FOR SENSITIVE AREAS.)
8. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE ESTABLISHED PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.
9. THE SITE'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF WMA AND THE AGENCY RESPONSIBLE FOR PROJECT.
10. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO LOWER THE WATER DOWNSLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF A CUT OR FILL SLOPE UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. PROTECTIVE METHODS MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.
11. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING, RIP-RAP, OR BY OTHER APPROVED STABILIZATION MEASURES.
12. TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED, WITH PERMISSION OF WMA INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.
13. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NONMAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
14. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM PONDING FOR MORE THAN TWENTY FOUR (24) HOURS AFTER THE END OF A RAINFALL EVENT. DRAINAGE COURSES AND SWALE FLOW AREAS MAY TAKE AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL EVENT TO DRAIN. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.
15. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION THAT EXISTS OR IS UNDER CONSTRUCTION. NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.
16. THE WMA INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.
17. ALL TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS MUST HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL HAVE STABLE INFLOW POINTS.
18. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING, AND GROUND COVERS.
19. SEDIMENT SHALL BE REMOVED AND THE TRAP OR BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE QUARTER OF THE TOTAL DEPTH OF THE TRAP OR BASIN. TOTAL DEPTH SHALL BE MEASURED FROM THE TRAP OR BASIN BOTTOM TO THE CREST OF THE OUTLET.
20. SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR TREE-SAVE AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SUMP PIT MAY BE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED OUT.
21. ALL WATER REMOVED FROM EXCAVATED AREAS SHALL BE PASSED THROUGH A WMA APPROVED DEWATERING PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE TO A FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE.
22. SEDIMENT CONTROL FOR UTILITY CONSTRUCTION FOR AREAS OUTSIDE OF DESIGNED CONTROLS OR AS DIRECTED BY ENGINEER OR WMA INSPECTOR:
   A. CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK.
   B. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
   C. TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED, AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED THE SAME DAY, UNLESS;
   D. TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.
23. WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH LOCAL BUILDING OFFICIALS ON APPLICABLE SAFETY REQUIREMENTS. WHERE SAFETY FENCE IS DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES AND TYPES, THE FOLLOWING SHALL BE USED AS A MINIMUM STANDARD: THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AND AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES IN HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.
24. OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL BY WMA AND OTHER APPLICABLE STATE, FEDERAL, AND LOCAL AGENCIES; OTHERWISE APPROVAL MUST BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.

STANDARD EROSION AND SEDIMENT CONTROL NOTES (CONT.)

25. SITES WHERE INFILTRATION DEVICES ARE USED FOR THE CONTROL OF STORMWATER, EXTREME CARE MUST BE TAKEN TO PREVENT RUNOFF FROM UNSTABILIZED AREAS FROM ENTERING THE STRUCTURE DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISH GRADE BOTTOM ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE, ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.
26. WHEN A STORM DRAIN SYSTEM OUTFALL IS DIRECTED TO A SEDIMENT TRAP OR SEDIMENT BASIN AND THE SYSTEM IS TO BE USED FOR TEMPORARILY CONVEYING SEDIMENT LADEN WATER, ALL STORM DRAIN INLETS IN NON-SUMP AREAS SHALL HAVE TEMPORARY ASPHALT BERMS CONSTRUCTED AT THE TIME OF BASE PAVING TO DIRECT GUTTER FLOW INTO THE INLETS TO AVOID SURCHARGING AND OVERFLOW OF INLETS IN SUMP AREAS.
27. SITE INFORMATION:

A. TOTAL AREA OF FACILITY (BASE, CAMPUS, PARK, ETC.)	22.8 ACRES
B. AREA DISTURBED	7.0 ACRES
C. AREA TO BE ROOFED OR PAVED	N/A ACRES
D. TOTAL CUT	1,500 CU. YDS.
E. TOTAL FILL	1,500 CU. YDS.
F. OFF-SITE WASTE / BORROW AREA LOCATION	N/A

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 FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN 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 THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
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 THE CLASSIFICATION OF THE STREAM:

   USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

   USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.

   USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
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 AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

PROJECT SEQUENCE OF CONSTRUCTION

1. NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY HOWARD COUNTY BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION (410-313-1855) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON-SITE. (1 DAY)
3. CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES ONLY. (7 DAYS)
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE(S). (10 DAYS)
5. NOTIFY HOWARD COUNTY BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION UPON COMPLETION OF THE INSTALLATION WORK NOTED ABOVE. (1 DAY)
6. BEGIN REHABILITATION WORK (XXX DAYS)
7. CONNECT TO EXISTING UTILITIES WHERE APPLICABLE. (7 DAYS)
8. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE(S). (2 DAYS)
9. STABILIZE ALL DISTURBED AREAS. (14 DAYS)
10. FOLLOWING APPROVAL FROM THE HOWARD COUNTY BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMIANING AREAS. (7 DAYS)

"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. 24478, EXPIRATION DATE: 10/28/15."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS	DATE 12/4/14	CHIEF, BUREAU OF ENGINEERING	DATE 12/2/14
CHIEF, BUREAU OF UTILITIES	DATE 12/2/14	CHIEF, UTILITY DESIGN DIVISION	DATE 12/1/14 WD

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS HIDE HAASON — PROFESSIONAL ENGINEER — 11/24/14

DES: MB				
DRN: GG				
CHK: AC				
NOVEMBER 2014	BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

600 SCALE MAP NO. | BLOCK NO.

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

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SOIL PREPERATION, 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.

LAND GRADING

DEFINITION
RESHAPING THE EXISTING LAND SURFACE TO PROVIDE SUITABLE TOPOGRAPHY FOR BUILDING FACILITIES AND OTHER SITE IMPROVEMENTS.

PURPOSE
TO PROVIDE EROSION CONTROL AND VEGETATIVE ESTABLISHMENT FOR EXTREME CHANGES IN GRADE.

CONDITIONS WHERE PRACTICE APPLIES
EARTH DISTURBANCES OR EXTREME GRADE MODIFICATIONS ON STEEP OR LONG SLOPES.

DESIGN CRITERIA
THE GRADING PLAN SHOULD BE BASED ON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SLOPE STABILITY, ADJACENT PROPERTIES, DRAINAGE PATTERNS, MEASURES FOR WATER REMOVAL, AND VEGETATIVE TREATMENT, ETC.

MANY JURISDICTIONS HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING THAT MUST BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS FOR THE AREA(S) TO BE GRADED INCLUDING PRACTICES FOR EROSION CONTROL, SLOPE STABILIZATION, AND SAFE CONVEYANCE OF RUNOFF (E.G., WATERWAYS, LINED CHANNELS, REVERSE BENCHES, GRADE STABILIZATION STRUCTURES). THE GRADING/CONSTRUCTION PLANS ARE TO INCLUDE THE PHASING OF THESE PRACTICES AND CONSIDERATION OF THE FOLLOWING:

1. PROVISIONS TO SAFELY CONVEY SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR STABLE WATER COURSES TO ENSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.
ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED DAMAGES.

LAND GRADING (CONT.)

2. CUT AND FILL SLOPES, STABILIZED WITH GRASSES, NO STEEPER THAN 2:L. (WHERE THE SLOPE IS TO BE MOWED, THE SLOPE SHOULD BE NO STEEPER THAN 3:L, BUT 4:L IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES.) SLOPES STEEPER THAN 2:L REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS TO BE SHOWN ON THE PLANS.

3. BENCHING PER DETAIL B-3-1 WHENEVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:L SLOPE EXCEEDS 20 FEET; FOR 3:L SLOPES, WHEN IT EXCEEDS 30 FEET; AND FOR 4:L SLOPES, WHEN IT EXCEEDS 40 FEET. LOCATE BENCHES TO DIVIDE THE SLOPE FACE AS EQUALLY AS POSSIBLE AND TO CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, ROCK OUTCROPS, ETC. ARE TO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.

A. PROVIDE BENCHES WITH A MINIMUM WIDTH OF SIX FEET FOR EASE OF MAINTENANCE.

B. DESIGN BENCHES WITH A REVERSE SLOPE OF 6:L OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. GRADE THE LONGITUDINAL SLOPE OF THE BENCH BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.

C. THE MAXIMUM ALLOWABLE FLOW LENGTH WITHIN A BENCH IS 800 FEET UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.

4. DIVERSION OF SURFACE WATER FROM THE FACE OF ALL CUT AND FILL SLOPES USING EARTH DIKES OR SWALES. CONVEY SURFACE WATER DOWN SLOPE USING A DESIGNED STRUCTURE, AND:

A. PROTECT THE FACE OF ALL GRADED SLOPES FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.

B. DO NOT SUBJECT THE SLOPE'S FACE TO ANY CONCENTRATED FLOW OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGE WAYS, GRADED SWALES, DOWNSPOUTS, ETC.

C. PROTECT THE FACE OF THE SLOPE BY SPECIAL EROSION CONTROL MATERIALS TO INCLUDE, BUT NOT BE LIMITED TO, APPROVED VEGETATIVE STABILIZATION PRACTICES, RIPRAP OR OTHER APPROVED STABILIZATION METHODS.

5. SERRATED SLOPE AS SHOWN IN DETAIL B-3-2. THE STEEPEST ALLOWABLE SLOPE FOR RIPABLE ROCK IS 1.5:1. FOR NON ROCK SURFACES, THE SLOPES ARE TO BE 2:1 OR FLATTER. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THUS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION.

6. SUBSURFACE DRAINAGE PROVISIONS. PROVIDE SUBSURFACE DRAINAGE WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.

7. PROXIMITY TO ADJACENT PROPERTY. SLOPES MUST NOT BE CREATED CLOSE TO PROPERTY LINES WITHOUT ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED DAMAGES.

8. QUALITY OF FILL MATERIAL. FILL MATERIAL MUST BE FREE OF BRUSH, RUBBISH, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIAL. DO NOT PLACE FROZEN MATERIALS IN THE FILL NOR PLACE THE FILL MATERIAL ON A FROZEN FOUNDATION.

9. STABILIZATION. STABILIZE ALL DISTURBED AREAS STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH SECTION B-4 STANDARDS AND SPECIFICATIONS FOR STABILIZATION PRACTICES.

MAINTENANCE
THE LINE, GRADE, AND CROSS SECTION OF BENCHING AND SERRATED SLOPES MUST BE MAINTAINED. BENCHES AND SERRATED SLOPES MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

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.

SEEDING AND MULCHING (CONT.)

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; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (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.

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.

PERMANENT STABILIZATION (CONT.)

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

HARDNESS ZONE 6B SEED MIXTURE					FERTILIZER RATE (10-20-20)			LIME RATE
MIX	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
1	CREEPING RED FESCUE (30%) CHEWINGS FESCUE (30%) ROUGH BLUE GRASS (20%) CATALINA PERENNIAL RYEGRASS (20%)	200	3/1 - 5/15 AND 8/1 - 10/15	1 IN	90 LBS./AC (2.0 LB/ 1000 SF)	175 LBS./AC (4.0 LB/ 1000 SF)	175 LBS./AC (4.0 LB/ 1000 SF)	2 TONS/AC (100 LB/ 1000 SF)

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 3/4 INCH, PLUS OR MINUS 1/4 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 AD 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 1/3 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.

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

HARDNESS ZONE 6B SEED MIXTURE					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	ANNUAL RYE	50	3/1 - 4/30 8/15 - 11/1	1/4 IN TO 1/2 IN	600 LBS./AC (15 LB/ 1000 SF)	2 TONS/AC (100 LB/ 1000 SF)
2	WEEPING LOVEGRASS	4	5/1 - 8/14	1/4 IN TO 1/2 IN		

"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. 24478, EXPIRATION DATE: 10/28/15."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 12/4/14
CHIEF, BUREAU OF ENGINEERING — DATE 12/2/14
CHIEF, BUREAU OF UTILITIES — DATE 12/2/14
CHIEF, UTILITY DESIGN DIVISION — DATE 12/1/14 WD

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS RIDE MASON — 24478 — PROFESSIONAL ENGINEER — 11/24/14

DES: MB
DRN: GG
CHK: AC
NOVEMBER 2014

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL NOTES

600 SCALE MAP NO. | BLOCK NO.

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4881
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE
AS SHOWN

SHEET
10 OF 10

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Nov 24, 2014 - 8:59am

AS-BUILT: 6-15-2017