SAVAGE AREA SEWER REALIGNMENT

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

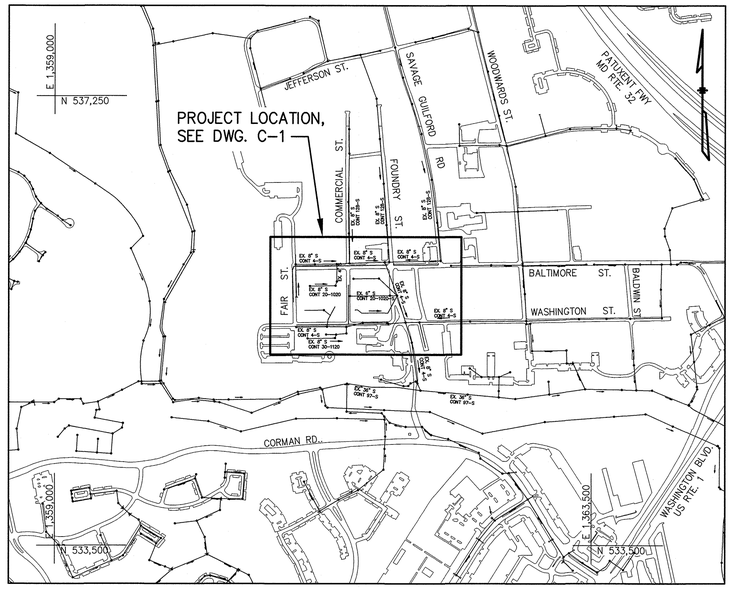
CAPITAL PROJECT NO. S6290
CONTRACT NO. 20-4937

GENERAL NOTES

1. Approximate locations of existing sanitary sewer 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 by the Contractor at the Contractor's expense.
2. Topographic field surveys were performed on March 2015 by RK&K.
3. Horizontal and Vertical Survey Controls: The coordinates shown on the drawings are based on Maryland State Reference System NAD 83/91A and NAVD88 as projected by Howard County Geodetic Control Stations Howard Co. BM37IM3 and BM38GM1. All controls provided on Dwg G-2 are a disk, rebar & cap, or mag nail.
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 or described in the contract documents 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. All existing utilities shall be test pitted/located as necessary and in advance of the proposed construction, in order to properly make all required utility crossings and/or connections. Any discrepancies or utility conflicts shall be immediately reporter to the Engineer. Where test pits have been made on existing utilities, they are noted by the symbol ■ at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings or specifications. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the Contractor two (2) weeks in advance of construction operations at his own expense.
8. Contractor shall notify the following utility companies or agencies at least four (4) weeks before starting work shown on these plans:

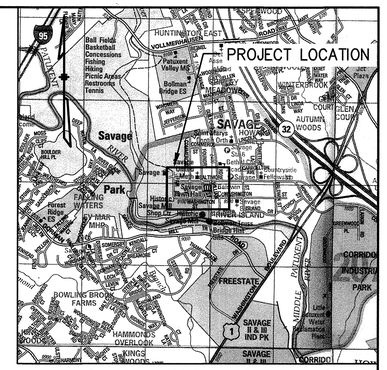
AT&T	1-800-252-1133	Howard County Public Schools (if during school times)	410-313-6728
BGE – Contractor Services	410-637-8713	Howard County Bureau Of Environmental Services	410-313-6470
BGE– Emergency	800-685-0123	Howard County Emergency Communications/911 Center	410-313-2300
Howard County DPW – Traffic Division	410-313-2430		
Colonial Pipeline Co.	410-795-1390		
Miss Utility	1-800-257-7777		
Howard County Transit Services	410-313-5800/240-581-5800		
Verizon	1-800-743-0033/410-224-9210		

9. Trees and shrubs are to be protected from damage to the maximum extent.
10. Contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the sanitary sewer.
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. The Contractor shall provide all necessary lines, grades and elevations. Cut sheets shall be prepared based on the lines and grades shown on the Contract drawings.
13. Backfill all low spots over existing sewer to provide positive drainage as noted on the drawing. Approximate locations are shown. Contractor is to confirm all low spots and use approved backfill.



VICINITY MAP
SCALE: 1" = 600'

DRAINAGE AREA: LITTLE PATUXENT



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Permit Use Number 21003214
Expiration: 03/31/2017

LOCATION MAP
SCALE: 1" = 2000'

INDEX OF SHEETS

AS-BUILT DRAWINGS

TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, BASED ON INFORMATION PROVIDED BY OTHERS, THESE AS-BUILT DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

RUMMEL, KLEPPER & KAHL, LLP
EFG 6-1-2018

OWNER'S/DEVELOPER'S CERTIFICATION

" I/We Hereby Certify That Any Clearing, Grading, Construction, or Development Will Be Done Pursuant To This Approved Erosion And Sediment Control Plan, Including Inspecting And Maintaining Controls, And That The Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Training At A Department Of The Environment (MDE) Approved Training Program For The Control Of Erosion And Sediment Prior To Beginning The Project. I Certify Right-Of-Entry For Periodic On-Site Evaluation By Howard County, The Howard Soil Conservation District and/or MDE. "

Kerri Dinsmore — 10/25/2016
Owner's/Developers Signature — Date

Kerri Dinsmore, Project Manager
Printed Name & Title
Bureau Of Engineering
Department Of Public Works

ENGINEER'S CERTIFICATION

" I Hereby Certify That This Plan has Been Designed In Accordance With Current Maryland Erosion And Sediment Control Laws, Regulations, And Standards, That It Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site, And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. "

John C. Moore — 10-24-2016
Engineer's Signature — Date

JOHN C. MOORE, P.E. — 20566
Printed Name — MD Registration No.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

This Plan Is Approved For Soil Erosion And Sediment Control By The Howard Soil Conservation District. EP 17-011

John R. Robertson — 10/26/17
Howard Soil Conservation District — Date

3	8-INCH C-900 WATER MAIN	171 LF	171 LF	C-900	JM EAGLE

QUANTITIES

NAME OF UTILITY CONTRACTOR :

SURVEY AND DRAFTING DIVISION AS-BUILT DATE :

ITEM	ESTIMATED QUANTITY	AS-BUILT (4) QUANTITY	TYPE	MANUFACTURER/SUPPLIER
6-INCH SDR-35 PVC SANITARY SEWER HOUSE CONNECTION	~~1,950~~ 1,750 LF (2)	1,402.5 LF	SDR-35	JM EAGLE
8-INCH SDR-35 PVC SANITARY SEWER MAIN	~~2,050~~ 2,150 LF (2)	2,103 LF	SDR-35	JM EAGLE
SANITARY MANHOLES STANDARD DEPTH UP TO 6-FEET	15 EA	15 EA	PRE CAST	CONTRACTORS PRECAST CORP
SANITARY MANHOLES VERTICAL DEPTH IN EXCESS OF 6-FEET	150 VLF	112.3 VLF	PRE CAST	CONTRACTORS PRECAST CORP
SANITARY MANHOLES DOGHOUSE CONSTRUCTION	~~5~~ 4 EA (1)	5 EA	PRECAST	CONTRACTORS PRECAST CORP
SANITARY MANHOLES INSIDE DROP FOR EX. MANHOLE 11A	1 EA	1 EA	PVC	RELINER
REPAIR AND COATING OF EXISTING MANHOLES	4 EA			
(2) 6-INCH DIP SANITARY SEWER HOUSE CONNECTION	200 LF	190 LF	DIP	US PIPE
(2) 8-INCH DIP SANITARY SEWER	500 LF	508 LF	DIP	US PIPE

ESC 1 OF 7

2,000' 1,000' 0 2,000' 4,000' 1"=2,000'
600' 300' 0 600' 1200' 1"=600'

G-1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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. 20566, EXPIRATION DATE 9-6-2018.

RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MOORE — 20566 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	1	ELEV. INV, MH CORRECT PER ADDENDA	2-24-2017
EFG	2	DIP SEWER, MH3, MH11, MH13 REVISIONS	3-16-2017
EFG	3	BALTIMORE AT FAIR ST REVISIONS	6-30-2017
EFG	4	AS-BUILT	6-1-2018

GENERAL
TITLE SHEET

600' SCALE MAP NO. 47 — BLOCK NO. 11 — ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

SCALE: AS SHOWN
SHEET NO. 1 OF 18

RKK#\SYS - \\Water\V\2012\2012\12154_HoCoBOA\Task 4 - Savage Sewer Design\CADD\Dwgs\01-01.dwg Oct 24, 2016 - 12:04pm EIN,CTB Plot Scale 1=1 Plot By: egemroth Tab: G-1

SURVEY TRAVERSE

#	NORTH	EAST	ELEVATION	DESCRIPTION
47FE	535856.1860	1362155.3500	208.29	DISC
MRC1	535854.0757	1361854.1790	197.87'	REBAR & CAP
MRC2	535803.7298	1361445.8924	218.31'	MAG NAIL
MRC3	535794.5477	1361022.0553	240.20'	MAG NAIL
MRC4	535365.8994	1361032.8532	245.20'	MAG NAIL
MRC5	535371.4855	1361448.1093	226.66	MAG NAIL
MRC6	535370.6286	1361843.6164	203.35'	MAG NAIL
MRC7	535382.4916	1362057.0578	190.75'	MAG NAIL
MRC8	535348.8530	1362583.1324	191.67'	REBAR & CAP
MRC9	535397.8142	1362967.2631	190.67'	REBAR & CAP
MRC11	535668.4486	1362030.5795	198.94'	MAG NAIL
MRC12	535664.6148	1360989.3939	240.57'	REBAR & CAP
MRC13	535666.9022	1361202.0180	235.22'	REBAR & CAP
MRC14	535671.4788	1361376.0282	228.28'	REBAR & CAP
MRC15	535647.5983	1361556.0440	214.2'	REBAR & CAP
MRC16	535642.3419	1361849.0061	196.14'	REBAR & CAP
MRC17	535248.8021	1361480.5171	218.77'	REBAR & CAP
MRC18	535368.6442	1361236.9728	235.96'	MAG NAIL
MRC19	535228.6344	1360993.8429	237.48	MAG NAIL
MRC20	535619.2257	1361446.8387	224.93'	REBAR & CAP
MRC21	535529.7804	1361336.2256	236.03'	REBAR & CAP
MRC22	535488.9341	1361029.7538	246.33'	CROSS-CUT
MRC23	535645.7592	1361658.5448	205.81'	REBAR & CAP
MRC24	536014.8609	1361446.8613	219.49'	MAG NAIL
MRC25	535986.8450	1361072.1817	245.89'	REBAR & CAP
MRC26	536001.6673	1361270.4293	229.91'	REBAR & CAP
MRC29	535547.2452	1361918.5199	193.66'	REBAR & CAP
MRC30	535718.5543	1362157.2792	204.06'	REBAR & CAP
MRC31	535375.6823	1362230.5822	193.76'	MAG NAIL
MRC32	534918.7341	1362008.1844	161.35'	MAG NAIL
MRC40	535868.3976	1362245.9605	208.09'	MAG NAIL
MRC60	535334.0042	1361640.5266	217.91'	REBAR & CAP
MRC61	535513.8362	1361547.9363	216.35'	REBAR & CAP
MRC62	535982.4053	1361012.8053	250.31'	MAG NAIL

EXISTING STORM DRAIN STRUCTURE INFORMATION

(1) (DI)
TOP OF GRATE 196.98'
18" RCP INV.OUT 194.03'

(2) (DI)
TOP OF GRATE 197.62'
(NW) 18" RCP INV. IN 193.58'
(S) 15" RCP INV. OUT 193.54'

(3) (DI)
TOP OF GRATE 197.69'
(N) 15" RCP INV. IN 193.27'
(NW) 15" RCP INV. OUT 193.18'

(4) (SDMH)
TOP OF RIM 198.10
(NE) 48"x34" CMP INV IN 191.55'
(N) 42" RCP INV IN 191.50'
(S) 4'x3' STONE BOX
INV OUT 191.28

(5) (DI)
TOP OF GRATE 198.03'
15" RCP INV. OUT 194.74'

(6) (SDMH)
TOP OF RIM=198.37'
(W) 18"RCP INV.IN=191.46'
(NW) 15"RCP INV.IN=191.83'
(SE) 36"RCP INV.OUT=191.35'

(7) (SDMH)
TOP OF RIM=197.73'
(W) 15"RCP INV.IN=192.12'
(NW) 36"RCP INV.IN=191.13'
(S) 36"RCP INV.OUT=191.03'

(8) (SDMH)
TOP OF RIM 198.87'
15" RCP OUT 194.72'

(9) (SDMH)
TOP OF RIM 197.89'
(W) 27" RCP INV. IN 193.34'
(N) 18" RCP INV. IN 193.68'
(SW) 48x34" CMP OUT 193.04'

(10) (DI)
TOP OF GRATE 213.93'
12" RCP INV. OUT 211.72'

(11) (SDMH)
TOP OF RIM 214.27'
CAN NOT OPEN

(12) (SDMH)
TOP OF RIM=216.82'
(S) 15"RCP INV.IN=208.95'
(W) 18"RCP INV.IN=209.62'
(N) 24"RCP INV.IN=208.84'
(E) 18"RCP INV.OUT=208.73'

(13) (DI)
TOP OF GRATE 217.65'
(NW) 24" RCP INV. IN 211.67'
(N) 15" RCP INV. IN 213.77'
(S) 24" RCP INV. OUT 211.05'

(14) (SDMH)
TOP OF RIM=220.22'
(SW) 15"RCP INV.IN=214.84'
(W) 18"RCP INV.IN=212.14'
(NW) 15"RCP INV.I215.48'
(E) 18"RCP INV.OUT=211.97'

(15) (SDMH)
TOP OF RIM 220.87'
15" RCP OUT 215.33'

(16) (DI)
TOP OF GRATE 216.95'
(S) 15" RCP INV. IN 213.84'
(N) 15" RCP INV. OUT 213.87'

(17) (DI)
TOP OF GRATE 218.77'
15" RCP INV. OUT 214.42'

(18) (DI)
TOP OF GRATE 222.13'
15" RCP INV. OUT 218.88'

(19) (DI)
TOP OF GRATE 220.39'
(W) 15" RCP INV. IN 217.51'
(SE) 15" RCP INV. OUT 217.30'

(20) (DI)
TOP OF GRATE 242.29'
18" RCP INV. OUT 239.10'

(21) (SDMH)
TOP OF RIM 241.02'
CAN NOT OPEN

(22) (DI)
TOP OF GRATE 239.72'
(W) 15" RCP INV. IN 233.74'
(N) 18" RCP INV. OUT 233.65'

(23) (SDMH)
TOP OF RIM 240.11'
15" RCP OUT 234.12'

(24) (DI)
TOP OF GRATE 227.58'
15" RCP INV. OUT 224.25'

(25) (SDMH)
TOP OF RIM 213.00'
(SW) 12" RCP INV. IN 207.38'
(W) 15" RCP INV. IN 206.80'
(E) 15" RCP INV. OUT 207.19'

(26) (DI)
TOP OF GRATE 213.81'
12" RCP INV. OUT 209.92'

(27) (SDMH)
TOP OF RIM 203.90'
CAN NOT OPEN

(28) (SDMH)
TOP OF RIM 188.28'
(W) 36" RCP INV. IN 174.28'
(N) 4'x3' STONE BOX INV. IN 173.02'
(E) 15" RCP INV. IN 181.38'
(S) 60" RCP INV. OUT 172.86'

(29) (DI)
TOP OF GRATE 191.19'
(NW) 12" RCP INV. IN 184.41'
(NE) 15" RCP INV. IN 185.03'
(W) 15" RCP INV.OUT 184.23'

SEWER MAIN NOTES

1. All sewer mains shall be D.I.P or P.V.C unless otherwise noted.
2. Sewer main sizes and types are indicated on the drawings and on the Quantities Table.
3. Distances shown for the sewer main are along the centerline of the pipe from center of manhole to center of manhole.
4. All manholes shall be 4'–0" inside diameter unless otherwise noted.
5. House(s) with the symbol "C.N.S" indicates that the cellar cannot be served.

SEWER BY–PASS NOTES FOR EXISTING MANHOLES

1. Contractor to submit the following prior to execution;
   a. Method for maintaining sewage flows to include:
      Bypass pumping plan showing;
      1) Intake manhole.
      2) Receiving manhole.
      3) Expected flows. (Contractor to field verify)
      4) Pump size.
      5) Pipe layout.
      6) Backup equipment.
   b. Schedule showing bypass duration.
2. Maintain existing sewage flows during connection to existing sewer.
3. Take precautions and employ methods required to prevent sewage backup.
4. Return diverted sewage to sanitary system and do not discharge on surfaces or into streams or storms drains.
5. Use enclosed bypass flumes equivalent in size to existing sewer being diverted, when required.
6. Immediately clean and disinfect raw sewage spills and overflows, and notify Howard County Bureau of Utilities at 410–313–4900.
7. Any time sewer bypass pumping occurs, The contractor shall be physically present at the jobsite to respond to any pump or equipment failures. See Howard County Design Manual, Volume IV, Section 1013.03.03 for more information.

SHC NOTES

1. Sewer House Connections (SHC) shall be D.I.P or P.V.C matching material of the sewer main. SHC shall be per Standard Detail S–2.11.
2. SHC shall be built to the property line. Cleanouts shall be provided on all SHC at the property line on the homeowner's side per Standard Detail S–2.22.
3. Contractor shall provide a plug at the property line cleanout for the private building sewer.
4. Minimum cover over all SHC within the road right–of–way shall be 4–feet.
5. Pipe trench shall be per Standard Detail G–2.11 or G–2.12.

PRIVATE BUILDING SEWER NOTES

1. All private building sewers will be installed by a utility contractor or a licensed plumber.

SEWER ABANDONMENT NOTES

1. All sewer pipe shall be abandoned by inserting a mechanical plug a minimum of 12–inches into the abandoned pipe. All space around the pipe between the plug and inside face of MH shall be filled/surrounded by non–shrink grout or 2,500 psi concrete.
2. All manhole frames, covers, grade rings, and the top cone section shall be removed to a minimum of 3–foot below finish grade.
3. For sewers to be abandoned at existing manholes, mechanical plugs shall be installed.
4. For manholes within the road right–of–way, the manhole shall be completely filled with concrete or flowable fill.
5. For manholes outside the road right–of–way, the manhole shall be filled with stone.

LEGEND

EXISTING		PROPOSED	
	BUILDING/STRUCTURE	PROP. 8" PVC S	COLLECTOR SEWER
	PROPERTY LINE INDICATES SAME OWNER		MANHOLE
EX. 8" S	COLLECTOR SEWER, MH		CLEANOUT
CO	SEWER CLEANOUT		SEWER HOUSE CONNECTION (SHC), PROPERTY LINE TO COLLECTOR SEWER
EX. 8" W	WATER MAIN		
	WATER VALVE, FH, METER		
W	ABANDONED WATER MAIN		ABANDON EX. SEWER
S	STORM DRAIN, INLET, MH	S E	PLUG TO ABANDON EX. SEWER
108	STRUCTURE IDENTIFICATION		
EX. 2" G	GAS MAIN		
240	CONTOURS (2 FT INTERVAL)	CNS	CELLAR NOT SERVED
	SOIL BORING	BEP	BRACE EX. UTILITY POLE (HOWARD CO.)
	UTILITY POLE (OHE NOT SHOWN)	REM	REHABILITATE EX. MH
	MACADAM PAVEMENT	TBA	TO BE ABANDONED
△MRC 7	SURVEY TRAVERSE POINT		
TP–2	TEST PIT		

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/25/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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. 20566, EXPIRATION DATE 9-6-2018.

RK&K
RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728–2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MOYER — 20566 — REGISTERED PROFESSIONAL ENGINEER

DES:	EFG
DRN:	MEB
CHK:	JCM
DATE:	10–24–2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

GENERAL
NOTES AND LEGEND

600' SCALE MAP NO. 47 — BLOCK NO. 11

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET NO. 2 OF 18

G–2

NOTE:
EXISTING OVERHEAD ELECTRIC AND OVERHEAD UTILITY LINES ARE NOT SHOWN ON THIS PLAN.

3 WATER MAIN NOTE:
ALL WATER MAINS SHALL BE PVC WITH A RESTRAINING HARNESS AT ALL JOINTS. ALL VALVES AND DIP FITTINGS SHALL HAVE RESTRAINED MECHANICAL JOINTS APPROPRIATE FOR PVC PIPE. TRANSITION COUPLINGS SHALL NOT BE RESTRAINED.

PLAN
SCALE: 1" = 50'

1"=50' 50' 0 50' 100'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/20/18
CHIEF, BUREAU OF ENGINEERING — DATE 7/17/18
CHIEF, BUREAU OF UTILITIES — DATE 7-18-18
CHIEF, UTILITY DESIGN DIVISION — DATE 7/18/18

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. 20566, EXPIRATION DATE 9-6-2018.

STATE OF MARYLAND — JOHN C. MEB — 20566 — REGISTERED PROFESSIONAL ENGINEER

RK&K — RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	2	DIP SEWER, MH3, MH11, MH13 REVISIONS	3-16-2017
EFG	3	BALTIMORE AT FAIR ST REVISIONS	6-30-2017
EFG	4	AS-BUILT	6-1-2018

CIVIL PLAN
600' SCALE MAP NO. 47 BLOCK NO. 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT REPLACEMENT SHEET 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

SCALE AS SHOWN
SHEET NO. 3 OF 18
C-1

RKK21\SYS - \\data\dv01\V2012\2012\V2154_JHoCB0A\Task 4 - Savage Sewer Design\AS-BUILT drawings\03 C1 as-built.dwg Jun 06, 2018 - 11:13am ENV:CTB Plot Scale 1=1 Plot By: egermroth Tab:C-1

PROPERTY OWNERS TABLE

PREMESIS ADDRESS	OWNER NAME	MAILING ADDRESS	CITY, STATE ZIP	ACCOUNT NUMBER	MAP/GRID/ PARCEL	DEED	BASEMENT	PROPERTY FRONTAGE
9002 & 9014 Baltimore St.	Shree Hari Krishna, LLC	9535 N. Laurel Road	Laurel, MD 20723	430481	0047/0011/0458	16041/ 00062	Unknown	206
9003 & 9005 Baltimore St	Mary Ann Mitchell	8241 Savage Guilford Road	Jessup, MD 20794-9670	394337	004700110329	00961/ 00388	Unknown	188
9032 Baltimore St	United Methodist Church Of Savage C/O Patricia Riley Treasurer	9050 Baltimore Street	Savage, MD 20763-9646	417469	0047/0011/0231	03908/ 00493	No	145
9050 Baltimore St	United Methodist Church Of Savage C/O Patricia Riley Treasurer	9050 Baltimore Street	Savage, MD 20763-9647	439187	0047/0011/0088	00053/ 00515	Unknown	203
9051 Baltimore St	William Burkhouse	9051 Baltimore Street	Savage, MD 20763-9649	430422	0047/0011/0684	11242/ 00366	No	82
9053 Baltimore St	Amy E. Reytar	9053 Baltimore Street	Savage, MD 20763-0328	461948	0047/0011/0288	15114/ 00476	Yes	25
9055 Baltimore St	Reinhardt T. Tetzloff Carolyn E. Tetzloff	9055 Baltimore Street	Savage, MD 20763-9649	461964	0047/0011/0288	05099/ 00597	Yes	25
9056 Baltimore St	Elizabeth Ann Brady	9056 Baltimore Street	Savage, MD 20763-9647	401538	0047/0011/0426	14536/ 00221	Yes	30
9057 Baltimore St.	Ian T. Smith Alecia A. Smith	9057 Baltimore Street	Savage, MD 20763	461972	0047/0011/0291	16081/ 00394	No	25
9058 Baltimore St.	Andrea Paun	9058 Baltimore Street	Savage, MD 20763	442382	0047/0011/0405	16512/00459	No	24
9059 Baltimore St.	Colette Diane Lepage	9059 Baltimore Street	Savage, MD 20763-9649	461980	0047/0011/0292	09176/ 00167	Yes	25
9061 Baltimore St.	Treena Greene	9061 Baltimore Street	Savage, MD 20763-9649	461956	0047/0011/0288	10913/ 00710	Yes	25
9063 Baltimore St.	Maria Paz Felix Bruce C. Milligan	9063 Baltimore Street	Savage, MD 20763-9649	461999	0047/0011/0288	10878/ 00510	Yes	25
9065 Baltimore St.	Joshua D. Adler	9065 Baltimore Street	Savage, MD 20763-9649	462006	0047/0011/0294	07156/ 00338	Yes	25
9066 Baltimore St.	Joseph Michael Bawol Elizabeth Anne Bawol	9066 Baltimore Street	Savage, MD 20763-9647	396321	0047/0011/0294	16584/00153	Yes	55
9067 Baltimore St.	Bobby Ray Mitchell, II Mary Ann Mitchell	PO Box 52	Savage, MD 20763-0052	462014	0047/0011/0294	01589/ 00417	Yes	25
9069 Baltimore St.	Jessique A. Stewart	9069 Baltimore Street	Savage, MD 20763-9649	462022	0047/0011/0294	11977/ 00131	Yes	30
9100 Baltimore St.	Benny Mullins Beverly A. Mullins	PO Box 49	Savage, MD 20763-0049	403468	0047/0011/0381	01382/ 00186	No	30
9104 Baltimore St.	James B Croston Janice E Croston	5300 Dorsey Hall Drive, Suite 100	Ellicott City, MD 21042	403492	0047/0011/0682	01094/ 00450	No	43
9105 & 9111 Baltimore St.	Chau Quynh Nguyen	6807 Arlington Blvd.	Falls Church, VA 22042-2725	403441	0047/0011/0412	09669/ 00159	No	73
9108 Baltimore St.	Benjamin T. Lowe	9108 Baltimore Street	Savage, MD 20763-9634	416616	0047/0011/0409	15982/ 00430	No	45
9114 Baltimore St.	Kelly M. Malloy	9114 Baltimore Street	Savage, MD 20763	430406	0047/0011/0408	15457/ 00330	Yes	45
9115 Baltimore St.	Rene L. Alonso	9115 Baltimore Street, #A	Savage, MD 20763-9606	403506	0047/0011/0414	10813/ 00470	No	45
9117 Baltimore St.	Phillip M. Anderson Jennifer L. Anderson Gary Anderson	9117 Baltimore Street	Savage, MD 20763-9606	403484	0047/0011/0325	05304/ 00001	No	45
9125A &9127 A Baltimore St.	John Oney Audrey Oney	10009 Francis Ave	Halethorpe, MD 21227	430465	0047/0011/0415	16004/ 00104	Unknown	70
9126 Baltimore St.	Gerald S. Adler	9126 Baltimore Street	Savage, MD 20763-9634	412157	0047/0011/0407	08776/ 00356	No	45
9128 Baltimore St.	Stephen R. Adams Heidi L. Adams	9128 Baltimore Street	Savage, MD 20763-9634	412149	0047/0011/0681	14055/ 00145	No	45
9132 Baltimore St.	Matthew Moran Rebecca A. Lai	9132 Baltimore Street	Savage, MD 20763-9627	432220	0047/0011/0680	05153/ 00464	Unknown	45
9133 Baltimore St.	Norris C. Middleton	9133 Baltimore Street	Savage, MD 20763-9623	414192	0047/0011/0372	01098/ 00266	No	45
9133A Baltimore St.	Jarad Modaber-Alvarado	9133 Baltimore Street #A	Savage, MD 20763-9623	393950	0047/0011/0416	14228/ 00158	No	43
9136 Baltimore St.	Timothey William Strunk Carol L. Smith	9136 Baltimore Street	Savage, MD 20763-9627	406548	0047/0011/0679	03056/ 00617	No	43
9140 Baltimore St.	Ryan Hamilton Kelly Hamilton	9140 Baltimore Street	Savage, MD 20763-9625	430392	0047/0011/0406	16301/ 00391	Unknown	75
9143 & 9145 Baltimore St.	Ngun Thawng Biak Cin Thang Nawi Kham	9143 S Baltimore Street	Savage, MD 20763	472710	0047/0011/0459	13447/ 00405	Unknown	72

PROPERTY OWNERS TABLE

PREMESIS ADDRESS	OWNER NAME	MAILING ADDRESS	CITY, STATE ZIP	ACCOUNT NUMBER	MAP/GRID/ PARCEL	DEED	BASEMENT	PROPERTY FRONTAGE
8520 Comercial St.	Bridgett Alcivar	8520 Commercial Street	Savage, MD 20763-4604	430384	0047/0011/0453	08080/ 00526	Unknown	135
8521 Comercial St.	Nola T. Cessna	PO Box 181	Fulton, MD 20759-0181	436692	0047/0011/0528	05950/ 00175	Yes	60
8525 Comercial St.	Kevin M. Shea	4939 Fairway Road	Westwood, KS 66205	395023	0047/0011/0455	12297/ 00034	Yes	60
8502 Fair St.	Savage Mill Manor,LLC	8373 Piney Orchard Pkwy	Odenton, MD 21113-1541	406785	0047/0011/0397	04340/ 00149	Yes	100
8525 Fair St.	Elizabeth M. Rohol Charles Rohol	8525 Fair Street	Savage, MD 20763-9635	421555	0047/0011/0397	11637/ 00072	No	63
8529 Fair St.	Victoria G. Laidler	8529 Fair Street	Savage, MD 20763-9635	431089	0047/0011/0314	04944/ 00001	No	80
8616 Foundry St.	Charles B. Leonard, Jr. Mary S Leonard	8516 Foundry Street	Savage, MD 20763-9621	410057	0047/0011/0443	04008/00480	No	60
8520 Foundry St.	Jordan S. Borak	8520 Foundry Street	Savage, MD 20763-9621	421067	0047/0011/0442	10101/ 00364	No	60
9040 Washington St.	Brian D. Leigh	9040 Washington Street	Savage, MD 20763-9626	411088	0047/0011/0441	05037/ 00435	No	78
9052, 9054, 9056, 9058 Washington St.	Benjamin Posin Myra Posin	1106 Lagrande Road	Silver Spring, MD 20903-1324	413412	0047/0011/0440	04985/ 00612	Yes	65
9060 & 9062 Washington St	Mary Anne Mitchell Bobby Ray Mitchell, II	8241 Savage Guilford Road	Jessup, MD 20794-9670	413420	0047/0011/0439	01242/ 00284	Yes	68
9074 Washington St.	Kevin A. Burke	9074 Washington Street	Savage, MD 20763-9626	402216	0047/0011/0685	14263/ 00520	No	50
9078 Washington St.	H3 Enterprizes, LLC	2841 Cherry Street	Falls Church, VA 22042	430473	0047/0011/0438	09707/ 00031	Unknown	85
9105 Washington St. 9107, 9109,9111,9113	Robert J. Maslar Loretta M. Campbell	10412 EB White Court	Laurel, MD 20723-5709	457207	0047/0012/0080	08782/ 00368	Unknown	140
9110 Washington St.	Pipster LLC	PO Box 281	Savage, MD 20763	430449	0047/0011/0079	13235/ 00268	No	170
9115 Washington St.	Ryan A. Jones Melissa R. Jones	9115 Washington Street	Savage, MD 20763-0082	418287	0047/0011/0607	12772/ 00095	No	75
9125 Washington St.	Laural L. Kovacs David F. Kovacs	9125 Washington Street	Savage, MD 20763	422810	0047/0011/0454	14967/ 00320	No	75
9126 Washington St.	Brian P. Clifford	9126 Washington Street	Savage, MD 20763-9637	406297	0047/0011/0434	08473/ 00452	No	60
9132 Washington St.	George H. Watts Charlotte B.M. Watts	9132 Washington Street	Savage, MD 20763-0162	433715	0047/0011/0433	00451/ 00657	Yes	60
9135 Washington St.	Virgil A. Poplin	9135 Washington Street	Savage, MD 20763-9636	419860	0047/0011/0721	05849/ 00352	No	60
9140 Washington St.	Solomons Lodge 121 AF & AM C/O Charles Owrsler Treasurer	PO Box 233	Savage, MD 20763-0233	436064	0047/0011/0432	00724/ 00117	Unknown	65
9141 Washington St.	Jimmy Velez Michelle Rios	9141 Washington Street	Savage, MD 20763-9636	390412	0047/0011/0435	11392/ 00450	No	80
8505 William St.	James Gordon McCloskey	8505 William Street	Savage, MD 20763-9624	409466	0047/0011/0701	01299/ 00081	No	55
8509 William St.	Neil Bradley Schwing, Sr. Sheila Lee Schwing	8509 William Street	Savage, MD 20763-9624	414702	0047/0011/0702	05602/ 00254	No	23
8515 William St.	Todd A. Simpson	8515 William Street	Savage, MD 20763-9624	397239	0047/0011/0703	14936/ 00261	No	23
8517 William St.	Memory Jerry King, Sr. Memory Jerry King, Jr.	8517 William Street	Savage, MD 20763-9624	410065	0047/0011/0704	11394/ 00304	No	40

NOTE:
THE INFORMATION FOR THE PROPERTY OWNERS TABLE WAS COLLECTED FROM THE MARYLAND DEPARTMENT OF ASSESSMENT AND TAXATION WEBSITE (HTTP://WWW.DAT.STATE.MD.US/SDATWEB/REAL.HTML) AND TITLE REPORTS DONE BY HOWARD COUNTY DPW REAL ESTATE SERVICES AS OF MAY, 2016

ESC 2 OF 7

C-2

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16 KD

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. 20566, EXPIRATION DATE 9-6-2018.

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MCDONOUGH — No. 20566 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

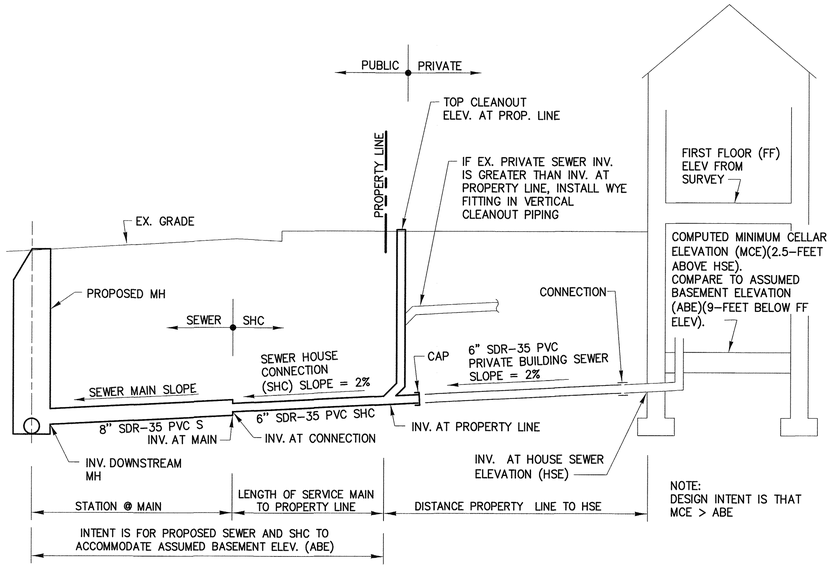
CIVIL
PROPERTY INFORMATION
600' SCALE MAP NO. 47 BLOCK NO. 11

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET NO. 4 OF 18

RKK21 \SYS - \\bdserv01\V2012\2012\12154_HoCoBOA\Task 4 - Savage Sewer Design\CAD\Dwgs\04-C2.dwg Oct 24, 2016 - 12:35pm ENVCTB Plot Scale 1=1 Plot By: egemroth Tab: C-2



TYPICAL SECTION – SHC

NOT TO SCALE

SUGGESTED SEQUENCE OF CONSTRUCTION

WASHINGTON AND COMMERCIAL STREETS

1. AT EXMH11A, EXPOSE AND ROTATE TOP CONE SECTION, RELOCATE MH STEPS, AND INSTALL NEW SEWER CONNECTION WITH INTERNAL DROP. RECONFIGURE FLOW CHANNEL IN EXMH11A ALLOWING FLOWS FROM EXMH11 AND MH14.
2. CONSTRUCT PROPOSED SEWER EXMH11A–MH14–MH15–MH16–MH17 AND PROPOSED SEWER MH15–MH18 INCLUDING SHCs WITH CLEANOUTS AT PROPERTY LINES.
3. INSPECT AND TEST PROPOSED SEWER EXMH11A–MH14–MH15–MH16–MH17 AND PROPOSED SEWER MH15–MH18.
4. CONNECT TWO EXISTING PRIVATE BUILDING SEWERS FOR 8520 COMMERCIAL STREET TO THE NEW SEWER (PROVIDE NEW CLEANOUT AT PROPERTY LINE). VERIFY ALL SEWAGE FROM 8520 COMMERCIAL STREET DISCHARGES TO SEWER MH15–MH18.
5. INSTALL AND CONNECT PROPOSED PRIVATE BUILDING SEWERS PER PHASING PLAN REVIEWED AND APPROVED BY COUNTY. CONFIRM ALL EXISTING PRIVATE BUILDING SEWERS HAVE BEEN RECONNECTED TO THE NEW SEWER SYSTEM.
6. ABANDON EXISTING SEWER EXMH14–EXMH13D–EXMH13–EXMH12–EXMH11–EXMH11A. ABANDON EXISTING MANHOLES EXMH14, EXMH13D, EXMH13–EXMH12, AND EXMH11.
7. ABANDON EXISTING SEWER EXMH2–EXMH1–EXMH13B–EXMH13A–EXMH13. ABANDON EXISTING MANHOLES EXMH2, EXMH1, EXMH13B, EXMH13A.

FOUNDRY STREET

1. ONLY AFTER 8520, 8521, AND 8525 COMMERCIAL STREET ARE CONNECTED TO NEW SEWER EXMH11A–MH14–MH15–MH18, CONSTRUCT PROPOSED SHCs FOR 8516 AND 8520 FOUNDRY STREET.
2. ABANDONED EXISTING SEWER BETWEEN EX.MH15B AND WEST PROPERTY LINE OF FOUNDRY STREET. ABANDON EXISTING MANHOLE EXMH15B.

FAIR STREET AND BALTIMORE STREET WEST OF FOUNDRY

1. INSTALL DOGHOUSE MH1 AND MH7 WITH FLOW CHANNELS BUT DO NOT BREAK EXISTING PIPE. CONSTRUCT PROPOSED SEWER MH1–MH2–MH3–MH4–MH5–MH6–MH7 AND PROPOSED SEWER MH5–MH8–MH9 INCLUDING SHCs (CAP SHC WITHIN 5 FEET OF CROSSING EX. SEWER). INSTALL 8" S (N) AT MH3 AND CAP.
2. INSPECT AND TEST PROPOSED SEWER MH1–MH2–MH3–MH4–MH5–MH6–MH7 AND PROPOSED SEWER MH5–MH8–MH9.
3. BREAK EXISTING PIPE IN MH1 TO ACCEPT FLOW FROM EXMH16 AND MH2. BREAK EXISTING PIPE IN MH7 AND DIVERT EX. FLOW TO MH6. INSTALL PROPOSED SEWER MH3–EXMH17 AND MODIFY EXISTING FLOW CHANNEL IN EXMH17.
4. PROVIDE NEW CLEANOUT AT PROPERTY LINE AND EXTEND EXISTING PRIVATE BUILDING SEWERS TO REMAIN TO NEW SEWER.
5. INSTALL AND CONNECT PROPOSED PRIVATE BUILDING SEWERS PER PHASING PLAN REVIEWED AND APPROVED BY COUNTY. CONFIRM ALL EXISTING PRIVATE BUILDING SEWERS HAVE BEEN RECONNECTED TO THE NEW SEWER SYSTEM.
6. ABANDON EXISTING SEWER EXMH17D–EXMH17B–EXMH17C–EXLH1. ABANDON EXISTING SEWER EXMH17–EXMH17D–EXMH17A–EXMH18. ABANDON EXISTING SEWER EXMH18–MH7. ABANDON EXISTING SEWER EXMH18–EXEND"A". ABANDON EXISTING MANHOLES EXMH18, EXMH17A, EXMH17D, EXMH17B, EXMH17C AND EXLH1.
7. ABANDON EXISTING SEWER EXMH16–EXMH17.

BALTIMORE STREET EAST OF FOUNDRY

1. INSTALL DOGHOUSE MH10 AND MH13 WITH FLOW CHANNEL BUT DO NOT BREAK EXISTING PIPE. CONSTRUCT PROPOSED SEWER MH10–MH11–MH12–MH13 AND SHCs (CAP SHC 5 FEET SOUTH OF EXISTING SEWER EXMH16A–EXMH30).
2. INSPECT AND TEST PROPOSED SEWER MH10–MH11–MH12–MH13.
3. BREAK EXISTING PIPE IN MH10 TO ACCEPT FLOW FROM MH11. BREAK EXISTING PIPE IN MH13 AND DIVERT EXISTING FLOW TO MH12.
4. INSTALL NEW CLEANOUTS AT PROPERTY LINE AND CONNECT PRIVATE BUILDING SEWERS TO NEW SEWER.
5. ONCE ALL SHCs ARE COMPLETE TO SEWER MH10–MH11–MH12–MH13, ABANDON EXISTING SEWER BETWEEN MH10 AND MH13.

WILLIAM STREET SOUTH OF WASHINGTON STREET

1. CONSTRUCT PROPOSED SHCs WITH CLEANOUTS AT PROPERTY LINES FOR STRUCTURES REQUIRING RELOCATED PRIVATE BUILDING SEWERS. PROVIDE NEW CLEANOUT ONLY AT PROPERTY LINE FOR 8509 WILLIAM STREET.
2. INSTALL AND CONNECT PROPOSED PRIVATE BUILDING SEWERS PER PHASING PLAN REVIEWED AND APPROVED BY COUNTY. CONFIRM ALL EXISTING PRIVATE BUILDING SEWERS HAVE BEEN RECONNECTED TO THE NEW SEWER SYSTEM.

WILLIAM STREET NORTH OF WASHINGTON STREET

1. CONSTRUCT MH19 AND NEW CLEANOUT AT PROPERTY LINE FOR 9003 BALTIMORE STREET.

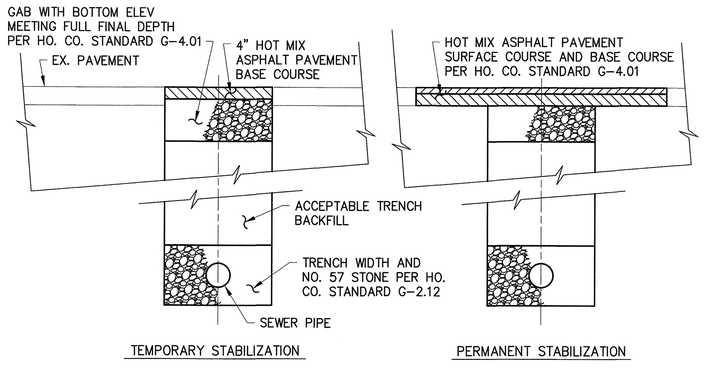
△2 MH3: RIM ELEV. FOR MH3 DESIGN 217.23. PROVIDE GRADE RINGS FOR THIS CONTRACT TO INSTALL RIM ELEV. AT 217.60 MATCHING EXISTING GRADE.

△2 MH11: RIM ELEV. FOR MH11 DESIGN 197.57. PROVIDE GRADE RINGS FOR THIS CONTRACT TO INSTALL RIM ELEV. AT 197.80 MATCHING EXISTING GRADE.

MANHOLE LOCATION TABLE

MH NO.	TYPE	LOCATION △4 CENTER FRAME AND COVER		RIM ELEV.	INVERTS	
		NORTH	EAST		IN	OUT
1	PRECAST MH HO.CO. STD DET. G-5.14 – DOGHOUSE	535,841.	1,361,791.	198.00	189.4 (N), 189.60 (W)	189.3 (S)
2	PRECAST MH HO.CO. STD DET. S-1.32- TYPE "A" DROP	535,835.	1,361,659.	204.70	192.50 (W)	190.48 (E)
3	PRECAST MH HO.CO. STD DET. G-5.12	535,832.	1,361,467.	△2 217.23	204.11 (W), 209.18 (N)	203.89 (E)
4	PRECAST MH HO.CO. STD DET. G-5.12	535,829.	1,361,237.	229.3	215.20 (W)	215.13 (E)
5	PRECAST MH HO.CO. STD DET. S-1.32- TYPE "B" DROP	535,828.	1,361,005.	241.30	230.00 (N), 225.30 (S)	225.18 (E)
6	PRECAST MH HO.CO. STD DET. S-1.32- TYPE "B" DROP	535,887.	1,361,004.	244.15	237.91 (W)	232.17 (S)
7	PRECAST MH HO.CO. STD DET. G-5.14 – DOGHOUSE	535,893.	1,360,973.	247.00	239.7 (N)	239.50 (E)
8	PRECAST MH HO.CO. STD DET. G-5.12	535,762.	1,360,997.	241.30	225.80 (N)	225.60 (S)
9	PRECAST TERMINAL MH HO.CO. STD DET. S-1.31	535,570.	1,361,002.	242.30	– – –	228.00 (N)
10	PRECAST MH HO.CO. STD DET. G-5.14 – DOGHOUSE	535,853.	1,361,841.	197.60	191.92 (S)	191.8 (W) △4 RFI 5
11	PRECAST MH HO.CO. STD DET. G-5.12	535,840.	1,361,843.	△2 197.57	192.07 (E)	191.97 (N) △4 RFI 5
12	PRECAST MH HO.CO. STD DET. S-1.32- TYPE "A" DROP	535,841.	1,362,214.	208.40	201.64 (N)	199.92 (W)
13	PRECAST MH HO.CO. STD DET. G-5.14 – DOGHOUSE	535,857.	1,362,218.	208.30	202.7 (E)	202.50 (S)
14	PRECAST MH HO.CO. STD DET. G-5.12	535,349.	1,361,656.	216.50	204.30 (E)	204.16 (W)
15	PRECAST MH HO.CO. STD DET. S-1.32- TYPE "A" DROP	535,342.	1,361,471.	226.10	207.92 (N), 209.50 (E)	207.42 (W)
16	PRECAST MH HO.CO. STD DET. S-1.32- TYPE "A" DROP	535,340.	1,361,292.	232.90	220.29 (E)	218.27 (W)
17	PRECAST MH HO.CO. STD DET. G-5.12	535,337.	1,361,043.	244.70	230.17 (E)	230.33 (W)
18	PRECAST TERMINAL MH HO.CO. STD DET. S-1.31	535,664.	1,361,468.	222.10	– – –	209.50 (S)
19	PRECAST MH HO.CO. STD DET. G-5.14 – DOGHOUSE	535,593.	1,362,012.	196.80	192.4 (NE)	192.3 (W)
EX. 11A	INSIDE DROP HO.CO. STD DET. S-1.33	535,349.2	1,361,797.9	206.6	196.00 (W), 189.00 (W)	188.98 (E)
11A	PRECAST MH HO.CO. STD DET. G-5.12 △4 RFI 5	535,841.	1,361,876.	198.10	192.30 (E)	192.20 (W) △4 RFI 5

△1 MANHOLE LOCATION TABLE HAS EDITS PER ADDENDUM NO. 1



TYPICAL SECTION – TRENCH

SCALE: 1" = 2'

EX. MH REHABILITATION

EX. MH NO.	ITEMS
11A	ROTATE TOP CONE SECTION OF EX. MH RELOCATE MH STEPS TO CLEAR NEW INTERNAL DROP CORE FOR NEW SEWER CONNECTION (W) INSTALL NEW INTERNAL DROP CONNECTION PLUG EX. EXTERNAL DROP CONNECTION (NW) ADJUST FLOW CHANNEL FOR NEW DROP CONNECTION REPAIR AND COAT MANHOLE INTERIOR
15	REPAIR ALL MISSING AND LOOSE BRICK REPAIR AND COAT MANHOLE INTERIOR
16	PLUG EX. 8" S (W) PLUG EX. 4" CONNECTION (NW) REPAIR ALL MISSING AND LOOSE BRICK REPAIR AND COAT MANHOLE INTERIOR
17	CORE FOR NEW SEWER CONNECTION (S) RECONFIGURE FLOW CHANNEL PLUG EX. 8" S (W) PLUG EX. 8" S (E) REPAIR ALL MISSING AND LOOSE BRICK REPAIR AND COAT MANHOLE INTERIOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/26/18
CHIEF, BUREAU OF ENGINEERING — DATE 7/27/18
CHIEF, BUREAU OF UTILITIES — DATE 7-30-18
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/18

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. 20566, EXPIRATION DATE 9-6-2018.

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MOORE — No. 20566 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	1	ELEV, INV, MH CORRECT PER ADDENDA	2-24-2017
EFG	2	DIP SEWER, MH3, MH11, MH13 REVISIONS	3-16-2017
EFG	3	BALTIMORE AT FAIR ST REVISIONS	6-30-2017
EFG	4	AS-BUILT	6-1-2018

CIVIL DETAILS

600' SCALE MAP NO. 47 BLOCK NO. 11 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT REPLACEMENT SHEET 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

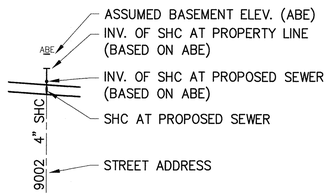
SCALE AS SHOWN

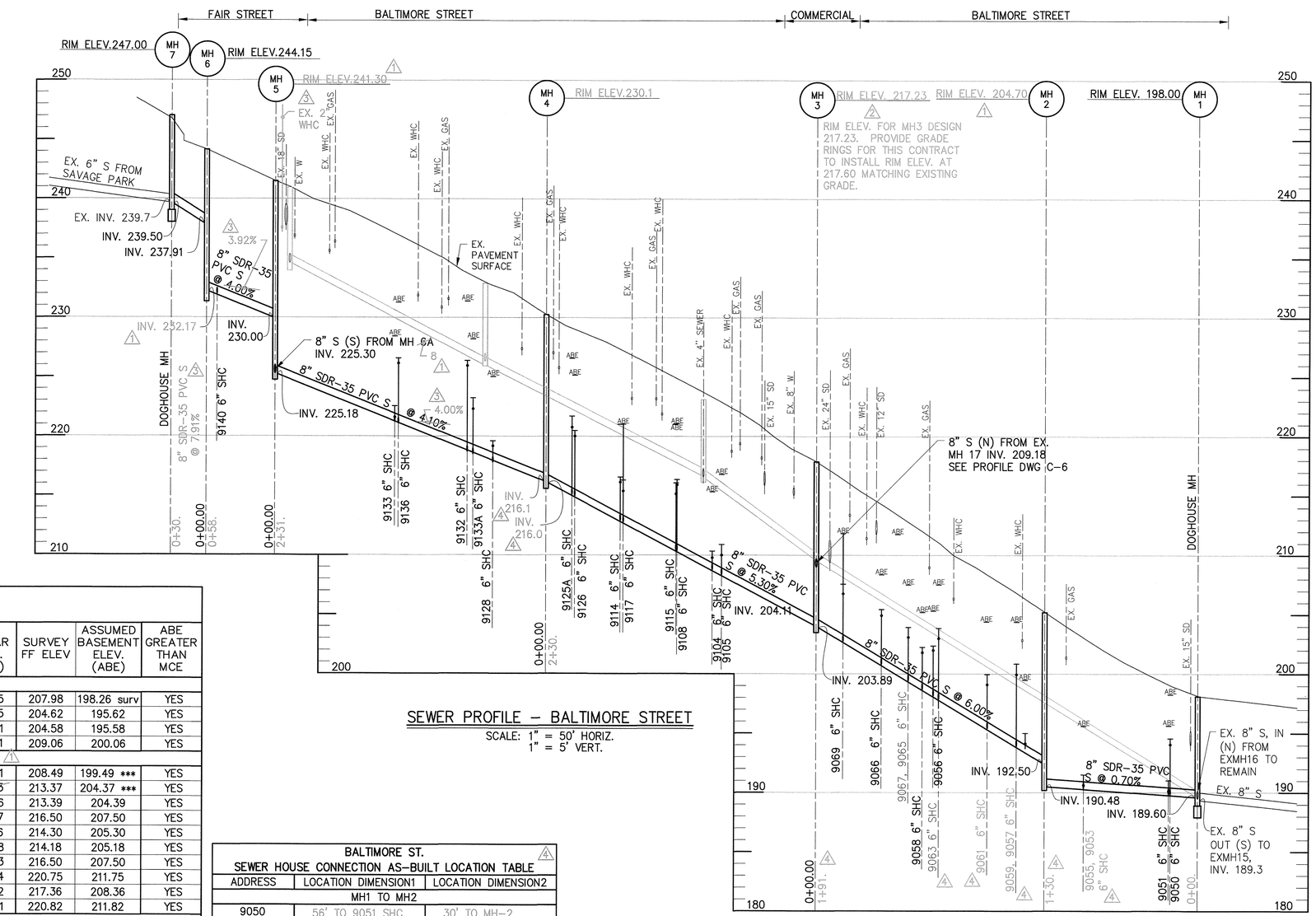
SHEET NO. 5 OF 18

C-3

RKK21\SYS – \\balrm01\V2012\2012\12154_HoCoBOA\Task 4 – Savage Sewer Design\AS-BUILT drawings\05 C3 as-built.dwg Jun 06, 2018 – 11:17am ENV.CTB Plot Scale 1=1 Plot By: egarmroth Tab:C-3

LEGEND





SEWER PROFILE – BALTIMORE STREET

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

BALTIMORE STREET
SANITARY SEWER CLEAN-OUT CHART

ADDRESS NUMBER	STATION @ MAIN 4	INV. @ MAIN	TYPE	INV SERVICE @ MAIN	LENGTH OF SERVICE TO PROP LINE	SLOPE OF SERVICE	INV @ PROP LINE	TOP CO ELEV @ PROP LINE	LENGTH PRIVATE BUILDING SEWER	MIN. INV. HOUSE SEWER EL. (HSE)	MIN. CELLAR ELEV. (MCE)	SURVEY FF ELEV	ASSUMED BASEMENT ELEV. (ABE)	ABE GREATER THAN MCE
MH1 TO MH2														
9050	0+23	189.75	SHC	189.83	25.85	2.00%	190.35	199.50	60.00	199.55	194.05	207.98	198.26 surv	YES
9051	0+26	189.76	SHC	189.84	45.40	2.00%	190.75	198.50	104.80	192.85	195.35	204.62	195.62	YES
9053	0+96	190.26	SHC	190.35	44.10	2.00%	191.23	202.00	79.1	192.81	195.31	204.58	195.58	YES
9055		190.30	SHC	190.39	44.40	2.00%	191.28	203.00	61.50	192.51	195.01	209.06	200.06	YES
MH2 TO MH3														
9057	0+22	193.36	SHC	193.44	44.05	2.00%	194.32	205.50	99.4	196.31	198.81 (198.29 1)	208.49	199.49 ***	YES
9059		193.81	SHC	193.89	43.90	2.00%	194.77	206.30	50.80	195.79	198.33	213.37	204.37 ***	YES
9061	0+49	196.37	SHC	196.45	43.60	2.00%	197.33	209.60	96.6	199.26	201.76	213.39	204.39	YES
9063	0+84	196.76	SHC	196.84	43.20	2.00%	197.71	210.00	58.30	198.87	201.37	216.50	207.50	YES
9056	0+95	198.05	SHC	198.13	19.10	2.00%	198.52	211.50	22	198.96	201.46	214.30	205.30	YES
9058	1+04	198.61	SHC	198.69	22.60	2.00%	199.14	212.00	22	199.58	202.08	214.18	205.18	YES
9065	1+16	199.32	SHC	199.41	42.40	2.00%	200.25	212.50	54.00	201.33	203.83	216.50	207.50	YES
9067		199.87	SHC	199.95	42.25	2.00%	200.80	213.00	57.30	201.94	204.44	220.75	211.75	YES
9066	1+42	200.69	SHC	200.77	25.36	2.00%	201.28	214.50	22	201.72	204.22	217.36	208.36	YES
9069	1+70	202.65	SHC	202.73	40.80	2.00%	203.55	216.00	88.15	205.31	207.81	220.82	211.82	YES
MH3 TO MH4														
9105	0+80	208.26	SHC	208.34	45.90	2.00%	209.26	223.90	86.9	211.00	213.50	225.85	216.85 ***	YES
9104	0+91	208.68	SHC	208.77	27.60	2.00%	209.32	223.80	60.53	210.53	213.03	224.34	215.34	YES
9108	1+18	210.27	SHC	210.36	22.50	2.00%	210.81	225.20	114.50	213.10	215.60	230.04	221.04 ***	YES
9115	1+21	210.32	SHC	210.40	45.90	2.00%	211.32	225.10	110.15	213.52	216.02	230.06	221.06 ***	YES
9117	1+74	212.69	SHC	212.77	45.60	2.00%	213.69	227.50	100.80	215.70	218.20	230.04	221.04 ***	YES
9114	1+66	212.83	SHC	212.91	22.00	2.00%	213.35	228.00	119.95	215.75	218.25	230.02	221.02	YES
9126	2+05	214.87	SHC	214.96	21.80	2.00%	215.39	230.00	100.80	217.41	219.91	234.14	225.14 ***	YES
9125A	2+01	215.00	SHC	215.08	47.90	2.00%	216.04	229.80	106.7	218.17	220.67	235.56	226.56	YES
MH4 TO MH5														
9128	0+48	217.62	SHC	217.71	21.60	2.00%	218.14	233.00	96.90	220.08	222.58	234.02	225.02 ***	YES
9133A	0+60	218.30	SHC	218.38	46.30	2.00%	219.31	233.80	115.40	221.62	224.12	237.19	228.19 ***	YES
9132	0+67	218.50	SHC	218.58	21.50	2.00%	219.01	234.50	79.70	220.60	223.10	240.37	231.37	YES
9136	1+24	220.83	SHC	221.92	21.70	2.00%	221.35	237.00	125.22	223.85	226.35	240.28	231.28 ***	YES
9133	1+19	220.95	SHC	221.04	46.70	2.00%	221.97	236.50	144.40	224.86	227.36	237.43	228.43 ***	YES
MH5 TO MH6														
9140	0+45	231.80	SHC	231.89	28.00	2.00%	232.45	244.50	18.00	232.81	235.31	245.46	228.43 *** (236.46 *** 1)	YES

*** INDICATES NO BASEMENT PER PROPERTY OWNERS TABLE ON DWG C-2

IF ABE > MCE = NO, CELLAR CAN NOT BE SERVED

BALTIMORE ST. 4
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH1 TO MH2		
9050	56' TO 9051 SHC	30' TO MH-2
9051	56' TO 9050 SHC	71' TO 9053 SHC
9053	71' TO 9051 SHC	4' TO 9055 SHC
9055	4' TO 9053 SHC	11' TO 9053 WHC

BALTIMORE ST. 4
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH2 TO MH3		
9057	48' TO 9055 SHC	5' TO 9059 SHC
9059	5' TO 9057 SHC	28' TO 9061 SHC
9061	28' TO 9059 SHC	11' TO 9061 WHC
9063	25' TO 9061 SHC	32' TO 9065 SHC
9058	40' TO 9066 SHC	8' TO 9056 SHC
9065	32' TO 9063 SHC	5' TO 9067 SHC
9067	5' TO 9065 SHC	47' TO 9069 SHC
9066	40' TO 9058 SHC	9' TO 9066 WHC
9069	47' TO 9067 SHC	48' TO MH-3
9056	8' TO 9058 SHC	62' TO 9063 SHC

BALTIMORE ST. 4
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH3 TO MH4		
9104	27' TO 9108 SHC	21' TO 9104 WHC
9105	42' TO 9115 SHC	24' TO 9111 WHC
9108	27' TO 9104 SHC	68' TO 9115 SHC
9114	13' TO 9114 SHC	37' TO 9126 SHC
9126	37' TO 9114 SHC	15' TO 9126 WHC
9125A	26' TO 9117 SHC	17' TO 9125A SHC
9117	52' TO 9115 SHC	8.5' TO 9117 WHC
9115	42' TO 9105 SHC	68' TO 9108 SHC

BALTIMORE ST. 4
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH4 TO MH5		
9127A		
9128	71' TO 9126 SHC	26' TO 9128 WHC
9133A	71' TO 9132 SHC	77' TO MH-4
9132	71' TO 9133A SHC	22' TO 9128 SHC
9136	58' TO 9132 SHC	10' TO 9136 WHC
9133	25' TO 9133 SHC	58' TO 9133A SHC

BALTIMORE ST. 4
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH5 TO MH6		
9140	20' TO MH-6	48' TO MH-5

1"=5' 5' 0 5' 10' 1"=50' 50' 0 50' 100'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/26/18
CHIEF, BUREAU OF ENGINEERING — DATE 7/17/18
CHIEF, BUREAU OF UTILITIES — DATE 7-18-18
CHIEF, UTILITY DESIGN DIVISION KD — DATE 7/18/18

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. 20566, EXPIRATION DATE 9-6-2018.

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MOORE — 22982 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	1	ELEV, INV, MH CORRECT PER ADDENDA	2-24-2017
EFG	2	DIP SEWER, MH3, MH11, MH13 REVISIONS	3-16-2017
EFG	3	BALTIMORE AT FAIR ST REVISIONS	6-30-2017
EFG	4	AS-BUILT	6-1-2018

CIVIL
PROFILE BALTIMORE STREET
600' SCALE MAP NO. 47 BLOCK NO. 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT REPLACEMENT SHEET 6-1-2018

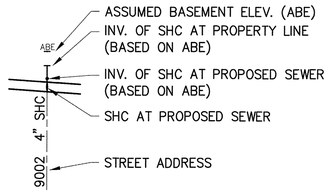
SAVAGE AREA SEWER REALIGNMENT

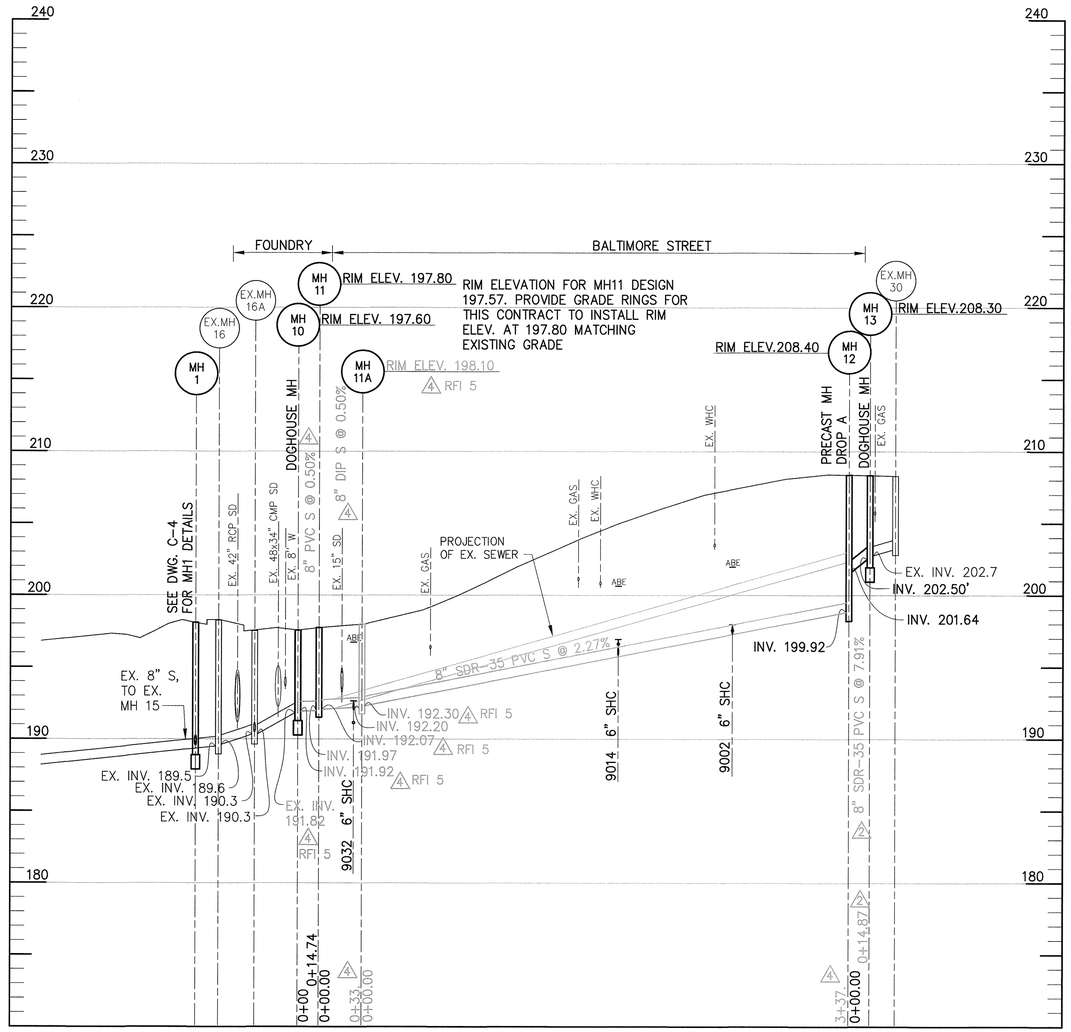
SCALE: AS SHOWN
SHEET NO.: 6 OF 18

C-4

RK&K\SYS - \\balrnd01\V2012\2012\2154_HoCoBOA\Task 4 - Savage Sewer Design\AS-BUILT drawings\06 C4 as-built.dwg Jun 06, 2018 - 11:22am ENV.CTB Plot Scale 1=1 Plot By: egemroth Tab:C-4

LEGEND





SEWER PROFILE – BALTIMORE STREET

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

BALTIMORE STREET SANITARY SEWER CLEAN-OUT CHART													
ADDRESS NUMBER	STATION @ MAIN (4)	INV. @ MAIN	TYPE	INV SERVICE @ MAIN	LENGTH OF SERVICE TO PROP LINE	SLOPE OF SERVICE	INV @ PROP LINE	TOP CO ELEV @ PROP LINE	LENGTH PRIVATE BUILDING SEWER	MIN. INV. HOUSE SEWER EL. (HSE)	MIN. CELLAR ELEV. (MCE)	SURVEY FF ELEV	ASSUMED BASEMENT ELEV. (ABE)	ABE GREATER THAN MCE
MH11 TO MH11A														
9032	0+26	191.94	SHC	192.03	22.60	2.00%	192.48	198.00	90	194.28	196.78	205.72	196.72 ***	NO
MH11A TO MH12														
9014	1+77	195.64	SHC	195.72	16.10	2.00%	196.04	205.50	60	197.24	199.74	209.63	200.63 ***	YES
9002	2+49	197.23	SHC	197.32	17.4	2.00%	197.66	208.00	50	198.66	201.16	210.97	201.97 ***	YES (1) NO

*** INDICATES NO BASEMENT PER PROPERTY OWNERS TABLE ON DWG C-2

IF ABE > MCE = NO, CELLAR CAN NOT BE SERVED

NOTE:
CELLAR FOR 9032 CAN NOT BE SERVED BECAUSE THE EXISTING SEWER MAIN SYSTEM (INVERT AT MH 10) DOES NOT ALLOW FOR THE INSTALLATION OF A LOWER SEWER MAIN.

BALTIMORE ST. (4) SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE		
ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH11 TO MH12		
9032	28' TO MH-10	17' TO MH-11
9014	16' TO 9014 WHC	72' TO 9002 SHC
9002	72' TO 9014 SHC	8' TO 9002 WHC

1"=5' 5' 0 5' 10'

1"=50' 50' 0 50' 100'

C-5

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/6/18
CHIEF, BUREAU OF ENGINEERING — DATE 7/7/18
CHIEF, BUREAU OF UTILITIES — DATE 7-16-18
CHIEF, UTILITY DESIGN DIVISION — DATE 7/18/18

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. 20566, EXPIRATION DATE 9-6-2018.

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND JOHN C. MEHRLE 20566 REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	1	REDLINE NO. 1	2-24-2016
EFG	2	REDLINE NO. 2	3-16-2017
EFG	4	AS-BUILT	6-1-2018

CIVIL
PROFILE BALTIMORE STREET

600' SCALE MAP NO. 47 BLOCK NO. 11 ELECTION DISTRICT NO. 3

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT REPLACEMENT SHEET 6-1-2018

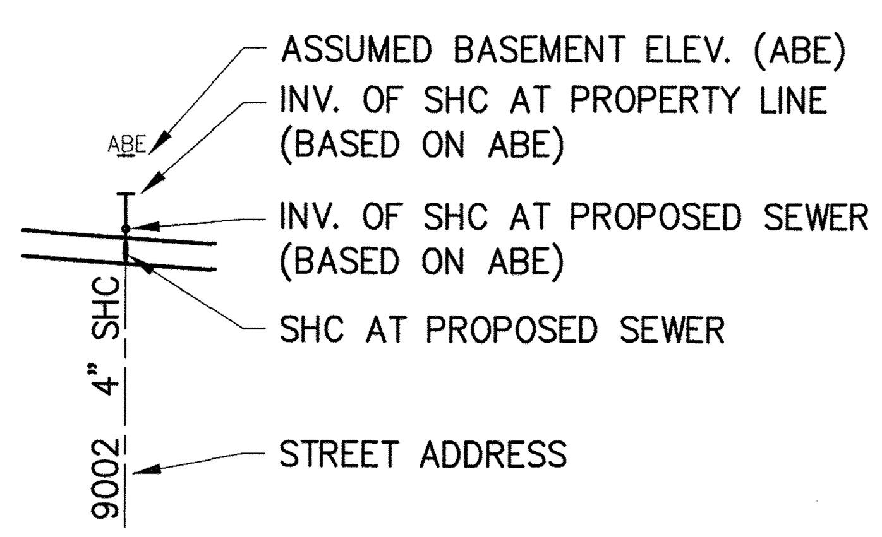
SAVAGE AREA SEWER REALIGNMENT

HOWARD COUNTY, MARYLAND

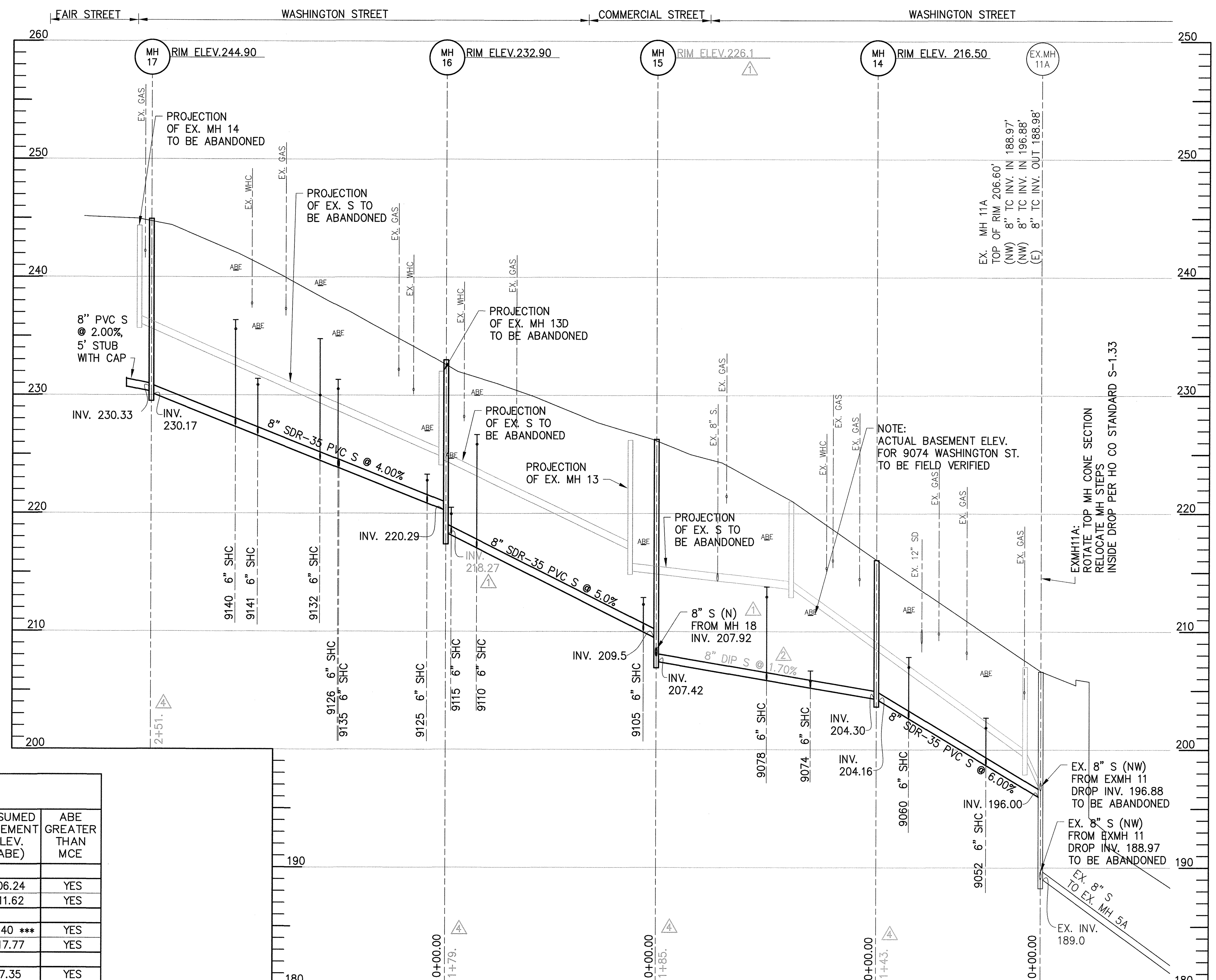
SCALE: AS SHOWN
SHEET NO. 7 OF 18

RK&K\SYS – \\bdlrv01\V2012\12154_HoCoBOA\Task 4 – Savage Sewer Design\AS-BUILT drawings\07 C5 as-built.dwg Jun 06, 2018 – 11:25am ENV.CTB Plot Scale 1=1 Plot By: egemroth Tab: C-5

LEGEND



WASHINGTON ST. SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE (4)		
ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
EXMH11A TO MH14		
9052	68' TO 9060 SHC	102' TO MH-14
9060	39' TO 9074 SHC	42' TO MH-14
MH14 TO MH15		
9074	33' TO 9078 SHC	68' TO MH-14
9078	127' TO 9105 SHC	33' TO 9075 SHC
MH15 TO MH16		
9105	27' TO MH-15	127' TO 9078 SHC
9110	67' TO 9115 SHC	47' TO MH-16
9115	25' TO 9125 SHC	26' TO MH-16
MH16 TO MH17		
9125	25' TO 9115 SHC	75' TO 9135 SHC
9135	70' TO 9141 SHC	62' TO 9126 SHC
9126	62' TO 9135 SHC	22' TO 9132 SHC
9132	78' TO 9141 SHC	66' TO 9140 SHC
9141	65' TO 9140 SHC	78' TO 9132 SHC
9140	65' TO 9141 SHC	66' TO 9132 SHC



SEWER PROFILE – WASHINGTON STREET

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

WASHINGTON ST. SANITARY SEWER CLEAN-OUT CHART														
ADDRESS NUMBER	STATION @ MAIN (4)	INV. @ MAIN	TYPE	INV SERVICE @ MAIN	LENGTH OF SERVICE TO PROP LINE	SLOPE OF SERVICE	INV @ PROP LINE	TOP CO ELEV @ PROP LINE	LENGTH PRIVATE BUILDING SEWER	MIN. INV. HOUSE SEWER EL. (HSE)	MIN. CELLAR ELEV. (MCE)	SURVEY FF ELEV	ASSUMED BASEMENT ELEV. (ABE)	ABE GREATER THAN MCE
EXMH11A TO MH14														
9052	0+47.	198.68	SHC	198.76	42.50	2.00%	199.61	210.00	51.70	200.64	203.14	215.24	206.24	YES
9060	1+12.	202.63	SHC	202.71	42.60	2.00%	203.56	215.00	64.14	204.85	207.35	220.62	211.62	YES
MH14 TO MH15														
9074	0+58.	205.22	SHC	205.30	44.10	2.00%	206.19	220.00	110.80	208.40	210.90	220.40	211.40 ***	YES
9078	0+94.	205.86	SHC	205.94	42.50	2.00%	206.79	221.50	74.80	208.28	210.78	226.77	217.77	YES
MH15 TO MH16														
9105	0+15.	209.87	SHC	209.95	29.55	2.00%	~~210.54~~ 210.62 (1)	225.60	99.30	~~212.53~~ 212.61 (1)	215.03	~~224.73~~ 224.11 (1)	217.35	YES
9110	1+53.	217.05	SHC	217.14	41.40	2.00%	217.96	233.20	89.30	219.75	222.25	239.95	230.95	YES
9115	1+71.	218.14	SHC	218.22	27.22	2.00%	218.77	230.50	83.10	220.43	222.93	231.61	224.65 ***	YES
MH16 TO MH17														
9125	0+17.	220.89	SHC	220.97	26.10	2.00%	221.50	232.10	75.50	223.01	225.51	236.36	227.36 ***	YES
9135	0+90.	223.81	SHC	223.89	26.30	2.00%	224.42	235.80	85.26	226.17	228.67	no survey	no survey	YES
9126	0+93.	223.93	SHC	224.01	39.70	2.00%	224.81	241.00	107.20	226.92	229.42	244.95	235.95 ***	YES
9132	1+16.	224.49	SHC	224.57	38.90	2.00%	225.35	242.00	100.45	227.37	229.87	248.28	239.28	YES
9141	1+61.	226.65	SHC	226.73	26.70	2.00%	227.27	239.00	84.85	228.95	231.45	242.85	235.59	YES
9140	1+80.	227.41	SHC	227.49	38.90	2.00%	228.27	245.00	85.10	229.96	232.46	249.56	240.56	YES

*** INDICATES NO BASEMENT PER PROPERTY OWNERS TABLE ON DWG C-2

IF ABE > MCE = NO, CELLAR CAN NOT BE SERVED

DELTA FOR ALL EDITS LESS THAN 0.14 (1)

1"=5' 5' 0 5' 10'
1"=50' 50' 0 50' 100'

C-6

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS 7/12/18 DATE — CHIEF, BUREAU OF ENGINEERING 7/17/18 DATE
CHIEF, BUREAU OF UTILITIES 7-18-18 DATE — CHIEF, UTILITY DESIGN DIVISION 7/18/18 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. 20566 , EXPIRATION DATE 9-6-2018 .

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BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MOYER — PROFESSIONAL ENGINEER

DES:	EFG
DRN:	MEB
CHK:	JCM
DATE:	10-24-2016

BY	NO.	REVISION	DATE
EFG	1	REDLINE NO. 1	2-24-2016
EFG	2	REDLINE NO. 2	3-16-2017
EFG	4	AS-BUILT	6-1-2018

CIVIL
PROFILE WASHINGTON STREET

600' SCALE MAP NO. 47 — BLOCK NO. 11

PROJECT NO. S6290
CONTRACT NO. 20-4937

AS-BUILT REPLACEMENT SHEET 6-1-2018

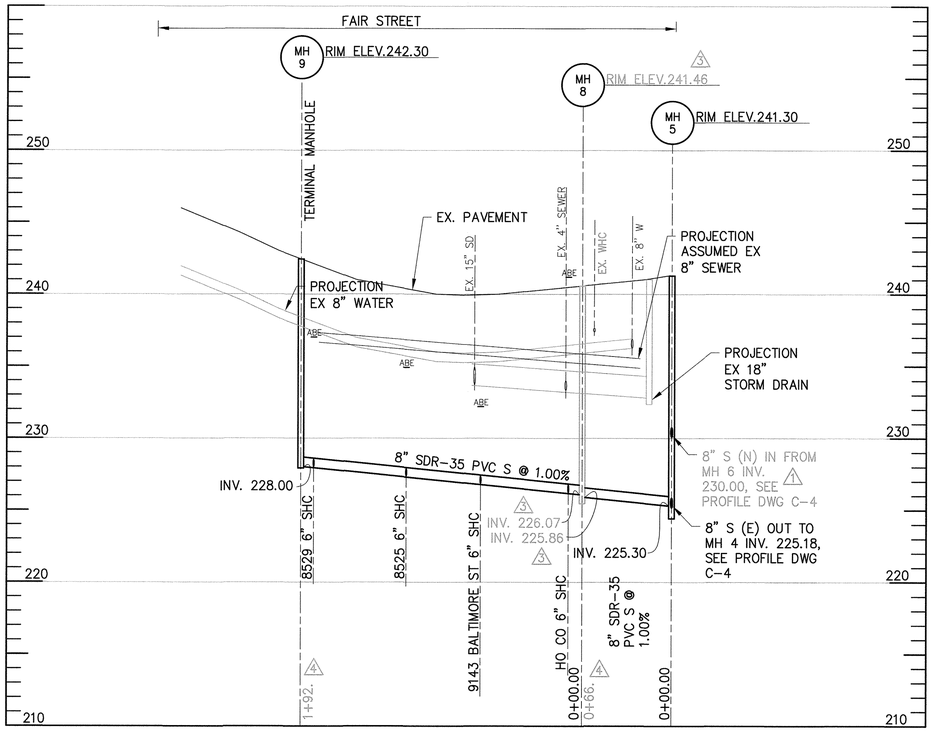
SAVAGE AREA SEWER REALIGNMENT

ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

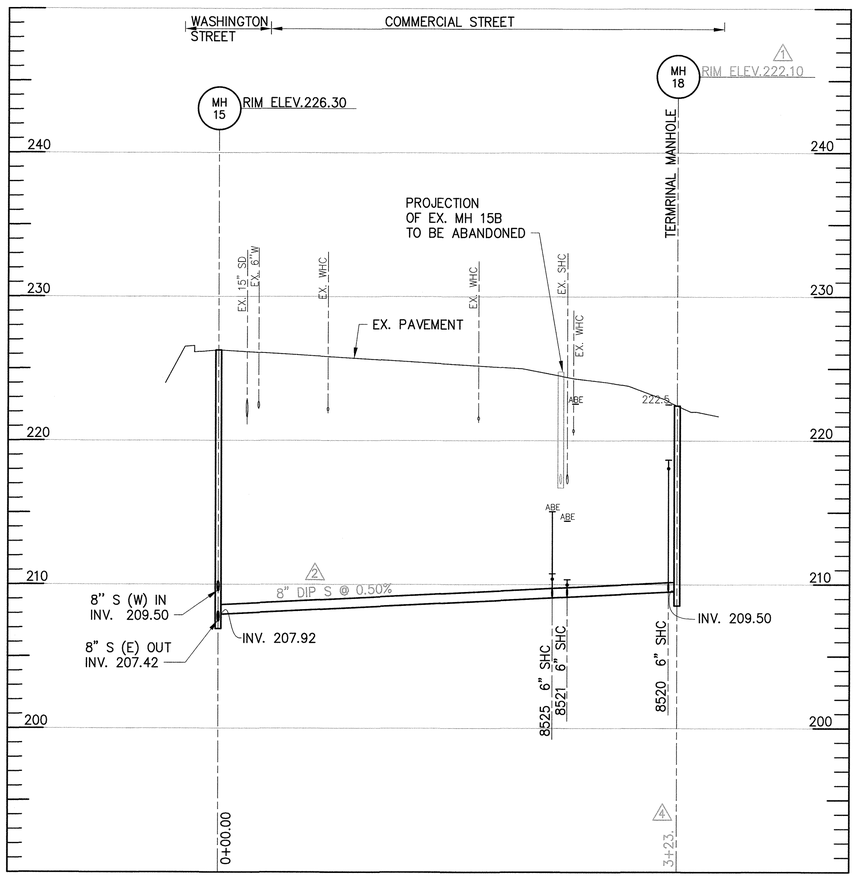
SHEET NO. 8 OF 18

RKK21\SYS – \\bdsrv01\v2012\2012\12154_HoCoBOA\Task 4 – Savage Sewer Design\AS-BUILT drawings\08-C6 as-built.dwg Jun 06, 2018 – 11:27am ENV.CTB Plot Scale 1=1 Plot By: egermroth Tab:C-6



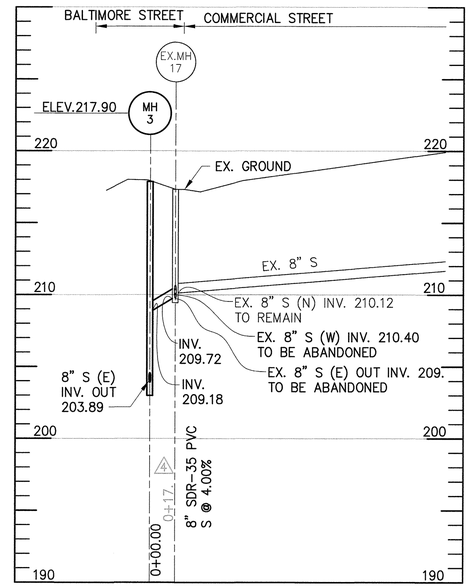
SEWER PROFILE – FAIR STREET

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



SEWER PROFILE – COMMERCIAL STREET

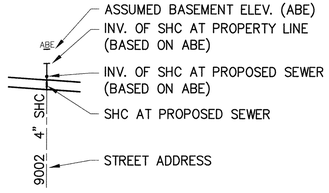
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



SEWER PROFILE – COMMERCIAL STREET

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

LEGEND



FAIR STREET
SANITARY SEWER CLEAN-OUT CHART

ADDRESS NUMBER	STATION @ MAIN (4)	INV. @ MAIN	TYPE	INV SERVICE @ MAIN	LENGTH OF SERVICE TO PROP LINE	SLOPE OF SERVICE	INV @ PROP LINE	TOP CO ELEV @ PROP LINE	LENGTH PRIVATE BUILDING SEWER	MIN. INV. HOUSE SEWER EL. (HSE)	MIN. CELLAR ELEV. (MCE)	SURVEY FF ELEV	ASSUMED BASEMENT ELEV. (ABE)	ABE GREATER THAN MCE
MH8 TO MH9														
8502 HOCO	0+04.	226.15	SHC	226.23	10.20	2.00%	226.43	243.00	90	228.23	230.73	255	246	YES
9143	0+63.	226.77	SHC	226.86	32.68	2.00%	227.51	240.00	30	228.11	230.61	241.19	232.19	YES
8525	1+15	227.29	SHC	227.38	34.50	2.00%	228.07	240.40	60	229.27	231.77	243.92	234.92 ***	YES
8529	1+80.	227.94	SHC	228.03	35.30	2.00%	228.73	242.50	60	229.93	232.43	246.02	237.02 ***	YES

COMMERCIAL STREET
SANITARY SEWER CLEAN-OUT CHART

ADDRESS NUMBER	STATION @ MAIN (4)	INV. @ MAIN	TYPE	INV SERVICE @ MAIN	LENGTH OF SERVICE TO PROP LINE	SLOPE OF SERVICE	INV @ PROP LINE	TOP CO ELEV @ PROP LINE	LENGTH PRIVATE BUILDING SEWER	MIN. INV. HOUSE SEWER EL. (HSE)	MIN. CELLAR ELEV. (MCE)	SURVEY FF ELEV	ASSUMED BASEMENT ELEV. (ABE)	ABE GREATER THAN MCE
MH15 TO MH18														
8525	2+33.	209.07	SHC	209.16	19.06	2.00%	209.54	224.00	130	212.14	214.64	no survey	215.06	YES
8521	2+44.	209.13	SHC	209.21	18.77	2.00%	209.59	224.00	110	211.79	214.29	no survey	214.43	YES
8520	3+14.	209.48	SHC	209.56	29.75	2.00%	210.16	224.00	67.02	211.50	214.00	231.50	222.50	YES

*** INDICATES NO BASEMENT PER PROPERTY OWNERS TABLE ON DWG C-2

IF ABE > MCE = NO, CELLAR CAN NOT BE SERVED

FAIR ST. (4)
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH8 TO MH9		
HO CO	4' TO 8502 SHC	16' TO SMH-8
9143	70' TO MH-8	50' TO 8525 SHC
8525	50' TO 9143 SHC	64' TO 8529 SHC
8529	64' TO 8525 SHC	33' TO MH-9
8502	4' TO HOCO SHC	14' TO SMH-8

COMMERCIAL ST. (4)
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
MH15 TO MH18		
8525	9' TO 8521 SHC	10' TO 8521 WHC
8521	9' TO 8525 SHC	32' TO 8525 WHC
8520	32' TO MH-18	79' TO 8521 WHC

1"=5' 5' 0 5' 10'

1"=50' 50' 0 50' 100'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/18/18
CHIEF, BUREAU OF ENGINEERING — DATE 7/17/18
CHIEF, BUREAU OF UTILITIES — DATE 7-18-18
CHIEF, UTILITY DESIGN DIVISION — DATE 7/18/18

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. 20566 , EXPIRATION DATE 9-6-2018 .

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MCCABE — No. 30088 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	1	ELEV, INV, MH CORRECT PER ADDENDA	2-24-2017
EFG	2	DIP SEWER, MH3, MH11, MH13 REVISIONS	3-16-2017
EFG	3	BALTIMORE AT FAIR ST REVISIONS	6-30-2017
EFG	4	AS-BUILT	6-1-2018

CIVIL
PROFILE COMMERCIAL STREET AND FAIR STREET
600' SCALE MAP NO. 47 BLOCK NO. 11
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT REPLACEMENT SHEET 6-1-2018

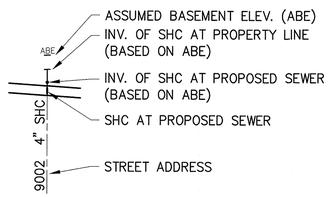
SAVAGE AREA SEWER REALIGNMENT

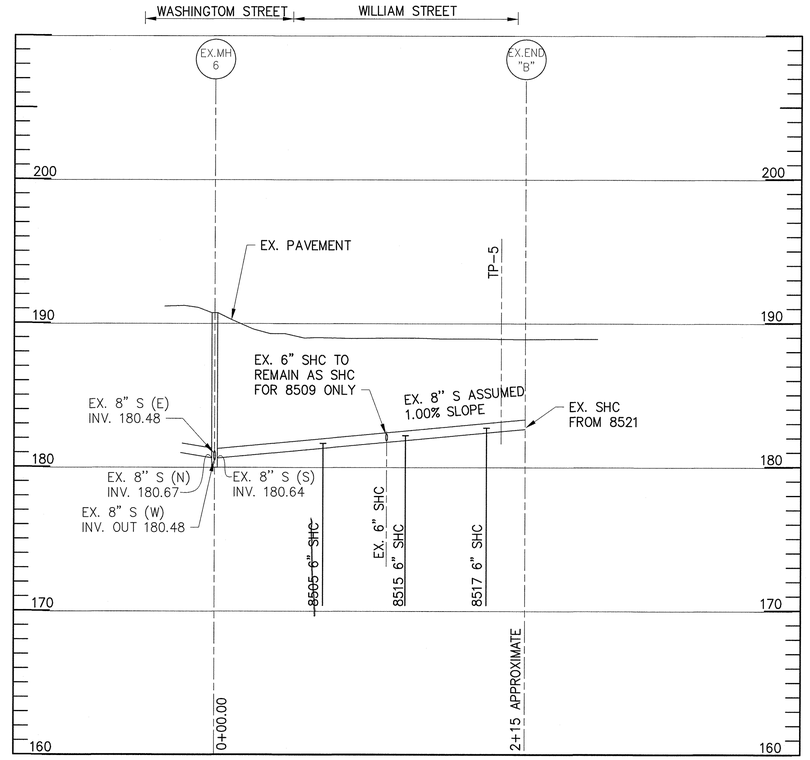
SCALE: AS SHOWN
SHEET NO. 9 OF 18

C-7

RK&K\SYS - \\baltenv01\V2012\2012\2154_HoCoBOA\Task 4 - Savage Sewer Design\AS-BUILT drawings\09 C7 as-built.dwg Jun 06, 2018 - 11:31am ENV.CTB Plot Scale 1=1 Plot By: egemroth Tab:C-7

LEGEND





SEWER PROFILE – WILLIAM STREET

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

WILLIAM STREET
SANITARY SEWER CLEAN-OUT CHART

ADDRESS NUMBER	STATION @ MAIN	INV. @ MAIN	TYPE	INV SERVICE @ MAIN	LENGTH OF SERVICE TO PROP LINE	SLOPE OF SERVICE	INV @ PROP LINE	TOP CO ELEV @ PROP LINE	LENGTH PRIVATE BUILDING SEWER	MIN. INV. HOUSE SEWER EL. (HSE)	MIN. CELLAR ELEV. (MCE)	SURVEY FF ELEV	ASSUMED BASEMENT ELEV. (ABE)	ABE GREATER THAN MCE
EXMH6 TO EXEND"B"														
~~8505~~	0+75.70	181.23	SHC	181.31	12.20	2.00%	181.55	189.00	72.20	182.99	185.49	191.90	182.90 ***	NO
~~8509~~	1+20.10	181.67	SHC	181.75	REUSE OF EXISTING SHC							191.91	182.91 ***	NO
8515	1+33.30	181.80	SHC	181.89	16.20	2.00%	182.21	189.00	48.30	183.18	185.67	191.66	182.66 ***	NO
8517	1+89.90	182.37	SHC	182.45	20.90	2.00%	182.87	189.00	77.30	184.41	186.91	191.53	182.53 ***	NO

*** INDICATES NO BASEMENT PER PROPERTY OWNERS TABLE ON DWG C-2

IF ABE > MCE = NO, CELLAR CAN NOT BE SERVED

NOTE:
CELLARS CAN NOT BE SERVED BECAUSE THE EXISTING SEWER MAIN SYSTEM (INVERTS AT EXMH 6) DOES NOT ALLOW FOR THE INSTALLATION OF A LOWER SEWER MAIN.

WILLIAM STREET
SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

ADDRESS	LOCATION DIMENSION1	LOCATION DIMENSION2
EXMH6 TO EXEND"B"		
~~8505~~		
~~8509~~		
8515	61' TO 8517 SHC	12.5' TO 8517 WHC
8517	61' TO 8515 SHC	16' TO 8515 WHC

1"=5' 5' 0 5' 10'

1"=50' 50' 0 50' 100'

C-8

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/25/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE

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STATE OF MARYLAND — JOHN C. MEYER — 22566 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

CIVIL
PROFILE WILLIAM STREET

600' SCALE MAP NO. 47 BLOCK NO. 11 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

PROJECT NO. S6290 AS-BUILT 6-1-2018
CONTRACT NO. 20-4937

SAVAGE AREA SEWER REALIGNMENT

SCALE AS SHOWN
SHEET NO. 10 OF 18

RK&K\SYS - \\Baltimr01\V2012\2012\12154_HoCoBGA\Task 4 - Savage Sewer Design\CADD\Dwgs\10-C8.dwg Oct 24, 2016 - 12:47pm Plot Scale 1=1 Plot By: egermroth Tab:C-8

HOWARD SOIL CONSERVATION DISTRICT (HSCD)STANDARD SEDIMENT CONTROL NOTES

1. A PRECONSTRUCTION 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 HOURS NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
   - PRIOR TO THE START OF EACH DISTURBANCE
   - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING
   - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
   - 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 MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE–DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B–4–5), TEMPORARY SEEDING (SEC. B–4–4) AND MULCHING (SEC. B–4–3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE 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 HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

6. SITE ANALYSIS:

TOTAL AREA OF SITE:	1.49 ACRES	(LINEAR PUBLIC UTILITY PROJECT)
AREA DISTURBED:	1.49 ACRES	
AREA TO BE ROOFED OR PAVED:	1.24 ACRES	
AREA TO BE VEGETATIVELY STABILIZED:	0.25 ACRES	
TOTAL CUT:	9,800 CU. YDS.	(ALL TRENCH EXCAVATION FOR 8" SEWER)
TOTAL FILL:	9,700 CU. YDS.	
OFFSITE WASTE/BORROW AREA LOCATION:	TO BE DETERMINED BY CONTRACTOR	

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 HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 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 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 STORM ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).

9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK–FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

10. ANY MAJOR CHANGES OR REVISIONS ON 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 LIST OF HSCD–APPROVED FIELD CHANGES.

11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. 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 CID, 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 ANDS 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.

SUPPLEMENTAL EROSION AND SEDIMENT CONTROL NOTES

1. STAGING AND STOCKPILING:

   NO STAGING OR STOCKPILE AREAS ALLOWED ON–SITE.

2. STABILIZED CONSTRUCTION ENTRANCE LOCATIONS:

   THERE ARE NO SCEs INCLUDED IN THIS PROJECT.

3. STORM DRAIN AND DITCH CONSTRUCTION:

   STORM DRAIN SYSTEMS AND PERMANENT DITCHES/SWALES SHALL BE CONSTRUCTED FROM DOWNSTREAM TO UPSTREAM UNLESS OTHERWISE NOTED ON THE PLANS OR APPROVED BY THE ENGINEER.

4. COORDINATION WITH MAINTENANCE OF TRAFFIC PLAN:

   THE SEDIMENT AND EROSION CONTROL SEQUENCES SHALL BE COORDINATED WITH THE MAINTENANCE OF TRAFFIC PLANS TO MAINTAIN CONTINUITY OF THE PRACTICES DURING ALL PHASES OF THE PROPOSED WORK. CONCURRENT CONSTRUCTION WITHIN THE VARIOUS PHASES MAY BE UNDERTAKEN IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLAN. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING CONCURRENT WORK. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON COMPLETION OF THEIR INTENDED FUNCTION. PERMANENT STABILIZATION OF CONTRIBUTORY DRAINAGE AREA AND PRIOR APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. SEDIMENT AND EROSION CONTROL MEASURES NECESSARY FOR SUBSEQUENT PHASE OF THE WORK SHALL BE MAINTAINED AS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.

5. DEWATERING

   ANY EFFLUENT FROM DEWATERING FOUNDATIONS, TRENCHES AND OTHER DISTURBED AREAS MUST BE TREATED BY AN APPROVED SEDIMENT CONTROL DEVICE BEFORE BEING DISCHARGED. CONTRACTOR TO USE PORTABLE SEDIMENT TANKS AS DETAILED ON DWG. ESC 6 OF 7.

6. SEQUENCE OF CONSTRUCTION

   THE SEQUENCE OF CONSTRUCTION INCLUDED IN THESE PLANS IS APPROVED BY HOWARD COUNTY. THIS SEQUENCE OF CONSTRUCTION MAY BE MODIFIED BY THE CONTRACTOR. HOWEVER, THE CONTRACTOR MUST OBTAIN HOWARD COUNTY APPROVAL FOR ANY MODIFICATIONS PRIOR TO IMPLEMENTING A REVISED SEQUENCE OF CONSTRUCTION IN THE FIELD.

   NO DISTURBED AREAS SHALL BE LEFT UNSTABILIZED OVERNIGHT, UNLESS RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.

7. SEE DWG ESC 2 OF 7 FOR LIST OF ADJACENT PROPERTY OWNERS.

8. CONTRACTOR SHALL REMOVE SPOILS TO A SITE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PERMIT.

ESC 3 OF 7

C–9

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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STATE OF MARYLAND — JOHN C. MCCOY — 20566 — REGISTERED PROFESSIONAL ENGINEER

RK&K — RUMMEL, KLEPPER & KAHL, LLP
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BALTIMORE, MARYLAND 21217
(410) 728–2900 WWW.RKK.COM

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10–24–2016

BY	NO.	REVISION	DATE
EFG	1	AS-BUILT	6-1-2018

CIVIL
EROSION AND SEDIMENT CONTROL NOTES–1

600' SCALE MAP NO. 47 BLOCK NO. 11

PROJECT NO. S6290 AS-BUILT 6-1-2018
CONTRACT NO. 20-4937

SAVAGE AREA SEWER REALIGNMENT

ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET NO. 11 OF 18

RKK21\SYS – \\Water01\2012\2012\12154_JHCoBOA\Task 4 – Savage Sewer Design\CADD\Dwgs\11–03.dwg Oct 24, 2016 – 12:48pm ENV.CTB Plot Scale 1=1 Plot By: egermroth Tab:ESC–2

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

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. Topsoiling 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

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; P2O5 (phosphorous), 200 pounds per acre; K2O (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: 7A SEED MIXTURE:					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	ANNUAL RYE	40	2/1- 4/30	0.5"	436 LB/AC (10 LB/1000SF)	2 TONS/AC (90 LB/1000SF)
2	FOXTAIL MILLET	30	5/1- 8/14	0.5"	436 LB/AC (10 LB/1000SF)	2 TONS/AC (90 LB/1000SF)
3	ANNUAL RYE	40	8/15- 11/30	0.5"	436 LB/AC (10 LB/1000SF)	2 TONS/AC (90 LB/1000SF)

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

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.

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.

ESC 4 OF 7

C-10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/25/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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. 20566 , EXPIRATION DATE 9-6-2018 .

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN W. MEYER — REG. NO. 21586 — PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT 6-1-2018	

CIVIL
EROSION AND SEDIMENT CONTROL NOTES-2
600' SCALE MAP NO. 47 BLOCK NO. 11

PROJECT NO. S6290 AS-BUILT 6-1-2018
CONTRACT NO. 20-4937
SAVAGE AREA SEWER REALIGNMENT
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET NO. 12 OF 18

RKK21\SYS - \\baterv01\V2012\V2154_PhC&BOA\Task 4 - Savage Sewer Design\CADD\Dwgs\12-C10.dwg Oct 24, 2016 - 12:49pm ENV.CTB Plot Scale 1=1 Plot By: egermroth Tab:ESC-3

<u>H-1 STANDARDS AND SPECIFICATIONS</u>

<u>FOR</u>

<u>MATERIALS</u>

TABLE H.1: GEOTEXTILE FABRICS

		WOVEN SLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE [1]					
	TEST METHOD	MD	CD	MD	CD	MD	CD
	ASTM D-4632	200 LB	200 LB	370 LB	250 LB	200 LB	200 LB
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 LB	75 LB	100 LB	60 LB	80 LB	80 LB
	ASTM D-6241	450 LB		900 LB		450 LB	
APPARENT OPENING SIZE [2]	ASTM D-4751	U.S. SIEVE 30 (0.59MM)		U.S. SIEVE 70 (0.21MM)		U.S. SIEVE 70 (0.21MM)	
	ASTM D-4491	0.05 SEC $^{-1}$		0.28 SEC $^{-1}$		1.0 SEC $^{-1}$	
	ASTM D-4355	70% STRENGTH		70% STRENGTH		70% STRENGTH	

[1] ALL NUMERIC VALUES EXCEPT APPARENT OPENING SIZE (AOS) REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINIMUM TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.

[2] VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.

GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO THE VALUES IN TABLE H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YAMS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP IN HEIGHT.

EROSION AND SEDIMENT CONTROL SEQUENCE OF CONSTRUCTION

ANY CHANGES OR REVISIONS TO THE SEDIMENT AND EROSION CONTROL SEQUENCE OF CONSTRUCTION MUST BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT PRIOR TO PROCEEDING WITH CONSTRUCTION. THE SEQUENCE OF CONSTRUCTION, AT A MINIMUM, CONTAINS THE FOLLOWING:

1. OBTAIN GRADING PERMIT.
2. NOTIFY HOWARD COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, (410) 313-2455 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
3. IDENTIFY LIMIT OF DISTURBANCE IN THE FIELD.
4. PRIOR TO START OF DISTURBANCE ON THE SITE, SCHEDULE AND ATTEND A PRE CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR.
5. INSTALL SEDIMENT CONTROL DEVICES. MAINTAIN SEDIMENT AND EROSION CONTROLS ON A DAILY BASIS. KEEP THE SITE BROOM CLEAN AT THE END OF THE BUSINESS DAY. DO NOT ALLOW SEDIMENT TO ACCUMULATE IN GUTTER PANS OR ON ROADWAYS.
6. UPON APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR OF THE EROSION AND SEDIMENT CONTROLS, PROCEED WITH SEWER INSTALLATION.
7. KEEP PORTABLE SEDIMENT TANK AVAILABLE ON-SITE FOR TRENCH DEWATERING OPERATIONS. USE OF SEDIMENT TANK FULL OF SEDIMENT IS PROHIBITED.
8. INSTALL PERMANENT OR TEMPORARY STABILIZATION WITHIN SEVEN DAYS FOR SECTIONS OF THE PROJECT NOT UNDER ACTIVE CONSTRUCTION.
9. INSTALL 8" SEWERS AND SEWER HOUSE CONNECTIONS TO THE PROPERTY LINES.
10. RESTORE PAVEMENT, CURB, GUTTER, AND SIDEWALK. COMPLETE RESTORATION OF GRADE, LANDSCAPING, AND PERMANENT STABILIZATION.
11. UPON COMPLETION OF FINAL STABILIZATION AND APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES.

<u>PERMANENT SEEDING SUMMARY</u>

HARDINESS ZONE: 7A SEED MIXTURE: ROADSIDES					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES *	SEEDING DEPTHS	N	P_2O_5	K_2O	
3	REDTOP	1	2/15-4/30 8/15-11/30	1/4- 1/2 INCH	45 LB/AC (1.0 LB/1000SF)	90 LB/AC (2 LB/1000SF)	90 LB/AC (2 LB/1000SF)	2 TONS/AC (90 LB/1000SF)
	COMMON LESPEDEZA	10	2/15-4/30 8/15-11/30	1/4- 1/2 INCH				
	CANADIAN WILD RYE	1	2/15-4/30 8/15-11/30	1/4- 1/2 INCH				
	DEERTONGUE	20	2/15-4/30 8/15-11/30	1/4- 1/2 INCH				
6	TALL FESCUE	40	2/15-5/31	1/4- 1/2 INCH	45 LB/AC (1.0 LB/1000SF)	90 LB/AC (2 LB/1000SF)	90 LB/AC (2 LB/1000SF)	2 TONS/AC (90 LB/1000SF)
	WHITE CLOVER	5	2/15-5/31	1/4- 1/2 INCH				
	PERENNIAL RYEGRASS	25	2/15-5/31	1/4- 1/2 INCH				

* FOR DATES 5/1-8/14 ADD 3.5 LBS/AC OF FOXTAIL MILLET OR PEARL MILLET TO PERMANENT SEEDING MIX #6 ABOVE.
NO PERMANENT PLANTING FROM 1-1 TO 2-14, 6-1 TO 8-14, AND 12-1 TO 12-31.

ESC 5 OF 7

C-11

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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. 20566, EXPIRATION DATE 9-6-2018.

STATE OF MARYLAND — JOHN C. MOORE — NO. 20566 — REGISTERED PROFESSIONAL ENGINEER

RK&K
RUMMEL, KLEPPER & KAHL, LLP
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DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	A	AS-BUILT	6-1-2018

CIVIL
EROSION AND SEDIMENT CONTROL
NOTES-3

600' SCALE MAP NO. 47 — BLOCK NO. 11

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

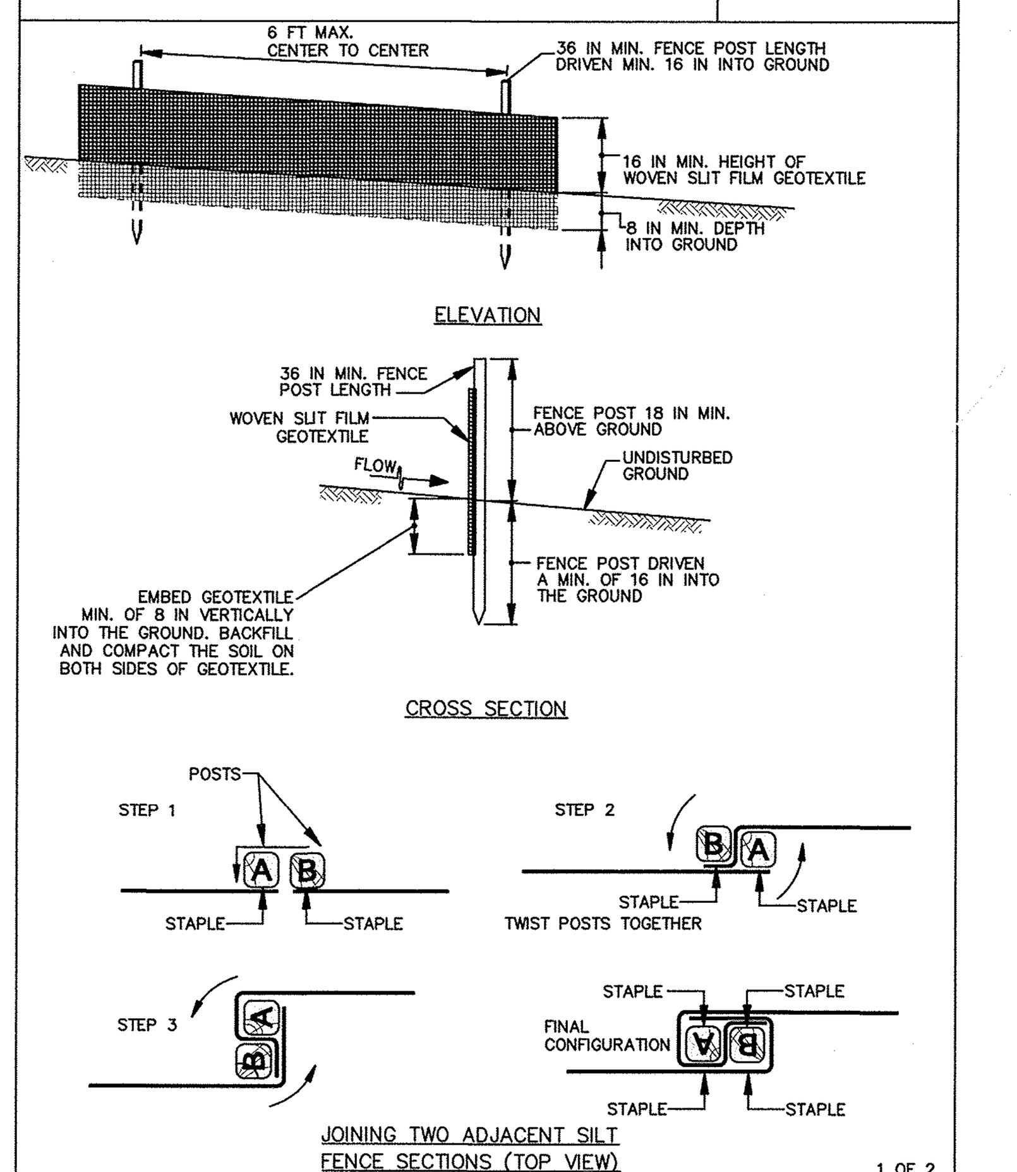
ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET NO. 13 OF 18

RKK21\SYS – \\bdsn01\v2012\2012\2154_HoCoBOA\Task 4 – Savage Sewer Design\CADD\Dwgs\13-C11.dwg Oct 24, 2016 – 12:50pm ENV.CTB Plot Scale 1=1 Plot By: egermroth Tab:ESC-4

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 ± ⅛ 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

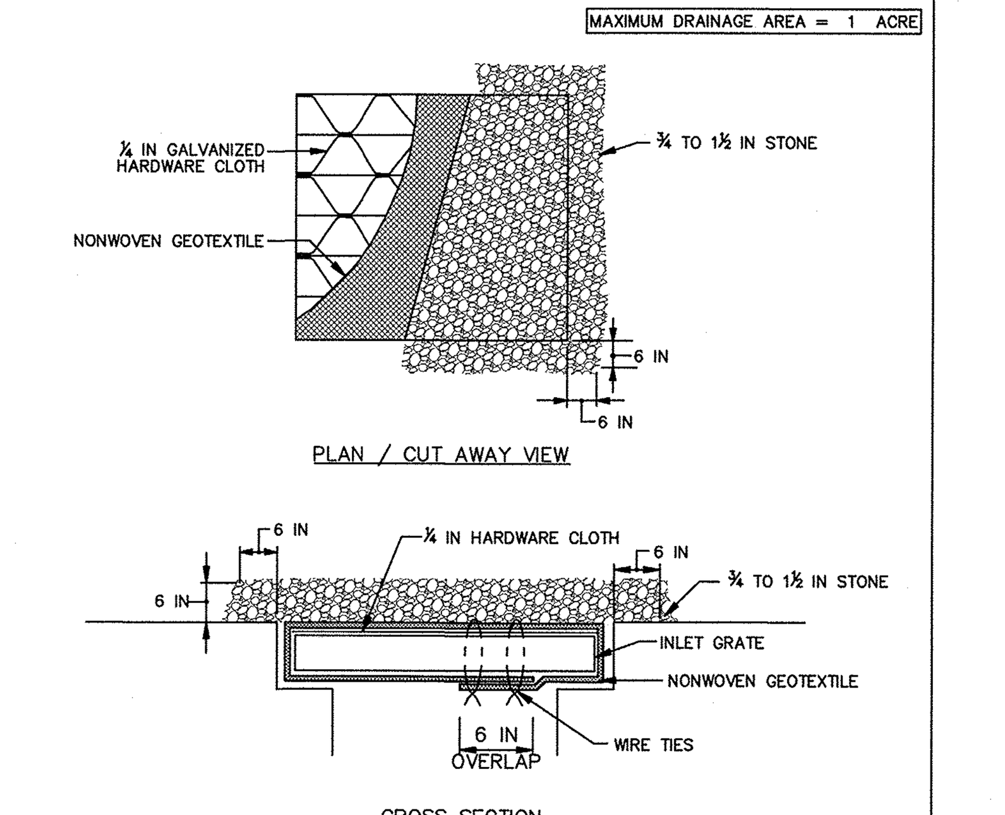
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

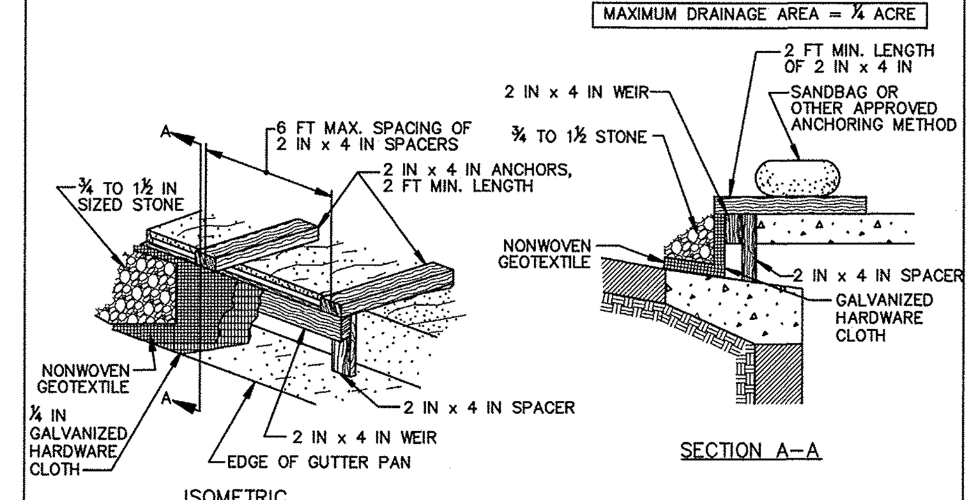
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

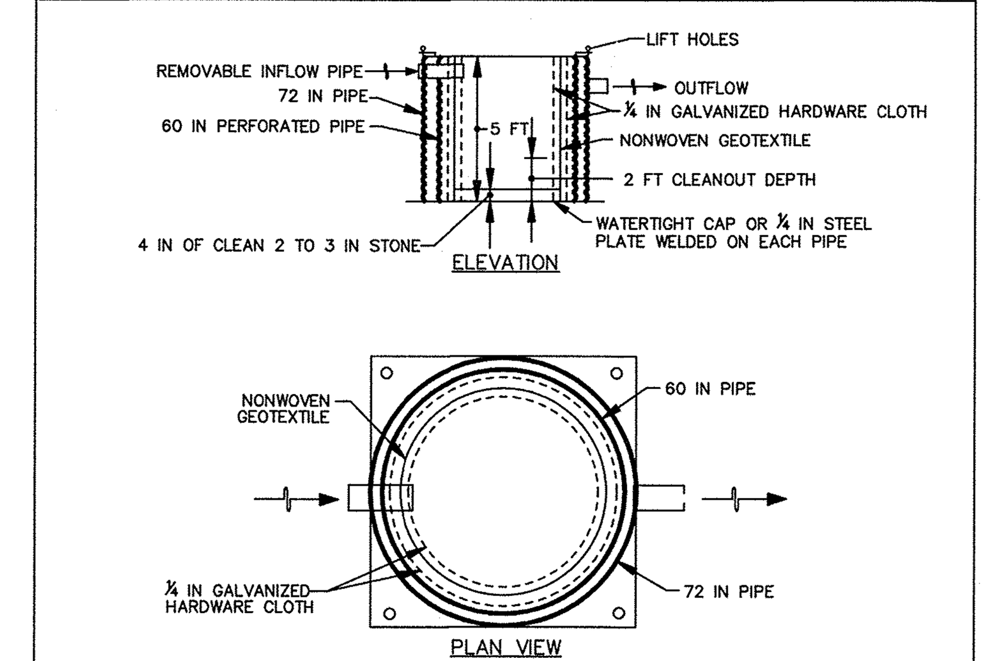
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON–SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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-3 PORTABLE SEDIMENT TANK

STANDARD SYMBOL: PST



CONSTRUCTION SPECIFICATIONS

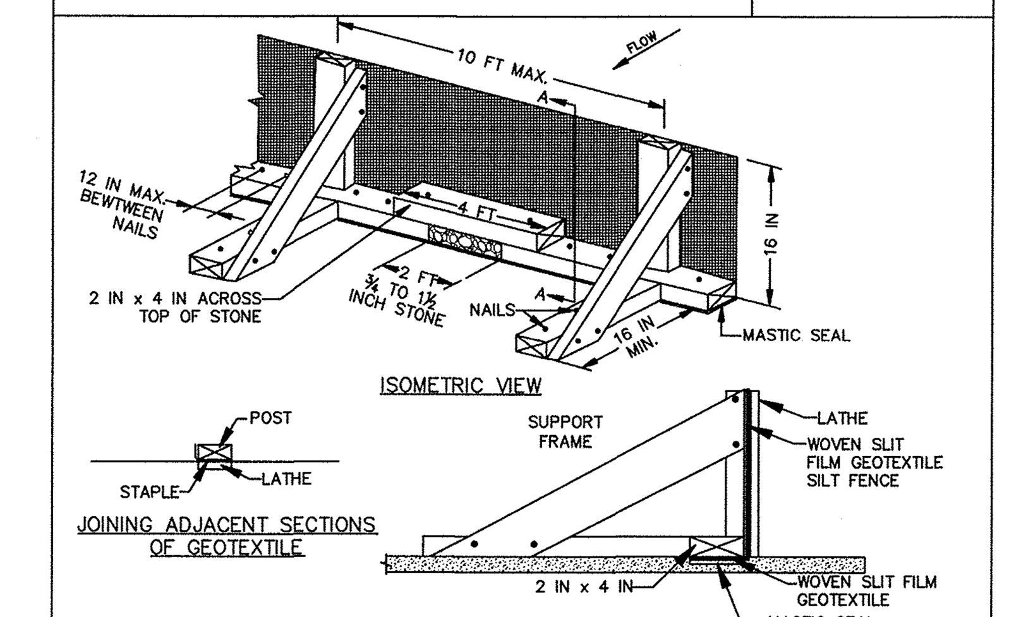
1. PROVIDE 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.
2. USE 60 INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER 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 E-2 SILT FENCE ON PAVEMENT

STANDARD SYMBOL: SFOP



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
3. 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.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT–LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

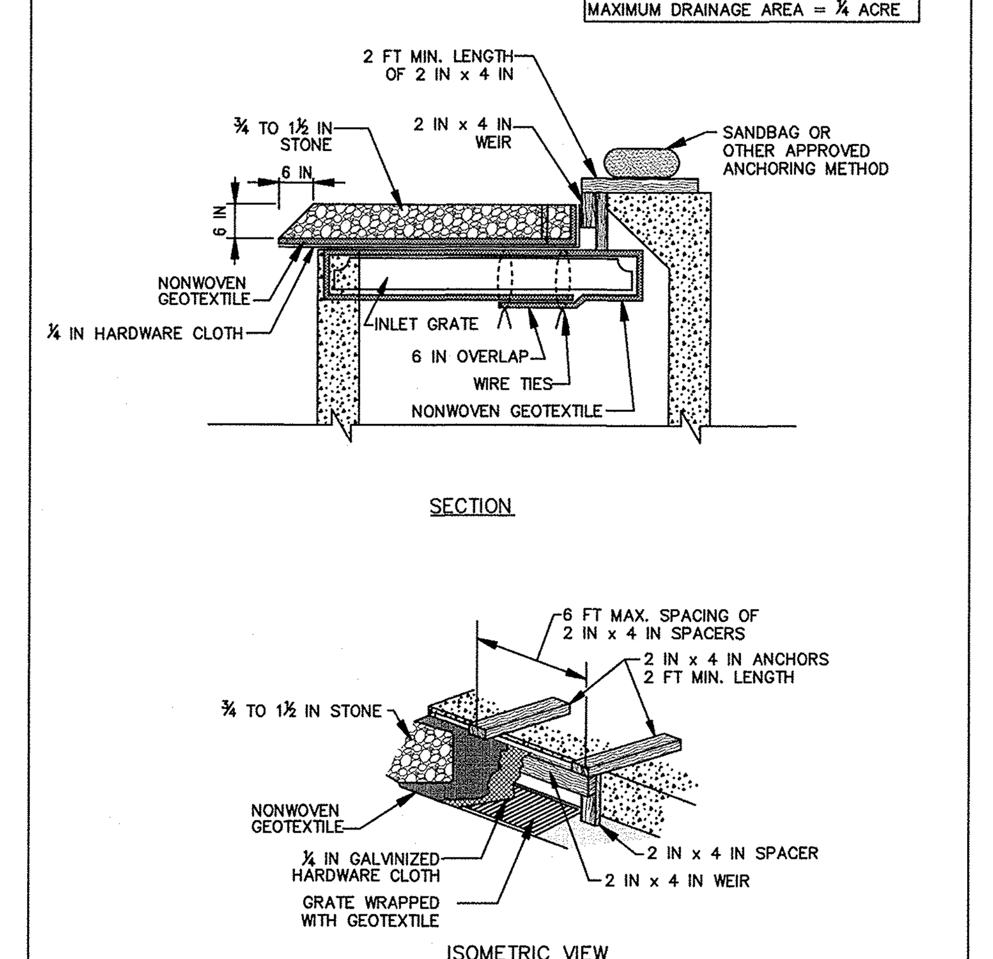
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



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-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
4. ATTACH A CONTINUOUS PIECE OF ½ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2X4 WEIR, EXTENDING 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH IT TO THE WEIR.
6. NAIL THE 2X4 WEIR TO THE TOP OF A 9 INCH LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
7. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FOOT LENGTHS OF 2x4 INCH TO THE TOP OF THE WEIR AT SPACER LOCATIONS). EXTEND 2X4 ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
8. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. AT NON–SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
11. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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

ESC 6 OF 7

C–12

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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. 20566 , EXPIRATION DATE 9–6–2018 .

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728–2900 WWW.RKK.COM

STATE OF MARYLAND · JOHN C. MOORE · No. 20566 · REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10–24–2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

CIVIL
EROSION AND SEDIMENT CONTROL
DETAILS

600' SCALE MAP NO. 47 — BLOCK NO. 11

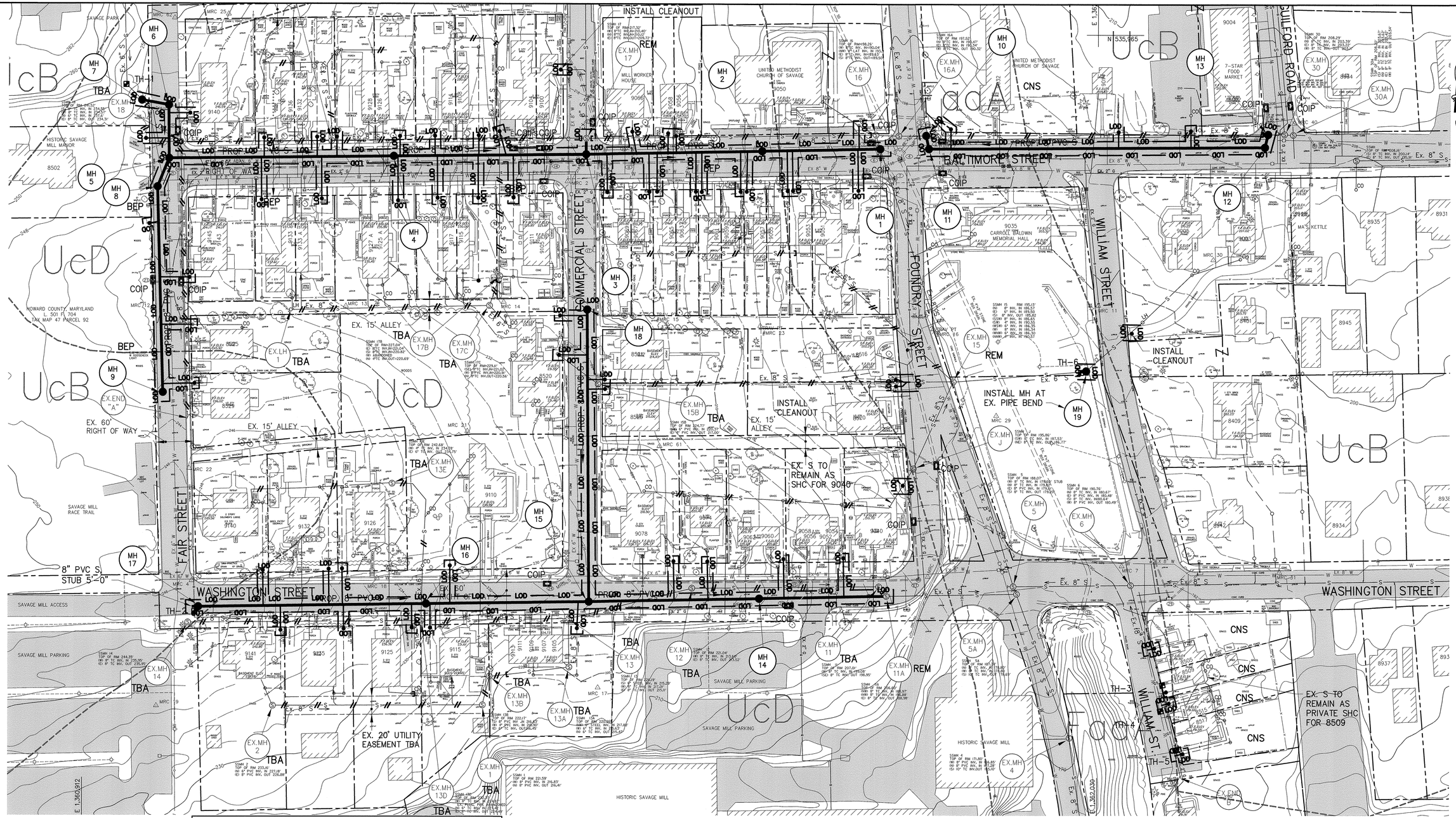
PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET NO. 14 OF 18



PLAN

SCALE: 1" = 50'

EROSION AND SEDIMENT CONTROL LEGEND

LOD	LIMITS OF DISTURBANCE
AGIP	AT GRADE INLET PROTECTION
CIP	CURB INLET PROTECTION
COIP	COMBINATION INLET PROTECTION
PST	PORTABLE SEDIMENT TANK
	SOIL BOUNDARY
UcD	SOIL TYPE

STABILIZATION SCHEDULE

AREA	STABILIZATION TYPE
ROADWAYS	STONE BASE (temporary) CONC./BITUMINOUS PAVING (permanent)
CURBS & SIDEWALKS	STONE BASE (temporary) CONCRETE CURBS/WALKS (permanent)
PERVIOUS AREAS	TEMPORARY SEEDING (temporary) SEED/LANDSCAPING (permanent)
SEDIMENT CONTROLS	SEEDING/STONE (temporary) SEED (permanent)

SOIL NOTES

1. SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE:
   - FaaA Fallsington sandy loams, 0 to 2 percent slopes, Northern Coastal Plain
   - UcB Urban land–Chillum–Beltsville complex, 0 to 5 percent slopes
   - UcD Urban land–Chillum–Beltsville complex, 5 to 15 percent slopes
2. TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATIONS OF CONSTRUCTION AND MATERIALS. SECTION 920 – LANDSCAPING MATERIALS.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE–DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

a. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL (3:1); AND

b. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

UTILITY TRENCH SEDIMENT CONTROL PROCEDURES

1. EXCAVATE TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
2. IMMEDIATELY FOLLOWING PIPE INSTALLATION THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. SEE HSCD NOTE #9 ON DWG. ESC 3 OF 7
3. TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA ON A DAILY BASIS.
4. SEE SHEET ESC 5 OF 6 FOR EROSION AND SEDIMENT CONTROL DETAILS.

EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES

1. IF SO DIRECTED BY THE RESIDENT ENGINEER OR THE EROSION AND SEDIMENT CONTROL INSPECTOR, PROVIDE SILT FENCE IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS SHOWN ON THIS DRAWING, SILT FENCE ON PAVEMENT IN ACCORDANCE WITH THE DETAIL SHOWN ON ESC 5 OF 6, AND/OR INLET PROTECTION IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS SHOWN ON ESC 5 OF 6.

ESC 7 OF 7

1"=50' 50' 0 50' 100'

C-13

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/26/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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STATE OF MARYLAND — JOHN C. MEBUS — NO. 20566 — PROFESSIONAL ENGINEER

RK&K — RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
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DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

CIVIL
EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 47 — BLOCK NO. 11 — ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

SCALE: AS SHOWN

SHEET NO. 15 OF 18

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TRAFFIC CONTROL PLAN – GENERAL NOTES

1. HOWARD COUNTY TRAFFIC SHALL BE NOTIFIED AT LEAST 3 DAYS PRIOR TO BEGINNING ANY WORK IN ORDER TO SCHEDULE A FIELD INSPECTION OF TRAFFIC CONTROL DEVICES. CONTACT THE TRAFFIC DIVISION AT (410) 313–2430.
2. ALL CONSTRUCTION AND MATERIALS FOR THE TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS CONTAINED IN THE LATEST EDITION OF THE STATE OF MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
3. TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH. WHEN ONLY ONE LANE IS OPEN, FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE PROVIDED. THE ROADWAY SHALL BE REOPENED TO TWO WAY TRAFFIC AT THE END OF EACH WORK SHIFT.
4. REFLECTORIZED CHANNELIZING DEVICES SHALL BE USED AT NIGHT ALONG THE CONSTRUCTION AREA.
5. IF A DROP–OFF MEASURES GREATER THAN 2 1/2" BUT EQUAL TO OR LESS THAN 5", A BARRIER OR 2:1 SLOPE OF COMPACTED CRUSHRUN GRAVEL WILL BE REQUIRED.
6. PAVEMENT DISRUPTIONS OF ONE INCH (1") OR GREATER SHALL BE RAMPED WITH A BEVELED EDGE OF FOUR HORIZONTAL TO ONE VERTICAL (4:1).
7. THE CONTRACTOR SHALL BACKFILL THE TRENCH IMMEDIATELY AFTER THE INSTALLATION OF A SECTION OF PIPE. IF STEEL PLATES ARE TO BE USED, APPROPRIATE SIGNING WILL BE REQUIRED. STEEL PLATES MUST BE PINNED. STEEL PLATES ON ALL COUNTY ROADWAYS MUST BE RECESSED, AS MUST ALL STEEL PLATES TO BE PLACED FOR MORE THAN 24 HOURS BETWEEN DECEMBER 1st AND MARCH 15th. THE CONTRACTOR SHALL NOT LEAVE AN OPEN TRENCH UNATTENDED.
8. CONTRACTOR SHALL INSTALL "CAUTION STEEL PLATES AHEAD" SIGNS W8–8(4) IN ADVANCE OF STEEL PLATE BRIDGING.
9. ALL TEMPORARY SIGNS THAT DO NOT APPLY WHEN ROAD IS OPEN SHALL BE COVERED OR REMOVED, OR TURNED AWAY.
10. CHANNELIZING DEVICES AND TEMPORARY STRIPING SHALL BE REMOVED AS SOON AS PRACTICAL.
11. ALL TRAFFIC CONTROL DEVICES SHALL BE KEPT IN THEIR PROPER POSITION AT ALL TIMES AND SHALL BE REPAIRED, REPLACED OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY.
12. ACCESS SHALL BE PROVIDED TO ALL EXISTING DRIVEWAYS AT ALL TIMES UNLESS COVERED BY THE APPROVED TRAFFIC CONTROL PLAN. CONTRACTOR SHALL COORDINATE ALL DRIVEWAY CONSTRUCTION WITH THE PROPERTY OWNER. ALL CONES AND FLAGMEN SHALL BE MOVED ACCORDINGLY AS CONSTRUCTION PROGRESSES.
13. ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THESE PLANS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
14. ANY CHANGES TO THE TCP SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION FOR REVIEW AND APPROVAL. REQUESTS FOR DETOURS AND ROAD CLOSURES SHALL BE SUBMITTED TO THE TRAFFIC DIVISION AT 410–313–2430 5 DAYS IN ADVANCE WITH A DETOUR PLAN FOR APPROVAL.
15. THE CONTRACTOR MUST CONTACT THE HOWARD COUNTY PROJECT MANAGER (KERRI DINSMORE, HO CO DPW, BUREAU OF ENGINEERING, 410–313–5819) 7 DAYS IN ADVANCE OF PLACEMENT OF TEMPORARY PARKING RESTRICTIONS. THE CONTRACTOR MUST NOTIFY ALL AFFECTED RESIDENTS OF PARKING RESTRICTIONS AT LEAST 48 HOURS IN ADVANCE.
16. CONSTRUCTION & WORKER'S VEHICLES SHALL NOT BE PARKED IN A MANNER THAT WILL IMPEDE TRAFFIC OR IMPAIR SIGHT DISTANCE. THESE VEHICLES SHOULD BE PARKED OFF–STREET ON THE CONSTRUCTION SITE OR ON A SIDE STREET NOT UNDER CONSTRUCTION.
17. FLAGGERS SHALL BE CERTIFIED FLAGGER AND SHALL HAVE THEIR CERTIFIED FLAGGER CARD WITH THEM AT ALL TIMES DURING FLAGGING OPERATIONS.
18. CONTRACTOR WORK HOURS WITH LANE CLOSURES ARE RESTRICTED TO 8AM TO 4PM MONDAY THROUGH FRIDAY. WORK REQUEST ANY OTHER TIME MUST BE SUBMITTED TO THE TRAFFIC DIVISION AT LEAST 48 HOURS IN ADVANCE.
19. CONTRACTOR'S TRAFFIC MANAGER MUST HAVE A MDSHA TEMPORARY TRAFFIC CONTROL MANAGER'S TRAINING COURSE CARD.
20. THE HOWARD COUNTY PUBLIC SCHOOL SYSTEM, 410–313–6278, SHALL BE ADVISED OF WORK ACTIVITIES WHICH MAY AFFECT BUS ROUTE TIMING AS EARLY AS PRACTICAL.
21. PORTABLE VARIABLE MESSAGE SIGNS (PVMS), SHALL BE PLACED 10 DAYS PRIOR TO ROAD WORK (RECOMMENDED ONE FOR EACH APPROACH, TWO (2) ON BALTIMORE STREET, ONE (1) ON FOUNDRY STREET). CONTACT THE TRAFFIC DIVISION FOR LOCATION AND MESSAGES ON THE PVMS.
22. SEE DWG MOT–2 FOR SUGGESTED TRAFFIC CONTROL DETAILS.
23. SEE DWG MOT–3 FOR MAINTENANCE OF TRAFFIC PLAN.

LEGEND

- WORK AREA
- DIRECTION OF TRAFFIC
- 4 — SUGGESTED TRAFFIC CONTROL DETAIL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/27/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16 KD

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STATE OF MARYLAND — JOHN C. MCCOY — No. 22566 — REGISTERED PROFESSIONAL ENGINEER

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10–24–2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

MAINTENANCE OF TRAFFIC NOTES

600' SCALE MAP NO. 47 — BLOCK NO. 11 — ELECTION DISTRICT NO. 3 — HOWARD COUNTY, MARYLAND

PROJECT NO. S6290 AS-BUILT 6-1-2018
CONTRACT NO. 20-4937

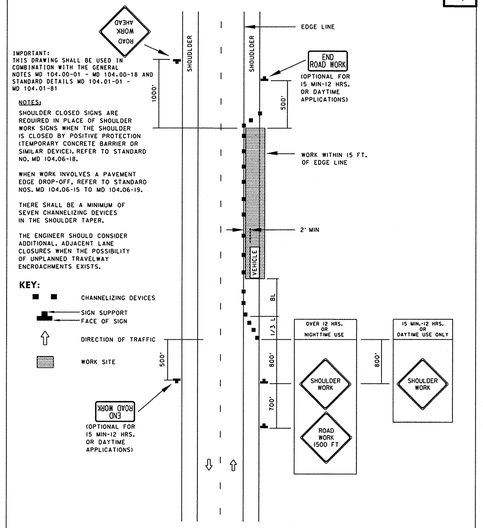
SAVAGE AREA SEWER REALIGNMENT

SCALE: AS SHOWN
SHEET NO.: 16 OF 18

MOT–1

1

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT / FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

SPECIFICATION	CATEGORY CODE ITEMS
104	

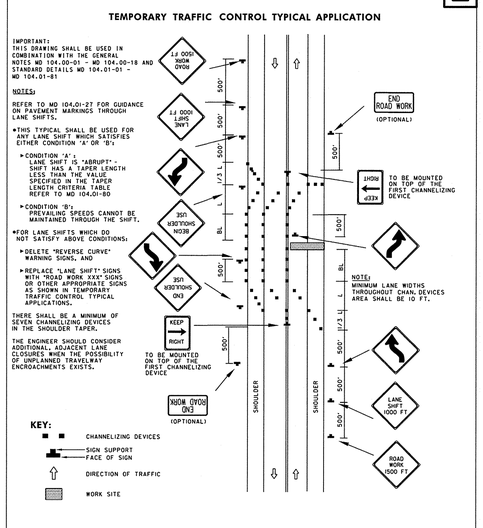
APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 10-5-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-02

2

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
REFER TO MD 104.01-27 FOR GUIDANCE ON PAVEMENT MARKINGS THROUGH LANE SHIFTS.

- THIS TYPICAL SHALL BE USED FOR ANY LANE SHIFT WHICH SATISFIES EITHER CONDITION 'A' OR 'B':
  - CONDITION 'A': LANE SHIFT IS "ABRUPT" - SHIFT HAS A TAPER LENGTH LESS THAN THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE REFER TO MD 104.01-80
  - CONDITION 'B': PREVAILING SPEEDS CANNOT BE MAINTAINED THROUGH THE SHIFT.
- FOR LANE SHIFTS WHICH DO NOT SATISFY ABOVE CONDITIONS:
  - DELETE "REVERSE CURVE" WARNING SIGNS, AND
  - REPLACE "LANE SHIFT" SIGNS WITH "ROAD WORK XXX" SIGNS OR OTHER APPROPRIATE SIGNS AS SHOWN IN TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT / FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

SPECIFICATION	CATEGORY CODE ITEMS
104	

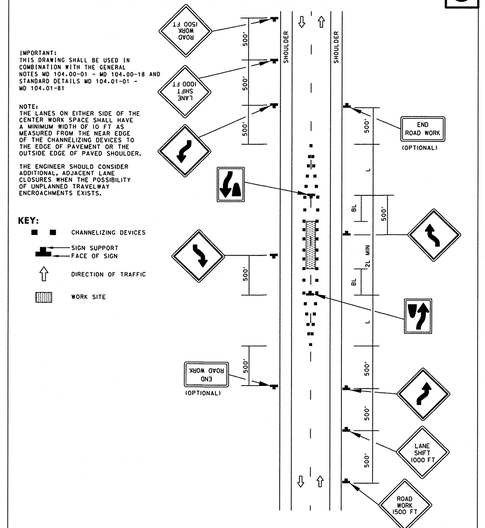
APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 7-29-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT RIGHT OR LEFT SIDE/2-LANE, 2-WAY EQL/LESS THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY
STANDARD NO. MD 104.02-04

3

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTE:
THE LANES ON EITHER SIDE OF THE CENTER WORK SPACE SHALL HAVE A MINIMUM WIDTH OF 10 FT AS MEASURED FROM THE NEAR EDGE OF THE CHANNELIZING DEVICES TO THE EDGE OF PAVEMENT OR THE OUTSIDE EDGE OF PAVED SHOULDER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT / FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

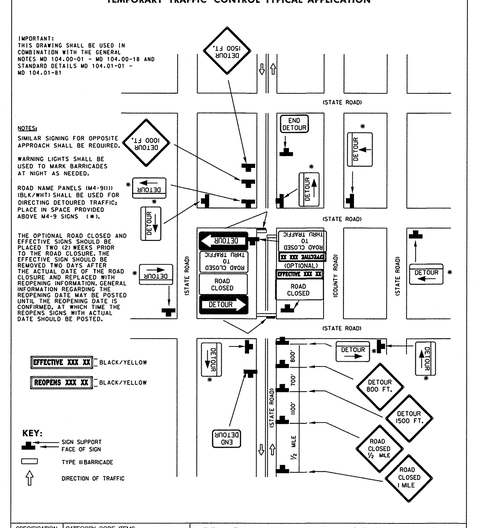
SPECIFICATION	CATEGORY CODE ITEMS
104	

APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 10-5-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
WORK IN CENTER OF LOW-VOLUME ROAD 2-LANE, 2-WAY / EQL/ESS THAN 40 MPH 15 MIN - 12 HRS. OR DAYTIME ONLY
STANDARD NO. MD 104.02-06

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION	CATEGORY CODE ITEMS
104	

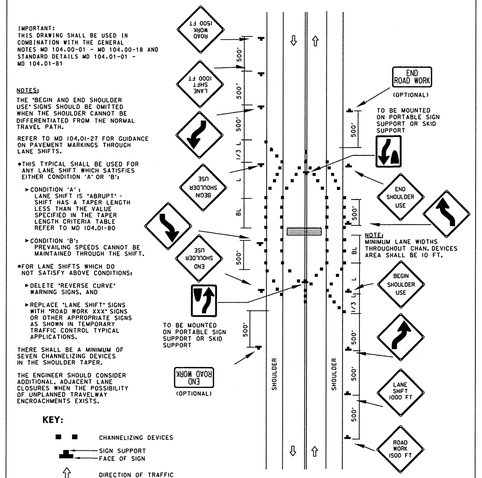
APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 7-29-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
DETOUR SIGNING FOR CLOSED STREET /2-LANE, 2-WAY GREATER THAN 40 MPH /OVER 12 HRS. OR NIGHTTIME USE
STANDARD NO. MD 104.06-06

4

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:
THE "BEGIN AND END SHOULDER USE" SIGNS SHOULD BE OMITTED WHEN THE SHOULDER CANNOT BE DIFFERENTIATED FROM THE NORMAL TRAVEL PATH.

REFER TO MD 104.01-27 FOR GUIDANCE ON PAVEMENT MARKINGS THROUGH LANE SHIFTS.

- THIS TYPICAL SHALL BE USED FOR ANY LANE SHIFT WHICH SATISFIES EITHER CONDITION 'A' OR 'B':
  - CONDITION 'A': LANE SHIFT IS "ABRUPT" - SHIFT HAS A TAPER LENGTH LESS THAN THE VALUE SPECIFIED IN THE TAPER LENGTH CRITERIA TABLE REFER TO MD 104.01-80
  - CONDITION 'B': PREVAILING SPEEDS CANNOT BE MAINTAINED THROUGH THE SHIFT.
- FOR LANE SHIFTS WHICH DO NOT SATISFY ABOVE CONDITIONS:
  - DELETE "REVERSE CURVE" WARNING SIGNS, AND
  - REPLACE "LANE SHIFT" SIGNS WITH "ROAD WORK XXX" SIGNS OR OTHER APPROPRIATE SIGNS AS SHOWN IN TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

KEY:
- CHANNELIZING DEVICES
- SIGN SUPPORT / FACE OF SIGN
- DIRECTION OF TRAFFIC
- WORK SITE

SPECIFICATION	CATEGORY CODE ITEMS
104	

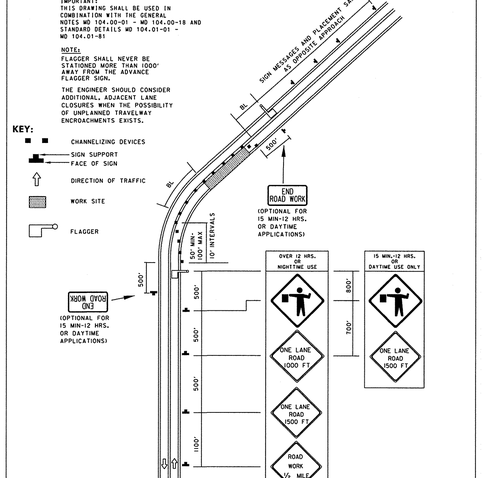
APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 7-29-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
LANE SHIFT FOR COMPLETE TRAVEL WAY BLOCKAGE/2-LANE, 2-WAY EQL/LESS THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY
STANDARD NO. MD 104.02-08

5

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION	CATEGORY CODE ITEMS
104	

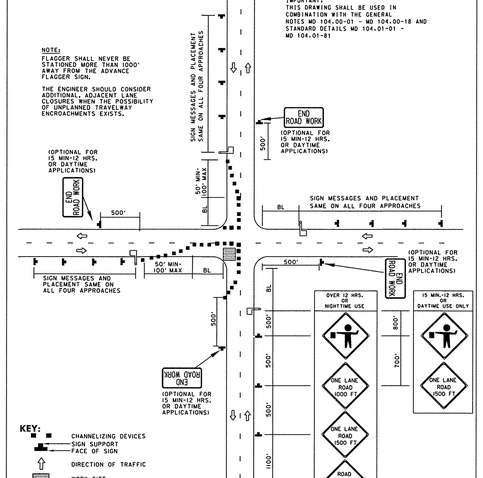
APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 7-29-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-10

6

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION	CATEGORY CODE ITEMS
104	

APPROVED _____ DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL • SHA REVISIONS	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-20-03	APPROVAL 9-23-03
	REVISED 8-11-10	REVISED 7-29-10
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTERSECTION FLAGGING OPERATION 2-LANE,2-WAY EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-14

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE

10/26/16 (DIRECTOR OF PUBLIC WORKS) · 10/25/16 (CHIEF, BUREAU OF ENGINEERING) · 10/26/16 (CHIEF, BUREAU OF UTILITIES) · 10/25/16 (CHIEF, UTILITY DESIGN DIVISION) KD

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. 20566, EXPIRATION DATE 9-6-2018.

STATE OF MARYLAND · JOSHUA C. MCCANN · 20566 · PROFESSIONAL ENGINEER

RK&K RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET
BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

DES: EFG
DRN: MEB
CHK: JCM
DATE: 10-24-2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

MAINTENANCE OF TRAFFIC DETAILS
600' SCALE MAP NO. 47 BLOCK NO. 11

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

MOT-2
SCALE AS SHOWN
SHEET NO. 17 OF 18

RKK21\SYS - \\data\v01\V2012\2012\12154_HoCoBOA\Task 4 - Savage Sewer Design\CADD\Page\17-MOT2.dwg Oct 24, 2016 - 12:23pm ENV:CTB Plot Scale 1=1 Plot By: egemroth Tab:MOT-2

PARKING LOT
SAVAGE PARK
HISTORIC SAVAGE MILL MANOR
8502
WARD COUNTY, MARYLAND
L. 501 F. 704
AX MAP 47 PARCEL 92
SAVAGE MILL RACE TRAIL
SAVAGE MILL ACCESS
SAVAGE MILL PARKING
HISTORIC SAVAGE MILL
E 1,360,912
N 535,100
E 1,362,030
N 535,965
E 1,362,030
N 535,100
MH 6
MH 7
MH 5
MH 8
MH 9
MH 17
MH 16
MH 15
MH 18
MH 4
MH 3
MH 18
MH 2
MH 14
MH 13
MH 12
MH 11
MH 10
MH 13
MH 19
EX.MH 17A
EX.MH 17D
EX.MH 17
EX.MH 16
EX.MH 16A
EX.MH 30
EX.MH 30A
EX.MH 18
EX.MH 17B
EX.MH 17C
EX.MH 15B
EX.MH 15
EX.MH 13E
EX.MH 13B
EX.MH 13A
EX.MH 13
EX.MH 12
EX.MH 11
EX.MH 11A
EX.MH 5A
EX.MH 2
EX.MH 1
EX.MH 13D
EX.MH J
EX.MH 5
EX.MH 6
EX.MH 4
EX.LH 1
EX.END "A"
EX.END "B"
TBA
REM
CNS
INSTALL CLEANOUT
INSTALL MH AT EX. PIPE BEND
EX. S TO REMAIN AS PRIVATE SHC FOR 9040
EX. S TO REMAIN AS PRIVATE SHC FOR 8509
EX. 15' ALLEY
EX. 45' RIGHT OF WAY
EX. 60' RIGHT OF WAY
EX. 20' UTILITY EASEMENT TBA
TYPICAL FOR 8" SEWER
TYPICAL FOR SHC
PROP. 8" PVC S
EX. 8" S
EX. 6" S
8" PVC S, STUB 5'-0"
BEP
MRC 1
MRC 2
MRC 3
MRC 4
MRC 5
MRC 6
MRC 7
MRC 8
MRC 9
MRC 10
MRC 11
MRC 12
MRC 13
MRC 14
MRC 15
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MRC 23
MRC 24
MRC 25
MRC 26
MRC 27
MRC 28
MRC 29
MRC 30
MRC 31
MRC 40
MRC 61
MRC 62
COMMERCIAL STREET
FOUNDRY STREET
WILLIAM STREET
FAIR STREET
SAVAGE GUILFORD ROAD
BALTIMORE STREET
WASHINGTON STREET
WILLIAM ST.
UNITED METHODIST CHURCH OF SAVAGE
CARROLL BALDWIN MEMORIAL HALL
7-STAR FOOD MARKET
MILL WORKER HOUSE
MA'S KETTLE
SAVAGE MILL PARKING
HISTORIC SAVAGE MILL
NORTH

PLAN
SCALE: 1" = 50'

1"=50' 50' 0 50' 100'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/25/16
CHIEF, BUREAU OF ENGINEERING — DATE 10/25/16
CHIEF, BUREAU OF UTILITIES — DATE 10/26/16
CHIEF, UTILITY DESIGN DIVISION — DATE 10/25/16

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. 20566, EXPIRATION DATE 9-6-2018.

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BALTIMORE, MARYLAND 21217
(410) 728-2900 WWW.RKK.COM

STATE OF MARYLAND — JOHN C. MCHALE — 22982 — REGISTERED PROFESSIONAL ENGINEER

DES:	EFG
DRN:	MEB
CHK:	JCM
DATE:	10-24-2016

BY	NO.	REVISION	DATE
EFG	4	AS-BUILT	6-1-2018

MAINTENANCE OF TRAFFIC PLAN

600' SCALE MAP NO. 47 BLOCK NO. 11

PROJECT NO. S6290
CONTRACT NO. 20-4937
AS-BUILT 6-1-2018

SAVAGE AREA SEWER REALIGNMENT

ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

MOT-3

SCALE AS SHOWN

SHEET NO. 18 OF 18

RKK21\SYS - \\bdlsrv01\V2012\2012\12154_JoCoBOA\Task 4 - Sewage Sewer Design\CADD\Dwgs\18-MOT3-PLAN.dwg Oct 24, 2016 - 12:56pm ENV.CTB Plot Scale 1=1 Plot By: egermoth Tab:MOT-3