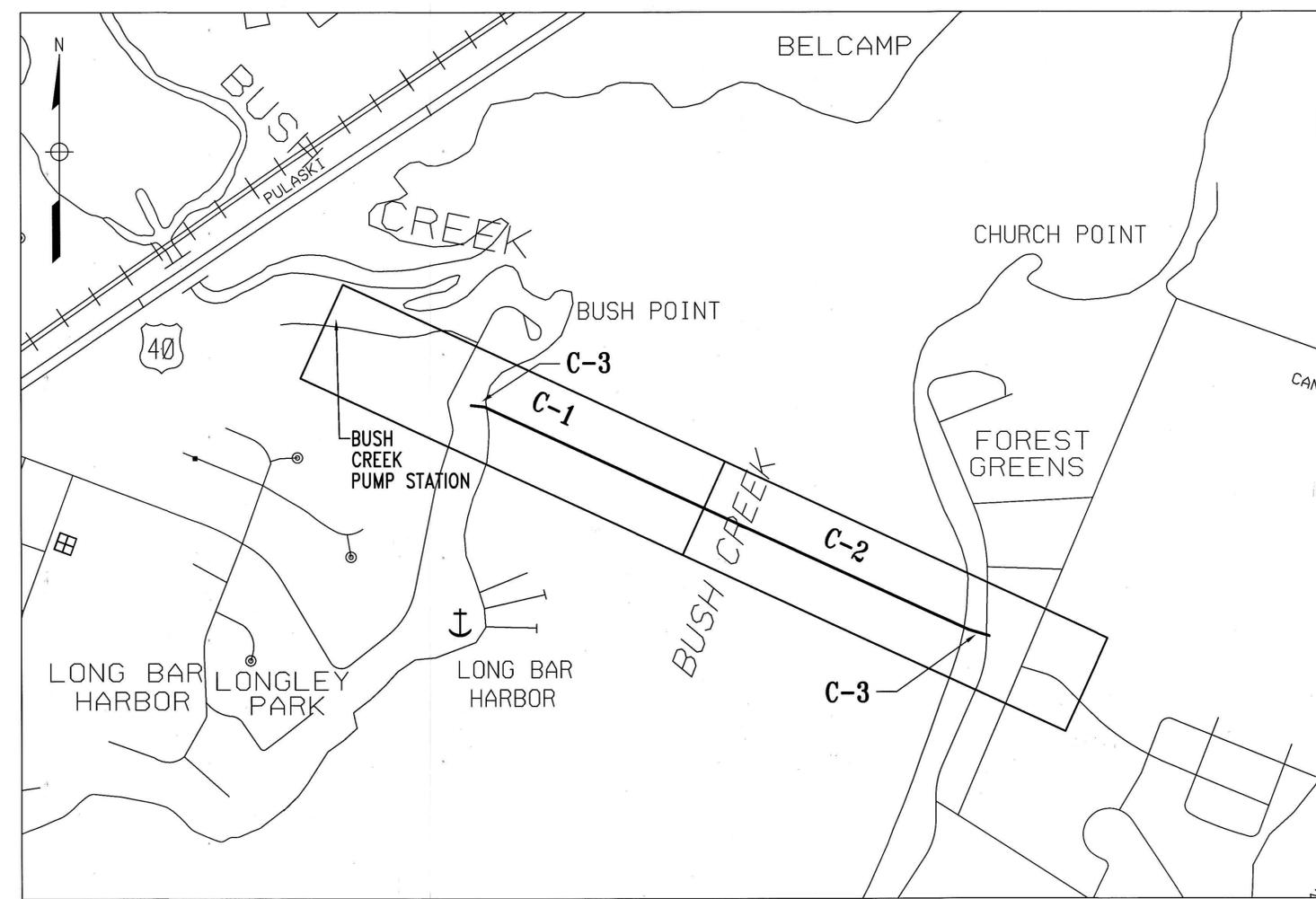


INDEX OF DRAWINGS

SHEET	DRAWING	TITLE
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2	G-2	LEGEND, ABBREVIATIONS, AND GENERAL NOTES
3	C-1	FORCE MAIN PLAN AND PROFILE
4	C-2	FORCE MAIN PLAN AND PROFILE
5	C-3	ENLARGED SITE PLANS
6	C-4	FORCE MAIN DETAILS
7	C-5	SEQUENCE OF CONSTRUCTION
8	SC-1	SEDIMENT AND EROSION CONTROL GENERAL NOTES
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11	TC-1	TRAFFIC CONTROL PLAN AND GENERAL NOTES
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14	CA-1	CRITICAL AREA PLANTING PLAN

BUSH CREEK EXISTING FORCE MAIN REHABILITATION SEWER CONTRACT NO. 6692-B



LOCATION MAP
SCALE: 1" = 600'

ADC MAP NO. 4467
GRID A7/D8

GENERAL NOTES

- CONSTRUCTION OF THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS AND DETAILS FOR WATER MAINS AND SANITARY SEWERS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND WITH THESE CONTRACT PLANS AND SPECIFICATIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MARYLAND OCCUPATIONAL SAFETY LAWS (SEE HARFORD COUNTY STANDARD SPECIFICATIONS). ALL MATERIALS USED ON THIS PROJECT SHALL BE LISTED IN THE APPROVED MATERIALS LIST AS IDENTIFIED IN THE RULES AND REGULATIONS OF THE DIVISION OF WATER AND SEWER.
- ALL WORK WITHIN THE HARFORD COUNTY ROAD RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS AND THE HARFORD COUNTY ROAD CODE REQUIREMENTS.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES BY CONTACTING "MISS UTILITY" (1-800-257-7777) 72 HOURS PRIOR TO THE START OF CONSTRUCTION. ALL LOCATION MARKINGS FOR WATER AND SEWER LINES WILL BE PROVIDED THROUGH A REQUEST TO THE MISS UTILITY ONE CALL SYSTEM BY THE HARFORD COUNTY DIVISION OF WATER AND SEWER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REFERENCE AND MAINTAIN THE LOCATION MARKINGS DURING THE CONSTRUCTION OF THE PROJECT. IN THE EVENT THAT A UTILITY LOCATION NEEDS TO BE REESTABLISHED BY HARFORD COUNTY, THE COST TO PROVIDE THIS SHALL BE BORNE BY THE CONTRACTOR.
- EXISTING UTILITIES ARE SHOWN FROM THE BEST AVAILABLE RECORDS, AND THE COMPLETENESS OR ACCURACY OF THE SAME IS NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES BEFORE TRENCH EXCAVATION BEGINS. HE SHALL PROTECT SERVICE CONNECTIONS AND MAINTAIN THEIR UNINTERRUPTED SERVICE. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY. THE COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR.
- COORDINATES SHOWN ON THESE DRAWINGS REFER TO THE MARYLAND COORDINATE SYSTEM (MAD '83) AND ARE BASED ON NATIONAL GEODETIC SURVEY (NGS) MONUMENT JVG311, N849.893.98 E 1,510,291.65, ELEV., 91.728 AND GPS CONTROL POINT JVG723, N674.051.65 E 1,536,855.11 AND ARE REFERENCED TO NAVD 88.
- ALL STAKING, RESTAKING, AND CUT SHEETS SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL ENGINEER AT THE CONTRACTOR'S EXPENSE, INCLUDING HOUSE SERVICES.
- ALL PIPE ELEVATIONS ARE TO INVERT OF PIPE, UNLESS OTHERWISE SPECIFIED.
- TRAFFIC CONTROL SHALL BE AS SHOWN ON THESE PLANS AND/OR AS SPECIFIED BY THE S.H.A. UTILITY ACCESS PERMIT. IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- ALL TRENCH COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 02255 SPECIFICATIONS, UNLESS OTHERWISE NOTED.
- EXISTING MAILBOXES TO BE DISTURBED BY CONSTRUCTION SHALL BE MOVED TO A TEMPORARY USABLE LOCATION UNTIL CONSTRUCTION IN THE AREA IS COMPLETED, AT WHICH TIME THEY SHALL BE RELOCATED BACK TO THEIR PERMANENT LOCATION. TEMPORARY AND FINAL LOCATIONS SHALL MEET THE APPROVAL OF THE PROPERTY OWNER AND POST MASTER.
- ALL AREAS DISTURBED BY THE CONTRACTOR'S CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED PRIOR TO START OF CONSTRUCTION. THIS SHALL INCLUDE BUT NOT BE LIMITED TO PIPE LAYDOWN AREAS RESTORATION, ROADSIDE DRAINAGE DITCHES, CULVERTS, AND UNDERDRAINS. THE COST OF ANY RESTORATION SHALL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL VIDEOTAPE THE PROJECT AREA AS DETAILED IN THE SPECIFICATIONS FOR THE PURPOSE OF DOCUMENTING PRE-CONSTRUCTION CONDITIONS. THE VIDEOTAPE MUST BE SUBMITTED AT THE PRE-CONSTRUCTION MEETING. THE VIDEOTAPE SHALL BE IN A VHS OR DVD FORMAT.
- WHEN THE PIPE MATERIAL CHANGES BETWEEN NONMETALLIC AND METALLIC, THE TRACER WIRE SHALL CONTINUE ALONG THE METALLIC PIPE TO MAINTAIN CONTINUITY.
- PORTIONS OF THE SITE ARE WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
- ALL UTILITIES WERE DESIGNED TO BE CONSTRUCTED TO MINIMIZE FLOOD DAMAGE AND INFILTRATION OF FLOOD WATERS, AND TO PREVENT THE DISCHARGE OF SEWAGE INTO FLOODWATERS. CONTRACTOR SHALL CONSTRUCT UTILITIES TO ENSURE THAT THESE DESIGN GOALS ARE ACHIEVED.
- SEE DWG G-2 FOR ADDITIONAL GENERAL NOTES.

AS-BUILT CERTIFICATION

"I HEREBY CERTIFY THAT THE "AS BUILT" DRAWINGS CORRECTLY SHOW THE HORIZONTAL AND VERTICAL LOCATION OF THE WATER AND SEWER UTILITIES AND ASSOCIATED APPURTENANCES. CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE FIELD INSPECTIONS AND SURVEY WHICH WERE CONDUCTED AFTER THE WATER AND SEWER UTILITIES WERE CONSTRUCTED. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER OR SURVEYOR, NOR DOES THIS CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING THE REQUIREMENTS IMPOSED BY THE CONTRACT, EMPLOYMENT, OR OTHER MEANS."

SURVEY DATES _____

SIGNATURE _____ P.E. # _____ DATE _____

"I HEREBY CERTIFY THAT ANY AND ALL AS-BUILT INFORMATION IS SHOWN IN RED AND THE ORIGINAL DESIGN, WHICH IS SHOWN IN BLACK, HAS NOT CHANGED FROM THE ORIGINALLY APPROVED SET OF CONTRACT DRAWINGS."

SIGNATURE _____ P.E. # _____ DATE _____

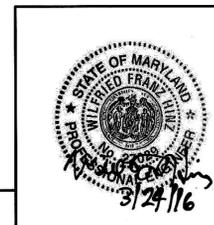
PROFESSIONAL CERTIFICATION

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. 27029 EXPIRATION DATE: 1/25/2018

APPROVED	REV. No.	DATE	REVISION	BY

PLANNING <i>W.D. 4-12-16</i>	ENGINEERING <i>DR 9/20/16</i>	AS-BUILT PER INSPECTOR
MAINTENANCE <i>DR 4-7-16</i>	OPERATIONS	
PROPERTY MANAGEMENT <i>W.D. 4-14-16</i>	CONST. MGMT. <i>YTH 3/25/16</i>	TRANS. BY: _____
SEDIMENT CONTROL <i>DR 4/16</i>	TRAFFIC CONTROL <i>DR 4/21/16</i>	DATE: _____
		RESIDENT INSPECTOR: _____



S/C PLAN #59784



HARFORD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

BILL OF MATERIALS

FORCE MAIN					
DESCRIPTION	SIZE	QUANTITY	MATERIALS	AS-BUILT QUANTITY	MANUFACTURER
FORCE MAIN REHABILITATION	26"	4,200 LF	HDPE		
TIE-INS TO EXISTING FORCE MAIN	30"	40 LF	DI		
PLUG VALVE	30"	1 EA	DI		

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
J. Colill DATE *9/21/2016*

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
J. Smith DATE *9-26-16*

FIRST ELECTION DISTRICT

BUSH CREEK EXISTING FORCE MAIN REHABILITATION

HARFORD COUNTY, MARYLAND

ENGINEER
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21221
PHONE: (410) 235-3450 FAX: (410) 243-5716

SEWER CONTRACT No. 6692-B

DESIGNED: _____	SCALE AS SHOWN	TAX MAP 00 ADC MAP No. 4467	SHEET No. <u>1</u>	DRAWING G-1
DRAWN: _____		ADC GRID A7/D8	of <u>14</u>	
CHECKED: _____				

FORCEMAIN SEWER NOTES

- FORCEMAIN LINER SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) PIPE (DR-17, IRON PIPE SIZE), WHICH IS PRESSURE RATED AT 125 PSI IN ACCORDANCE WITH ASTM D2837. THE DR-17 FORCEMAIN HAS AN ALLOWABLE TEST PRESSURE OF 1.5X THE PRESSURE RATING OR 188 PSI AND SHALL BE PRESSURE TESTED TO 160 PSI IN ACCORDANCE WITH SPECIFICATION SECTIONS 02550 AND 02581.
- ALL CONNECTIONS TO THE EXISTING FORCE MAIN SHALL BE MADE AS SHOWN ON THE DRAWINGS.

GENERAL NOTES

- SEE DWG. G-1 FOR ADDITIONAL GENERAL NOTES.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HARFORD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR WATER AND SEWER MAINS. THE CONTRACTOR SHALL HAVE A COPY ON THE JOB.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-850-4620
BGE (UNDERGROUND DAMAGE CONTROL)	410-685-1400
HARFORD COUNTY ENVIRONMENTAL ENFORCEMENT.....	410-638-3127
HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS.....	410-638-3300
VERIZON/MCI.....	1-800-743-0033/410-224-9210
WATER AND SEWER ABINGDON MAINTENANCE	410-612-1612(EMERGENCY NUMBER)
- EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS EXPENSE.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LINES, GRADES AND ELEVATIONS, AND CUT SHEETS SHALL BE PREPARED BASED ON THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.
- CONTRACTOR TO PROTECT AND/OR BRACE ALL EXISTING UTILITY POLES, AS REQUIRED TO PERFORM THE WORK AND SHALL CONTACT AND COORDINATE WITH BGE.
- LIMITS OF CONTRACT SHALL BE AS SHOWN ON THE DRAWINGS. FOR STAKEOUT PURPOSES LIMITS OF DISTURBANCE (LOD) WILL BE PROVIDED TO THE CONTRACTOR ELECTRONICALLY BEFORE START OF CONSTRUCTION.
- WHERE TEST HOLES HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL  AT THE LOCATIONS OF THE TEST PITS. TEST PIT INFORMATION IS LOCATED IN THE 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 WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS EXPENSE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING STAGING AND STOCKPILE AREAS. NO STOCKPILING WILL BE PERMITTED WITHIN 100' OF THE BUSH RIVER MEAN HIGH WATER LEVEL.
- ALL PAVEMENT RESTORATION SHALL BE PER HARFORD COUNTY ROAD AND STREET STANDARD DETAILS R-3 AND R-4, UNLESS NOTED OTHERWISE.

ABBREVIATIONS

ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	R/W	RIGHT OF WAY
CAP	CAPACITY	S	GRAVITY SEWER
DES	DESIGN	SAN	SANITARY
DIA.	DIAMETER	SF	SILT FENCE
DIP	DUCTILE IRON PIPE	TH	TEST HOLE
DIPS	DUCTILE IRON PIPE SIZE	TYP.	TYPICAL
DS	DIVERSION STRUCTURE	TS&V	TAPPING SLEEVE AND VALVE
ELEV.	ELEVATION	V.B.	VERTICAL BEND
EX.	EXISTING	Vcap	THEORETICAL VELOCITY AT CAPACITY
F&C	FRAME AND COVER	Vdes	DESIGN VELOCITY
FM	FORCE MAIN	VPC	VERTICAL POINT OF CURVATURE
FPS	FEET PER SECOND	VPT	VERTICAL POINT OF TANGENCY
FRP	FIBERGLASS REINFORCED POLYMER PIPE	WB	WETLAND BOUNDARY
H.B.	HORIZONTAL BEND	WT	WATER TIGHT
HDPE	HIGH DENSITY POLYETHYLENE PIPE		
HCL	HYDRAULIC GRADE LINE		
HORIZ.	HORIZONTAL		
ID	INTERIOR DIAMETER		
INV.	INVERT		
LF	LINEAR FOOT		
LOD	LIMIT OF DISTURBANCE		
M.J.	MECHANICAL JOINT		
MGD	MILLION GALLONS PER DAY		
MIN.	MINIMUM		
n	MANNING'S ROUGHNESS COEFFICIENT		
N/A	NOT APPLICABLE		
NIC	NOT IN CONTRACT		
OD	OUTSIDE DIAMETER		
PC	POINT OF CURVATURE		
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE		
P.E.	PLAIN END		
PI	POINT OF INTERSECTION		
PRC	POINT OF REVERSE CURVE		
PROP	PROPOSED		
PT	POINT OF TANGENCY		
PVC	POLYVINYL CHLORIDE PIPE		
PVI	POINT OF VERTICAL INTERSECTION		

LEGEND

PROPOSED

EXISTING

DESCRIPTION

	FLY MONUMENT
	GPS MONUMENT
	TRAVERSE MONUMENT
	STORM DRAIN MANHOLE
	FIRE HYDRANT
	VALVE
	GAS MANHOLE
	GAS VALVE
	SANITARY CLEANOUT
	SANITARY MANHOLE
	ELECTRIC JUNCTION BOX
	ELECTRIC MANHOLE
	TELEPHONE MANHOLE
	WATER METER
	ELECTRIC POLE
	GUY WIRE
	SIGN
	BUSH
	EVERGREEN TREE
	DECIDUOUS TREE
	STUMP
	ROAD LIGHT POLE
	AIR CONDITIONER
	DITCH
	FENCE
	WOOD FENCE
	GAS MAIN
	DRAIN PIPE
	WATER MAIN
	SANITARY SEWER PIPE
	SANITARY SEWER FORCEMAIN
	UNDERGROUND ELECTRIC LINE
	UNDERGROUND COMMUNICATION LINE
	25' NON-TIDAL WETLAND BUFFER
	NON-TIDAL WETLAND BOUNDARY
	TIDAL WETLAND BOUNDARY
	WOODSLINE
	LIMIT OF DISTURBANCE (LOD)
	SUPER SILT FENCE (SSF) LOCATED ALONG LOD
	SUPER SILT FENCE
	100 YEAR FLOODPLAIN (TIDAL)
	UTILITY TEST HOLE LOCATION
	PROPERTY LINE
	EASEMENT LINE, RIGHT-OF-WAY LINE
	RIP RAP
	PROPOSED TEMPORARY EASEMENT

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

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE NONTIDAL 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
 - USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD FEBRUARY 15 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
 - USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
 - USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

PROPOSED SEQUENCE OF CONSTRUCTION

SEE DRAWING C-5 FOR SUGGESTED SEQUENCE OF CONSTRUCTION

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. 27022 EXPIRATION DATE: 1/25/2018

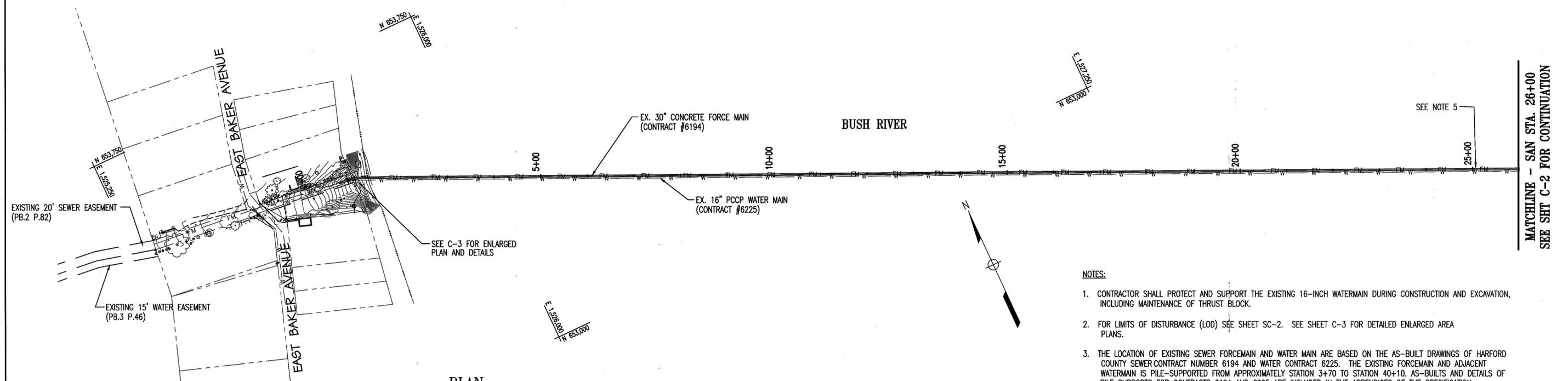
APPROVED	REV. No.	DATE	REVISION	BY

S/C PLAN #59784



PLANNING <i>W.J.R. 4-12-16</i>	ENGINEERING <i>W.J.R. 4/14/16</i>	AS-BUILT PER INSPECTOR
MAINTENANCE <i>W.J.R. 4-17-16</i>	OPERATIONS	
PROPERTY MANAGEMENT <i>W.J.R. 4-14-16</i>	CONST. MAINT. <i>MTM 3/29/16</i>	TRANS. BY: _____
SEDIMENT CONTROL <i>W.J.R. 4/14/16</i>	TRAFFIC CONTROL <i>W.J.R. 4/21/16</i>	DATE: _____
		RESIDENT INSPECTOR: _____

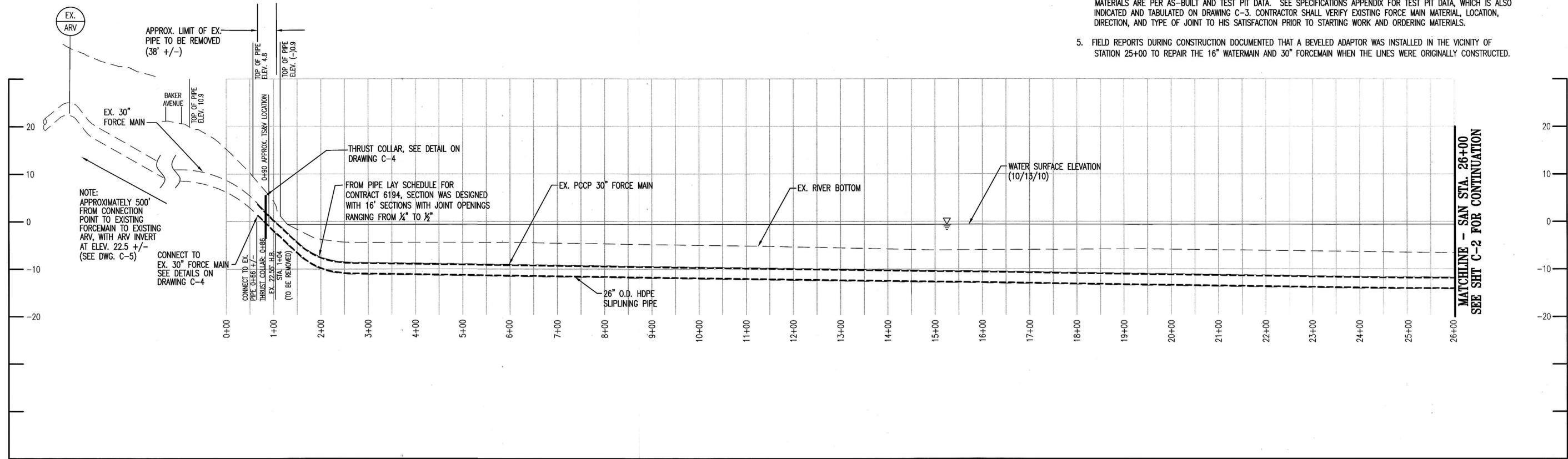
J. Cull DATE *9/21/2016*



PLAN
SCALE: 1" = 100'

NOTES:

1. CONTRACTOR SHALL PROTECT AND SUPPORT THE EXISTING 16-INCH WATERMAIN DURING CONSTRUCTION AND EXCAVATION, INCLUDING MAINTENANCE OF THRUST BLOCK.
2. FOR LIMITS OF DISTURBANCE (LOD) SEE SHEET SC-2. SEE SHEET C-3 FOR DETAILED ENLARGED AREA PLANS.
3. THE LOCATION OF EXISTING SEWER FORCEMAIN AND WATER MAIN ARE BASED ON THE AS-BUILT DRAWINGS OF HARFORD COUNTY SEWER CONTRACT NUMBER 6194 AND WATER CONTRACT 6225. THE EXISTING FORCEMAIN AND ADJACENT WATERMAIN IS PILE-SUPPORTED FROM APPROXIMATELY STATION 3+70 TO STATION 40+10. AS-BUILTS AND DETAILS OF PILE SUPPORTS FOR CONTRACTS 6194 AND 6225 ARE INCLUDED IN THE APPENDICES OF THE SPECIFICATION.
4. EXISTING 30-INCH FORCE MAIN IS PRESTRESSED CONCRETE CYLINDER PIPE, UNLESS NOTED OTHERWISE. PIPELINE MATERIALS ARE PER AS-BUILT AND TEST PIT DATA. SEE SPECIFICATIONS APPENDIX FOR TEST PIT DATA, WHICH IS ALSO INDICATED AND TABULATED ON DRAWING C-3. CONTRACTOR SHALL VERIFY EXISTING FORCE MAIN MATERIAL, LOCATION, DIRECTION, AND TYPE OF JOINT TO HIS SATISFACTION PRIOR TO STARTING WORK AND ORDERING MATERIALS.
5. FIELD REPORTS DURING CONSTRUCTION DOCUMENTED THAT A BEVELED ADAPTOR WAS INSTALLED IN THE VICINITY OF STATION 25+00 TO REPAIR THE 16" WATERMAIN AND 30" FORCEMAIN WHEN THE LINES WERE ORIGINALLY CONSTRUCTED.



PROFILE
SCALE: HORIZ. 1" = 100'
VERT. 1" = 10'

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. 27029 EXPIRATION DATE: 1/25/2018

S/C PLAN #59784



PLANNING M.D. 4-12-16	ENGINEERING BY <i>[Signature]</i>	AS-BUILT PER INSPECTOR
MAINTENANCE RLR 4.17.16	OPERATIONS	
PROPERTY MANAGEMENT YJL 4/4/16	CONST. MGMT. MTH 3/29/16	
SURVEY CONTROL BLL 4/1/16	TRAFFIC CONTROL BLL 4/21/16	
APPROVED	BY	

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
[Signature]
DATE 9/21/16

FIRST ELECTION DISTRICT

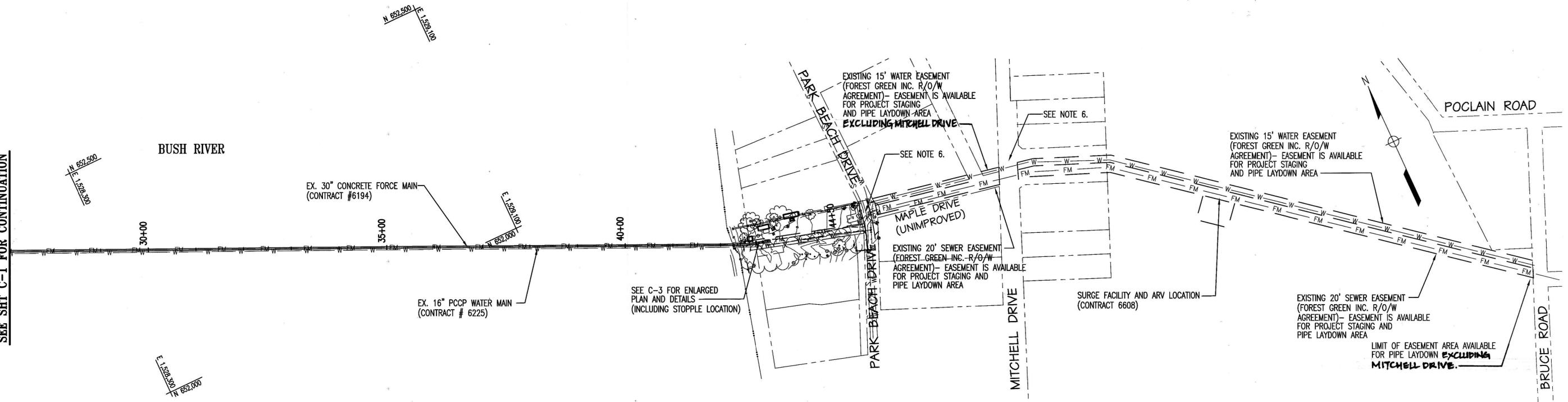
**BUSH CREEK EXISTING FORCE MAIN REHABILITATION
FORCE MAIN PLAN AND PROFILE**

HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

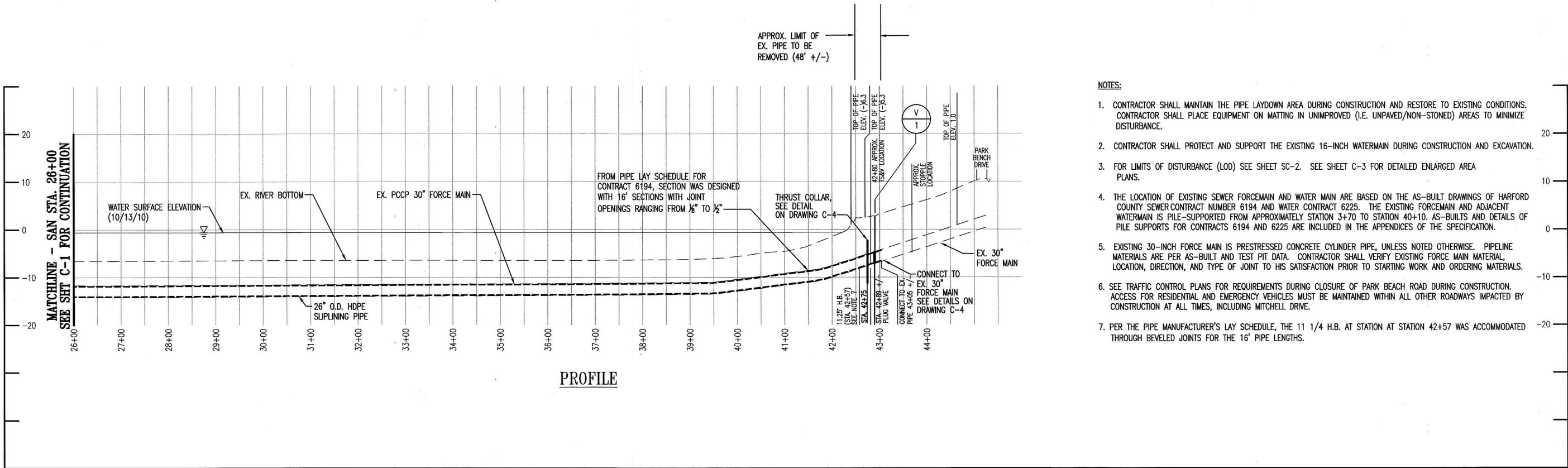
ENGINEER
WHITMAN, REQUARDT, & ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5718

DESIGNED: FBI	SCALE: 1" = 100'	TAX MAP: 00	SHEET: 3	DRAWING: C-1
DRAWN: FBI	HORIZ. 1" = 10'	ADC MAP No. 4487	No. 3	
CHECKED: KWH	VERT. 1" = 10'	ADC GRID A7	of 14	

MATCHLINE - SAN STA. 26+00
SEE SHT C-1 FOR CONTINUATION



PLAN



PROFILE

NOTES:

- CONTRACTOR SHALL MAINTAIN THE PIPE LAYDOWN AREA DURING CONSTRUCTION AND RESTORE TO EXISTING CONDITIONS. CONTRACTOR SHALL PLACE EQUIPMENT ON MATTING IN UNIMPROVED (I.E. UNPAVED/NON-STONED) AREAS TO MINIMIZE DISTURBANCE.
- CONTRACTOR SHALL PROTECT AND SUPPORT THE EXISTING 16-INCH WATERMAIN DURING CONSTRUCTION AND EXCAVATION.
- FOR LIMITS OF DISTURBANCE (LOD) SEE SHEET SC-2. SEE SHEET C-3 FOR DETAILED ENLARGED AREA PLANS.
- THE LOCATION OF EXISTING SEWER FORCEMAIN AND WATER MAIN ARE BASED ON THE AS-BUILT DRAWINGS OF HARFORD COUNTY SEWER CONTRACT NUMBER 6194 AND WATER CONTRACT 6225. THE EXISTING FORCEMAIN AND ADJACENT WATERMAIN IS PILE-SUPPORTED FROM APPROXIMATELY STATION 3+70 TO STATION 40+10. AS-BUILTS AND DETAILS OF PILE SUPPORTS FOR CONTRACTS 6194 AND 6225 ARE INCLUDED IN THE APPENDICES OF THE SPECIFICATION.
- EXISTING 30-INCH FORCE MAIN IS PRESTRESSED CONCRETE CYLINDER PIPE, UNLESS NOTED OTHERWISE. PIPELINE MATERIALS ARE PER AS-BUILT AND TEST PIT DATA. CONTRACTOR SHALL VERIFY EXISTING FORCE MAIN MATERIAL, LOCATION, DIRECTION, AND TYPE OF JOINT TO HIS SATISFACTION PRIOR TO STARTING WORK AND ORDERING MATERIALS.
- SEE TRAFFIC CONTROL PLANS FOR REQUIREMENTS DURING CLOSURE OF PARK BEACH ROAD DURING CONSTRUCTION. ACCESS FOR RESIDENTIAL AND EMERGENCY VEHICLES MUST BE MAINTAINED WITHIN ALL OTHER ROADWAYS IMPACTED BY CONSTRUCTION AT ALL TIMES, INCLUDING MITCHELL DRIVE.
- PER THE PIPE MANUFACTURER'S LAY SCHEDULE, THE 11 1/4 H.B. AT STATION AT STATION 42+57 WAS ACCOMMODATED THROUGH BEVELED JOINTS FOR THE 16' PIPE LENGTHS.

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
J. Cull
DATE 9/2/16

FIRST ELECTION DISTRICT

**BUSH CREEK EXISTING FORCE MAIN REHABILITATION
FORCE MAIN PLAN AND PROFILE**

HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, & ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

DESIGNED: FJB	SCALE: 1" = 100'	TAX MAP No. 00	SHEET No. 4	DRAWING No. C-2
DRAWN: FJB	HORIZ. 1" = 10'	ADC MAP No. 4487	of 14	
CHECKED: WFH	VERT.	ADC GRID DB		

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. 27029 EXPIRATION DATE: 1/25/2018

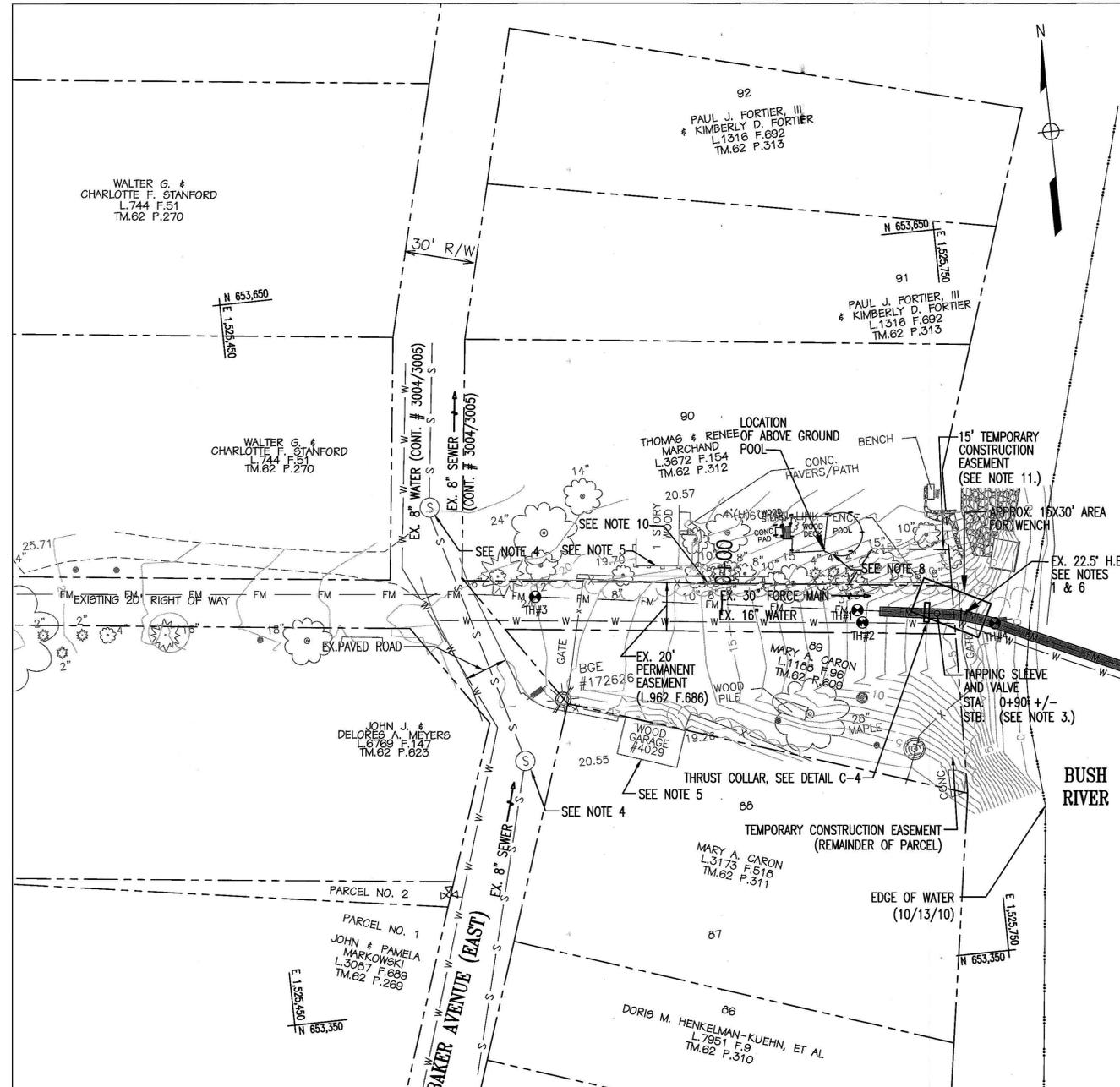


S/C PLAN #59784

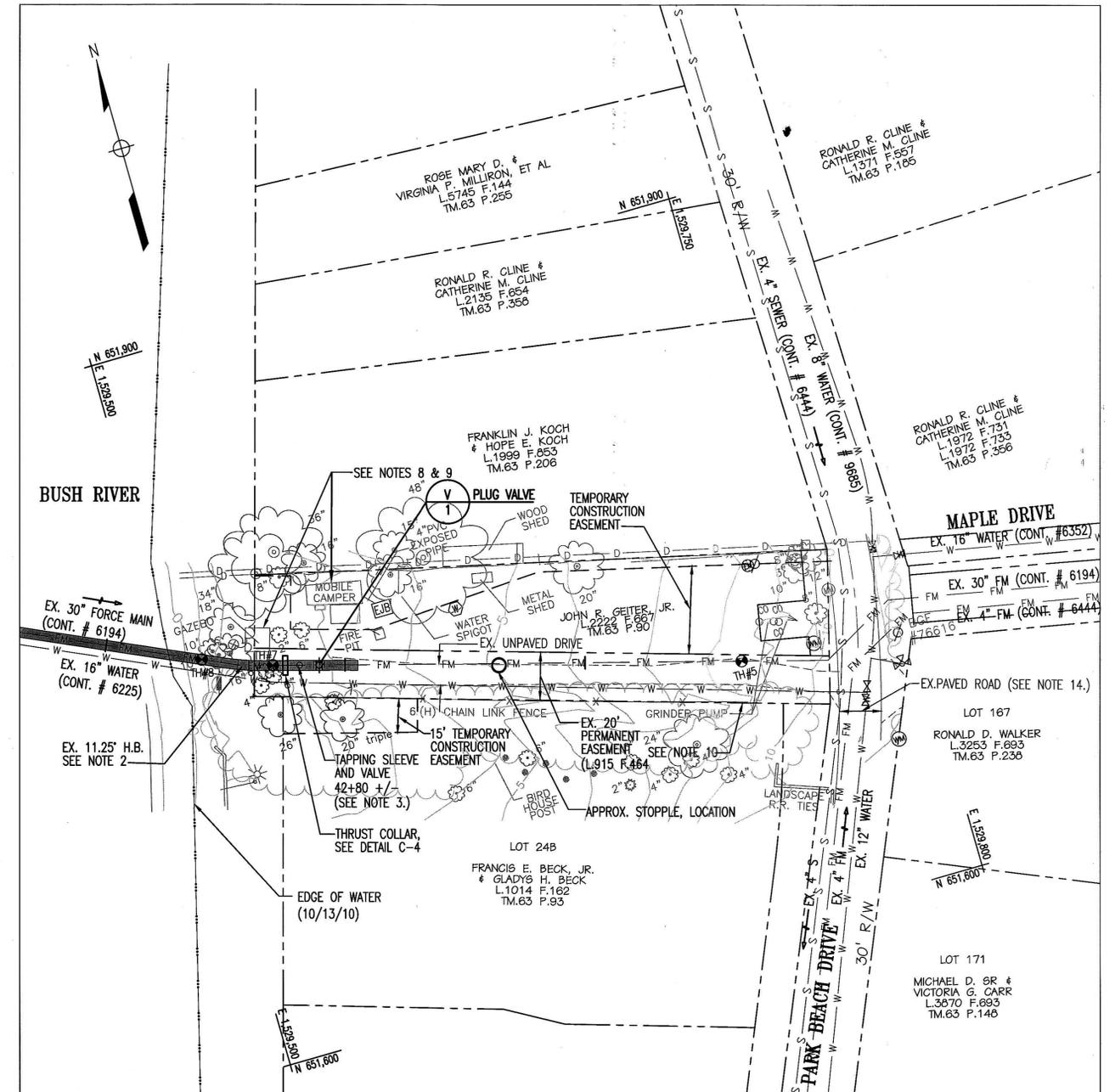
APPROVED	REV. No.	DATE	REVISION	BY

PLANNING 7/20/16	ENGINEERING 9/2/16	AS-BUILT PER INSPECTOR
MAINTENANCE 4/17/16	OPERATIONS	
PROPERTY MANAGEMENT 4/14/16	CONST. MGMT. 3/29/16	
SEWERAGE CONTROL 4/1/16	TRAFFIC CONTROL 4/21/16	

TRANS. BY: _____
DATE: _____
RESIDENT INSPECTOR: _____



WEST SIDE OF BUSH RIVER PLAN



EAST SIDE OF BUSH RIVER PLAN

NOTES:

- PER THE MANUFACTURERS LAYING SCHEDULE, A 6' SHORT PIECE WAS INSTALLED ON THE LAND SIDE OF THE 22.5 DEGREE HORIZONTAL BEND, WITH ADDITIONAL LAND SECTIONS INSTALLED WITH 16' LAYING LENGTHS. DISTANCE OF REMOVAL INDICATED IS BASED ON THE REMOVAL OF SHORT PIECE AND ONE 16' PIPE STICK AS REQUIRED TO INSTALL THRUST COLLAR AND MAKE CONNECTION FROM NEW HDPE PIPE TO THE EXISTING PCCP PIPE. LIMITS OF REMOVAL SHALL BE VERIFIED BY CONTRACTOR.
- PER THE MANUFACTURERS LAYING SCHEDULE BEVELED JOINTS FOR 16" PIPE LENGTHS WERE USED IN LIEU OF 1 1/4 HORIZONTAL BEND. DISTANCE OF REMOVAL INDICATED IS BASED ON THE REMOVAL OF THREE 16" PIPE STICKS AS REQUIRED TO INSTALL THRUST COLLAR, VALVE AND MAKE CONNECTION FROM NEW HDPE PIPE TO THE EXISTING PCCP PIPE. LIMITS OF REMOVAL SHALL BE VERIFIED BY CONTRACTOR.
- TEMPORARILY INSTALL TAPPING SLEEVE AND VALVE (6-INCH +/-) ON EXISTING PIPELINE ON BOTH SIDES OF THE RIVER TO FACILITATE SEWAGE REMOVAL WITHOUT SEWAGE SPILLAGE. SEE SEQUENCE OF CONSTRUCTION ON DRAWING C-5. TAPPING SLEEVE AND VALVE SHALL BE LOCATED APPROXIMATELY WHERE INDICATED. CONTRACTOR SHALL NOT INSTALL ON A PIPE SECTION DIRECTLY ADJACENT TO THE EXISTING HORIZONTAL BENDS. TAPPING SLEEVES AND VALVES SHALL BE INSTALLED ON PORTIONS OF PIPELINE THAT WILL BE REMOVED TO FACILITATE CLEANING OF THE PIPE AND WILL NOT BE PERMANENT.
- LOCATION OF DISCHARGE INTO EXISTING SEWER SYSTEM FOR SEWAGE REMOVED FROM EXISTING PIPELINE ON WEST SIDE OF RIVER. ROAD ACCESS MUST BE MAINTAINED AT ALL TIMES. CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO EXISTING ROADWAY FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH HARFORD COUNTY STANDARD DETAIL R-4 (REFER TO SPECIFICATION SECTION 01106).
- SEE DRAWING C-4 FOR HDPE PIPE PLAN CONNECTION DETAILS. LIMITS OF PIPE REMOVAL/REPLACEMENT ARE APPROXIMATE. CONTRACTOR SHALL FIELD LOCATE EXISTING JOINTS AS REQUIRED TO DETERMINE/COORDINATE FINAL TIE-IN LOCATIONS.
- 150 CUBIC YARDS OF GABIONS WAS INSTALLED NEAR EX. 22.5 H.B. AS PART OF ORIGINAL PROJECT. CONTRACTOR SHALL REPLACE ANY GABIONS REMOVED. CONTRACTOR SHALL ALSO REMOVE CONCRETE BUTTRISS AT 22.5 H.B. IF REQUIRED FOR REMOVAL OF BEND PRIOR TO SLIP LINING IS PERFORMED.
- CONTRACTOR SHALL INSTALL HDPE PIPE AT A MAXIMUM 100 FOOT RADIUS FOR OPEN CUT SECTIONS REQUIRED TO BE INSTALLED TO REPLACE HORIZONTAL BENDS REMOVED.
- CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES AND BUILDINGS ON THE SITE.
- ACCESS TO MOBILE CAMPER MUST BE MAINTAINED FOR LAND OWNER
- ALL EXISTING FENCING DISTURBED SHALL BE REPLACED IN KIND AT THE COMPLETION OF CONSTRUCTION.
- SEE DRAWING CA-1 FOR PLANTING DETAILS ON WEST SIDE.
- FOR TRENCH RESTORATION DETAIL, SEE TRENCH DETAIL ON DRAWING C-4.
- SEE DRAWING SC-2 FOR LIMITS OF DISTURBANCE.
- CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGE TO EXISTING ROADWAY FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH HARFORD COUNTY STANDARD DETAIL R-4.

TEST PIT DATA

TEST PIT	DESCRIPTION	APPROX. TOP ELEV. (FT.)
TP-1	EX. 30" FM (WEST SIDE)	4.78
TP-2	EX. 16" W (WEST SIDE)	3.42
TP-3	EX. 30" FM (WEST SIDE)	10.91
TP-4	EX. 30" FM (WEST SIDE)	-0.90
TP-5	EX. 30" FM (EAST SIDE)	1.02
TP-7	EX. 30" FM (EAST SIDE)	-5.27
TP-8	EX. 30" FM (EAST SIDE)	-6.28

S/C PLAN #59784



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 LICENSE NO. 27029 EXPIRATION DATE: 1/25/2018

PLANNING P.J. 4-12-16	ENGINEERING RJR 9/20/16	AS-BUILT PER INSPECTOR			
MAINTENANCE RJR 17/16	OPERATIONS				
PROPERTY MANAGEMENT JLD 4/14/16	CONST. MGMT. MTM 3/29/16				
SEWAGE CONTROL RJR 4/1/16	TRAFFIC CONTROL RJR 4/21/16				
APPROVED	REV. No.	DATE	REVISION	BY	TRANS. BY:
					DATE:
					RESIDENT INSPECTOR:

HARFORD COUNTY MARYLAND

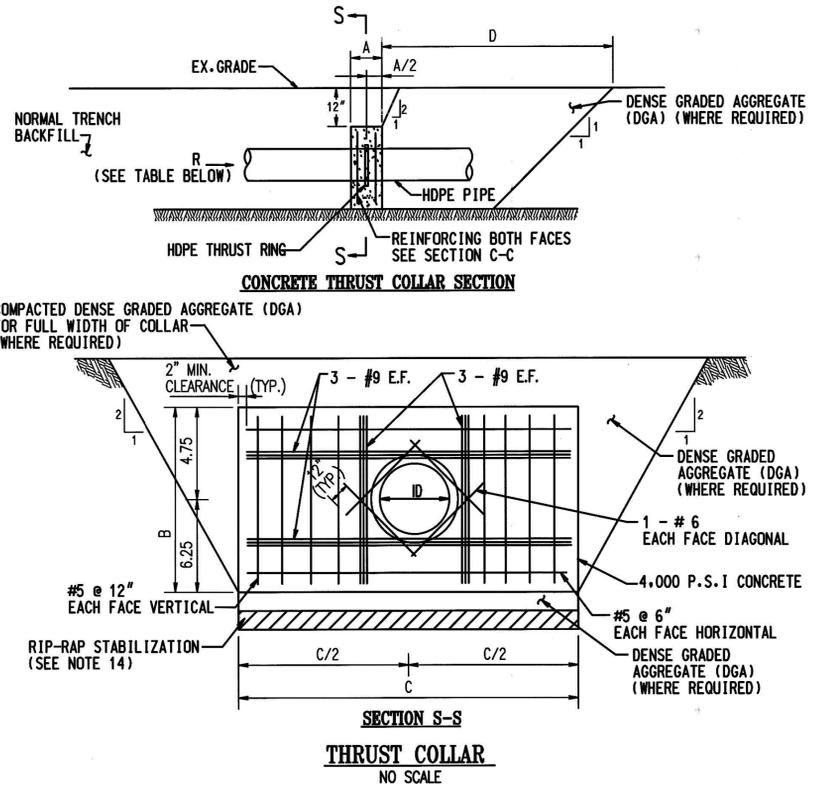
DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
 DATE 9/21/16

BUSH CREEK EXISTING FORCE MAIN REHABILITATION ENLARGED SITE PLANS

HARFORD COUNTY, MARYLAND
 SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, & ASSOCIATES, LLP
 801 S. CAROLINE STREET
 BALTIMORE, MD 21231
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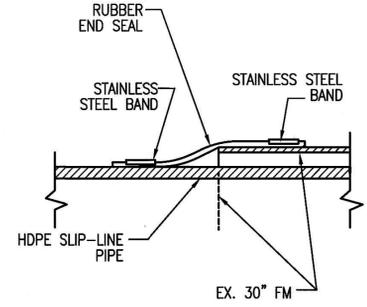
DESIGNED: FJB	SCALE: 1" = 30'	TAX MAP No. 00	SHEET No. 5	DRAWING No. C-3
DRAWN: FJB	CHECKED: WFH	ADC MAP No. 4467	ADC GRID 7/DB	



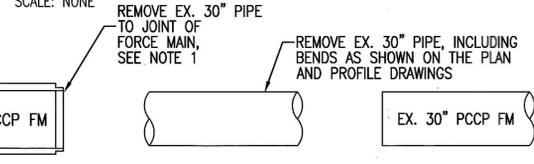
THRUST COLLAR TABLE								
THRUST COLLAR	PIPE OD (NOMINAL)	A	B	C	D	R	RIP-RAP STABILIZATION	DGA REQUIRED
EAST AND WEST SIDE CONNECTIONS OF BUSH CREEK	26"	2'	11'	8'	25'	250,000 LBS	X	X

* SAME THRUST BLOCK DIMENSIONS APPLY FOR ALTERNATE BID ITEM (28" OD HDPE LINER).

- THRUST COLLAR NOTES:**
- HDPE THRUST RING AND PIPE TO WHICH THEY ARE ATTACHED SHALL BE DESIGNED BY THE PIPE MANUFACTURER FOR THE DESIGN THRUST (R) THAT INCLUDES A SAFETY FACTOR = 2.0. THE AREA OF THE RING SHALL BE PROPORTIONED SUCH THAT THE BEARING STRESS ON THE CONCRETE DOES NOT EXCEED 1000 PSI.
 - HDPE THRUST RING SHALL MEET THE FOLLOWING REQUIREMENTS:
 - * MINIMUM COLLAR OD: PIPE OD + 6 INCHES
 - * MINIMUM THICKNESS: 1.5 INCHES
 - * MACHINE WELD INTEGRALLY WITH HDPE PIPE, WITH COLLAR CAPABLE OF DEVELOPING 100 PERCENT OF THE TENSILE STRENGTH OF THE PIPE.
 - ALL REBARS SHALL BE ASTM A615 GRADE 60.
 - MAINTAIN 2" CLEAR BETWEEN ALL REBARS AND PIPE.
 - ALL CONCRETE SHALL BE FC = 4000 PSI @ 28 DAYS. PIPE LINE SHALL NOT BE PRESSURIZED UNTIL CONCRETE STRENGTH REACHES 4000 PSI AND TRENCH HAS BEEN BACKFILLED.
 - ALL BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH.
 - ON THE THRUST SIDE OF THE BLOCK, EXCAVATE FOR THE FULL WIDTH OF THE BLOCK TO THE DIMENSIONS SHOWN. EXCAVATION SUBGRADE SHALL BE PREPARED BY LOCATING SOFT AND LOOSE AREAS, AND BY DENSIFYING AND COMPACTING THOROUGHLY WITH MECHANICAL TAMPERS.
 - DENSE GRADED AGGREGATE SHALL MEET THE REQUIREMENTS OF CR-6 (CRUSHER RUN AGGREGATE) AS DEFINED IN MSHA, "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS", DATED JANUARY 2001.
 - BACKFILL WITH DENSE GRADED AGGREGATE AND COMPACT IN 8" LIFTS TO 95% OF MAXIMUM DRY DENSITY AND A MOISTURE CONTENT WITHIN 3% OF OPTIMUM, ACCORDING TO AASHTO T180.
 - ALL EXCAVATION AND BACKFILLING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02255.
 - ALL HARDWARE SHALL BE STAINLESS STEEL W/ANTI SEIZE W/ANODE CAP NUT.
 - A MINIMUM OF 48 HOURS TIME SHALL BE PROVIDED AFTER SLIP-LINING IS COMPLETE PRIOR TO CONSTRUCTING/INSTALLING OF THRUST BLOCK.
 - RIP-RAP STABILIZATION - WHERE REQUIRED, RIP-RAP SHALL BE USED TO STABILIZE THE THRUST BLOCK SUBBASE. EXCAVATE 1-FOOT BELOW THE BOTTOM OF THE THRUST BLOCK. PUSH WITH THE EXCAVATOR BUCKET, CLASS I RIP-RAP INTO THE EXISTING SUBBASE MATERIAL UNTIL REFUSAL IS ACHIEVED. PLACE AND COMPACT DENSE GRADE AGGREGATE UP TO THE PROPOSED BOTTOM ELEVATION OF THE THRUST BLOCK.
 - CLASS I RIP-RAP SHALL MEET THE REQUIREMENTS DEFINED IN THE LATEST EDITION OF MSHA "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS".
 - WATER LINE ADJACENT TO FORCE MAIN SHALL BE PROTECTED AND SUPPORTED DURING INSTALLATION OF THRUST COLLAR AND AS REQUIRED THROUGH OUT CONSTRUCTION.

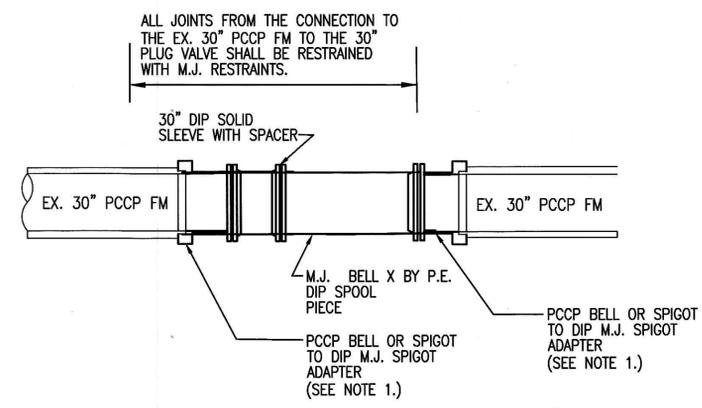


DETAIL - RUBBER END SEAL



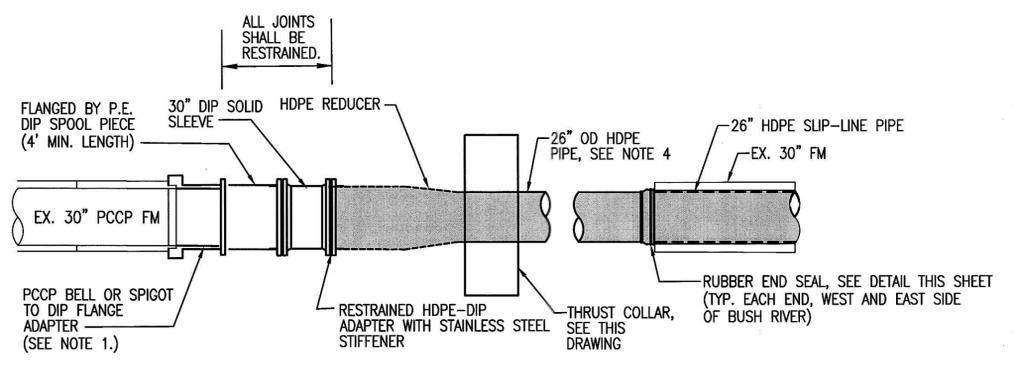
DETAIL - EXISTING PIPE PLAN

- NOTES:**
- CONTRACTOR SHALL FIELD VERIFY THE BELL-SPIGOT ORIENTATION OF THE EXISTING PIPELINE.
 - UTILIZE TRENCH DETAIL FOR SECTION OF PIPE PER DETAIL, THIS SHEET.
 - RUBBER END SEAL AND EXISTING PIPE PLAN IS SHOWN FOR WEST SIDE OF BUSH RIVER. UTILIZE SAME CONNECTION TYPES FOR THE EAST SIDE OF BUSH RIVER.
 - BASE BID IS FOR 26" HDPE SLIPLINE. ALTERNATE BID IS IN ACCORDANCE WITH HARFORD COUNTY STANDARD DETAIL W-12, WITH VALVE COVER LABELED "SEWER".
 - PLUG VALVE SHALL BE INSTALLED WITH ROADWAY BOX IN ACCORDANCE WITH HARFORD COUNTY STANDARD DETAIL W-12, WITH VALVE COVER LABELED "SEWER".
 - ALL VALVES AND FITTINGS SHALL BE SUPPLIED WITH STAINLESS STEEL NUTS AND BOLTS W/ANTI SEIZE W/ ANODE CAP NUTS ON ALL VALVES AND FITTINGS.



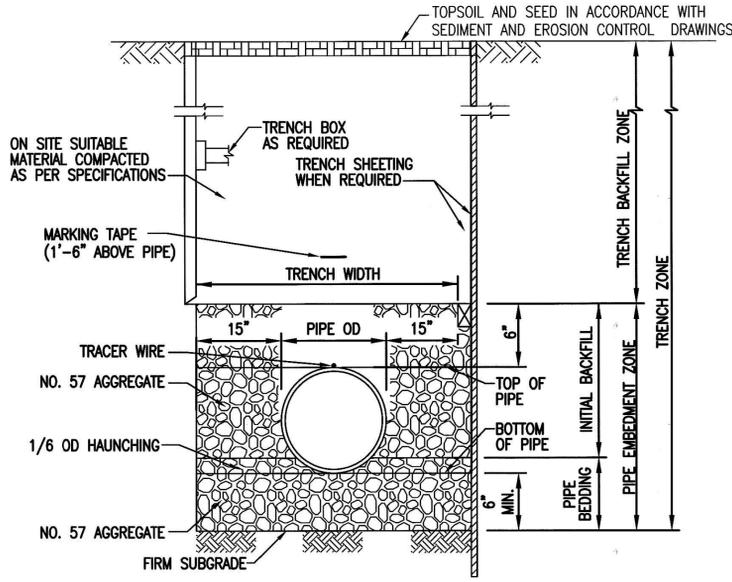
DETAIL - NEW PIPE PLAN - WEST CONNECTION (NO SLIP-LINE)

SCALE: NONE



DETAIL - NEW PIPE PLAN - WEST CONNECTION (HDPE SLIP-LINE)

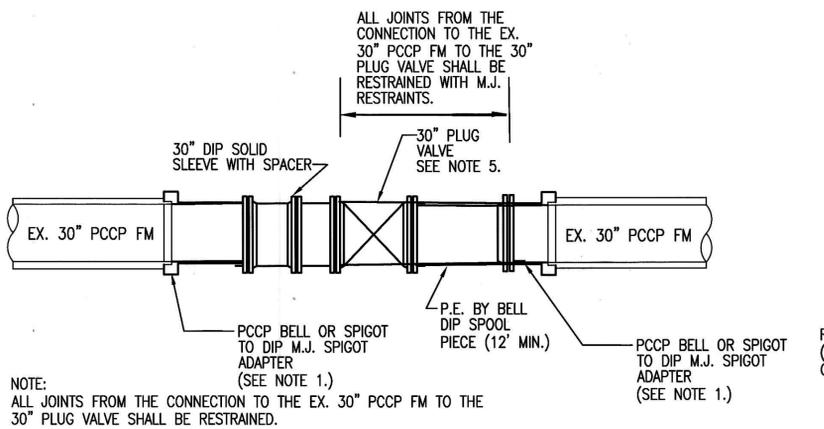
SCALE: NONE



DETAIL - TRENCH

SCALE: NONE FOR EXCAVATIONS GREATER THAN 5'-0", SEE TRENCH NOTE 1

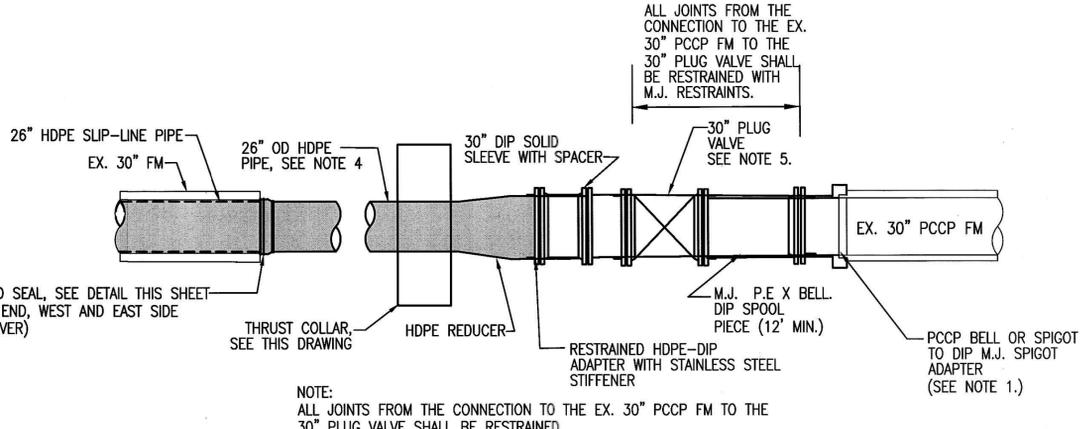
TRENCH NOTE: 1. FOR DEEPER EXCAVATIONS, TRENCH PAY WIDTHS SHALL BE PER HARFORD COUNTY STANDARD DETAIL G-8.



DETAIL - NEW PIPE PLAN - EAST CONNECTION (NO SLIP LINE)

SCALE: NONE

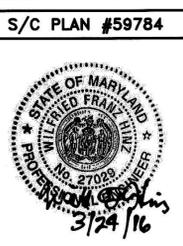
- CONNECTION NOTES:**
- CONNECTION DETAILS FOR "SLIP LINE CONNECTION" APPLY IF PHASE 2A (HDPE SLIP LING) IS IMPLEMENTED. REFER TO SPECIFICATION SECTION 01010
 - CONNECTION DETAILS FOR "NO SLIP LINE" APPLY IF PHASE 2B (NO SLIP LINE) IS IMPLEMENTED. REFER TO SPECIFICATION SECTION 01010.



DETAIL - NEW PIPE PLAN - EAST CONNECTION (HDPE SLIP LINE)

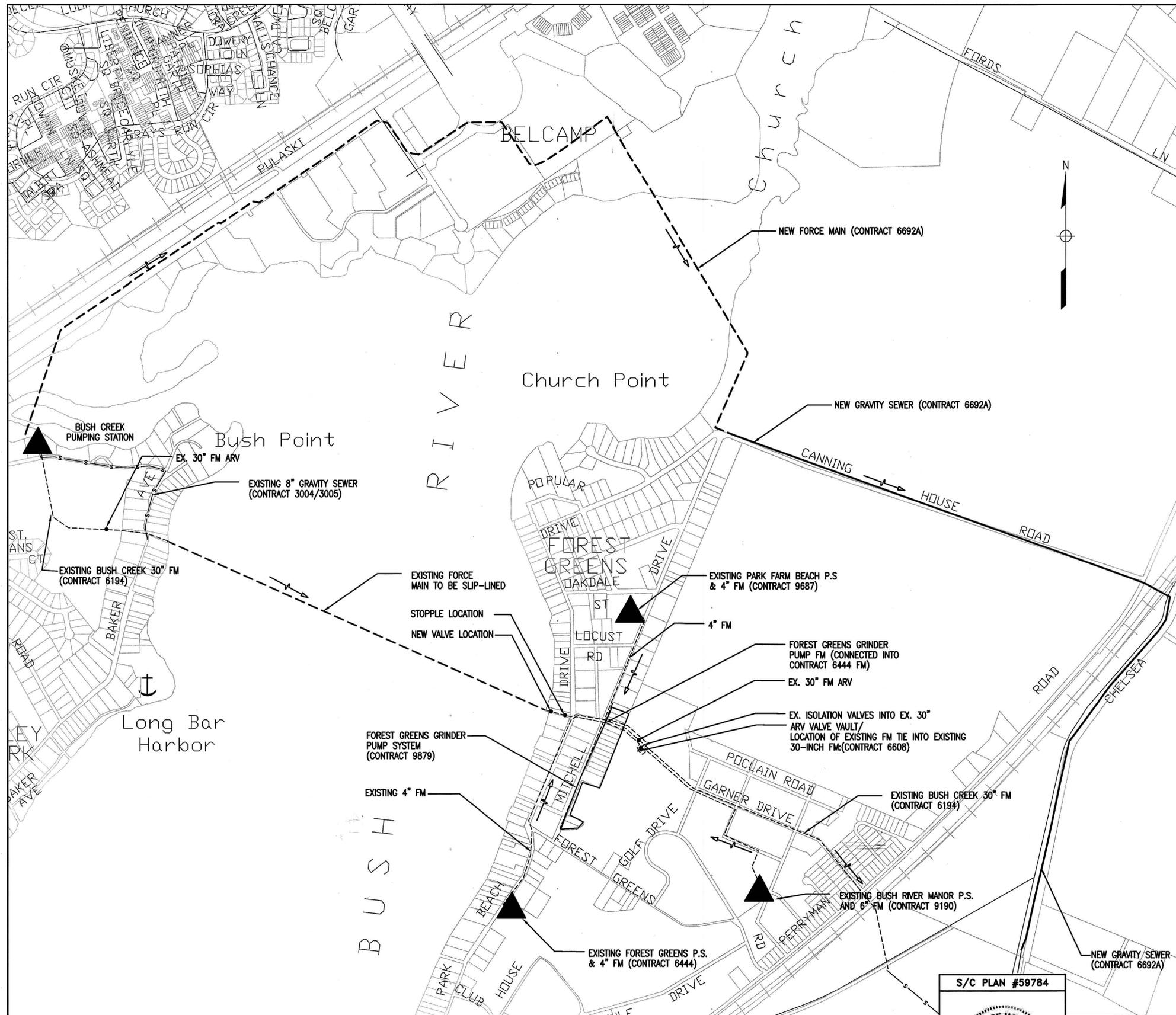
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7/20/16	9/20/16	
Maintenance	Operations	
PROPERTY MANAGEMENT	CONST. MGMT.	
7/20/16	MJM 3/29/16	
SEWAGE CONTROL	TRAFFIC CONTROL	
DR 4/1/16	DR 4/21/16	



GENERAL NOTES

1. THE CONTRACTOR SHALL NOT TAP OR PENETRATE SEWER MAIN WITHOUT APPROVAL FROM HARFORD COUNTY WATER AND SEWER DEPARTMENT. CONTRACTOR IS RESPONSIBLE TO AVOID SPILLAGE AND BE RESPONSIBLE FOR ANY SEWAGE CLEANUP.
2. ALL CONNECTIONS TO EXISTING LINES SHALL BE VISUALLY TESTED UPON COMPLETION OF CONNECTIONS.
3. ANY SOLIDS REMOVED FROM THE EXISTING FORCE MAIN SHALL NOT BE DISPOSED OF IN THE EXISTING SEWER SYSTEM. SOLIDS MAY BE TRANSPORTED TO THE COUNTY'S WASTEWATER TREATMENT PLANT. DISPOSAL OF SOLIDS AT THE WWTP WILL BE MADE BY THE COUNTY AT NO COST TO THE CONTRACTOR IF ANY FATS, RAGS, OILS, OR GREASE (FROG) IS ENCOUNTERED IN THE FORCEMAIN, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY FROG MATERIALS ON THE SLUDGE PAD AT THE SOD RUN WWTP AT NO ADDITIONAL COST TO THE COUNTY.
4. SEE SEQUENCE OF CONSTRUCTION ON THIS DRAWING.
5. THE SEQUENCE OF CONSTRUCTION GIVEN HEREIN IS INTENDED AS A GENERALIZED GUIDELINE TO THE CONTRACTOR OF THE GENERAL SEQUENCING OF MAJOR CONSTRUCTION ACTIVITIES INCLUDED IN THIS PROJECT. THE CONTRACTOR MAY REVISE THIS SEQUENCE AS NECESSARY TO FIT HIS SCHEDULE REQUIREMENTS, PROVIDED THAT THE CONTRACTOR IN NO WAY INHIBITS OR LESSENS THE ABILITY OF THE EXISTING SYSTEM TO OPERATE. THE CONTRACTOR SHALL SUBMIT A WRITTEN SEQUENCE OF CONSTRUCTION FOR REVIEW AND APPROVAL BY THE OWNER AND ENGINEER.
6. THE EXISTING FORCEMAIN TO BE REHABILITATED WILL NOT BE OPERATIONAL NOR IN-SERVICE FOR THE DURATION OF THE PROJECT. NO BY-PASS PUMPING OF THE EXISTING BUSH CREEK PUMP STATION WILL BE NECESSARY TO COMPLETE THE WORK. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PUMP OUT AND DISPOSE OF THE WATER AND SOLIDS WHICH MAY BE CONTAINED IN THE EXISTING FORCEMAIN.
7. ANY SHUTDOWNS THAT MAY BE REQUIRED SHALL BE COORDINATED WITH THE OWNER AND ENGINEER TO BE PERFORMED AT TIMES THAT WILL MINIMIZE IMPACTS ON THE SYSTEM. THE CONTRACTOR SHALL NOT OPERATE ANY EQUIPMENT OR VALVES EXCEPT UNDER THE DIRECT SUPERVISION OF THE OWNER. IF THE CONTRACTOR REQUIRES A SHUTDOWN OR CHANGE IN OPERATIONS, HE SHALL NOTIFY THE OWNER AT LEAST 72 HOURS IN ADVANCE.
8. FAILURE TO MENTION SPECIFIC ITEMS OF WORK IN THIS SEQUENCE DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
9. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS.
10. THE CONTRACTOR SHALL MAINTAIN CONTINUOUS ACCESS TO ALL PRIVATE PROPERTIES AND BUSINESSES ALONG THE PROJECT AT ALL TIMES.

SUGGESTED SEQUENCE OF CONSTRUCTION

A. INITIAL FORCE MAIN DRAINING

1. CONTACT HARFORD COUNTY FOR COUNTY PERSONNEL TO CLOSE VALVES ON THE WEST SIDE OF THE BUSH RIVER TO ISOLATE THE BUSH CREEK PUMP STATION FROM THE EXISTING FORCE MAIN.
2. INSTALL TEMPORARY STOPPLE ON EAST SIDE PER SPECIFICATIONS.
3. CONNECT TO EXISTING 30-INCH FORCE MAIN AND INSTALL PCCP ADAPTOR, DIP SPOOL PIECE, AND NEW PERMANENT 30-INCH ISOLATION PLUG VALVE PER SPECIFICATIONS ON THE EAST SIDE (SEE DRAWING C-4). ONCE THE ISOLATION VALVE IS INSTALLED, THE TEMPORARY STOPPLE MAY BE REMOVED.
4. EXCAVATE THE EXISTING FORCE MAIN ON THE EAST (PARK BEACH) SIDE OF THE BUSH RIVER AND INSTALL TAPPING SLEEVE AND VALVE WITHIN SECTION OF PIPE TO BE REMOVED TO FACILITATE DEWATERING PORTION OF FM WITHOUT CAUSING SPILLAGE OF SEWAGE.
5. EXCAVATE THE EXISTING FORCEMAIN ON THE WEST (BAKER AVENUE) SIDE OF BUSH RIVER AND INSTALL TAPPING SLEEVE WITHIN SECTION TO BE REMOVED. COORDINATE WITH HARFORD COUNTY TO OPEN UP AIR RELEASE VALVES TO VENT EXISTING FM TO ASSIST IN DRAINING THE EXISTING 30-INCH FM. FLOWS MAY BE CONVEYED INTO EXISTING SANITARY SEWER SYSTEM ALONG BAKER AVENUE WITH IS CONVEYED TO THE EXISTING BUSH CREEK PUMP STATION. FLOWS INTO THIS SYSTEM ARE LIMITED TO 300 GPM.

B. FORCE MAIN REHABILITATION

6. CONTRACTOR SHALL COMPLETE REMOVAL OF SEWAGE FROM THE EXISTING FORCE MAIN AND REMOVAL OF PORTIONS OF THE FORCE MAIN AS NECESSARY TO PERFORM THE WORK.
7. CONTRACTOR SHALL INSPECT THE FORCE MAIN BY USE OF CLOSED CIRCUIT TELEVISION (REF. SPECIFICATION SECTION 02662) AND SHALL DETERMINE THE LEVEL OF CLEANING, TYPE OF CLEANING EQUIPMENT, AND ANY OBSTRUCTIONS THAT MIGHT BE ENCOUNTERED.
8. THE CONTRACTOR SHALL CLEAN THE EXISTING 30-INCH FORCE MAIN UTILIZING ONE OR MULTIPLE METHODS AS DESCRIBED IN THE SPECIFICATIONS.
9. PRIOR TO BEGINNING OF SLIPLINING, THE CONTRACTOR SHALL INSPECT THE CLEANED FORCE MAIN BY USE OF CLOSED CIRCUIT TELEVISION AND SHALL CONFIRM THAT THE LINES ARE ADEQUATELY CLEANED FOR THE SLIPLINING TO BEGIN AND PROVIDE ADDITIONAL CLEANING AS NECESSARY.
10. CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS SET FORTH IN THE PERMITS, INCLUDING THE RESTRICTIONS OF PERFORMING NO WORK IN THE RIVER BETWEEN FEBRUARY 15TH AND JUNE 15TH. CONTRACTOR SHALL MAINTAIN ACCESS TO PUBLIC AND PRIVATE ENTRANCES AND DRIVEWAYS, AT ALL TIMES.
11. CONTRACTOR SHALL SUPPLY OWNER RESULTS OF THE PRE AND POST CLEANING CCTV INSPECTIONS AND RECEIVE WRITTEN APPROVAL TO SLIP-LINE THE EXISTING LINE PRIOR TO ORDERING ANY MATERIALS ASSOCIATED WITH THE SLIP LINING OPERATIONS AND FINAL TIE-INS. SEE SPECIFICATION SECTION 01010 FOR PROJECT PHASING OPTIONS. IF THE OWNER ELECTS TO NOT SLIP LINE THE FORCE MAIN AFTER THE INITIAL INSPECTION, THE CONTRACTOR SHALL RECONNECT THE EXISTING FORCE MAIN PER DETAILS ON DRAWING C-4, WITH THE FOLLOWING PARAGRAPHS 12-14 NO LONGER APPLICABLE.
12. ESTABLISH TRAFFIC CONTROL AND WELD / ASSEMBLE AND LAYDOWN HDPE PIPE.
13. AFTER COMPLETION OF SLIPLINING, THE FORCE MAIN SHALL BE INSPECTED VIA CLOSED CIRCUIT TELEVISION, WITH RESULTS PROVIDED TO THE COUNTY.
14. CONTRACTOR SHALL INSTALL THE COMPONENTS NECESSARY TO HYDROSTATICALLY TEST THE SLIP-LINED FORCE MAIN INCLUDING ALL THRUST COLLARS. TESTING OF THE NEW SLIPLINED FORCE MAIN SHALL BE PER SPECIFICATIONS, FOLLOWING A SUCCESSFUL PULL AND TESTING, CONTRACTOR SHALL COMPLETE THE INSTALLATION OF ALL ANCILLARY COMPONENTS, INCLUDING BUT NOT LIMITED TO TRANSITION COUPLINGS, AND END SEALS. WITH ALL FINAL CONNECTIONS TO THE EXISTING FORCE MAIN VISUALLY OBSERVED FOR NO LEAKAGE.
15. RESTORE ANY DISTURBED AREAS.

PLAN
1"=500'

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PLANNING 7/20/16	ENGINEERING 8/2/16	AS-BUILT PER INSPECTOR
MAINTENANCE 4.17.16	OPERATIONS	TRANS. BY: _____
PROPERTY MANAGEMENT 4-14-16	CONST. MGMT. MTM 3/29/16	DATE: _____
SEWER CONTROL 4/1/16	TRAFFIC CONTROL 4/21/16	RESIDENT INSPECTOR: _____

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
Chik
DATE *3/24/16*

FIRST ELECTION DISTRICT

BUSH CREEK EXISTING FORCE MAIN REHABILITATION SEQUENCE OF CONSTRUCTION

HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
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BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

DESIGNED: WPH	SCALE: NONE	TAX MAP: 00	SHEET: 7	DRAWING: C-5
DRAWN: FJB	CHECKED: LB	ADC MAP No. 4467	No. 7	
		ADC GRID 7/DB	of 14	

HARFORD COUNTY SEDIMENT CONTROL NOTES

- THE GRADING UNIT OF 20 ACRES IS THE MAXIMUM CONTIGUOUS AREA ALLOWED TO BE GRADED AT ONE TIME.
- A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT AT ONE TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PROCEEDING GRADING UNIT HAVE BEEN STABILIZED AND APPROVED BY DPW. NO MORE THAN THIRTY ACRES CUMULATIVELY MAY BE DISTURBED AT ANY GIVEN TIME.
- THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
- THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREA WILL BE DELINEATED WITH BLAZE ORANGE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.
- ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.
- ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.
- EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.
- FOLLOWING INITIAL SOIL DISTURBANCE, RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - THREE CALENDAR DAYS ON SLOPE GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
 - SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
- DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
- SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.
- TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.
- AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
- ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO INSURE POSITIVE FLOW TO TRAPS AND OR BASINS.
- CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.
- SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
- OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.
- ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
- STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.
- TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED.
- SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

PERMANENT VEGETATIVE STABILIZATION

- ALL DISTURBED AREAS, WHICH ARE NOT TO BE PAVED, SHALL BE PERMANENTLY STABILIZED AS FOLLOWS:
- SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS AFTER SPREADING FOUR INCHES OF TOPSOIL.
 - SOIL AMENDMENTS:
APPLY 500 LBS PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.
 - SEEDING:
FOR PERIODS OF MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15: SEED WITH 125 LBS PER ACRE OF TALL FESCUE, 15 LBS PER ACRE OF PERENNIAL RYEGRASS, AND 10 LBS OF KENTUCKY BLUEGRASS.
FOR PERIOD OF MAY 16 TO AUGUST 14: SEED WITH 110 LBS PER ACRE OF TALL FESCUE AND 3 LBS PER ACRE OF WEEPING LOVEGRASS.
FOR PERIOD OF OCTOBER 16 TO FEBRUARY 28, PROTECT SITE BY: OPTION 1: 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OPTION 2: USE SOD, OR OPTION 3: SEED WITH 60 LBS PER ACRE OF TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
NOTE: FOR QUICK COVER WITH TALL FESCUE, ADD 2 LBS OF SMALL GRAIN PER 1,000 SQ. FT.
 - MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRE.**
MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS.
* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS, CHAPTER B, TABLE B-3 (PAGES B 26 TO B 31).
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATION, CHAPTER B: MULCHING (PAGES B 6 AND B 7).

PROJECT SEQUENCE OF CONSTRUCTION

- NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
- NOTIFY HARFORD COUNTY ENVIRONMENTAL ENFORCEMENT (410-638-3127) AT LEAST 72 HOURS PRIOR TO BEGINNING WORK ON-SITE.
- CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES ONLY. (2 DAYS)
- INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE(S). (2 DAYS)
- NOTIFY HARFORD COUNTY ENVIRONMENTAL ENFORCEMENT UPON COMPLETION OF THE INSTALLATION WORK NOTED ABOVE. (1 DAY)
- WITH THE APPROVAL OF THE HARFORD COUNTY ENVIRONMENTAL ENFORCEMENT, CLEAR AND GRUB THE REMAINDER OF THE SITE AND STABILIZE IMMEDIATELY. (2 DAYS)
- BEGIN EXCAVATION AND INSTALLATION OF UTILITIES, WORK SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED IN ONE DAY. STABILIZE WORK AREA AT THE END OF EACH WORK DAY. (APPROX. 60 DAYS)
- CONNECT TO EXISTING UTILITIES WHERE APPLICABLE. (5 DAYS)
- WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE(S), SANDBAG, STONE DIVERSION AND SUPER SILT FENCE (2 DAYS)
- STABILIZE ALL DISTURBED AREAS. (2 DAYS)
- FOLLOWING APPROVAL FROM THE HARFORD COUNTY ENVIRONMENTAL ENFORCEMENT INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMAINING AREAS. (2 DAYS)

TEMPORARY VEGETATION STABILIZATION

- SEEDBED PREPARATION:
LOOSEN UPPER THREE INCHES BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS.
- SOIL AMENDMENTS:
APPLY 600 LBS PER ACRE OF 10-10-10 FERTILIZER AND TWO TONS PER ACRE OF LIME.
- SEEDING: *
FOR PERIODS OF MARCH 1 TO APRIL 30 AND AUGUST 15 TO NOVEMBER 15: SEED WITH 2.5 BU. PER ACRE OF CEREAL RYE PLUS 30 LBS PER ACRE OF TALL FESCUE OR 5 LBS PER ACRE OF REDTOP OR 20 LBS PER ACRE OF PERENNIAL RYEGRASS.
FOR PERIOD OF MAY 1 TO AUGUST 14: SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS OR 40 LBS PER ACRE OF JAPANESE OR FOXTAIL MILLET.
FOR THE PERIOD OF NOVEMBER 16 TO FEBRUARY 28: PROTECT THE SITE BY APPLYING TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.
- MULCHING SPECIFICATIONS:
MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. APPLY 2 TONS PER ACRE OF STRAW OVER ALL SEEDED AREAS. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHALL BE INCREASED TO 2.5 TONS PER ACRE.**
MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND AND WATER. THE TYPE OF MULCH ANCHORING USED MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS.
* IF OTHER SEED MIXES ARE TO BE SUBSTITUTED, THEY MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS, CHAPTER B, TABLE B-3 (PAGES B 26 TO B 31).
** IF A DIFFERENT TYPE OF MULCH IS TO BE USED, IT MUST COMPLY WITH THE 2011 MARYLAND STANDARD AND SPECIFICATION, CHAPTER B: MULCHING (PAGES B 6 AND B 7)

AS-BUILT REVIEWED BY _____

HARFORD COUNTY SEDIMENT CONTROL PLAN APPROVAL BLOCK:

EROSION AND SEDIMENT CONTROL

PLAN #: 59784

RECOMMENDED FOR APPROVAL:

Richard M. Lopez 4/14/16
HARFORD COUNTY, DPW

TECHNICAL CONCURRENCE:

Richard M. Lopez 4-5-16
HARFORD SOIL CONSERVATION DISTRICT

APPROVED:

W.D. Rhea 4/6/16
HARFORD SOIL CONSERVATION DISTRICT

NOTE: THE PURPOSE OF THIS PLAN IS TO ADDRESS SEDIMENT CONTROL FOR MASS GRADING, ROAD AND UTILITY CONSTRUCTION ONLY. INDIVIDUAL OR COLLECTIVE HOME/COMMERCIAL BUILDING CONSTRUCTION WILL REQUIRE A SEPARATE SEDIMENT CONTROL PLAN. THE DEVELOPER/CONTRACTOR SHALL COMPLY WITH ALL THE STABILIZATION REQUIREMENTS OF THIS PLAN. TEMPORARY BUILDINGS MAY BE PERMITTED WITH THE APPROVAL OF THE HARFORD COUNTY DPW.

SITE ANALYSIS:

TOTAL SITE AREA		26,500	SQ. FT.	OWNER'S INFORMATION	
TOTAL DISTURBED AREA		25,300	SQ. FT.	NAME: HARFORD COUNTY GOVERNMENT - DPW	
AREA TO BE PAVED		0	SQ. FT.	ADDRESS: 3334 ABINGDON RD., ABINGDON, MD 21009	
AREA TO BE STABILIZED		25,300	SQ. FT.	PHONE #: 410-638-3300 EXT. 1474	
CUT		250	CU. YD.	CONTACT PERSON: STEVEN SCHULZ, P.E.	
FILL		250	CU. YD.		
TOPSOIL		30	CU. YD.		
NDPES ID PT. No.653,486		E:1,525,633			

ENGINEER'S CERTIFICATION
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL."
Will O'Neil
ENGINEER
DATE: 3/24/16

OWNER'S CERTIFICATION
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR EROSION AND SEDIMENT CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVAL TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HARFORD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY."
John Cull
OWNER
DATE: 3/28/2016

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. 27029 EXPIRATION DATE: 1/25/2018



S/C PLAN #59784
160374

APPROVED	REV. No.	DATE	REVISION	BY

PLANNING	ENGINEERING	AS-BUILT PER INSPECTOR
<i>R.M.L. 4-12-16</i>	<i>W.D.R. 4/24/16</i>	
MAINTENANCE	OPERATIONS	TRANS. BY:
<i>R.L.R. 4-17-16</i>		
PROPERTY MANAGEMENT	CONST. MGMT.	DATE:
<i>W.D.L. 4-14-16</i>	<i>M.T.H. 3/29/16</i>	
SEDIMENT CONTROL	TRAFFIC CONTROL	RESIDENT INSPECTOR:
<i>W.D.L. 4-11-16</i>	<i>W.D.L. 4-21-16</i>	

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
John Cull
DATE: 9/21/16

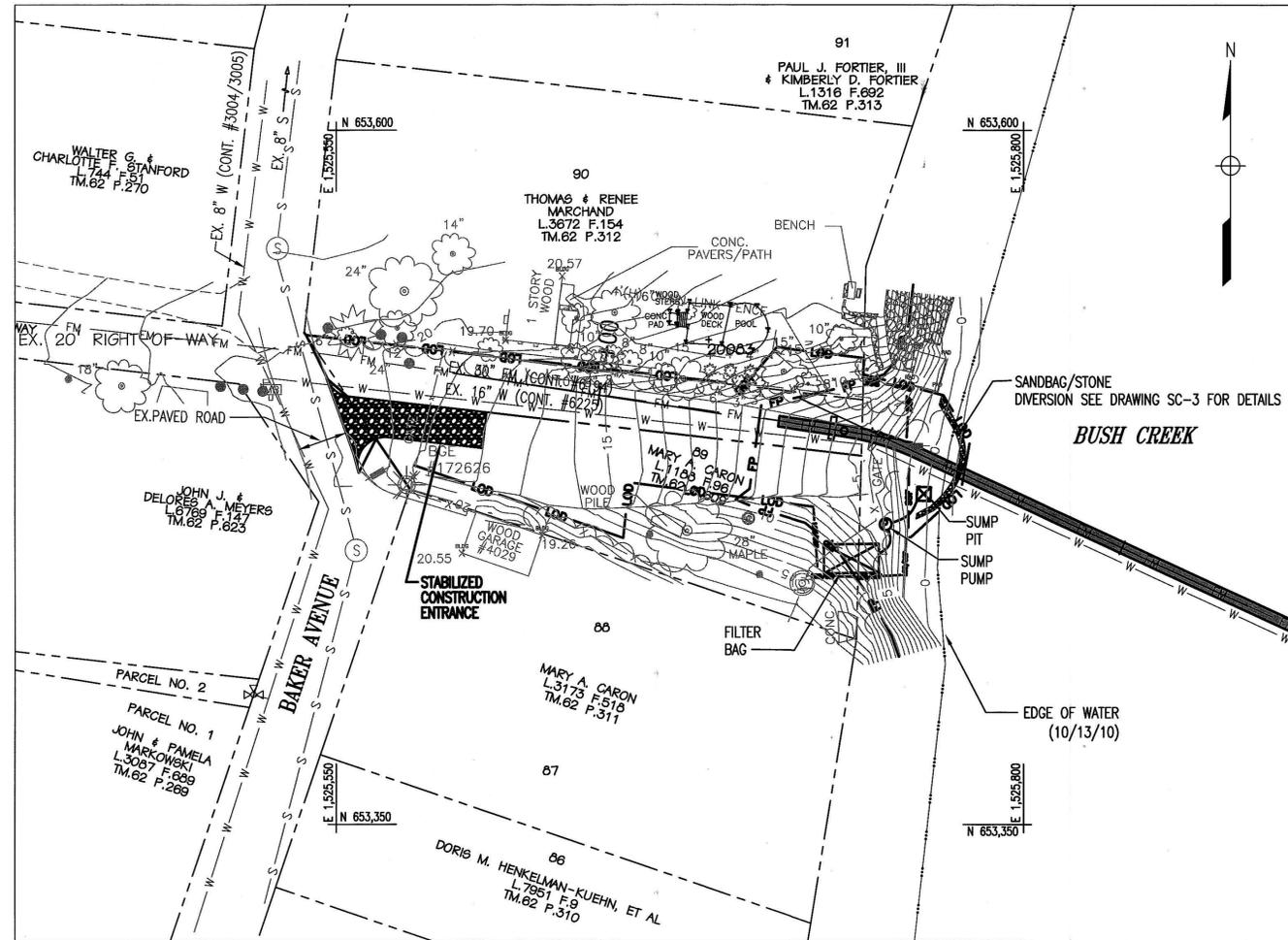
FIRST ELECTION DISTRICT

**BUSH CREEK EXISTING FORCE MAIN REHABILITATION
SEDIMENT AND EROSION CONTROL GENERAL NOTES**

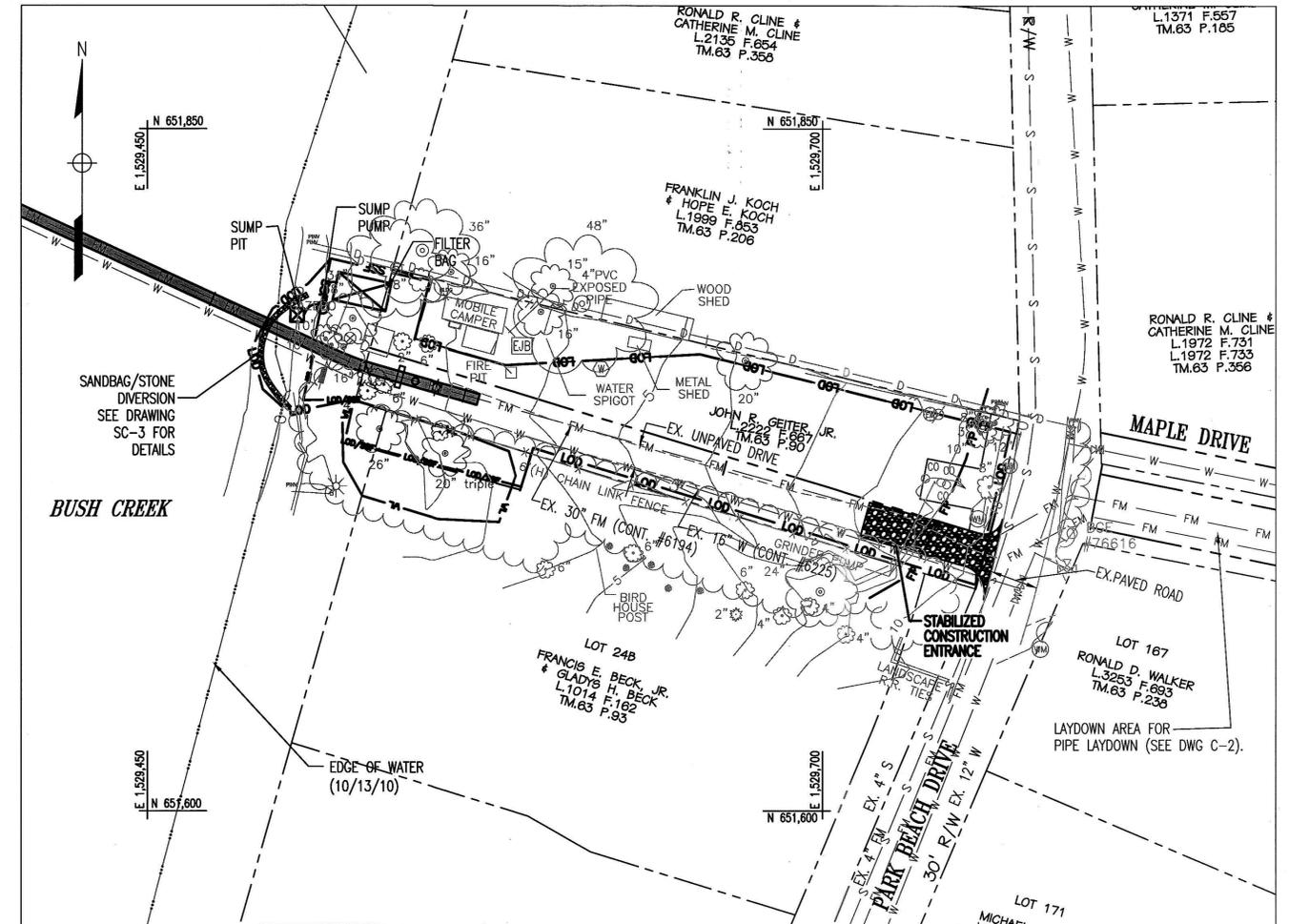
HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, & ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5718

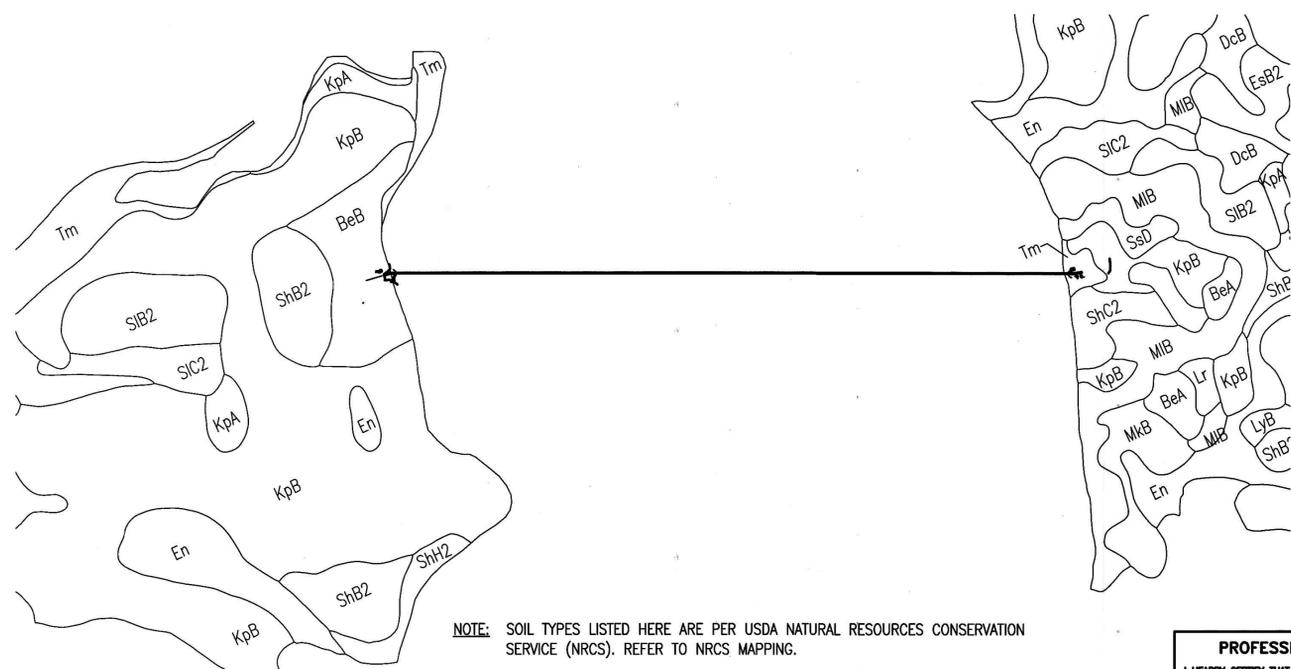
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DRAWN:	NO.	ADC MAP No.	of	
FJB			14	
CHECKED:	DATE	ADC GRID		
WFH				



WEST SIDE OF BUSH RIVER PLAN



EAST SIDE OF BUSH RIVER PLAN



NOTE: SOIL TYPES LISTED HERE ARE PER USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS). REFER TO NRCS MAPPING.

SOILS MAP
SCALE: 1" = 500'

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. 27029 EXPIRATION DATE: 1/25/2018

S/C PLAN #59784

160375		PLANNING RWR 4-12-16	ENGINEERING RWR 9/20/16	AS-BUILT PER INSPECTOR
		MAINTENANCE RLR 4-17-16	OPERATIONS	
		PROPERTY MANAGEMENT RWR 4-14-16	CONST. MGMT. MTM 3/29/16	
		SEWER CONTROL RWR 1/1/16	TRAFFIC CONTROL RWR 4/21/16	
APPROVED	REV. NO.	DATE	REVISION	BY

HARFORD COUNTY
MARYLAND

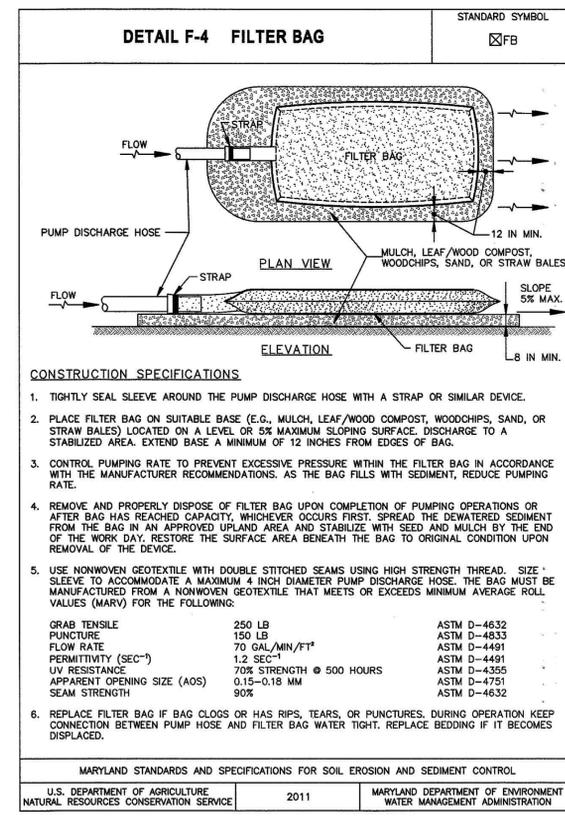
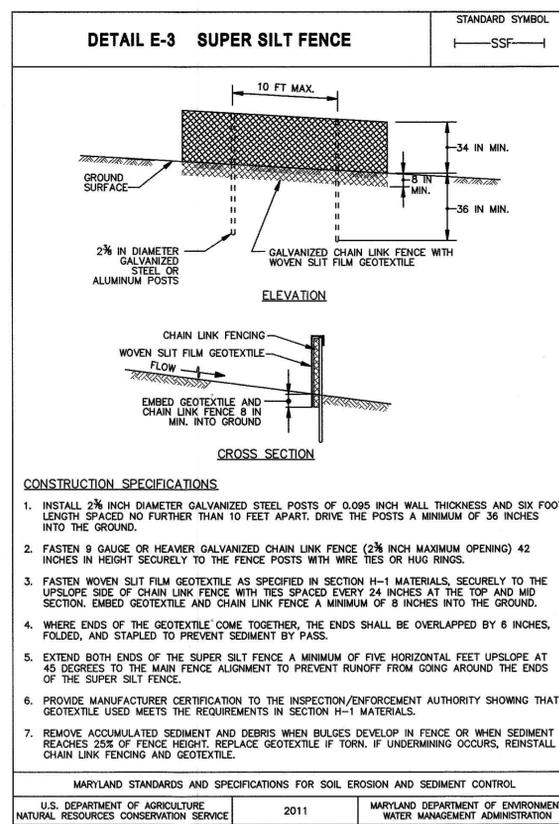
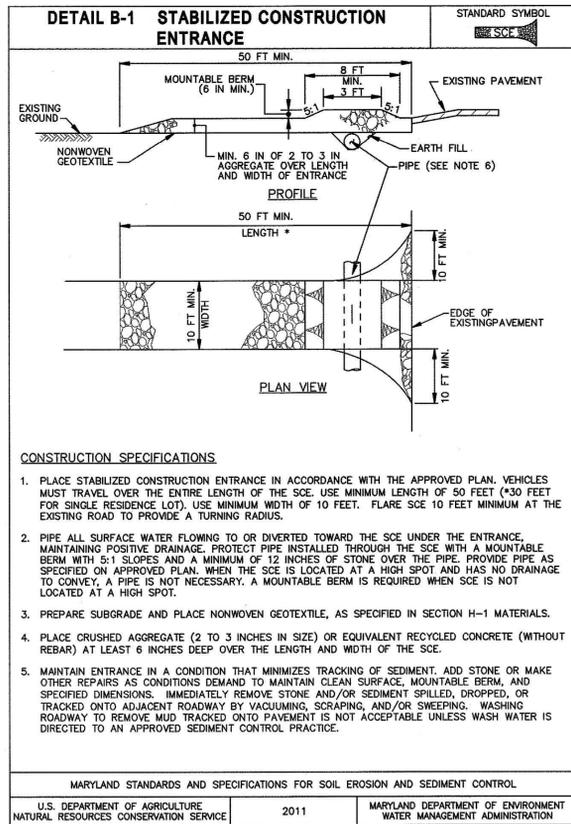
DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
FIRST ELECTION DISTRICT
[Signature]
DATE 9/21/16

**BUSH CREEK EXISTING FORCE MAIN REHABILITATION
SEDIMENT AND EROSION CONTROL PLANS AND SOILS MAP**

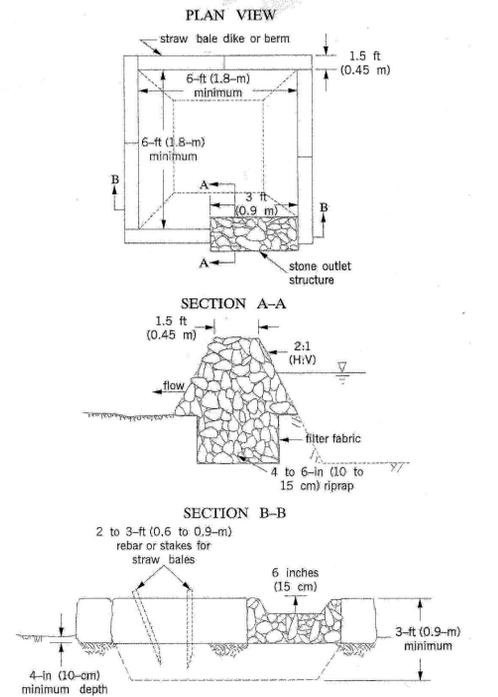
HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, &
ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

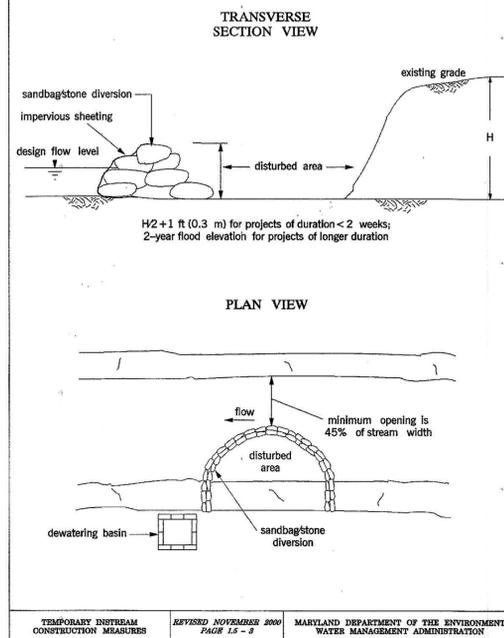
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DRAWN: FJB		ADC MAP No. 4487	No. 9	
CHECKED: WFH		ADC GRID 7/08	of 14	



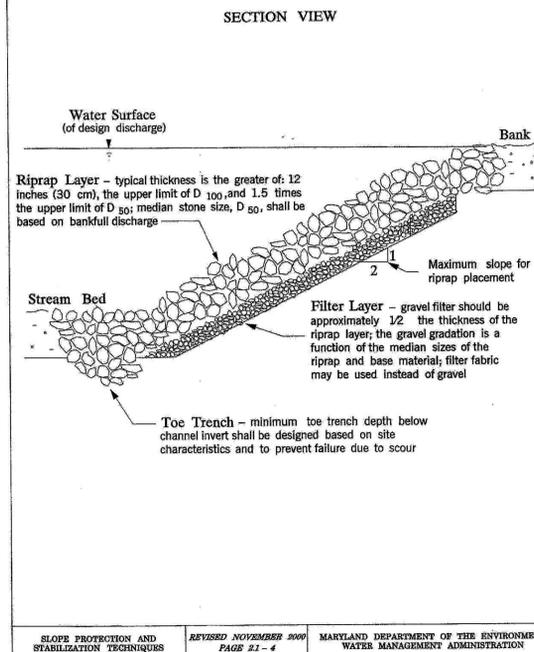
Maryland's Guidelines To Waterway Construction DETAIL 1.1: DEWATERING BASINS



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



Maryland's Guidelines To Waterway Construction DETAIL 2.1: RIPRAP



HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER

FIRST ELECTION DISTRICT

J. Corbett
DATE 9/21/16

BUSH CREEK EXISTING FORCE MAIN REHABILITATION SEDIMENT AND EROSION CONTROL DETAILS

HARFORD COUNTY, MARYLAND

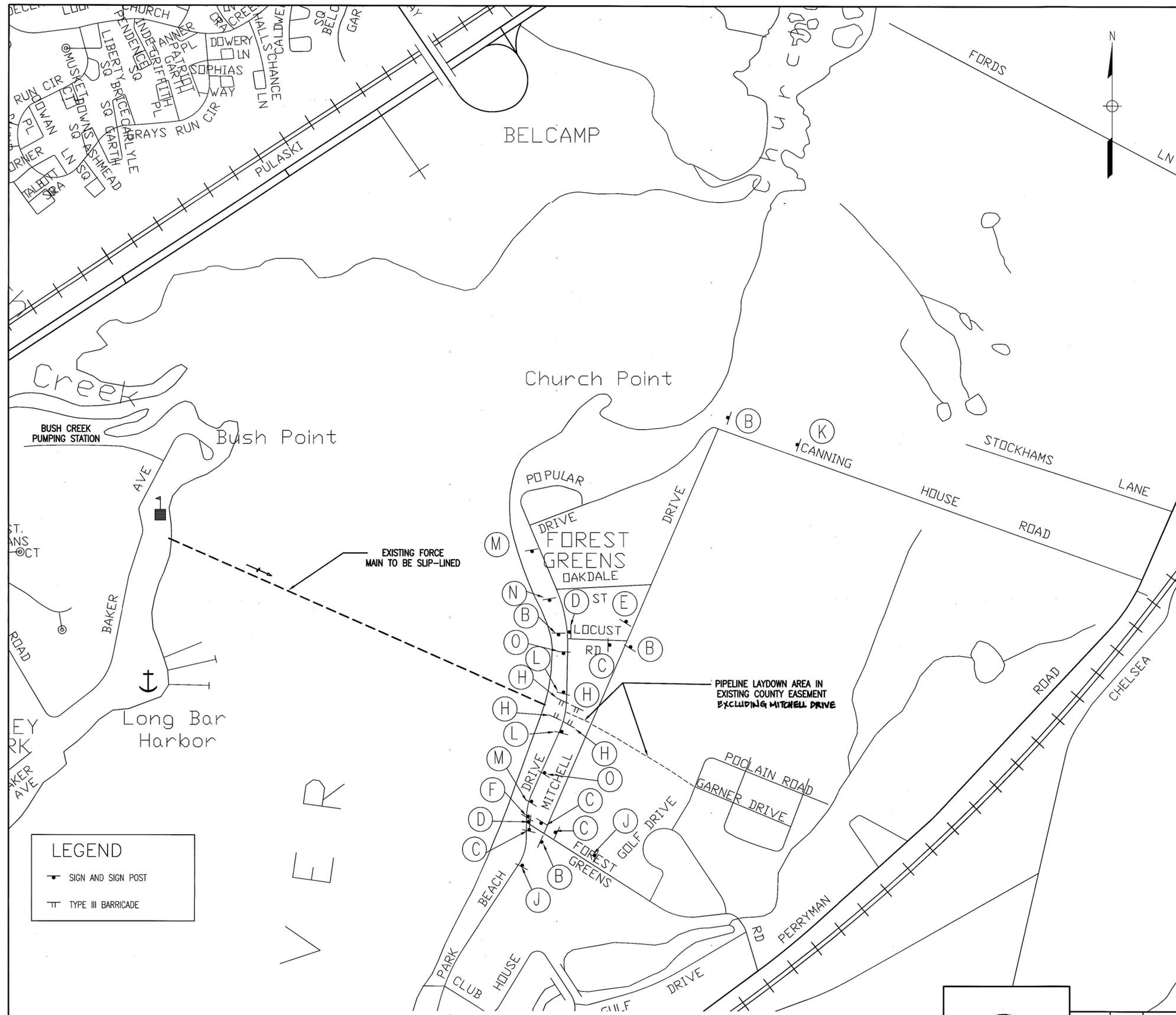
SEWER CONTRACT No. 6692-B

ENGINEER
 WHITMAN, REQUARDT, &
 ASSOCIATES, LLP
 801 S. CAROLINE STREET
 BALTIMORE, MD 21231
 PHONE: (410) 235-3450 FAX: (410) 243-5716

DESIGNED: FJB	SCALE: N/A	TAX MAP No. 00	SHEET No. 10	DRAWING No. SC-3
DRAWN: FJB	CHECKED: WFH	ADC MAP No.	of 14	
PLANNING: <i>RWD 4-12-16</i>	ENGINEERING: <i>Del 9/21/16</i>	MAINTENANCE: <i>RLR 4/17/16</i>	OPERATIONS:	AS-BUILT PER INSPECTOR
PROPERTY MANAGEMENT: <i>MTM 5/29/16</i>	CONST. MGMT.:	SEDIMENT CONTROL: <i>Del 4/21/16</i>	TRAFFIC CONTROL:	TRANS. BY:
DATE: _____	RESIDENT INSPECTOR:	DATE: _____		

160376
 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. 27029 EXPIRATION DATE: 1/25/2018





**MAINTENANCE OF TRAFFIC (MOT)
GENERAL NOTES ***

1. WORK ACROSS/OR IN VICINITY OF ROADWAYS SHALL BE CONDUCTED IN ACCORDANCE WITH THE LATEST VERSION OF MSHA'S BOOK OF STANDARDS AND FHWA'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL SIGNS SHALL CONFORM TO THE LATEST VERSION OF MSHA'S STANDARD SIGN BOOK AND FHWA'S MUTCD AND STANDARD HIGHWAY SIGNS. ALL TEMPORARY TRAFFIC CONTROL WARNING SIGNS SHALL BE FLUORESCENT ORANGE, HIGH PERFORMANCE WIDE-ANGLE SHEETING. ALL SIGN SUPPORTS SHALL BE INSTALLED IN ACCORDANCE WITH MUTCD SECTION 6F.03 (SIGN PLACEMENT).
3. EXISTING SIGNS AND PAVEMENT MARKINGS IN CONFLICT WITH THE MAINTENANCE OF TRAFFIC PLANS AND/OR TEMPORARY SIGNS NOT IN USE DURING A SPECIFIED STAGE OF CONSTRUCTION SHALL BE COVERED OR REMOVED, AND UNCOVERED/REPLACED AFTER COMPLETION OF CONSTRUCTION.
4. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND BUSINESSES ABUTTING ROADWAYS/DRIVEWAYS IMPACTED BY WORK ZONE TRAFFIC CONTROL.
5. TRAFFIC SHALL BE MAINTAINED A MINIMUM OF ONE LANE FROM ADJACENT OPEN TRENCHES (EXCAVATION), UNLESS OTHERWISE SPECIFIED ON THESE PLANS. ALL EXCAVATION WITHIN THE ROADWAY OR LESS THAN ONE LANE WIDTH FROM THE EDGE OF ROADWAY SHALL BE PLATED AND/OR BACKFILLED AT THE END OF EACH WORK DAY. IF EXCAVATION IS PLATED, W95-5 (1) "STEEL PLATES" SIGNS SHALL BE PLACED IN ADVANCE OF THE CONSTRUCTION AREA.
6. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH OTHER ONGOING ROADWAY PROJECTS BY OTHERS TO ENSURE TRAFFIC CONTROL PLANS DO NOT CONFLICT.
7. EQUIPMENT AND MATERIALS SHOULD NOT BE STORED IN SUCH A MANNER AS TO OBSTRUCT SIGHT DISTANCE AT ANY DRIVEWAY OR INTERSECTING ROAD.
8. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO TRANSPORTATION RESEARCH BOARD'S NCHRP REPORT 350, RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE REMOVED UPON COMPLETION OF THE WORK.
9. CONTRACTOR SHALL NOTIFY ALL AFFECTED PROPERTY OWNERS OF THE SCOPE AND DURATION OF WORK AT LEAST ONE (1) WEEK PRIOR TO THE BEGINNING OF WORK.
10. SCHOOL BUSES ARE NOT TO BE DELAYED LONGER THAN 5 MINUTES.
11. IF A COMPLETE ROAD CLOSURE IS PERFORMED, JERSEY BARRIERS MUST BE INSTALLED ADJACENT TO THE SITE, BEYOND THE ROAD CLOSED BARRIERS (SIGN F). IF THE ROAD IS BACKFILLED AND PLATED EACH DAY, ALL PLATES MUST BE SECURELY PINNED IN PLACE.

CONSTRUCTION NOTES

1. SEE SHEET T-2 FOR SIGNS AND SIGN DETAILS.
2. CONTRACTOR SHALL DETOUR PARK BEACH DRIVE TRAFFIC BETWEEN FOREST GREENS ROAD AND LOCUST ROAD AS SHOWN IN THIS DRAWING (PARK BEACH DRIVE DETOUR PLAN) AND IN ACCORDANCE WITH MUTCD FIGURE 6H-20 (DETOUR FOR CLOSED STREET (TA-20)) AND MSHA STANDARD NO. MD 104.06-06 (DETOUR SIGNING FOR CLOSED STREET/2-LANE, 2-WAY).
3. CONTRACTOR SHALL COORDINATE AND NOTIFY THE BOARD OF EDUCATION, EMERGENCY OPERATIONS, AND POLICE/FIRE DEPARTMENTS WELL IN ADVANCE (4-6 WEEKS) OF ANY CLOSURE ACTIVITY.

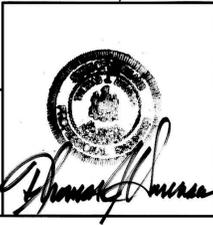
* IF REQUIRED AND WITH PRIOR APPROVAL, MITCHELL DRIVE MAY BE TEMPORARILY CLOSED FOR CONSTRUCTION ACTIVITIES WITH APPROPRIATE TRAFFIC CONTROL MEASURES. FOR TYPICAL LAND CLOSURES, WITH PRIOR APPROVAL, SCHOOL BUSES SHALL BE HELD FROM TRAVEL NO LONGER THAN 5 MINUTES AND REGULAR TRAFFIC SHALL BE HELD FOR NO LONGER THAN 15 MINUTES.

LEGEND

- SIGN AND SIGN POST
- TT TYPE III BARRICADE

PARK BEACH DRIVE DETOUR PLAN
SCALE: 1" = 500'

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. 12450 EXPIRATION DATE: 1/18/16



PLANNING RJR 4/12/16	ENGINEERING DR 2/20/16	AS-BUILT PER INSPECTOR	
MAINTENANCE RJR 4/17/16	OPERATIONS		TRANS. BY:
PROPERTY MANAGEMENT RJR 4/14/16	CONST. MGMT. MTM 3/29/16		DATE:
SEWER CONTROL BR 4/1/16	TRAFFIC CONTROL BR 4/21/16		RESIDENT INSPECTOR:

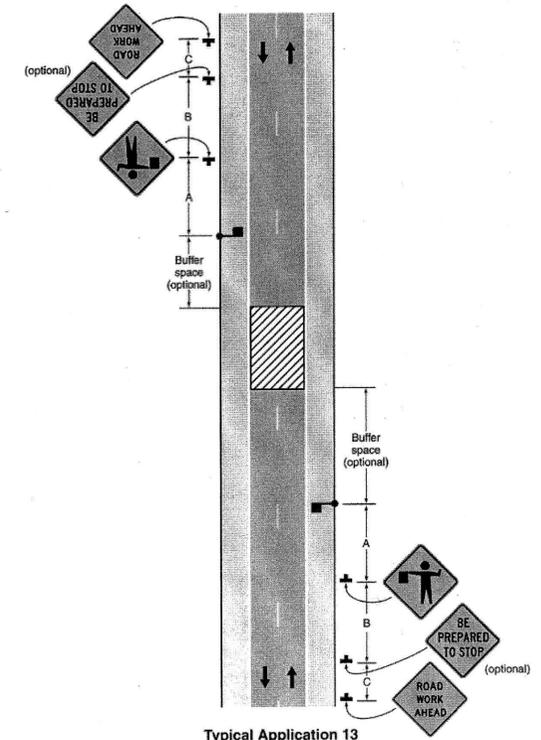
HARFORD COUNTY MARYLAND
DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
DATE: 9/2/2016

**BUSH CREEK EXISTING FORCE MAIN REHABILITATION
TRAFFIC CONTROL PLAN AND GENERAL NOTES**
SEWER CONTRACT No. 6692-B

**ENGINEER
WHITMAN, REQUARDT, &
ASSOCIATES, LLP**
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

SCALE: 1"=500'
SHEET: 11 of 14
DRAWING: T-1

Figure 6H-13. Temporary Road Closure (TA-13)



(A)
SIGN DELETED

(B)
PARK BEACH DRIVE
M4-9(1) (30"x10") *
DETOUR
M4-9L (30"x24") BLACK/ORANGE

(C)
PARK BEACH DRIVE
M4-9(1) (30"x10") *
DETOUR
M4-9R (30"x24") BLACK/ORANGE

(D)
PARK BEACH DRIVE
M4-9(1) (30"x10") *
END DETOUR
M4-8a (30"x24") BLACK/ORANGE

(E)
PARK BEACH DRIVE
M4-9(1) (30"x10") *
DETOUR
M4-9 (30"x24") BLACK/ORANGE

(F)
48" X 36"
NOTICE
ROAD CLOSED
--- MILES AHEAD

(G)
SIGN DELETED

(H)
ROAD CLOSED
R11-2 (48"x30")
TYPE III BARRICADE (6' WIDE MAX.)

(I)
SIGN DELETED

TO BE INSTALLED TO COMPLETELY BLOCK THE ROADWAY AND SHALL BE FASTENED TOGETHER

"IF REQUIRED AND WITH PRIOR APPROVAL, MITCHELL DRIVE MAY BE TEMPORARILY CLOSED FOR CONSTRUCTION ACTIVITIES WITH APPROPRIATE TRAFFIC CONTROL MEASURES. FOR TYPICAL LAND CLOSURES, WITH PRIOR APPROVAL, SCHOOL BUSES SHALL BE HELD FROM TRAVEL NO LONGER THAN 5 MINUTES AND REGULAR TRAFFIC SHALL BE HELD FOR NO LONGER THAN 15 MINUTES."

(J)
48"x36"
NOTICE
C SERIES LETTERS:
8" CAPS, BLACK/YELLOW
PARK BEACH DRIVE
6" CAPS, BLACK/WHITE
CLOSED NORTH OF FOREST GREENS ROAD
6" CAPS, BLACK/WHITE
FOLLOW DETOUR
6" CAPS, BLACK/WHITE

(K)
48"x36"
NOTICE
PARK BEACH DRIVE
CLOSED SOUTH OF LOCUST ROAD
FOLLOW DETOUR

(L)
48" X 36"
NOTICE
PARK BEACH DRIVE
TO BE CLOSED
ON OR ABOUT (DATE)
FOR APPROX. _____

(M)
ROAD CLOSED
1500 FT
W20-2 36"x36" BLACK/ORANGE

(N)
ROAD CLOSED
1000 FT
W20-2 36"x36" BLACK/ORANGE

(O)
ROAD CLOSED
500 FT
W20-2 36"x36" BLACK/ORANGE

NOTES:
** BLACK ON FLUORESCENT ORANGE 8" LETTERS
* BLACK ON WHITE 6" LETTERS

SIGNS
NOT TO SCALE

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. 12450 EXPIRATION DATE: 4/12/16

Signature

PLANNING D.L.D. 4-12-16	ENGINEERING D.P. 9/20/16	AS-BUILT PER INSPECTOR
MAINTENANCE R.L.R. 4-17-16	OPERATIONS	TRANS. BY:
PROPERTY MANAGEMENT W.L.L. 4-14-16	CONST. MGMT. M.T.M. 3/29/16	DATE:
SEDIMENT CONTROL D.L.R. 4/1/16	TRAFFIC CONTROL D.L.R. 4/21/16	RESIDENT INSPECTOR:

HARFORD COUNTY MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
J Child
DATE 9/21/16

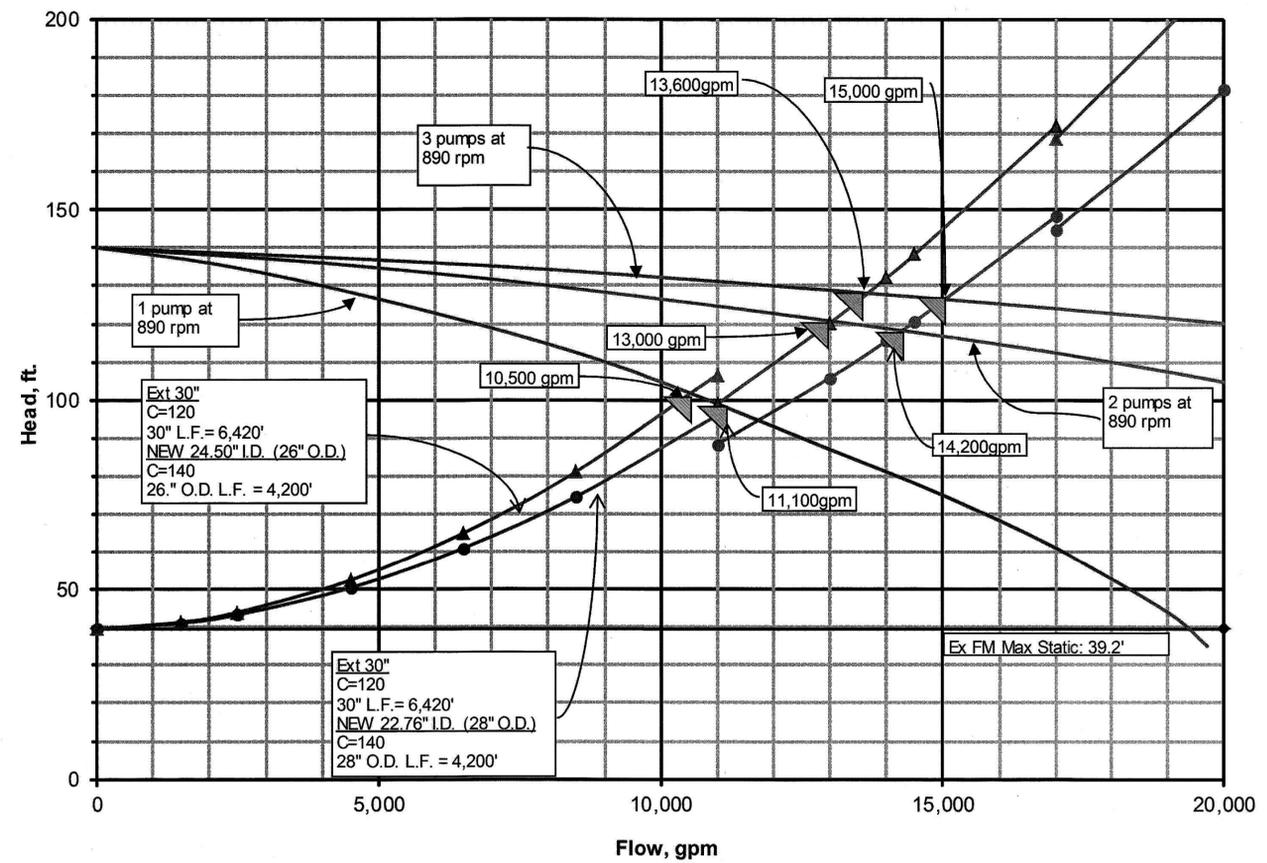
BUSH CREEK EXISTING FORCE MAIN REHABILITATION
TRAFFIC CONTROL DETAILS

HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, &
ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

DESIGNED: MB	SCALE: NONE	TAX MAP OR ADC MAP No. N/A	SHEET No. 12	DRAWING T-2
DRAWN: GG	CHECKED: PAC	ADC GRID N/A	of 14	

Figure 3: Bush Creek Hydraulics through new DR-17 (125 psi rated) liner



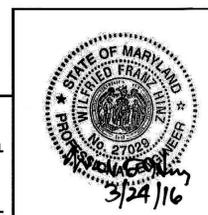
1 PUMP AND SYSTEM CURVES
P-1 SCALE: NONE

ALTERNATE BID
BASE BID

Summary of Potential Operating Points			
Option	One Pump Operating	Two Pumps Operating	Three Pumps Operating
28" O.D. slipline	11,100 gpm @ 98'	14,200 gpm @ 118'	15,000 gpm @ 126'
26" O.D. slipline	10,500 gpm @ 102'	13,000 gpm @ 120'	13,600 gpm @ 129'

NOTES: THE ABOVE INFORMATION IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY AS REQUESTED BY MDE FOR THE CONSTRUCTION PERMIT. CAPACITY RANGE IS BASED ON RANGE OF POTENTIAL REHABILITATED PIPE DIAMETERS BEING BID (26-INCH TO 28-INCH)

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. 27029 EXPIRATION DATE: 1/25/2018



APPROVED	REV. No.	DATE	REVISION	BY

PLANNING 2/10/16	ENGINEERING 2/10/16	AS-BUILT PER INSPECTOR
MAINTENANCE KURA 17-16	OPERATIONS	TRANS. BY:
PROPERTY MANAGEMENT 2/24/16	CONST. MGMT. MTM 3/29/16	DATE:
SEWAGE CONTROL 2/1/16	TIERIFIC CONTROL 2/1/16	RESIDENT INSPECTOR:

HARFORD COUNTY
MARYLAND

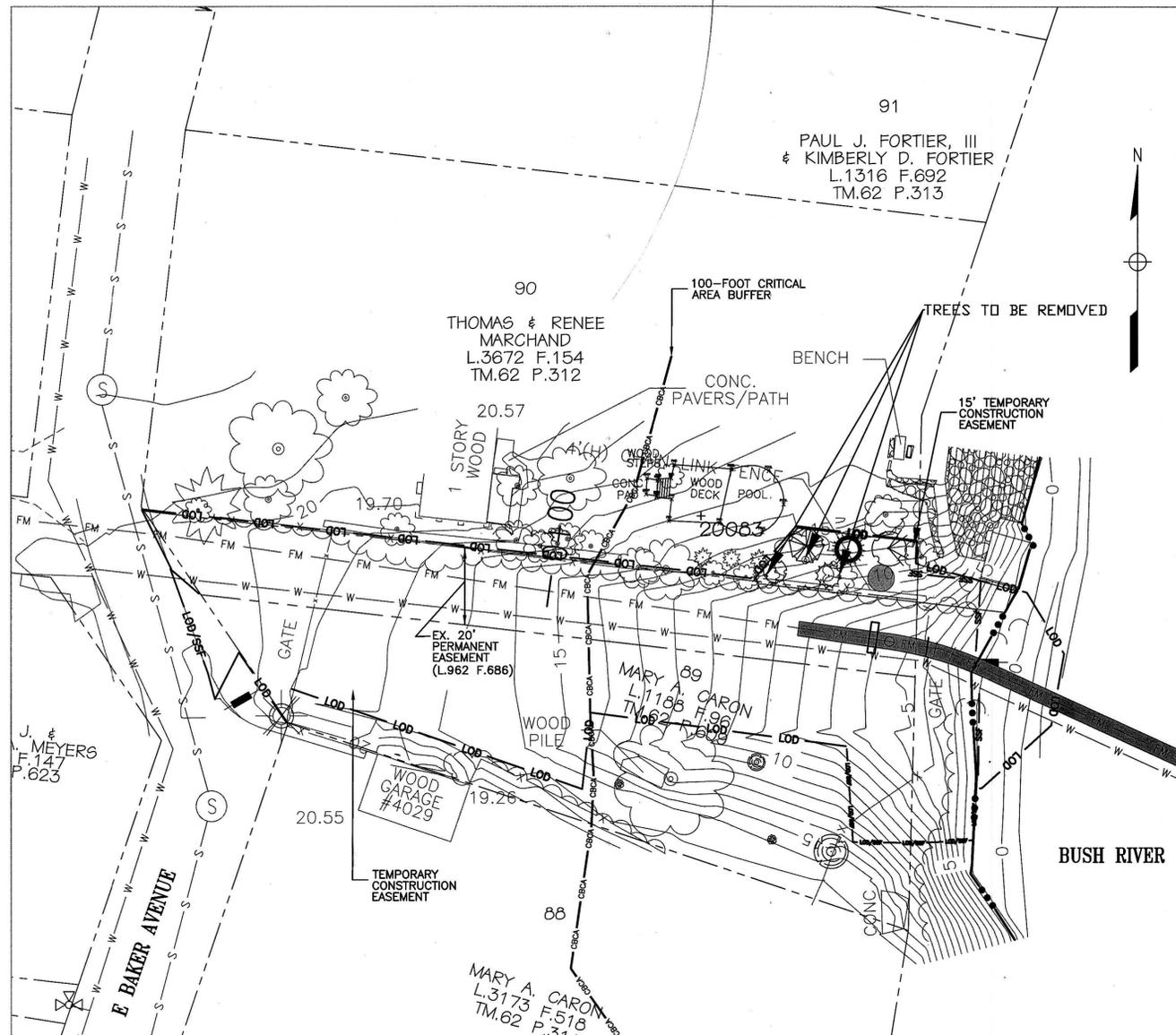
DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
FIRST ELECTION DISTRICT
[Signature]
DATE: 2/21/16

BUSH CREEK EXISTING FORCE MAIN REHABILITATION
PUMP STATION SYSTEM CURVES- FOR INFORMATIONAL PURPOSES ONLY

HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, &
ASSOCIATES, LLP
901 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

DESIGNED: CES/LAP	SCALE	TAX MAP 00	SHEET No. 13	DRAWING P-1
DRAWN: CES		ADC MAP No.	of 14	
CHECKED: HWL		ADC GRID		

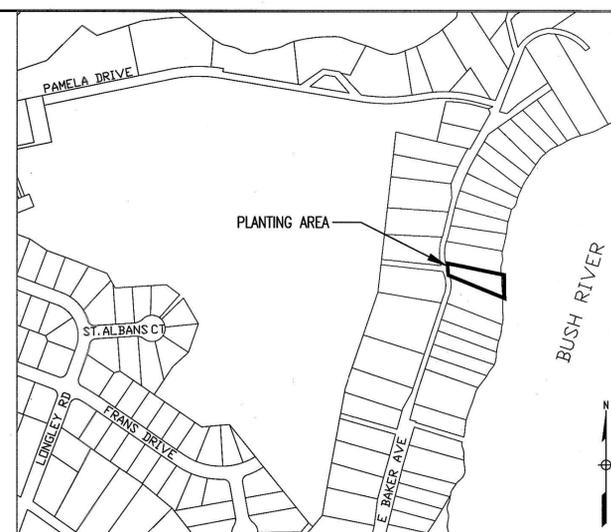


MARCHAND PARCEL PLANTINGS
EAST SIDE OF BUSH RIVER PLAN

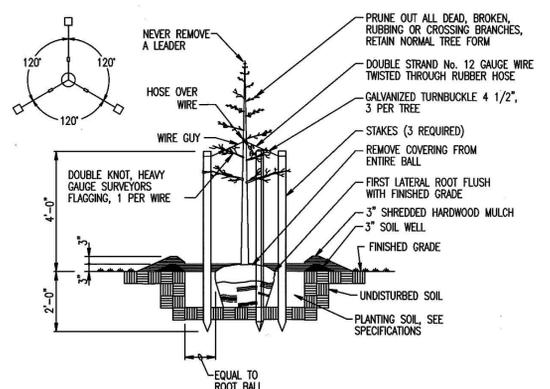
LEGEND

●●●	WATERS EDGE
---	100-FT CRITICAL AREA BUFFER
---	100-YEAR FLOODPLAIN
---	LIMITS OF DISTURBANCE / SUPER SILT FENCE
---	NEW FORCEMAIN

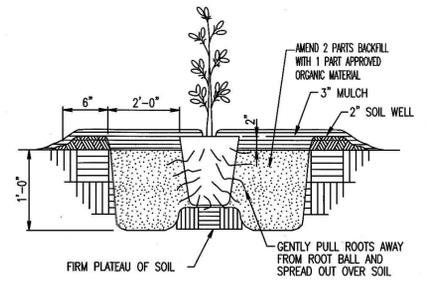
PLANTING SCHEDULE					
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	CREDIT EACH	TOTAL CREDIT
CANOPY TREES (2" CALIPER, 6' TALL)					
	1	QUERCUS PHELLOIS	WILLOW OAK	200	600
	1	CERCIS CANADENSIS	EASTERN REDBUD	200	400
UNDERSTORY TREE (3/4" CALIPER, 4' TALL)					
	1	CHIDNANTHUS VIRGINICUS	WHITE FRINGETREE	75	75
LARGE SHRUB (1 GALLON, 3' TALL)					
	1	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	50	50
	1	ARONIA ARBUTIFOLIA	RED CHOKECHERRY	50	50
	1	GAYLUSSACIA BACCATA	BLACK HUCKLEBERRY	50	50
				TOTAL	625 SF 1,225 SF



VICINITY MAP
1" = 250'



TYPICAL UPRIGHT STAKING DETAIL
NO SCALE



CONTAINER GROWN AND B&B PLANTING TECHNIQUE
DISTURBED SOIL
NO SCALE

GENERAL NOTES

1. THE PURPOSE OF THIS PLANTING PLAN IS TO COMPLY WITH THE BUFFER ESTABLISHMENT REQUIREMENTS FOR THE CONSTRUCTION ASSOCIATED WITH THE BUSH CREEK PUMPING STATION AND FORCEMAIN REHABILITATION.
2. THE ZONING CLASSIFICATION IS LDA-LIMITED DEVELOPED AREA.
3. PORTIONS OF THE PROJECT ARE LOCATED WITHIN THE 100-FOOT CRITICAL AREA BUFFER.
4. THE PARCEL ADDRESS IS 4101 E. BAKER AVENUE, ABINGDON MD 21009.
5. THREE (3) INDIVIDUAL TREES (3", 15" AND 8") WILL BE REMOVED AND REPLACED AS IDENTIFIED ON THIS PLAN.

LANDSCAPE SCHEDULE NOTES

1. ALL PLANT SPECIES SHALL BE NATIVE TO THE CHESAPEAKE AND ATLANTIC COASTAL BAYS REGION BASED ON THE U.S. FISH AND WILDLIFE SERVICE PUBLICATION, NATIVE PLANTS FOR WILDLIFE HABITAT AND CONSERVATION LANDSCAPING.
2. SPECIES CLASSIFICATION (CANOPY TREE, UNDERSTORY TREE, ETC.) IS IN ACCORDANCE WITH MATURE HEIGHTS SET FORTH IN THE U.S. FISH AND WILDLIFE SERVICE PUBLICATION, NATIVE PLANTS FOR WILDLIFE HABITAT AND CONSERVATION LANDSCAPING.

SEQUENCE OF IMPLEMENTATION

1. THE CONTRACTOR SHALL PLANT ALL TREES AND SHRUBS AS IDENTIFIED ON THIS PLAN.
2. EACH TREE AND SHRUB SHALL HAVE A 3" DIAMETER MULCH BED (0.8 S.Y. PER TREE). DO NOT PLACE MULCH WITHIN 3" OF TRUNKS.
3. CONTRACTOR SHALL MONITOR THE PLANTINGS OFTEN TO REDUCE PLANT STRESS, NUTRIENT DEFICIENCY, INVASIVE SPECIES COMPETITION, PEST DAMAGE, AND DISEASE. TO ENSURE SURVIVAL OF ALL PLANTED TREES.
4. THE CONTRACTOR SHALL OBSERVE PROTECTION OF PLANTS AFTER DELIVERY UNTIL THEY ARE PLANTED, STABILIZATION OF THE PLANTING AREAS WITH MULCH AFTER PLANTING, STAKING AND PRUNING.

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. 27029 EXPIRATION DATE: 1/25/2018



PLANNING R.D. 4-12-16	ENGINEERING RFP 9/20/16	AS-BUILT PER INSPECTOR
MAINTENANCE R.D. 4-17-16	OPERATIONS	TRANS. BY:
PROPERTY MANAGEMENT R.D. 4-14-16	CONST. MGMT. MTM 3/29/16	DATE:
SEWER CONTROL R.D. 4/1/16	TRAFFIC CONTROL R.D. 4/21/16	RESIDENT INSPECTOR:

HARFORD COUNTY
MARYLAND

DEPUTY DIRECTOR, DIVISION OF WATER AND SEWER
J. Colby
DATE: 9/21/16

FIRST ELECTION DISTRICT

**BUSH CREEK EXISTING FORCE MAIN REHABILITATION
CRITICAL AREA PLANTING PLAN**

HARFORD COUNTY, MARYLAND
SEWER CONTRACT No. 6692-B

ENGINEER
WHITMAN, REQUARDT, &
ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MD 21231
PHONE: (410) 235-3450 FAX: (410) 243-5716

DESIGNED: JNA	SCALE: 1" = 20'	TAX MAP: 00	SHEET: 14	DRAWING: CA-01
DRAWN: FJB		ADC MAP No.: 4487	No. of: 14	
CHECKED: WFH		ADC GRID: A7/D8		