- 3. HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/2007 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0084. 25GA & 24FA. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE X-CUT.
- 4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- 5. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRED THE BRACING OF ADDITIONAL POLES AS SHOWN ON THE DRAWINGS. ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF
- 6. FOR DETAILS NOT SHOWN ON THE DRAWINGS. AND FOR MATERIALS AND CONSTRUCTION METHODS. USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV. STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- 7. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES. THEY ARE NOTED BY THE SYMBOL AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- 8. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS: AT&T.....1-800-252-1133 BG&E (CONSTRUCTION SERVICES)......410-637-8713 BG&E (EMERGENCY)410-685-0123 BUREAU OF UTILITIES (DPW).....410-313-4900 COLONIAL PIPELINE CO.410-795-1390 MISS UTILITY1-800-257-7777 STATE HIGHWAY ADMINISTRATION410-531-5533 VERIZON.1-800-743-0033
- 9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- 10. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN .
- 11. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS. HOWARD COUNTY. AT (410)313-7450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OR BORING/JACKING OPERATION 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(g) OF THE HOWARD
- 12. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES. GRADES AND ELEVATION OF THE PROPOSED FACILITIES.
- 13. THE CONTRACTOR SHALL PROVIDE STAGING/STORAGE AREA. THE WORK SHALL BE CONDUCTED UNDER STRICT ADHERENCE TO SECTION 308 - EROSION AND SEDIMENT CONTROL OF TEH HOWARD COUNTY DESIGN MANUAL. VOLUME IV.

WATER MAIN NOTES

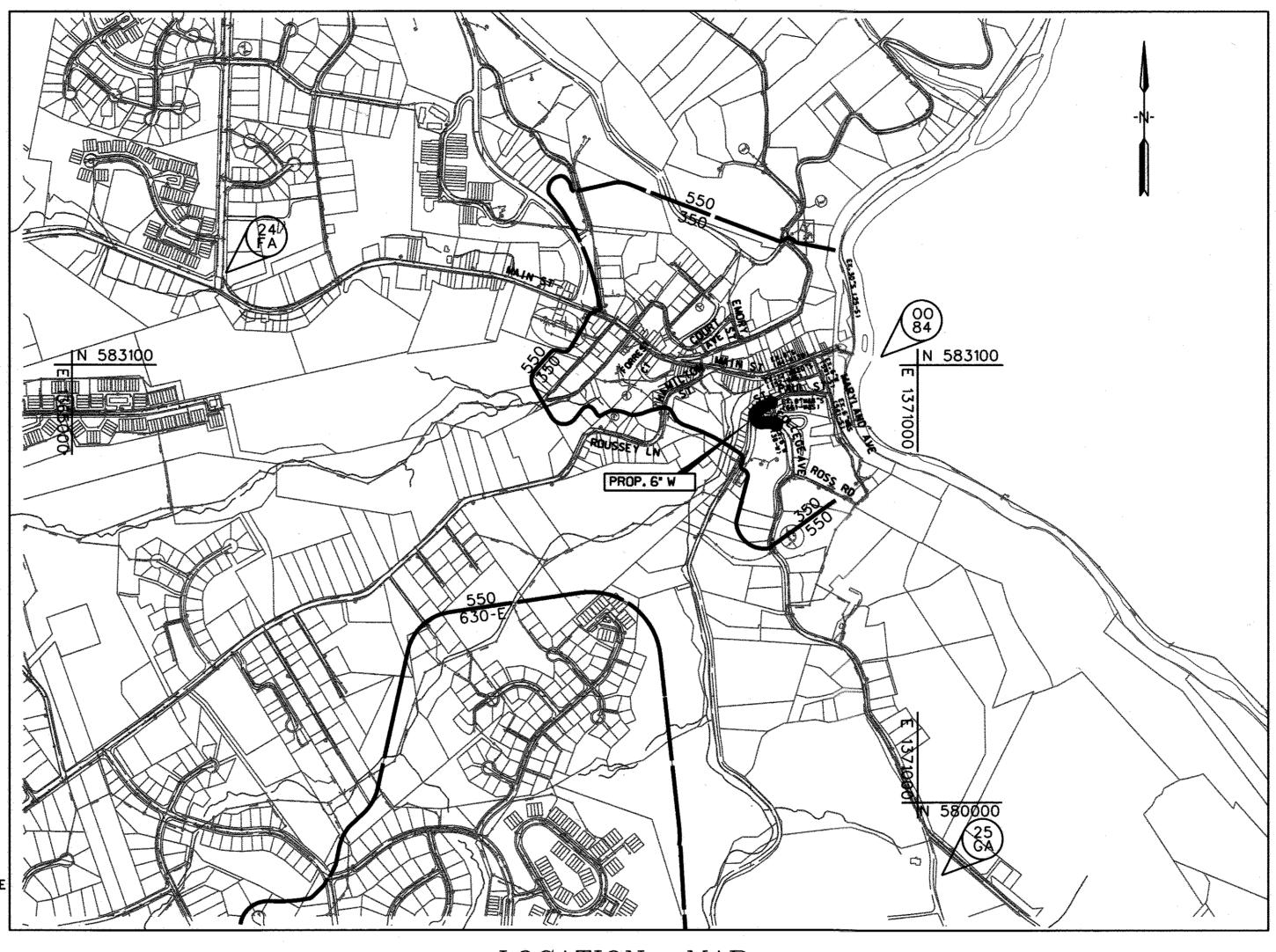
- 1. ALL WATER MAINS SHALL BE POLYVINYLCHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR-14 AND THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
- 2. TOPS OF WATER MAIN SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- 3. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- 4. ALL PVC FITTINGS SHALL BE RESTRAINED FITTINGS. PIPE RESTRAINT SHALL BE PROVIDED IN THE FOLLOWING MANNER USING SYSTEMS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL: 1) ALL DUCTILE IRON MECHANICAL JOINT FITTINGS (INCLUDING MECHANICAL JOINT HYDRANT CONNECTIONS) SHALL BE RESTRAINED USING THE SERIES 2000 PVC MECHANICAL JOINT FITTING RESTRAINT SYSTEM. 2) ALL FIVE (5) DEGREE SWEEPS WITHIN THE RESTRAINED JOINT LIMITS NOTED ON THE PROFILES SHALL BI RESTRAINED USING THE SERIES 1500 PVC FITTING HARNESSING SYSTEM. 3) HIGH DEFLECTION COUPLINGS AND PUSH-ON BELL OR SPIGOT PIPE JOINTS LOCATED WITHIN THE RESTRAINED JOINT LIMITS NOTED ON THE PROFILES SHALL BE RESTRAINED USING THE SERIES 1500 PVC HARNESSING SYSTEM. BEND HARNESSING RODS TO MATCH THE ANGLE AT HIGH DEFLECTION COUPLINGS. HIGH DEFLECTION COUPLINGS ARE LIMITED TO A MAXIMUM DEFLECTION OF 3 DEGREES.
- 5. THE FOLLOWING NOTE IS ADDED TO HOWARD COUNTY STANDARD DETAIL W 2.22. BUTTRESS AND ANCHORAGE FOR VERTICAL BENDS. WHEN ANCHORING PVC PIPE. THE STRAPPING IN CONTACT WITH PIPE SURFACE SHALL BE 1-INCH WIDE BY 1/4-INCH THICK STEEL. THE REMAINING PORTION OF THE STRAP SHALL BE REINFORCING BAR SIZED IN ACCORDANCE WITH THE PERTINENT CHART SHOWN ON THE DETAIL.
- 6. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD DETAIL. ALL FIRE HYDRANT LEADS SHALL BE POLYVINYL CHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR14 AND CONSTRUCTION IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- 7. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- 8. TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL
- 9. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWNS.
- 10. FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED.
- 11.UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS
 SACRIFICAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC
 FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV.
 STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
 SEVENTEEN (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL
 VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSES.
 TWELVE (12) POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL
 FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS
 SHALL BE DUCTILE IRON.

SAINT PAUL STREET WATER MAIN EXTENSION HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT No. W-8326

CONTRACT No. 44-4767



LOCATION SCALE: 1"-600"

DRAINAGE AREA:	PATAPSCO	HOWARD COUNT
PRESSURE ZONE: WATER TEST GRADIENT:	350 450	THE HORIZONTA NAD83/91 (HORIZ NAVD 88 (VER1
TYPE OF BUILDING:	RESIDENTIAL	0084 N 58
NUMBER OF PARCELS:	9	E 137
NUMBER OF WATER HOUSE CONNECTIONS:	5	ELEV
		25GA N 57

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. 31363 EXPIRATION DATE: 1/16/2016

HOWARD COUNTY GEODETIC SURVEY CONTROL

AL AND VERTICAL DATUM BASED ON RIZONTAL)

TICAL) 83158.79 N 583751.44 E 1366091.83 370739.95 ELEV.262.81 V.124.88

79483.71 E 1371171,77 ELEV.381.86

SPARKS MD 21152

ENGINEER'S CERTIFICATION

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

Glachuarvong 8/11/2015 DATE GUIHUA WANG KCI TECHNOLOGIES. INC. 936 RIDGEBROOK ROAD

DATE 600' SCALE MAP NO. 251

WATER MAIN NOTES (CONTINUED)

12.PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS: THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC PIPE JOINTS INDICATES THE MAXIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. AFTER ASSEMBLY OF THE JOINT, THE INSERTION LINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE THE MAXIMUM AND MINIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF PVC PIPE.

13.ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH STANDARD BENDS, 5-DEGREE SWEEPS OR HIGH DEFLECTION (HD) COUPLINGS, NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED. WHERE HIGH DEFLECTION COUPLINGS OR 5-DEGREE SWEEPS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20 FEET LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 STONE ON BOTH SIDES OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. TAKING CARE NOT TO USE COMPACTION EQUIPMENT DIRECTLY OVER THE FITTING.

PVC HIGH DEFLECTION COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1-1/2-DEGREE ON EITHER END OF THE COUPLING). SHALL BE RATED FOR A MINIMUM 200 PSI MEETING THE REQUIREMENTS OF AWWA C900. SHALL HAVE A MINIMUM LAY LENGHT OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTEED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.

FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MIMIMUM 225 PSI, DR 18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR 18 OR EQUAL.

14.WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5-DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND SHALL INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP. AS MANUFACTURED BY EBBA IRON. INC. OR APPROVED EQUAL.

15. WATER MAINS SHALL BE FILLED WITH WATER AND BROUGHT TO 150 psi HYDROSTATIC TEST PRESSURE AT THE LOW POINT FOR 2 HOURS.

INDEX OF SHEETS DESCRIPTION SHEET NO. 1 · · · · · · · · · · TITLE SHEET 2PLAN & PROFILE 3 EROSION AND SEDIMENT CONTROL PLAN, NOTES AND DETAILS 4 MAINTENANCE OF TRAFFIC DETAILS

		QUANT	TITIES		
ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER	
6" WATER	L.F.	344	344	DIAMOND PLASTICS	LB. WATER
6" VALVE	ΕA	2	2	AMERICAN FLOW CONTROL	L.B. WATER
FIRE HYDRANT	EA	1	1	AMERICAN DARLING	L.B. WATER
WATER METER	EA	4	5	Ford Meter Box	L.B.WATER
6" X 6" TS&V	EA	1		AMERICAN FLOW CONTROL	L.B. WATER
NAME OF UTILITY	CONTRA	ACTOR:	W.F. WIL	SON	

			
RESTO	RATION SC	HEDULE	
LOCATION	DISTANCE	TYPE	
ST. PAUL ST	150′	MACADAM	
ST. PAUL ST @ FH	9'	SEED & MULCH	
COLLEGE AVE	195′	MACADAM	
COLLEGE AVE R/W	2'	SEED & MULCH	

AS-BUILT DATE: 6/5/2016

LEGEND

EXISTING

	PROPOSED
	TRAVERSE POINT
	WATER MAIN
100	FIRE HYDRANT
ф	VALVE
\oplus	CONTINUITY TEST STATION
Θ	TEST STATION
-L00L00-	LIMIT OF DISTURBANCE

—sr——sr— SILT FENCE ---- WATER EASEMENT OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THE PLAN AND THAT A RESPONSIBLE PERSON INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE. BEFORE BEGINNING THE PROJECT. A CERTIFICATION OF TRAINING AT A PROGRAM APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THE CONTROL OF SEDIMENT AND EROSION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

In leve BUREAU OF ENGINEERING DEPARTMENT OF PUBLIC WORKS

EXISTING GAS VALVE ----W--- EXISTING WATER MAIN ----G---- EXISTING GAS MAIN ---E- EXISTING UNDERGROUND ELECTRIC -OH---OH- EXISTING OVERHEAD SERVICE -s--s- EXISTING SEWER MAIN MANHOLE SEWER HOUSE CONNECTION

---- RIGHT OF WAY / PROPERTY LINE

DECIDUOUS TREE

CONIFEROUS TREE

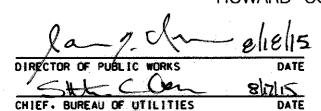
EXISTING FIRE HYDRANT

EXISTING WATER VALVE

8/12/2015

AS-BUILT

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY MARYLAND



momas & Butte CHIEF BUREAU OF ENGINEERING 7125 CHIEF. UTILITY DESIGN DIVISION DATE



ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 936 RIDGEBROOK ROAD SPARKS, MARYLAND 21152

TELEPHONE: (410) 316-7800

Fax: (410) 316-7818

www.kci.com



•••	DES: GW				· · · · · · · · · · · · · · · · · · ·
8	DRN: KJ				
SER C	CHK: TW				
11/2015	DATE:	KFJ	Δ	AS BUILT	
11/W13	AUGUST 2015	BY	NO.		REVISION

TITLE SHEET

BLOCK NO. 13

SAINT PAUL STREET WATER MAIN EXTENSION

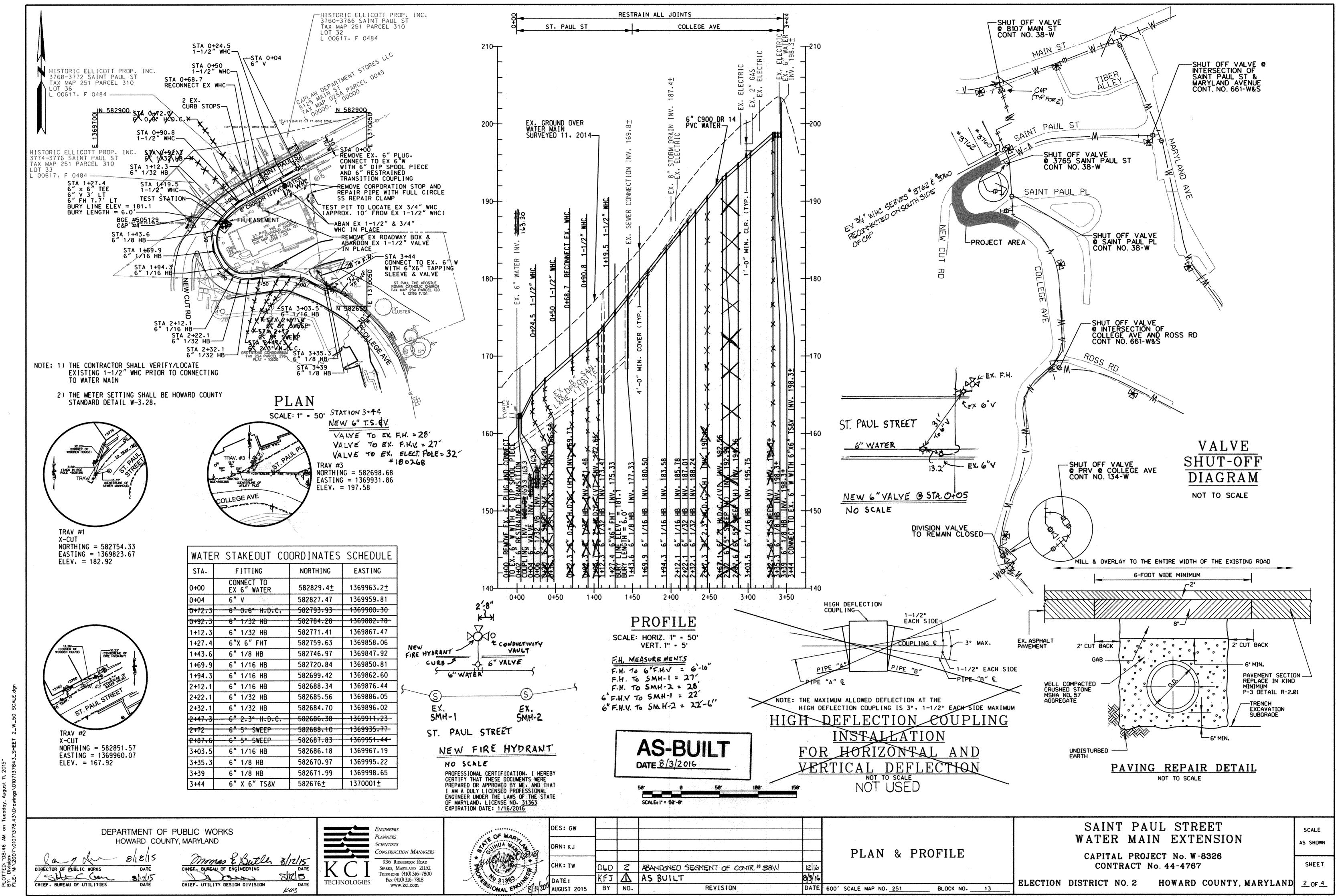
CAPITAL PROJECT No. W-8326 CONTRACT No. 44-4767

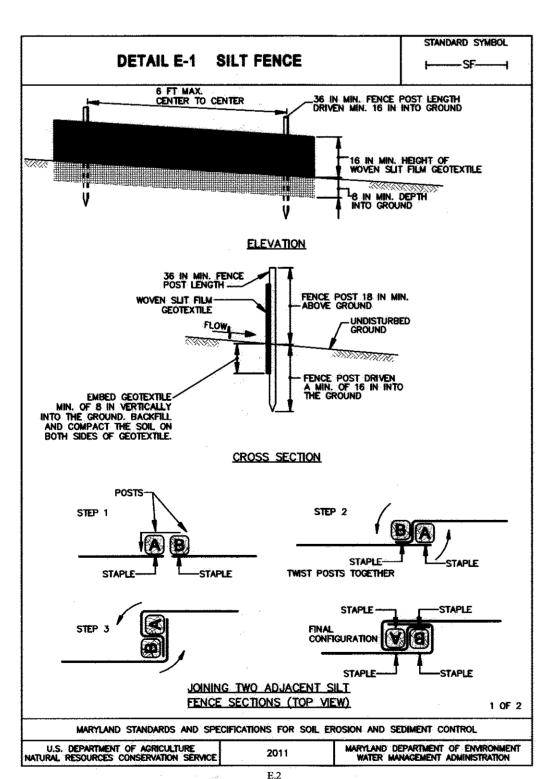
ELECTION DISTRICT NO. 2

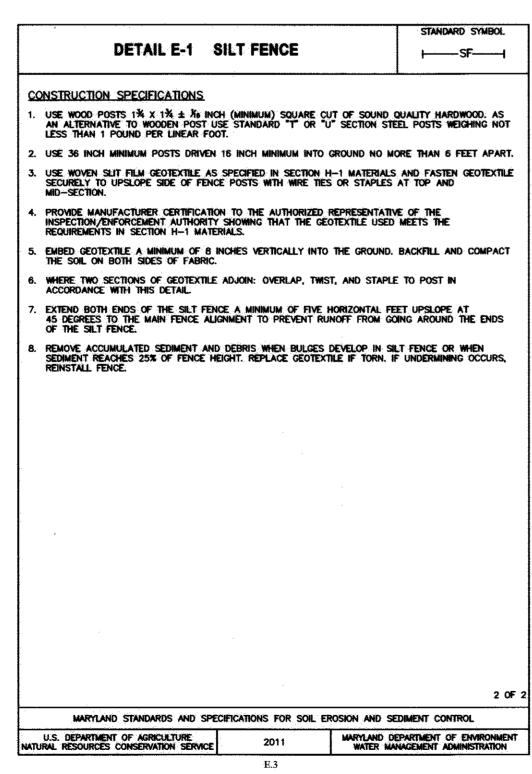
AS SHOWN SHEET

SCALE

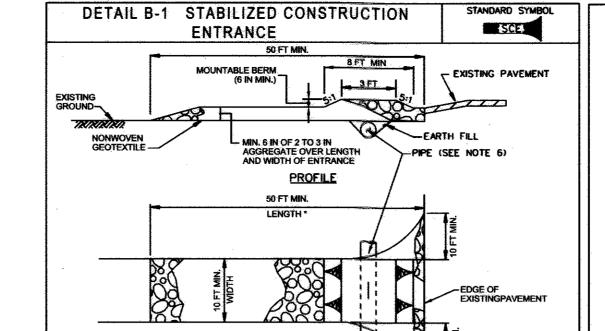
HOWARD COUNTY, MARYLAND







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. 31363 EXPIRATION DATE: 1/16/2016



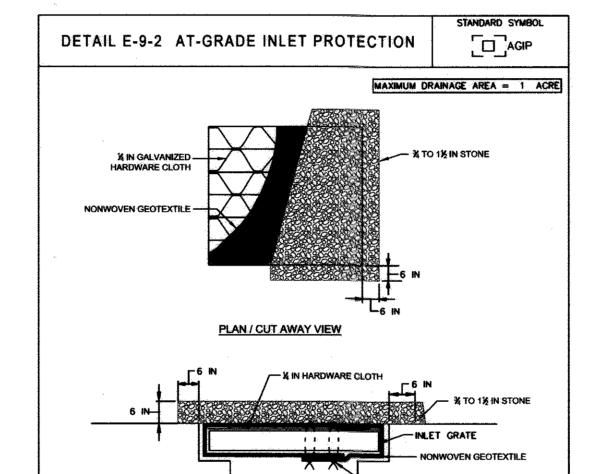
CONSTRUCTION SPECIFICATIONS

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

PLAN VIEW

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT U.S. DEPARTMENT OF AGRICULTURE INTURAL RESOURCES CONSERVATION SERVICE



CROSS SECTION CONSTRUCTION SPECIFICATIONS

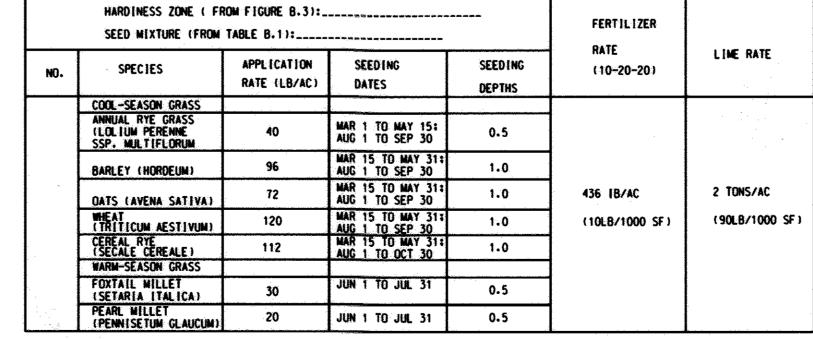
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE,
- PLACE CLEAN % TO 1% INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON
- STORM DRAIN INLET PROTECTION 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

6 IN

OVERLAP

U.S. DEPARTMENT OF AGRICULTURE ATURAL RESOURCES CONSERVATION SERVICE TEMPORARY SEEDING SUMMARY



HOWARD SOIL CONSRVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

EROSION AND SEDIMENT CONTROL and revisions thereto.

germination and establishment of grasses.

Site Analysis:

Total Cut

Total Fill

Total Area of Site

Area Disturbed

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits. Sediment Control Division prior to the start of any construction (313-1855).
- 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
- 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.
- 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 done when recommended seeding dates do not allow for proper
- 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.

Acres 0.0798 Area to be roofed or paved Acres 0.0042 Area to be vegetatively stabilized Acres Cu. Yds.

Cn. Yds.

CONTRACTOR TO COORDINATE

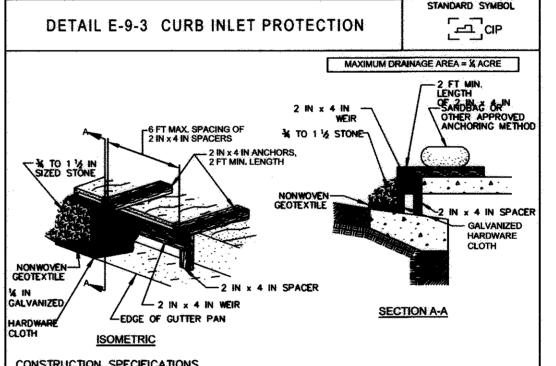
Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter crossion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

- O. 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 workday, whichever is shorter.
- 1. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
- 12. 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 be stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

Rev. 4/2013



CONSTRUCTION SPECIFICATIONS

- USE NOMINAL 2 INCH x 4 INCH LUMBER
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
- ATTACH A CONTINUOUS PIECE OF 1/4 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.
- 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.
- 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.
- INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- 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 34 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
- AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT

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

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-5 STANDARDS AND SPECIFICATIONS

PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation

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

Conditions Where Practice Applies sed soils where ground cover is needed for 6 months or more.

Seed Mixtures

- 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
- 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 luegrass 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: 11/2 to 3 pounds per 1000 square feet.

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. Fastern Shore: March I 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 11/2 inches in
- diameter. The resulting seedbed must be in such condition that future mowing of grasses will 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

SEQUENCE OF CONSTRUCTION

SEQUENCE OF CONSTRUCTION

OBTAIN GRADING PERMIT

REQUEST PRE-CONSTRUCTION MEETING ON-SITE WITH THE SEDIMENT
CONTROL INSPECTOR.

LAYOUT ALIGNMENT AT SITE. (2 DAYS)

CLEAR AND GRUB AS NEEDED FOR THE INSTALLATION OF THE SEDIMENT
CONTROL DEVICES AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
INSTALL AND STABILIZES SEDIMENT CONTROL DEVICES IF NECESSARY.
INSTALL A STABILIZED CONSTRUCTION ENTRANCE AT THE DIRECTION OF
INSPECTOR IF NECESSARY.

INSTALL TRAFFIC CONTROL IN ACCORDANCE WITH THE TRAFFIC
CONTROL PLANS. SEE THE PROJECT SPECIFICATIONS. DOCUMENT "C" SPECIAL
PROVISIONS PARAGRAPH 14 "MAINTENANCE OF TRAFFIC" AND APPENDIX "A".

EXCAVATE TRENCH TO THE GRADE SPECIFIED ON THE MATER MAIN PROFILES.
INSTALL WATER MAIN AND BACKFILL AND STABILIZE TRENCH. SEE DETAIL
ON SHEET 2 OF 4 FOR TYPICAL TRENCH DETAIL. DURING THE COURSE OF
CONSTRUCTION. TRENCHES FOR THE CONSTRUCTION OF THE NEW MATER MAIN
SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH CAN BE
BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY. WHICHEVER IS SHORTER.
WHEN WITHIN THE ROADWAY. EXCAVATED MATERIAL SHALL BE REMOVED AND
DISPOSED OF. WHEN WITHIN OPEN SPACES THE CONTRACTOR SHALL PLACE
EXCAVATED MATERIALS ON UPHILL SIDE OF TRENCH AND PLACE SILT FENCE ON
DOWNHILL SIDE OF TRENCH. AT THE END OF EACH WORK DAY, ALL VECTATED AREAS
DISTURBED DURING THE COURSE OF CONSTRUCTION SHALL BE TEMPORARILY
STABILIZED IN ACCORDANCE WITH THE THE TRAPORARY SEEDING SUMMARY SHOWN
ON THIS SHEET AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS
FOR SOIL EROSION AND SEDIMENT CONTROL. SECTION B-4-4.

AT THE END OF EACH WORKING DAY ALL DISTURBED PAYING AREAS WITHIN THE
EXISTING ROAD SHALL BE REPLACED WITH PERMANENT SUBBGRADE AND BASE ASPHALT.
THEN TEMPORARILY PATCHED, SEE TEMPORARY PAVING DETAIL ON SHEET 2 OF 4.
THE ESTIMATED CONSTRUCTION THAE FOR THE WATER MAIN IS 30 DAYS.

PERMANENTLY STABILIZE ALL DISTURBED VEGETATED AREAS IN ACCORDANCE
WITH STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION SHOWN
ON THIS SHEET AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS
FOR SOIL

FOR SOIL EROSION AND SEDIMENT CONTROL. SECTION 8-4-5.

8. PERMANENTLY REPAIR ALL DISTURBED PAYING AREAS IN ACCORDANCE WITH THE DETAIL ON SHEET 2 OF 4.

9. CLEAN UP CONSTRUCTION SITE. (1 DAY)

10. REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR.

11. STABILIZE ALL AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROL DEVICES.

Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as ested. Adjustments are usually not needed for the cool-season grasses. Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (armual ryegrass, pearl millel, foxtail iniliely, do not exceed more than 5% thy weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses For sandy soils, plant seeds at twice the depth listed above.

s listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone

4/ The contractor shall refer to http://howardscd.org/SCD/scd_erosandseddocuments.htm for Permanent and Temporary Seeding Notes.

ELECTION DISTRICT NO. 2

AS-BUILT DATE 8/3/2016

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

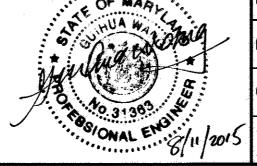
DIRECTOR OF PUBLIC WORKS Sitte C Cem CHIEF. BUREAU OF UTILITIES

Mmus & Butle. OFFICE . BUREAU OF ENGINEERING CHIEF. UTILITY DESIGN DIVISION DATE KUS



ENGINEERS **PLANNERS SCIENTISTS** CONSTRUCTION MANAGERS 936 RIDGEBROOK ROAD Sparks, Maryland 21152 TELEPHONE: (410) 316-7800

OF MARL HUA W Fax: (410) 316-7818 www.kci.com



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8/11/2013	AUGUST 2015	BY	NO.		REVISION

EROSION AND SEDIMENT CONTROL PLAN, NOTES AND DETAILS

BLOCK NO. 13

600' SCALE MAP NO. 251

SAINT PAUL STREET WATER MAIN EXTENSION

CAPITAL PROJECT No. W-8326 CONTRACT No. 44-4767

SHEET

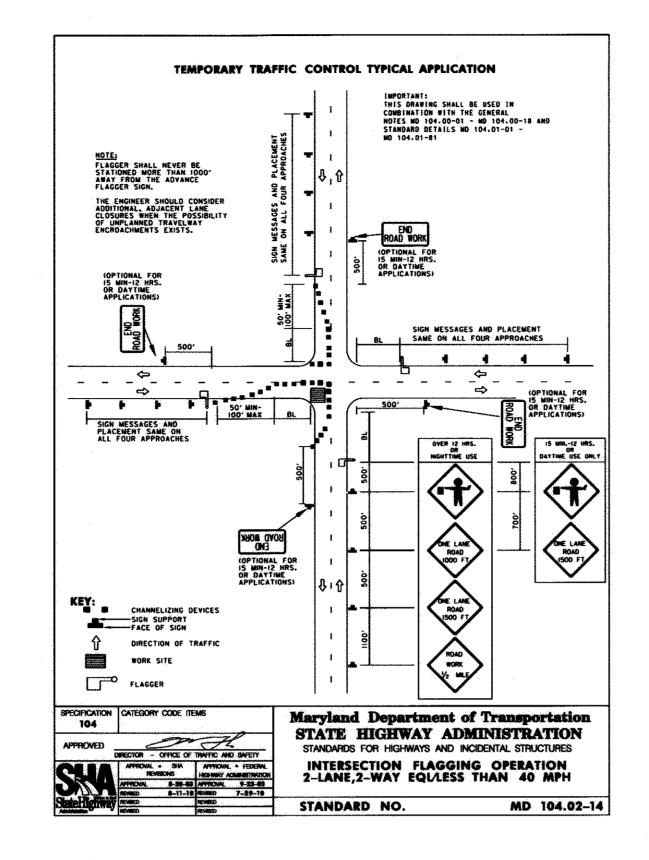
HOWARD COUNTY, MARYLAND 3 OF 4

SCALE

AS SHOWN

STANDARD NO.

MD 104.02-10



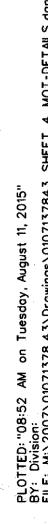
TRAFFIC CONTROL NOTES

- 1. ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- 2. ALL TEMPORARY TRAFFIC SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, MDSHA BOOK OF STANDARDS, AND NCHRP 350.
- 3. ALL TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- 4. ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS TRAFFIC DIVISION.
- 5. MISS UTILITY MUST BE NOTIFIED PRIOR TO PLACEMENT OF SIGNING, IF MOUNTING ON POSTS.
- 6. SIGN INSTALLATION SHALL NOT LAST ANY LONGER THAN 15 MINUTES PER LOCATION. IF LONGER THAN 15 MINUTES APPROPRIATE TRAFFIC CONTROL AND PERMITS MUST BE USED.
- 7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES. AT ANYTIME THE CONTRACTOR DOES NOT MAKE NECESSARY REPAIRS WITHIN 24 HOURS OF NOTIFICATION, APPROPRIATE WORK TIME REDUCTION AND/OR FINES MAY BE APPLIED.
- 8. ALL SIGNS SHALL CONFORM TO CURRENT MDSHA MATERIAL AND REFLECTIVITY REQUIREMENTS.
- 9. ALL DRIVEWAY ENTRANCES MUST BE MAINTAINED AT ALL TIMES.
- 10. THE DAILY TRENCHING OPERATION SHALL NOT EXTEND MORE THAN 30 FEET IN ADVANCE OF THE PIPE LAYING OPERATION. THE ROADWAY SHALL BE OPENED TO TWO FULL LANES AT THE END OF EACH WORK PERIOD.
- 11. ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORK PERIOD.
- 12. ALL SIGN LOCATIONS SHALL BE MARKED AND/OR APPROVED BY HOWARD COUNTY TRAFFIC (410-313-2430) AND PRIOR TO THE INSTALLATION OF ANY SIGNS.
- 13. ROADWAY WORK NOTIFICAITON: THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST 4 WEEKS IN ADVANCE. HOWARD COUNTY DPW - TRAFFIC DIVISION-410-313-2430 HOWARD COUNTY EMERGENCY COMMUNICATIONS/911 CENTER-410-313-2300

SEQUENCE OF CONSTRUCTION

1. CONSTRUCT WATER MAIN FROM STA. 0+00 TO STA. 3+44 USING MDSHA STANDARD NO. 104.02-10 AND 104.02-14. SEE THIS SHEET FOR STANDARDS.

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. 31363 EXPIRATION DATE: 1/16/2016



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

CHIEF BUREAU OF ENGINEERING DATE CHIEF. UTILITY DESIGN DIVISION



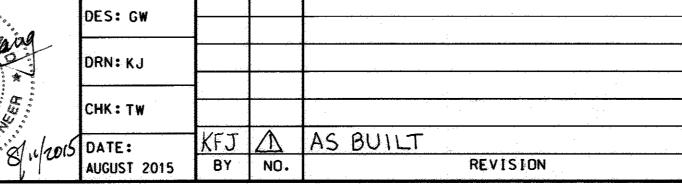
CONSTRUCTION MANAGERS Sparks, Maryland 21152

TELEPHONE: (410) 316-7800

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www.kci.com





MAINTENANCE OF TRAFFIC DETAILS

BLOCK NO. 13

DATE 600' SCALE MAP NO. 251

SAINT PAUL STREET WATER MAIN EXTENSION

CAPITAL PROJECT No. W-8326 CONTRACT No. 44-4767

SHEET

SCALE

AS SHOWN

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND 4 OF 4

AS-BUILT

DATE 8/3/2016