

**GENERAL NOTES**

**PART I**

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN TOPOGRAPHIC SURVEY WITH 2'-FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL, 2013 AND TOPOGRAPHY FROM HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED NOVEMBER 08, 2013 AND FROM HOWARD COUNTY GIS.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:  
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 46BE AND 46BF.  
ALL VERTICAL CONTROLS ARE BASED ON (NAVD) '88.  
VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE:  
HOWARD COUNTY BENCHMARK 46BE (CONC. MON.)  
N 538853.83 E 1338643.54 ELEV. 443.343  
LOCATION: OLD COLUMBIA PIKE AT SCAGGSVILLE PARK AND RIDE  
HOWARD COUNTY BENCHMARK 46BF (CONC. MON.)  
N 538448.18 E 1340010.43 ELEV. 446.602  
LOCATION: MD-216 AT SCAGGSVILLE NEAR RT-29 BRIDGE
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING, 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.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL  AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DONE SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:  
AT&T 1-800-252-1133  
BGE (CONTRACTOR SERVICES) 410-637-8713  
BGE (EMERGENCY) 410-685-0123  
BUREAU OF UTILITIES 410-313-4900  
COLONIAL PIPELINE COMPANY 410-795-1390  
MISS UTILITY 1-800-257-7777  
STATE HIGHWAY ADMINISTRATION 410-531-5533  
VERIZON 1-800-743-0033
- 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.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(c) OF THE HOWARD COUNTY CODE.

**PART II - WATER**

- ALL WATER MAINS SHALL BE C-900 PVC (DR-18) UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- 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 SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- 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.
- UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SACRIFICIAL 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 (LATEST EDITION). (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. TWELVE (12) POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC PIPE SHALL BE INSTALLED IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF PVC PIPE.
- 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-FOOT 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 (1.5-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 LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTEE PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.  
FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (PEX) BLUE BRUTE DR18 OR EQUAL.
- 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 INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MECA-STOP, AS MANUFACTURED BY EDAA IRON, INC., OR APPROVED EQUAL.

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John P. Seligson* 3/23/17  
HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND WITH SITE DEVELOPMENT PLAN SDP-15-044

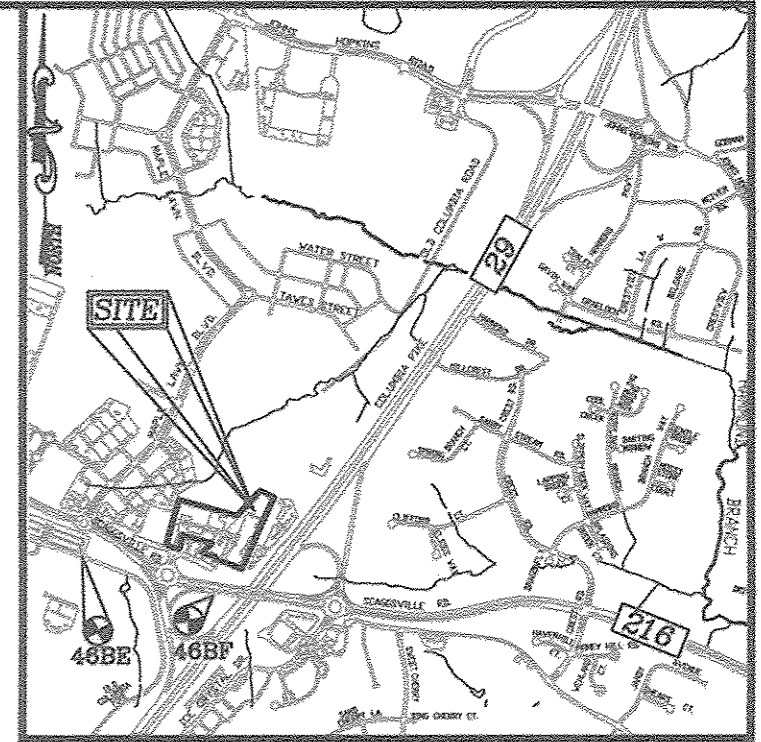
# FINAL WATER AND SEWER CONSTRUCTION PLAN HOWARD COUNTY PUBLIC SAFETY COMPLEX WATER EXTENSION

11226 NE ROUTE 216  
ZONED: RR-MXD-3  
(L. 1798 / F. 120)

## CONTRACT 44-4990-D HOWARD COUNTY, MARYLAND

**BENCHMARKS**

HOWARD COUNTY BENCHMARK - 46BE (CONC. MONUMENT)  
N 538853.83 E 1338643.54 ELEV. 443.343  
LOCATION: OLD COLUMBIA PIKE AT SCAGGSVILLE PARK AND RIDE  
HOWARD COUNTY BENCHMARK - 46BF (CONC. MONUMENT)  
N 538448.18 E 1340010.43 ELEV. 446.602  
LOCATION: MD-216 AT SCAGGSVILLE NEAR RT-29 BRIDGE

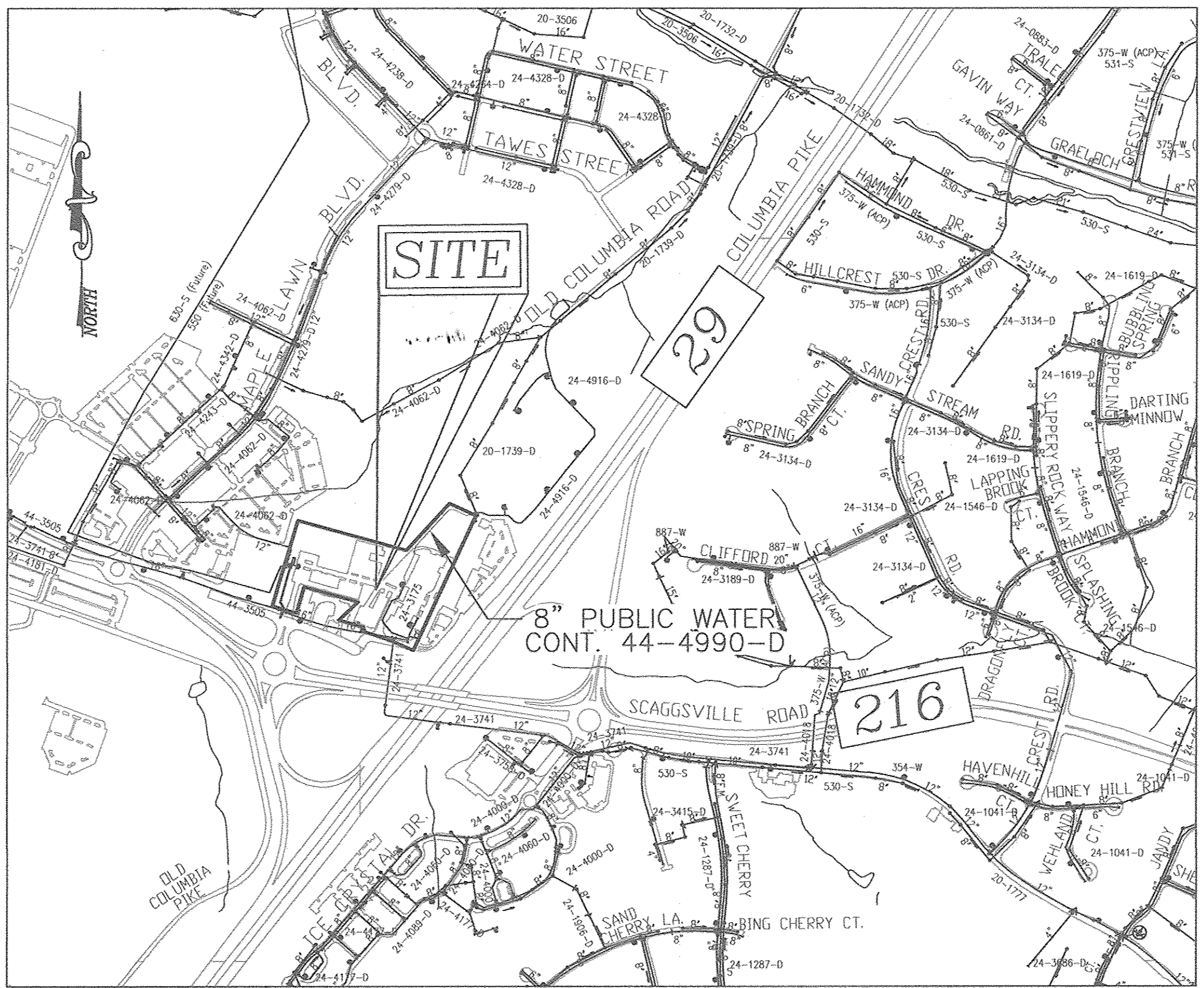


**VICINITY MAP**

SCALE: 1"=2000'  
ADC MAP COORDINATES: PAGE: 39 GRID: B5

**LEGEND**

- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED TEE
- EXISTING SEWER
- SEWER MANHOLE



**VICINITY MAP**  
SCALE: 1"=600'

WATER ZONE: 550  
TEST GRADIENT: 700

Sewer Shed : ROCKEY GORGE DAM  
Treatment Plant : ROCKEY GORGE DAM

QUANTITIES				
NAME OF UTILITY CONTRACTOR : C J Miller				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE :				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
8" WATER (C-900 PVC DR-18)	633 LF	633 LF	C-900	J M EAGLE / LB WATER
8" VALVE	1 EA	1	SERIES 2900	AMERICAN FLOW CONTROL / LB WATER
8" - 1/8" HORIZ. BEND	4 EA	4	EPOXYCOATED	TYLER UNION / LB WATER
8" - 1/16" HORIZ. BEND	3 EA	4		
8" - 1/32" HORIZ. BEND	2 EA	2		
8" - VERTICAL COUPLING	1 EA	2		
8" - 1/8" VERT. BEND	2 EA	2	EPOXYCOATED	TYLER UNION / LB WATER
CONTINUITY TEST STATION	4 EA	4	PRISM PRECAST METER PIT / ERITECH COPPER GROUND ROD / VESTAL MAN. LID	

**AS-BUILT**

By *JL* Date 2/23/18

**OWNER/DEVELOPER**

HOWARD COUNTY PUBLIC WORKS  
3450 COURT HOUSE DRIVE  
ELLICOTT CITY, MD 21043  
410-313-4401

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

*S. C. Con* 3/17  
CHIEF, BUREAU OF UTILITIES DATE

*Ch. E. Con* 4/6/17  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET TEL: 410.461.7666  
ELLICOTT CITY, MD 21043 FAX: 410.461.8996

STATE OF MARYLAND  
ROBERT H. VOGEL, PE No. 16193

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE: 09-27-2018

DRN: JMR DES: DZE  
CHK: RHV  
DATE: FEBRUARY 2017

BY NO. REVISION DATE

**FINAL WATER AND SEWER CONSTRUCTION PLAN  
CONTRACT 44-4990-D  
COVER SHEET**

600' SCALE MAP NO. 46 BLOCK NO. 4

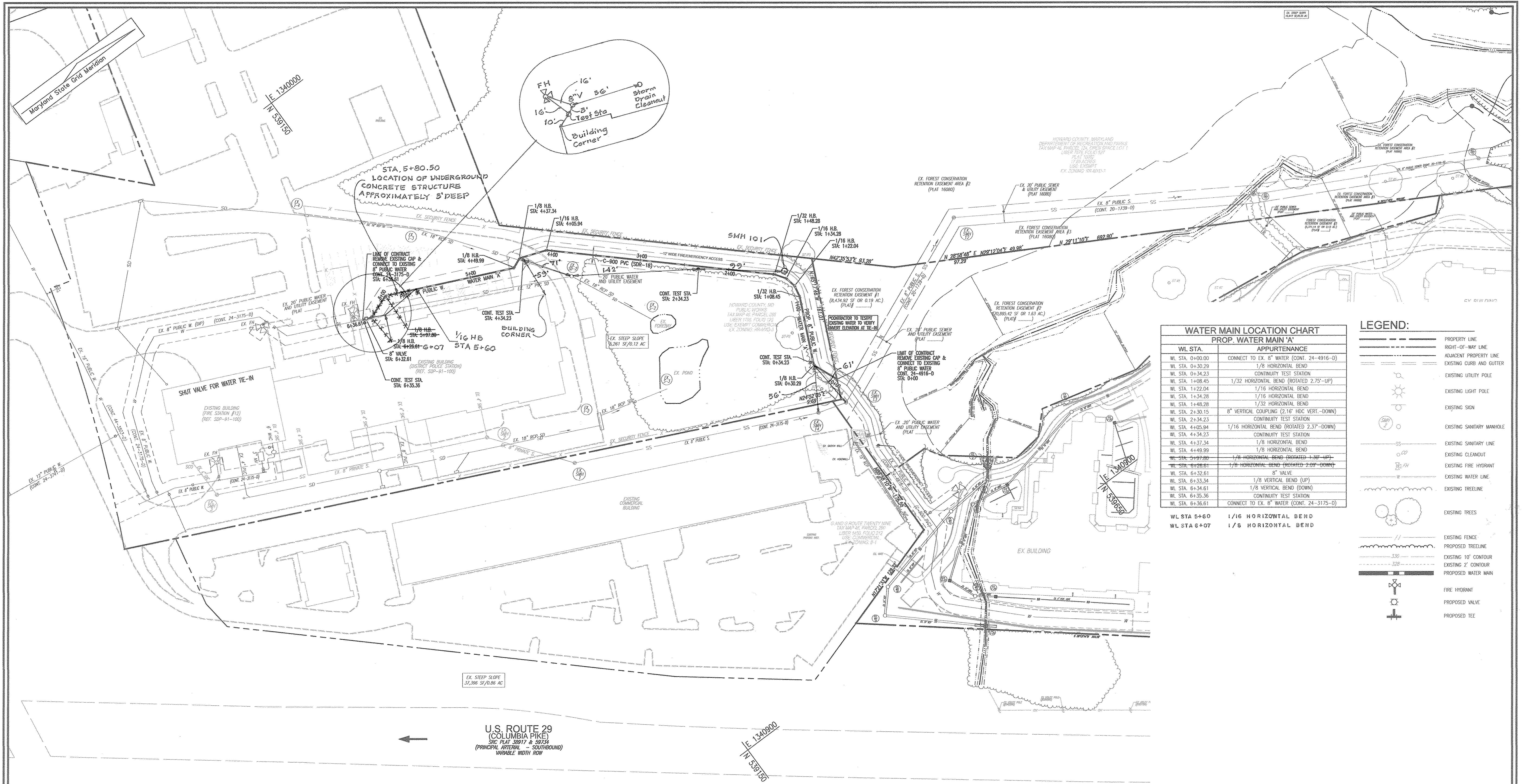
**HOWARD COUNTY PUBLIC SAFETY COMPLEX WATER EXTENSION**  
11226 NE ROUTE 216  
ZONED: RR-MXD-3  
(L. 1798 / F. 120)

TAX MAP 46 BLOCK 4 5TH ELECTION DISTRICT

SCALE AS SHOWN  
SHEET 1 OF 3

PARCEL 288 HOWARD COUNTY, MARYLAND





**WATER MAIN LOCATION CHART**  
PROP. WATER MAIN 'A'

WL STA.	APPURTENANCE
WL STA. 0+00.00	CONNECT TO EX. 8" WATER (CONT. 24-4916-D)
WL STA. 0+30.29	1/8" HORIZONTAL BEND
WL STA. 0+34.23	CONTINUITY TEST STATION
WL STA. 1+08.45	1/32" HORIZONTAL BEND (ROTATED 2.75° UP)
WL STA. 1+22.04	1/16" HORIZONTAL BEND
WL STA. 1+34.28	1/16" HORIZONTAL BEND
WL STA. 1+48.28	1/32" HORIZONTAL BEND
WL STA. 2+30.15	8" VERTICAL COUPLING (2.16" HEC. VERT. -DOWN)
WL STA. 2+34.23	CONTINUITY TEST STATION
WL STA. 4+05.94	1/16" HORIZONTAL BEND (ROTATED 2.37° DOWN)
WL STA. 4+34.23	CONTINUITY TEST STATION
WL STA. 4+37.34	1/8" HORIZONTAL BEND
WL STA. 4+49.99	1/8" HORIZONTAL BEND
WL STA. 5+97.89	1/8" HORIZONTAL BEND (ROTATED 1.56° UP)
WL STA. 6+28.61	1/8" HORIZONTAL BEND (ROTATED 2.09° DOWN)
WL STA. 6+32.61	8" VALVE
WL STA. 6+33.34	1/8" VERTICAL BEND (UP)
WL STA. 6+34.61	1/8" VERTICAL BEND (DOWN)
WL STA. 6+35.36	CONTINUITY TEST STATION
WL STA. 6+36.61	CONNECT TO EX. 8" WATER (CONT. 24-3175-D)

WL STA 5+60	1/16" HORIZONTAL BEND
WL STA 6+07	1/8" HORIZONTAL BEND

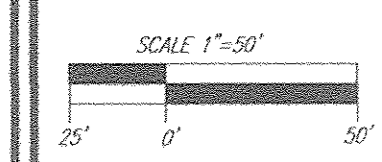
**LEGEND:**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING TREE LINE
	EXISTING TREES
	EXISTING FENCE
	PROPOSED TREE LINE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	PROPOSED WATER MAIN
	FIRE HYDRANT
	PROPOSED VALVE
	PROPOSED TEE

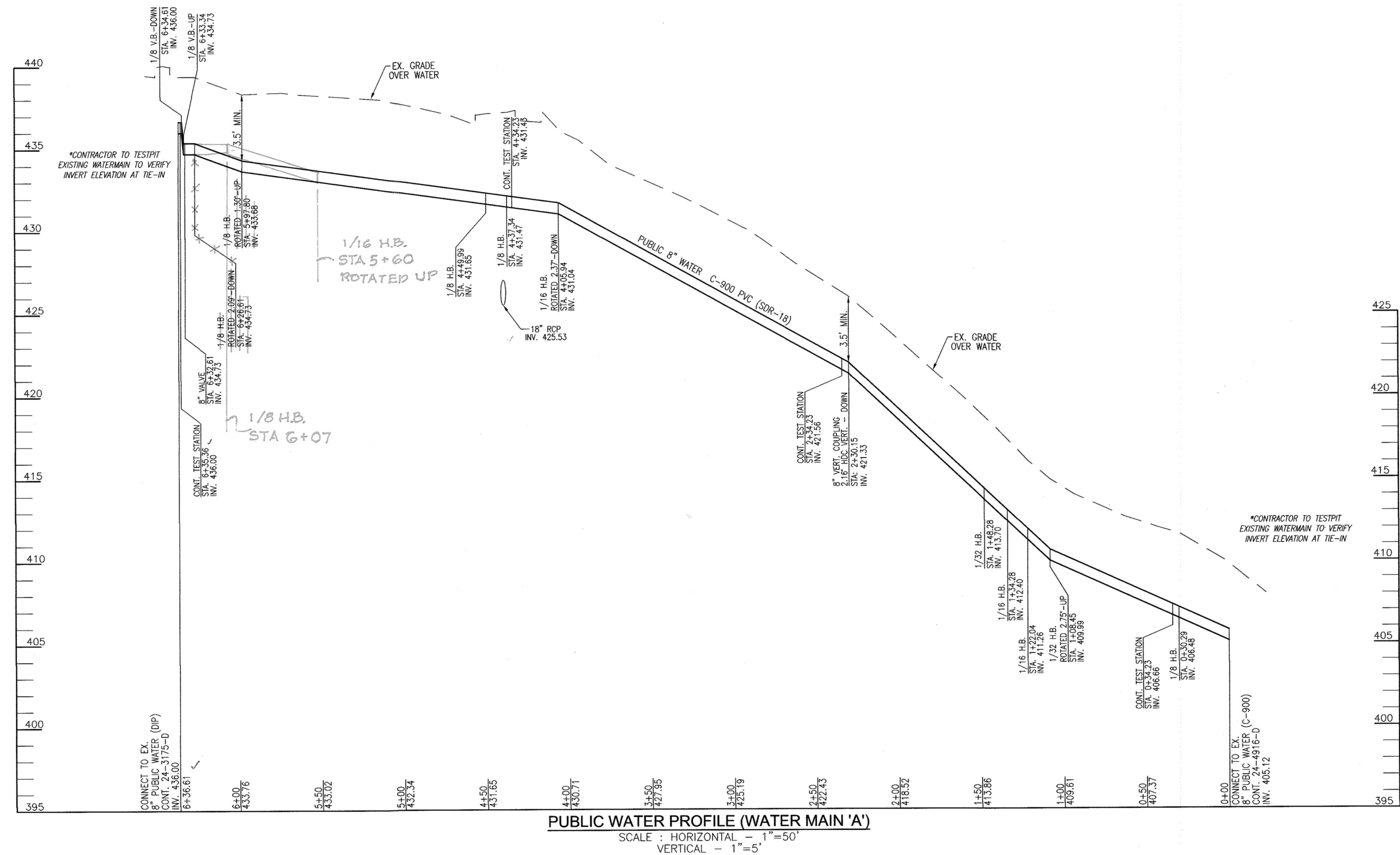
LAYOUT PLAN  
SCALE: 1"=50'

**AS-BUILT**  
Date 2/25/18

OWNER/DEVELOPER  
HOWARD COUNTY PUBLIC WORKS  
3430 COURT HOUSE DRIVE  
ELLCOTT CITY, MD 21043  
410-313-4401

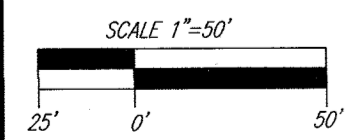


DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  <i>Steve C. Coen</i> 2/1/18 CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND  <i>Chad Anderson</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	 <b>ROBERT H. VOGEL</b> ENGINEERING, INC. ENGINEERS • SURVEYORS • PLANNERS 8407 MAIN STREET TEL: 410.461.7666 ELLCOTT CITY, MD 21043 FAX: 410.461.8964	PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2018 DRN: JMR DES: DZE CHK: RHV DATE: FEBRUARY 2017	STATE OF MARYLAND  ROBERT H. VOGEL, PE No. 16193	<b>FINAL WATER AND SEWER CONSTRUCTION PLAN CONTRACT 44-4990-D LAYOUT SHEET</b>	<b>HOWARD COUNTY PUBLIC SAFETY COMPLEX WATER EXTENSION</b> 11226 NE ROUTE 216 ZONED: RR-MXD-3 (L. 1798 / F. 120)	SCALE AS SHOWN  SHEET 2 OF 3
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**AS-BUILT**  
 by *[Signature]* Date *2/23/18*

**OWNER/DEVELOPER**  
 HOWARD COUNTY PUBLIC WORKS  
 3430 COURT HOUSE DRIVE  
 ELLICOTT CITY, MD 21043  
 410-313-4401



DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
*[Signature]* 2/23/18  
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING  
 HOWARD COUNTY, MARYLAND  
*[Signature]* 4-6-17  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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DATE: FEBRUARY 2017	
BY NO.	REVISION
	DATE

**FINAL WATER AND SEWER CONSTRUCTION PLAN**  
**CONTRACT 44-4990-D**  
**WATER & SEWER PROFILES**

**HOWARD COUNTY PUBLIC SAFETY COMPLEX WATER EXTENSION**  
 11226 NE ROUTE 216  
 ZONED: RR-MXD-3  
 (L. 1798 / F. 120)

SCALE AS SHOWN  
 SHEET 3 OF 3

TAX MAP 46 BLOCK 4  
 5TH ELECTION DISTRICT  
 PARCEL 288  
 HOWARD COUNTY, MARYLAND