

**GENERAL NOTES**

**PART I**

- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHY SHOWN HEREON IS OBTAINED FROM AERIAL PHOTOGRAMMETRY COMPILED BY POTOMAC AERIAL SURVEYS, INC. JANUARY 12, 2012.
- THE PROPERTY OUTLINE SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING INC., DATED FEBRUARY 2012.
- THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 47H2 AND 47G. ALL VERTICAL CONTROLS ARE BASED ON (NAVD' 88). VERTICAL CONTROLS PROVIDED ON DRAWINGS ARE:  
 GEODETIC SURVEY CONTROL 47H2 (N 529706.4221 E 1355445.3364)  
 BRASS DISC SET ON TOP OF A CONCRETE MONUMENT.  
 GEODETIC SURVEY CONTROL 47G (N 528939.7281 E 1354223.5536)  
 BRASS DISC SET ON TOP OF A CONCRETE MONUMENT.
- 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 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 BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- 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.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY 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 DUG 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 THESE PLANS:  
 AT&T 1-800-252-1133  
 BGE (CONTRACTOR SERVICES) 410-685-0123  
 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 1-800-743-0033/410-224-9210
- 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 THE 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 18.11(a) OF THE HOWARD COUNTY CODE.

**PART II - WATER**

- ALL WATER MAINS TO BE C-900 PVC (DR-18) UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO 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 RESTRAINED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- SPRINKLER SYSTEM FOR SINGLE RESIDENTIAL DWELLING UNITS SHALL HAVE WATER HOUSE CONNECTIONS AND WATER METERS THAT ARE SIZED IN ACCORDANCE WITH THE DESIGN OF THE SPRINKLER SYSTEMS. SPRINKLER SYSTEMS FOR SINGLE RESIDENTIAL DWELLINGS SHALL HAVE A MINIMUM OF 1.5" SERVICE CONNECTION WITH A 1" OUTSIDE METER SETTING.
- 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 ANWA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITHIN 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. SEVENTEEN (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 MAINS SHALL BE DUCTILE IRON.
- PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS: THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC PIPE JOINTS INDICATES THE MAXIMUM DEPTH 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.

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND WITH FINAL PLAN F-14-022.

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

*John R. Robert* 8/3/15  
 SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 DEPARTMENT OF PLANNING & ZONING  
 HOWARD COUNTY, MARYLAND  
 CHIEF, BUREAU OF UTILITIES DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

# FINAL WATER AND SEWER PLAN

## HIGH RIDGE MEADOWS-SECTION 1- PHASE 2

### LOTS 32-54 AND OPEN SPACE LOTS 60-62 (SFD RESIDENTIAL)

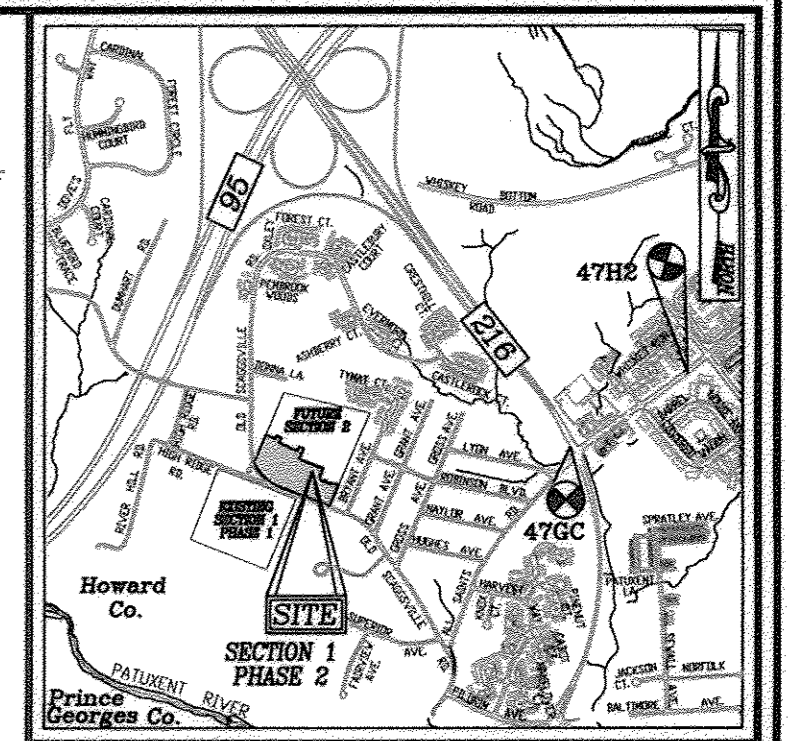
#### OLD SCAGGSVILLE ROAD PARCELS 363

#### HOWARD COUNTY, MARYLAND

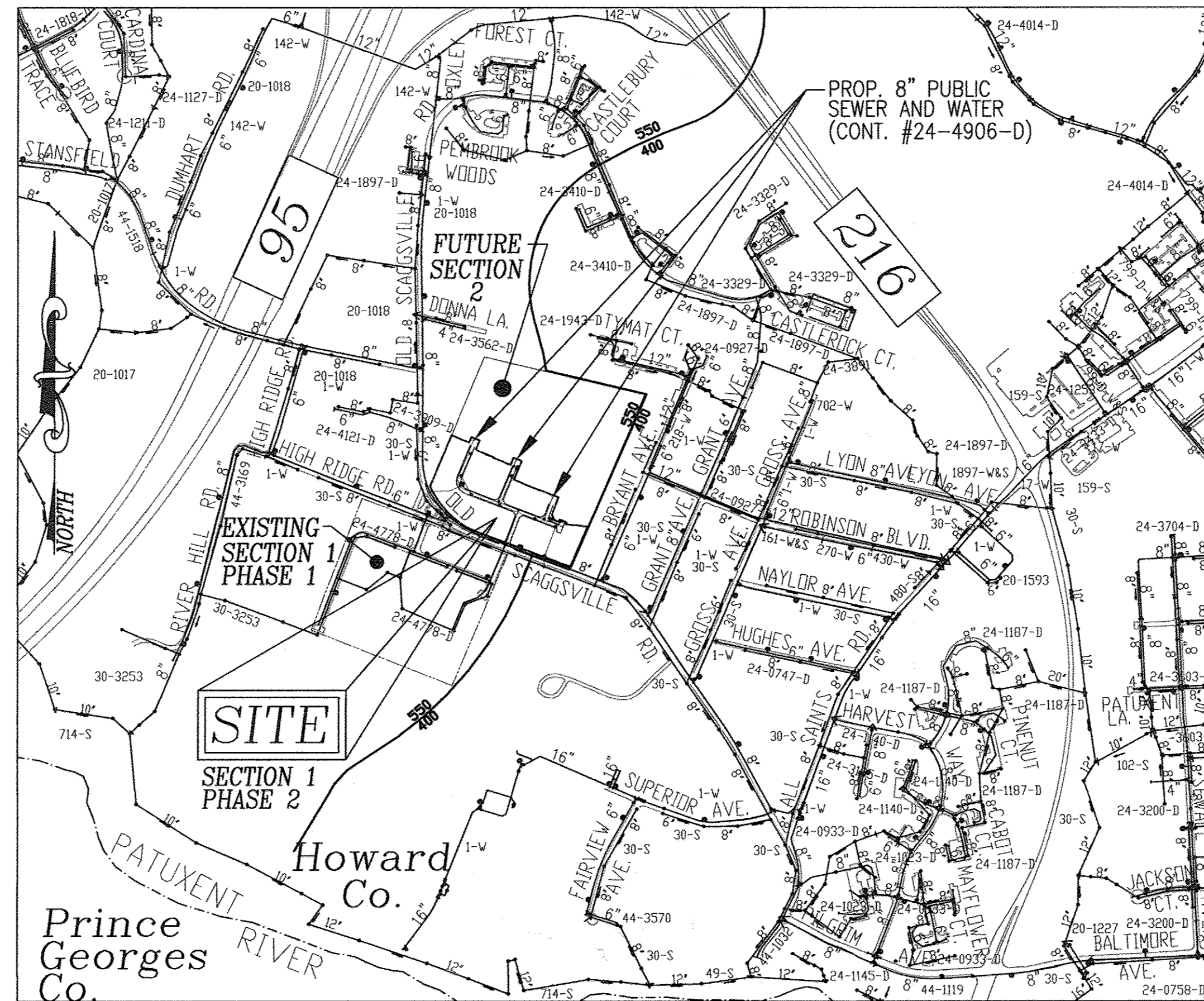
# CONTRACT 24-4906-D

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 47H2 (CONC. MON.)  
 N 529706.4221 E 1355445.3364 ELEV. 236.068  
 LOCATION: ALL SAINTS ROAD, 240' +/- SOUTH OF NORTH LAUREL ROAD 2.89 FEET FROM STORM DRAIN INLET; 1' EAST OF CURB, 0.6' BELOW SURFACE.  
 HOWARD COUNTY BENCHMARK 47G (CONC. MON.)  
 N 528939.7281 E 1354223.5536 ELEV. 226.272  
 LOCATION: MEDIUM ISLAND 29 FEET WEST OF ALL SAINTS RD RT 216 INTERSECTION; 1.4 FEET WEST OF SOUTHWEST INLET CORNER



LOCATION MAP  
 SCALE: 1"=2,000'  
 AOC MAP COORDINATE: 5169 C2



VICINITY MAP  
 SCALE: 1"=600'

WATER ZONE:	550
TEST GRADIENT:	700

TYPE OF BUILDING :	SFD RESIDENTIAL
NO. OF BUILDABLE LOTS :	23
NO. OF OPEN SPACE LOTS :	3
NO. OF SINGLE WATER HOUSE CONNECTIONS :	23
NO. OF TWIN WATER HOUSE CONNECTIONS :	0
NO. OF SEWER HOUSE CONNECTIONS :	23
NO. OF TWIN SEWER HOUSE CONNECTIONS :	0
SEWER SHED :	PATUXENT RIVER
TREATMENT PLANT :	PATUXENT

- 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 ANWA C900, SHALL HAVE A MINIMUM LAY LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTED 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 ANWA C900 AND SHALL BE MULTI FITTINGS (IPCX) 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 ANWA C-900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAN 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 EBAA IRON, INC., OR APPROVED EQUAL.

**PART III - SEWER**

- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVERS, STANDARD DETAIL G5.52, WHERE WATERTIGHT FRAME AND COVER IS USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED.

**QUANTITIES**

NAME OF UTILITY CONTRACTOR: GAINES & CO.				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
<b>WATER</b>				
8" WATER (C-900 PVC) (DR-18)	1,668.50 LF	1,664 LF	C-900 DR18	NORTH AMERICAN
6" WATER (C-900 PVC) (DR-18)	47.90 LF	48 LF	C-900 DR18	NORTH AMERICAN
1.5" WHC	826.0 LF	826 LF	COPPER	CAMBRIDGE LEE
8"x8" TAPPING SLEEVE	1 EA	1 EA		FORD METER BOX
1" WHC	10 LF			
8"x8" CROSS	1 EA	1 EA	MJ EPOXY	STAR PIPE
8"x8" TEE	4 EA	4 EA	MJ EPOXY	STAR PIPE
8" VALVE	10 EA	10 EA	GATE VALVE	KENNEDY
8"x6" TEE	3 EA	3 EA	MJ EPOXY	STAR PIPE
6" VALVE	3 EA	3 EA	GATE VALVE	KENNEDY
FIRE HYDRANT	3 EA	3 EA		KENNEDY
8" - 1/8" HORIZONTAL BEND	2 EA	2 EA	MJ EPOXY	STAR PIPE
8" - 1/16" HORIZONTAL BEND	2 EA	2 EA	MJ EPOXY	STAR PIPE
8" HORIZONTAL COUPLING	1 EA	1 EA	DEFLECTION	CERTAINTED
8" - 1/32" VERTICAL BEND	2 EA	2 EA	MJ EPOXY	STAR PIPE
8" VERTICAL COUPLING	4 EA	4 EA	DEFLECTION	CERTAINTED
8" CAP AND BUTTRESS	4 EA	1 EA		STAR PIPE
<b>SEWER</b>				
8" PVC SEWER	868.0 LF	868 LF	SDR 35	NORTH AMERICAN NATIONAL PIPE
8" DIP SEWER	351.0 LF	351 LF	DIP CL 52	US PIPE GRIFFIN
4" SHC MANHOLE	591.6 LF	592 LF	SDR 35	NORTH AMERICAN NATIONAL PIPE
		8 EA		CONCRETE PIPE & PRECAST

OWNER/DEVELOPER  
 BUILDER  
 BEAZER HOMES  
 MARYLAND DIVISION  
 8966 CULFORD ROAD - SUITE 290  
 COLUMBIA, MARYLAND 21046  
 (410) 720-5071

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET TEL: 410.461.7666  
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

DRN: JMR/KG DES: EDS  
 CHK: RHV  
 DATE: JUNE 2015

BY NO. REVISION DATE  
 CUS 1 KCI AS-BUILTS 10-26-15

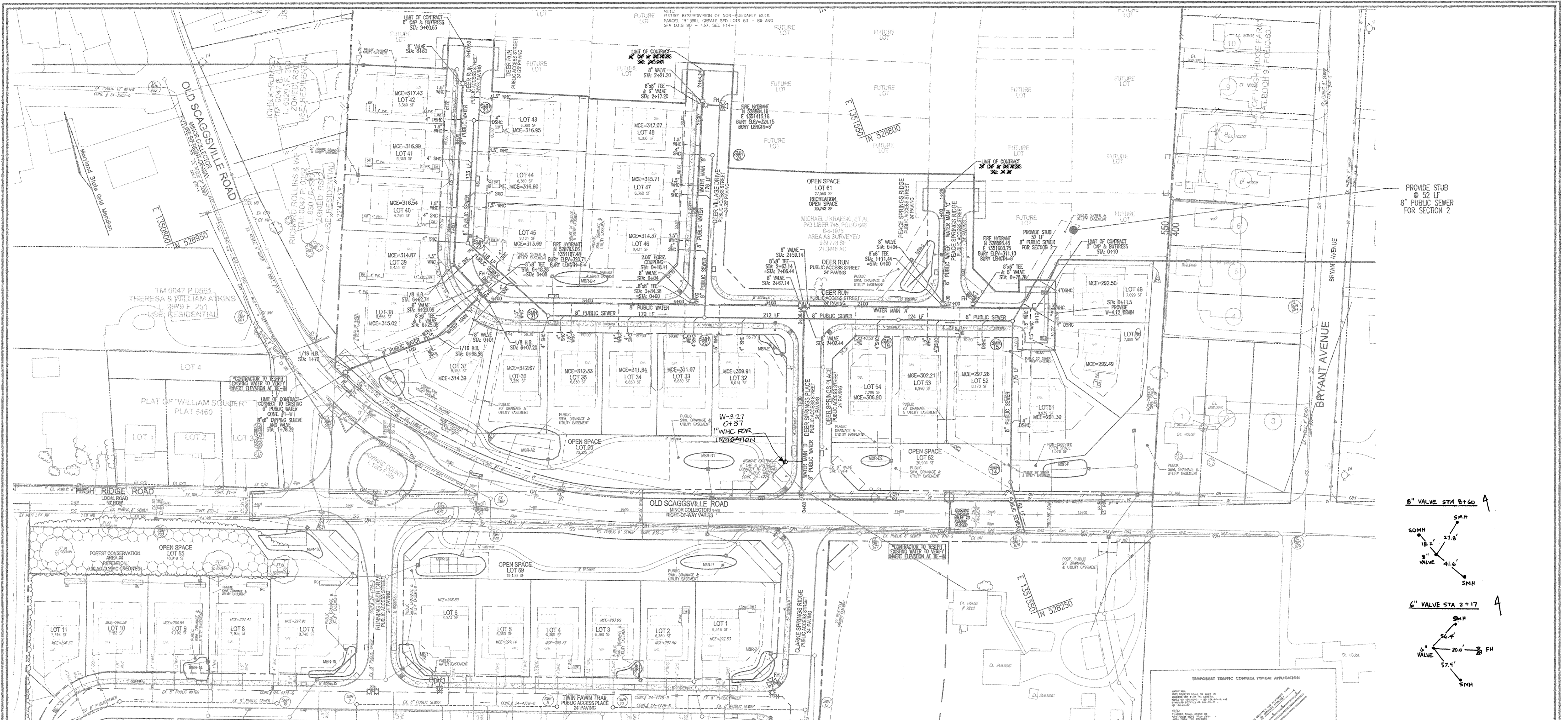
STATE OF MARYLAND  
 ROBERT H. VOGEL, PE No. 16193

**FINAL WATER AND SEWER PLAN**  
**CONTRACT 24-4906-D**  
**COVER SHEET**

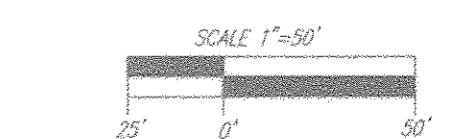
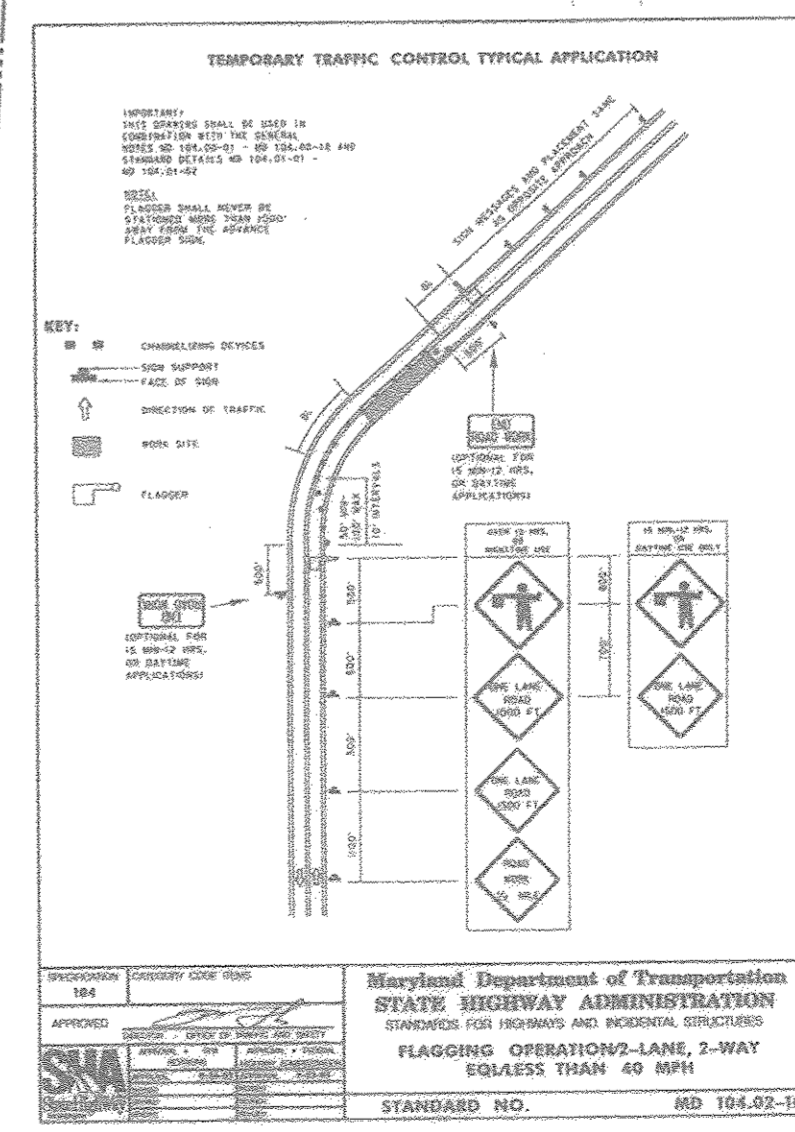
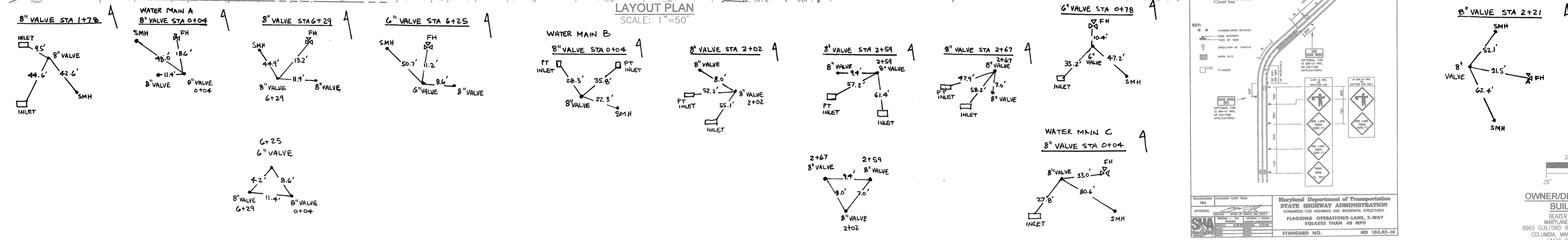
**HIGH RIDGE MEADOWS-SECTION 1-PHASE 2**  
 LOTS 32-54 AND OPEN SPACE LOTS 60-62  
 (SFD RESIDENTIAL)  
 OLD SCAGGSVILLE ROAD  
 PARCELS 363  
 HOWARD COUNTY, MD

SCALE AS SHOWN  
 SHEET 1 OF 4

600' SCALE MAP NO. 50 BLOCK NO. 1  
 TAX MAP 50 GRID 1 6th ELECTION DISTRICT  
 ZONING R-SC PARCELS 363  
 HOWARD COUNTY, MARYLAND



LAYOUT PLAN  
SCALE: 1"=50'



OWNER/DEVELOPER  
BUILDER  
BEAZER HOMES  
MARYLAND DIVISION  
8965 GULFORD ROAD - SUITE 290  
COLUMBIA, MARYLAND, 21046  
(410) 720-5071

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

*Steve Conn* 7/22/15  
CHIEF, BUREAU OF UTILITIES

*[Signature]* 8/5/15  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET ELLICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

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 09-27-2016

DRN:	JMR/KG	DES:	EDS
CHK:	RHV	REV:	
DATE:	JUNE 2015	BY:	NO.
		REVISION:	

ADD W-327 CONNECTION FOR IRRIGATION 5/24/16  
KCI AS-BUILTS 10-26-15

**FINAL WATER AND SEWER PLAN**  
CONTRACT 24-4906-D  
LAYOUT PLAN

600' SCALE MAP NO. 50

**HIGH RIDGE MEADOWS-SECTION 1-PHASE 2**  
LOTS 32-54 AND OPEN SPACE LOTS 60-62  
(SFD RESIDENTIAL)  
OLD SCAGGSVILLE ROAD  
PARCELS 363  
HOWARD COUNTY, MD

SCALE AS SHOWN  
SHEET 2 OF 4

ZONING R-SC  
PARCELS 363  
HOWARD COUNTY, MARYLAND