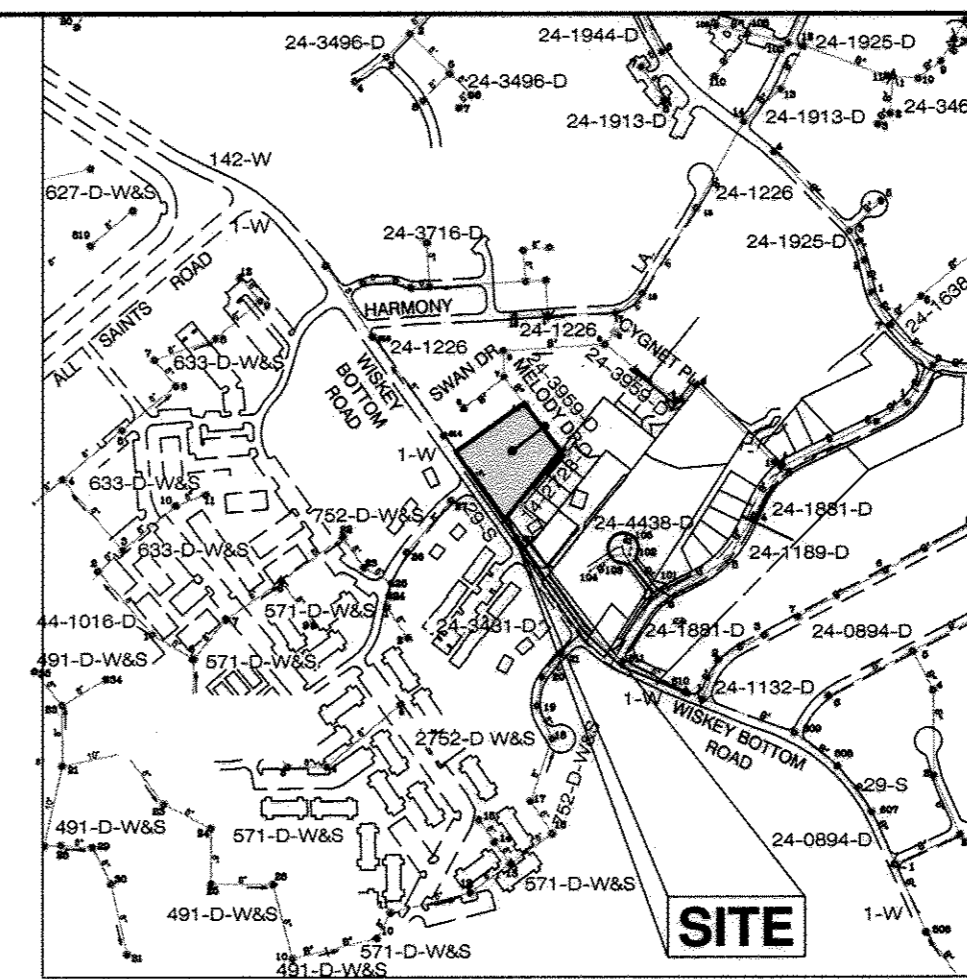


KINGS ARMS

SECTION 6 LOTS 1 thru 5 AND OPEN SPACE LOTS 6 - 8 CONTRACT No. 24-4984-D



BENCH MARKS-(NAD '83)			
HO. CO. #508A	EL. N/A	STANDARD DISC ON CONC. MONUMENT	
N 527561.6702	E 1357972.5936		
HO. CO. #5085	EL. 178.242	STANDARD DISC ON CONC. MONUMENT	
N 524999.3640	E 1357925.6751		

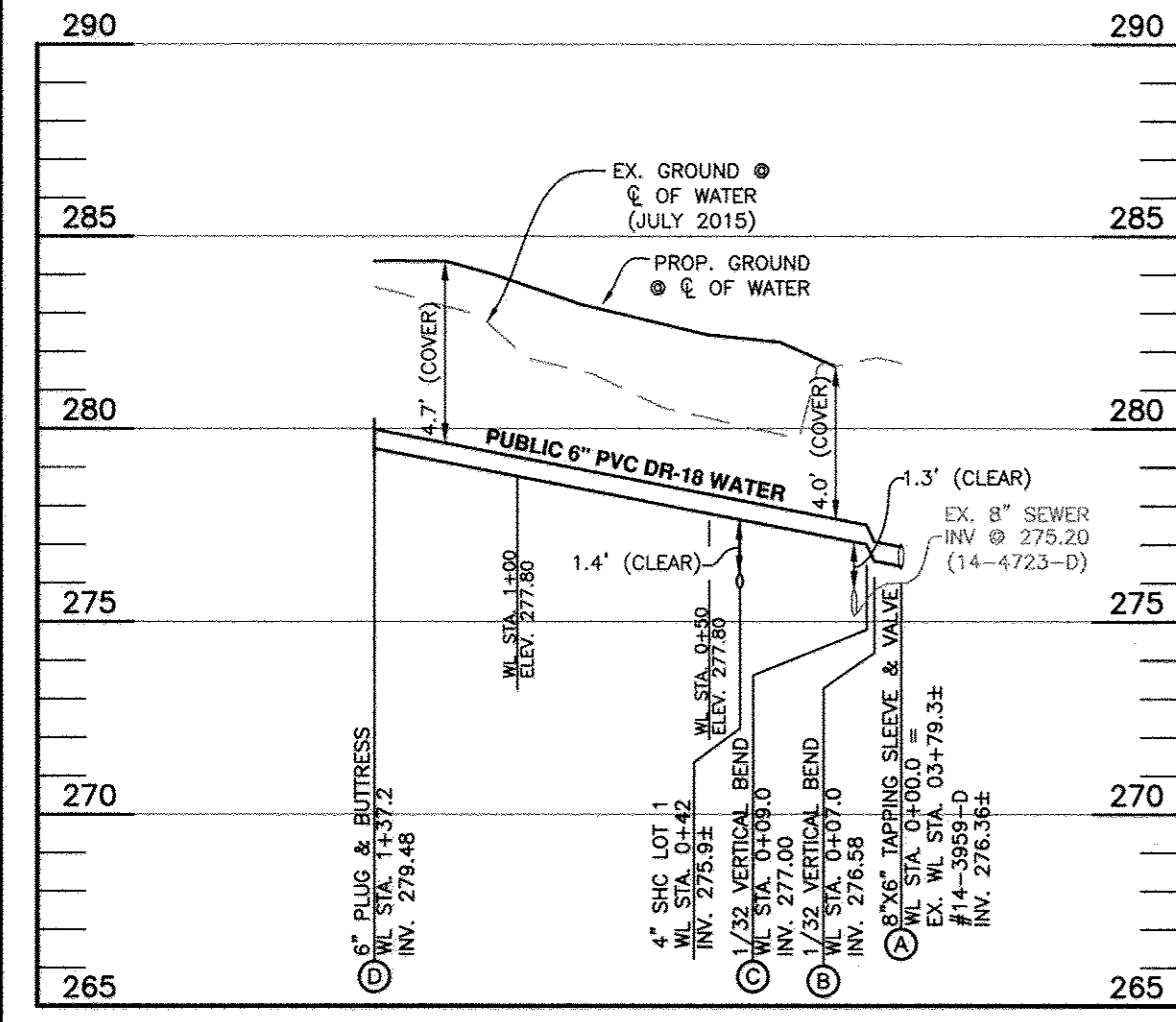
GENERAL NOTES

- 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.
 - TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN AUGUST, 2015 BY BENCHMARK ENGINEERING, INC.
 - 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. 508A AND NO. 508B.
ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 43EC AND 43EB.
 - 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 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 ON THESE PLANS:
AT&T.....1-800-252-1133
BGE (CONTRACTOR SERVICES).....410-637-8713
BGE (EMERGENCY).....410-685-0123
BUREAU OF UTILITIES.....410-313-4800
COLUMBIA PIPELINE CO.....410-795-1380
MISS UTILITY.....1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....410-531-5533
VERIZON.....1-800-747-0033
 - 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 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 1011.4(c) OF THE HOWARD COUNTY CODE.

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
6" PVC C900 DR-18 WATER	137 LF	137 LF	PVC	National Pipe & Plastic
1.5" WHC	106 LF	106 LF	K-Copper	Muehler Company
1" MDR VAULT	5 EA	5 EA	Concrete	Horae Concrete
8" PVC SDR-35 SEWER MANHOLES	126 LF	126 LF	PVC	National Pipe & Plastic
4" SHC	2 EA	2 EA	Concrete	Atlantic Concrete
4" CAST IRON CLEANOUTS	104 LF	104 LF	PVC	National Pipe & Plastic
5 EA	5 EA			

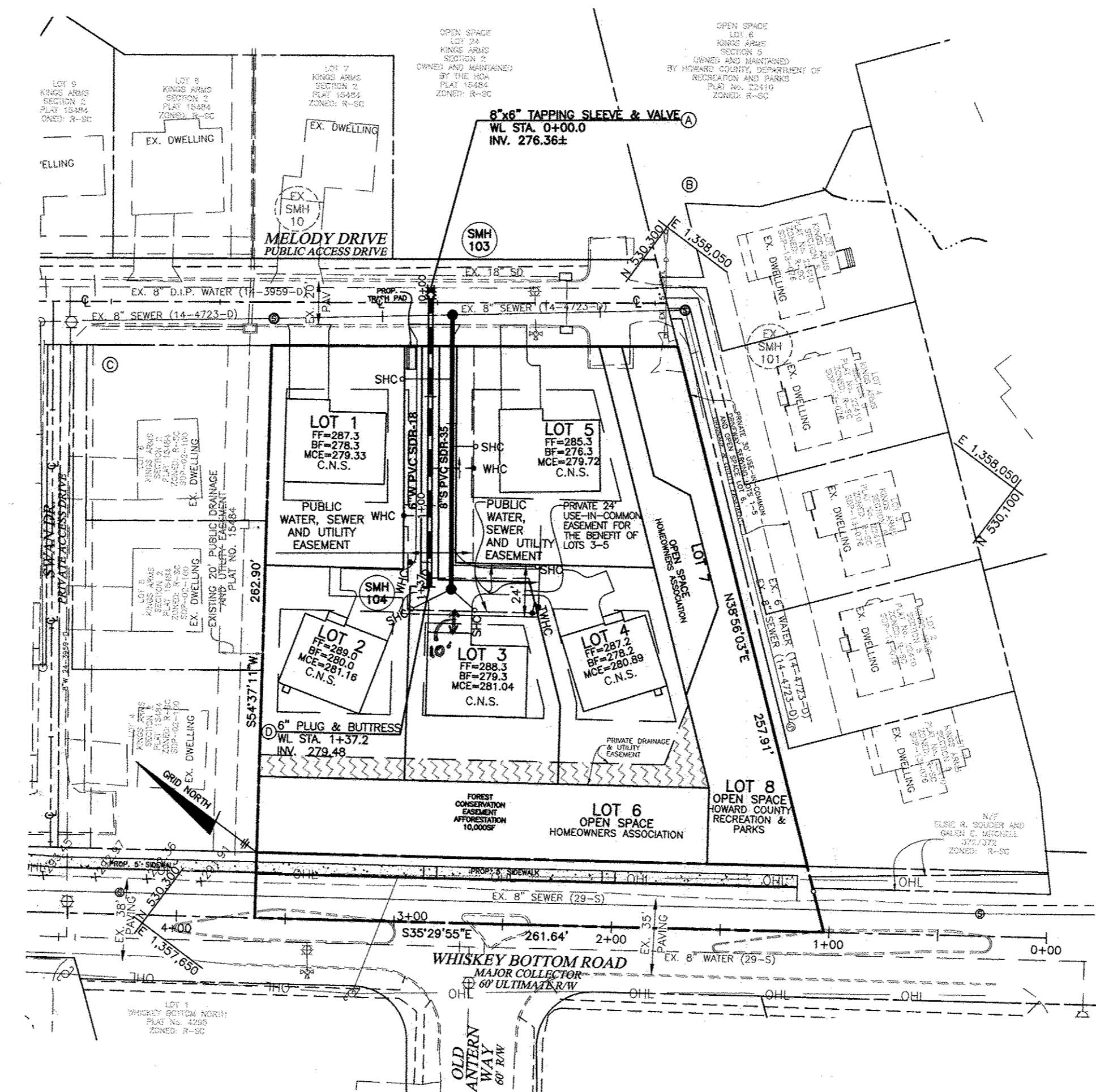
NAME OF UTILITY CONTRACTOR: J. & A. Construction
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

WATER APPURTENANCE SCHEDULE				
POINT #	APPURTENANCE	WATER LINE STATION	NORTHING	EASTING
A	6"x8" TAPPING SLEEVE & VALVE	0+00	530368.8736	1357962.4699
B	1/32 VERTICAL BEND	0+07.0	530365.6824	1357956.8633
C	1/32 VERTICAL BEND	0+09.0	530364.4849	1357955.2614
D	6" PLUG AND BUTTRISS	1+37.2	530287.7405	1357852.5989

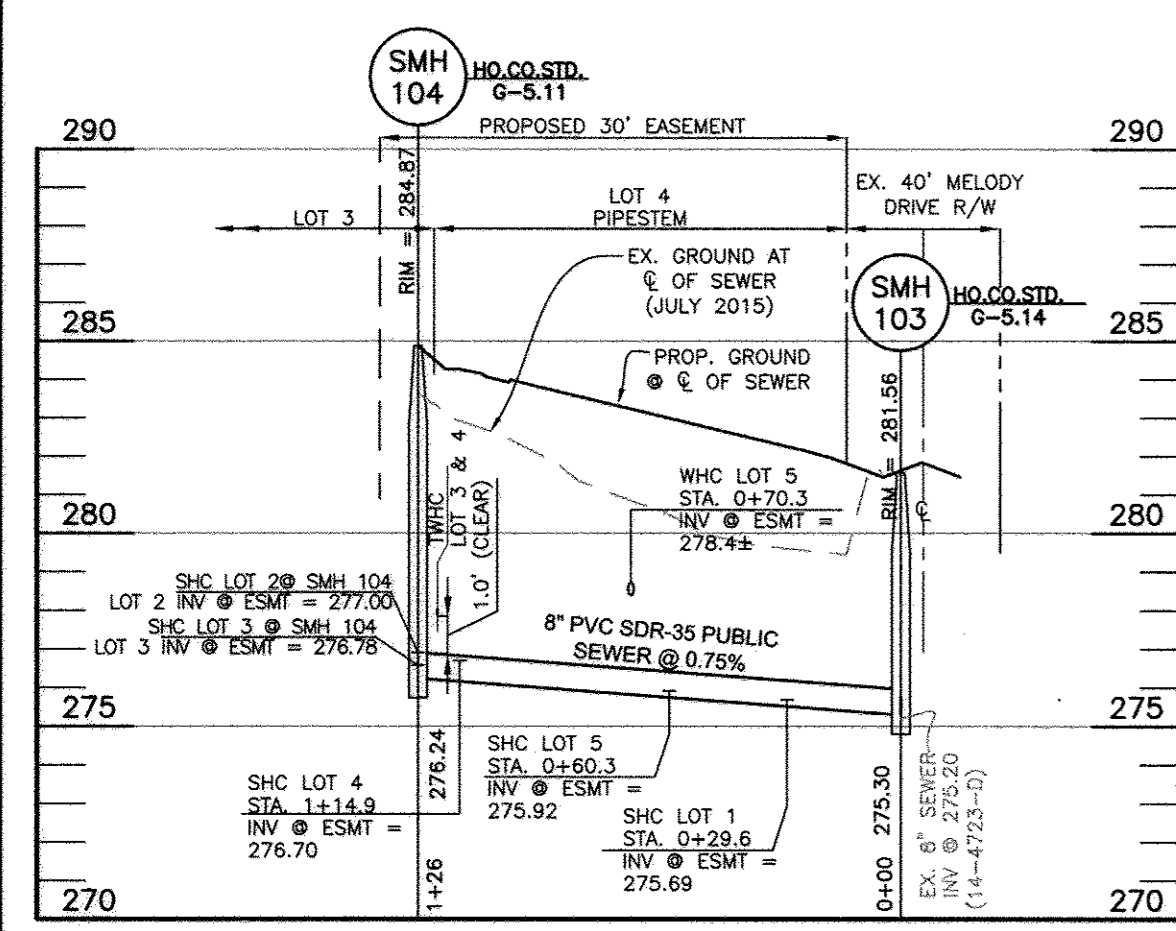


PUBLIC WATER MAIN
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

LOT NO.	FROM	TO	DISTANCE	REMARKS
1	MH103	SHC	36'	
1	MH103	WHC	98'	
1	MH104	WHC	44'	
1	MH104	SHC	100'	
1	WHC	SHC	64'	
5	MH103	SHC	64'	
5	MH103	WHC	73.6'	
5	MH104	WHC	57'	
5	MH104	SHC	66'	
5	SHC	WHC	10'	
2	MH104	WHC	21.6'	
2	TEST STATION	WHC	5'	
2	TEST STATION	SHC	9'	
2	SHC	WHC	4.7'	
3	MH104	SHC	16'	
3	MH104	WHC	42'	
3	TEST STATION	WHC	64'	
3	TEST STATION	SHC	35'	
3	SHC	WHC	29'	
4	MH104	SHC	42'	
4	MH104	WHC	42'	
4	TEST STATION	SHC	63'	
4	TEST STATION	WHC	64'	
4	TEST STATION	SHC	23'	
4	SHC	WHC	23'	
WATER VALVE SHC LOT 1 VALVE 6" 48'				
TS & V MH103 VALVE 6" 14.6'				
FH VALVE 6" 52'				



PLAN VIEW:
SCALE: 1" = 50'
(IN FEET)
1 inch = 50 ft.



MELODY DRIVE SMH 103 Thru SMH 104
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

SEWER MANHOLE SCHEDULE							
NUMBER	LOCATION (NAD '83)	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL	OWNER	REMARKS
103	N 530354.4190 E 1357958.4978	275.30(8')	281.56	281.56	Ho. Co. STD. G-5.14	PUBLIC	
104	N 530279.1055 E 1357857.7496	276.24(8')	284.87	284.87	Ho. Co. STD. G-5.11	PUBLIC	

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

John K. Roberts 4/11/17
HOWARD COUNTY CONSERVATION DISTRICT

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-16-127

Lot Frontage Chart	
Lot Number	Distance (feet)
1	81.10
2	8.00
3	8.00
4	8.00
5	65.52

SNC CHART							
Lot Number	Invert @ main	Invert @ RAW or esmt line	First Floor Elevation	Basement Floor Elevation	Minimum Cellar Elevation	Cellar Served by Gravity	Type of Connection
1	275.69	276.13	287.30	287.30	280.03	C.N.S.	Standard
2	276.58	277.00	289.90	289.90	281.16	C.N.S.	Standard
3	276.58	276.76	286.30	279.30	280.92	C.N.S.	Standard
4	276.50	276.70	287.20	278.20	281.74	C.N.S.	Standard
5	275.92	276.12	285.30	276.30	279.72	C.N.S.	Standard

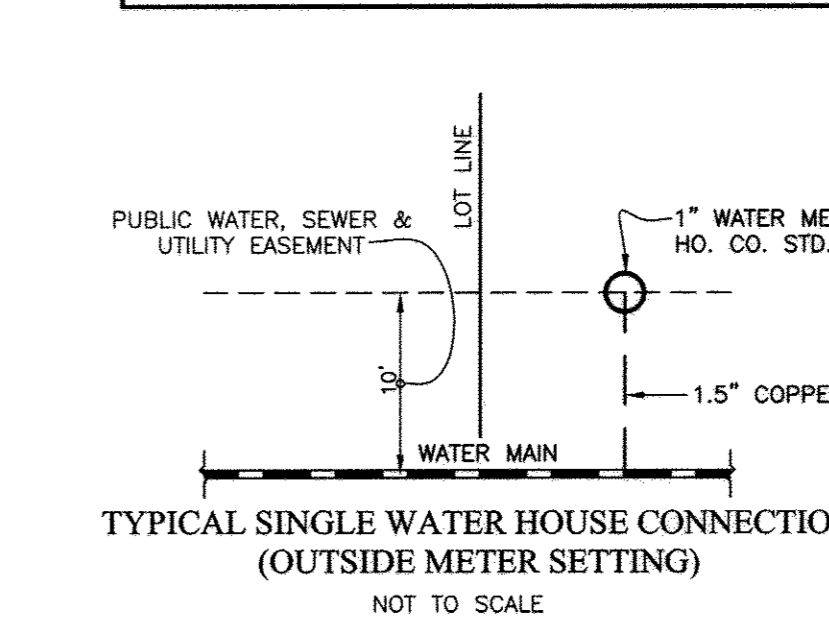
NOTE: ALL LOTS: GRAVITY SERVICE FIRST FLOOR ONLY.

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. 28376, Expiration Date: 1-01-2019.

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE			
LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	9010 MELODY DRIVE		
2	9014 MELODY DRIVE		
3	9018 MELODY DRIVE		
4	9022 MELODY DRIVE		
5	9026 MELODY DRIVE		

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE			
LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	9010 MELODY DRIVE		
2	9014 MELODY DRIVE		
3	9018 MELODY DRIVE		
4	9022 MELODY DRIVE		
5	9026 MELODY DRIVE		

NOTE:
ALL WATER HOUSE CONNECTIONS ARE TO BE 1.5" WITH A 1" METER (OUTSIDE SETTING).
ALL SEWER HOUSE CONNECTIONS SHALL BE 4" PVC.



AS-BUILT
Date: 1/23/18

NOTE:
SEE HO. CO. STD. DETAIL W-3.32 FOR TWIN OUTSIDE METER SETTING

NOTE:
SEE HO. CO. STD. DETAIL W-3.28 FOR SINGLE OUTSIDE METER SETTING

NOTE:
ALL JOINTS AND CONNECTIONS LOCATED WITHIN STRUCTURAL FILL AREAS SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION)

PART II WATER

- ALL WATER MAINS TO BE PVC C900 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 BUTTRISSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH 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 ON ALL VALVES AND DUCTILE IRON FITTINGS. 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 PIPES 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 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 INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF PVC PIPE.
- ALL CHANGES IN HORIZONTAL AND 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 COMPACTION OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE BEST 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 LENGTH OF 8-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.
- 5-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 PIPE LINES, 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 COUPLING 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 MEGA-STOP, AS MANUFACTURED BY EBA 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 WATERPROOF FRAME AND COVER. STANDARD DETAIL 05-52, WHERE WATERPROOF FRAME AND COVERS ARE 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.

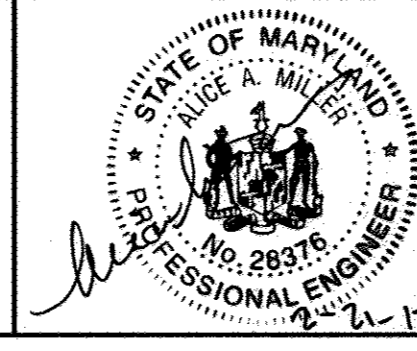
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John K. Roberts 4/11/17
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

John K. Roberts 4/11/17
CHIEF, DEVELOPMENT ENGINEERING DIVISION

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8490 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVLENGINEERING.COM



DES: JCO/NAF	
DRAFT: JCO/NAF	
CHK: AM	
DATE: FEBRUARY 2017	
BY NO.	
REVISIONS	
DATE	

FINAL WATER & SEWER
PLAN VIEW & PROFILE

600 SCALE MAP #22

KINGS ARMS
SECTION 6
LOTS 1 thru 5 & OPEN SPACE LOTS 6 - 8

SCALE: AS SHOWN

SHEET NO. 1 OF 1

TAX MAP: 47 - GRID: 22 - PARCEL: 174 - ZONED: R-SC - ELECTION DISTRICT 6

CONTRACT NO. 24-4984-D

BLOCK: 088