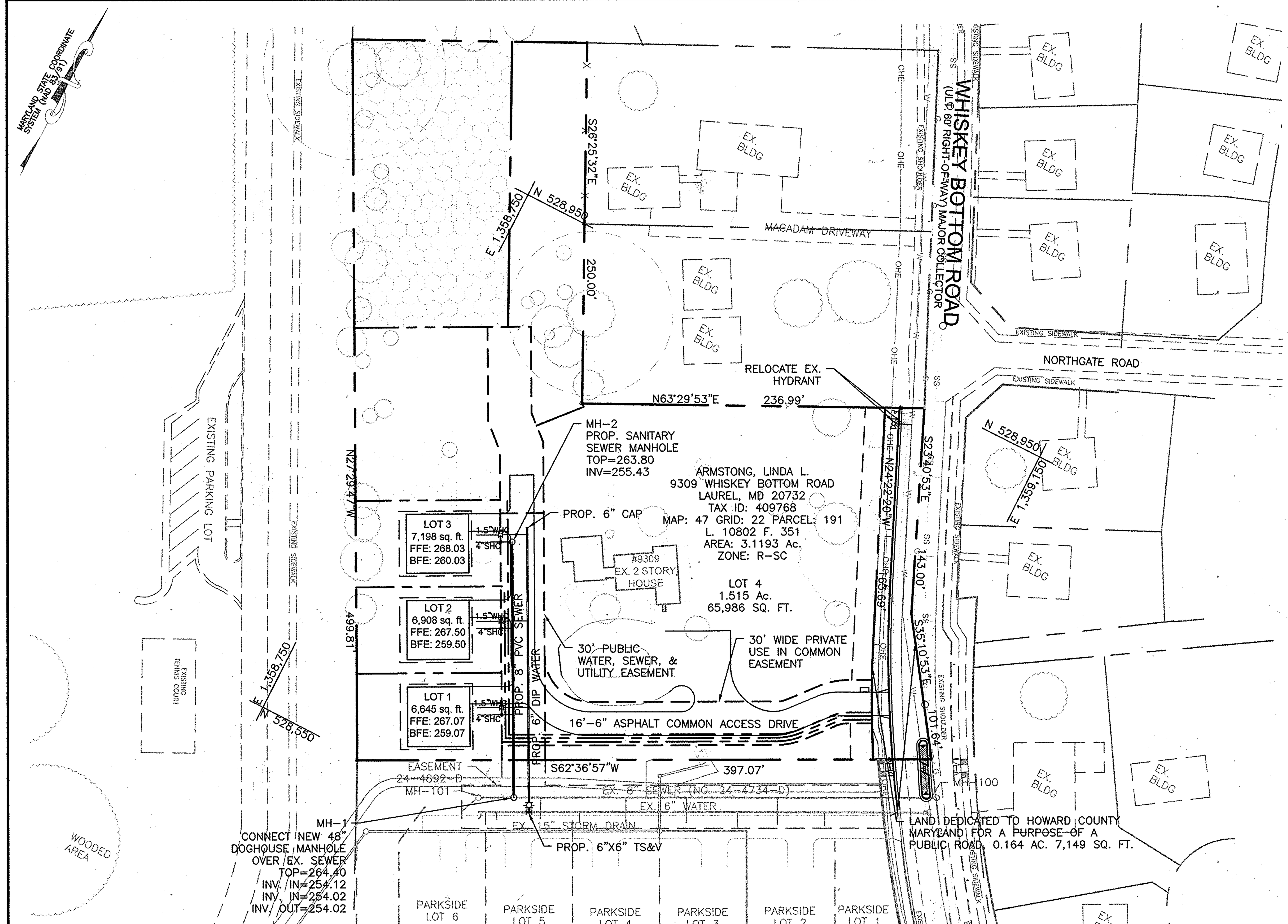


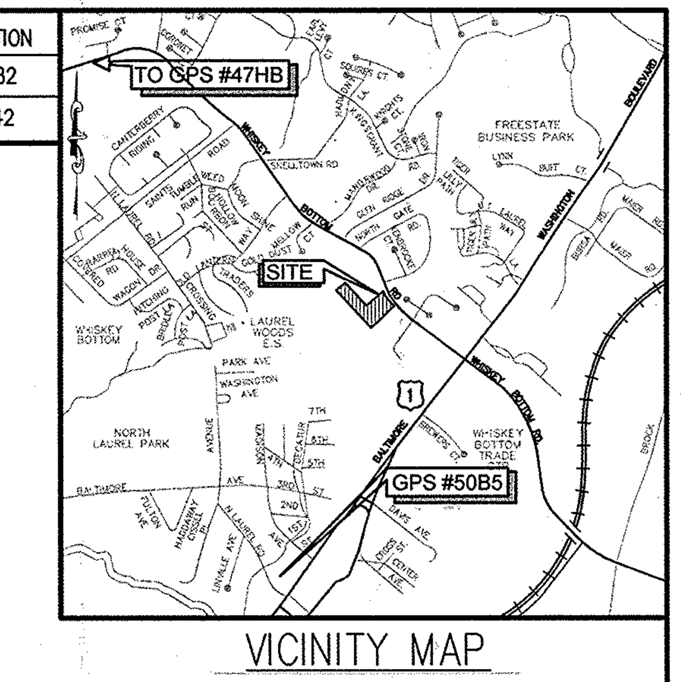
WATER/SEWER PLAN VIEW

SCALE: 1"=50'

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- 260 EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED LOT LINE
- PROPOSED BUILDING SETBACK LINE
- WATER VALVE
- PIPE
- MANHOLE
- UTILITY POLE
- GUY WIRE
- LIGHT POLE
- FIRE HYDRANT
- MB RESIDENTIAL MAILBOX
- SIGN
- FLOOD LIGHT
- CONCRETE MONUMENT
- BUSH
- CONIFEROUS TREE
- DECIDUOUS TREE
- EDGE OF WOODS
- FENCE
- HEDGE
- UNDERGROUND STORM DRAIN PIPE
- EXISTING WATER
- EXISTING GAS
- EXISTING OVERHEAD ELECTRIC
- PROPOSED SEWER
- PROPOSED WATER

POINT	NORTHING	EASTING	ELEVATION
#47HB	531895.78	1356076.26	296.82
#50B5	524999.33	1357925.66	177.42

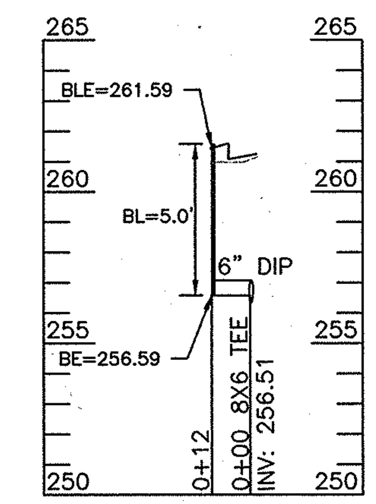


VICINITY MAP

SCALE: 1" = 2000'
ADC MAP 40, GRID D7

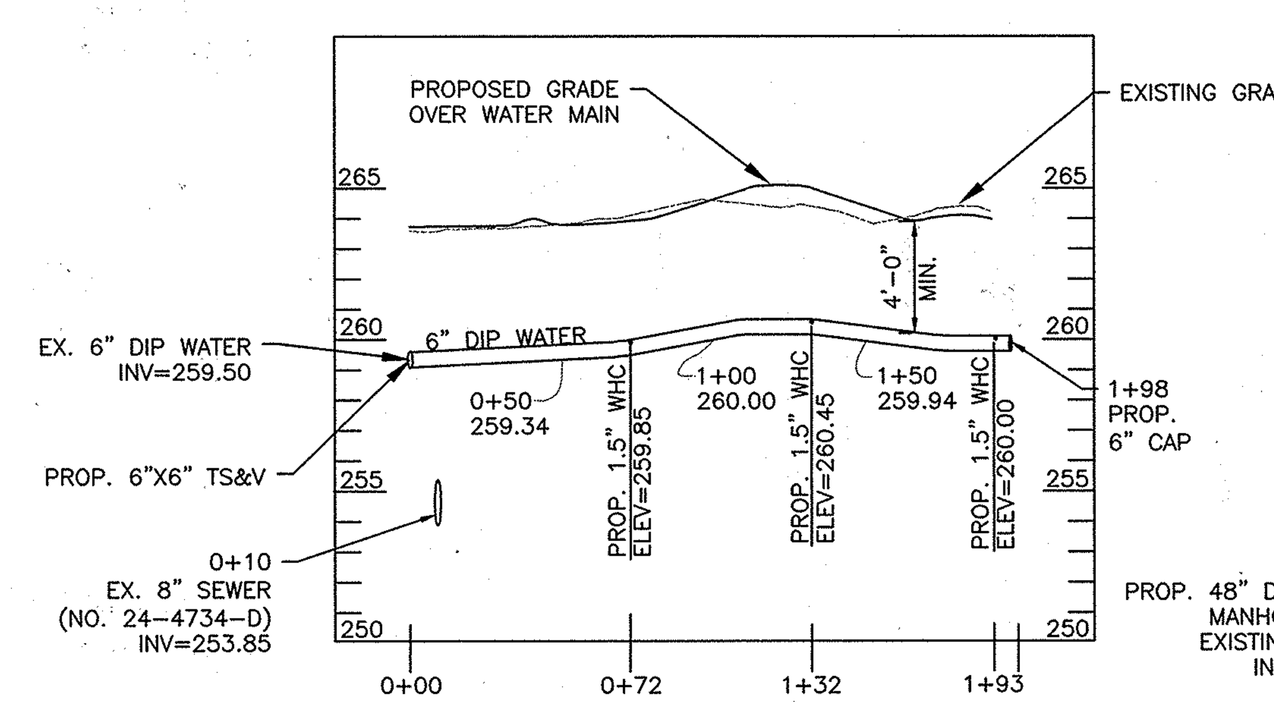
MCE CHART							
LOT #	ELV. @ MAIN	TYPE	DIST. TO ESMT.	ELV. @ ESMT.	DIST. ESMT. TO HOUSE	ELV. @ HOUSE	MCE
1	254.83	SHC	8.0'	254.99	21'-10"	255.42	256.57
2	255.26	SHC	8.0'	255.42	21'-10"	255.85	257.00
3	255.78	SHC	8.0'	255.94	21'-10"	256.38	257.53

NOTE:
CONTRACTOR SHALL TEST PIT FOR DEPTH AND LOCATION OF EXISTING UTILITIES PRIOR TO BEGINING CONSTRUCTION. ELEVATIONS SHOWN ARE BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTORS SHALL MAKE FIELD ADJUSTMENTS AS REQUIRED.



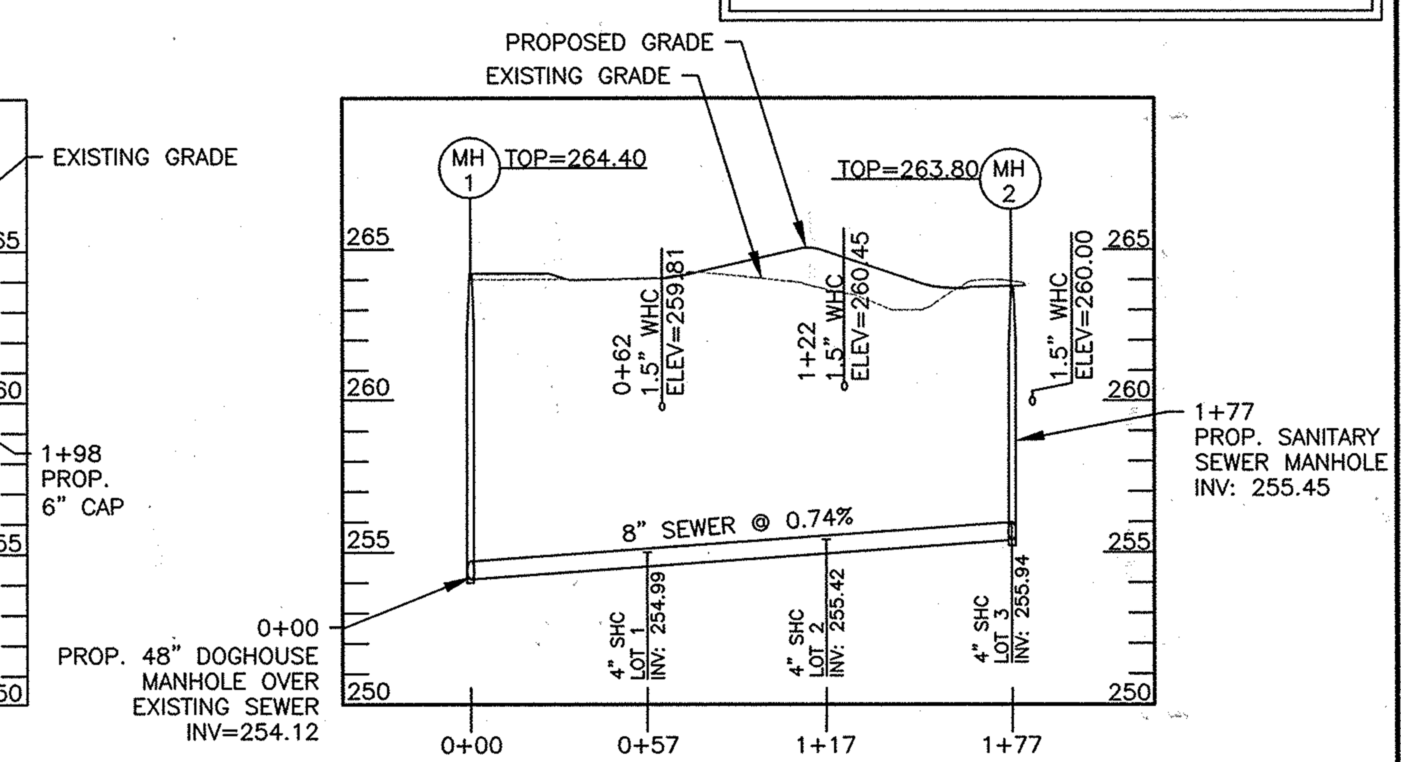
FIRE HYDRANT PROFILE

SCALE: HOR: 1"=50'
VER: 1"=5



WATER PROFILE

SCALE: HOR: 1"=50'
VER: 1"=5



SEWER PROFILE

SCALE: HOR: 1"=50'
VER: 1"=5'

PART 1 – GENERAL NOTES

1. 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.
2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN JUNE 2013 BY KCI TECHNOLOGIES.
3. 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. 47HB, NO. 50B5 AND ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. EXISTING OFF SITE TOPOGRAPHY SHOWN HEREON BASED ON THE HOWARD COUNTY GIS.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. 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.
6. 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.
7. 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 DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
8. 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 (CONSTRUCTION SERVICES)........ 410-637-8713
   - BGE (EMERGENCY)........ 410-685-0123
   - BUREAU OF UTILITIES........ 410-313-4900
   - COLONIAL PIPELINE CO........ 410-795-1390
   - MISS UTILITY........ 1-800-257-7777
   - STATE HIGHWAY ADMINISTRATION........ 410-531-5533
   - 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. 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.
11. 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(A) OF THE HOWARD COUNTY CODE.

PART 2 – WATER

1. ALL WATER MAINS SHALL BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
2. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
3. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
4. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
5. 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.
6. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
7. TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
8. 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 REVISED – OCTOBER 2013 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.
9. 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 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.
10. 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.
11. 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 DEFECTION 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 DEFECTION 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 DEFECTION OF 3-DEGREES (1½-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 CERTAINTEED 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 (IPEX) BLUE BRUTE DR18 OR EQUAL.
12. WHEN PVC HIGH DEFECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C-900 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 DEFECTION 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 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.
13. PER THE SPRINKLER CODE, A MINIMUM 1-1/2" whc WITH A 1 METER IS REQUIRED FOR SINGLE FAMILY DWELLINGS

PART 3 – SEWER

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

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE			
LOT No.	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	WHISKEY BOTTOM		
2	WHISKEY BOTTOM		
3	WHISKEY BOTTOM		

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE			
LOT No.	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	WHISKEY BOTTOM		
2	WHISKEY BOTTOM		
3	WHISKEY BOTTOM		

NOTE:
NO IMPROVEMENTS SHALL BE PERMITTED TO BE CONSTRUCTED OR PLACED WITHIN THE PUBLIC WATER, SEWER AND UTILITY EASEMENTS THAT WILL IMPEDE OR HINDER ACCESS TO THE PUBLIC WATER AND SEWER MAINS. IMPROVEMENTS SUCH AS AIR PLANTINGS AND TREES SHALL NOT BE PLACED WITHIN THE EASEMENTS

GRAPHIC SCALE

50 0 50 100

SCALE: 1" = 50'

SANITARY SEWER STRUCTURE SCHEDULE					
SSMH No.	TYPE	TOP ELEV.	INV. IN	INV. IN	INV. OUT
M1	48" SAN. MH.	264.40	254.12	254.02	254.02
M2	48" SAN. MH.	263.80	256.32	–	256.25

PIPE SCHEDULE		
SIZE	LENGTH	TYPE/CLASS
8"	178 LF	SDR-35
4"	75 LF	SDR-35
6"	198 LF	DIP CL
1.5"	113 LF	COPPER

HOWARD SOIL CONSERVATION DISTRICT
HOWARD COUNTY, MARYLAND
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL – VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND AS SHOWN ON THE FINAL CONSTRUCTION PLANS F-14-085.

John R. Roberts 11/19/15
HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Donald Campbell 11/19/2015
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND

Jayesh Pandhi 11/23/15
CHIEF, DEVELOPMENT ENGINEERING DIVISION M.G. DATE

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
KCI TECHNOLOGIES
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

OWNER
LINDA L. ARMSTRONG
9309 WHISKEY BOTTOM ROAD
LAUREL, MD 20732
301-776-5600

DESIGN: NAB				
DRAWN: BRA				
CHECKED:				
DATE: 10/02/2015	BY	NO.	REVISION	DATE

STATE OF MARYLAND NICHOLAS A. BARRICK 33772 PROFESSIONAL ENGINEER 11/18/15

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. 33772, Expiration Date: 6/16/17

600' SCALE MAP NO.: 47 GRID: 22 PARCEL: 191

BUTTERFIELD GROVE

CONTRACT #24-4892-D
WATER & SEWER PLAN

ZONED: R-SC
ELECTION DISTRICT NO. 6 – HOWARD COUNTY MARYLAND

ELECTION DISTRICT NO. 6 | HOWARD COUNTY, MARYLAND | CONTRACT # 24-4892-D

SCALE 1"=50'
PROJECT # 27121943
SHEET 1 OF 1