

**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 SHOWN HEREON IS TAKEN FROM A TOPOGRAPHIC SURVEY BY FREDERICK WARD ASSOCIATES, DATED DECEMBER 2002.
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PERFORMED BY FREDERICK WARD ASSOCIATES, DATED DECEMBER 2002.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'88 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 38R2 AND 38R3. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON DRAWINGS ARE:
  - CONTROL STATION 38R2  
NORTH 557,500.663' EAST 1,391,227.052' ELEVATION 168.788' (NAVD 1988)
  - CONTROL STATION 38R3  
NORTH 557,417.823' EAST 1,391,983.177' ELEVATION 124.653' (NAVD 1988)
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- 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 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 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 LOCATION OF THE TEST PIT. A NOTES 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 OPERATION 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
BOE (CONTRACTOR SERVICE)	410-637-8713
BOE (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	410-313-5533
VERIZON	1-800-743-0033
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS 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 ANY OPEN CUTTING OR BORING/JACKING OF ANY 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 II - WATER**

- ALL WATER MAINS TO BE C900 PVC UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" 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 DETAIL. 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.
- 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, SEVENTEEN (17) POUND 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. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. 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.
- TRACER WIRE AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL D.I.P. AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- 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.

**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 WATERIGHT FRAME AND COVERS. STANDARD DETAIL 05.52, WHERE WATERIGHT 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.

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE SPECIFICATIONS AND WITH FINAL ROAD CONSTRUCTION PLAN F-12-95.

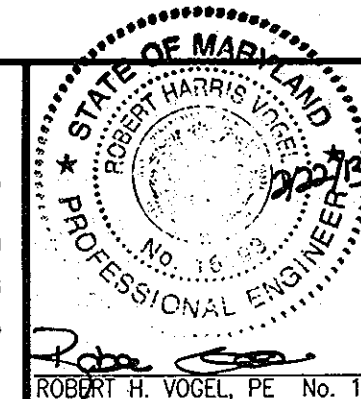
THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John R. Robertson* 3/26/13  
SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET TEL: 410.461.7666  
ELLCOTT 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 UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014

DRN: EDS DES: EDS  
CHK: RHV  
DATE: JANUARY 2013

**FINAL WATER AND SEWER CONSTRUCTION PLAN COVER SHEET CONTRACT 14-4557-D**

**BASHAM PROPERTY**  
LOTS 2-7 & OPENSACE LOTS 1 & 8

TAX MAP 38 GRID 14  
1ST ELECTION DISTRICT

PARCEL 342  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

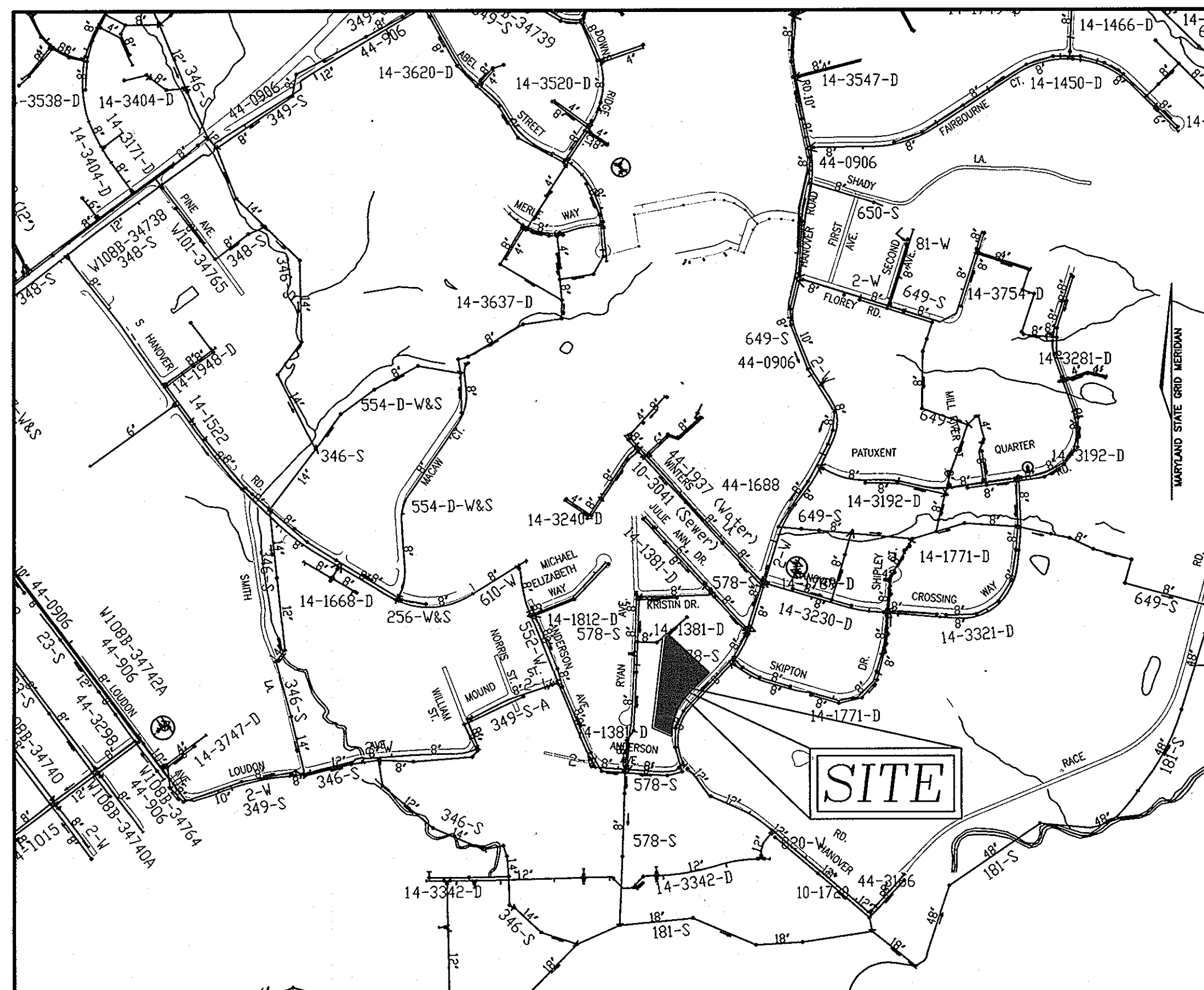
SHEET 1 OF 2

# FINAL WATER AND SEWER CONSTRUCTION PLAN

## BASHAM PROPERTY

### LOTS 2-7 & OPEN SPACE LOT 1 & 8

#### HOWARD COUNTY, MARYLAND

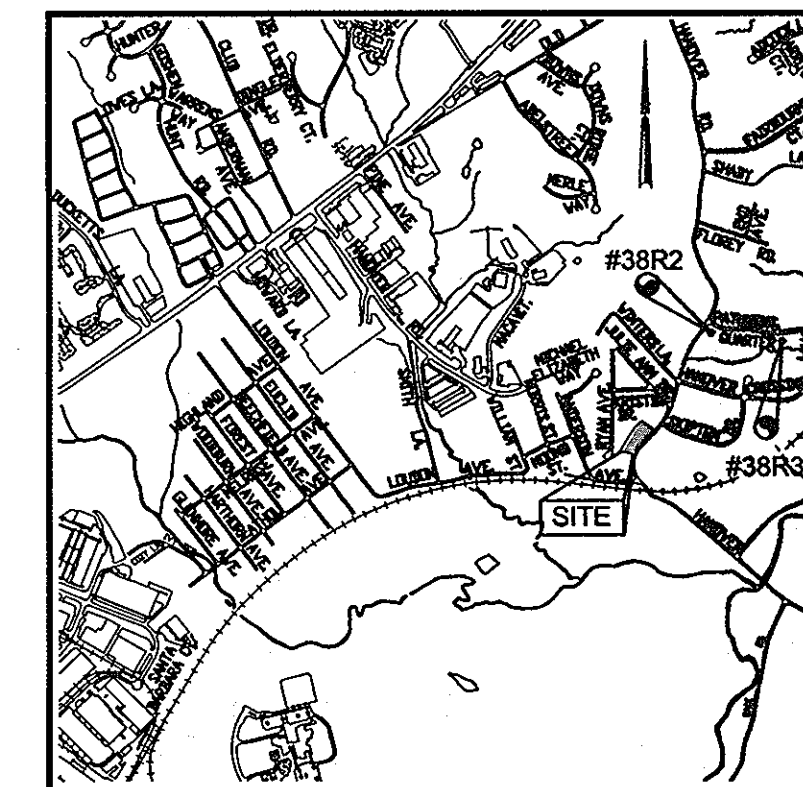


**LOCATION PLAN**  
SCALE: 1"=600'

WATER ZONE:	400
TEST GRADIENT:	550

TYPE OF BUILDING:	SINGLE FAMILY DETACHED
NO. OF LOTS/PARCELS:	6
NO. OF SINGLE WATER HOUSE CONNECTIONS:	6
NO. OF TWIN WATER HOUSE CONNECTIONS:	0
NO. OF SINGLE SEWER HOUSE CONNECTIONS:	6
NO. OF TWIN SEWER HOUSE CONNECTIONS:	0
DRAINAGE AREA:	PATAPSCO
TREATMENT PLANT:	PATAPSCO WASTE WATER TREATMENT PLANT

**BENCH MARK**  
HOWARD COUNTY CONTROL STATION 38R2  
NORTH 557,500.663'  
EAST 1,391,227.052'  
ELEVATION 168.788' (NAVD 1988)  
HOWARD COUNTY CONTROL STATION 38R3  
NORTH 557,417.823'  
EAST 1,391,983.177'  
ELEVATION 124.653' (NAVD 1988)



**VICINITY MAP**  
SCALE: 1"=2000'  
**ADC MAP COORDINATES**  
MAP: 4937  
GRID: E9

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 2
WATER & SEWER PLAN & PROFILES	2 OF 2

**LEGEND**

- EXISTING TREENLINE
- PROPOSED TREENLINE
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED TEE
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED PRIVATE SEWER
- EXISTING SEWER
- SEWER MANHOLE
- WATER HOUSE CONNECTION
- SEWER HOUSE CONNECTION
- PROPOSED LIGHT

QUANTITIES				
NAME OF UTILITY CONTRACTOR:				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
8" W. C900	LF	50		
6" W. C900	LF	189		
8"x6" FIRE HYDRANT TEE & VALVE	EACH	1		
FIREHYDRANT	EACH	1		
8" X 6" REDUCER	EACH	1		
6" CAP & BUTTRESS	EACH	1		
8"x8" TAPPING SLEEVE & VALVE	EACH	1		
8" SEWER MAIN	LF	225		
SEWER MANHOLES	EACH	3		
1.5" WHC	LF	286		
4" SHC	LF	275		

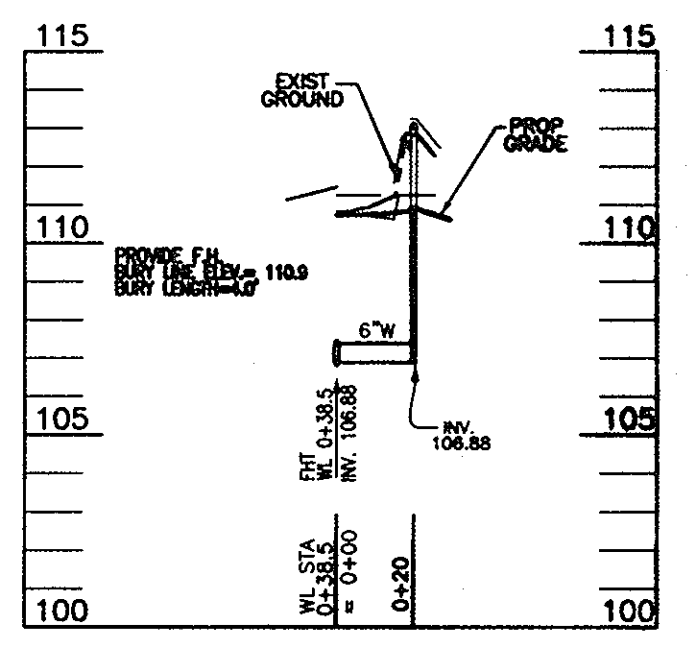
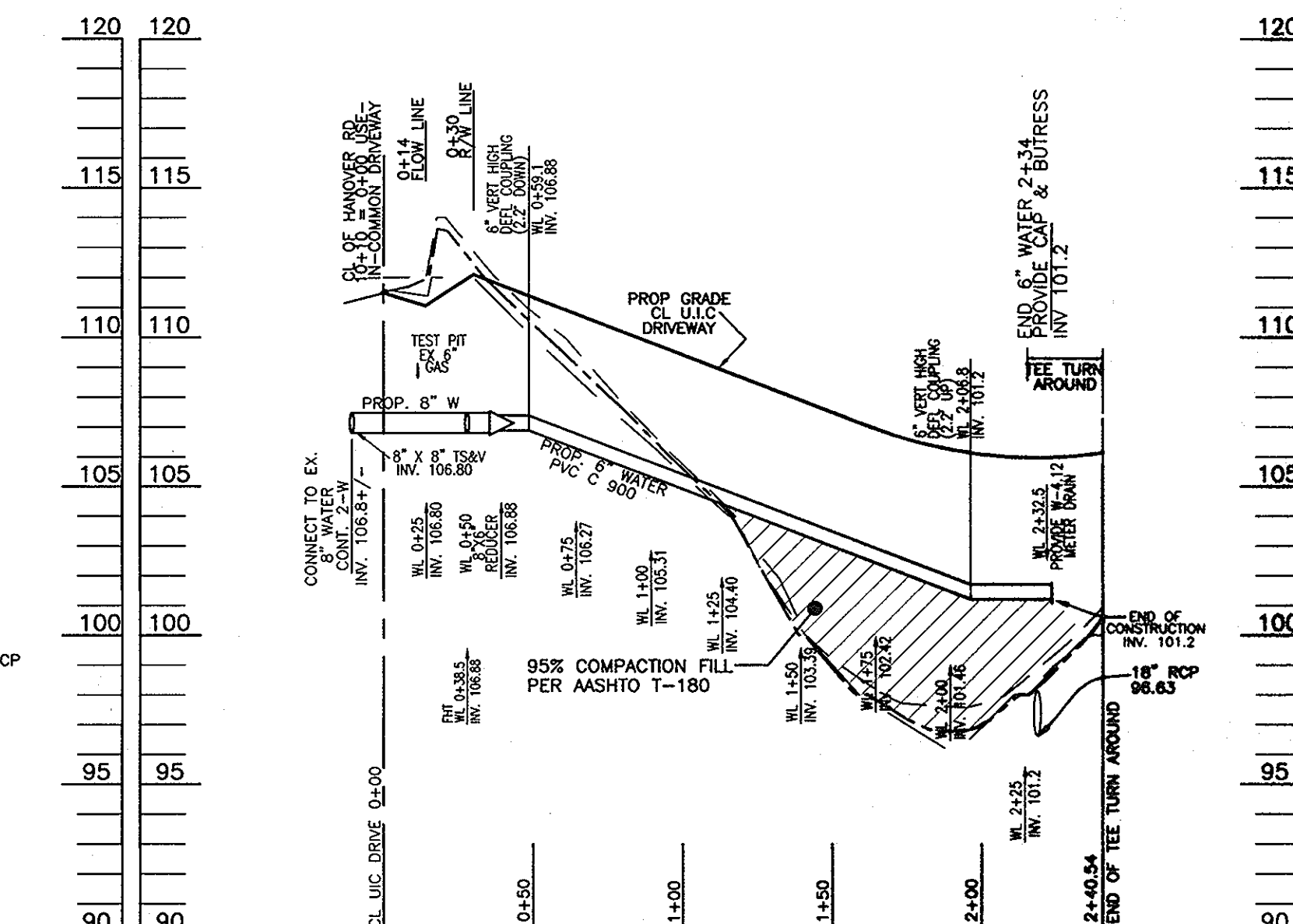
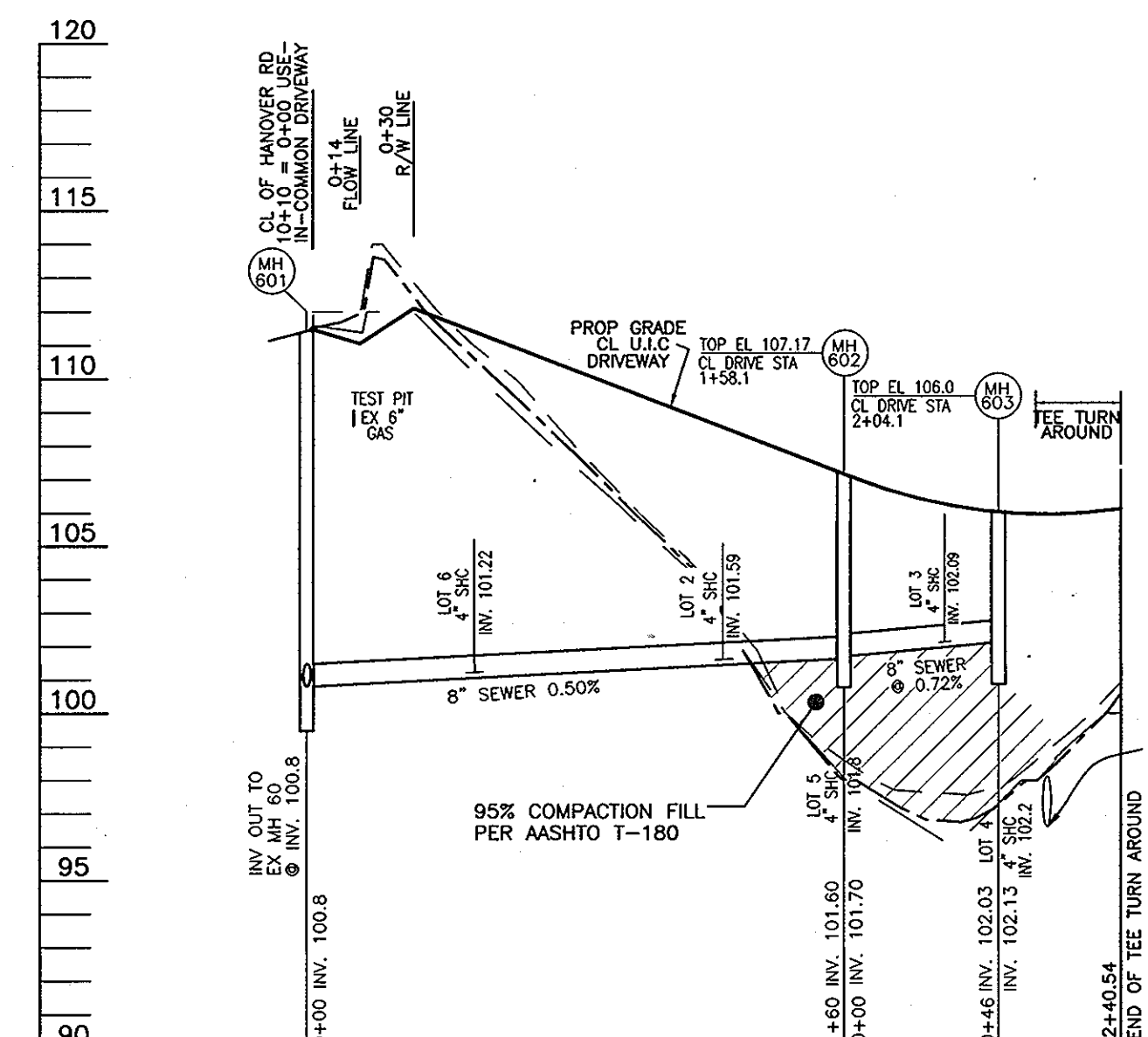
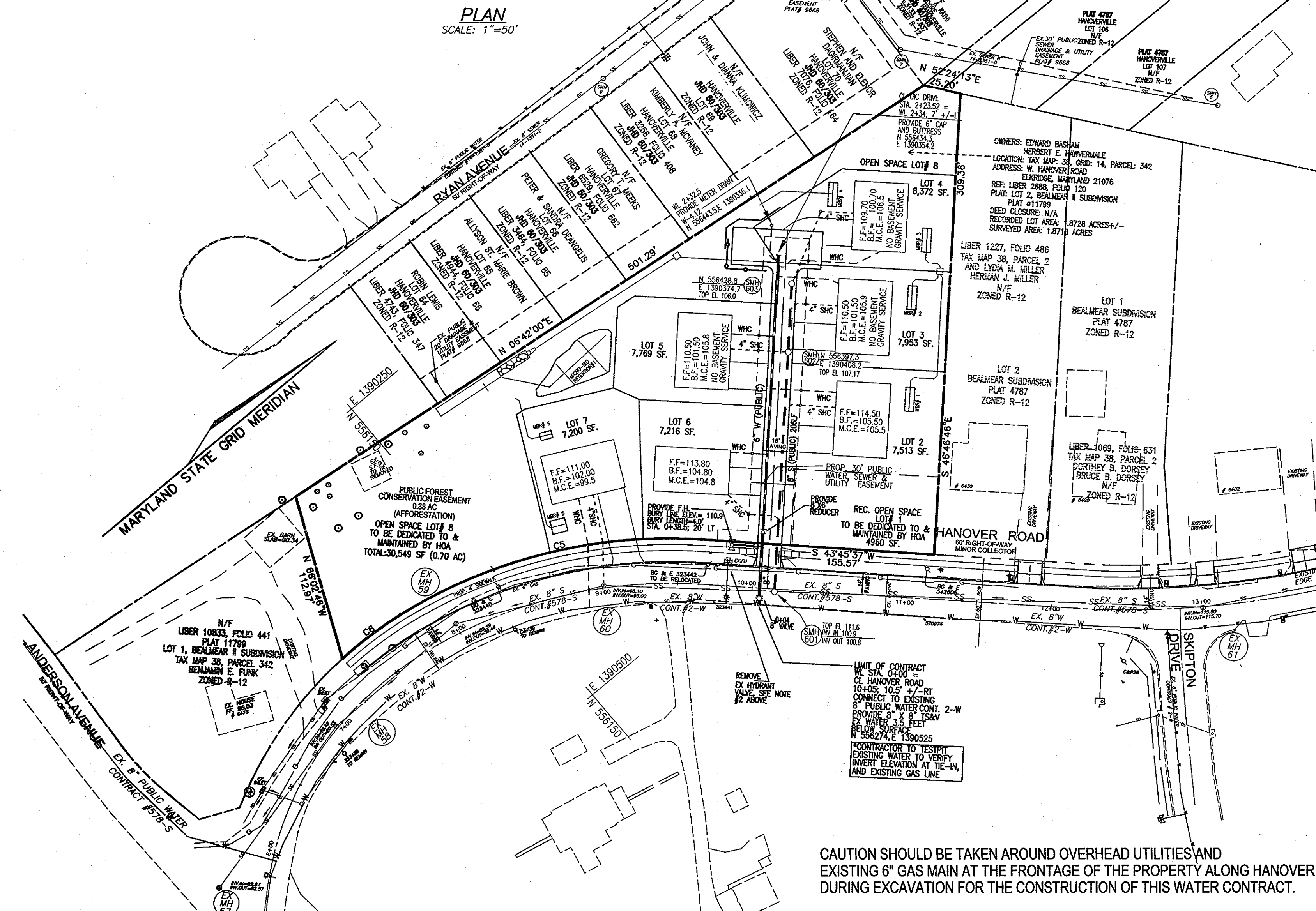
**DEVELOPER**

MAIN STREET BUILDERS  
5706 LANDING ROAD  
ELKRIDGE, MARYLAND 21075-5700



**NOTES:**

1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.
2. REMOVE EXISTING FIRE HYDRANT AND VALVE AND PLUG AT THE MAIN RETURN THE EXISTING HYDRANT TO THE BUREAU OF UTILITIES.



CAUTION SHOULD BE TAKEN AROUND OVERHEAD UTILITIES AND EXISTING 6" GAS MAIN AT THE FRONTAGE OF THE PROPERTY ALONG HANOVER ROAD DURING EXCAVATION FOR THE CONSTRUCTION OF THIS WATER CONTRACT.

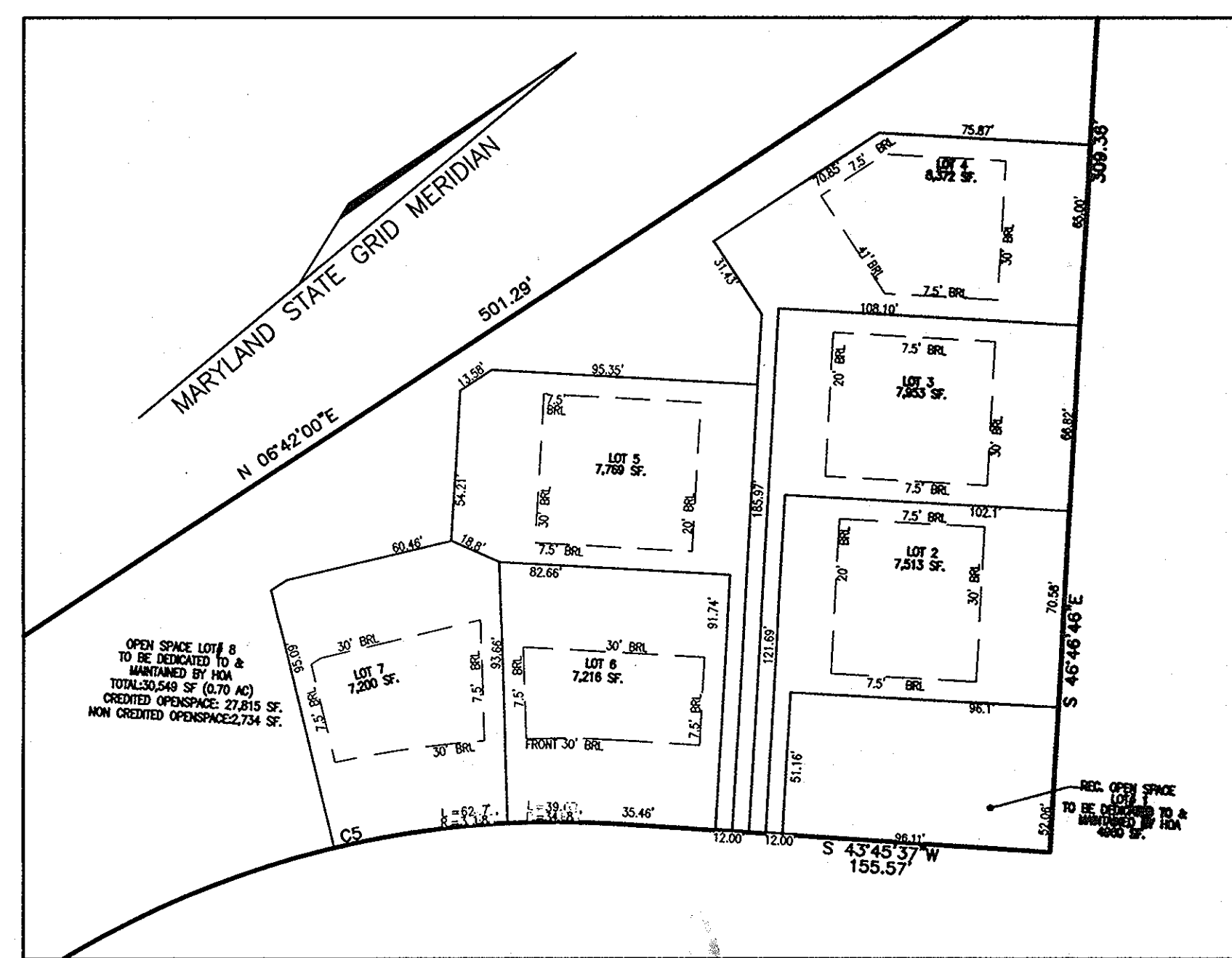
SEWER MANHOLE SCHEDULE						
NO.	TYPE	LOCATION		TOP ELEV.	INV. IN.	INV. OUT.
		EASTING	NORTHING			
SMH 001	STD. PRECAST MH HO. CO. STD. DET. G5.12	E 1390525.3	N 556287.2	111.6±	EX 100.9±	100.8
SMH 002	STD. PRECAST MH HO. CO. STD. DET. G5.12	E 1390408.2	N 556397.3	107.17	101.7	101.6
SMH 003	STD. PRECAST MH HO. CO. STD. DET. G5.12	E 1390374.7	N 556428.8	106.00	102.13	102.03

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE				
LOT #	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2	
LOT 2				
LOT 3				
LOT 4				
LOT 5				
LOT 6				
LOT 7				

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE				
LOT #	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2	
LOT 2				
LOT 3				
LOT 4				
LOT 5				
LOT 6				
LOT 7				

WATER MAIN LOCATION CHART	
WL STA.	APPURTENANCE
WL STA. 0+04	6" VALVE
WL STA. 0+59.1	6" VERT. HIGH DEFLECTION COUPLING (2.2' DOWN)
WL STA. 2+08.8	6" HORIZ. HIGH DEFLECTION COUPLING (2.20' UP)
WL STA. 2+32.5	WATER METER DRAIN
WL STA. 2+34	6" CAP & BUTRESS

MIN CELLAR ELEV'S								
DROP THRU SLAB								
LOT #	INV 4" @ MAIN	TYPE	DIST TO ESMT	EL @ ESMT	DIST ESMT - HSE	EL @ HOUSE	MIN SLAB	BF ELEV
2	101.80	SINGLE	10	101.79	58.0	102.95	105.5	105.50
3	102.00	SINGLE	10	102.29	55.0	103.39	105.9	101.50
4	102.20	SINGLE	42	103.04	100.0	104.04	106.5	100.70
5	101.80	SINGLE	20	102.20	55.0	103.30	105.8	101.50
6	101.22	SINGLE	20	101.62	65.0	102.27	104.8	104.80
7	96.10	SINGLE	28	95.66	65.0	96.96	99.5	102.00
			R/W					

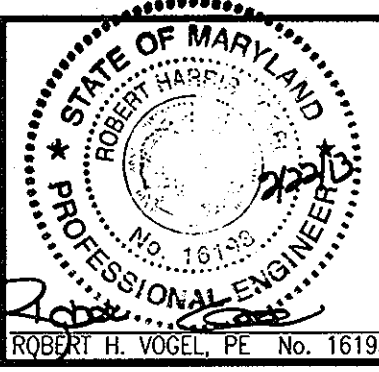


DEVELOPER  
MAIN STREET BUILDERS  
5706 LANDING ROAD  
ELKRIDGE, MARYLAND 21075-5700

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
SILVE C. CLERMONT  
CHIEF, BUREAU OF UTILITIES  
3/12/13

DEPARTMENT OF PLANNING & ZONING  
HOWARD COUNTY, MARYLAND  
[Signature]  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
4/16/13

**ROBERT H. VOGEL, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET  
ELLCOTT CITY, MD 21043  
TEL: 410.461.7566  
FAX: 410.461.8961  
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: 09-27-2014  
DRN: EDS DES: EDS  
CHK: RHV  
DATE: JANUARY 2013

FINAL WATER AND SEWER  
CONSTRUCTION PLAN  
PLAN & PROFILES  
CONTRACT 14-4557-D

BASHAM PROPERTY  
LOTS 2-7 & OPENSACE LOTS 1 & 8

TAX MAP 38 GRID 14  
1ST ELECTION DISTRICT  
PARCEL 342  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 2 of 2

K:\Projects\14-4557\Drawings\Basham-Map\PLAN\_V1302\_Plan\_Profile.dwg, 1/20/2013 2:46:08 PM, User:rhv