

PART I - GENERAL NOTES

- 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.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN DEC. 2000 BY BENCHMARK ENGINEERING, INC. EXISTING CONTOURS ALONG OLD COLUMBIA ROAD WERE TAKEN FROM SHS PLANS FOR THE INTERCHANGE AT JOHN HOPKINS AND GORMAN ROAD.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
 - THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/91 AS PROJECTED BY SHA GEODETIC CONTROL STATIONS NO. CADD 175, NO. CADD 176.
 - ALL VERTICAL CONTROLS ARE BASED ON VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE BASED ON USGS DATA.
- 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 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 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 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.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1-800-252-1133
BGE (CONSTRUCTION SERVICES)	410-850-4820
BGE (EMERGENCY)	410-685-1400
BUREAU OF UTILITIES	410-315-4900
COLONIAL PIPELINE CO	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 CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT 410-313-7450 AT LEAST FIVE (5) WORKING DAYS BEFORE 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(g) OF THE HOWARD COUNTY CODE.
- WORK WITHIN THE STREAMS IS COVERED UNDER MDE PERMIT TRACKING NO. 200687614. NO INSTREAM CONSTRUCTION SHALL BE PERFORMED BETWEEN MARCH 1 AND JUNE 15.
- WATER VALVES AND CLEANOUTS ARE TO BE PLACED AT THE EDGE OF THE EASEMENT, OUTSIDE OF THE SWALE.

PART II - WATER

- ALL WATER MAINS SHALL BE 8" PVC C900 (DR18) 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 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 RESULTS NOTED IN SECTION 5.1 OF THE ANWA STANDARD CODE 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.
- THE FIRE PRINKLER CODE REQUIRES A MINIMUM 1 1/2" HOUSE CONNECTION WITH 1" METER. METER SETTING SHALL BE AN INSIDE 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 UNLESS OTHERWISE NOTED.
- 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 COVER, STANDARD DETAIL 05.52. WHERE WATERTIGHT MANHOLE FRAMES 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

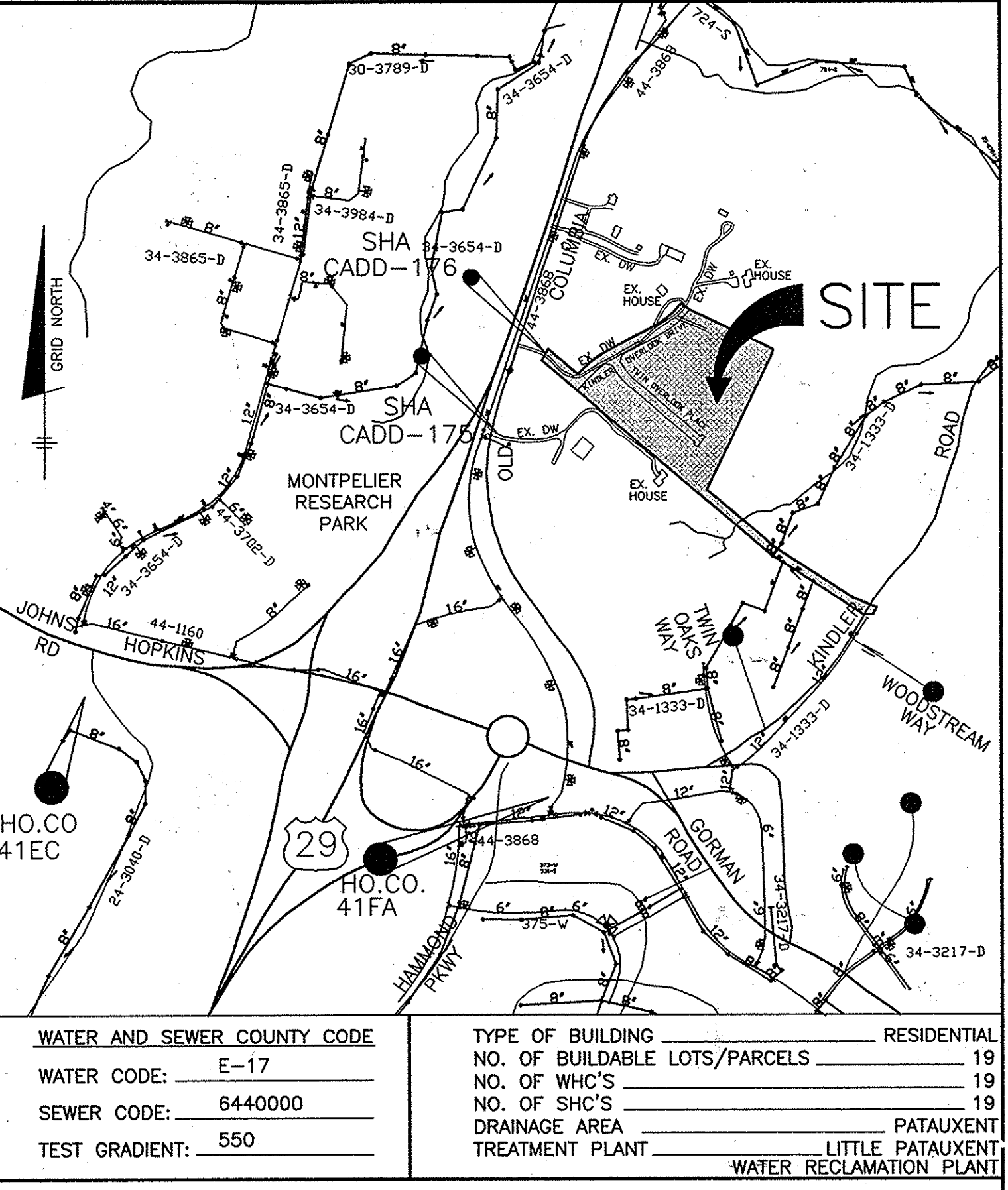
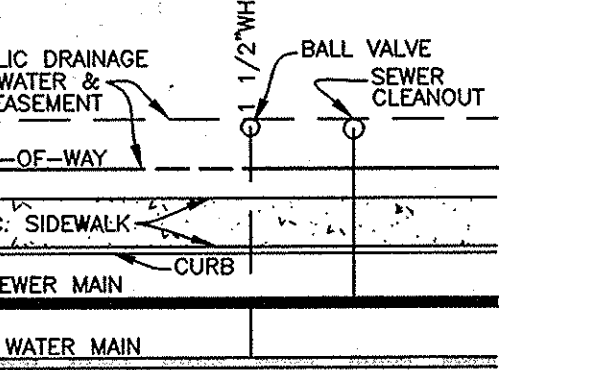
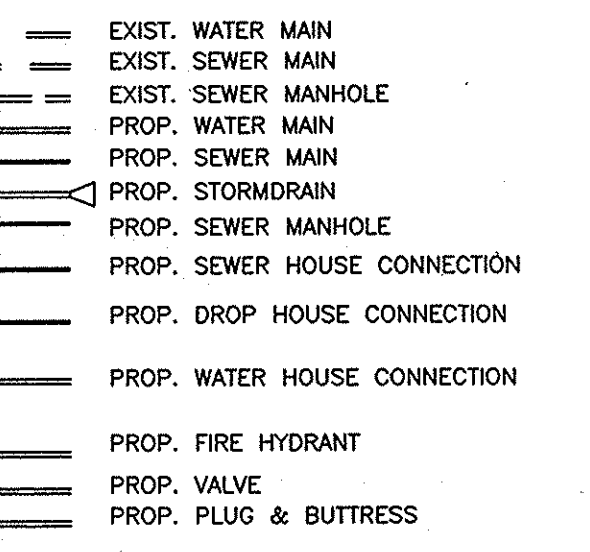
PART IV - WATER (CONT.)

- 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 PIT REQUIREMENTS NOTED IN SECTION 5.1 OF THE ANWA STANDARD CODE 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.
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BENCH MARKS-(NAD'83)

HO.CO. 41EC	ELEV. 430.34
STAMPED DISC SET ON TOP OF 3' DEEP COLUMN OF CONCRETE	
N 543,584.9040	E 1,342,628.7800
HO.CO. 41FA	ELEV. 407.60
STAMPED DISC SET ON TOP OF 3' DEEP COLUMN OF CONCRETE	
N 543,109.9350	E 1,344,797.5200
SHA CADD-175	ELEV. 360.05
N 544,840.9060	E 1,344,592.5480
SHA CADD-176	ELEV. 343.58
N 545,210.7590	E 1,344,786.9530

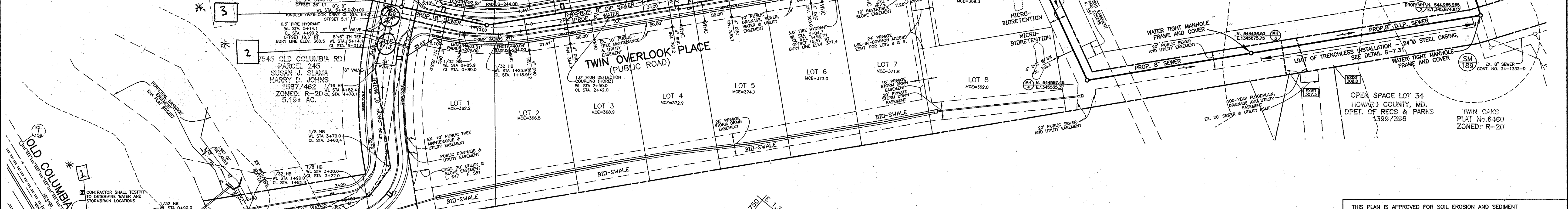
LEGEND:



QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
8" PVC WATER MAIN	1550 L.F.	1542 L.F.	C 305	NORTH AMERICAN PIPE
8" D.I.P. SEWER MAIN	484 L.F.	484 L.F.	DIP	GRLEPPON PIPE
12" D.I.P. SEWER MAIN	400 L.F.	400 L.F.	DIP	GRLEPPON PIPE
8" PVC SEWER MAIN	965 L.F.	74 L.F.	SDR 35	NORTH AMERICAN PIPE
FIRE HYDRANT	3 FA.	3		AMERICAN FLOW CONTROL
6" WATER VALVE	3 FA.	3	C 515	AMERICAN FLOW CONTROL
8" WATER VALVE	3 FA.	3	C 515	AMERICAN FLOW CONTROL
8" X 8" TEE	1 EA.	1		AMERICAN FLOW CONTROL
8" X 6" TEE	3 EA.	3	B 54	AMERICAN FLOW CONTROL
16" X 8" TSV	1 EA.	1		FARD
8" 1/8 BEND	2 EA.	2		AMERICAN FLOW CONTROL
8" 1/2 BEND	7 EA.	6		AMERICAN FLOW CONTROL
1 1/2" WHC	582 L.F.	64 L.F.		CAMBERLIN-LEZ
4" DRAIN	522 L.F.	523 L.F.	SDR 35	NORTH AMERICAN PIPE
8" PLUG AND BUTTRESS	2 EA.	2		ADOLCO
8" 1/8 BEND	1 EA.	1		
1 1/2" HIGH DEFLEC. COUPLING	7 EA.	7		CONTRACTOR PRECAST

NAME OF UTILITY CONTRACTOR: C.J. MILLER
 SURVEY AND DRAFTING DIVISION AS-BUILT DATE: 4-30-14



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

Professional Engineer
 M. K. Waddy, P.E.
 5/15/13

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLIOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644

75 THOMAS JOHNSON DRIVE SUITE 2 & FREDERICK, MARYLAND 21702
 301-710-5888

www.beg-civilengineering.com

DESIGN:	AAM
DRAFT:	AAM
CHK:	CAM
DATE:	5/13
BY:	NO.

REVISIONS

NO.	DATE	DESCRIPTION
3	6/8/14	REVISED WATER MAIN TO C900 PVC, ADJUST SEWER INVERTS
2	5/20/13	REVISED SHC AND MINIMUM CELLAR ELEVATIONS, STORM DRAIN CROSSINGS, STORM DRAIN AND FOREST CONSERVATION EASEMENTS. (BY SHEET SUBSTITUTION, THIS SHEET).

FINAL WATER AND SEWER PLAN

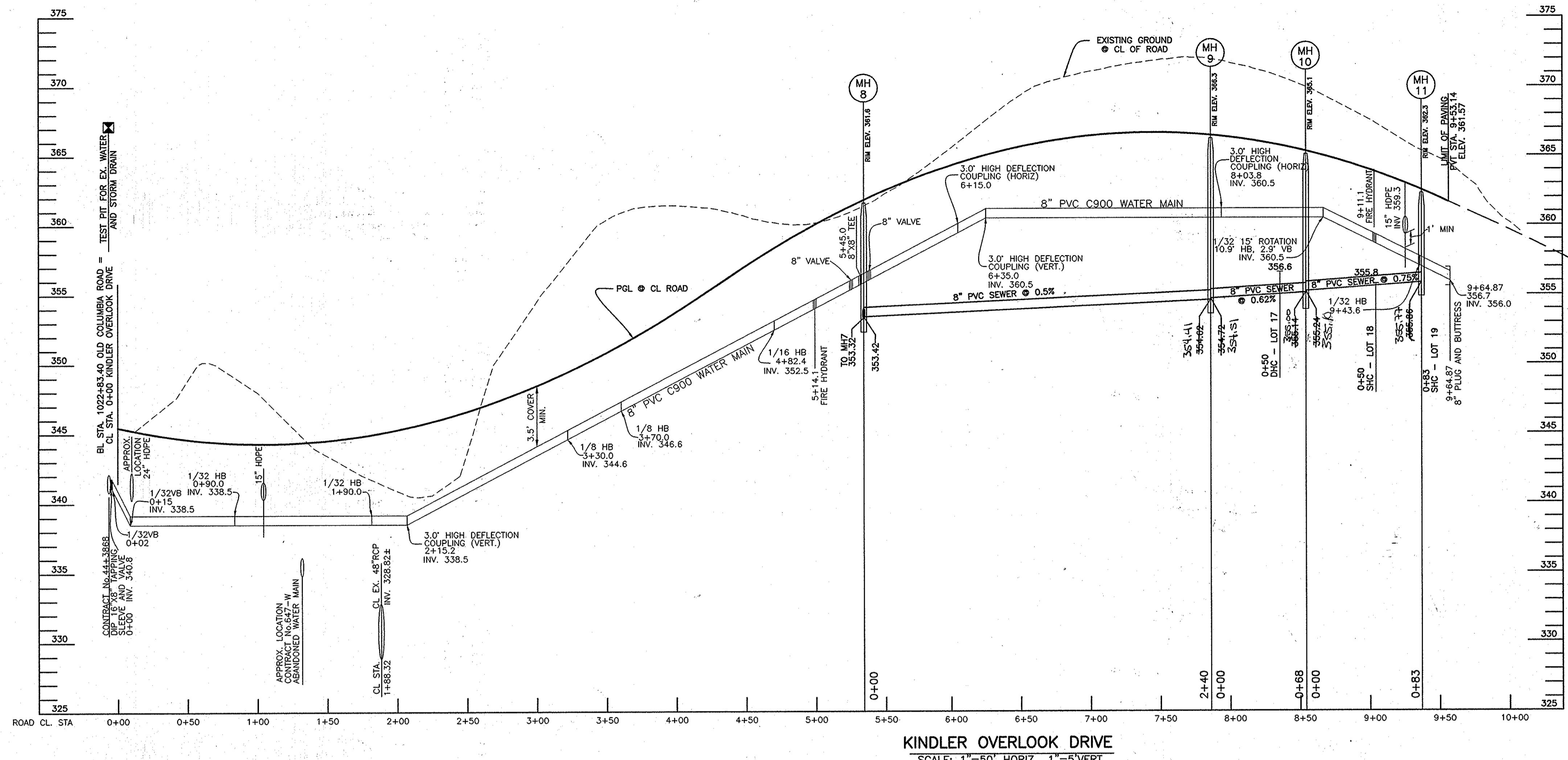
600 SCALE MAP NO. 41 BLOCK 18

KINDLER OVERLOOK
 LOTS 1-19 AND OPEN SPACE 20

TAX MAP: 41 PARCEL: 385, 395, P/O PARCEL 401
 GRID: 18
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

CONTRACT NO. 34-4090-D

SCALE: AS SHOWN
 SHEET NO. 1 OF 3



KINDLER OVERLOOK/34-4090-D

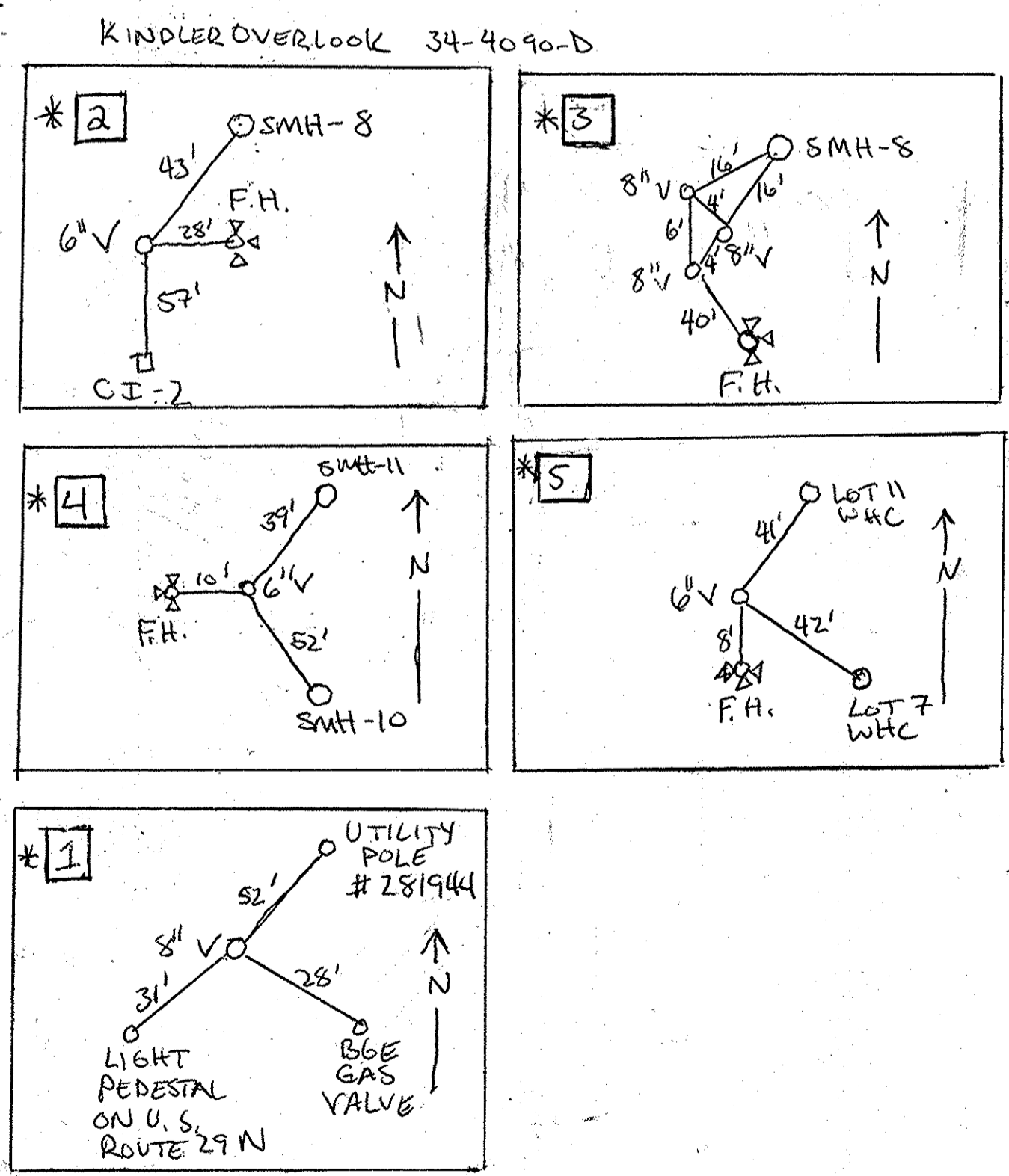
WATER HOUSE CONNECTIONS (WHC)

LOT NUMBER	MEASUREMENT 1	MEASUREMENT 2
1	43' To SMH-7	63' To Fire Hydrant
2	41' To SMH-7	30' To Lot 16 SHC
3	95' To SMH-6	75' To Lot 14 SHC
4	40' To SMH-6	27' To Lot 5 WHC
5	55' To SMH-6	27' To Lot 4 WHC
6	28' To Fire Hydrant	25' To Lot 7 WHC
7	38' To Fire Hydrant	25' To Lot 6 WHC
8	31' To I-5	47' To Lot 7 WHC
9	50' To I-5	24' To Lot 10 SHC
10	10' To I-4	29' To Lot 10 SHC
11	44' To Fire Hydrant	30' To Lot 11 SHC
12	31' To Fire Hydrant	25' To Lot 12 SHC
13	32' To SMH-6	21' To Lot 13 SHC
14	36' To SMH-6	19' To Lot 14 SHC
15	98' To SMH-7	17' To Lot 15 SHC
16	29' To SMH-7	24' To Lot 16 SHC
17	41' To SMH-10	17' To Lot 17 SHC
18	49' To SMH-10	11' To Lot 18 SHC
19	16' To SMH-11	61' To Fire Hydrant

SEWER HOUSE CONNECTIONS (SHC)

LOT NUMBER	MEASUREMENT 1	MEASUREMENT 2
1	64' To SMH-8	38' To Fire Hydrant
2	56' To SMH-7	22' To Lot 2 WHC
3	95' To SMH-7	27' To Lot 3 WHC
4	91' To Lot 4 WHC	9' To Lot 4 WHC
5	79' To SMH-6	31' To Lot 5 WHC
6	33' To Fire Hydrant	13' To Lot 6 WHC
7	13' To I-5	24' To Lot 7 WHC
8	41' To SMH-4	168' To Lot 9 SHC
9	74' To I-5	166' To Lot 8 WHC
10	38' To I-4	29' To Lot 10 WHC
11	64' To Fire Hydrant	36' To Lot 11 WHC
12	63' To Fire Hydrant	23' To Lot 12 WHC
13	59' To SMH-6	31' To Lot 13 WHC
14	52' To SMH-6	19' To Lot 14 WHC
15	82' To SMH-7	17' To Lot 15 WHC
16	40' To SMH-7	24' To Lot 16 WHC
17	38' To SMH-10	17' To Lot 17 WHC
18	59' To SMH-10	11' To Lot 18 WHC
19	17' To I-2	38' To Fire Hydrant

KINDLER OVERLOOK DRIVE
SCALE: 1"=50' HORIZ., 1"=5' VERT.



OWNER/DEVELOPER:
KINDLER INVESTMENTS LLC
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20723
410-792-2565

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. 22390, Expiration Date: 6-30-2013.

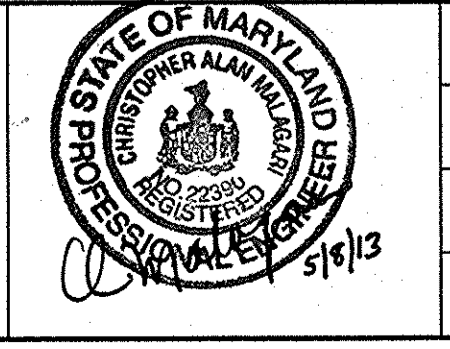
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

J. K. Webb R SC 5/15/2013
BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

M. D. ... 5/20/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21143
(7) 410-455-9105 (7) 410-455-6644
75 THOMAS JOHNSON DRIVE SUITE 2 FREDERICK, MARYLAND 21702
301-710-5888
WWW.BEI-CIVILENGINEERING.COM



DESIGN: MAN	
DRAFT: MAN	
CHK: CAM	
DATE: 5/13	
BY NO.	
REVISIONS	
DATE	

FINAL
WATER AND SEWER PLAN

600 SCALE MAP NO. 41 BLOCK 18

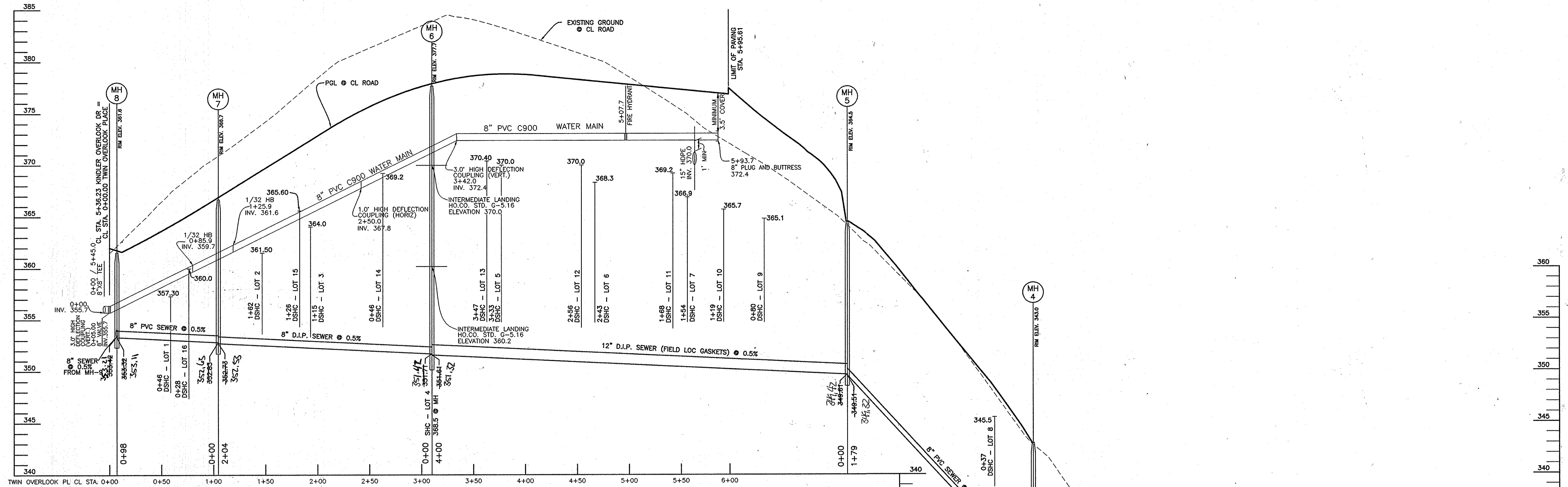
KINDLER OVERLOOK
LOTS 1-19 AND OPEN SPACE 20

TAX MAP: 41 PARCEL: 385, 395, P/O PARCEL 401
GRID: 18 ZONED: R-20
8th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

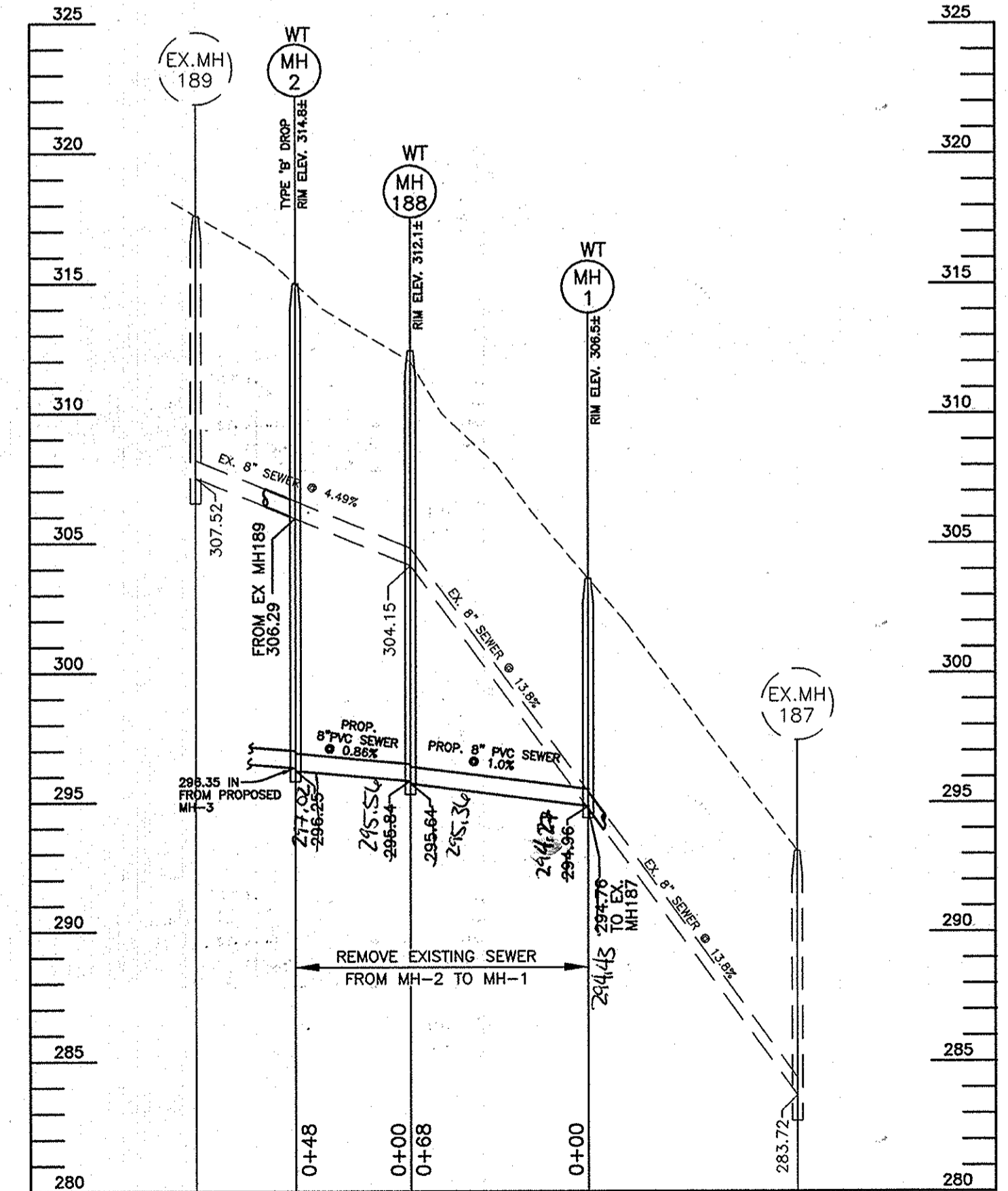
CONTRACT NO. **34-4090-D**

SCALE:
AS SHOWN

SHEET NO.
2 OF 3



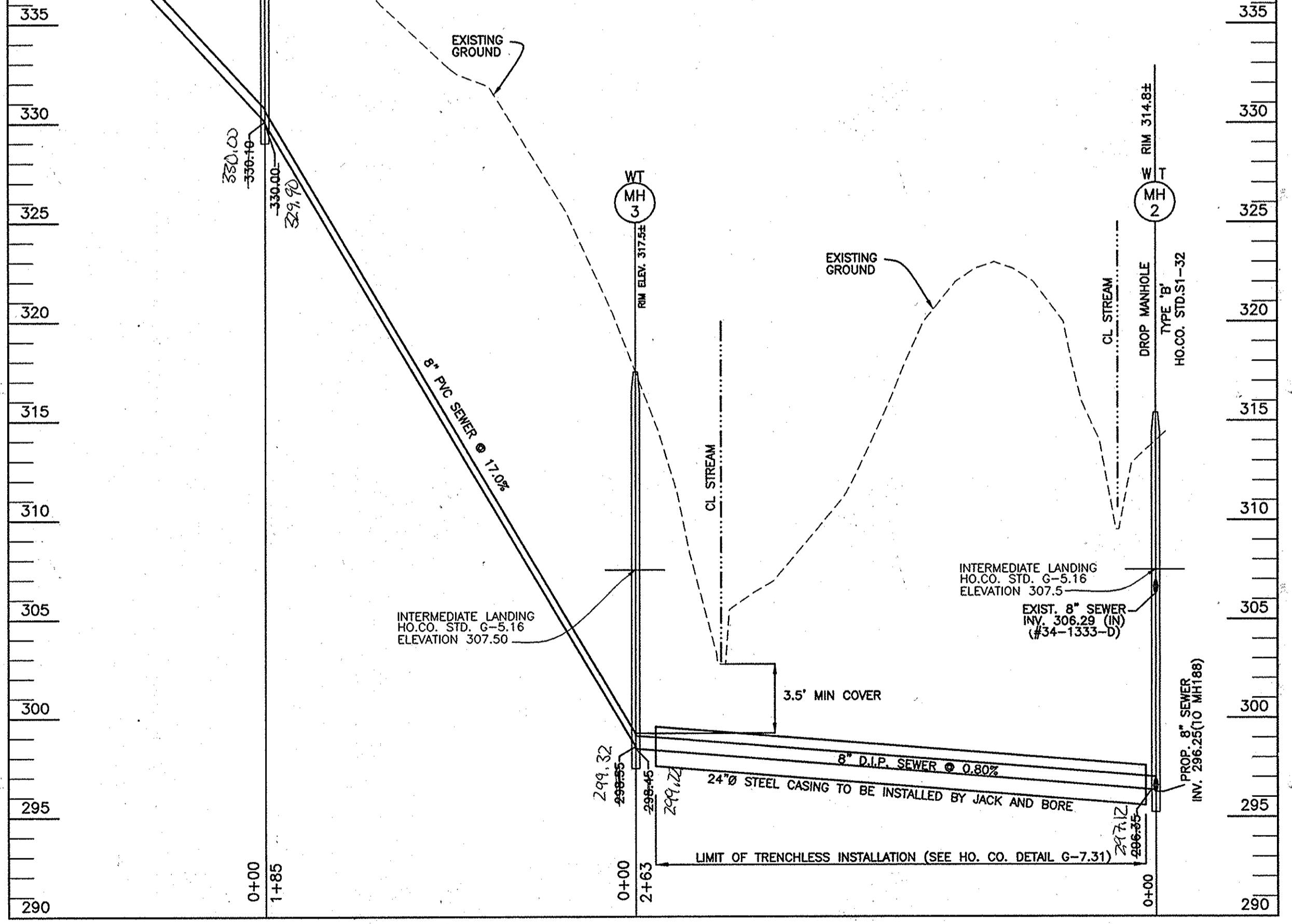
TWIN OVERLOOK PLACE WATER AND SEWER PROFILES
SCALE: 1"=50' HORIZ., 1"=5' VERT.



EXISTING SEWER REPLACEMENT MH2 - MH1
SCALE: 1"=50' HORIZ., 1"=5' VERT.

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. 22270
Expiration Date: 6-30-2013.

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9695 NORFOLK AVENUE
LAUREL, MARYLAND 20723
410-792-2565

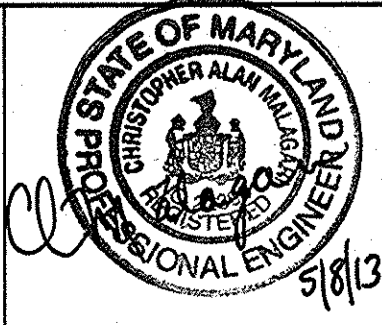


SEWER PROFILE
SCALE: 1"=50' HORIZ., 1"=5' VERT.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

BENCHMARK
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75 THOMAS JOHNSON DRIVE SUITE E & FREDERICK, MARYLAND 21702
301-710-5888
WWW.BE-ENR.ENGINEERING.COM



DESIGN: MAN			
DRAFT: MAN			
CHK: CAM	EEL 3	KCI AS-Built 6/3/14	
DATE: 5/13	AAM 2	5/2013 REVISE WATER MAIN TO C900 PVC, ADJUST SEWER PROFILE, ADD JACK & BORE.	
	EDD 1	REVISE SHC ELEVS. LOT 3,6,7,9,10&14, AND STORMDRAIN CROSSINGS 2/8/11	
	BY NO.	REVISIONS	DATE

FINAL
WATER AND SEWER PLAN
600 SCALE MAP NO. 41
BLOCK 18

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LOTS 1-19 AND OPEN SPACE 20
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3 OF 3