

WATER AND SEWER CONSTRUCTION PLANS for THE GROVE AT EMERSON

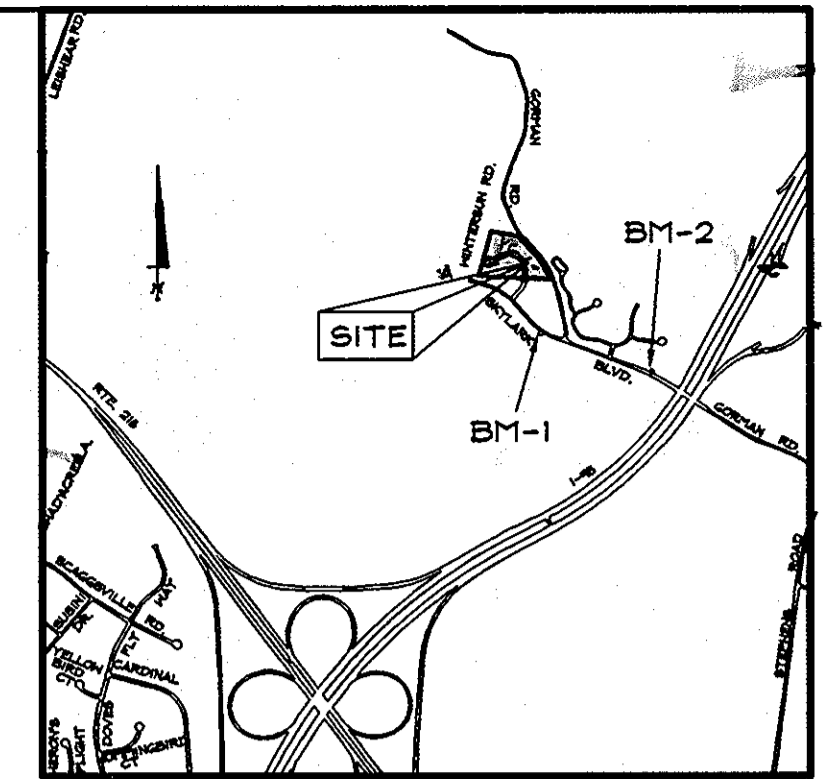
CONTRACT NUMBER 24-4387-D 6TH ELECTION DISTRICT HOWARD COUNTY, MD

BENCHMARK

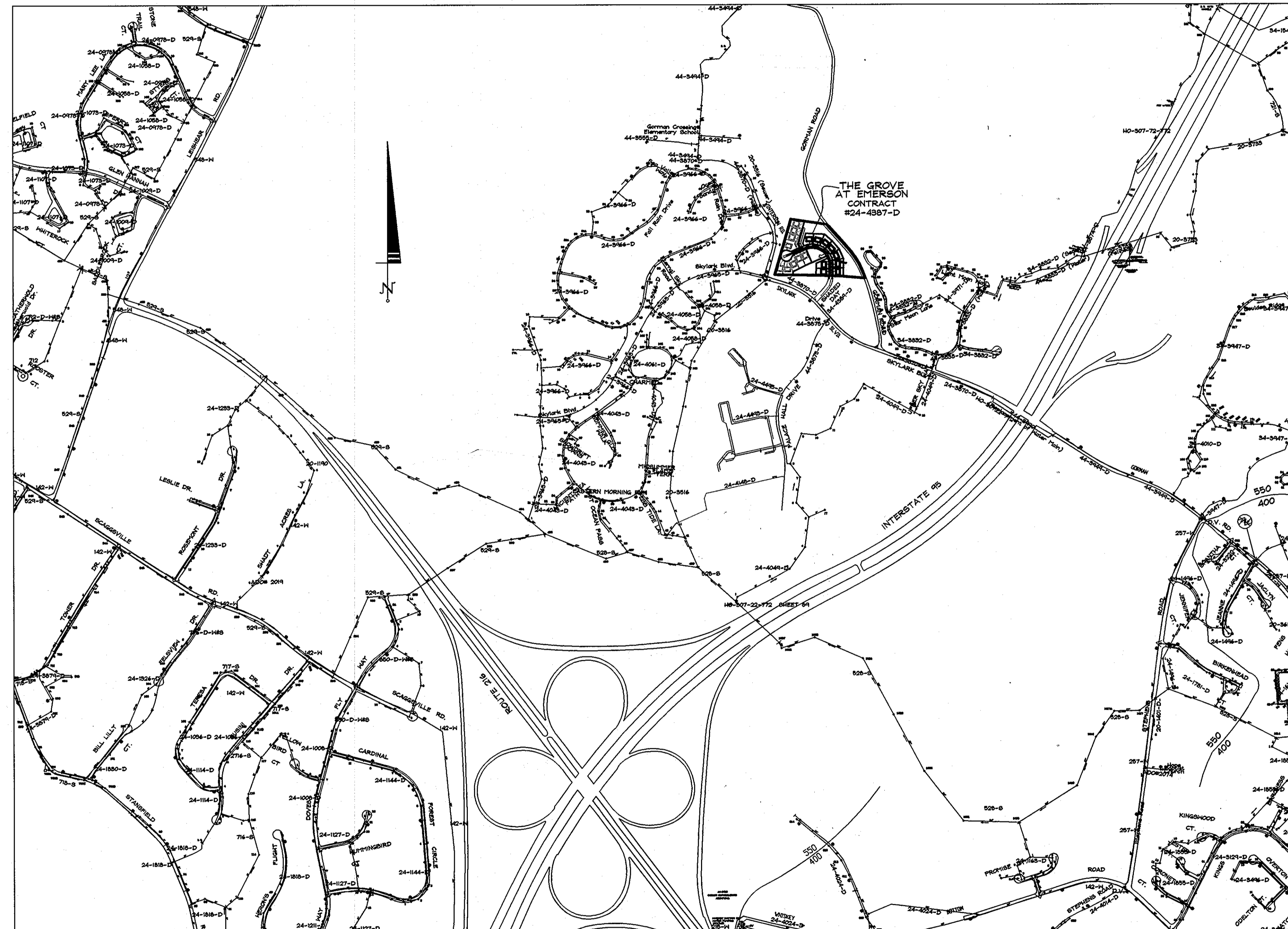
DESCRIPTION

BENCHMARK #1
N. 536615.0157
E. 1953679.1226
B.M. 47DC
ELEV. 343.244

BENCHMARK #2
N. 536212.7456
E. 1954833.6403
B.M. 47EB
ELEV. 354.296



VICINITY MAP
SCALE: 1"=2000'



GENERAL NOTES

- 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 on March, 2006 by Demario Design Consultants, Inc.
- 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. 47DC & 47EB.
- All vertical controls are based on NAVD '88.
- All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- 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 by 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 σ 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 working days before starting work shown on these plans:
AT & T: 1-800-252-1133
BGE (Construction Services): 410-850-4620
BGE (Emergency): 410-695-1400
Bureau of Utilities: 410-315-4900
Colonial Pipeline Company: 410-795-1390
Miss Utility: 1-800-257-7777
State Highway Administration: 410-531-5533
Verizon: 1-800-743-0093/410-224-9210
- 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 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.

WATER GENERAL NOTES

- All water mains to be D.I.P. Class 54 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.
- All water house connections shall be for inside meter setting unless otherwise noted on plans or in specifications.
- For sprinkler system for all town homes or multi-family dwelling units should have a minimum of 1" connection with a 3/4" meter.

SEWER GENERAL NOTES

- All sewer mains shall be DIP 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.

OWNER

HOWARD RESEARCH & DEVELOPMENT
10275 LITTLE PATUXENT PKWY
COLUMBIA, MD 21044
410-992-6000

DEVELOPER

GENERAL GROWTH PROPERTIES
10275 LITTLE PATUXENT PKWY
COLUMBIA, MD 21044
410-992-6000

DRAWING LEGEND

	BOUNDARY LINE
	EXISTING PROPERTY BOUNDARY
	EX. ROAD / EDGE OF PAVING
	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
	EX. OVERHEAD ELECTRIC & UTILITY POLES
	PROP. CURB & GUTTER
	PROPOSED ROAD CENTERLINE
	PROPOSED STORM DRAIN W/ INLETS & MANHOLE
	PROPOSED WATER LINE
	PROPOSED SEWER AND MANHOLES
	ROAD STATION

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON F-08-137.

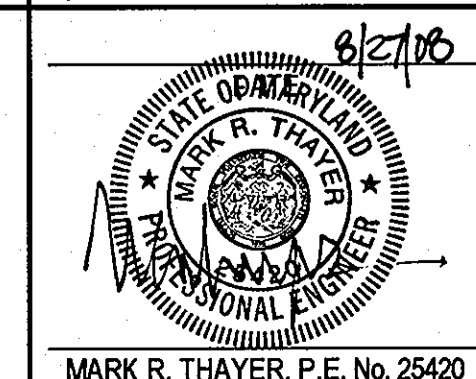
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson 10/16/08
HOWARD SOIL CONSERVATION DISTRICT DATE

WATER AND SEWER CODES

WATER NO.: E-15
SEWER NO.: 7390000
TEST GRADIENT: 700
ZONE: 550

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. 25420, Expiration Date: 7/29/10.



LOCATION PLAN

SCALE: 1"=600'

TYPE OF BUILDING:	RESIDENTIAL
DRAINAGE AREA:	LITTLE PATUXENT
TREATMENT PLANT:	LITTLE PATUXENT WASTE WATER TREATMENT PLANT
NUMBER OF BUILDABLE LOTS:	19
NUMBER OF SHC:	19
NUMBER OF WHC:	19

1	COVER SHEET
2	WATER AND SEWER PLAN
3	WATER AND SEWER PROFILE

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		SUPPLIER
		QUANTITIES	TYPE	
8" SEWER MAIN (DIP)	828	611	DIP CL 52	1/2 WATER SERVICE, INC./GRIFIN
SEWER MANHOLE (STD)	9	9	PRECAST	ATLANTIC CONCRETE PRODUCTS
SEWER DROP MANHOLE TYPE A	1	3	PRECAST	ATLANTIC CONCRETE PRODUCTS
SEWER DROP MANHOLE TYPE B	2	-	-	-
SEWER MANHOLE (vert. R.)	148	141.6	PRECAST	ATLANTIC CONCRETE PRODUCTS
4" SHC	8	8	PRECAST	1/2 WATER SERVICE, INC./PRISM
4" DHC TYPE A	1	1	PRECAST	1/2 WATER SERVICE, INC./PRISM
4" DHC TYPE B	10	-	-	-
8" WATER MAIN	608	606	DIP CL 54	1/2 WATER SERVICE, INC./GRIFIN
6" WATER MAIN	234	210	DIP CL 54	1/2 WATER SERVICE, INC./GRIFIN
8" TEE	3	3	DIP	1/2 WATER SERVICE, INC./GRIFIN
FIRE HYDRANT	2	2	1 1/2"	1/2 WATER SERVICE, INC./GRIFIN
1" WHC	19	19	COPPER	1/2 WATER SERVICE, INC./GRIFIN
8" SEWER MAIN (PVC)	-	120	SDR-35	1/2 WATER SERVICE, INC./GRIFIN
6" VALVE	-	1	GATE	1/2 WATER SERVICE, INC./GRIFIN
6" VALVE	-	3	GATE	1/2 WATER SERVICE, INC./GRIFIN

COVER SHEET

THE GROVE AT EMERSON

6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 24-4387-D

AS SHOWN

SHEET 1 OF 3

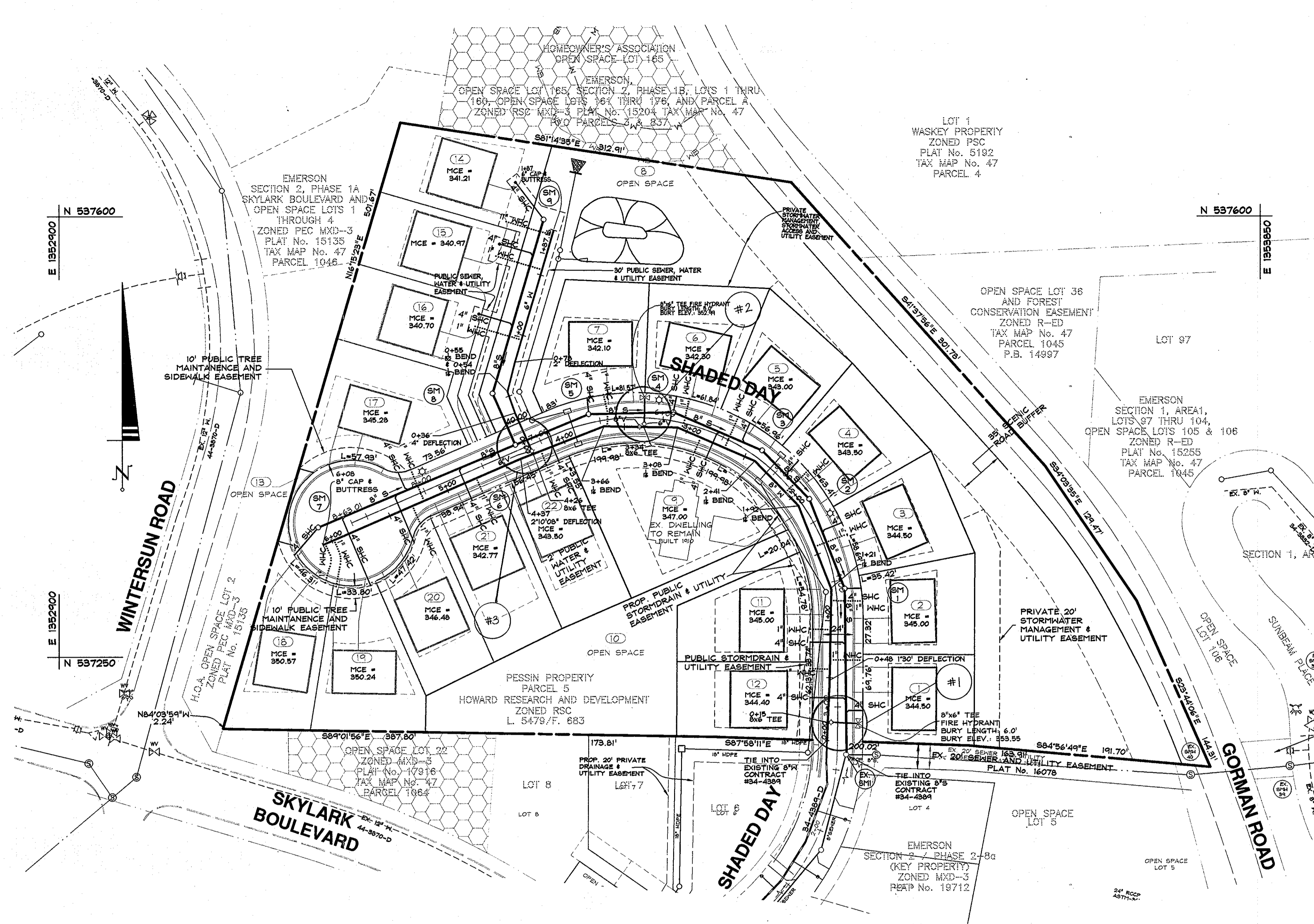
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
John C. Green 10/16/08
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
John C. Green 10/20/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

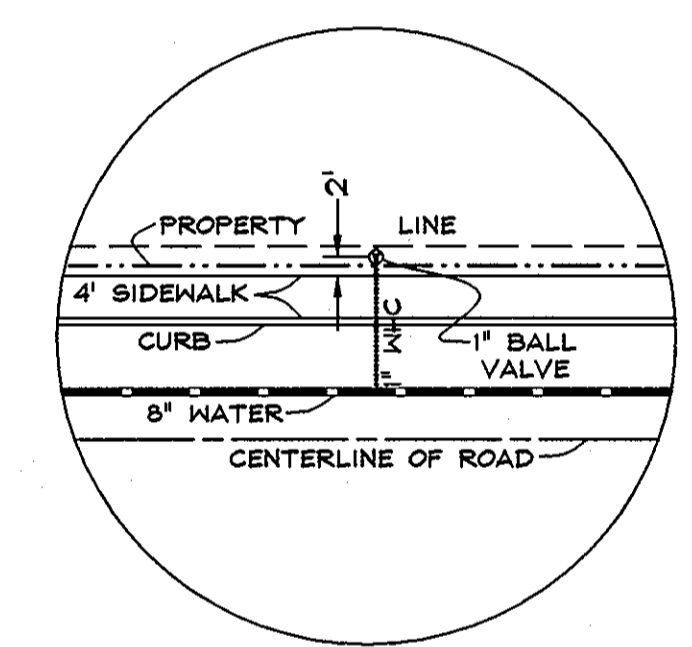
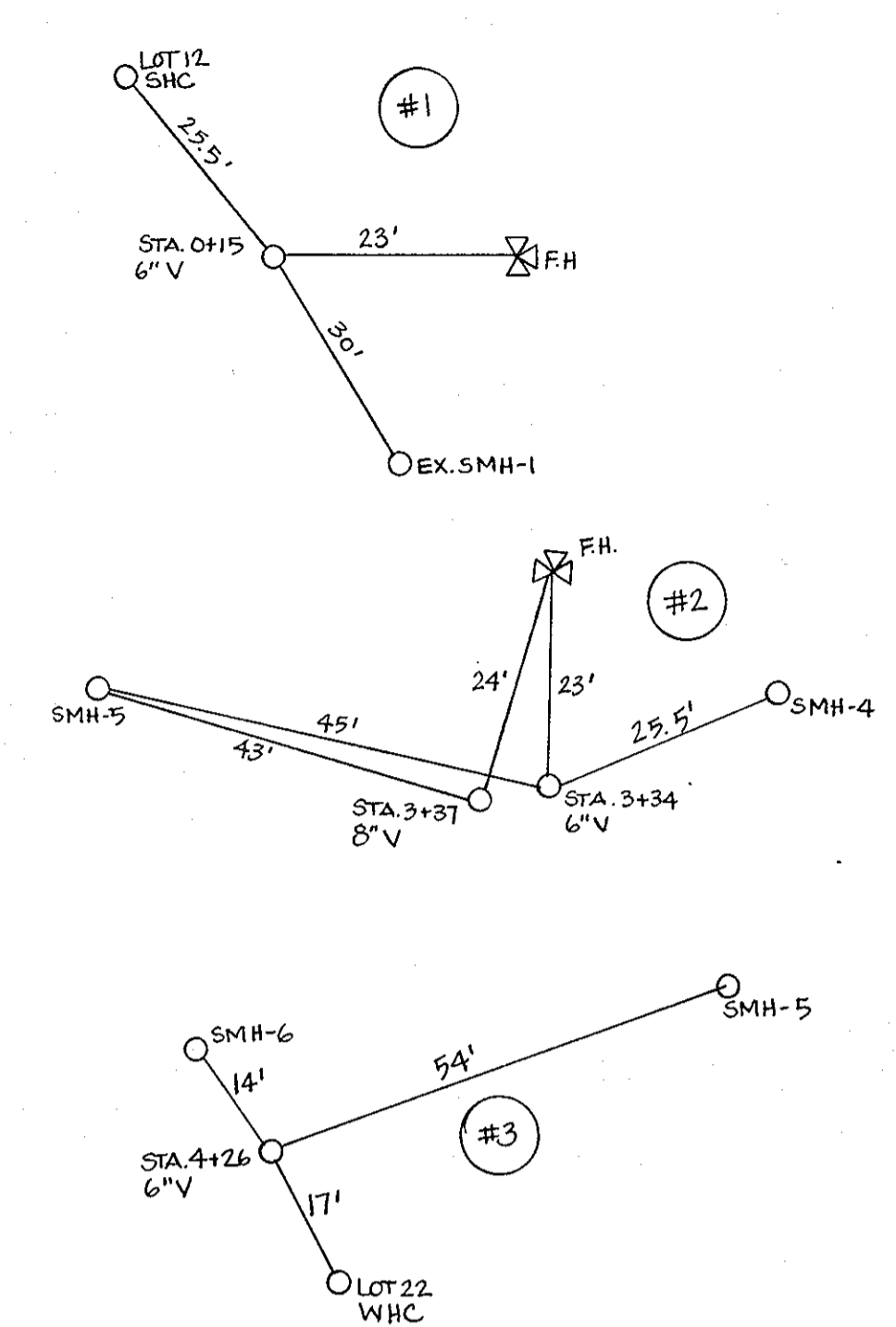
DeMario
DESIGN CONSULTANTS
ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS
192 East Main Street
Westminster, MD 21157
Phone: (410) 386-0560
Fax: (410) 386-0564
eMail: dco@demariodesign.com

DES. BY: LJC			
DRN. BY: LJC			
CHK. BY: JCO			
JOB# 05123.2	AS-BUILT REVISIONS	K.C.I.	2-23-11
DATE: 08.26.08	NO.	REVISIONS	DRN. DATE

600 SCALE MAP NO.: 47 BLOCK NO.: 8



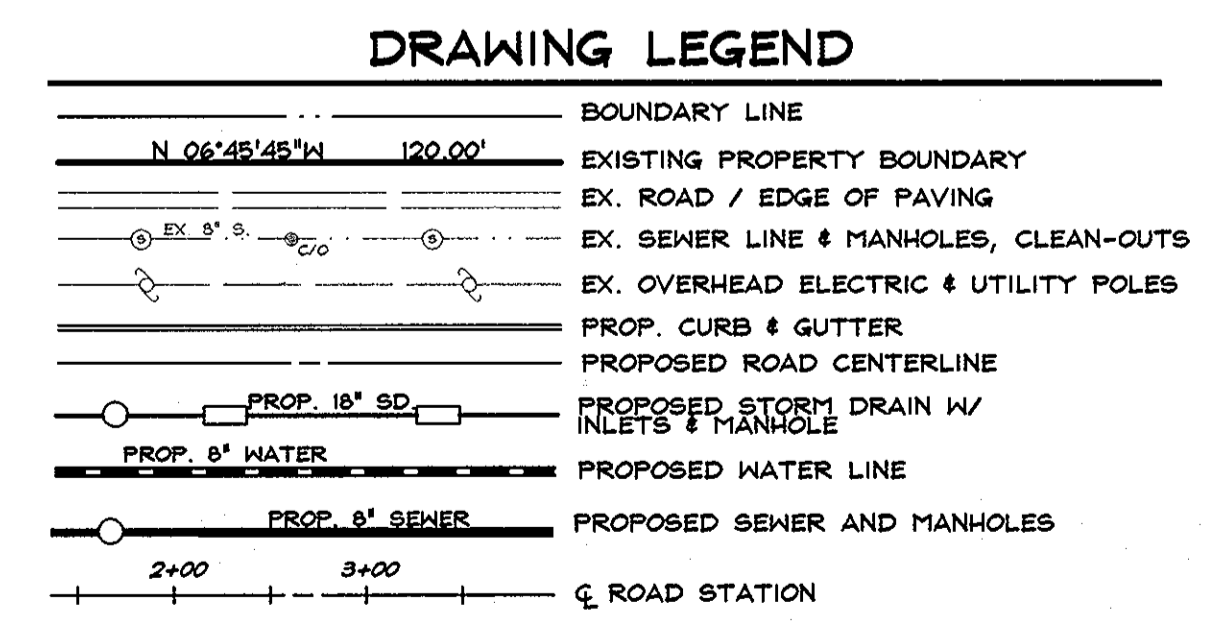
A5-BUILT DATA



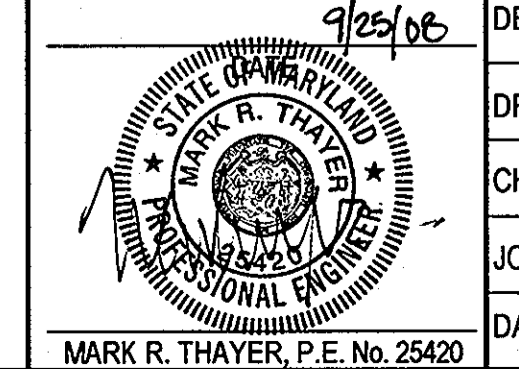
1" BALL VALVE PLACEMENT DETAIL
NTS

SEWER HOUSE CONNECTION CHART						
LOT #	SHC/DHC	LOCATION	INV @ MAIN	INV @ R/W (C/O)	INV @ HOUSE	MCE
1	DHC TYPE B	0+36	341.26	341.54	342.00	344.50
2	DHC TYPE B	0+36	341.78	342.04	342.50	345.00
3	DHC TYPE B	0+44	341.22	341.56	342.00	344.50
4	DHC TYPE B	0+27	340.28	340.58	341.00	343.50
5	DHC TYPE B	0+18	334.70	340.02	340.50	343.00
6	DHC TYPE B	0+314	339.14	339.38	339.80	342.30
7	DHC TYPE A	0+38	338.84	339.10	339.60	342.10
9	DHC TYPE B	0+38	343.60	344.06	344.50	347.00
11	DHC TYPE B	0+84	341.52	341.08	342.50	345.00
12	DHC TYPE B	0+48	340.96	341.54	341.00	344.00
14	SHC	0+39	337.71	338.45	338.87	341.37
15	SHC	1+15	337.41	337.97	338.47	340.97
16	SHC	0+57	337.12	337.68	338.20	340.70
17	SHC	0+44	341.88	342.20	342.78	345.28
18	SHC	0+317	342.33	346.91	348.13	352.63
19	SHC	1+44	345.02	346.20	347.24	349.74
20	SHC	1+04	342.46	343.28	343.98	346.48
21	SHC	0+44	339.81	339.87	340.27	342.77
22	DHC TYPE B	0+36	340.08	340.64	341.00	343.50

STRUCTURE SCHEDULE						
STRUCTURE	TYPE	DETAIL	INV. IN	INV. OUT	RIM ELEV.	LOCATION
SM 1	4' DROP MANHOLE TYPE B	G-5.12	334.16	334.06	354.65	3+49.22, 7.00' R
SM 2	4' MANHOLE	G-5.12	334.64	334.54	335.93	4+47.25, 7.00' R
SM 3	4' MANHOLE	G-5.12	335.01	334.91	353.42	5+18.88, 7.00' R
SM 4	4' DROP MANHOLE TYPE B	G-5.12	335.49	335.39	352.67	5+42.92, 7.00' R
SM 5	4' DROP MANHOLE TYPE A	G-5.12	335.93	335.83	352.03	6+57.64, 7.00' R
SM 6	4' MANHOLE	G-5.12	336.34/336.34	336.24	352.60	7+14.45, 4.87' R
SM 7	4' MANHOLE	G-5.12	346.00	334.29	334.29	N 537353 E 1353105
SM 8	4' MANHOLE	G-5.12	336.66	336.56	351.42	N 537460 E 1353243
SM 9	4' MANHOLE	G-5.12	-	337.38	342.50	N 537598 E 1353283
EX SM 1	EX. 4' MANHOLE	-	335.40	335.30	352.31	2+62.57, 7.00' R



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. 25420, Expiration Date: 7/20/10.



DES. BY:	LJC
DRN. BY:	LJC
CHK. BY:	JCO
JOB#:	05123.2
DATE:	08.26.08
NO.	AS-BUILT REVISIONS
REVISIONS	KCI 2-23-11
DRN.	DATE

WATER AND SEWER PLAN

600 SCALE MAP NO.: 47 BLOCK NO.: 8

THE GROVE AT EMERSON

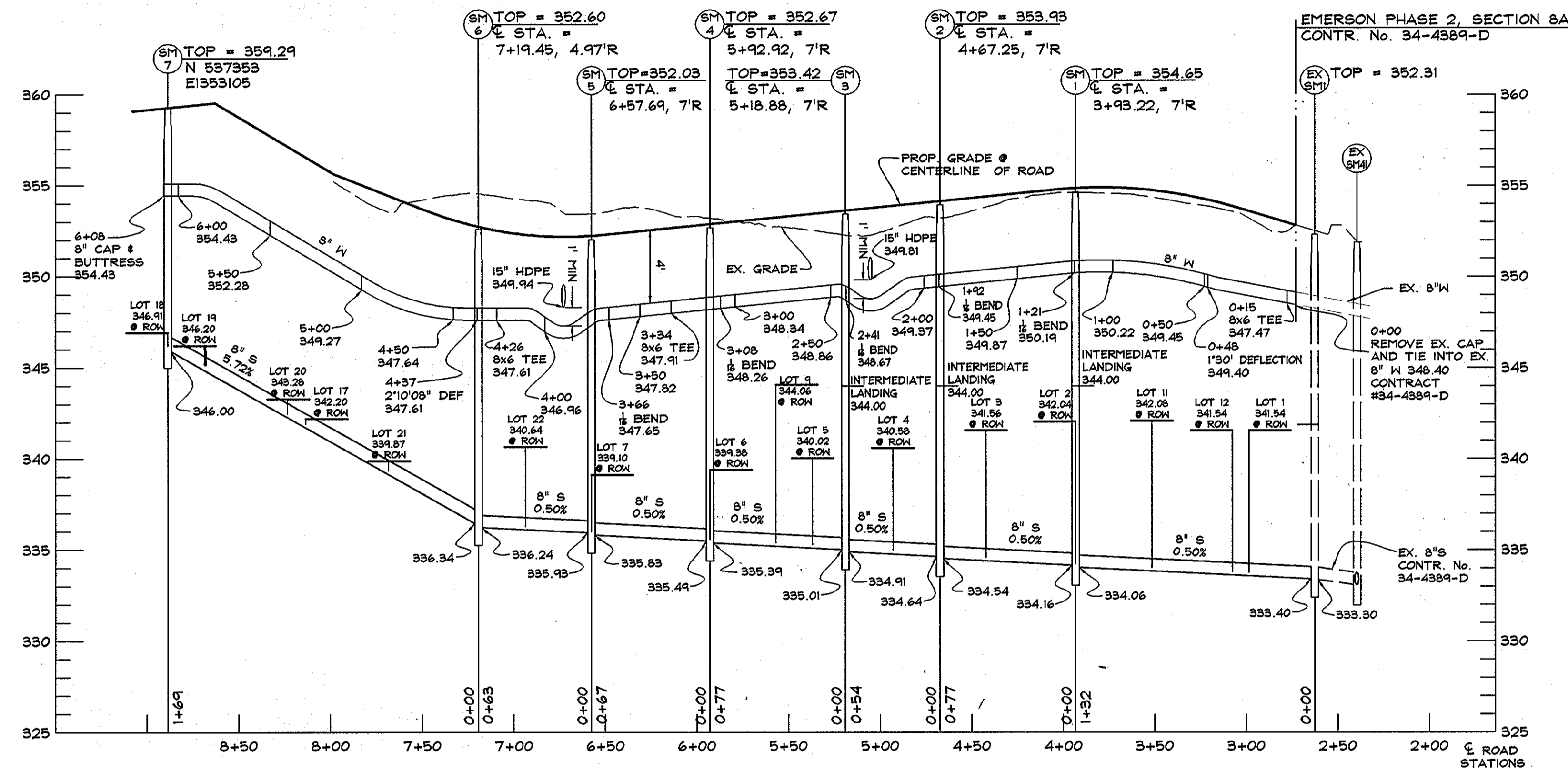
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1"=50'
SHEET
2 OF 3

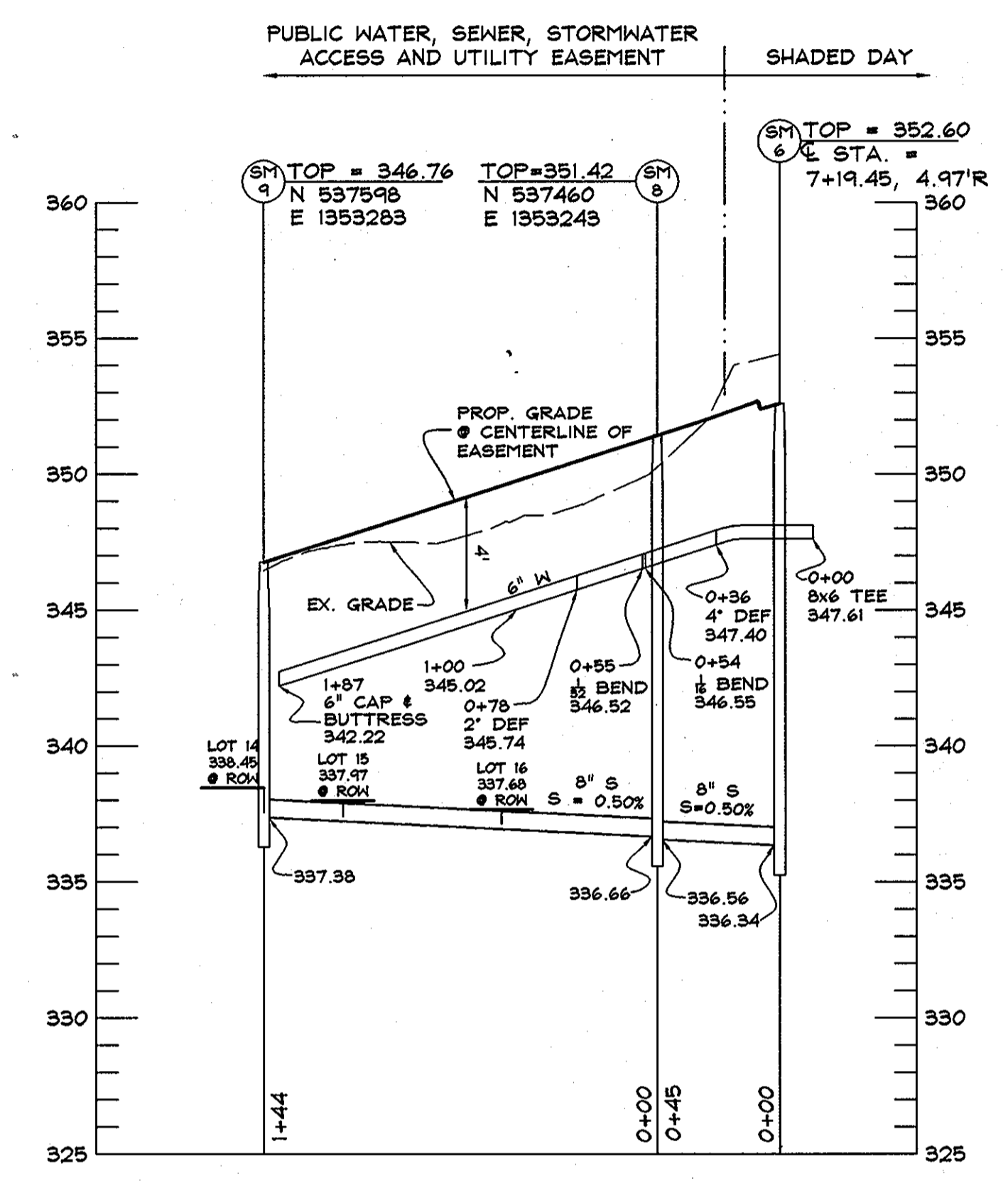
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SHADED DAY
WATER & SEWER PROFILE
SCALE - HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



WATER & SEWER PROFILE
SCALE - HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

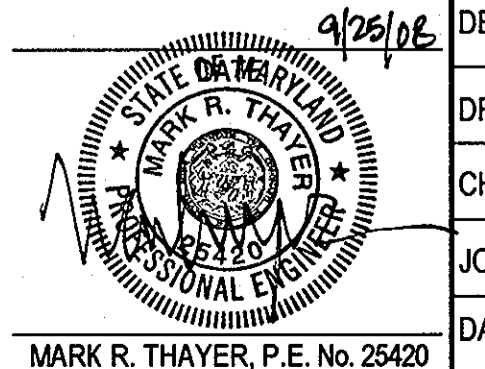
SEWER AS-BUILT DATA

LOT #	MEASUREMENT 1	MEASUREMENT 2	MEASUREMENT 3
1	12.5' TO F.H.	48' TO LOT 12 SHC	40' TO LOT 1 WHC
2	11' TO LOT 2 WHC	16' TO SMH-1	63.5' TO LOT 11 SHC
3	11.5' TO LOT 3 WHC	50' TO LOT 4 WHC	32' TO SMH-2
4	11.5' TO LOT 4 WHC	28' TO SMH-3	48.5' TO LOT 5 SHC
5	48.5' TO LOT 4 SHC	10' TO LOT 5 WHC	49' TO LOT 9 SHC
6	10' TO LOT 6 WHC	49' TO LOT 9 WHC	26.5' TO F.H.
7	8' TO LOT 7 WHC	18' TO SMH-5	24' TO INLET-4
9	49' TO LOT 5 SHC	16.5' TO LOT 9 WHC	48' TO SMH-3
11	19.5' TO LOT 12 WHC	12.5' TO LOT 11 WHC	53' TO SMH-1
12	24.5' TO LOT 12 WHC	45' TO F.H.	55' TO LOT 1 WHC
14	38' TO SMH-9	32' TO LOT 14 WHC	
15	41' TO SMH-9	17.5' TO LOT 14 WHC	11.5' TO LOT 15 WHC
16	48.5' TO LOT 15 WHC	10' TO LOT 16 WHC	
17	9' TO LOT 17 WHC	61.5' TO LOT 20 SHC	79' TO SMH-7
18	30' TO SMH-7	34.5' TO LOT 18 WHC	
19	65' TO SMH-7	28' TO LOT 19 WHC	48.5' TO LOT 20 SHC
20	61.5' TO LOT 17 SHC	48.5' TO LOT 19 SHC	15' TO LOT 20 WHC
21	46.5' TO LOT 20 WHC	59' TO LOT 17 WHC	9.5' TO LOT 21 WHC
22	10' TO LOT 22 WHC	38' TO SMH-6	45' TO SMH-5

WATER AS-BUILT DATA

LOT #	MEASUREMENT 1	MEASUREMENT 2	MEASUREMENT 3
1	40' TO LOT 1 SHC	50' TO LOT 11 WHC	55' TO LOT 12 SHC
2	11' TO LOT 2 SHC	19.5' TO SMH-1	49' TO LOT 11 WHC
3	11.5' TO LOT 3 SHC	42.5' TO SMH-2	82' TO LOT 11 WHC
4	50' TO LOT 3 SHC	23.5' TO SMH-2	11.5' TO LOT 4 SHC
5	10' TO LOT 5 SHC	47' TO LOT 9 SHC	42.5' TO LOT 6 WHC
6	42.5' TO LOT 5 WHC	10' TO LOT 6 SHC	45.5' TO LOT 9 WHC
7	33' TO F.H.	8' TO LOT 7 SHC	22' TO SMH-5
9	45.5' TO LOT 6 WHC	16.5' TO LOT 9 SHC	55' TO F.H.
11	12.5' TO LOT 11 SHC	41.5' TO SMH-1	50' TO LOT 1 WHC
12	24.5' TO LOT 12 SHC	19.5' TO LOT 11 SHC	59.5' TO F.H.
14	17.5' TO LOT 15 SHC	33' TO SMH-7	32' TO LOT 14 SHC
15	51' TO SMH-9	11.5' TO LOT 15 SHC	46.5' TO LOT 16 SHC
16	10' TO LOT 16 SHC	56' TO SMH-8	
17	88' TO SMH-8	9' TO LOT 17 SHC	48' TO LOT 20 WHC
18	45' TO SMH-7	34.5' TO LOT 18 SHC	8' TO LOT 19 WHC
19	50' TO SMH-7	8' TO LOT 18 WHC	28' TO LOT 19 SHC
20	48' TO LOT 17 WHC	15' TO LOT 20 SHC	46.5' TO LOT 21 SHC
21	9.5' TO LOT 21 SHC	47.5' TO SMH-6	55.5' TO LOT 22 WHC
22	55.5' TO LOT 21 WHC	31' TO SMH-6	10' TO LOT 22 SHC

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. 25420, Expiration Date: 7/20/10



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WATER AND SEWER PROFILES
600 SCALE MAP NO.: 47 BLOCK NO.: 8

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6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 24-4387-D
SCALE AS SHOWN
SHEET 3 OF 3