PUBLIC WATER AND SEWER PLAN

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF OPEN SPACE LOTS 52-56; PHASE 2: LOTS 57-89; OPEN SPACE LOT 90-94; GOLF SPACE LOT 95 PODS 'F' AND PART OF 'H' SECTION IV : RESIDENTIAL PHASE IV D HOWARD COUNTY, MARYLAND

CONTRACT NO. #24-4671-D

QUANTITIES

NAME OF UTILITY CONTRACTOR:
SURVEY AND DRAFTING DIVISION AS-BUILT:

ITEMS	QUANTITIES ESTIMATED	AS-BUILT QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
6" D.I.P. WATER	4,284 LF			
1.5" WHC	1,959 LF			
8"x8" TEE & VALVE	5 EA			
16"x8" TS & VALVE	1 EA			
FIRE HYDRANT, TEE & VALVE	7 EA			
1/32 HB	1 EA			
1/8 HB	15 EA			
8" CAP & BUTRESS	3 EA			
8" VALVE	11 EA			
1" METER VAULT	81 EA			
8" PVC SEWER (SDR-35)	3170 LF			
8" PVC SEWER (C-900)	604 LF			
8" CAP (SEWER)	3 EA			
DROP MH CONNECTION (TYPE B)	1 EA			
SEWER MANHOLE	28 EA			
4" SHC	1,756 LF			
DROP HOUSE CONNECTION	18 EA			

BENCHMARKS

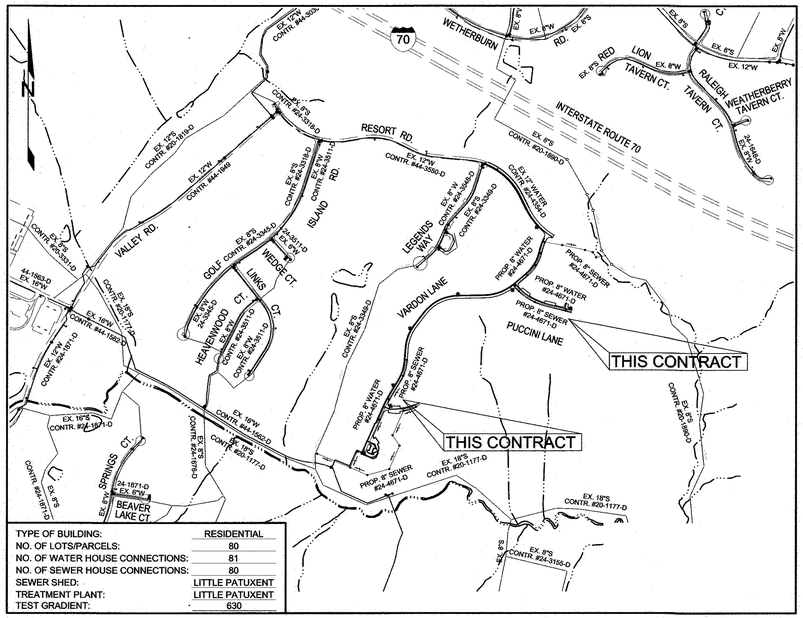
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
16IB	590,475.2538	1,344,753.9350	469.892	11.5' SOUTHWEST OF WBL RT. 40, 20.8' WEST OF PK NAIL IN SHOULDER, 66.4' SOUTH OF LAST POST IN GUARDRAIL
17AB	598,435.249	1,348,615.2482	508.469	SE OF INTERSECTION OF RTE. 99 AND WETHERBURN ROAD, 14.8' WEST OF FENCE POST, 35' NE OF MANHOLE

Lot Frontage Chart

Lot Number	Distance (feet)
1	39.29
2	30.01
3	30.07
4	39.12
5	39.00
6	30.00
7	30.00
8	39.06
9	39.01
10	30.00
11	30.00
12	39.00
13	39.00
14	30.00
15	30.00
16	39.00
17	39.00
18	30.00
19	30.00
20	39.00
21	39.00
22	30.00
23	30.00
24	39.00
25	39.00
26	30.00
27	30.00
28	30.00
29	37.36
30	41.00
31	30.00
32	30.00
33	30.00
34	39.00
35	27.30
36	30.01
37	31.67
38	43.00
39	30.00
40	30.00
41	30.00
42	37.00
43	37.36
44	30.04
45	30.03
46	30.21
47	43.78

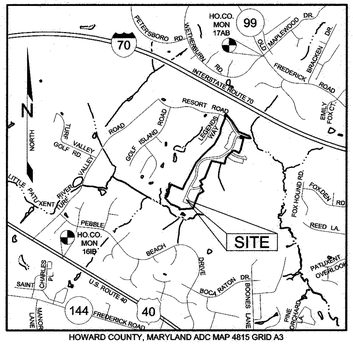
Lot Frontage Chart

Lot Number	Distance (feet)
57	35.45
58	30.08
59	30.00
60	35.00
61	35.20
62	30.01
63	35.19
64	35.00
65	30.00
66	30.00
67	35.00
68	37.50
69	30.00
70	30.04
71	37.88
72	35.08
73	30.02
74	35.24
75	35.14
76	30.00
77	35.00
78	38.64
79	30.00
80	38.08
81	38.09
82	30.01
83	38.09
84	38.18
85	30.02
86	38.00
87	38.00
88	30.00
89	38.00



TYPE OF BUILDING:	RESIDENTIAL
NO. OF LOTS/PARCELS:	80
NO. OF WATER HOUSE CONNECTIONS:	81
NO. OF SEWER HOUSE CONNECTIONS:	80
SEWER SHED:	LITTLE PATUXENT
TREATMENT PLANT:	LITTLE PATUXENT
TEST GRADIENT:	630

LOCATION PLAN
SCALE: 1"=600'



HOWARD COUNTY, MARYLAND ADC MAP 4815 GRID A3

VICINITY MAP
SCALE: 1"=2000'

LEGEND

- EXIST. WATER MAIN
- EXIST. SEWER MAIN
- EXIST. SEWER MANHOLE
- EXIST. STORM DRAIN
- PROP. STORM DRAIN
- PROP. WATER MAIN
- PROP. SEWER MAIN
- PROP. SEWER MANHOLE
- PROP. TERMINAL MANHOLE
- SHC — PROP. SEWER HOUSE CONNECTIONS
- PROP. WATER HOUSE CONNECTION
- PROP. FIRE HYDRANT
- PROP. VALVE
- PROP. PLUG & BUTTRESS

NOTE:
ALL WATER HOUSE CONNECTIONS SHALL BE 1.5" WITH A 1" METER (OUTSIDE SETTING).

ALL SEWER HOUSE CONNECTIONS SHALL BE 4" PVC.

SHEET INDEX

NO.	DESCRIPTION
1	COVER SHEET
2	WATER AND SEWER PLAN
3	WATER AND SEWER PLAN
4	WATER PROFILES
5	WATER PROFILES
6	SEWER PROFILES
7	SEWER PROFILES & STREAM CROSSING DETAILS

GENERAL NOTES

PART I

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 JANUARY, 2006 BY WINGS AERIAL MAPPING CO., INC.

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. 0012 AND NO. 16E1.

ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 0012 AND 16E1.

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 (CONTRACTOR 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 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 II WATER

1. ALL WATER MAINS TO 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 THE 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 WIRE 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 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 INSERTIONLINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE HE 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 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 COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 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 $\frac{1}{2}$ 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 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTEED 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.

12. WHEN PVC HIGH DEFLECTION 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 DEVICESFOR 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 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.

PART III 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 CS.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 CELLAR CANNOT BE SERVED.

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 6/23/16

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-07-158.

THIS SHEET REPLACES THE PREVIOUS SHEET 1 SIGNED ON 12-7-2010

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. 22590, Expiration Date: 6-30-2017.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/24/16

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.1.16

BENCHMARK
ENGINEERS • LAND SURVEYORS • PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE • SUITE 315 • ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — CHRISTOPHER ALAN MULBERRY — PROFESSIONAL ENGINEER — 6/1/16

DES:	DBT
DRAFT:	DBT
CHK:	CAM
DATE:	5/2016

BY	NO.	REVISIONS	DATE
BEI	4	UPDATE PVC SEWER LF IN QUANTITIES CHART	10-6-2016
BEI	3	UPDATE GENERAL NOTES TO LATEST EDITION. UPDATE QUANTITY CHART AND TITLE BLOCK. ADD LOT FRONTAGE CHART. ADD ALL WATER AND SEWER ALONG VARDON LANE TO THIS CONTRACT.	5-24-2016
BEI	2	UPDATE SEWER PIPE AND MH QUANTITIES	10-13-2015
SAA	1	REVISED QUANTITIES BOX	6-21-2010

COVER SHEET

600 SCALE MAP #16 — BLOCK: 16

FAIRWAYS AT TURF VALLEY
PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56; PHASE 2: LOTS 57-89; OPEN SPACE LOTS 91-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

TAX MAP: 16 – BLOCK: 16 – PARCEL: P/O 8 AND 706 – ZONED: PGCC – ELECTION DISTRICT: 2

CONTRACT NO. 24-4671-D

SCALE: AS SHOWN

SHEET NO. 1 OF 7

J:\2726 Fairways at Turf Valley\dwg\Phase 1\24-4671.dwg, 6/1/2016 2:44:41 PM

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
57	VARDON LANE		
58	VARDON LANE		
59	VARDON LANE		
60	VARDON LANE		
61	VARDON LANE		
62	VARDON LANE		
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65	VARDON LANE		
66	VARDON LANE		
67	VARDON LANE		
68	VARDON LANE		
69	VARDON LANE		
70	VARDON LANE		
71	VARDON LANE		
72	VARDON LANE		
73	VARDON LANE		
74	VARDON LANE		
75	VARDON LANE		
76	VARDON LANE		
77	VARDON LANE		
78	PUCCINI LANE		
79	PUCCINI LANE		
80	PUCCINI LANE		
81	PUCCINI LANE		
82	PUCCINI LANE		
83	PUCCINI LANE		
84	PUCCINI LANE		
85	PUCCINI LANE		
86	PUCCINI LANE		
87	PUCCINI LANE		
88	PUCCINI LANE		
89	PUCCINI LANE		

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
57	VARDON LANE		
58	VARDON LANE		
59	VARDON LANE		
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73	VARDON LANE		
74	VARDON LANE		
75	VARDON LANE		
76	VARDON LANE		
77	VARDON LANE		
78	PUCCINI LANE		
79	PUCCINI LANE		
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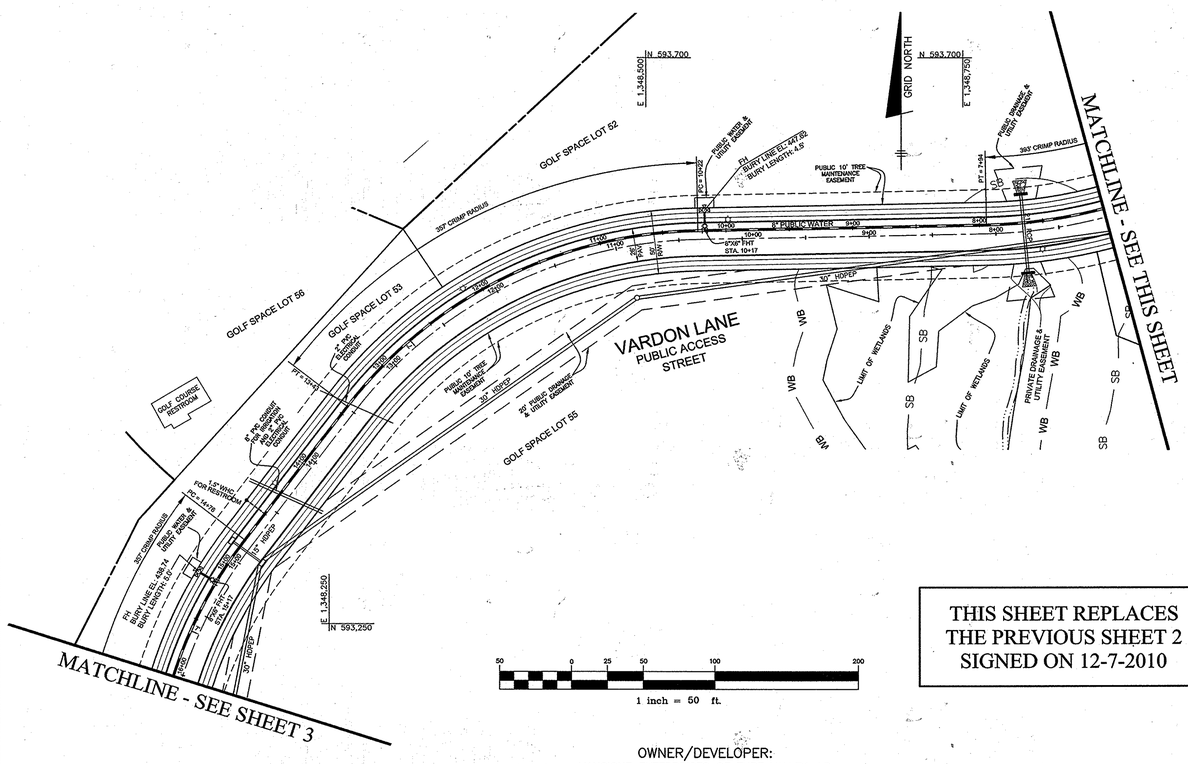

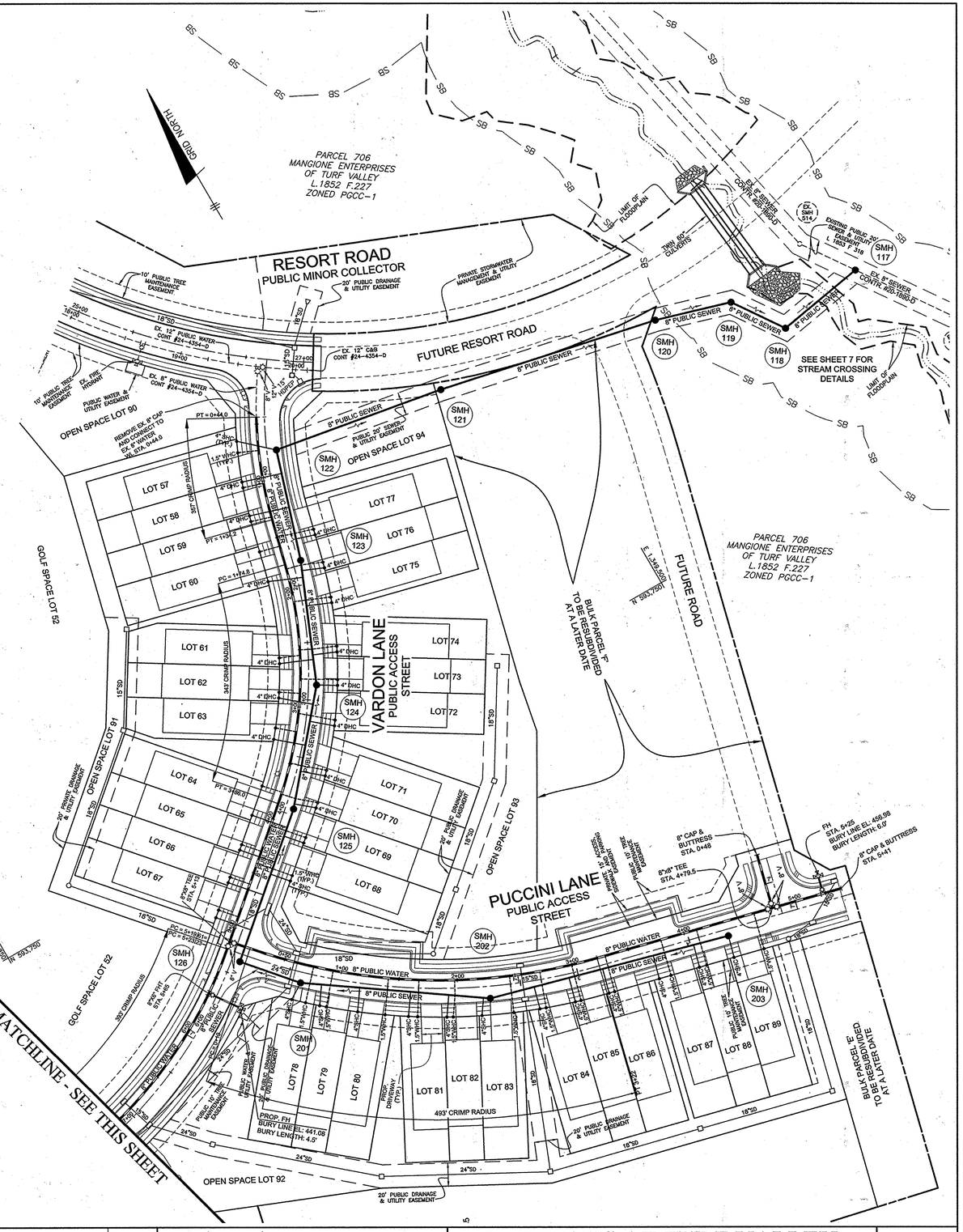

THIS SHEET REPLACES
THE PREVIOUS SHEET 2
SIGNED ON 12-7-2010

1 inch = 50 ft.

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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: 6-30-2017.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

6/14/16
CHIEF, BUREAU OF UTILITIES — DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

7.1.16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — CHRISTOPHER ALAN MILLIGAN — No. 22390 — PROFESSIONAL ENGINEER
6/1/16

DES:	DBT
DRAFT:	DBT
CHK:	CAM
DATE:	5/2016

BY	NO.	REVISIONS	DATE
BEI	3	ADD WATER AND SEWER ALONG VARDON LANE TO THIS CONTRACT. SHOW LOTS 57-77 ADN HOUSE CONNECTIONS. ADD WHC FOR GOLF COURSE RESTROOM. ADD CONDUITS VARDON LANE STA 13+40 & 14+40.	5-24-2016
BEI	2	REVISE SEWER PROFILE FROM SMH 117 TO SMH 119, UPDATE STREAM DIVERSION PLAN AND STRUCTURE SCHEDULE.	10-13-2015
SAA	1	ADDED SHC's TO PROFILE	6-21-2010

WATER AND SEWER PLAN

600 SCALE MAP #16 — BLOCK: 16

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56;
PHASE 2: LOTS 57-89; OPEN SPACE LOTS 90-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

TAX MAP: 16 – BLOCK: 16 – PARCEL: P/O 8 AND 706 – ZONED: PGCC – ELECTION DISTRICT: 2

CONTRACT NO. 24-4671-D

SCALE: AS SHOWN

SHEET NO. 2 OF 7

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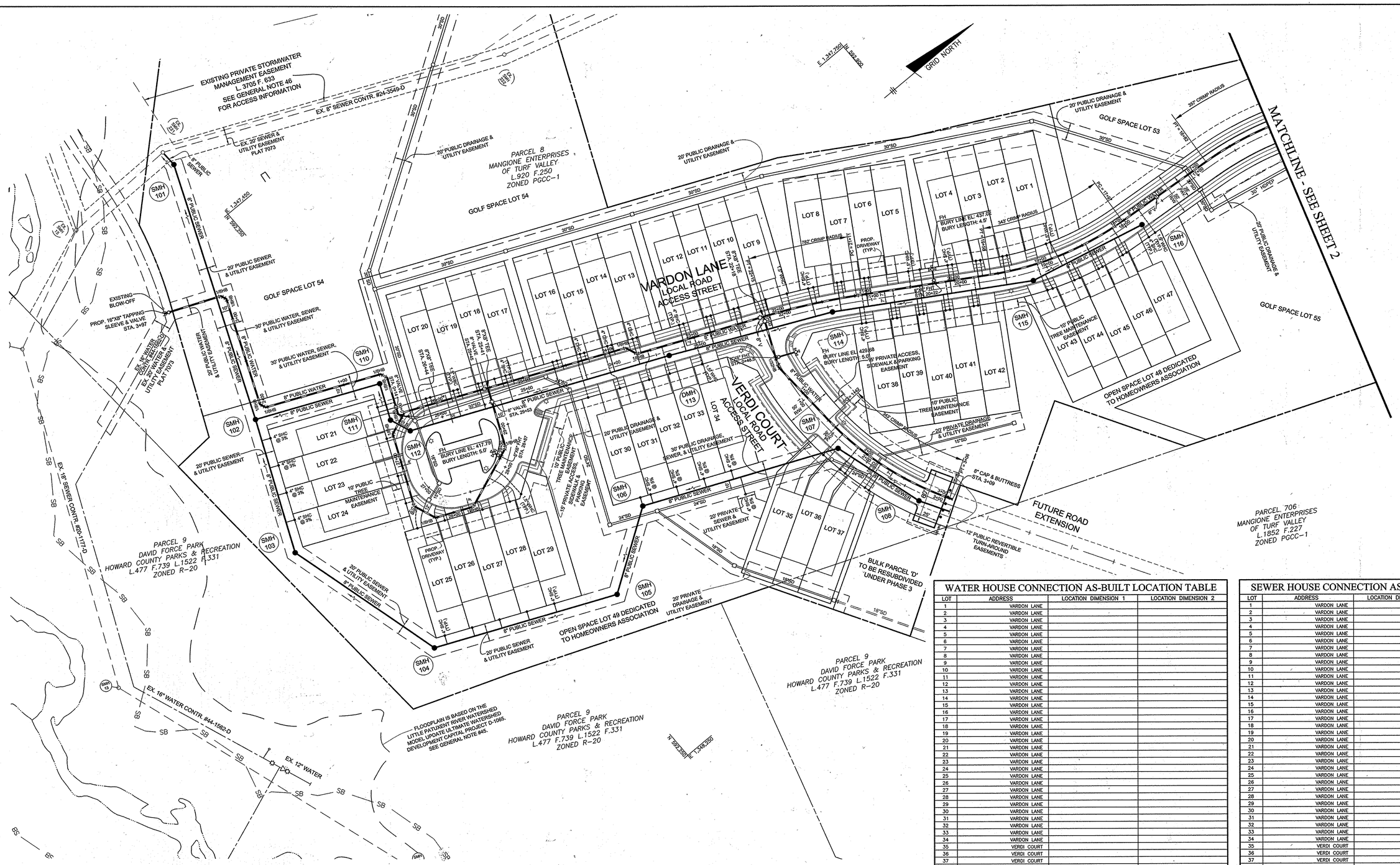

THIS SHEET REPLACES
THE PREVIOUS SHEET 3
SIGNED ON 12-7-2010

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

50 0 25 50 100 200
1 inch = 50 ft.

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: 6-30-2017.

STATE OF MARYLAND
CHRISTOPHER ALAN MALACARNE
No. 22390
PROFESSIONAL ENGINEER
6/1/16

WATER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	VARDON LANE		
2	VARDON LANE		
3	VARDON LANE		
4	VARDON LANE		
5	VARDON LANE		
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29	VARDON LANE		
30	VARDON LANE		
31	VARDON LANE		
32	VARDON LANE		
33	VARDON LANE		
34	VARDON LANE		
35	VERDI COURT		
36	VERDI COURT		
37	VERDI COURT		
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43	VARDON LANE		
44	VARDON LANE		
45	VARDON LANE		
46	VARDON LANE		
47	VARDON LANE		

SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE

LOT	ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
1	VARDON LANE		
2	VARDON LANE		
3	VARDON LANE		
4	VARDON LANE		
5	VARDON LANE		
6	VARDON LANE		
7	VARDON LANE		
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17	VARDON LANE		
18	VARDON LANE		
19	VARDON LANE		
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21	VARDON LANE		
22	VARDON LANE		
23	VARDON LANE		
24	VARDON LANE		
25	VARDON LANE		
26	VARDON LANE		
27	VARDON LANE		
28	VARDON LANE		
29	VARDON LANE		
30	VARDON LANE		
31	VARDON LANE		
32	VARDON LANE		
33	VARDON LANE		
34	VARDON LANE		
35	VERDI COURT		
36	VERDI COURT		
37	VERDI COURT		
38	VARDON LANE		
39	VARDON LANE		
40	VARDON LANE		
41	VARDON LANE		
42	VARDON LANE		
43	VARDON LANE		
44	VARDON LANE		
45	VARDON LANE		
46	VARDON LANE		
47	VARDON LANE		

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/14/16

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.1.16

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

DES:	DBT
DRAFT:	DBT
CHK:	CAM
DATE:	5/2016

BY	NO.	REVISIONS	DATE
BEI	1	ADD LOTS 1-47, VARDON LANE AND ALL THE ASSOCIATED WATER AND SEWER TO THIS CONTRACT. ADD THE AS-BUILT TABLES.	5-24-2016

WATER AND SEWER PLAN

600 SCALE MAP #16 BLOCK: 16

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56;
PHASE 2: LOTS 57-89; OPEN SPACE LOTS 90-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

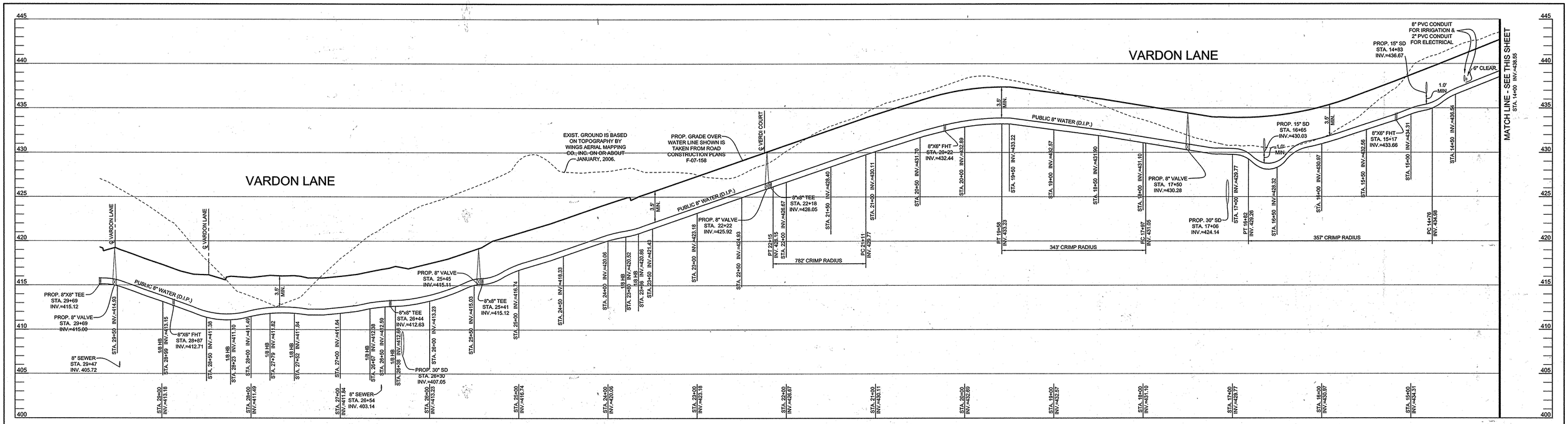
TAX MAP: 16 – BLOCK: 16 – PARCEL: P/O 8 AND 706 – ZONED: PGCC – ELECTION DISTRICT: 2

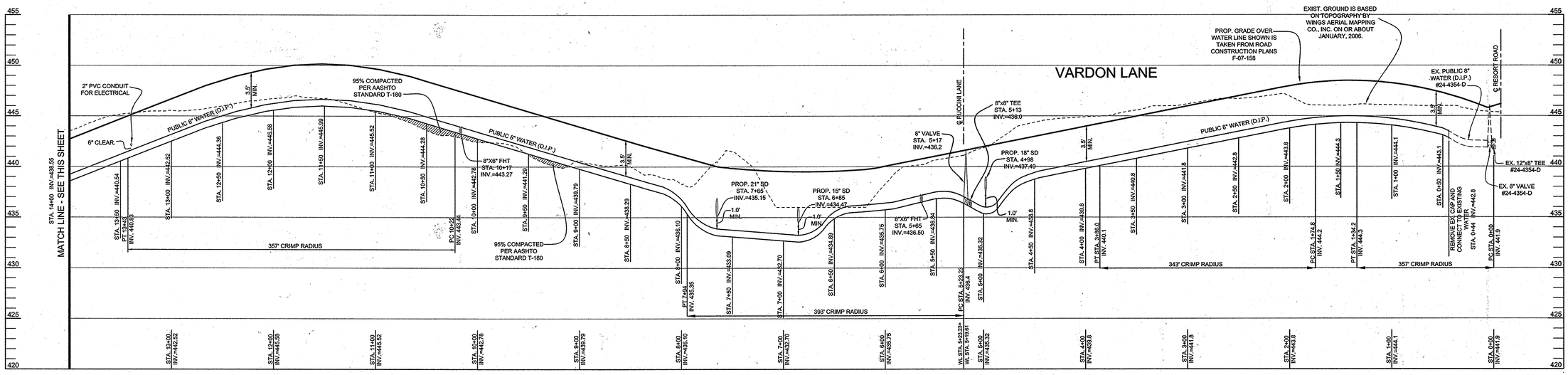
CONTRACT NO. 24-4671-D

SCALE: AS SHOWN

SHEET NO. 3 OF 7

J:\2726 Fairways at Turf Valley\dwg\Phase 1\24-4671.dwg, 6/1/2016 2:54:29 PM





THIS IS A NEW SHEET ADDED TO THIS CONTRACT

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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: 6-30-2017.

STATE OF MARYLAND — CHRISTOPHER ALAN MALCOLM — PROFESSIONAL ENGINEER — 6/1/16

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/14/16

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7-1-16

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CMLENGINEERING.COM

DES:	DBT
DRAFT:	DBT
CHK:	CAM
DATE:	5/2016

BY	NO.	REVISIONS	DATE
BEI	1	ADD THIS SHEET TO THIS CONTRACT TO SHOW WATER LINE PROFILES FOR VARDON LANE.	5-24-2016

WATER PROFILES

600 SCALE MAP #16 — BLOCK: 16

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56;
PHASE 2: LOTS 57-89; OPEN SPACE LOTS 90-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

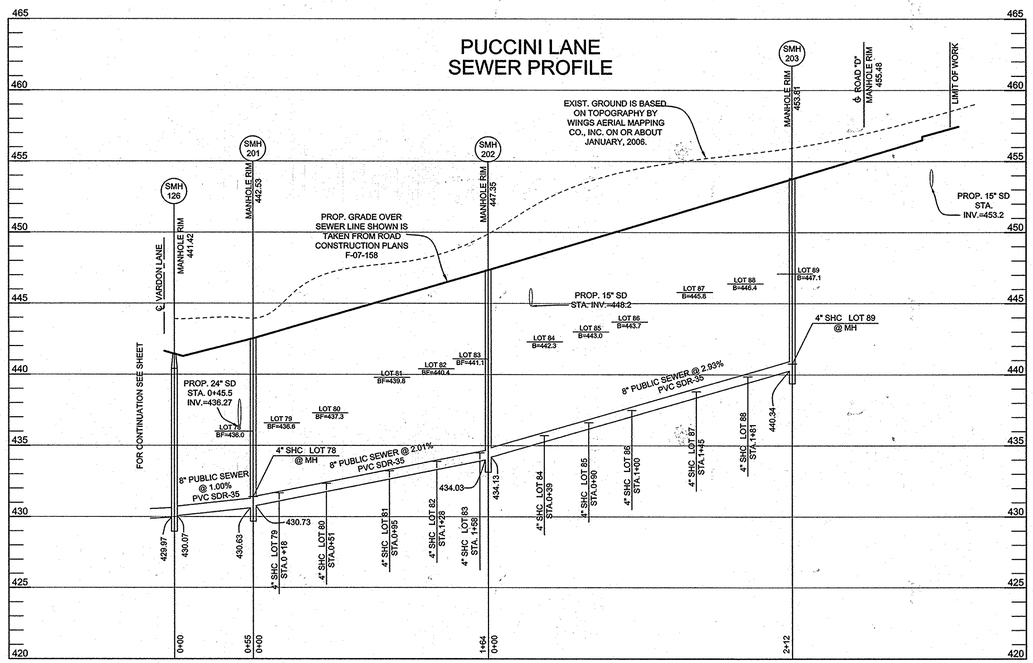
TAX MAP: 16 – BLOCK: 16 – PARCEL: P/O 8 AND 706 – ZONED: PGCC – ELECTION DISTRICT: 2

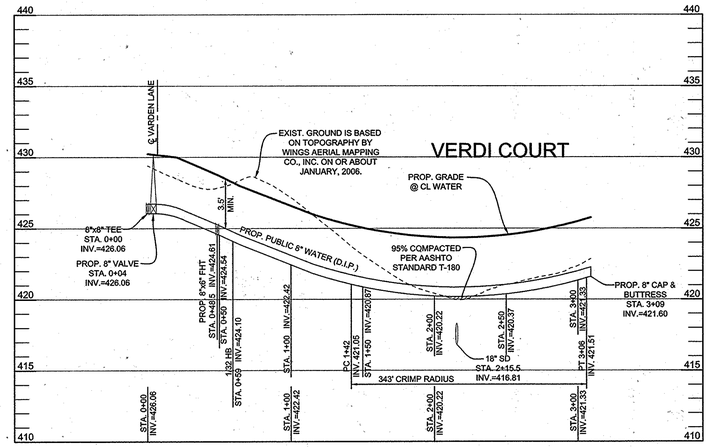
CONTRACT NO. 24-4671-D

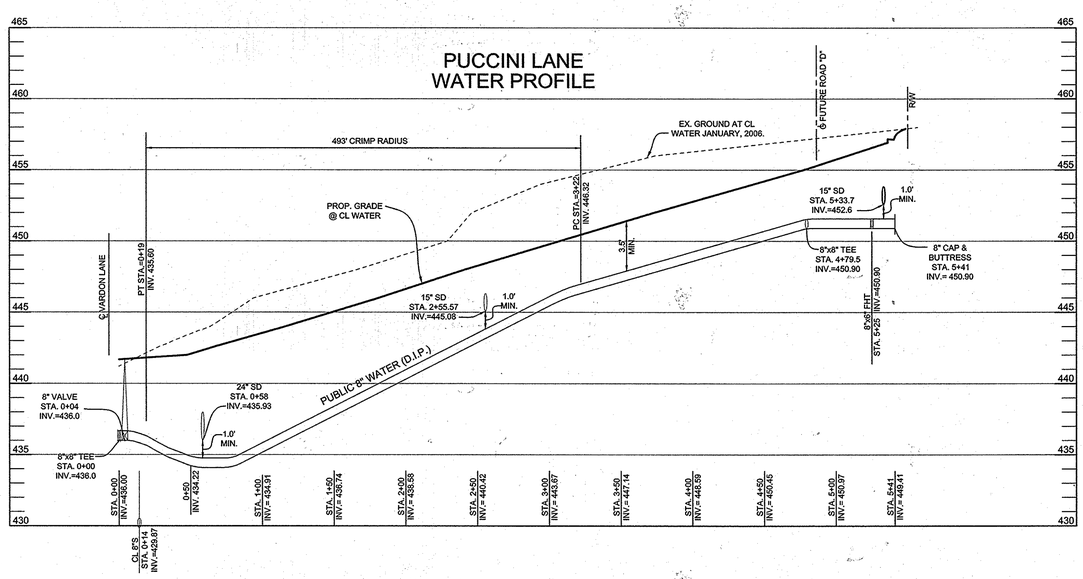
SCALE: AS SHOWN

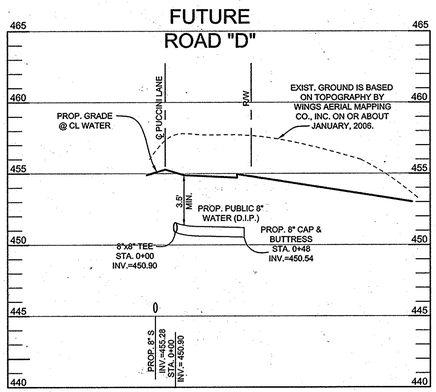
SHEET NO. 4 OF 7

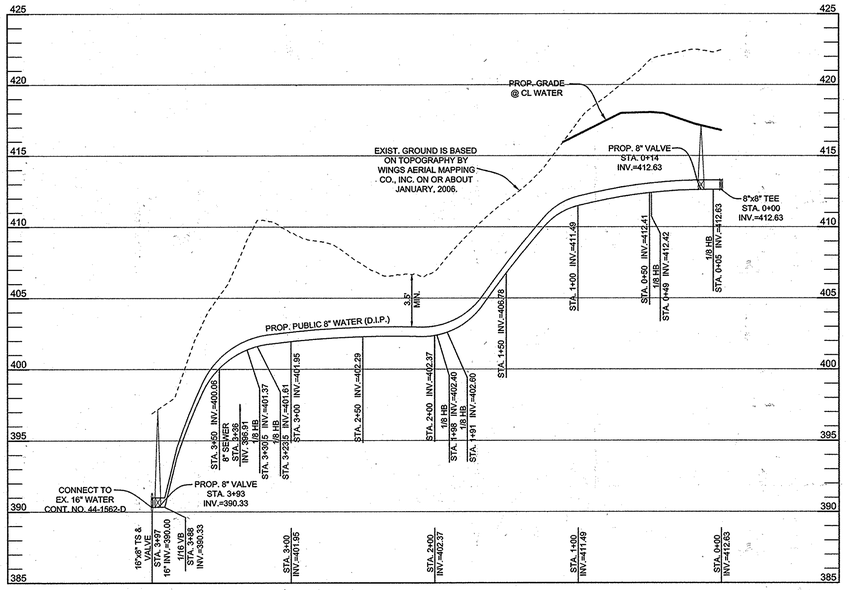
J:\2726 Fairways at Turf Valley\dwg\Phase 1\24-4671.dwg, 6/1/2016 2:52:10 PM











OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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: 6-30-2017.

THIS IS A NEW SHEET ADDED TO THIS CONTRACT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/14/16

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.1.16

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CMLENGINEERING.COM

STATE OF MARYLAND — CHRISTOPHER ALAN MALKUS — PROFESSIONAL ENGINEER — 22390 — 6/1/16

DES:	DBT
DRAFT:	DBT
CHK:	CAM
DATE:	5/2016

BY	NO.	REVISIONS	DATE
BEI	1	RELOCATE THE PUCCINI LANE PROFILES TO THIS NEW SHEET. ADD VERDI COURT PROFILE TO THIS CONTRACT	5-24-2016

WATER PROFILES

600 SCALE MAP #16 — BLOCK: 16

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56;
PHASE 2: LOTS 57-89; OPEN SPACE LOTS 90-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

TAX MAP: 16 – BLOCK: 16 – PARCEL: P/O 8 AND 706 – ZONED: PGCC – ELECTION DISTRICT: 2

CONTRACT NO. 24-4671-D

SCALE: AS SHOWN

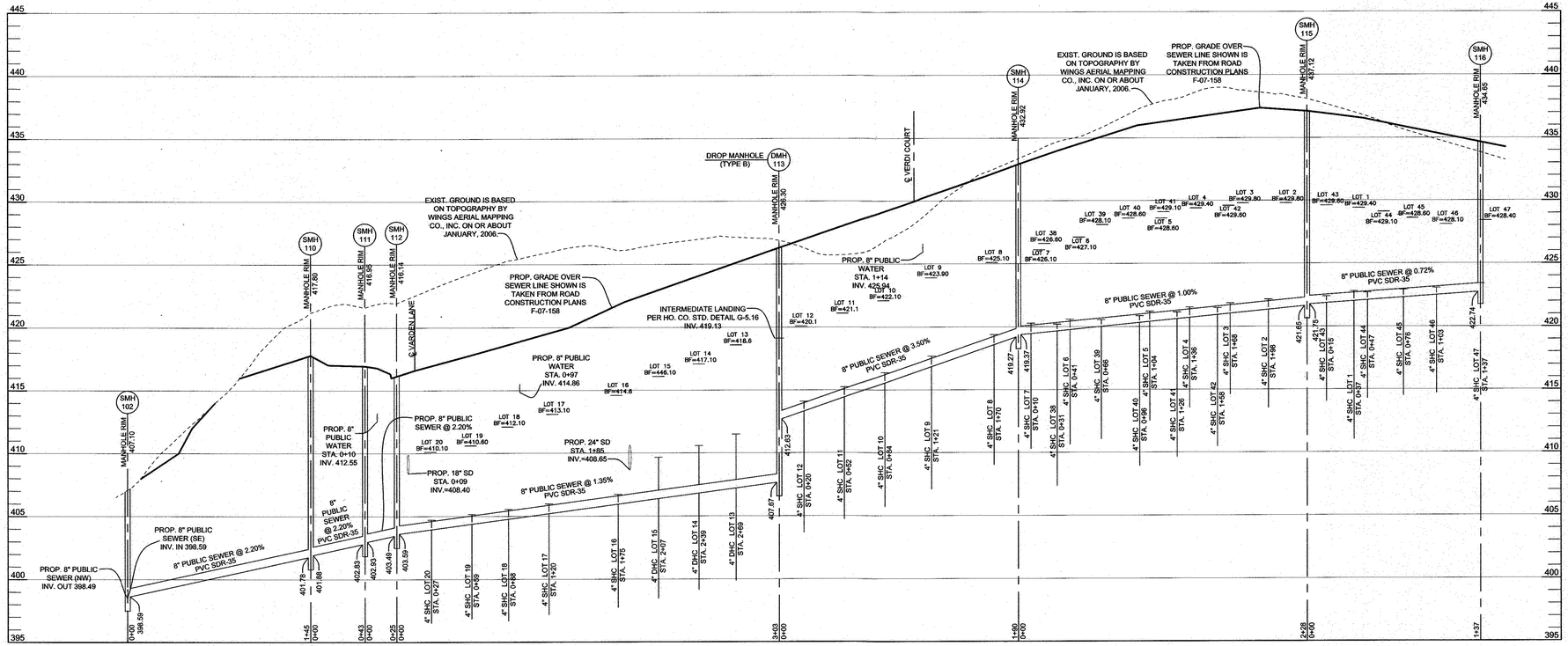
SHEET NO. 5 OF 7

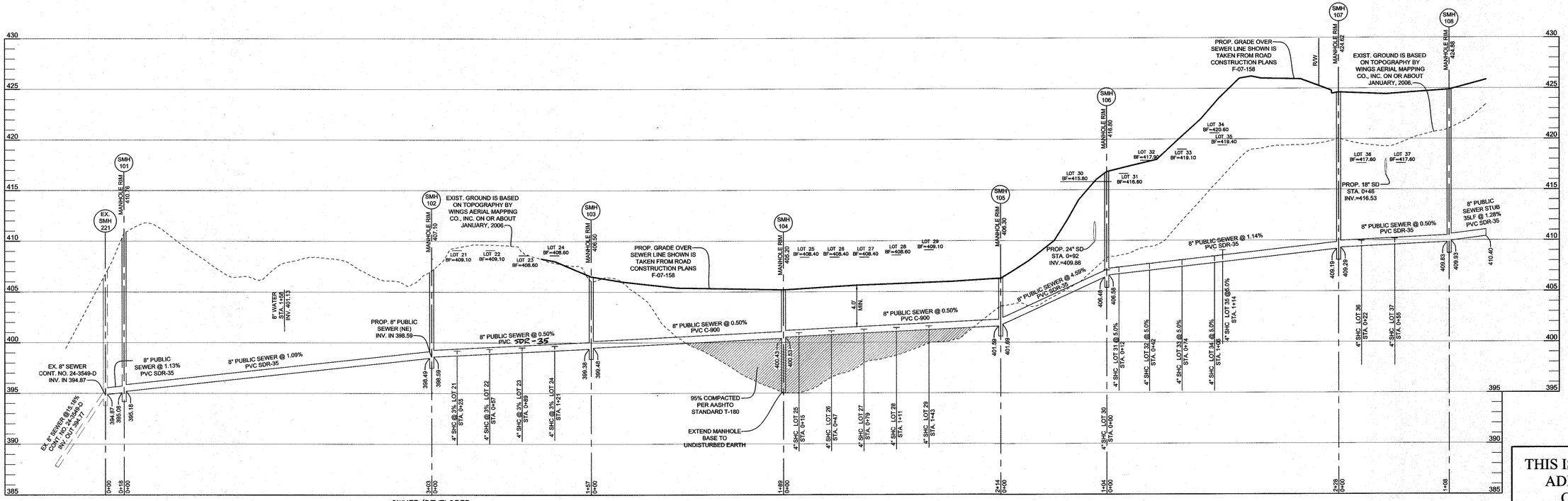
J:\2726 Fairways at Turf Valley\dwg\Phase 1\24-4671.dwg, 6/1/2016 2:58:25 PM

SHC CHART

Lot Number	Drop Connection	Invert @ main	DHC standpipe length/height	Invert @ R/W or esmt line	Minimum Cellar Elevation	Basement Floor
1	-	422.19	-	422.79	427.29	430.00
2	-	421.52	-	422.16	426.66	430.40
3	-	421.22	-	421.86	426.36	430.40
4	-	420.90	-	421.54	426.04	430.00
5	-	420.58	-	421.22	425.72	428.60
6	-	419.95	-	420.59	425.09	427.10
7	-	419.64	-	420.28	424.78	426.10
8	-	418.75	-	419.39	423.89	425.10
9	-	417.04	-	417.70	422.20	423.90
10	-	415.74	-	416.38	420.88	422.10
11	-	414.62	-	415.24	419.74	421.10
12	-	413.50	-	414.10	418.60	420.10
13	yes	407.39	3.5	411.49	415.99	418.60
14	yes	406.98	3.0	410.58	415.08	417.10
15	yes	406.55	2.5	409.65	414.15	416.10
16	-	406.12	-	406.72	411.22	414.60
17	-	405.38	-	405.98	410.48	413.10
18	-	404.95	-	405.55	410.05	412.10
19	-	404.56	-	405.16	409.66	410.60
20	-	404.12	-	404.72	409.22	410.10
21	-	398.89	-	399.19	404.84	409.10
22	-	399.05	-	399.35	405.00	409.10
23	-	399.21	-	399.51	405.16	408.60
24	-	399.37	-	399.67	405.32	408.60
25	-	400.78	-	400.98	405.58	408.40
26	-	400.94	-	401.14	405.74	408.40
27	-	401.10	-	401.30	405.90	408.40
28	-	401.26	-	401.46	406.06	408.60
29	-	401.41	-	401.61	406.21	409.10
30	-	406.91	-	407.11	411.71	415.80
31	-	406.89	-	407.39	415.14	416.60
32	-	407.23	-	407.73	415.48	417.90
33	-	407.59	-	408.09	415.84	417.10
34	-	407.96	-	408.46	416.21	420.60
35	-	408.05	-	409.05	415.95	419.40
36	-	409.57	-	409.95	414.79	417.60
37	-	409.74	-	410.16	414.86	417.60
38	-	419.85	-	420.21	424.71	426.60
39	-	420.20	-	420.56	425.06	428.10
40	-	420.50	-	420.86	425.36	428.60
41	-	420.80	-	421.16	425.66	429.10
42	-	421.12	-	421.48	425.98	429.60
43	-	422.03	-	422.39	426.99	429.60
44	-	422.26	-	422.68	427.28	429.10
45	-	422.47	-	422.91	427.51	428.60
46	-	422.65	-	423.05	427.65	428.10
47	-	423.07	-	423.39	427.99	428.40

All Drop connections are HoCoStd S-2.12 Type 'A'





THIS IS A NEW SHEET ADDED TO THIS CONTRACT

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

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: 6-30-2017.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 6/9/16

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7-1-16

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — CHRISTOPHER ALAN BALLARD — PROFESSIONAL ENGINEER — 6-1-16

DES:	DBT
DRAFT:	DBT
CHK:	CAM
DATE:	5/2016

BY	NO.	REVISIONS	DATE
BEI	2	REVISE PIPE MATERIAL TO SDR-35 FROM SMH 102-103	10-6-2016
BEI	1	ADD THIS ENTIRE SHEET TO THIS CONTRACT. REVISE SHC LOCATIONS AND T's AND ADD SHC CHART. INDICATE PIPE MATERIAL. DELETE RESTRAINED JOINTS.	5-24-2016

SEWER PROFILES

600 SCALE MAP #16 — BLOCK: 16

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56;
PHASE 2: LOTS 57-89; OPEN SPACE LOTS 90-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

TAX MAP: 16 - BLOCK: 16 - PARCEL: P/O 8 AND 706 - ZONED: PGCC - ELECTION DISTRICT: 2

CONTRACT NO. 24-4671-D

SCALE: AS SHOWN

SHEET NO. 6 OF 7

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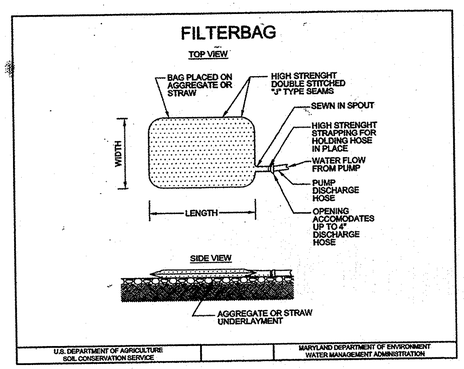
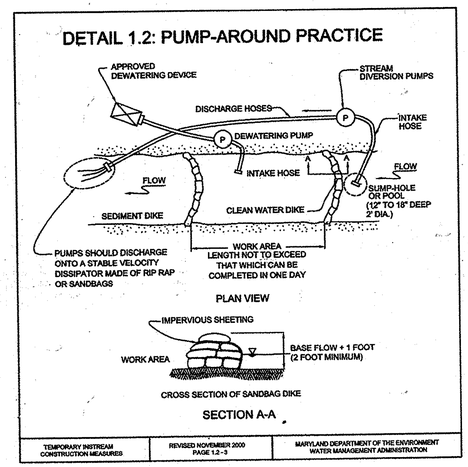




Sewer Structure Schedule

Manhole	Location (NAD '83)	Rim Elevation	Invert In	Invert Out	Howard County Standard Detail
101	N 592239.9 E 1347368.0	410.76	395.18	395.08	G-5.12
102	N 592123.8 E 1347647.7	407.10	398.59 (NE) 398.59 (SE)	398.49	G-5.12
103	N 592060.8 E 1347791.5	406.50	399.48	399.38	G-5.12
104	N 592111.1 E 1347973.9	405.20	400.53	400.43	G-5.12
105	N 592306.8 E 1348059.7	406.30	401.69	401.59	G-5.12
106	N 592393.5 E 1348001.7	416.80	406.58	406.48	G-5.12
107	N 592602.7 E 1348093.4	424.62	409.29	409.19	G-5.12
108	N 592633.8 E 1348197.2	424.88	409.93	409.83	G-5.12
110	N 592256.6 E 1347705.9	417.80	401.88	401.78	G-5.12
111	N 592239.4 E 1347745.4	416.95	402.93	402.83	G-5.12
112	N 592248.5 E 1347768.8	416.14	403.59	403.49	G-5.12
113	N 592525.9 E 1347890.5	426.30	412.63	407.67	G-5.12, G-5.16, S-1.32
114	N 592697.4 E 1347971.1	432.92	419.37	419.27	G-5.12
115	N 592892.3 E 1348089.6	437.12	421.75	421.65	G-5.12
116	N 593026.2 E 1348119.6	434.65	-	422.74	G-5.12
117	N 593901.3 E 1349780.9	432.25	422.17	422.07	G-5.14, G-5.52
118	N 593887.8 E 1349703.4	434.30	423.06	422.96	G-5.12, G-5.52
119	N 593930.8 E 1349674.0	436.70	424.67	424.57	G-5.12, G-5.52
120	N 593950.0 E 1349609.7	438.95	425.10	425.00	G-5.12
121	N 593890.3 E 1349419.8	444.29	426.17	426.07	G-5.12, G-5.16
122	N 594015.9 E 1349271.0	447.76	427.03	426.93	G-5.12, G-5.16
123	N 593922.5 E 1349241.2	448.34	427.62	427.52	G-5.12, G-5.16
124	N 593821.7 E 1349198.7	446.38	428.27	428.17	G-5.12, G-5.16
125	N 593738.4 E 1349127.6	444.22	428.92	428.82	G-5.12
126	N 593647.0 E 1349021.2	441.42	430.17	429.97	G-5.12
201	N 593604.9 E 1349057.3	442.53	430.73	430.63	G-5.12
202	N 593511.4 E 1349191.9	447.35	434.13	434.03	G-5.12
203	N 593455.4 E 1349396.4	453.81	-	446.34	G-5.12

Notes:
1. Top elevations for precast manholes are to the center top of manhole cover
2. top slope of structures to conform to slope of paving/ground.
3. Location coordinates are center of structure for manholes

SHC CHART

Lot Number	Drop Connection	Invert @ main	DHC standpipe length/height	Invert @ R/W or esmt line	Minimum Cellar Elevation	Basement Floor
57	Yes	427.36	7.0	435.06	439.70	441.96
58	Yes	427.31	8.0	436.01	440.55	442.63
59	Yes	427.46	8.0	436.16	440.64	443.30
60	Yes	427.87	8.0	436.47	441.01	442.63
61	Yes	428.23	5.0	433.81	438.35	441.12
62	Yes	428.53	5.0	434.13	438.73	440.45
63	Yes	428.71	5.0	434.25	438.75	439.78
64	-	429.22	-	429.86	434.36	438.21
65	-	429.49	-	430.13	434.63	437.54
66	-	429.68	-	430.32	434.82	436.87
67	-	429.92	-	430.72	435.22	436.87
68	-	429.54	-	429.90	434.40	437.52
69	-	429.28	-	429.64	434.14	438.19
70	Yes	428.97	3.0	432.35	436.85	438.86
71	Yes	428.82	3.0	432.24	436.74	439.53
72	Yes	428.60	5.0	434.02	438.52	439.91
73	Yes	428.60	5.0	433.96	438.46	440.58
74	Yes	428.21	5.0	433.63	438.13	441.25
75	Yes	427.99	8.0	436.43	440.93	442.14
76	Yes	427.84	8.0	436.22	440.72	442.14
77	Yes	427.60	8.0	435.94	440.44	442.14
78	-	431.06	-	431.38	435.88	436.00
79	-	431.26	-	431.62	436.12	436.60
80	-	431.93	-	432.35	436.85	437.30
81	-	432.81	-	433.23	437.73	439.80
82	-	431.26	-	431.64	436.14	440.40
83	-	434.08	-	434.39	438.89	441.10
84	-	435.44	-	435.84	440.34	442.30
85	-	436.94	-	437.37	441.87	443.00
86	-	437.23	-	437.66	442.16	443.70
87	-	438.55	-	438.97	443.47	445.80
88	-	439.60	-	440.00	444.50	446.40
89	-	440.51	-	440.89	445.39	447.10

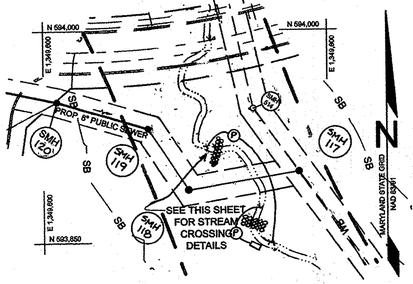
All Drop connections are HoCoStd S-2.12 Type 'A'

MGWC 2.: PUMP-AROUND PRACTICE

DESCRIPTION:
THE WORK SHALL CONSIST OF INSTALLING A TEMPORARY PUMP AROUND AND SUPPORTING MEASURES TO DIVERT FLOW AROUND IN-STREAM CONSTRUCTION SITES.

IMPLEMENTATION SEQUENCE
SEDIMENT CONTROL MEASURES, PUMP AROUNDS, AND ASSOCIATED CHANNEL AND BANK CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE:

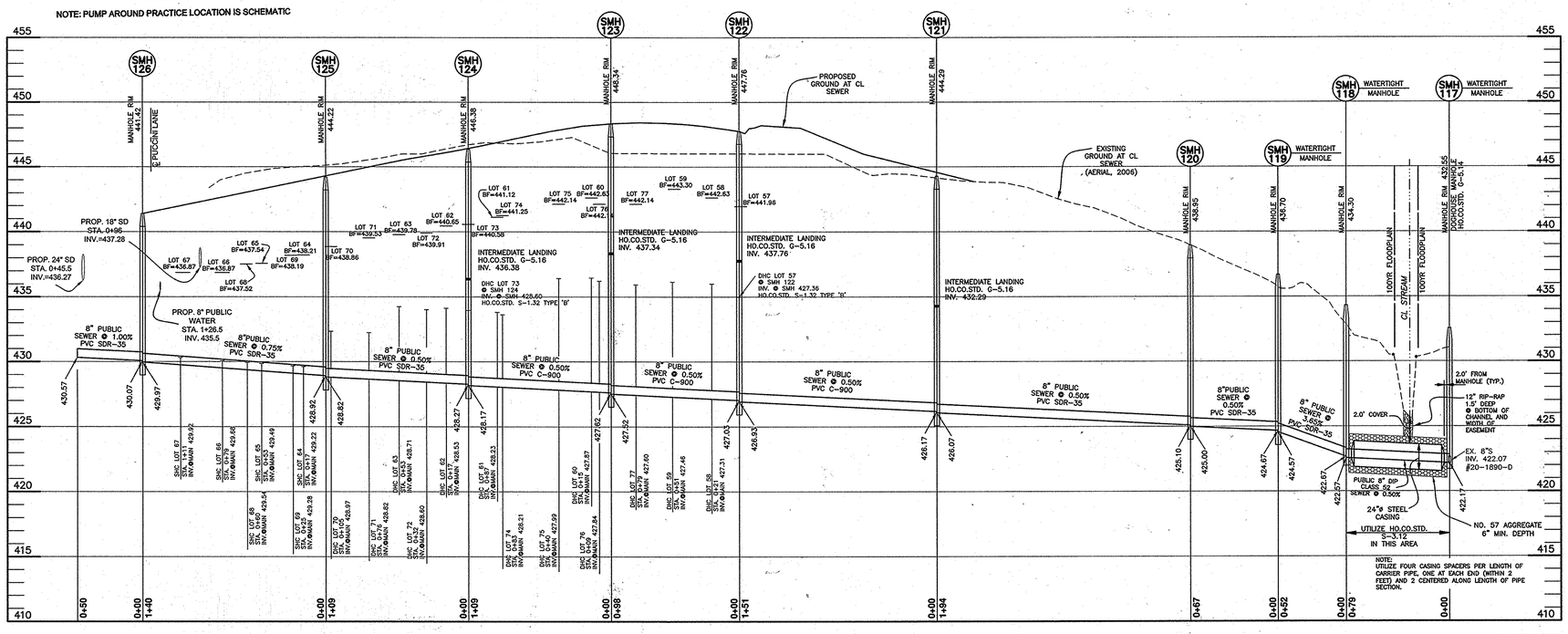
1. CONSTRUCTION ACTIVITIES INCLUDING THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BEGIN UNTIL ALL NECESSARY EASEMENTS AND/OR RIGHT-OF-WAYS HAVE BEEN ACQUIRED. ALL EXISTING UTILITIES SHALL BE MARKED IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES THAT MAY RESULT FROM CONSTRUCTION AND SHALL REPAIR THE DAMAGE AT HIS/HER OWN EXPENSE TO THE COUNTY'S SATISFACTION.
2. THE CONTRACTOR SHALL NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT OR WMA SEDIMENT CONTROL INSPECTOR AT LEAST 5 DAYS BEFORE BEGINNING CONSTRUCTION. ADDITIONALLY, THE CONTRACTOR SHALL INFORM THE LOCAL ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT INSPECTION AND ENFORCEMENT DIVISION AND THE PROVIDER OF LOCAL UTILITIES A MINIMUM OF 48 HOURS BEFORE STARTING CONSTRUCTION.
3. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ON SITE WITH THE WMA SEDIMENT CONTROL INSPECTOR, THE COUNTY PROJECT MANAGER, AND THE ENGINEER TO REVIEW LIMITS OF DISTURBANCE, EROSION AND SEDIMENT CONTROL REQUIREMENTS, AND THE SEQUENCE OF CONSTRUCTION. (THE CONTRACTOR SHALL STAKE OUT ALL LIMITS OF DISTURBANCE PRIOR TO THE PRE-CONSTRUCTION MEETING.) THE PARTICIPANTS WILL ALSO DESIGNATE THE CONTRACTOR'S STAGING AREAS AND FLAG ALL TREES WITHIN THE LIMIT OF DISTURBANCE WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS. TREES SHALL NOT BE REMOVED WITHIN THE LIMIT OF DISTURBANCE WITHOUT APPROVAL FROM THE WMA OR LOCAL AUTHORITY.
4. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF THE DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORK AREA WHENEVER POSSIBLE.
5. UPON INSTALLATION OF ALL SEDIMENT CONTROL MEASURES AND APPROVAL BY THE SEDIMENT CONTROL INSPECTOR AND THE LOCAL ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT INSPECTION AND ENFORCEMENT DIVISION, THE CONTRACTOR SHALL BEGIN WORK AT THE UPSTREAM SECTION AND PROCEED DOWNSTREAM BEGINNING WITH THE ESTABLISHMENT OF STABILIZED CONSTRUCTION ENTRANCES. THE SEQUENCE OF CONSTRUCTION MUST BE FOLLOWED UNLESS THE CONTRACTOR GETS WRITTEN APPROVAL FOR DEVIATIONS FROM THE WMA OR LOCAL AUTHORITY. THE CONTRACTOR SHALL ONLY BEGIN WORK IN AN AREA WHICH CAN BE COMPLETED BY THE END OF THE DAY (INCLUDING GRADING ADJACENT TO THE CHANNEL). AT THE END OF EACH WORK DAY, THE WORK AREA MUST BE STABILIZED AND THE PUMP AROUND REMOVED FROM THE CHANNEL. WORK SHALL NOT BE CONDUCTED IN THE CHANNEL DURING RAIN EVENTS.
6. SANDBAG DIKES SHALL BE SITUATED AT THE UPSTREAM AND DOWNSTREAM ENDS FO THE WORK AREA AS SHOWN ON THE PLANS, AND STREAM FLOW SHALL BE PUMPED AROUND THE WORK AREA. THE PUMP SHALL DISCHARGE ONTO A STABLE VELOCITY DISSIPATER MADE OF RIPRAP OR SANDBAGS.
7. WATER FROM THE WORK AREA SHALL BE PUMPED TO SEDIMENT FILTERING MEASURE SUCH AS A SEDIMENT BAG. THE MEASURE SHALL BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE.
8. TRAVERSING A CHANNEL REACH WITH EQUIPMENT WHERE NO WORK IS PROPOSED SHOULD BE AVOIDED. IF EQUIPMENT HAS TO TRAVERSE SUCH A REACH FOR ACCESS TO ANOTHER AREA, THEN TIMBER MATS OR SIMILAR MEASURES SHALL BE USED TO MINIMIZE DISTURBANCE TO THE CHANNEL. TEMPORARY STREAM CROSSINGS SHALL BE USED ONLY WHEN NECESSARY AND ONLY WHERE NOTED ON THE PLANS OR SPECIFIED BY THE ENGINEER.
9. ALL STEAM RESTORATION MEASURES SHALL BE INSTALLED AS INDICATED BY THE PLANS AND ALL BANKS GRADED IN ACCORDANCE WITH THE GRADING PLANS AND TYPICAL CORSS-SECTIONS. ALL GRADING MUST BE PERMANENTLY STABILIZED AT THE END OF EACH DAY WITH SEED AND MULCH OR SEED AND MATTING AS SPECIFIED ON THE PLANS.
10. AFTER AN AREA IS COMPLETED AND STABILIZED, SANDBAG DIVERSIONS, THE WATER PUMP, AND SEDIMENT FILTERING MEASURE SHALL BE MOVED TO THE NEXT WORK AREA. THIS SHALL BE ACCOMPLISHED BY FIRST MOVING THE DOWNSTREAM SANDBAG DIKE TO THE NEW UPSTREAM PUMP AROUND LOCATION AND THEN BY RELOCATING THE UPSTREAM SANDBAG DIKE, VELOCITY DISSIPATER, AND SEDIMENT FILTER TO THE NEW DOWNSTREAM LOCATION.
11. A PUMP AROUND MUST BE INSTALLED ON ANY TRIBUTARY OR STORM DRAIN OUTFALL WHICH CONTRIBUTES BASE-FLOW TO THE WORK AREA. THIS SHOULD BE ACCOMPLISHED BY LOCATING A SANDBAG DIKE AT THE DOWNSTREAM END OF THE TRIBUTARY OR STORM DRAIN OUTFALL AND PUMPING THE STEAM FLOW AROUND THE WORK AREA. THIS WATER SHOULD DISCHARGE ONTO THE SAME VELOCITY DISSIPATER USED FOR THE MAIN STEM PUMP AROUND.
12. IF A TRIBUTARY IS TO BE RESTORED, CONSTRUCTION SHOULD TAKE PLACE ON THE TRIBUTARY BEFORE WORK ON THE MAIN STEM REACHES THE TRIBUTARY CONFLUENCE. CONSTRUCTION IN THE TRIBUTARY, INCLUDING PUMP AROUND PRACTICES, SHALL FOLLOW THE SAME SEQUENCE AS FOR THE MAIN STEM OF THE RIVER OR STREAM. WHEN CONSTRUCTION ON THE TRIBUTARY IS COMPLETED, WORK ON THE MAIN STEM SHALL RESUME. WATER FROM THE TRIBUTARY SHALL CONTINUE TO BE PUMPED AROUND THE WORK AREA IN THE MAIN STEM.
13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS TO AND MAINTAINING ALL EROSION AND SEDIMENT CONTROL DEVICES UNTIL THE SEDIMENT CONTROL INSPECTOR APPROVED THEIR REMOVAL.
14. AFTER CONSTRUCTION, ALL DISTURBED AREAS SHALL BE REGRADED AND REVEGETATED AS PER THE PLANTING PLAN.



STREAM DIVERSION PLAN

SCALE: 1"=50'

NOTE: PUMP AROUND PRACTICE LOCATION IS SCHEMATIC



SEWER PROFILE

SCALE: 1" = 50' HORZ., 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. 22390, Expiration Date: 6-30-2017.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILES OR STORED IN NONTIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOOD PLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:

   ANNUAL RYE GRASS (Lolium multiflorum)
   MILLET (Setaria italica)
   BARLEY (Hordeum sp.)
   OATS (Uniola sp.)
   RYE (Secale cereale)

   THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM

   USE I WATERS: IN STREAM WORK SHALL BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

THIS IS A NEW SHEET ADDED TO THIS CONTRACT

OWNER/DEVELOPER:
MANGIONE ENTERPRISES OF TURF VALLEY, LP
1205 YORK ROAD, PENTHOUSE
LUTHERVILLE, MARYLAND 21093
410-825-8400

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 6/14/16

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.1.16

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — CHRISTOPHER ALAN CALDWELL — No. 22390 — PROFESSIONAL ENGINEER — 6/1/16

BY	NO.	REVISIONS	DATE
BEI	3	ADDED THIS ENTIRE SHEET TO CONTRACT 24-4671. REVISED PROFILE FROM SMH 121 TO SMH 126. REVISE SHC's. UPDATE SHC CHART AND SEWER STRUCTURE SCHEDULE. INDICATED PIPE MATERIAL.	5-24-2016
BEI	2	REVISE SEWER PROFILE FROM SMH 117 TO SMH 119. UPDATE STREAM DIVERSION PLAN AND STRUCTURE SCHEDULE.	10-13-2015
BEI	1	ADDED THIS SHEET TO THIS CONTRACT	4-25-2016

DES: DBT
DRAFT: DBT
CHK: CAM
DATE: 5/2016

SEWER PROFILE & STREAM DIVERSION DETAILS

600 SCALE MAP #16 BLOCK: 16

FAIRWAYS AT TURF VALLEY

PHASE 1 SECTION 2: LOTS 1-47; OPEN SPACE LOTS 48 & 49; GOLF SPACE LOTS 52-56;
PHASE 2: LOTS 57-89; OPEN SPACE LOTS 90-94; GOLF SPACE LOT 95
PODS 'F' AND PART OF 'H' SECTION IV: RESIDENTIAL PHASE IV D

TAX MAP: 16 - BLOCK: 16 - PARCEL: P/O 8 AND 706 - ZONED: PGCC - ELECTION DISTRICT: 2

CONTRACT NO. 24-4671-D

SCALE: AS SHOWN

SHEET NO. 7 OF 7

J:\2726 Fairways at Turf Valley\dwg\Phase 1\24-4671.dwg, 6/1/2016 3:00:31 PM