PUBLIC WATER AND SEWER PLANS
DORSEY RUN INDUSTRIAL CENTER
NORTH SIDE REDEVELOPMENT
MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
ELKRIDGE, HOWARD COUNTY, MD
CONTRACT NO. 14-4602-D
1st ELECTION DISTRICT

NOTE: REDLINE CHANGES ARE BASED ON DESIGN ACCEPTANCE, NOT CONSTRUCTED WATER MAIN. USING STANDARD PROCEDURES, CID NEEDS TO VERIFY AND SIGN OFF ON IN-FIELD CONDITIONS THROUGH THE AS-BUILT PROCESS AND PER THEIR COMPLIANCE GUIDELINES. ~~DED CANNOT ASSUME RESPONSIBILITY FOR APPROVING IN-FIELD CONDITIONS THAT WERE SUPPOSED TO BE DONE AS AN AS-BUILT APPROVED BY CID.~~

SHEET INDEX

NO.	TITLE
1	TITLE SHEET
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3	PUBLIC WATER & SEWER PLAN
4	PROFILES OF PUBLIC WATER LINES
5	PROFILES OF PUBLIC WATER LINE & FIRE HYDRANTS
6	PROFILES OF PUBLIC SEWER LINES
7	WALL SECTION
8	WALL ELEVATIONS

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT QUANTITIES	AS-BUILT TYPE	AS-BUILT MANUFACTURER/ SUPPLIER
8" WATER (C900 PVC DR18)	3421 LF			
8" VALVES	10			
8"x8" TEES	5			
8"x8" T.S.&V.	1			
FIRE HYDRANT, TEES & VALVES	7			
6" WATER (C900 PVC DR18)	115 LF			
8" SEWER (PVC)	10 LF			
CHECKBOX				
AS-BUILT DATE				
SURVEY AND DRAFTING DIVISION				

*QUANTITIES SHOWN ARE FOR PUBLIC PIPE ONLY

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING WATER (FH, 8"V, EX. 8" DIP)
- EXISTING SANITARY SEWER (EX. 8" PVC)
- EXISTING STORMDRAIN (EX. 24" RCP)
- EXISTING TELEPHONE
- EXISTING OVERHEAD UTILITY
- EXISTING GAS LINE
- EXISTING LIGHT POLE
- PROPOSED STORM DRAIN
- PROPOSED WATERLINE (CAP, 8"V, PROP.8" W, C900 PVC DR 18, FH, 6"FHV, 8"X6"FHT)
- PROPOSED SANITARY LINE (PROP.6"PVC)
- UTILITY POLE
- EXISTING CURBLINE
- EXISTING BUILDINGS
- FLOODPLAIN (FP)
- FLOODPLAIN BUFFER (FB)
- WETLANDS
- 50' STREAM BUFFER (SB)
- WETLAND BUFFER (WB)

BENCHMARK

Horizontal Datum: Maryland State Coordinates, NAD 83
Vertical Datum: NAVD 88
Howard County Monument 43HA
N540761.72, E1373837.37, Elev. 224.90
Howard County Monument 43B6
N550601.61, E1376866.05, Elev. 210.56
Howard County Monument 0058
N544813.61, E1378390.05, Elev. 157.10

SITE ANALYSIS

1. TOTAL AREA OF PARCELS: 1599153 SQ. FT. (36.71 AC.)
2. ZONING: M-2 (MANUACTURING HEAVY)
3. EXISTING USE: ONE WAREHOUSE
4. PROPOSED USE: TWO (2) WAREHOUSES (MANUFACTURING/INDUSTRIAL USES)
5. BUILDING DATA: PROP. BLDG. "5"- 82,800 SF, PROP. BLDG. "4" - 77,000 SF
6. PARKING DATA: N/A
7. IMPERVIOUS AREA: 8.29 ACRES
8. DEED REFERENCE: 6457/258
   PLAT REFERENCE: N/A
9. RELATED FILES FOR THIS SITE: SDP 08-116
10. ELECTION DISTRICT NO. 1, HOWARD COUNTY MARYLAND
11. TAX MAP: 43, GRID: 16, TAX PARCELS: 97,344,346,441& 572 (PARCEL # 1,2,3,8,9 & 12 AS REFERENCED DEED 6457/258)
12. AREA OF DISTURBANCE: 12.61 ACRES,
13. WATER ZONE: 400
    TEST GRADIENT: 550

APPROVED PLAN ... 10/18/16 Technical Review ... Date

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.

SIGNATURE OF ENGINEER — DATE 7/28/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-06-2016

TYPE OF BUILDINGS: TWO (2) INDUSTRIAL WAREHOUSES
DRAINAGE AREA: 9.10 AC
TREATMENT PLANT: SAVAGE
WASTE WATER TREATMENT PLANT: PATAPSCO WWTP
NUMBER OF BUILDABLE LOTS: 4
NUMBER OF NON-BUILDABLE LOTS: 0
NUMBER OF W.H.C.: 2 (BLDG)
NUMBER OF S.H.C.: 2 (BLDG)

LOCATION MAP
SCALE: 1"=600'

OWNER / DEVELOPER

EXETER PROPERTY GROUP, LLC
SOLE TRUSTEE FOR MONTEVIDEO REALTY BUSINESS TRUST
2260 BUTLER PIKE, SUITE#200
PLYMOUTH MEETING, PENNSYLVANIA 19462
TEL. (610) 828-3200

VICINITY MAP ADC# 20703123
SCALE 1"=2000'
HOWARD COUNTY MAP PAGE 20 - GRID K-1

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 SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
2. TOPOGRAPHICAL SURVEYS WERE PERFORMED ON 01-08 BY christopher consultants,ltd.
   HORIZONTAL AND VERTICAL SURVEY CONTROLS:
3. 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. 43HA, NO. 0058, AND NO.43B6. ALL VERTICAL CONTROLS ARE BASED ON NAVD'88. VERTICAL CONTROLS PROVIDED ON THE DRAWING ARE NORTHING 540761.7148 SFT, EASTING 1373837.3381 SFT, ELEVATION 224.213 SFT.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. CLEAR ALL UTILITIES BY A MINIMUM OF 12". 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.
6. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAIL 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 (5) 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	1-800-743-0033/410 224-9210

9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO 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 (5) WORKING DAYS BEFORE OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS 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 SHALL BE C900 PVC DR18 UNLESS OTHERWISE NOTED.
2. TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-6" 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 THE 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. SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND 1005 OF THE STANDARD SPECIFICATIONS.
6. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.

PART II - WATER CONT'D

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 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 STEEL 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 THE PVC 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 1/2-DGREE 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, DR 18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR 18 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 C900 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 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 P.V.C. OR D.I.P 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 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.
6. HOUSE(S) WITH THE SYMBOL 'C.N.S.' INDICATES THAT CELLAR CANNOT BE SERVED.

ADDRESS CHART

LOT/PARCEL#	STREET ADDRESS	BUILDING
1	7595 MONTEVIDEO ROAD, JESSUP, MD	EX. BLDG C
3	7587 MONTEVIDEO ROAD, JESSUP, MD	PROP. BLDG 5
2	7591 MONTEVIDEO ROAD, JESSUP, MD	PROP. BLDG 4

PERMIT INFORMATION CHART

SUBDIVISION NAME			SECTION/AREA		LOT/PARCEL#
DORSEY RUN INDUSTRIAL CENTER					PARCELS 1,2,3,8,9,12
PLAT# L.6457, F.258	GRID# 16	ZONING M-2	TAX MAP# 43	ELECT DISTR. 1ST	CENSUS TRACT 6012.02
WATER CODE 400(TG 550)			SEWER CODE B01		

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING & ZONING, HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 9/29/16	CHIEF, DEVELOPMENT ENGINEERING DIVISION M.G. — DATE 10.27.16

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — 7/28/16

BY	NO.	REVISION	DATE
	5	ADDRESS REDLINE COMMENTS	5-18-16
	4	RETAINING WALL NOTE	4-1-16
	3	ADDRESS REDLINE COMMENTS	1-6-15
	2	ADDRESS REDLINE COMMENTS	11-18-14
	1	REDLINE REVISIONS - TO USE PVC FOR WATERLINE, NOTES AND ESTIMATE REVISED.	11/2014

DES: ENJ
DRN: DAM
CHK: ENJ
DATE: 09/06/12

TITLE SHEET

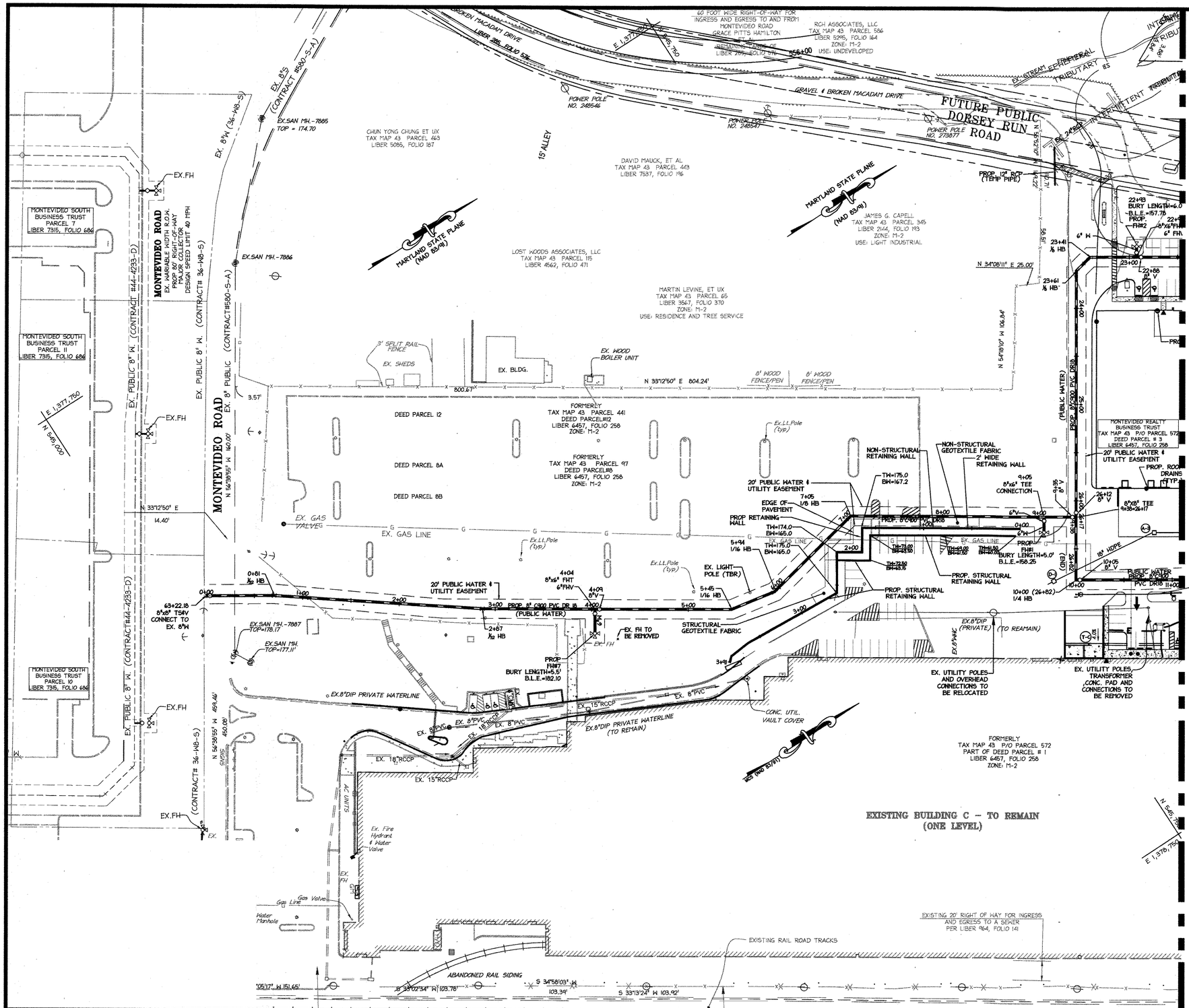
600 SCALE MAP NO. ______ BLOCK NO. ______

PUBLIC WATER AND SEWER PLANS
DORSEY RUN INDUSTRIAL CENTER
NORTH SIDE REDEVELOPMENT
MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO.14-4602-D

SCALE AS SHOWN

SHEET 1 OF 8

MDC-860



NOTE: REDLINE CHANGES ARE BASED ON DESIGN ACCEPTANCE, NOT CONSTRUCTED WATER MAIN. USING STANDARD PROCEDURES, CID NEEDS TO VERIFY AND SIGN OFF ON IN-FIELD CONDITIONS THROUGH THE AS-BUILT PROCESS AND PER THEIR COMPLIANCE GUIDELINES. ~~DED CANNOT ASSUME RESPONSIBILITY FOR APPROVING IN-FIELD CONDITIONS THAT WERE SUPPOSED TO BE DONE AS AN AS-BUILT APPROVED BY CID.~~

RETAINING WALL NOTE:
PORTIONS OF AN EXISTING RETAINING WALL AND GEOGRID ARE TO BE ABANDONED IN PLACE AND ARE DEEMED NON-STRUCTURAL. SEE SHEET 7 FOR LOCATION OF ABANDONED GEOGRID.

CAUTION: ABANDONDED NON-STRUCTURAL GEOGRID FROM ABANDONDED RETAINING WALL IS LOCATED WITHIN THE PUBLIC WATER AND UTILITY EASEMENT (BELOW THE INVERT OF THE WATER MAIN) FROM WL STA 6+50 TO WL STA 9+00.

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.

SIGNATURE OF ENGINEER — DATE 7/28/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-06-2016

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING & ZONING HOWARD COUNTY, MARYLAND	christopher consultants engineering · surveying · land planning						PUBLIC WATER & SEWER PLANS	PUBLIC WATER AND SEWER PLANS DORSEY RUN INDUSTRIAL CENTER NORTH SIDE REDEVELOPMENT MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT NO.14-4602-D	SCALE 1"=50'
9/29/16	10-27-16									SHEET 2 OF 8
CHIEF, BUREAU OF UTILITIES DATE	CHIEF, DEVELOPMENT ENGINEERING DIVISION M.G. DATE							600 SCALE MAP NO. _____ BLOCK NO. _____		

BY	NO.	REVISION	DATE
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	1	REDLINE REVISIONS - TO USE PVC FOR WATERLINE, NOTES AND ESTIMATE REVISED.	11/2014

DES: ENJ
DRN: DAM
CHK: ENJ
DATE: 09/06/12

MDC-860

GENERAL NOTES:

1. ALL WATER MAINS AND 8" SEWER MAINS ASSOCIATED WITH THIS REDEVELOPMENT PROJECT SHALL BE C900 PVC DR18.
2. THE VERTICAL AND HORIZONTAL LOCATION OF THE EXISTING 8" WATERMAIN HAS NOT BEEN FIELD VERIFIED SO, THE GENERAL CONTRACTOR SHALL PROVIDE TEST PITS TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF THE EXISTING WATERMAIN PRIOR TO MAKING NEW CONNECTIONS FOR EXTENSIONS.
3. ALL REQUIRED WATER METERS AND BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED WITHIN THE PROPOSED BUILDING.
4. THE PURPOSE OF THIS PLAN IS TO DEPICT THE DESIGN LAYOUT OF PUBLIC WATER AND SEWER LINES ONLY. ALL OTHER PROPOSED IMPROVEMENTS DEPICTED ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY AND WILL BE CONSTRUCTED BY OTHERS AS PART OF A SITE DEVELOPMENT PLAN.
5. ANY FILL REQUIRED UNDER A PROPOSED WATERMAIN SHALL BE 95% COMPACTED PER AASHTO STANDARD T-180.
6. EXISTING VALVES SHALL BE CLOSED TEMPORARILY WHEN A NEW WATERMAIN CONNECTION IS MADE TO THE EXISTING LINES. THE SERVICE TO EXISTING FIRE HYDRANT LOCATED TO THE NORTH OF THE EXISTING BUILDING WILL BE INTERRUPTED BY CLOSING EXISTING VALVE WHILE THIS CONNECTION IS MADE. USE TAPING SLEEVE AND VALVES FOR CONNECTION TO EXISTING WATER MAIN.
7. THE PUBLIC SEWER MANHOLES PROPOSED AS PART OF THIS PLAN SET SHALL BE STANDARD PRECAST MANHOLES PER COUNTY DETAIL G5.11 AND THE DROP MANHOLES SHALL BE TYPE "A" STANDARD COUNTY DETAIL S1.32
8. SEE SHEET 6 FOR WATER LINE DATA CHART.

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NOTE: SEE SHEET 6 FOR WATER LINE FITTING INFORMATION.

FIRE HYDRANT DATA

PROP. FH#	BURY LENGTH	BURY LINE ELEV.
FH#1	5.0'	153.18'
FH#2	6.0'	157.70'
FH#3	4.5'	155.70'
FH#4	5.0'	156.46'
FH#5	4.5'	155.58'
FH#7	5.5'	182.10'

STRUCTURE SCHEDULE

STRUCTURE	TYPE	NORTHING	EASTING	TOP	REMARKS
S 1	4'-0" DIA. DROP MANHOLE	N 546,397.50	E 1,378,777.13	155.00	DROP MANHOLE TYPE 'A DETAIL NO. S1.32
S 2	4'-0" DIA. DROP MANHOLE	N 546,392.19	E 1,378,617.79	157.00	DROP MANHOLE TYPE 'A DETAIL NO. S1.32
S 3	4'-0" DIA. DROP MANHOLE	N 546,297.12	E 1,378,792.10	156.00	DROP MANHOLE TYPE 'A DETAIL NO. S1.32
S 4	4'-0" DIA. STD. MANHOLE	N 546,190.01	E 1,378,721.83	156.20	STD MANHOLE DETAIL NO. G5.11
S 5	4'-0" DIA. STD. MANHOLE	N 546,140.64	E 1,378,742.44	156.00	STD MANHOLE DETAIL NO. G5.11
S 6	4'-0" DIA. STD. MANHOLE	N 545,949.77	E 1,379,034.16	154.30	STD MANHOLE DETAIL NO. G5.11

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SIGNATURE OF ENGINEER — DATE 7/28/16

WILLIAM R. ZINK, P.E.
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES — DATE 9/29/16

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

CHIEF, DEVELOPMENT ENGINEERING DIVISION MG — DATE 10-27-16

christopher consultants
engineering · surveying · land planning
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7172 columbia gateway drive (suite 100) · columbia, md 21046-2980
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

DES: ENJ
DRN: DAM
CHK: ENJ
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PUBLIC WATER & SEWER PLANS

600 SCALE MAP NO. ________ BLOCK NO. ________

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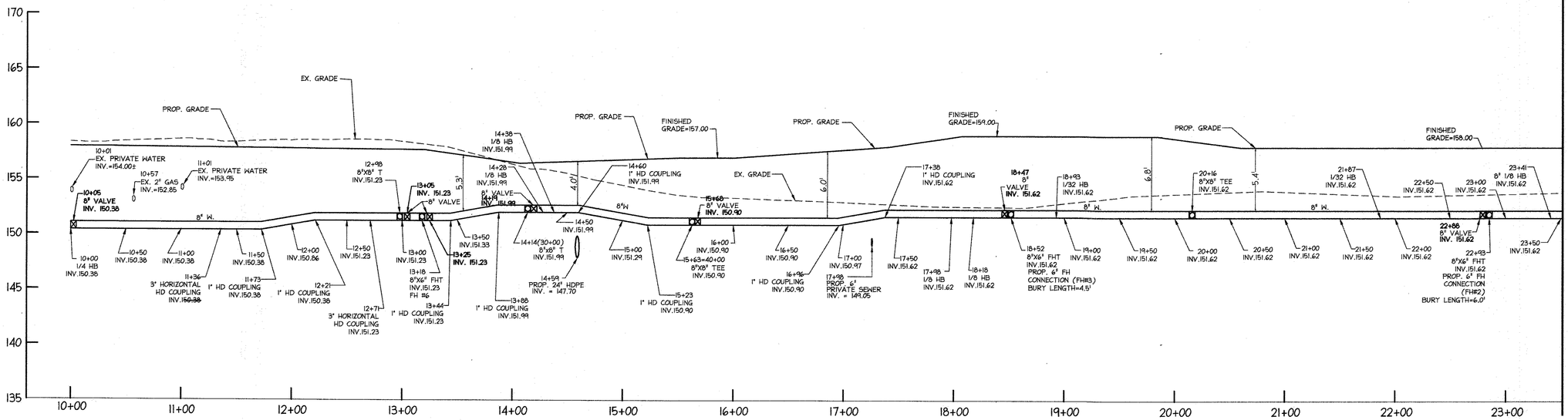
SCALE 1"=50'

SHEET 3 OF 8

MDC-860



MATCHLINE - SEE THIS SHEET FOR CONTINUATION

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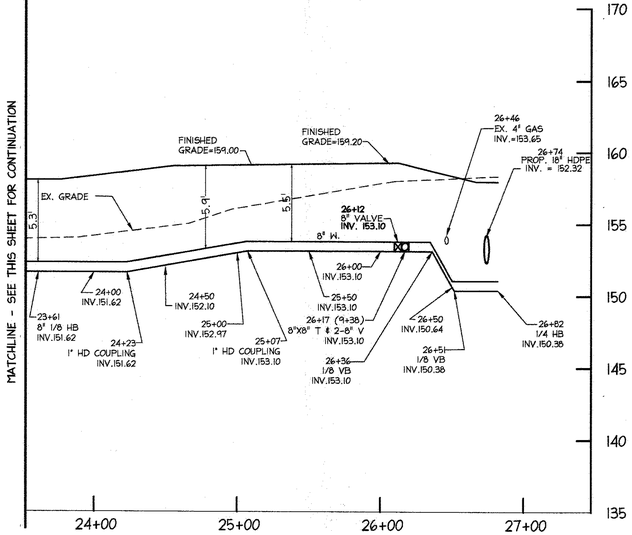
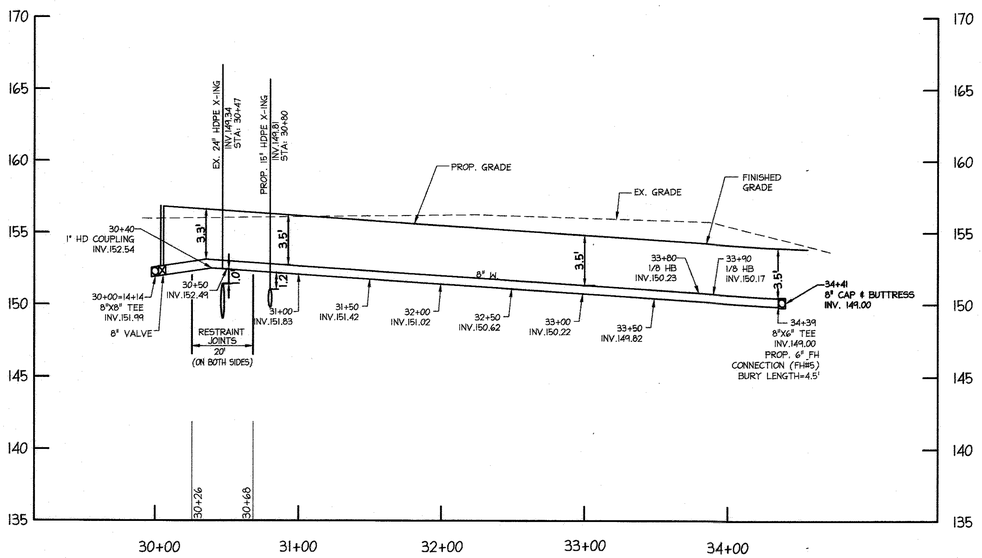
FROM STA: 10+00 TO STA: 26+82



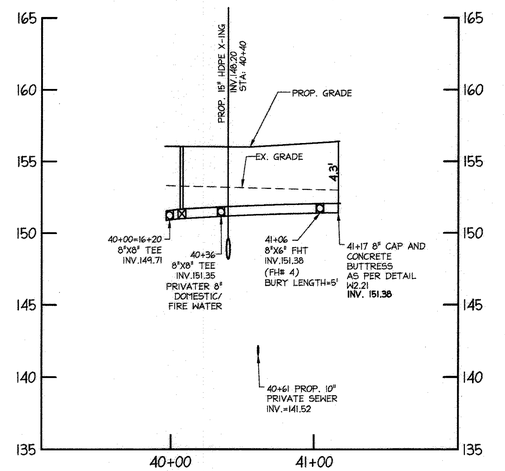
PROFILE SCALE
HORIZ: 1"=50'
VERT: 1"=5'

FROM STA: 30+00 TO STA: 34+39



PROFILE SCALE
HORIZ: 1"=50'
VERT: 1"=5'

FROM STA: 40+00 TO STA: 41+17



PROFILE SCALE
HORIZ: 1"=50'
VERT: 1"=5'

HORIZONTAL
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

VERTICAL
5.0 0 2.5 5.0 10
(IN FEET)
1 inch = 5 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.

SIGNATURE OF ENGINEER — DATE 7/28/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-06-2016

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 9/2/16

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10-27-16

christopher consultants
engineering · surveying · land planning
civil/topo/env consultants, llc
7172 columbia gateway drive (suite 100) · columbia, md 21046-2060
410.872.8995 · metro 301.854.8145 · fax 410.872.8833

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — 20587 — REGISTERED PROFESSIONAL ENGINEER — 7/28/16

DES:	ENJ
DRN:	DAM
CHK:	ENJ
DATE:	09/06/12

BY	NO.	REVISION	DATE
	3	ADDRESS REDLINE COMMENTS	1-6-15
	2	ADDRESS REDLINE COMMENTS	11-18-14
	1	REDLINE REVISIONS - TO USE PVC FOR WATERLINE, NOTES AND ESTIMATE REVISED.	11/2014

PROFILES OF PUBLIC WATER LINES

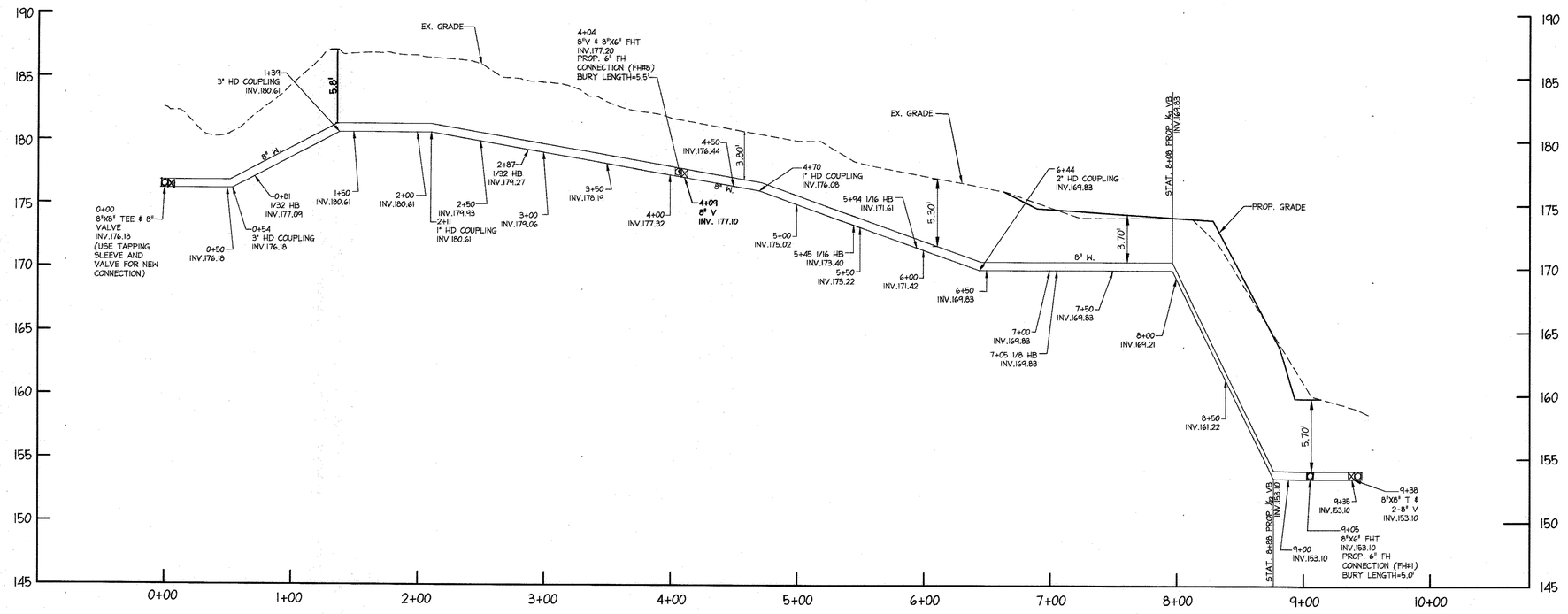
600 SCALE MAP NO. _____ BLOCK NO. _____

PUBLIC WATER AND SEWER PLANS
DORSEY RUN INDUSTRIAL CENTER NORTH SIDE REDEVELOPMENT
MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO.14-4602-D

SCALE AS SHOWN

SHEET 4 OF 8

MDC-860



FROM STA: 0+00 TO STA: 9+40

WATER MAIN SCALE:

HORIZONTAL

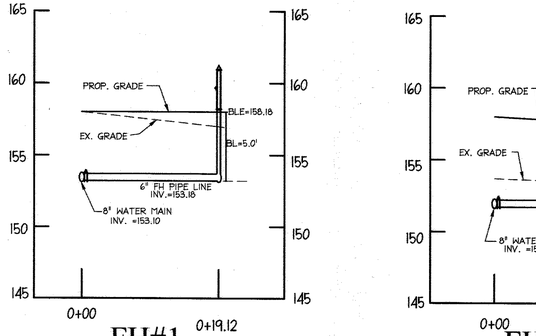
50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

VERTICAL

5.0 0 2.5 5.0 1.0

(IN FEET)
1 inch = 5 ft.



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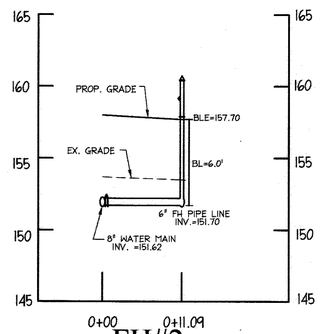

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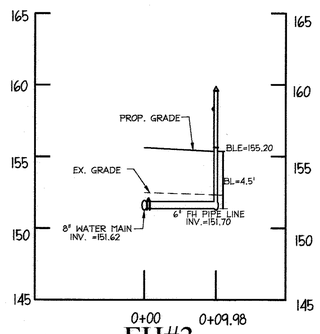

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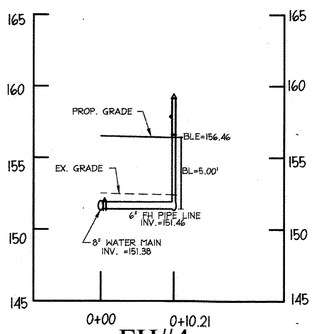

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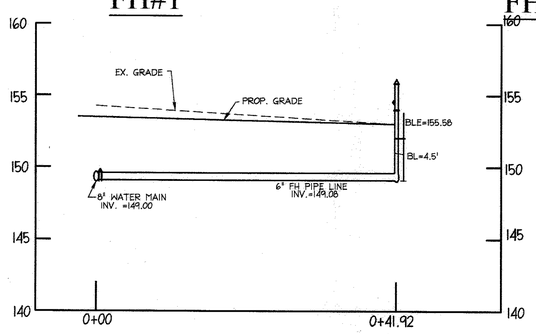

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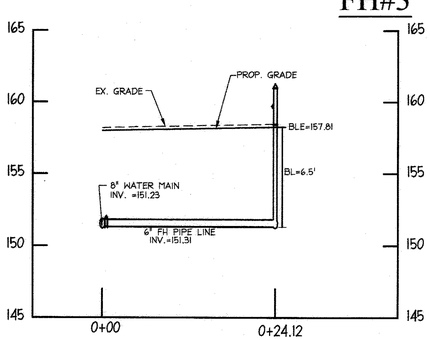

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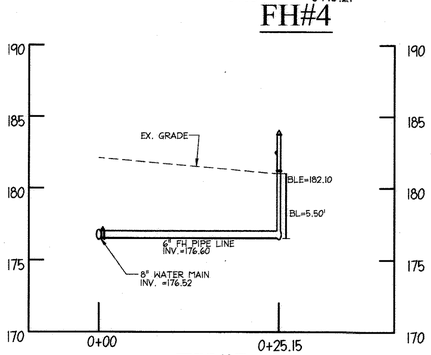

FH#7

FIRE HYDRANTS SCALE:

HORIZONTAL

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

VERTICAL

5 0 2.5 5 10

(IN FEET)
1 inch = 5 ft.

NOTE: REDLINE CHANGES ARE BASED ON DESIGN ACCEPTANCE, NOT CONSTRUCTED WATER MAIN. USING STANDARD PROCEDURES, CID NEEDS TO VERIFY AND SIGN OFF ON IN-FIELD CONDITIONS THROUGH THE AS-BUILT PROCESS AND PER THEIR COMPLIANCE GUIDELINES. ~~DED CANNOT ASSUME RESPONSIBILITY FOR APPROVING IN-FIELD CONDITIONS THAT WERE SUPPOSED TO BE DONE AS AN AS-BUILT APPROVED BY CID.~~

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 9/28/16

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10-27-16

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410.872.6868 · metro 301.621.0146 · fax 410.872.6870

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER — 7/28/16

DES:	ENJ
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PROFILES OF PUBLIC WATER LINES & FIRE HYDRANTS

600 SCALE MAP NO. _____ BLOCK NO. _____

PUBLIC WATER AND SEWER PLANS
DORSEY RUN INDUSTRIAL CENTER
NORTH SIDE REDEVELOPMENT
MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO.14-4602-D

SCALE AS SHOWN

SHEET 5 OF 8

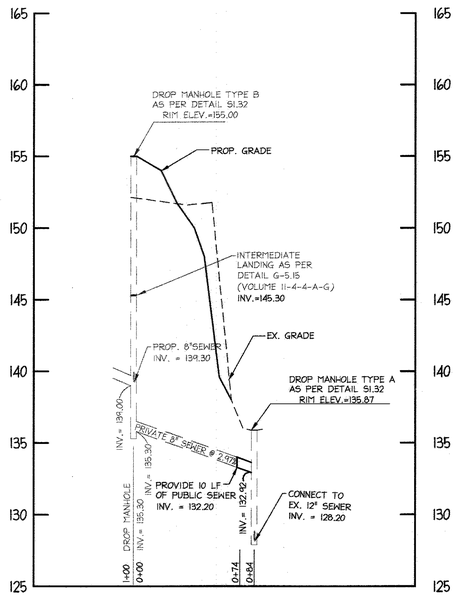
MDC-860

WATER LINE DATA (VERTICAL FITTINGS)

LOCATION	FITTING	NAD 83/91 COORDINATES NORTHING	NAD 83/91 COORDINATES EASTING	INVERT
W.M. STA. 0+54	3" HD COUPLING	N 545083.62	E 1378023.59	176.18
W.M. STA. 1+39	3" HD COUPLING	N 545144.26	E 1378069.78	180.61
W.M. STA. 2+11	1" HD COUPLING	N 545208.47	E 1378116.22	180.61
W.M. STA. 4+70	1" HD COUPLING	N 545425.71	E 1378261.01	176.08
W.M. STA. 6+44	2" HD COUPLING	N 545585.58	E 1378300.73	169.83
W.M. STA. 8+08	8" 1/32 VB	N 545731.59	E 1378344.62	169.83
W.M. STA. 8+88	8" 1/32 VB	N 545798.32	E 1378388.75	153.10
W.M. STA. 11+73	1" HD COUPLING	N 545950.59	E 1378564.30	150.38
W.M. STA. 12+21	1" HD COUPLING	N 545992.07	E 1378588.44	150.38
W.M. STA. 13+44	1" HD COUPLING	N 546096.42	E 1378653.48	151.23
W.M. STA. 13+88	1" HD COUPLING	N 546133.27	E 1378677.54	151.99
W.M. STA. 14+60	1" HD COUPLING	N 546190.82	E 1378689.65	151.99
W.M. STA. 15+23	1" HD COUPLING	N 546243.54	E 1378724.14	150.90
W.M. STA. 16+96	1" HD COUPLING	N 546349.72	E 1378634.23	150.90
W.M. STA. 17+38	1" HD COUPLING	N 546372.71	E 1378599.06	151.62
W.M. STA. 24+23	1" HD COUPLING	N 545946.79	E 1378254.14	151.62
W.M. STA. 25+07	1" HD COUPLING	N 545900.81	E 1378324.44	153.10
W.M. STA. 26+36	8" 1/8 VB	N 545830.20	E 1378432.40	153.10
W.M. STA. 26+51	8" 1/8 VB	N 545867.84	E 1378422.03	150.38
W.M. STA. 30+40	1" HD COUPLING	N 546133.00	E 1378725.13	152.54

WATER LINE DATA (HORIZONTAL FITTINGS)

LOCATION	FITTING	NAD 83/91 COORDINATES NORTHING	NAD 83/91 COORDINATES EASTING	INVERT
W.M. STA. 0+00	8"X8" TS&V	N 545032.43	E 1378003.57	176.18
W.M. STA. 0+81	8" 1/32 HB	N 545099.06	E 1378031.63	177.09
W.M. STA. 2+87	8" 1/32 HB	N 545272.45	E 1378160.61	179.27
W.M. STA. 4+04	8"X6" FHT	N 545370.09	E 1378224.49	177.20
W.M. STA. 4+09	8" V	N 545373.97	E 1378227.03	177.10
W.M. STA. 5+45	8" 1/16 HB	N 545488.48	E 1378301.95	173.40
W.M. STA. 5+94	8" 1/16 HB	N 545536.12	E 1378310.94	171.61
W.M. STA. 7+05	8" 1/8 HB	N 545645.26	E 1378288.11	169.83
W.M. STA. 9+05	8" 1/8 FHT	N 545823.83	E 1378381.44	153.10
W.M. STA. 9+35	8" V	N 545843.94	E 1378416.48	153.10
W.M. STA. 26+17 (9+38)	8"X8" T	N 545840.75	E 1378417.22	153.10
W.M. STA. 10+00 (26+82)	8" 1/4 HB	N 545804.79	E 1378471.25	150.38
W.M. STA. 10+05	8" V	N 545808.08	E 1378473.39	150.38
W.M. STA. 11+36	8" 3" HDC	N 545918.32	E 1378545.52	150.38
W.M. STA. 12+71	8" 3" HDC	N 545814.31	E 1378492.16	151.23
W.M. STA. 12+98	8"X8" T	N 546035.57	E 1378613.76	151.23
W.M. STA. 13+05	8" V	N 546063.92	E 1378632.29	151.23
W.M. STA. 13+18	8"X6" FHT	N 546064.41	E 1378634.23	151.23
W.M. STA. 13+25	8" V	N 546080.25	E 1378642.82	151.23
W.M. STA. 14+14 (30+00)	8"X8" T	N 546154.82	E 1378691.83	151.99
W.M. STA. 14+19	8" V	N 546157.44	E 1378687.83	151.99
W.M. STA. 14+28	8" 1/8 HB	N 546162.73	E 1378679.70	151.99
W.M. STA. 14+38	8" 1/8 HB	N 546172.49	E 1378677.66	151.99
W.M. STA. 15+63 (40+00)	8"X8" T	N 546276.70	E 1378745.84	150.90
W.M. STA. 15+68 (40+03)	8" V	N 546280.58	E 1378748.38	150.90
W.M. STA. 17+98	8" 1/8 HB	N 546405.71	E 1378548.65	151.62
W.M. STA. 18+18	8" 1/8 HB	N 546401.62	E 1378529.07	151.62
W.M. STA. 18+47	8" V	N 546377.55	E 1378513.33	151.62
W.M. STA. 18+52	8"X6" FHT	N 546373.66	E 1378510.78	151.62
W.M. STA. 18+93	8" 1/32 HB	N 546339.04	E 1378488.13	151.62
W.M. STA. 20+16	8"X8" T	N 546299.36	E 1378449.67	151.62
W.M. STA. 21+87	8" 1/32 HB	N 546129.50	E 1378282.60	151.62
W.M. STA. 22+88	8" V	N 546044.71	E 1378227.12	151.62
W.M. STA. 22+93	8"X6" FHT	N 546044.70	E 1378227.12	151.62
W.M. STA. 23+41	8" 1/8 HB	N 546000.77	E 1378198.38	151.62
W.M. STA. 23+61	8" 1/8 HB	N 545980.77	E 1378202.19	151.62
W.M. STA. 26+12	8" V	N 545843.08	E 1378412.57	153.10
W.M. STA. 33+80	8" 1/8 HB	N 545946.93	E 1379009.53	150.23
W.M. STA. 33+90	8" 1/8 HB	N 545948.97	E 1379019.30	150.17
W.M. STA. 34+39	8"X6" FHT	N 545990.01	E 1379046.01	149.00
W.M. STA. 34+41	8" CAP	N 545992.22	E 1379047.59	149.00
W.M. STA. 40+03	8" VALVE	N 546280.58	E 1378748.37	149.71
W.M. STA. 40+36	8"X8" T	N 546306.89	E 1378765.59	151.35
W.M. STA. 41+06	8"X6" FHT	N 546365.37	E 1378803.21	151.38
W.M. STA. 41+17	8"CAP	N 546374.83	E 1378809.36	151.38



PROFILE FOR PUBLIC SEWER EXTENSION

PROFILE SCALE

HORIZ: 1"=50'

VERT: 1"=5'

NOTE: REDLINE CHANGES ARE BASED ON DESIGN ACCEPTANCE, NOT CONSTRUCTED WATER MAIN. USING STANDARD PROCEDURES, CID NEEDS TO VERIFY AND SIGN OFF ON IN-FIELD CONDITIONS THROUGH THE AS-BUILT PROCESS AND PER THEIR COMPLIANCE GUIDELINES. ~~DED CANNOT ASSUME RESPONSIBILITY FOR APPROVING IN-FIELD CONDITIONS THAT WERE SUPPOSED TO BE DONE AS AN AS-BUILT APPROVED BY CID.~~

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SIGNATURE OF ENGINEER — DATE 7/28/16

WILLIAM R. ZINK, P.E.

MD LICENSE NUMBER: 20587

EXPIRATION DATE: 09-06-2016

HORIZONTAL

50 0 25 50 100

(IN FEET)

1 inch = 50 ft.

VERTICAL

5.0 0 2.5 5.0 10

(IN FEET)

1 inch = 5 ft.

*CONSTRUCTION DRAWINGS NOT AGENCY APPROVED

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 8/22/16

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10-27-16

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STATE OF MARYLAND — WILLIAM RAYMOND ZINK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER — 7/28/16

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PROFILES OF PUBLIC SEWER LINES

600 SCALE MAP NO. _____ BLOCK NO. _____

PUBLIC WATER AND SEWER PLANS

DORSEY RUN INDUSTRIAL CENTER NORTH SIDE REDEVELOPMENT

MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO.14-4602-D

SCALE AS SHOWN

SHEET 6 OF 8

MDC-860

NEW WALL LOCATION PLAN

~~1" = 20'~~

(N.T.S.)

SPECIFICATIONS

MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.

B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.

C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.

B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 MODULAR CONCRETE RETAINING WALL UNITS

A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.

FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR TRI-PLANER OR FLAT CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:

COMPRESSIVE STRENGTH = 3000 PSI MINIMUM; ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16"

UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) X 18" (W) X 12" (D) MINIMUM;

UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.

GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR 1"+ PER COURSE PER THE DESIGN; ALIGNMENT AND GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM;

MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

2.02 SHEAR CONNECTORS

A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO + 100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF #57CRUSHED STONE

2.05 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL TYPE SM, BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIEVE SIZE	PERCENT PASSING
2 INCH	100-75
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM D-4318.

B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

2.06 GEOGRID SOIL REINFORCEMENT

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER YARN.

2.07 DRAINAGE PIPE

A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.

PART 3 EXECUTION

3.01 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

3.02 BASE LEVELING PAD

A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.

B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.

E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.

D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

3.06 CAP INSTALLATION

A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

EXISTING WALL NOTE:
WITH THE NEW WALL IN PLACE, EXISTING WALL SYSTEM (BLOCKS AND GEOGRIDS) SITUATED BEHIND NEW WALL WILL NO LONGER BE FUNCTIONAL. EXISTING BLOCK COURSES FOR THE EXISTING WALL MAY THEN BE DEMOLISHED OR STAY IN PLACE (BURIED) AT CONTRACTOR'S DISCRETION.

TYPICAL WALL SECTION

N.T.S.

NOTE: EXISTING RETAINING WALL WILL NO LONGER BE LOAD BEARING AFTER THE CONSTRUCTION OF THE NEW WALL

HOWARD COUNTY NOTES:

1. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
2. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN .
3. ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
4. THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
5. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
6. WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
7. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD COUNTY RIGHT-OF-WAY OR EASEMENT.

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS 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. 14434, EXPIRATION DATE: 05/13/17.

DATE PLOTTED: 10/19/2015 5:10 PM

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

NEW RETAINING WALL PLAN & CONSTRUCTION DETAILS
DORSEY RUN INDUSTRIAL CENTER
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER: 15439-A	DESIGNED BY: HM		
SCALE: AS SHOWN	DRAWN BY: HM	1 of 2 SHEET	
DATE: 10/19/2015	APPROVED BY: RWS		

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES 9/29/16 DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION MG 10.27.16 DATE

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

		BY	NO.	REVISION	DATE
DES:	ENJ				
DRN:	DAM				
CHK:	ENJ				
DATE:	09/06/12		4	RETAINING WALL	4/1/16

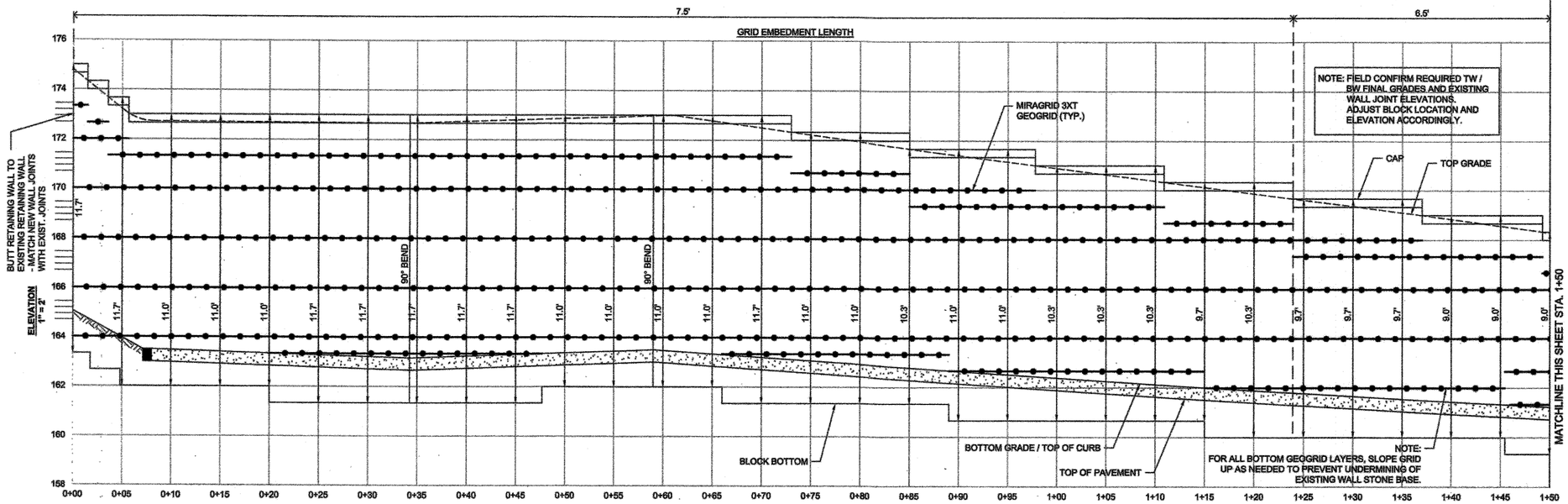
600 SCALE MAP NO. ______ BLOCK NO. ______

PUBLIC WATER AND SEWER PLANS
DORSEY RUN INDUSTRIAL CENTER
NORTH SIDE REDEVELOPMENT
MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO.14-4602-D

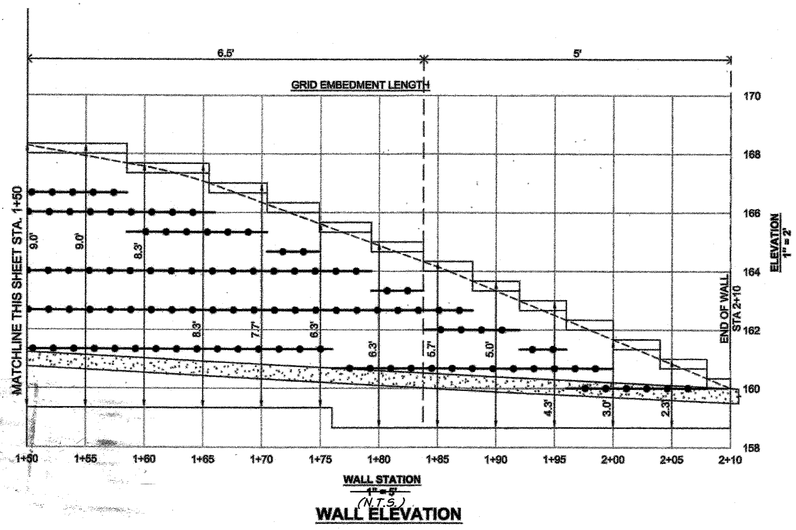
SCALE

SHEET 7 OF 8

MDC-860



WALL ELEVATION



WALL ELEVATION

NOTE: THE EXISTING RETAINING WALL LOCATED DIRECTLY BEHIND THIS PROPOSED WALL WILL NO LONGER BE LOAD BEARING AFTER THE CONSTRUCTION OF THIS NEW WALL IS COMPLETE. SEE SHEET 7 FOR THE LOCATION OF THE WALLS.

DATE PLOTTED: 10/16/2015 3:14 PM

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 14494, EXPIRATION DATE: 6/9/2017.

STATE OF MARYLAND — WILLIAM R. STUDEBAKER — No. 14494 — PROFESSIONAL ENGINEER

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 · WWW.HCEA.COM Fax: (410) 880-4098

NEW RETAINING WALL ELEVATION
DORSEY RUN INDUSTRIAL CENTER
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER:	15439-A	DESIGNED BY:	HM
SCALE:	AS SHOWN	DRAWN BY:	HM
DATE:	10/19/2015	APPROVED BY:	RWS

2 of 2 SHEET

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF UTILITIES — DATE 9/29/16

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10-27-16

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410.872.2050 · metro 301.596.0145 · fax 410.872.2053

STATE OF MARYLAND — WILLIAM R. STUDEBAKER — No. 14494 — PROFESSIONAL ENGINEER 9/29/16

DES:	ENJ
DRN:	DAM
CHK:	ENJ
DATE:	09/06/12

BY	NO.	REVISION	DATE
	4	RETAINING WALL	4/1/16

600 SCALE MAP NO. _____ BLOCK NO. _____

PUBLIC WATER AND SEWER PLANS
DORSEY RUN INDUSTRIAL CENTER
NORTH SIDE REDEVELOPMENT
MONTEVIDEO ROAD AND FUTURE DORSEY RUN ROAD
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO.14-4602-D

SCALE

SHEET 8 OF 8

MDC-860