BENCHMARK INFORMATION

B.M.#1 - HOWARD COUNTY CONTROL STATION #24C2 - HORIZONTAL - NAD '03) (LOCATED IN THE MIDDLE OF MD ROUTE 40; BALTIMORE NATIONAL PIKE, IN THE NORTHEAST SIDE OF THE THE MEDIAN, AT THE INTERSECTION ON ROGERS AVENUE AND MD ROUTE 40) ELEVATION = 354.017 - VERTICAL - (NAVD '88)

8.M.#2 — HOWARD COUNTY CONTROL STATION #25A2 — HORIZONTAL — (NAO '83) (LOCATED ALONG ROGERS AVENUE, SOUTH OF OAK WEST DRIVE. APPROX. 6.2' SW OF SANITARY MANHOLE. ALONG THE EAST SIDE OF ROAD, APPROX. 67.8' NORTH OF HOUSE NO. 3329) N 587,502,7292 £ 1,366,556.3776

ELEVATION = 348.145 - VERTICAL - (NAVD '88)

SHEE	T INDEX CHART
SHEET	TITLE
1	TITLE SHEET
2	PLAN SHEET
3	WATER MAIN PROFILES & CHARTS
4	WATER MAIN PROFILES & CHARTS
5	SEWER MAIN PROFILES & CHARTS
6	SED & EROSION CONTROL PLAN, NOTES & DETAILS

DEVELOPER'S CERTIFICATION " I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR

EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS

ENGINEER'S CERTIFICATION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL

CONSERVATION DISTRICT.

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND AS SHOWN ON THE SITE DEVELOPMENT PLAN,

SDR-03-026 & ON THESE PLANS.

FOR THE BUILD FOR THE BUILD

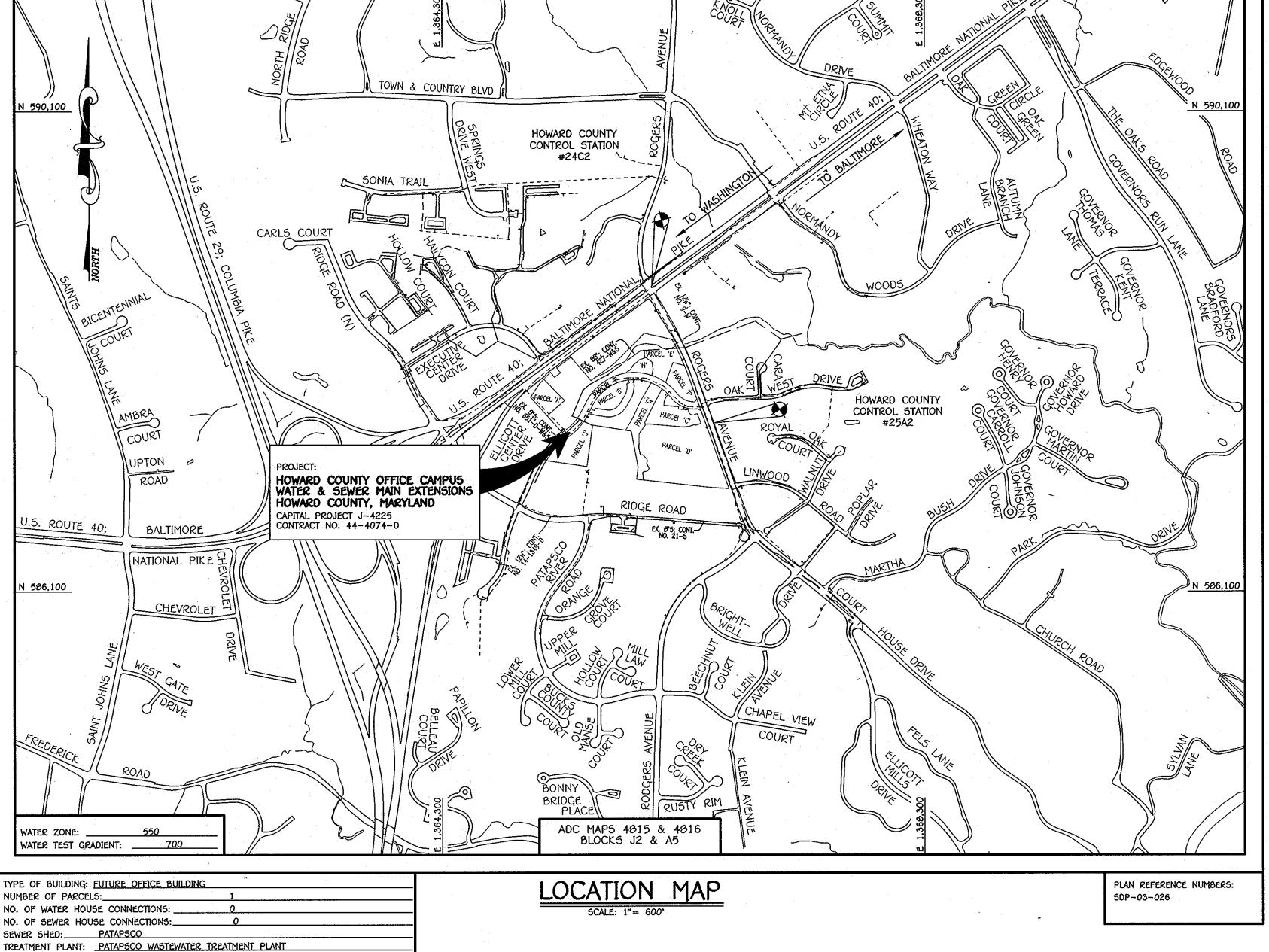
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.

THIS DRAWING SUPERSEDES THE PREVIOUS DRAWING SIGNED IN APRIL, 2003

MDE PERMIT AND TRACKING NO.: 200266336

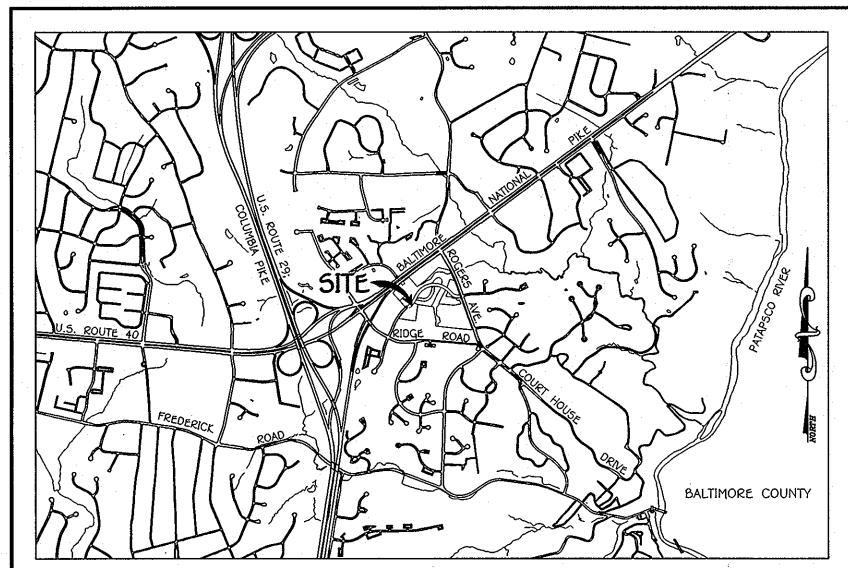
EP-12-033

CITY OF BALTIMORE



CAPITAL PROJECT J-4225 CONTRACT NO. 44-4074-D HOWARD COUNTY OFFICE CAMPUS

WATER & SEWER MAIN EXTENSIONS HOWARD COUNTY, MARYLAND



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 OR ABOUT MARCH, 2011 BY FISHER, COLLINS & CARTER, INC. . HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '03/91' AS PROJECTED

BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 24C2 & NO. 25A2. ALL VERTICAL CONTROLS ARE BASED ON NAVO '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS I. 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 BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF THE 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 . FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL

HAVE A COPY OF VOLUME IV ON THE JOB SITE. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL • AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING

UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE

STARTING WORK SHOWN ON THESE PLANS: BUREAU OF UTILITIES 410-313-4900

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. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONSTRUCTION OF THE MAIN.

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

PART B: WATER MAIN GENERAL NOTES

1. ALL WATER MAINS SHALL BE AWWA C900 PVC; DR-10. 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 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 D.I.P. AND PVC WATER MAINS IN ACCORDANCE

WITH HOWARD COUNTY DESIGN MANUAL 3. 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, SEVENTEEN (17) POUND SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSES. 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.

PART C: SEWER MAIN GENERAL NOTES

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 G5.52. 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(5) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVED

OWNERS .				
HOWARD COUNTY MD	3330 ROGERS AVENUE LLC			
3430 COURTHOUSE DRIVE	SUITE 102			
ELLICOTT CITY, MD 21042	5300 DORSEY HALL DRIVE			
410-313-4400	ELLICOTT CITY, MD 21042			

3330 ROGERS AVENUE LLC SUITE 102 5300 DORSEY HALL DRIVE ELLICOTT CITY, MD 21042 443-367-0422

CAPITAL PROJECT J-4225 CONTRACT NO. 44-4074-D HOWARD COUNTY OFFICE CAMPUS WATER & SEWER MAIN EXTENSIONS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12043 EXPIRATION DATE IS 7/16/12. FISHER, COLLINS & CARTER, INC



DESIGNED BY B.C.R. DRAWN BY B.C.R. CHECKED BY P.W.K. FILE NAME . WATER & SEWER MAIN EXTENSION TITLE SHEET APRIL, 2012

WATER & SEWER MAIN EXTENSIONS TITLE SHEET 600' SCALE MAP NO. 24/25 BLOCK NO. 6/1

F.C.C. WORK ORDER NO. ____10040

HOWARD COUNTY OFFICE CAMPUS CAPITAL PROJECT J-4225

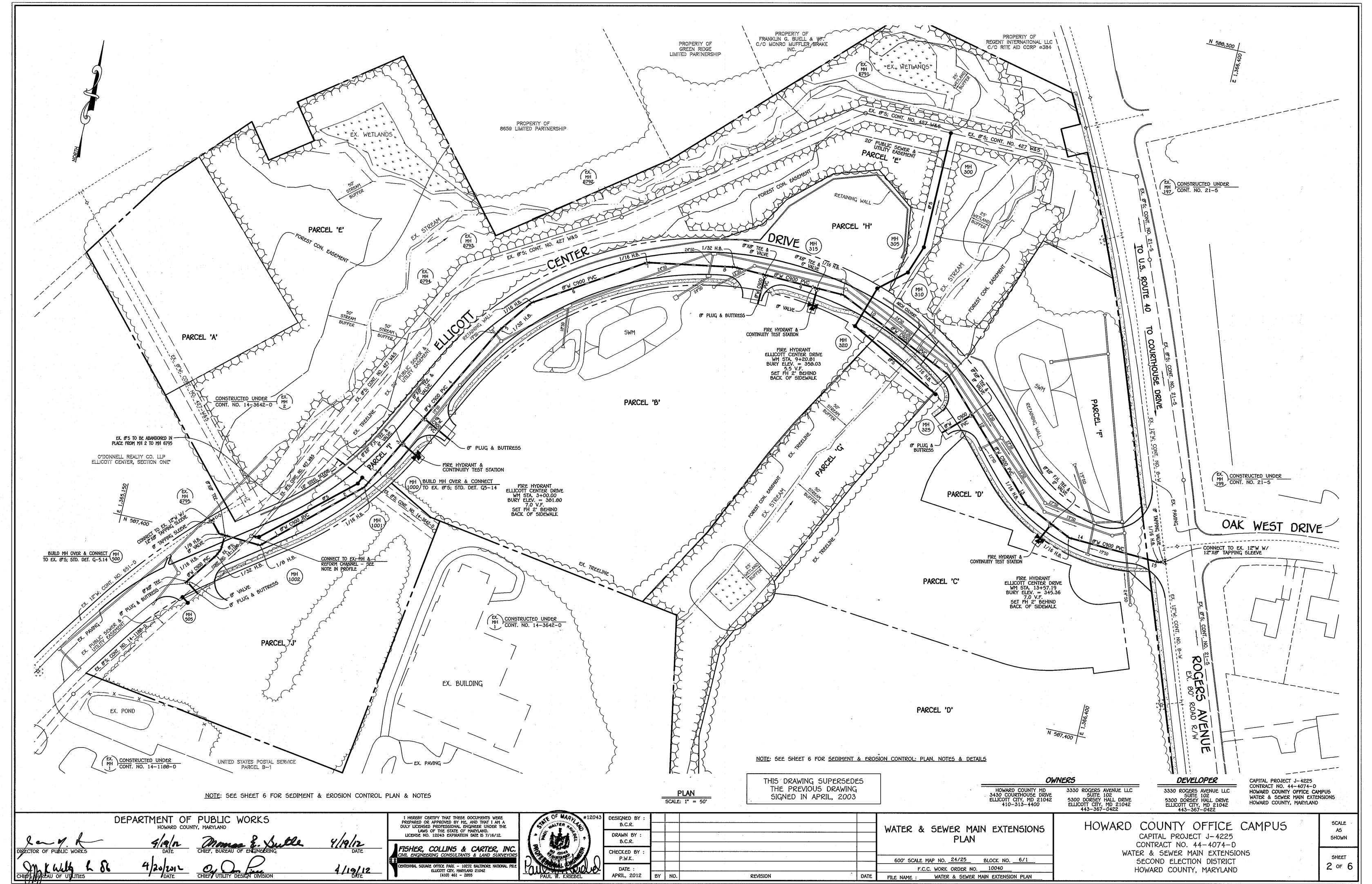
CONTRACT NO. 44-4074-D WATER & SEWER MAIN EXTENSIONS SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DEVELOPER

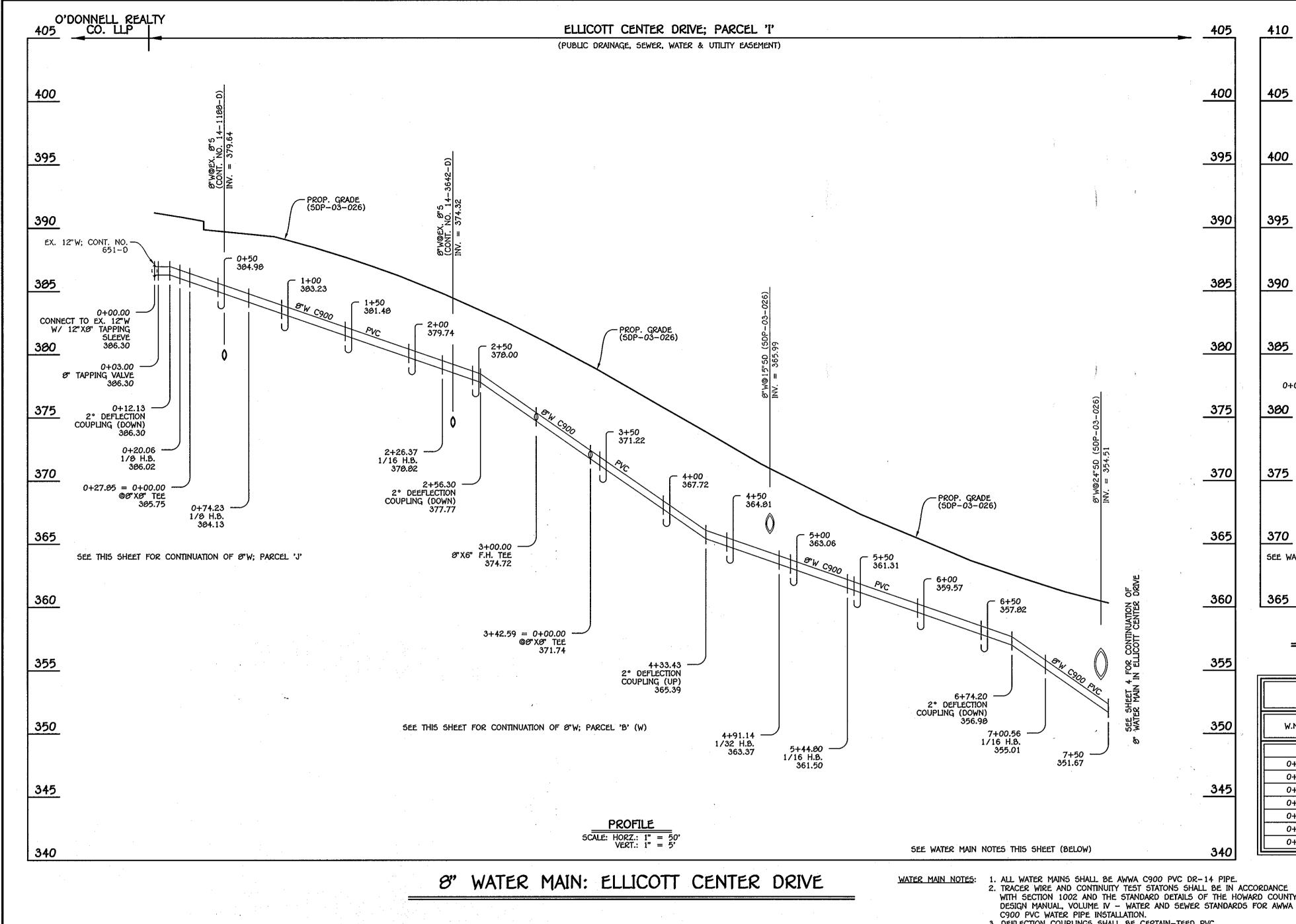
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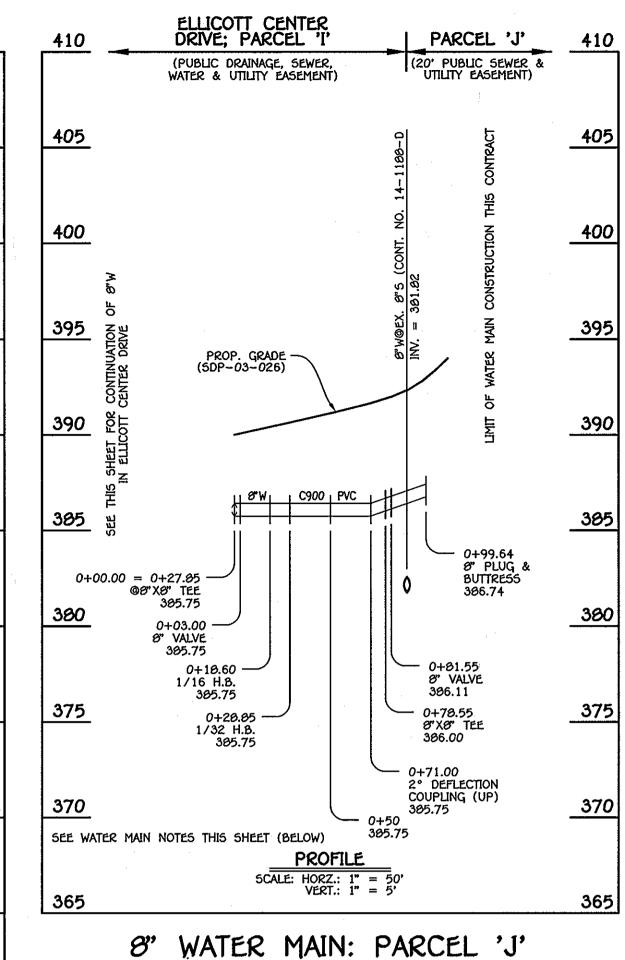
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of 6



1:\2010\10040\dwg\10040-3001 Water and Sewer Base Plan 40-4074 (Redline).dwg, 4/17/2012 1





WATER MAIN TABULATION CHART				
W.M. STA.	APPURTENANCE	NORTHING	easting	
	8" WATER MAIN: F	PARCEL 'J'		
0+00.00	8" X8" TEE.	507404.23	1365284.97	
0+03.00	8" VALVE	507401.24	1365204.01	
0+18.60	1/16 H.B.	507305.66	1365284.00	
0+28.85	1/32 H.B.	507376.33	1365279.77	
0+78.55	Ø"XØ" TEE	507335.72	1365251.11	
0+81.55	8" VALVE	507333.99	1365253.56	
0+99.64	Ø PLUG & BUTTRESS	507323.55	1365260.34	

395	ELLICOTT (DRIVE; PAR	CENTER CEL 'I'	PARCEL 'B'	395
	(PUBLIC DRAINAC WATER & UTILITY	E, SEWER, EASEMENT)		
390		DRIVE (50P-03-026) 91		390
305	₹ å	'€' ELLICOTT CENTER DRIVE Ø'W@15"50 (50P-0 INV. = 373.91		305
380	CONTINUATION OF 8" CENTÉR DRIVE	W. ELLICO	PROP. GRADE (5DP-03-026)	
375	SHEET FOR N ELLICOTT	0	Ø"W C900 PVC	ON THIS CONTRACT
370	SEE THIS	ή <u></u>	0+43.72 8" PLUG &	MAIN CONSTRUCTION THIS
0+00 365	0.00 = 3+42.59 - @8'X8' TEE 371.74 0+03.00 8' VALVE 371.74		Ø* PLUG & BUTTRESS 371.74	or 9° WATER
360				돌 _ 360
SEE WAT	er main notes th			
	50	PROFI		
355	,	CALE: HORZ.: VERT.:	ī" = 5'	355

8" WATER MAIN: PARCEL 'B' (W)

WA	TER MAIN TABL	LATION CH	ART
W.M. STA.	APPURTENANCE	NORTHING	easting
	8° WATER MAIN: PAI	SCET ,B, (M)	
0+00.00	8" X8" TEE	507607.53	1365497.28
0+03.00	8" VALVE	507606.10	1365499.97
0+43.72	Ø PLUG & BUTTRESS	587587.90	1365536.35

WA	WATER MAIN TABULATION CHART					
W.M. STA.	APPURTENANCE	NORTHING	EASTING			
	8" WATER MAIN; ELLICOTT CENTER DRIVE					
0+00.00	12"X8" TAPPING SLEEVE	587419.62	1365263.05			
0+03.00	8" TAPPING VALVE	587417.38	1365265.05			
0+20.06	1/0 H.B.	507404.63	1365277.19			
0+27.05	8" X8" TEE	587404.23	1365204.97			
0+74.23	1/0 H.B.	587401.84	1365331.29			
2+26.37	2+26.37 1/16 H.B.		1365443.63			
3+00.00	Ø"Х6"	507569.75	1365477.62			
3+42.59	Ø"XØ" TEE	587607.53	1365497.28			
4+91.14	1/32 H.B.	587739.30	1365565.07			
5+44.00	1/16 H.B.	587782.54	1365597.63			
7+00.56	1/16 H.B.	507066.05	1365729.12			

- WITH SECTION 1002 AND THE STANDARD DETAILS OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV WATER AND SEWER STANDARDS FOR AWWA
- 3. DEFLECTION COUPLINGS SHALL BE CERTAIN-TEED PVC
- HIGH DEFLECTION COUPLINGS. 4. ALL WATER HOUSE CONNECTIONS AND TAPS SHALL BE PERFORMED USING

THIS DRAWING SUPERSEDES THE PREVIOUS DRAWING SIGNED IN APRIL, 2003

CAPITAL PROJECT J-4225
CONTRACT NO. 44-4074-D
HOWARD COUNTY OFFICE CAMPUS
WATER & SEWER MAIN EXTENSIONS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

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. 12043 EXPIRATION DATE IS 7/16/12. FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

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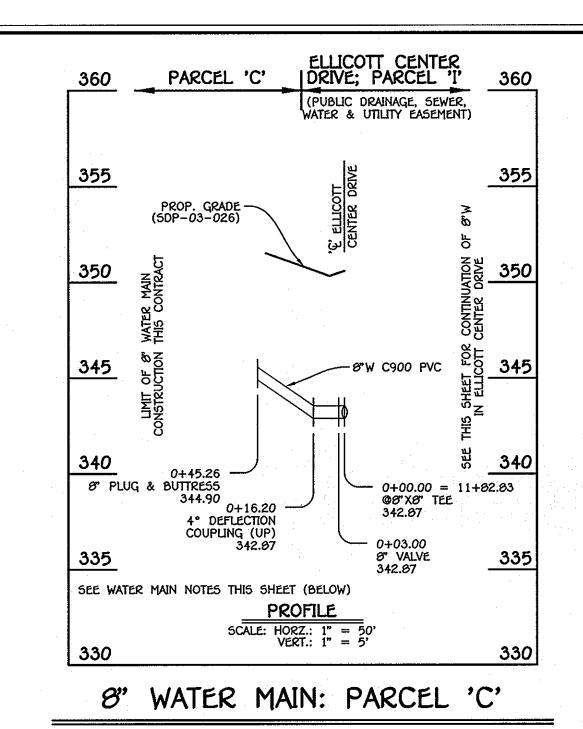
2043	DESIGNED BY :						
	B.C.R.					WATER MAIN EXTENSIONS	
	DRAWN BY : B.C.R.					PROFILES & CHARTS	:
	CHECKED BY :						
'n I	P.W.K.	<u> </u>		<u>,</u>		600' SCALE MAP NO. 24/25 BLOCK NO. 6/1	
IJ	DATE :					F.C.C. WORK ORDER NO. 10040	
	APRIL, 2012	βY	NO.	revision	DATE	FILE NAME : WATER MAIN EXTENSION PROFILES	

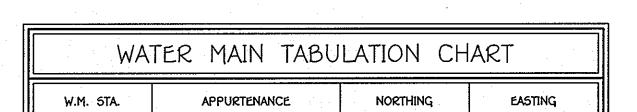
HOWARD COUNTY OFFICE CAMPUS CAPITAL PROJECT J-4225

CONTRACT NO. 44-4074-D WATER & SEWER MAIN EXTENSIONS SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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3 of 6





8" WATER MAIN: PARCEL 'C'

587770.06

587767.98

587738.60

1366176.56

1366174.41

1366144.02

8" X8" TEE

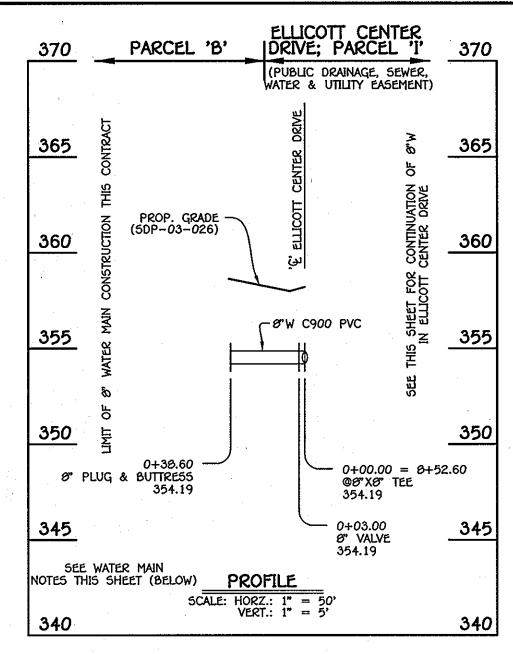
8" VALVE

Ø PLUG & BUTTRESS

0+00.00

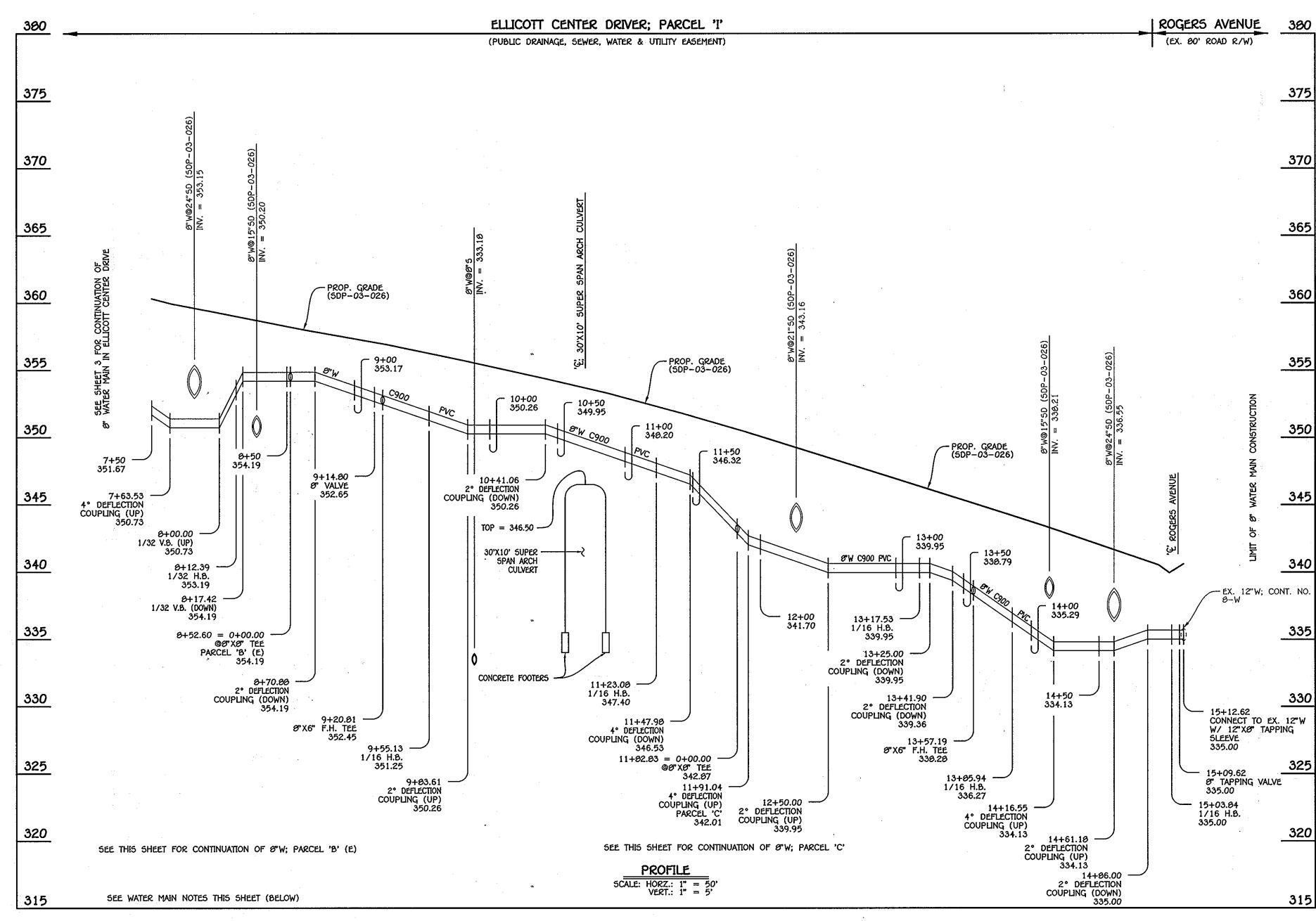
0+03.00

0+45.26



8"	WATER	MAIN:	PARCEL	'B'	(E)	
			Annual Control of the Control			

WATER MAIN TABULATION CHART				
W.M. STA.	APPURTENANCE	NORTHING	easting	
	8" WATER MAIN: PA	RCEL 'B' (E)		
0+00.00	8" X8" TEE	587884.54	1365979.43	
0+03.00	Ø" VALVE	507001.56	1365079.36	
0+36.60	Ø" PLUG & BUTTRE55	507045.97	1365070.51	



- WATER MAIN NOTES: 1. ALL WATER MAINS SHALL BE AWWA C900 PVC DR-14 PIPE. 2. TRACER WIRE AND CONTINUITY TEST STATONS SHALL BE IN ACCORDANCE WITH SECTION 1002 AND THE STANDARD DETAILS OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV - WATER AND SEWER STANDARDS FOR AWWA
 - C900 PVC WATER PIPE INSTALLATION. 3. DEFLECTION COUPLINGS SHALL BE CERTAIN-TEED PVC

A SADDLE.

HIGH DEFLECTION COUPLINGS. 4. ALL WATER HOUSE CONNECTIONS AND TAPS SHALL BE PERFORMED USING

8" WATER MAIN: ELLICOTT CENTER DRIVE

WA	WATER MAIN TABULATION CHART				
W.M. STA.	APPURTENANCE	NORTHING	easting		
	8" WATER MAIN; ELLICOT	T CENTER DRIVE			
Ø+12.39	1/32 H.B.	507005.53	1365ø39.24		
. 0+52.60	Ø"XØ" TEE	507004.56	1365079.43		
9+14.60	8° VALVE	587883.07	1365941.63		
9+20.01	Ø"X6" F.H. TEE	587882.93	1365947.63		
9+55.13	1/16 H.B.	587882.10	1365901.94		
11+23.00	1/16 H.B.	587813.02	1366135.03		
11+82.83	Ø"XØ" TEE	587770.06	1366176.56		
13+17.53	1/16 H.B.	587673.23	1366270.20		
13+57.19	Ø"X6" F.H. TEE	587656.54	1366306.17		
13+05.94	1/16 H.B.	587644.43	1366332.24		
15+03.04	1/16 H.B.	507639.40	1366450.04		
15+09.62	9.62 8° TAPPING VALVE 507641.30 1366				
15+12.62	12"X8" TAPPING SLEEVE	507642.37	1366450.33		

THIS DRAWING SUPERSEDES THE PREVIOUS DRAWING SIGNED IN APRIL, 2003

CAPITAL PROJECT J-4225 CONTRACT NO. 44-4074-D HOWARD COUNTY OFFICE CAMPUS WATER & SEWER MAIN EXTENSIONS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

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. 12043 EXPIRATION DATE IS 7/16/12. FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2055

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PAUL	EL

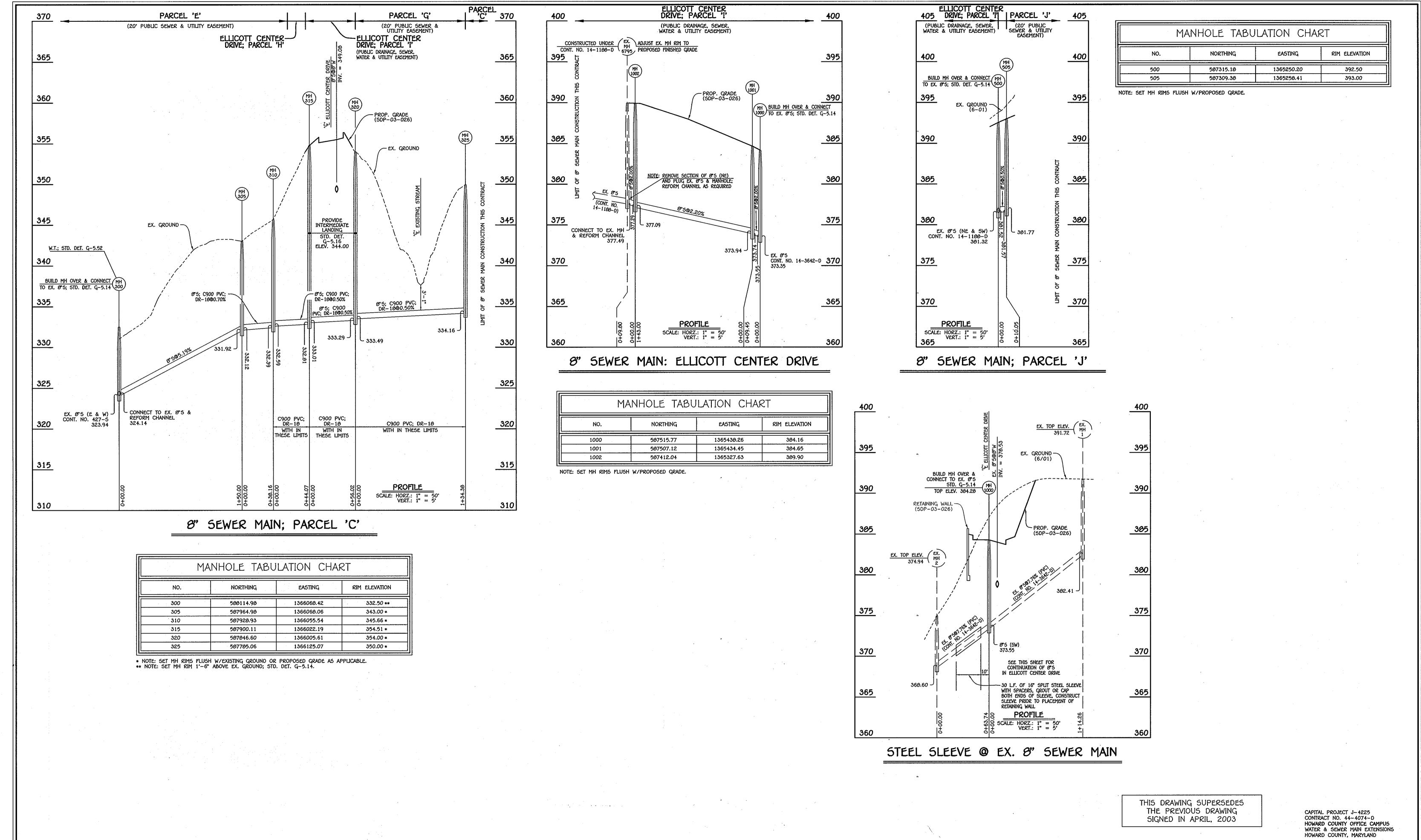
Designed by : B.C.R.					LATER MAIN EVIENCIONS
DRAWN BY : B.C.R.					WATER MAIN EXTENSIONS PROFILES & CHARTS
CHECKED BY : P.W.K.				·	600' SCALE MAP NO. <u>24/25</u> BLOCK NO. <u>6/1</u>
DATE : APRIL, 2012	ВY	NO.	REVISION	DATE	F.C.C. WORK ORDER NO

HOWARD COUNTY OFFICE CAMPUS CAPITAL PROJECT J-4225 CONTRACT NO. 44-4074-D

WATER & SEWER MAIN EXTENSIONS SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

AS. **5HOWN** SHEET 4 of 6

SCALE



DESIGNED BY

B.C.R.

DRAWN BY :

B.C.R.

CHECKED BY

P.W.K.

DATE : APRIL, 2012 HOWARD COUNTY OFFICE CAMPUS

CAPITAL PROJECT J-4225

CONTRACT NO. 44-4074-D

WATER & SEWER MAIN EXTENSIONS

SECOND ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

SEWER MAIN EXTENSIONS

PROFILES & CHARTS

600' SCALE MAP NO. 24/25 BLOCK NO. 6/1

F.C.C. WORK ORDER NO. 10040

SEWER MAIN EXTENSION PROFILES

DATE

SCALE

5HOWN

SHEET

5 of 6

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. 12043 EXPIRATION DATE IS 7/16/12.

FISHER, COLLINS & CARTER, INC.

1:\2010\10040\dwg\10040-3001 Water and Sewer Base Plan 40-4074

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

USING VEGETATION AS COVER FOR BARREN SOIL TO PROTECT IT FROM FORCES THAT CAUSE EROSION.

PURPOSE VEGETATIVE STABILIZATION SPECIFICATIONS ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZEDG. WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUN-OFF TO DOWNSTREAM AREAS, AND IMPROVING WILDLIFE HABITAT AND VISUAL RESOURCES.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE SHALL BE USED ON DENUDED AREAS AS SPECIFIED ON THE PLANS AND MAY BE USED ON HIGHLY ERODIBLE OR CRITICALLY ERODING AREAS. THIS SPECIFICATION IS DIVIDED INTO TEMPORARY SEEDING, TO QUICKLY ESTABLISH VEGETATIVE COVER FOR SHORT DURATION (UP TO ONE YEAR), AND PERMANENT SEEDING, FOR LONG TERM VEGETATIVE COVER. EXAMPLES OF APPLICABLE AREAS FOR TEMPORARY SEEDING ARE TEMPORARY SOIL STOCKPILES, CLEARED AREAS BEING LEFT IDLE BETWEEN CONSTRUCTION PHASES, EARTH DIKES, ETC. AND FOR PERMANENT SEEDING ARE LAWNS. DAMS, CUT AND FILL SLOPES AND OTHER AREAS AT FINAL GRADE, FORMER STOCKPILE AND STAGING AREAS, ETC.

EFFECTS ON WATER QUALITY AND QUANTITY PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF. INFILTRATION EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. VEGETATION, OVER TIME, WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH. VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT. NUTRIENTS. AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS.

PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITH THE ROOT ZONE. SEDIMENT CONTROL DEVICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING AND VEGETATIVE ESTABLISHMENT TO PREVENT LARGE QUANTITIES OF SEDIMENT AND ASSOCIATED CHEMICALS AND NUTRIENTS FROM WASHING INTO SURFACE WATERS SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

SITE PREPARATION INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OF PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.

PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING. iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING

DISTURBED AREA OVER 5 ACRES. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS) SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND

FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE

UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION. FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE. FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADEMARK AND WARRANTEE

OF THE PRODUCER. III. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A *100 MESH SIEVE AND 90-100% WILL PASS THROUGH A *20 MESH SIEVE.

IV. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS. SEEDBED PREPARATION TEMPORARY SEEDING a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED

BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS. PERMANENT SEEDING

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT: SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.

SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM). THE SOIL SHALL CONTAIN LESS THAN 40CLAY, BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZAS IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.

ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH

SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED

IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING

APPLY SOIL AMENDMENTS AS PER SOIL TESTS OR AS INCLUDED ON THE PLANS. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES. AND READY THE AREA FOR SEED AND APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED. PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS

SEED SPECIFICATIONS ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS

IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB. NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED. INOCULATION - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°-80° F. CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDED, OR A CULTIPACKER SEDER. a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING. THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN; MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS); 200 L85/AC: K20 (POTA55IUM): 200 L85/AC.

b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE, (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 265 OR 266. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL

CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE) STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT. RYE OR OAT STRAW, REASONABLE BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED

SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW. WOOD CELLULOSE FIBER MULCH (WCFM) a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS

WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE

COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY

WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE

PHYTOL-TOXIC. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM., DIAMETER APPROXIMATELY 1 MM., pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN

this section and maintained until the seeding season returns and seeding can be performed in accordance WITH THESE SPECIFICATIONS. ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH

SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED. THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE

WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY

PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD: i. A MULCH ANCHORING TOOL IS AS TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO

FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL

CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND CREST OF BANKS. THE REMAINDER OF AREA SHOULD BE APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS-SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70 PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

NETTING IS USUALLY AVAILABLE IN ROLLS 4' TO 15' FEET WIDE AND 300 TO 3.000 FEET LONG. INCREMENTAL STABILIZATION - CUT SLOPES ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES, SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.

LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

CONSTRUCTION SEQUENCE (REFER TO FIGURE 3 BELOW): EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY

RUNOFF FROM THE EXCAVATION. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.

PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE OVERSEED PREVIOUSLY SEEDED AREAS NECESSARY. NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY

INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15", OR

WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.

CONSTRUCTION SEQUENCE: REFER TO FIGURE 4 (BELOW): a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.

PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE. C. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.

STABILIZATION.

OATS

vre office park – 10272 Baltimore National F

PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECCESSARY. NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF AND PLACEMENT OF TOPSOIL (IF REQUIRED) GRADING AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION UOT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

SECTION 2 - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON THE DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER. PERMANENT SEEDING IS REQUIRED.

SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.

FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THE TABLE SHALL BE DELETED AND the rates recommended by the testing agency shall be written in. soil tests are not required for

55	ED MIXTURE (HA FRO	FERTILIZER RATE	LIME RATE			
NO.	SPECIES	APPLICATION RATE (Ib/ac)	seeding dates	SEEDING DEPTHS	(10-10-10)	
	BARLEY	122	2/1 5/15	1" - 2"		

8/15 - 10/15

SECTION 3 - PERMANENT SEEDING

seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally RECEIVING LOW MAINTENANCE

A. SEED MIXTURES - PERMANENT SEEDING SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR SPECIAL PURPOSES SUCH AS

WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION - Critical area planting. For special lawn maintenance areas, see sections IV sod V turfgrase FOR SITES HAVING DISTURBED AREA OVER 5 AREAS, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE rates recommended by the soil testing agency shall be written in. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 1/2 LBS/1000 SQ. FT.

(LBS./AC.), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE

	SEED MIXTURE (HARDINESS FROM TABLE	FERTILIZER RATE (10-20-20)		LIME RATE					
NO.	SPECIES	APPLICATION RATE (16/ac)	seeding dates	SEEDING DEPTHS	N	P205	K20		
3	TALL FESCUE (05%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" – 2"	90 lb/ac (2.0 lb/	175 b/ac (4 b/		2 tons/ac (100 lb/	
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"	1000sf)	1000sf)		1000sf)	

SECTION 3 - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM OF ONE YEAR ON DISTURBED AREAS GENERALLY

SEED MIXTURES - PERMANENT SEEDING i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR SPECIAL PURPOSES SUCH AS

WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD V TURFGRASS.

II. FOR SITES HAVING DISTURBED AREA OVER 5 AREAS, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.

iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 1/2 LBS/1000 SQ. FT. (LBS./AC.), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE

	SEED MIXTURE (HARDINESS FROM TABLE		FERTILIZER RATE (10-20-20)			LIME RATE		
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
3	TALL FESCUE (05%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/	175 lb/ac (4 lb/	175 lb/ac (4 lb/	2 tons/ac (100 lb/
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 ⁻ 30	3/1 - 5/15, 0/15 - 10/15	1" - 2"	1000sf)	1000sf)	1000sf)	1000sf)

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 40 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).

ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES. DIKES. PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1. CHAPTER 12. OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR

PROPER GERMINATION AND ESTABLISHMENT OF GRASSES. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL

INSPECTOR. 7) SITE ANALYSIS:

> AREA TO BE VEGETATIVELY STABILIZED 0.1330 ACRES TOTAL CUT > N/A

OFFSITE WASTE/BORROW AREA LOCATION NZA CU. YDS 8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR CONSTRUCTION OF THE WASTEWATER PUMPING STATION, ACCESS DRIVEWAY &

UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY

BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL

BY THE INSPECTION AGENCY IS MADE. 11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THE THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

SECTION 21:

STANDARD AND SPECIFICATIONS FOR TOPSOIL 1) DEFINITION: PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.
2) PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

3) SPECIFICATIONS: A.TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. B.TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS.

C.TOPSOIL SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1.5" IN DIAMETER.

4) APPLICATION: A.TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4"; AVOID SURFACE IRREGULARITIES B.PLACE TOPSOIL AND APPLY SOIL AMENDMENTS AS SPECIFIED IN "STANDARDS AN SPECIFICATIONS FOR VEGETATIVE STABILIZATION".

C.TOPSOIL SHALL NOT BE PLACED DURING FROZEN, MUDDY, OR EXCESSIVELY WET

SEQUENCE OF CONSTRUCTION

OBTAIN THE REQUIRED GRADING PERMIT. NOTIFY MISS UTILITY 48 HOURS BEFORE ANY WORK (1-800-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION/INSPECTION

DIVISION 24 HOURS BEFORE STARTING ANY WORK ((410)313-1870). INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON THIS SHEET.

CLEAR AND GRUB AS NECESSARY, ONLY AS REQUIRED FOR CONSTRUCTION OF THE WATER & SEWER MAINS.

NOTE: THE LENGTH OF OPEN UTILITY TRENCH SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH WILL BE BACKFILLED AND STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.

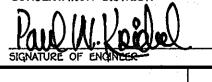
CONSTRUCT THE WATER & SEWER MAINS. STABILIZE SEED AND MULCH ALL DISTURBED AREAS IN ACCORDANCE

WITH THE PERMANENT SEEDING NOTES SHOWN ON THIS SHEET. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES.

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Kauddel; FOR

ENGINEER'S CERTIFICATION I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL



SEDIMENT & EROSION CONTROL

PLAN, NOTES & DETAILS

SIGNED IN APRIL. 2003

THIS DRAWING SUPERSEDES

THE PREVIOUS DRAWING

HOWARD COUNTY OFFICE CAMPUS

SEDIMENT & EROSION CONTROL PLAN

CAPITAL PROJECT J-4225 CONTRACT NO. 44-4074-D WATER & SEWER MAIN EXTENSIONS SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

- 36" MINIMUM LENGTH FENCE POST.

DRIVEN A MINIMUM OF 16" INTO

- 16" MINIMUM HEIGHT OF

GEOTEXTILE CLASS F

- & MINIMUM DEPTH IN

FENCE POST SECTION

MINIMUM 20° ABOVE

SHAHAHAHAHAHAHA

- FENCE POST DRIVEN A

MINIMUM OF 16" INTO

STANDARD SYMBOL

UNDISTURBED

GROUND

GROUND

THE GROUND

TEST: MSMT 509

TEST: MSMT 509

TEST: MSMT 322

TEST: MSMT 322

GROUND

CROSS SECTION

GROUND

FILTER

10' MAXIMUM CENTER TO

FLOW

POST LENGTH

EMBED GEOTEXTILE CLASS F

into the ground

CONSTRUCTIONS SPECIFICATIONS

50 LB5/IN (MIN.)

20 LB5/IN (MIN.)

SILT FENCE

75% (MIN.)

FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE

2. GEOTEXTILE SHALL FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES

(MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE

STANDARD 'T' OR 'U' SECTION WEIGHTING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.

OR STAPLES AT TOP OR MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS

0.3 GAL. FT. / MINUTE (MAX.F

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED.

4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN

BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

GROUND. WOOD POSTS SHALL BE 11/2" X 11/2" SQUARE (MINIMUM) CUT, OR 13/4" DIAMETER

A MINIMUM OF 8" VERTICALLY

FLOW

1181181181181181181181181

- CENTER.

PERSPECTIVE VIEW

TOP VIEW

POSTS T

STAPLE /

JOINING TWO ADJACENT SILT

FOR GEOTEXTILE CLASS 'F':

TENSILE STRENGTH

FILTERING EFFICIENCY

TENSILE MODULUS

FLOW RATE

FENCE SECTIONS

SECTION A

SHOWN

SCALE

6 of 6

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

CIVIL ENGINEERING CONSULTANTS & LAND SURVEYOR



1	STE	OF MA	PILLE	
B	£ 5		E.	
W	AUE		BEL	en

B.C.R. DRAWN BY B.C.R. CHECKED BY P.W.K. APRIL, 2012

DESIGNED BY

600' SCALE MAP NO. 24/25 BLOCK NO. 6/1 F.C.C. WORK ORDER NO. ____10040 DATE FILE NAME: WATER & SEWER MAIN EXTENSION SED SHEET

PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 12043 EXPIRATION DATE IS 7/16/12. FISHER, COLLINS & CARTER, INC

2 tons/ac

(15 lb/1000sf)

(100 lb/1000sf)

CAPITAL PROJECT J-4225

CONTRACT NO. 44-4074-D

HOWARD COUNTY OFFICE CAMPUS WATER & SEWER MAIN EXTENSIONS HOWARD COUNTY, MARYLAND

SHEET