QUANTITIES

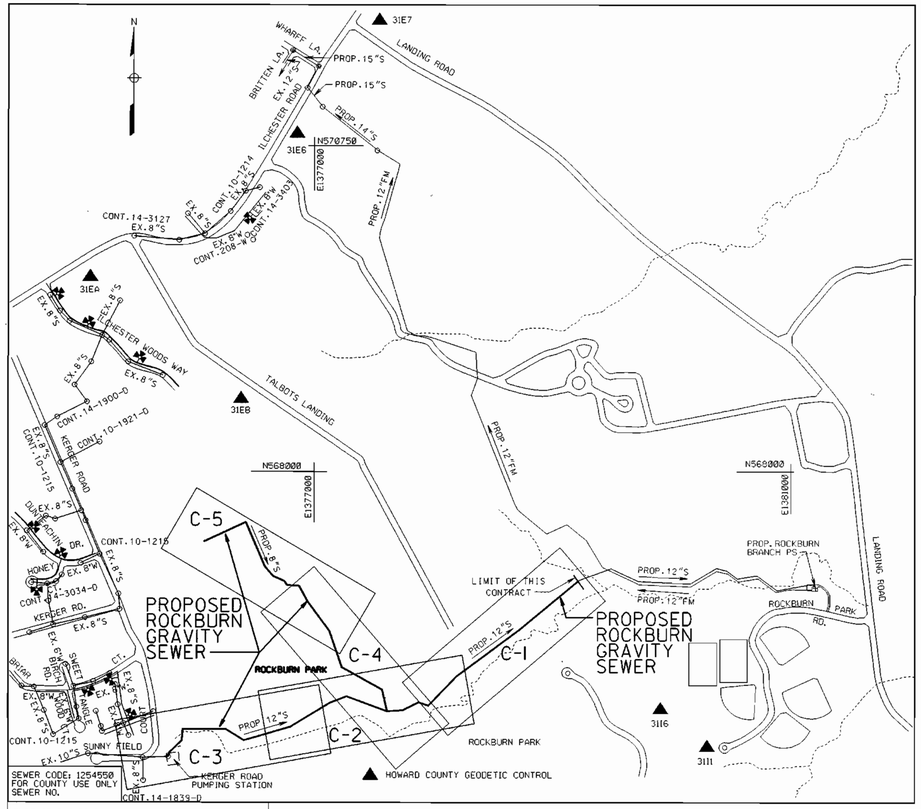
ITEM	ESTIMATED	AS- BUILT		
		QUANTITIES	TYPE	SUPPLIER
12" PVC SEWER	3674 LF	3,436 L.F.	J.M.	
12" DIP SEWER	281 LF	281 L.F.	ATLANTIC STATES	
8" PVC SEWER	~~2684 LF~~	1,206 L.F.	J.M.	
8" DIP SEWER	75 LF	113 L.F.	ATLANTIC STATES	
SAN MANHOLES TO 6'	31 EA	22 EA.	ATLANTIC PRECAST	
SAN MANHOLES OVER 6' DEPTH	142 VF	90 L.F.	" "	
8" TYPE "B" DROP CONNECTION	~~2 EA~~	1 EA	J.M.	
12" DIP WATER MAIN	145 LF	145 L.F.	ATLANTIC STATES	
WATER MAIN BLOW-OFF	1 EA	1 EA	" "	
CORROSION MONITORING	LS	L.S.		
4" SEWER HOUSE CONNECTIONS	225 LF	68 L.F.	J.M.	

INDEX OF DRAWINGS

LEGEND

NEW		EXISTING
	UTILITY EASEMENT LINE	
	TEMP. CONSTR. EASEMENT, LIMIT OF DISTURBANCE LINE	
L.O.D.	LIMIT OF DISTURBANCE	
	TEMP.CONSTR. EASEMENT	
	PROPERTY LINE	
	TRAFFIC, PROPERTY SIGN	
	UTILITY POLE & GUY WIRE	
	LIGHT POLE	
	BANK/SLOPE	
	FENCE	
	TREE/TREE LINE	
	CONTOUR	
	W.L. CURVE P.I./TRAVERSE P.I.	
N566576.58 E1378551.97 MH 15	SEWER MANHOLE	
WT/MH 19	WATERTIGHT SEWER MANHOLE	
	SEWER CLEAN-OUT	
V 2	WATER VALVE	
	WATER METER	
FH 7	FIRE HYDRANT	
BO 5	BLOW-OFF VAULT TYPE	
	TREE TO BE SAVED (IF NOTED ON PLANS)	(SAVE)
	LIMITS OF DISTURBANCE	
12"W	WATER	
	GAS	
	UNDERGROUND TELE. CABLE	
12"S	SEWER	
B-2	BORING	
	TEST PIT	
BM 5349 ELEV. 351.64	BENCHMARK	
	IRON PIN/IRON PIPE	IP
	CONCRETE MONUMENT	CM
	STONE	STONE

FOR SEDIMENT AND EROSION CONTROL LEGEND, SEE DRAWING SC-1.



TYPE OF BUILDING: NA
NUMBER OF LOTS: 0 (BUILDABLE)
NO. OF WATER HOUSE CONNECTION: 0
NO. OF SEWER HOUSE CONNECTION: 10
DRAINAGE AREA: PWTP
TREATMENT PLANT: PATAPSCO

VICINITY MAP

SCALE : 1" = 600'

CONTRACT NO. 10-3697
CAPITAL PROJECT NO. S-6200

ROCKBURN GRAVITY SEWER

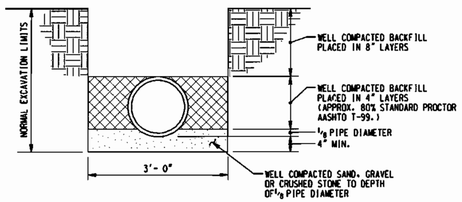
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. APPROXIMATE LOCATION 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. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC COUNTY CONTROL WHICH IS BASED UPON THE MARYLAND PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 3116 AND 3111 WERE USED FOR THIS PROJECT.
3. ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATUM.
4. ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON PLANS.
5. CLEAR ALL UTILITIES BY A MINIMUM OF 6" CLEAR ALL POLES BY 2'-0" MINIMUM, OR TUNNEL AS REQUIRED. THE OWNER HAS CONTACTED THE UTILITIES 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 OF THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
6. FOR DETAILS NOT SHOWN ON 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.
7. EXISTING UTILITIES IN THE VICINITY OF PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE VERIFIED BY THE CONTRACTOR TO HIS OWN SATISFACTION. ANY DAMAGE TO EXISTING FACILITIES DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
8. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION, HOWARD CO. DPW	410-313-1880
STATE HIGHWAY ADMINISTRATION	410-531-5533
BGE (CONTRACTOR SERVICES)	410-850-4620
BGE (UNDERGROUND DAMAGE CONTROL)	410-787-9068
BUREAU OF UTILITIES, HOWARD CO. DPW	1-800-257-7777
MISS UTILITY	410-313-4900
AT&T	410-865-3808
COLONIAL PIPELINE CO.	410-795-1390

9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT POSSIBLE. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP OR OUTSIDE THE UTILITY EASEMENT BUT WITHIN THE LIMIT OF DISTURBANCE IN ROCKBURN PARK ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
10. 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. ALL SANITARY SEWER PIPING SHALL BE PVC OR DIP UNLESS OTHERWISE NOTED ON DRAWINGS.
12. ALL WATER AND SEWER MAIN PIPING SHALL BE DIP UNLESS OTHERWISE NOTED ON DRAWINGS.
13. ALL WATER AND SEWER MAINS SHALL HAVE A MINIMUM OF 3'- 6" OF COVER UNLESS OTHERWISE NOTED.
14. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
15. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED ON DRAWINGS
16. MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER. STANDARD DETAIL G 5.52.
17. WHERE WATERTIGHT MANHOLE FRAME AND COVER IS USED , SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON PLANS OR IN THE SPECIFICATIONS.
18. IN OPEN FIELD SET SEWER MANHOLE TOP OF FRAME 1'-0" ABOVE GROUND, UNLESS NOTED DIFFERENTLY ON CONSTRUCTION DRAWINGS.
19. ALL DIP FITTINGS SHALL BE IN ACCORDANCE WITH AWWA SPECIFICATIONS C-153; DUCTILE IRON COMPACT FITTINGS, 3-INCH THROUGH 12-INCH FOR WATER AND SEWER MAIN.
20. ALL CONSTRUCTION WITHIN WETLANDS WILL HAVE A PERMIT RELEASED AND APPROVED BY THE PROPER AGENGY BOUND IN SPECIFICATIONS.
21. THE CONTRACTOR SHALL NOT OPERATE ANY WATER VALVES ON THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL CONTACT HOWARD COUNTY DPW WATER & SEWER DIVISION IF OPERATION OF VALVES ARE NEEDED.
22. MANHOLES LOCATED WITHIN ROADWAY SHALL HAVE STANDARD HEAVY TRAFFIC MANHOLES FRAMES AND COVERS.
23. ALL FITTINGS ON WATER MAIN SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE COUNTY STANDARD DETAILS UNLESS OTHERWISE NOTED ON DRAWINGS OR SPECIFICATIONS.
24. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT 410-313-2450 AT LEAST FIVE DAYS BEFORE OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER AND SEWER MAIN OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH THE DPW REQUIREMENTS PER SECTION 18.114(g) OF THE HOWARD COUNTY CODE.
25. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL DEVISES AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
26. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY WHITMAN, REQUARDT AND ASSOCIATES, LLP DATED FEBRUARY, 1998.
27. PROPOSED WATER IS PUBLIC. CONTRACT NO. 10-3696. WATER ZONE IS 550. (THERE IS NO EXISTING PUBLIC WATER OR SEWER)
28. PROPOSED SEWER IS PUBLIC. CONTRACT NOS. 10-3695, -3696, AND -3697. DRAINAGE AREA IS PATAPSCO.
29. CONTRACTOR TO PROTECT EXISTING PROPERTY MARKERS FROM BEING DISTURBED. IF A DISTURBANCE OCCURS, REPLACEMENT MUST BE DONE BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR EXPENSE.
30. ALL WATER MAINS TO BE SPECIAL THICKNESS CLASS 52 UNLESS OTHERWISE NOTED.
31. THE FLOOD PLAIN SHOWN ON THESE PLANS: HOWARD COUNTY WATERSHED STUDY CFP 27-45/87, IS THE 100 YEAR ULTIMATE FLOOD PLAIN BOUNDARY AND WAS PREPARED BY SHELADIA ASSOCIATES, INC., DATED AUGUST 1987, FOR THE DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION FLOOD MANAGEMENT DIVISION.



NOTE: FOR PVC PIPE BEDDING REQUIREMENTS SEE SECTION 1008.03.01 OF VOL.4 STANDARD SPECIFICATIONS.

TRENCH DETAIL FOR DUCTILE IRON PIPE

NOT TO SCALE

G-1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/16/99
CHIEF, BUREAU OF ENGINEERING — DATE 2.18.99
CHIEF, BUREAU OF UTILITIES — DATE 2-18-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2-18-99

PREPARED BY :
WR&A
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10810 — PROFESSIONAL ENGINEER

DES : WRD/EJM				
DRN : EJM/GWG				
CHK : JAA				
DATE : 12/09/98	K.C.I	1	ASBUILT CONDITIONS ADDED TO PLANS	01/26/01
	BY	NO.	REVISION	DATE

TITLE SHEET, VICINITY MAP, INDEX OF DRAWINGS & GENERAL NOTES

600' SCALE MAP NO. 31 BLOCK NO. 21, 22 & 23

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 10

W.O./12954/RBGSG01.DGN

RESTORATION SCHEDULE				
MH	TO MH	STA.	TO STA.	TYPE
12	13	0+00	1+37	SEED & MULCH
"	"	1+37	1+60	RIP-RAP
"	"	1+60	1+72	SEED & MULCH
13	14	0+00	1+84	SEED & MULCH
14	15	0+00	2+87	SEED & MULCH
15	16	0+00	2+56	SEED & MULCH
16	17	0+00	1+50	SEED & MULCH *
17	18	0+00	4+20	SEED & MULCH *

* USE EROSION CONTROL MATTING (ECM) ACROSS EASEMENT IN PLACE OF MULCH IN AREAS SHOWN ON PLAN AS ▨

CONTROL SCHEDULE AND BENCH MARKS				
NUMBER	DESCRIPTION	NORTH	EAST	ELEV.
P.I.114	REBAR & CAP	566194.60	1378143.16	301.61
P.I.113	REBAR & CAP	566395.24	1378342.67	297.64
P.I.1716	REBAR & CAP	566478.57	1378450.06	299.26
P.I.1875	NAIL	566567.52	1378537.51	298.55
P.I.111		566776.73	1378778.19	294.16
P.I.110		566906.73	1379048.07	287.75
B.M.5329	RR/SPIKE IN 40" OAK NEAR TRAV. PT.1047			291.99
B.M.5322	RR/SPIKE IN 28" POPLAR NEAR NAIL 1875			299.00

PLAN
SCALE:1"= 50'

LIMIT OF DISTURBANCE NOTE:

1. NO TREES ARE TO BE DAMAGED OR REMOVED OUTSIDE THE UTILITY EASEMENT EVEN WHEN THE LIMIT OF DISTURBANCE (LOD) EXTENDS ANOTHER 5' BEYOND THE EASEMENT.

STREAM CROSSING NOTES:

1. DELAY ALL WORK IN THE STREAM UNTIL THE START OF A 5-DAY CLEAR-WEATHER FORECAST. COMPLETE ALL WORK IN THE STREAM WITHIN THESE 5-DAYS.
2. FOLLOW THE SEQUENCE OF CONSTRUCTION: WATERWAY CROSSING FOR ALL WORK IN THE STREAM. (SEE SHEET 7 OF 10)
3. FOR THE STREAM CROSSING SHOWN ON THIS SHEET THE CONTRACTOR SHALL USE THE FOLLOWING CONSTRUCTION DETAILS:

DETAIL	DESCRIPTION	SIZE	ILLISTRATED ON SHEET
WPD 5.1	UTILITY CROSSING	N/A	8
WPD 2.2	DIVERSION PIPE	12"	7
SCS DETAIL 35	TEMPORARY ACCESS BRIDGE	N/A	8
WPD 3.1	RIPRAP OUTLET PROTECTION	CLASS I	7
SCS DETAIL 20B	SUMP PIT	N/A	8
FB	FILTER BAG	N/A	7

4. SEE SHEET 8 FOR BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND STABILIZATION IN NON-TIDAL WETLANDS AND WETLAND BUFFERS.

PROFILE
SCALE: HOR. 1"= 50'
VERT. 1"= 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/16/99
CHIEF, BUREAU OF ENGINEERING — DATE 2.18.99
CHIEF, BUREAU OF UTILITIES — DATE 2-18-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2.18.99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10210 — PROFESSIONAL ENGINEER

DES : WRD/EJM
DRN : EJM/GWG
CHK : JAA
DATE : 12/09/98

BY	NO.	REVISION	DATE

600' SCALE MAP NO. 31 BLOCK NO. 22&23

PLAN AND PROFILE
12" INTERCEPTOR SEWER

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 2 OF 10

C-1

W.O./12954/RBGSC01.DGN

RESTORATION SCHEDULE			
MH TO MH		STA. TO STA.	TYPE
18	19	0+00 0+76	SEED & MULCH *
19	20	0+00 0+16	SEED & MULCH
"	"	0+16 0+41	RIP-RAP
"	"	0+41 0+50	SEED & MULCH
20	21	0+00 0+99	SEED & MULCH
21	22	0+00 1+31	SEED & MULCH
22	23	0+00 0+28	6"GRADED AGGR.BASE
"	"	0+28 3+63	SEED & MULCH
23	24	0+00 1+54	SEED & MULCH *
24	25	0+00 2+23	SEED & MULCH
"	"	2+23 2+35	6"GRADED AGGR.BASE
"	"	2+35 3+89	SEED & MULCH

* USE EROSION CONTROL MATTING (ECM) ACROSS EASEMENT IN PLACE OF MULCH IN AREAS SHOWN ON PLAN AS

CONSTRUCTION SCHEDULE NOTE

NO WORK WILL BE PERMITTED ON THE FORMER DOYLE PROPERTY BETWEEN OCTOBER 18, 1999 AND OCTOBER 30, 1999.

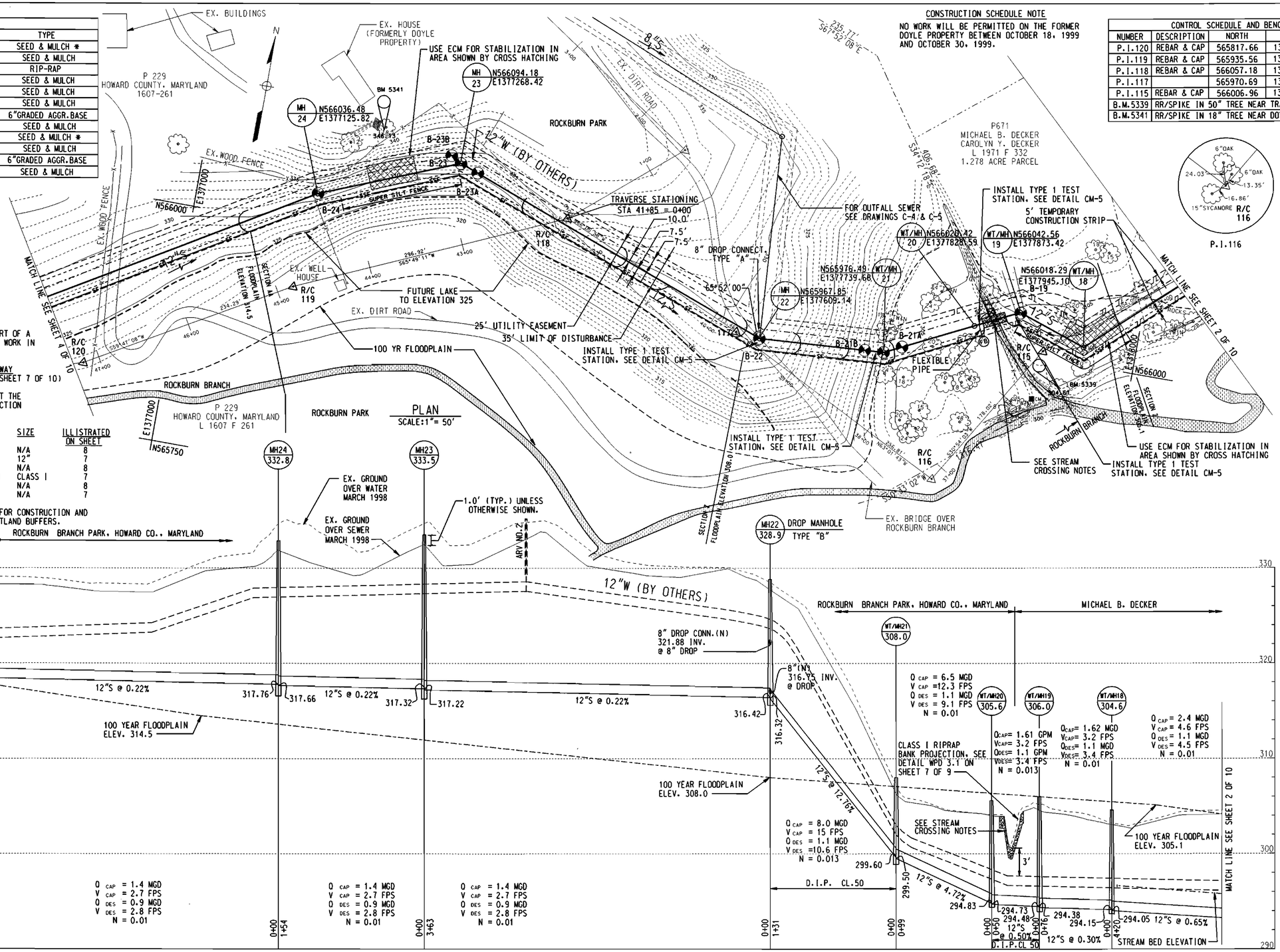
CONTROL SCHEDULE AND BENCH MARKS				
NUMBER	DESCRIPTION	NORTH	EAST	ELEV.
P.I.120	REBAR & CAP	565817.66	1376915.12	322.37
P.I.119	REBAR & CAP	565935.56	1377117.58	318.33
P.I.118	REBAR & CAP	566057.18	1377388.45	334.55
P.I.117		565970.69	1377583.61	329.08
P.I.115	REBAR & CAP	566006.96	1377903.91	303.67
B.M.5339	RR/SPIKE IN 50" TREE NEAR TRAV PT.115			304.61
B.M.5341	RR/SPIKE IN 18" TREE NEAR DOYLE HSE.			346.13

STREAM CROSSING NOTES:

1. DELAY ALL WORK IN THE STREAM UNTIL THE START OF A 5-DAY CLEAR-WEATHER FORECAST. COMPLETE ALL WORK IN THE STREAM WITHIN THESE 5-DAYS.
2. FOLLOW THE SEQUENCE OF CONSTRUCTION: WATERWAY CROSSING FOR ALL WORK IN THE STREAM. (SEE SHEET 7 OF 10)
3. FOR THE STREAM CROSSING SHOWN ON THIS SHEET THE CONTRACTOR SHALL USE THE FOLLOWING CONSTRUCTION DETAILS:

DETAIL	DESCRIPTION	SIZE	ILLISTRATED ON SHEET
WPD 5.1	UTILITY CROSSING	N/A	8
WPD 2.2	DIVERSION PIPE	12"	7
SCS DETAIL 35	TEMPORARY ACCESS BRIDGE	N/A	8
WPD 3.1	RIPRAP OUTLET PROTECTION	CLASS I	7
SCS DETAIL 20B	SUMP PIT	N/A	8
FB	FILTER BAG	N/A	7

4. SEE SHEET 8 FOR BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND STABILIZATION IN NON-TIDAL WETLANDS AND WETLAND BUFFERS.



PLAN
SCALE:1"= 50'

PROFILE
SCALE: HOR. 1"= 50'
VERT. 1"= 5'

C-2

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 2/12/99
CHIEF, BUREAU OF ENGINEERING — DATE 2.18.99
CHIEF, BUREAU OF UTILITIES — DATE 2.18.99
CHIEF, UTILITY DESIGN DIVISION — DATE 2.18.99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT — 15670 — PROFESSIONAL ENGINEER

DES : WRO/EJM
DRN : EJM/GWG
CHK : JAA
DATE : 12/09/98

BY	NO.	REVISION	DATE

PLAN AND PROFILE
12" INTERCEPTOR SEWER

600' SCALE MAP NO. 31 BLOCK NO. 22

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 10

W.O./12954/RBGSC02.DGN

WATER MAIN LOCATION DATA			
STATION	DESCRIPTION	NORTH	EAST
2+46±	LIMIT OF WORK-8" TEMP.CAP	565705.74	1375866.59
2+66	45° HB	565719.90	1375880.71
3+47	12"X4"TEE,4"V & BLOW-OFF	565800.76	1375880.59
3+67	45° HB	565820.76	1375880.56
3+74	45° HB	565825.76	1375885.55
3+93±	LIMIT OF WORK-8" TEMP.CAP	565825.79	1375905.55

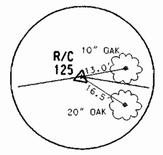
CONTROL SCHEDULE AND BENCH MARKS				
NUMBER	DESCRIPTION	NORTH	EAST	ELEV.
P.I.-PD 0013	REBAR & CAP	565590.67	1375662.55	341.43
P.I.125	REBAR & CAP	565680.89	1375924.54	330.98
P.I.124	REBAR & CAP	565682.72	1376133.35	328.18
P.I.123	REBAR & CAP	565667.16	1376331.32	325.19
P.I.122	REBAR & CAP	565695.61	1376515.57	323.48
P.I.121	REBAR & CAP	565757.92	1376717.99	322.92
B.M.5349	RR/SPIKE IN 36"TREE NEAR PROP. MH 27			331.84

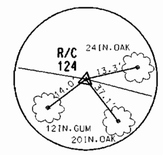
STREAM CROSSING NOTES:

1. DELAY ALL WORK IN THE STREAM UNTIL THE START OF A 5-DAY CLEAR-WEATHER FORECAST. COMPLETE ALL WORK IN THE STREAM WITHIN THESE 5-DAYS.
2. FOLLOW THE SEQUENCE OF CONSTRUCTION: WATERWAY CROSSING FOR ALL WORK IN THE STREAM. (SEE SHEET 7 OF 10)
3. FOR THE STREAM CROSSING SHOWN ON THIS SHEET THE CONTRACTOR SHALL USE THE SPECIAL DETAIL-STREAM DIVERSION BETWEEN MANHOLES 28 AND 29. SHOWN ON SHEET 7 AND THE FOLLOWING CONSTRUCTION DETAILS:

DETAIL	DESCRIPTION	SIZE	ILLISTRATED ON SHEET
WPD 5.1	UTILITY CROSSING	N/A	8
WPD 2.2	DIVERSION PIPE	3-24"	7
WPD 3.1	RIPRAP OUTLET PROTECTION	CLASS I	7
SCS DETAIL 20B	SUMP PIT	N/A	8
FB	FILTER BAG	N/A	7

4. SEE SHEET 8 FOR BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND STABILIZATION IN NON-TIDAL WETLANDS AND WETLAND BUFFERS.





PLAN
SCALE:1"= 50'

PROFILE
SCALE: HOR. 1"= 50'
VERT. 1"= 5'

NOTES: 1. CONSTRUCT PROPOSED RIP-RAP PROTECTION TO THE DIMENSIONS SHOWN ON PLAN, PROFILE AND DETAIL WDP 3.1 ON DRAWING SC-1 USING CLASS I RIP-RAP.
2. LOT 96, OPEN SPACE, TO BE DEDICATED TO HOWARD CO. DEPARTMENT OF RECREATION AND PARKS.
3. REMOVE AND REPLACE EX.CHAIN LINK FENCE AROUND EXISTING KERGER ROAD PUMPING STATION TO THE SAME SPECIFICATION AND DIMENSIONS AS EXISTING.

RESTORATION SCHEDULE				
MH	TO MH	STA.	TO STA.	TYPE
25	26	0+00	4+00	SEED & MULCH
26	27	0+00	1+68	SEED & MULCH
27	28	0+00	3+79	SEED & MULCH
28	29	0+00	0+10	SEED & MULCH
"	"	0+10	0+85	RIP-RAP
"	"	0+85	1+00	SEED & MULCH
29	30	0+00	1+42	SEED & MULCH
"	"	1+42	1+56	ASPHALT PAVING
30	EX. MH 11	0+00	0+20	ASPHALT PAVING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 2/16/99
CHIEF, BUREAU OF ENGINEERING — DATE 2.18.99
CHIEF, BUREAU OF UTILITIES — DATE 2-19-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2.18.99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10210 — PROFESSIONAL ENGINEER

DES : WRD/EJM
DRN : EJM/GWG
CHK : JAA
DATE : 12/09/98

BY	NO.	REVISION	DATE

PLAN AND PROFILE
12" INTERCEPTOR SEWER

600' SCALE MAP NO. 31 BLOCK NO. 21&22

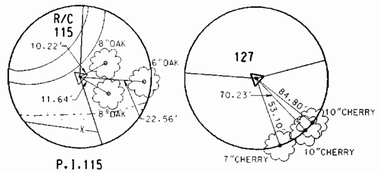
ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

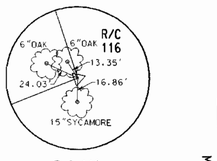
C-3

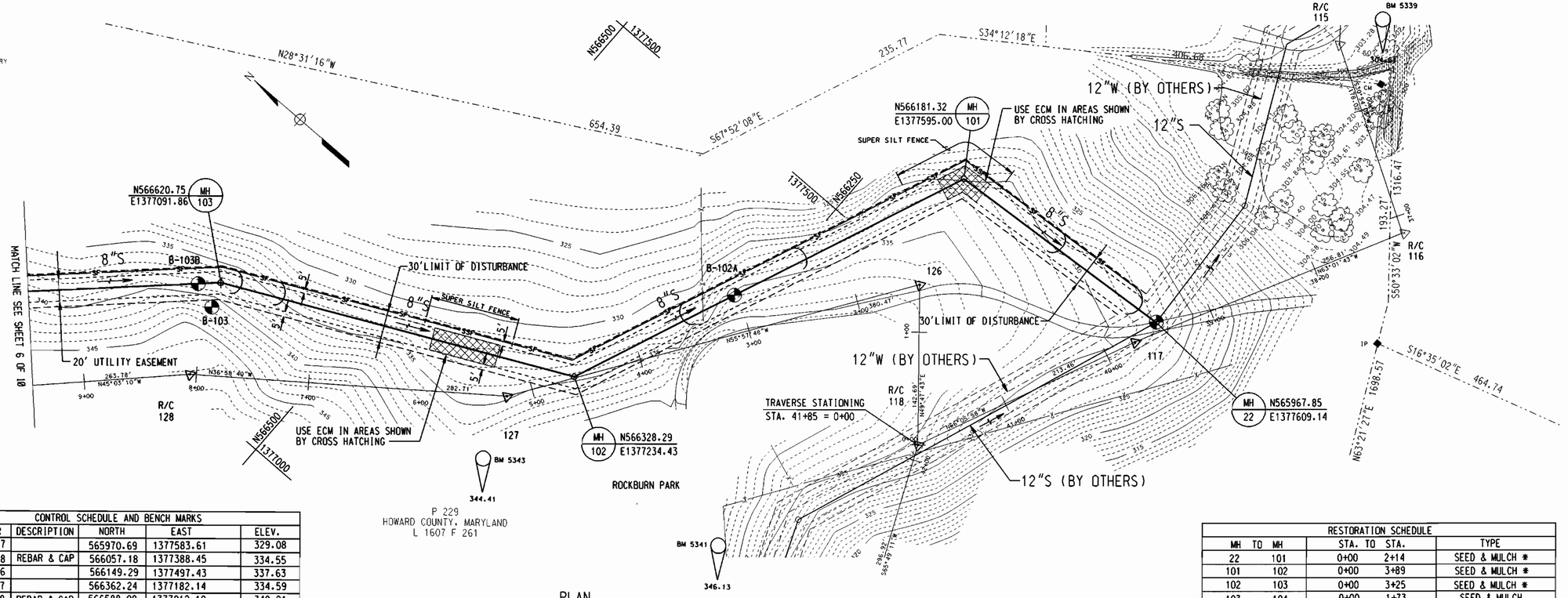
SCALE AS SHOWN

SHEET 4 OF 10

W.O./12954/RBGSC03.DGN







PLAN
SCALE:1"= 50'

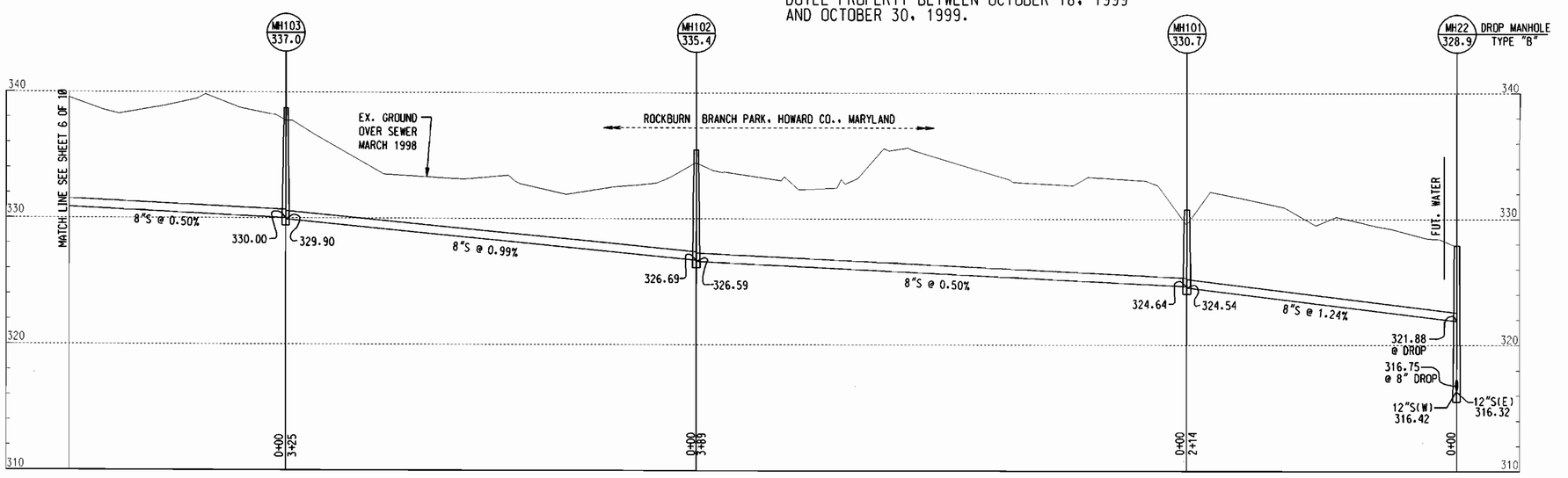
CONTROL SCHEDULE AND BENCH MARKS				
NUMBER	DESCRIPTION	NORTH	EAST	ELEV.
P.I.117		565970.69	1377583.61	329.08
P.I.118	REBAR & CAP	566057.18	1377388.45	334.55
P.I.126		566149.29	1377497.43	337.63
P.I.127		566362.24	1377182.14	334.59
P.I.128	REBAR & CAP	566588.09	1377012.10	349.21
B.M.5343	R.R.SPIKE	566322.84	1377103.08	344.41
B.M.5339	R.R.SPIKE IN 50" TREE NEAR TRAV.115			304.61
B.M.5341	R.R.SPIKE IN 18"TREE 200'± SW OF TRAV.118			346.13

CONSTRUCTION SHEDULE NOTE

NO WORK WILL BE PERMITTED ON THE FORMER DOYLE PROPERTY BETWEEN OCTOBER 18, 1999 AND OCTOBER 30, 1999.

RESTORATION SCHEDULE				
MH TO MH		STA. TO STA.		TYPE
22	101	0+00	2+14	SEED & MULCH *
101	102	0+00	3+89	SEED & MULCH *
102	103	0+00	3+25	SEED & MULCH *
103	104	0+00	1+73	SEED & MULCH

* USE EROSION CONTROL MATTING (ECM) ACROSS EASEMENT IN PLACE OF MULCH IN AREAS SHOWN ON PLAN AS ▨



PROFILE
SCALE: HOR. 1"= 50'
VERT. 1"= 5'

C-4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 2/16/99
CHIEF, BUREAU OF ENGINEERING — DATE 2-18-99
CHIEF, BUREAU OF UTILITIES — DATE 2-18-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2-18-99

PREPARED BY :
WR&A
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10218 — PROFESSIONAL ENGINEER

DES : WRD/EJM
DRN : EJM/GWG
CHK : JAA
DATE : 12/09/98

BY	NO.	REVISION	DATE

PLAN AND PROFILE
8" OUTFALL SEWER

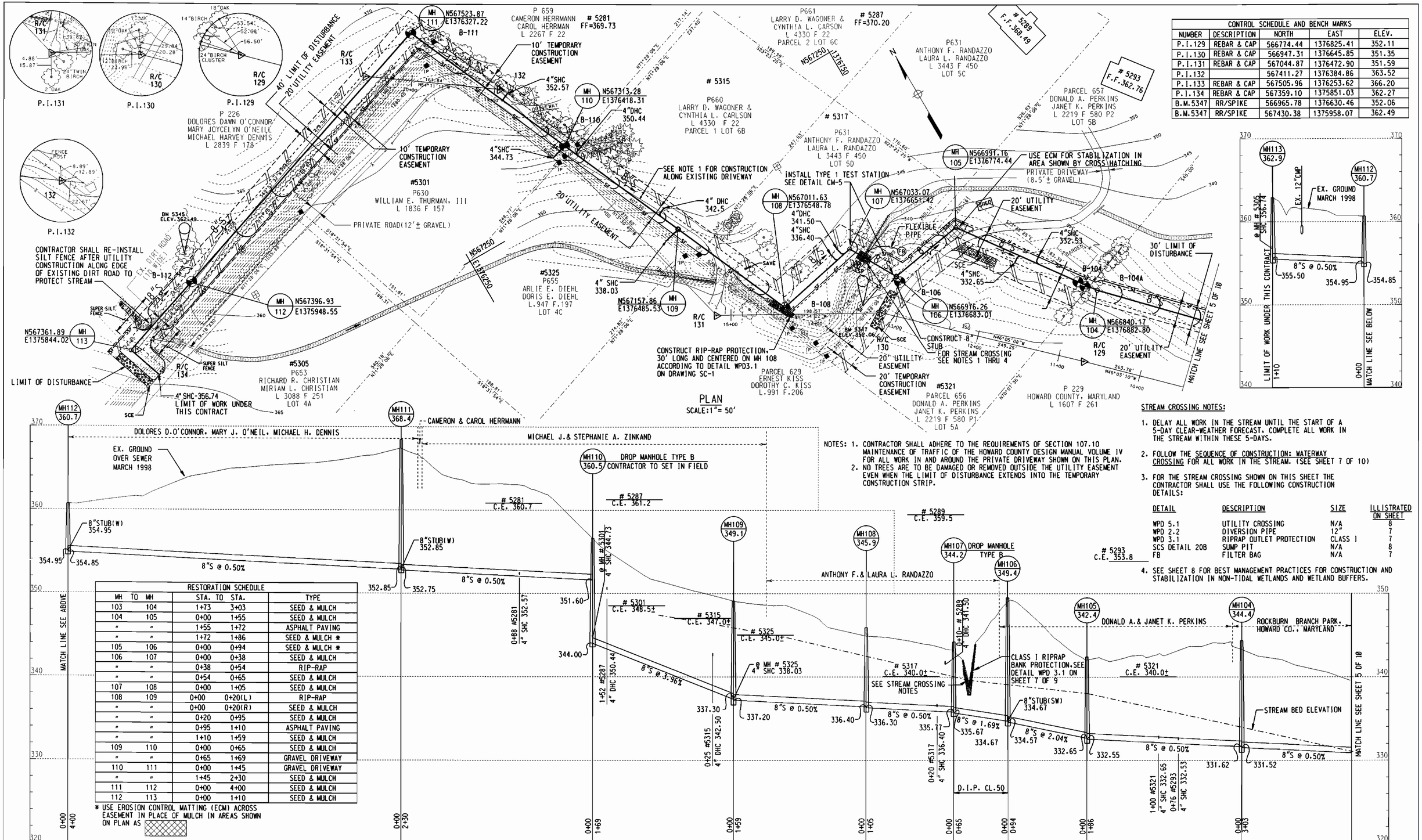
600' SCALE MAP NO. 31 BLOCK NO. 22

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 10

W.O./12954/RBGSC04.DGN



CONTROL SCHEDULE AND BENCH MARKS				
NUMBER	DESCRIPTION	NORTH	EAST	ELEV.
P.I.129	REBAR & CAP	566774.44	1376825.41	352.11
P.I.130	REBAR & CAP	566947.31	1376645.85	351.35
P.I.131	REBAR & CAP	567044.87	1376472.90	351.59
P.I.132		567411.27	1376384.86	363.52
P.I.133	REBAR & CAP	567505.96	1376253.62	366.20
P.I.134	REBAR & CAP	567359.10	1375851.03	362.27
B.M.5347	RR/SPIKE	566965.78	1376630.46	352.06
B.M.5347	RR/SPIKE	567430.38	1375958.07	362.49

NOTES:
1. CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS OF SECTION 107.10 MAINTENANCE OF TRAFFIC OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV FOR ALL WORK IN AND AROUND THE PRIVATE DRIVEWAY SHOWN ON THIS PLAN.
2. NO TREES ARE TO BE DAMAGED OR REMOVED OUTSIDE THE UTILITY EASEMENT EVEN WHEN THE LIMIT OF DISTURBANCE EXTENDS INTO THE TEMPORARY CONSTRUCTION STRIP.

STREAM CROSSING NOTES:

1. DELAY ALL WORK IN THE STREAM UNTIL THE START OF A 5-DAY CLEAR-WEATHER FORECAST, COMPLETE ALL WORK IN THE STREAM WITHIN THESE 5-DAYS.
2. FOLLOW THE SEQUENCE OF CONSTRUCTION: WATERWAY CROSSING FOR ALL WORK IN THE STREAM. (SEE SHEET 7 OF 10)
3. FOR THE STREAM CROSSING SHOWN ON THIS SHEET THE CONTRACTOR SHALL USE THE FOLLOWING CONSTRUCTION DETAILS:

DETAIL	DESCRIPTION	SIZE	ILLISTRATED ON SHEET
WPD 5.1	UTILITY CROSSING	N/A	8
WPD 2.2	DIVERSION PIPE	12"	7
WPD 3.1	RIPRAP OUTLET PROTECTION	CLASS I	7
SCS DETAIL 20B	SUMP PIT	N/A	8
FB	FILTER BAG	N/A	7

4. SEE SHEET 8 FOR BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND STABILIZATION IN NON-TIDAL WETLANDS AND WETLAND BUFFERS.

RESTORATION SCHEDULE			
MH TO MH	STA. TO STA.		TYPE
103	104	1+73	3+03	SEED & MULCH
104	105	0+00	1+55	SEED & MULCH
"	"	1+55	1+72	ASPHALT PAVING
"	"	1+72	1+86	SEED & MULCH *
105	106	0+00	0+94	SEED & MULCH *
106	107	0+00	0+38	SEED & MULCH
"	"	0+38	0+54	RIP-RAP
"	"	0+54	0+65	SEED & MULCH
107	108	0+00	1+05	SEED & MULCH
108	109	0+00	0+20(L)	RIP-RAP
"	"	0+00	0+20(R)	SEED & MULCH
"	"	0+20	0+95	SEED & MULCH
"	"	0+95	1+10	ASPHALT PAVING
"	"	1+10	1+59	SEED & MULCH
109	110	0+00	0+65	SEED & MULCH
"	"	0+65	1+69	GRAVEL DRIVEWAY
110	111	0+00	1+45	GRAVEL DRIVEWAY
"	"	1+45	2+30	SEED & MULCH
111	112	0+00	4+00	SEED & MULCH
112	113	0+00	1+10	SEED & MULCH

* USE EROSION CONTROL MATTING (ECM) ACROSS EASEMENT IN PLACE OF MULCH IN AREAS SHOWN ON PLAN AS

PROFILE
SCALE: HOR. 1"= 50' VERT. 1"= 5'

C-5

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 2/6/99
CHIEF, BUREAU OF ENGINEERING — DATE 2-18-99
CHIEF, BUREAU OF UTILITIES — DATE 2-19-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2-18-99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10910 — PROFESSIONAL ENGINEER

DES : WRD/EJM
DRN : EJM/GWG
CHK : JAA
DATE : 12/09/98

BY	NO.	REVISION	DATE

PLAN AND PROFILE
8" OUTFALL SEWER

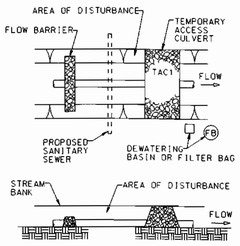
600' SCALE MAP NO. 31 BLOCK NO. 22

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 6 OF 10

W.O./12954/RBGSC05.DGN



PLAN AND PROFILE

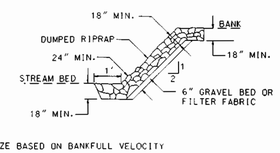
CULVERT PIPE WITH ACCESS ROAD WPD 2.1

I. DESCRIPTION

THE WORK SHALL CONSIST OF INSTALLING A FLOW DIVERSION STRUCTURE IN CONJUNCTION WITH A TEMPORARY CULVERT CROSSING DURING IN-STREAM CONSTRUCTION SUCH AS UTILITY CROSSINGS.

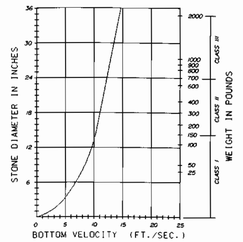
II. CONSTRUCTION REQUIREMENTS

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF BUSINESS.
2. PIPES MUST BE SIZED TO ACCOMMODATE NORMAL STREAM FLOW.
3. THE FLOW BARRIER SHALL BE CONSTRUCTED OF SANDBAGS. WASHED RIPRAP OR OTHER APPROVED MATERIAL AS PER WPD2.3. THE MATERIALS SHALL BE SIZED TO WITHSTAND NORMAL STREAM FLOW VELOCITIES.
4. THE HEIGHT OF THE FLOW BARRIER SHALL BE ONE HALF THE DISTANCE FROM STREAM BED TO STREAM BANK PLUS ONE FOOT.
5. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN (WPD1.1) OR FILTER BAG (SEE DETAIL THIS SHEET) PRIOR TO RE-ENTERING THE STREAM.
6. THE TEMPORARY CULVERT CROSSING SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DETAIL 36, "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SEDIMENT AND EROSION CONTROL".
7. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.



* SIZE BASED ON BANKFULL VELOCITY

CROSS SECTION



SIZE RIPRAP PER STREAM VELOCITY

	RIPRAP GRADATION SIZE	PERCENT OF TOTAL WEIGHT SMALLER THAN THE GIVEN SIZE
CLASS I	150 LB (70KG)	100
	2 LB (1KG)	10 MAX.
CLASS II	700 LB (320KG)	100
	20 LB (10KG)	10 MAX.
CLASS III	2000 LB (910KG)	100
	40 LB (20KG)	10 MAX.

RIPRAP BANK PROTECTION WPD 3.1

I. DESCRIPTION

THIS WORK SHALL CONSIST OF PROTECTING SLOPES AND CHANNELS FROM EROSION WITH COVERINGS OF STONE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS SHOWN ON THIS DRAWING.

II. MATERIAL SPECIFICATIONS

1. BEDDINGS:

A. BANK RUN GRAVEL SHALL MEET THE FOLLOWING REQUIREMENTS:

% LESS THAN	U.S. STANDARD SIEVE SIZE
100	2 1/2 IN.
85 - 100	1 IN.
60 - 100	1/2 IN.
35 - 70	NO. 10
20 - 50	NO. 40
3 - 20	NO. 200

B. GEOTEXTILE FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS:

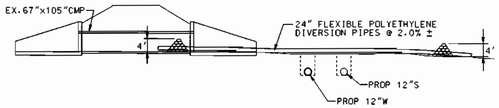
TENSILE STRENGTH	200 LBS.
BURST STRENGTH	350 LBS.
PUNCTURE STRENGTH	70 LBS.
PERMEABILITY	.20 CM/SEC.
ELONGATION AT FAILURE	30 %
MINIMUM LAP LENGTH	24 IN.

2. RIPRAP:

THE MAXIMUM WEIGHT OF STONE SHALL BE BASED UPON THE BANKFULL STREAM CHANNEL VELOCITY, USING THE GIVEN CHART. THE GRADATION OF THE STONE SHALL BE AS INDICATED.

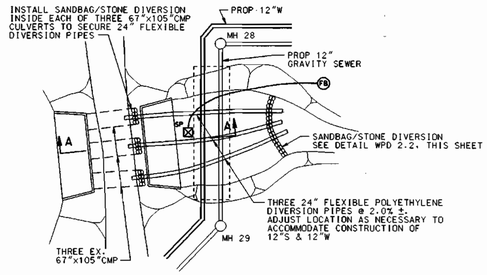
III. CONSTRUCTION REQUIREMENTS

1. THE CONTRACTOR SHALL INSTALL ALL SEDIMENT AND EROSION CONTROL DEVICES AS A FIRST ORDER OF BUSINESS.
2. PROVISIONS MUST BE MADE TO ANCHOR THE RIPRAP AT THE STREAM BED SO AS TO PROVIDE PROTECTION AGAINST UNDERMINING. IF THIS CANNOT BE ACCOMPLISHED BY EXTENDING THE TOE TRENCH AS INDICATED IN CROSS SECTION, AN ALTERNATIVE METHOD OF PROTECTION MUST RECEIVED PRIOR WRITTEN APPROVAL OF THE ADMINISTRATION.
3. EXCAVATION FOR RIPRAP SHALL BE IN REASONABLY CLOSE CONFORMITY WITH THE EXISTING STREAM SLOPE AND BED.
4. A FILTER BEDDING IS REQUIRED UNDER ALL RIPRAP. BEDDING MATERIAL SHALL CONSIST OF EITHER A BANK RUN GRAVEL OR A GEOTEXTILE FILTER FABRIC MEETING THE SPECIFICATIONS OF II. 1B ABOVE.
5. THE PLACEMENT OF RIPRAP SHALL BEGIN WITH THE TOE. THE LARGER STONES SHALL BE PLACED IN THE TOE AND ALONG THE OUTSIDE EDGES OF THE LIMITS OF THE SLOPE AND CHANNEL PROTECTION. THE RIPRAP SHALL BE PLACED WITH SUITABLE EQUIPMENT IN SUCH A MANNER AS TO PRODUCE A REASONABLY GRADED MASS OF STONES WITH ZERO DROP HEIGHT. THE PLACING OF STONES THAT CAUSE EXTENSIVE SEGREGATION IS NOT ALLOWED.
6. ANY EXCAVATION VOIDS EXISTING ALONG THE EDGES OF THE COMPLETED SLOPE AND CHANNEL PROTECTION SHALL BE BACKFILLED.
7. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN.



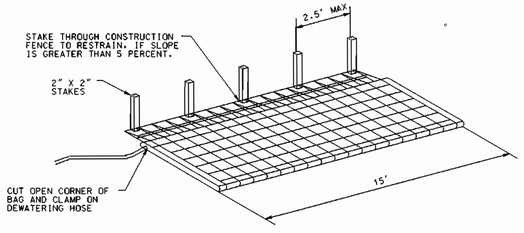
SECTION A-A

NO SCALE



DETAIL - STREAM DIVERSION BETWEEN MANHOLES 28 AND 29

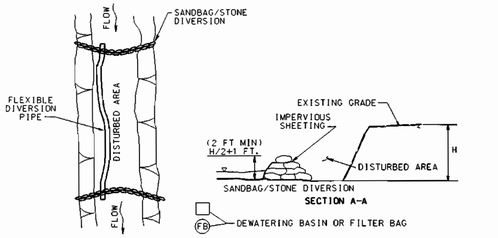
NO SCALE



NOTES:
1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
2. WIDTH AND LENGTH SHALL BE AS SHOWN.
3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.
6. FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL. FT² /MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

FILTER BAG
TEMPORARY EROSION CONTROL MEASURE (FB)



1. DESCRIPTION

THE WORK SHALL CONSIST OF INSTALLING A FLOW DIVERSION STRUCTURE WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS CULVERT CONSTRUCTION OR CULVERT REPLACEMENT.

2. MATERIAL SPECIFICATIONS

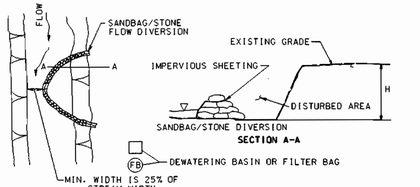
1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIAL WHICH ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (I.E., SAND, FINE GRAVEL, ETC.).
2. STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES.
3. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

3. CONSTRUCTION REQUIREMENTS

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE HEIGHT OF THE SANDBAG/STONE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM THE STREAM BED TO THE BANK PLUS ONE FOOT, AS INDICATED IN SECTION A-A. THE SANDBAGS SHALL BE PLACED ON A SMOOTH, PREPARED SURFACE.
3. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WR&A.
4. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A FILTER BAG OR OTHERWISE APPROVED ON THE PLANS BY THE WR&A.
5. SHEETING SHALL BE OVERLAPPED A MINIMUM OF 18 INCHES.
6. THE DIVERSION PIPE SHALL HAVE A MINIMUM DIAMETER OF SUFFICENT SIZE TO CONVEY THE NORMAL STREAM FLOW.
7. IF NECESSARY, SILT FENCE OR STRAWBALES SHALL BE INSTALLED AROUND THE PERIMETER OF THE WORK AREA.
8. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.
9. THE FLEXIBLE PIPE MAY BE MOVED WITHIN THE STREAM BED TO ACCOMMODATE UTILITY CONSTRUCTION, HOWEVER, IT SHALL BE RETURNED TO A SECURE POSITION CAPABLE OF FULL HYDRAULIC CAPACITY AT THE END OF EACH DAY.

* MODIFIED DIVERSION PIPE WPD 2.2

* DETAIL WPD 2.2 HAS BEEN MODIFIED TO SHOW A FLEXIBLE DIVERSION PIPE WITHIN THE STREAM INSTEAD OF EXCAVATED INTO THE BANK.



1. DESCRIPTION

THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.

2. MATERIAL SPECIFICATIONS

1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (I.E., SAND, FINE GRAVEL, ETC.).
2. STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6" INCHES.
3. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

3. CONSTRUCTION REQUIREMENTS

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
3. THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM STREAM BED TO STREAM BANK PLUS ONE FOOT, AS INDICATED ON THE CROSS SECTION VIEW.
4. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100- YERA FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WRA.
5. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN OR FILTER BAG PRIOR TO RE-ENTERING THE STREAM.
6. SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18-INCH OVERLAP.
7. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTION AUTHORITY APPROVES THEIR REMOVAL.

SANDBAG/STONE DIVERSION WPD 2.3

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 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. (410-313-1855)
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. 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 SEEDINGS, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. 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:

TOTAL AREA OF SITE	1000	ACRES
AREA DISTURBED	5976	ACRES
AREA TO BE ROOFED OR PAVED	0.016	ACRES
AREA TO BE VEGETATIVELY STABILIZED	5.960	ACRES
TOTAL CUT	12500	CU. YDS.
TOTAL BACKFILL	12500	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION:	APPROVED	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. 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 THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER. IMMEDIATELY FOLLOWING PIPE INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPACTED AND IMMEDIATELY STABILIZED (MULCHED, SEEDED, AND OR SODDED MECHANICAL STABILIZATION) AT THE END OF EACH WORKING DAY. SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNHILL OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED LONGER THAN ONE (1) DAY.

REQUIRED SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT. (10 DAYS)
2. NOTIFY MISS UTILITY 48 HOURS BEFORE BEGINNING ANY WORK @ (1-800-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS BEFORE STARTING ANY WORK @ 410-313-1870 (2 DAYS).
3. INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AND STABILIZE CONSTRUCTION ENTRANCE AS INDICATED ON THESE PLANS.(5 DAYS)
4. CONSTRUCT PIPELINES AS SHOWN ON THE CONSTRUCTION DRAWINGS, KEEPING ALL CONSTRUCTION ACTIVITIES WITHIN THE LIMIT OF DISTURBANCE. SEE SEDIMENT CONTROL NOTE NO.11. ALL TREES SHALL BE PRESERVED AND PROTECTED OUTSIDE OF THE UTILITY EASEMENTS, ALTHOUGH THEY MAY BE WITHIN THE LIMITS OF DISTURBANCE.(150 DAYS)
5. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL DEVICES SHOWN HEREON, AFTER EACH RAINFALL AND ON A DAILY BASIS. (2 DAYS)
6. REMOVE SEDIMENT FROM ROADWAY AND DRESS STONE CONSTRUCTION ENTRANCE AS REQUIRED. (1 DAY)
7. FINE GRADE ALL AREAS DISTURBED BY PIPELINE CONSTRUCTION AND STABILIZE ACCORDING TO RESTORATION SCHEDULES ON EACH SHEET OF THE CONSTRUCTION DRAWINGS. FOR PERMANENT AND TEMPORARY SEEDING IN THE WETLANDS AND WETLAND BUFFERS, SEE NOTE 18 UNDER BEST MANAGEMENT PRACTICES IN NON-TIDAL WETLANDS AND WETLAND BUFFERS ON SHEET 8 OF 10.
8. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE REMAINING DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH.(5 DAYS)

SEQUENCE OF CONSTRUCTION: WATERWAY CROSSING

1. OBTAIN THE REQUIRED PERMITS/APPROVALS FROM THE APPROPRIATE AGENCIES.
2. NOTIFY THE COMPLIANCE DIVISION OF THE MARYLAND WATER MANAGEMENT ADMINISTRATION AT LEAST FIVE (5) DAYS PRIOR TO INITIATION OF CONSTRUCTION AND FIVE (5) DAYS AFTER WORK ENDS. THE BALTIMORE OFFICE IS (410) 631-3510.
3. CONTRACTOR SHALL NOTE THE TIME OF YEAR RESTRICTIONS ON WORK WITHIN THE STREAM SHOWN ON THE PERMITS.
4. INSTALL TEMPORARY ACCESS BRIDGE (DETAIL 35 ON SHEET 8 OF 10). EITHER THE DIVERSION PIPE OR THE SANDBAG/STONE DIVERSION (DETAILS WPD 2.2 AND 2.3 ON THIS SHEET), WHICHEVER IS CALLED FOR ON THE DRAWINGS; THE FILTER BAG (DETAIL THIS SHEET) AND THE SUMP PIT (DETAIL 20-B, SHEET 8 OF 10). THE SEDIMENT CONTROL INSPECTOR MUST APPROVE ALL CONTROLS BEFORE COMMENCING WORK.
5. INSTALL PIPELINE AND RIPRAP BANK PROTECTION (DETAIL THIS SHEET) ACCORDING TO THE DRAWINGS AND SPECIFICATIONS DURING A TIME OF FAVORABLE WEATHER FORECAST.
6. WITH MINIMAL DISTURBANCE REMOVE DIVERSION CONTROLS, BRIDGE AND FILTER BAG AND STABILIZE ALL DISTURBED AREAS.

SEDIMENT CONTROL LEGEND

—SF—	SILT FENCE
—SSF—	SUPER SILT FENCE
- - - LOD	LIMIT OF DISTURBANCE
	UTILITY CROSSING
SCE	STABILIZED CONSTRUCTION ENTRANCE
FB	FILTER BAG
	SUMP PIT
ECM	EROSION CONTROL MATTING

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

HOWARD COUNTY DEPT. OF PUBLIC WORKS — DIV. OF WATER AND SEWER — 1.21.99 DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

JAMES A. AVIRETT JR. P.E. 10210 — 1/20/99 DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 1/26/99 DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — 1/26/99 DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — 2/10/99 DATE
CHIEF, BUREAU OF ENGINEERING — 2.18.99 DATE
CHIEF, BUREAU OF UTILITIES — 2.13.99 DATE
CHIEF, UTILITY DESIGN DIVISION — 2.18.99 DATE

PREPARED BY :

WR&A
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT JR. — 10210 — PROFESSIONAL ENGINEER

DES : WRD/EJM				
DRN : EJM/GWG				
CHK : JAA				
DATE : 12/09/98	BY	NO.	REVISION	DATE

SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

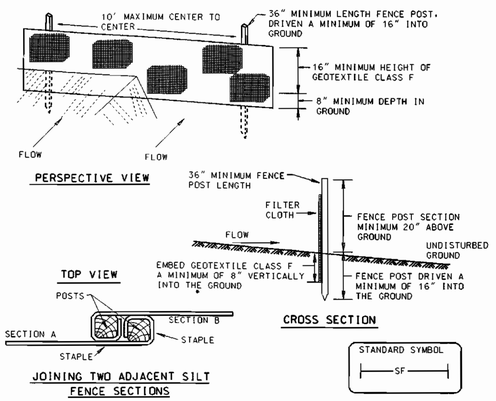
SCALE AS SHOWN

SHEET 7 OF 10

SC-1

W.O./12954/RBGSSC01.DGN

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

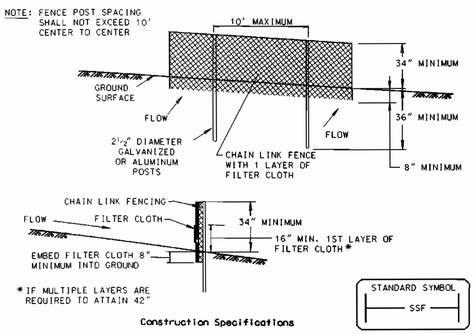
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

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.

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

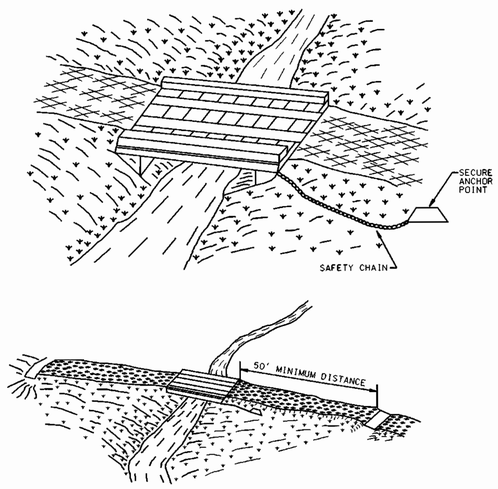
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

DETAIL 35 - TEMPORARY ACCESS BRIDGE



Construction Specifications

1. Restriction - Construction, use, or removal of a temporary access bridge will not normally have any time of year restrictions since construction, use, or removal should not affect the stream or its banks, unless the bridge is built with a pier(s) in the water.

2. Bridge Placement - A temporary bridge structure shall be constructed at or above the bank elevation to prevent the entrapment of floating materials and debris.

3. Abutments - Abutments shall be placed parallel to, and on, stable banks.

4. Bridge Span - Bridges shall be constructed to span the entire channel. If the channel width exceeds 8', (as measured from top-of-bank to top-of-bank), then a footing, pier, or bridge support may be constructed within the waterway. One additional footing, pier, or bridge support will be permitted for each additional 8' width of the channel. However, no footing, pier, or bridge support will be permitted within the channel for waterways less than 8' wide.

5. Stringers - Stringers shall either be logs, sawn timber, prestressed concrete beams, metal beams, or other approved materials.

6. Deck Material - Decking materials shall be of sufficient strength to support the anticipated load. All decking members shall be placed perpendicular to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway below.

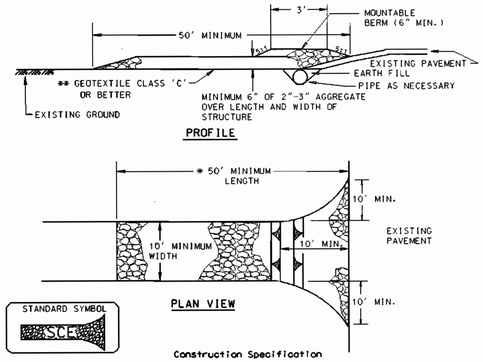
7. Run Planks (optional) - Run planking shall be securely fastened to the length of the span. One run plank shall be provided for each track of the equipment wheels. Although run planks are optional, they may be necessary to properly distribute loads.

8. Curbs or fenders - Curbs or fenders may be installed along the outer sides of the deck. Curbs or fenders are an option which will provide additional safety.

9. Bridge Anchors - Bridges shall be securely anchored at only one end using steel cable or chain. Anchoring at only one end will prevent channel obstruction in the event that floodwaters float the bridge. Acceptable anchors are large trees, large boulders, or driven steel anchors. Anchoring shall be sufficient to prevent the bridge from floating downstream and possibly causing an obstruction to the flow.

10. Stabilization - All areas disturbed during installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

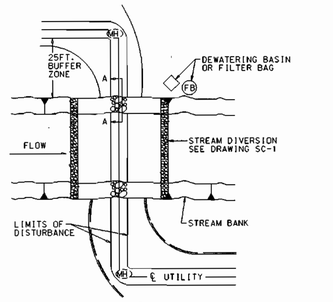
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

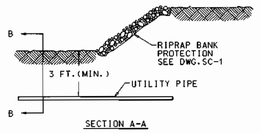
5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

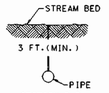
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

BEST MANAGEMENT PRACTICES FOR WORK IN NONTIDIAL WETLANDS AND WETLANDS BUFFER

1. CONDUCT THE REGULATED ACTIVITY SO AS NOT TO HARM A THREATENED OR ENDANGERED SPECIES OR SPECIES IN NEED OF CONSERVATION OR ALTER OR IMPAIR THE CRITICAL HABITAT OF THESE SPECIES.
2. PROPERLY MAINTAIN THE STRUCTURE OR FILL.
3. DESIGN THE PROJECT TO FIRST AVOID AND THEN MINIMIZE ANY ADVERSE IMPACT TO NONTIDAL WETLANDS EXISTING TOPOGRAPHY, VEGETATION, FISH AND WILDLIFE RESOURCES, AND HYDROLOGIC CONDITIONS.
4. CONDUCT THE REGULATED ACTIVITY SO AS NOT TO RESTRICT OR IMPEDE THE:
   a. MOVEMENT OF WILDLIFE INDIGENOUS TO THE NONTIDAL WETLANDS OR ADJACENT WATER, OR
   b. PASSAGE OF NORMAL OR EXPECTED HIGH WATER FLOWS.
5. ADHERE TO TIME OF THE YEAR RESTRICTIONS AS REQUIRED UNDER COMAR 26.28.02
6. AVOID ANY DISTURBANCE IN BREEDING AREAS FOR MIGRATORY WATERFOWL.
7. MAINTAIN THE HYDROLOGIC REGIME OF THE NONTIDAL WETLANDS UPSTREAM, DOWNSTREAM, OR ADJACENT TO THE REGULATED ACTIVITY.
8. REMOVE EXCESS FILL OR CONSTRUCTION MATERIAL OR DEBRIS TO AN UPLAND DISPOSAL AREA.
9. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
10. IF BACKFILL IS OBTAINED FROM SOURCES OTHER THAN THE ORIGINALLY EXCAVATED MATERIAL, UTILIZE CLEAN FILL, FREE FROM WASTE, METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
11. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY DESIGN THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS.
12. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURES OF FILLS SO AS NOT TO RESULT IN A SUBSTANTIAL DEVIATION FROM THE PLANS OR SPECIFICATIONS OF THE ORIGINAL STRUCTURE OR FILL. ALTHOUGH MINOR DEVIATIONS DUE TO CHANGES IN MATERIAL OR CONSTRUCTION TECHNIQUES, AND WHICH ARE NECESSARY FOR REPAIR AND MAINTENANCE ARE PERMITTED.
13. RECTIFY ANY NONTIDAL WETLANDS TEMPORARILY IMPACTED BY ANY PROPOSED REPAIR AND MAINTENANCE ACTIVITY.
14. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OF FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS IN EXCESS OF NONTIDAL WETLANDS LOST UNDER THE ORIGINAL CONSTRUCTION OR FILL.
15. CONDUCT THE ACTIVITY SO AS NOT TO CAUSE OR CONTRIBUTE TO A DEGRADATION OF WATER QUALITY AS DETERMINED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
16. FOR INSTALLATION OF UTILITY LINES MAKE POST CONSTRUCTION GRADES AND ELEVATIONS OF NONTIDAL WETLANDS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS.
17. WITHIN LIMITS OF DESIGNED WETLANDS AREAS, THE CONTRACTOR SHALL PLACE AND COMPACT NO.57 AGGREGATE BEDDING MATERIAL BACKFILL AROUND PIPE FROM TRENCH SUBGRADE TO SIX INCHES ABOVE THE CROWN OF PIPE. FROM THAT LEVEL TO WITHIN 12 INCHES OF FINISHED GRADE, THE CONTRACTOR SHALL BACKFILL WITH LIGHTLY CONSOLIDATED, PREVIOUSLY REMOVED, STOCKPILED MATERIAL. THE LAST 12 INCHES OF FILL TO FINISHED GRADE SHALL BE LOOSELY PLACED, UNCOMPACTED, SALVAGED, STOCKPILED TOPSOIL. THE AREAS SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
18. PERMANENT SEEDING IN THE WETLAND AND BUFFER SHALL CONSIST OF 35 LBS/ACRE OF THE FOLLOWING SPECIES AT THE DESIGNATED PERCENTAGES:
    RED TOP (AGROSTIS ALBA) 40%
    SWITCHGRASS (PANICUM VIRGATUM) 40%
    ROUGHSTALK BLUEGRASS (POA TRIVIALIS) 10%
    WILD MILLET (ECHINOCHLOA CRUS-GALLI) 10%
    KENTUCKY 31 FESCUE AND BIRDSFOOT TREFOIL SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS.
19. IF NECESSARY TEMPORARY STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SPP.), OATS (UNIOLA SPP.), AND/OR RYE (SECALE CEREALE).







STANDARD SYMBOL

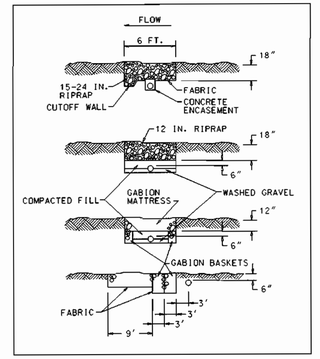
I. DESCRIPTION

THE WORK SHALL CONSIST OF INSTALLING EROSION CONTROL DEVICES IN AND ADJACENT TO TEMPORARY STREAM CONSTRUCTION SUCH AS UTILITY CROSSING.

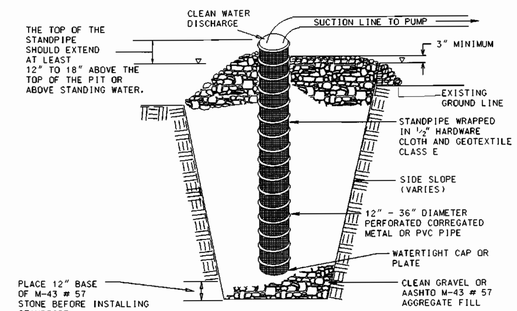
II. CONSTRUCTION SPECIFICATIONS

1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
2. THE CONTRACTOR SHALL INSURE THAT A CONTINUOUS PERIMETER CONTROL BARRIER IS IN PLACE SO AS TO MINIMIZE POLLUTANTS ENTERING THE WATER.
3. EXCAVATED TOPSOIL AND SUBSOIL SHALL BE KEPT SEPARATE AND REPLACED IN THEIR NATURAL ORDER.
4. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPLAND SIDE OF THE EXCAVATION.
5. ALL CONSTRUCTION SHALL TAKE PLACE DURING STREAM LOW FLOWS. THE LENGTH OF CONSTRUCTION TIME SHALL BE LIMITED TO A MAXIMUM OF 5 DAYS FOR EACH CROSSING.
6. ALL UTILITY CROSSINGS SHALL BE PLACED AT LEAST THREE FEET BENEATH THE STREAM BED UNLESS AN ALTERNATIVE SECTION IS SPECIFICALLY APPROVED BY THE ADMINISTRATION.
7. THE CONTRACTOR MAY ELECT TO CONSTRUCT THE UTILITY CROSSING IN TWO STAGES. IN THIS CASE, A WRA APPROVED FLOW BARRIER MAY BE CONSTRUCTED TO KEEP THE CONSTRUCTION AREA DRY.
8. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTION AUTHORITY APPROVES THEIR REMOVAL.

ALTERNATIVES



UTILITY CROSSING WPD 5.1



Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.

2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with ½" hardware cloth and Geotextile Class E. The perforations shall be ½" x 6" slits or 1" diameter holes.

3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.

4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

DETAIL 20B - SUMP PIT

SC-2

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR, OF PUBLIC WORKS — DATE 2/16/99
CHIEF, BUREAU OF ENGINEERING — DATE 2-18-99
CHIEF, BUREAU OF UTILITIES — DATE 2-17-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2-18-99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10210 — PROFESSIONAL ENGINEER

DES : WRD/EJM					
DRN : EJM/GWG					
CHK : JAA					
DATE : 12/09/98	BY	NO.	REVISION	DATE	

600' SCALE MAP NO. _____ BLOCK NO. _____

SEDIMENT CONTROL NOTES AND DETAILS

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 10

W.O./12954/RBGSSC02.DGN

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

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 stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff 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 within 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 I - Vegetative Stabilization Methods and Materials

A. Site Preparation

i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.

ii. 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.

B. Soil Amendments (Fertilizer and Lime Specifications)

i. 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.

ii. 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, trade name or 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 98 - 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.

C. Seedbed Preparation

i. 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 on construction equipment. After the soil is loosened it should not be rolled or dragged smooth 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.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

ii. Permanent Seeding

a. Minimum soil conditions required for permanent vegetative establishment:

1. Soil pH shall be between 6.0 and 7.0
2. Soluble salts shall be less than 500 parts per million (ppm).
3. The soil shall contain less than 40% clay 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 sericia lespedeza is to be planted, then a sandy soil (≤ 30% silt plus clay) would be acceptable.
4. Soil shall contain 1.5% minimum organic matter by weight.
5. Soil must contain sufficient pore space to permit adequate root penetration.
6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

b. 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 down a slope.

c. Apply soil amendments as per soil test or as included on the plans.

d. 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 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.

D. Seed Specifications

i. 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.

ii. Inoculant - 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.

E. Methods of Seeding

i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.

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 lbs/ac: K20 (potassium): 200 lbs/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.

c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

ii. 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 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

a. Cultipacker seeders are required to bury the seed in such a fashion as to provide at least ¼ inch of soil covering. Seedbed must be firm after planting.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (In order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably 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.

ii. Wood Cellulose Fiber Mulch (WCFM)

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

b. 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.

c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. 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 phyto-toxic.

f. 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.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

i. 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 seedbed 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.

iii. 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.

H. 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 a 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.

ii. 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.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests 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.

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

Section II - Temporary Seeding

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures - Temporary Seeding

i. 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.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (FOR HARDINESS ZONE 6-b) FROM TABLE 26					FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE(lb/ac)	SEEDING DATES	SEEDING DEPTHS		
	ANNUAL RYEGRASS	50	3/1 - 4/30 8/15 - 11/1	1/4"-1/2"	600 lb/ac (15 lb/1000 sf)	2 tons/ac (100 lb/1000 sf)

Section III: Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

A. 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 sites such as shorelines, streambanks, or dunes or for 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 Section IV Sod and V Turfgrass.

ii. For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written.

iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3½ lbs./1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

PERMANENT SEEDING SUMMARY

Seed Mixture (For Hardiness Zone 6-b) (From Table 25)					Fertilizer Rate (10-20-20)			Lime Rate
NO.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
2	KETUCKY BLUEGRASS 50% CREEPING RED FESCUE 40% RED TOP 10%	150	3/1 - 5/15 8/15 - 11/15	1/4"-1/2"	90 lb/ac (2.0lb/1000 sf)	175 lb/ac (4 lb/1000 sf)	175 lbs/ac (4 lb/1000 sf)	2 tons/ac (100 lb/1000 sf)

Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

A. General Specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.

ii. Sod shall be machine cut at a uniform soil thickness of ¾". plus or minus¼", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.

iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

B. Sod Installation

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.

ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.

iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.

iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

SECTION IV - TURFGRASS ESTABLISHMENT

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1½ inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

NOTE: Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

A. Turfgrass Mixtures

i. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive management, irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95 - 100%, certified Kentucky Bluegrass Cultivars 0 - 5%. Seeding rate: 5 to 8 lb/1000 sf. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: certified Kentucky Bluegrass Cultivars 30-40% and certified Fine Fescue and 60-70%. Seeding rate: 1½ - 3 lbs/1000 square feet. A minimum of 3 kentucky bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

NOTE: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland".

B. Ideal times of seeding

Western MD: March 15 - June 1, August 1 - October 1
(Hardiness Zones - 5b, 6a.

Central MD: March 1 - May 15, August 1 - October 15
(Hardiness Zone - 6b)

Southern MD, Eastern Shore: March 1 - May 15, August 15 - October 15
(Hardiness Zones - 7a, 7b)

C. Irrigation

If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

D. Repair and Maintenance

Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.

i. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.

ii. If the stand provides less than 40% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

iii. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No.171.

SC-3

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 2/18/99
CHIEF, BUREAU OF ENGINEERING — DATE 2.18.99
CHIEF, BUREAU OF UTILITIES — DATE 2-18-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2-18-99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIRETT, JR. — 10210 — PROFESSIONAL ENGINEER

DES : WRD/EJM
DRN : EJM/GWG
CHK : JAA
DATE : 12/29/98

BY	NO.	REVISION	DATE

SEDIMENT CONTROL NOTES AND SCHEDULES

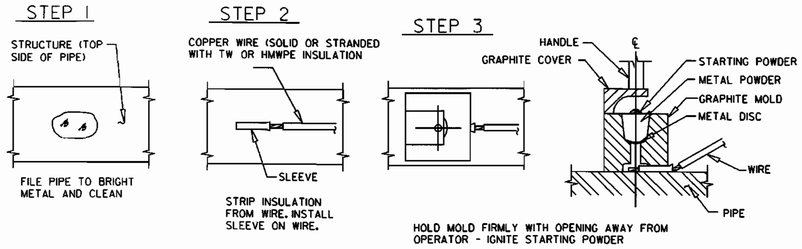
600' SCALE MAP NO. _____ BLOCK NO. _____

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

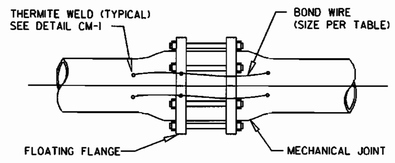
SCALE AS SHOWN

SHEET 9 OF 10

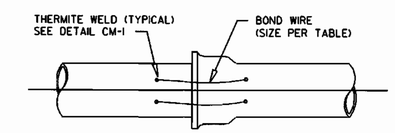
W.O./12954/ RBGSSC03.DGN



CM-1: TYPICAL THERMITE WELD



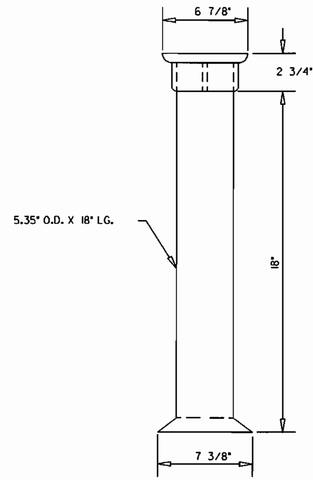
MECHANICAL JOINT



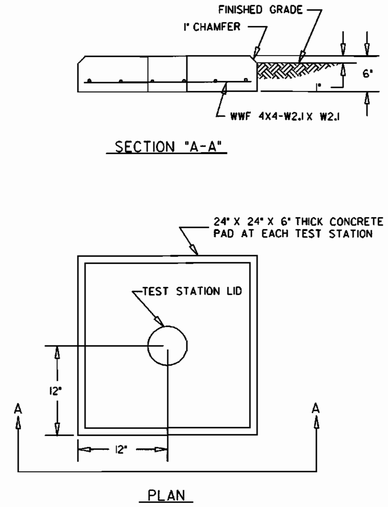
BELL AND SPIGOT JOINT

BOND WIRE SIZE	
PIPE SIZE	WIRE SIZE
LARGER THAN 36"	#2 AWG
16" TO 36"	#4 AWG
SMALLER THAN 16"	#6 AWG

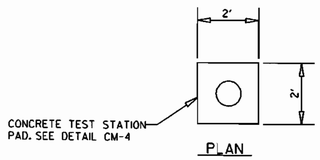
CM-2: TYPICAL PIPE JOINT BOND



CM-3: TEST BOX



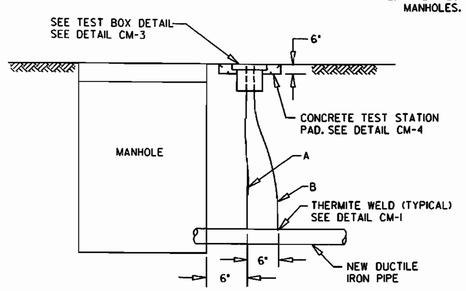
CM-4: TEST STATION PAD



PLAN

WIRING SCHEDULE					
DESCRIPTION	WIRE	TEST STATION TERMINAL	AWG WIRE SIZE	TYPE INSULATION	COLOR INSULATION
NEW PIPE	A B	1 3	#10 #10	THWN THWN	BLUE BLUE

NOTES:
1. DO NOT SET TEST STATION IN ROADWAY. PLACE TEST BOX IN NON-PAVED AREA NEXT TO ROADWAY. ROUTE ALL WIRES TO FINAL TEST BOX LOCATION.
2. TYPE I TEST STATIONS FOR WATER PIPING ARE NOT SET NEXT TO MANHOLES.



PROFILE

CM-5: TYPE I TEST STATION

CORROSION MONITORING TEST STATION SCHEDULE ROCKBURN GRAVITY SEWER CAPITAL PROJECT NO. S-6200 CONTRACT NO. 10-3697			
MANHOLE NUMBER	STATION NUMBER	TEST STATION TYPE	DETAIL NO.
MH 106	0+00	TYPE 1	CM-5
MH 107	0+65	TYPE 1	CM-5
MH 28	0+00	TYPE 1	CM-5
MH 29	1+00	TYPE 1	CM-5
WT/MH 19	0+00	TYPE 1	CM-5
WT/MH 20	0+50	TYPE 1	CM-5
WT/MH 21	0+00	TYPE 1	CM-5
WT/MH 22	1+31	TYPE 1	CM-5

CORROSION MONITORING TEST STATION SCHEDULE ROCKBURN 12-INCH WATER MAIN CAPITAL PROJECT NO. S-6200 CONTRACT NO. 10-3697		
STATION NUMBER	TEST STATION TYPE	DETAIL NO.
2+46	TYPE 1	CM-5
3+93	TYPE 1	CM-5

CM-6: TEST STATION SCHEDULES

CC-1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 2/16/99
CHIEF, BUREAU OF ENGINEERING — DATE 2.18.99
CHIEF, BUREAU OF UTILITIES — DATE 2-18-99
CHIEF, UTILITY DESIGN DIVISION — DATE 2-18-99

PREPARED BY :
Whitman, Requardt and Associates, LLP.

STATE OF MARYLAND — JAMES A. AVIDETT, JR. — 10210 — PROFESSIONAL ENGINEER

DES : MJS
DRN : DJD
CHK : MJS
DATE: 1/99

BY	NO.	REVISION	DATE

CORROSION MONITORING DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

ROCKBURN GRAVITY SEWER
CAPITAL PROJECT NO. S-6200
CONTRACT NO. 10-3697
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 10 OF 10

W.O./12954/RBGSCC01.DGN