

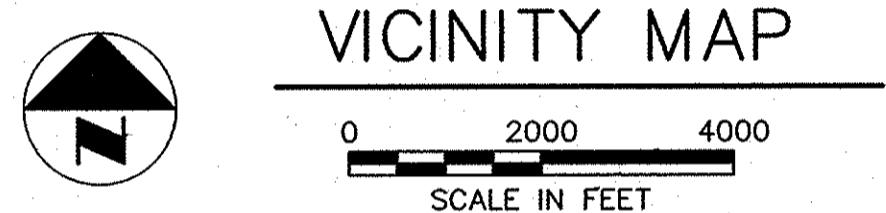
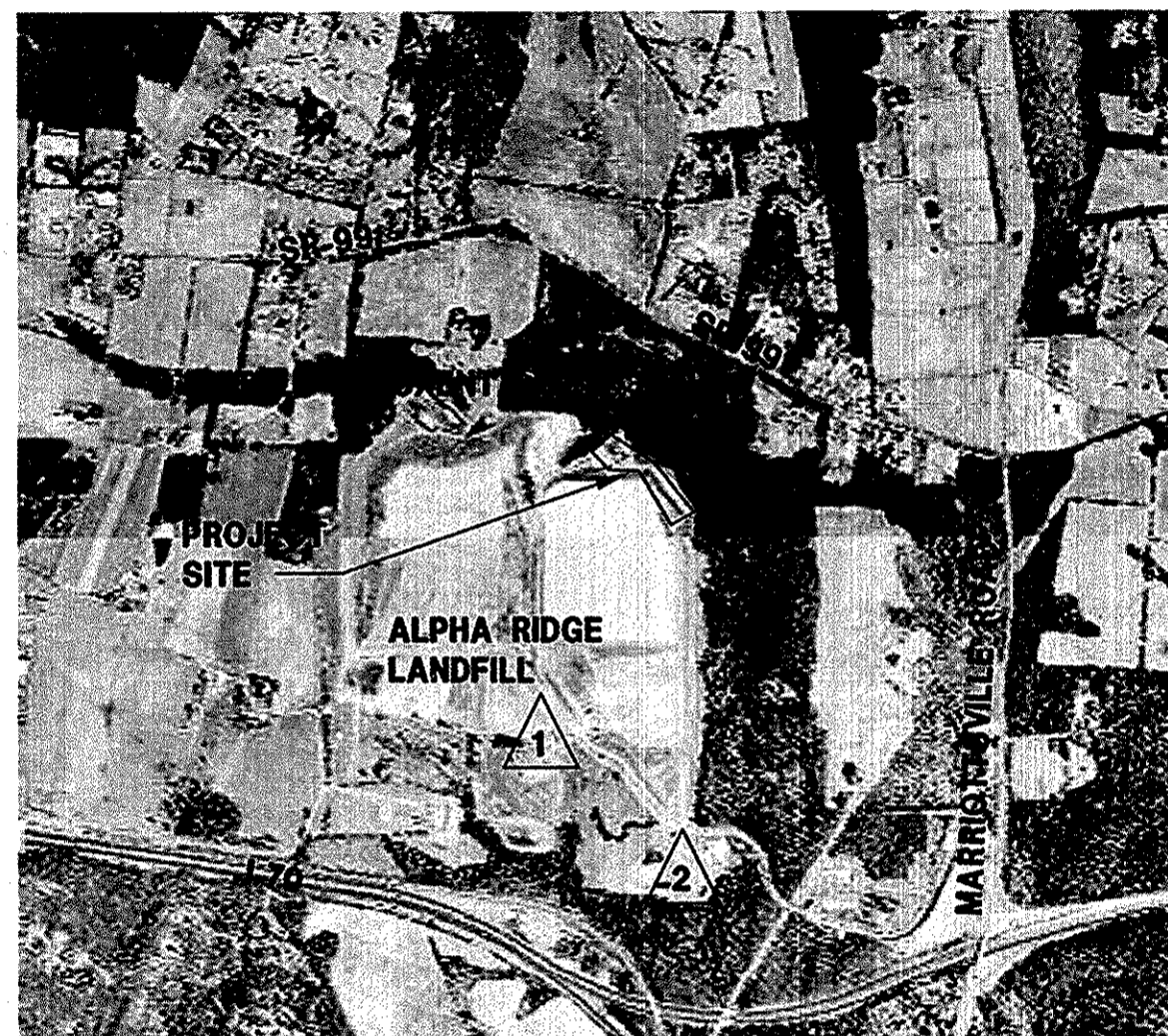
ALPHA RIDGE LANDFILL PANELS
COORDINATES IN NAD'83 FEET
ELEVATIONS IN FEET

PANEL NUMBER	NORTH	EAST	ELEVATION
HV00	596654.78	1336886.02	526.35
PC01	595733.66	1337856.74	510.81
PC04	507298.09	1338453.33	495.55
PC05	598870.35	1339271.78	548.00
PC06	600370.18	1339244.20	513.06
PC07	598191.26	1336887.65	566.36
PC08	599855.00	1336682.66	561.11
PC09	602346.70	1336578.63	526.17
PC10	597186.12	1334540.67	574.07
PC11	598429.53	1334744.49	576.44
PC12	599799.43	1334659.45	585.44
PC13	601881.34	1335027.83	552.64

HOWARD COUNTY Department of Public Works 6751 Gateway Drive, Suite 514 Columbia, Maryland 21046

ALPHA RIDGE LANDFILL POND 4A & 4B MODIFICATIONS SITE DEVELOPMENT PLAN

CAPITAL PROJECT NO. C-0299-A



HOWARD COUNTY SURVEY MONUMENTS:

- 1 BASE A: N 598156.232
E 1336841.788
ELEV. 564.938
- 2 BASE F: N 597030.509
E 1338031.409
ELEV. 513.024

▲ POND 4A & 4B ARE MAINTAINED AS
SEDIMENT BASINS DURING LANDFILL
OPERATIONS THROUGH CLOSURE OF
CELL 1 AND ANCILLARY CONSTRUCTION.



PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220.11, 302
LIBER/FOLIO 10-847/606 16-878/215 10-891/314	ZONE REC-DEP
TAX/ZONE MAP 10 & 16	
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
CENSUS TR. 6030.00	

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

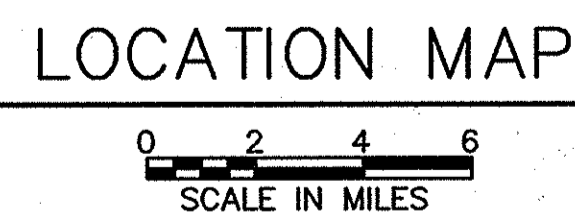
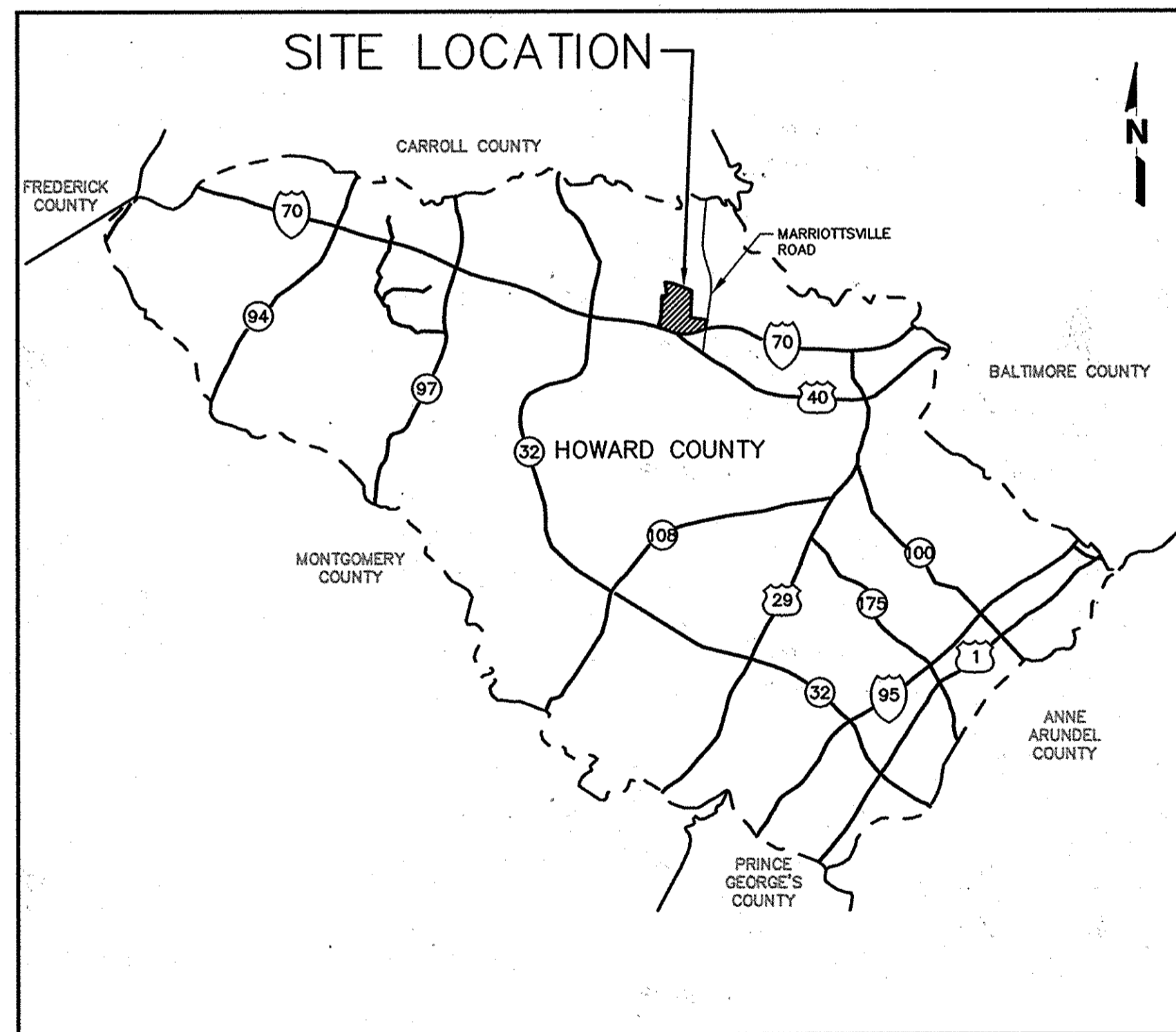
Mark A. Light 7/30/05
DIRECTOR DATE

Michelle R. ... 9/24/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 9/24/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER / DEVELOPER:
HOWARD COUNTY DPW, BUREAU
OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, # 514
COLUMBIA, MARYLAND 21046
PH. (410) 313-6419

Robert Weber 9/24/05
HOWARD COUNTY, MARYLAND
HEALTH OFFICER DATE



DRAWING INDEX

- B1. TITLE SHEET
- B2. EXISTING SITE CONDITIONS, GENERAL NOTES AND LEGEND
- B3. DRAINAGE AREA MAP - POSTDEVELOPMENT
- B4. SB-4A PLAN AND PROFILES
- B5. CW-4B PLAN AND PROFILES
- B6. DETAILS - SB-4A RISER
- B7. DETAILS - CW-4B RISER
- B8. DETAILS - BASINS
- B9. POND CONSTRUCTION SPECIFICATIONS AND CERTIFICATIONS
- B10. EROSION & SEDIMENT CONTROL NOTES
- B11. EROSION & SEDIMENT CONTROL PLAN
- B12. EROSION & SEDIMENT CONTROL DETAILS
- B12A. EROSION & SEDIMENT CONTROL DETAILS - 2
- B13. DETAILS - CULVERTS
- B14. DETAILS - STORMWATER

- B15. SITE GRADING PLAN FOR TRAILER STORAGE AREA
- B16. SITE COVER AND MARKING PLAN
- B17. YARD PIPING PLAN
- B18. LEACHATE PLAN & PROFILES
- B19. LEACHATE PLAN & PROFILES
- B20. ESD PLANS & SECTIONS
- B21. ESD NOTES & SPECIFICATIONS
- B22. STORM DRAIN PROFILES & DETAILS
- B23. LEACHATE SEWER & MISCELLANEOUS DETAILS
- B24. EROSION & SEDIMENT CONTROL PLAN
- B25. EROSION & SEDIMENT CONTROL NOTES
- B26. EROSION & SEDIMENT CONTROL DETAILS
- B27. EXISTING SITE CONDITIONS SUPPLEMENT AND DEMOLITION PLAN

PREVIOUS SITE DEVELOPMENT PLAN NUMBER

- CAPITAL PROJECT C-4-0108
- CAPITAL PROJECT C-4-0109
- CAPITAL PROJECT C-0190-B (SDP-90-90)
- CAPITAL PROJECT D-1065
- CAPITAL PROJECT W-8239
- WETLANDS PERMIT TRACKING NO.: 1997-63409

▲ SDP-97-128 FC

S:\ACAD\ACAD3\02203023.10_SHT-1.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Ronald Eason 8/17/05
DIRECTOR OF PUBLIC WORKS DATE

Evelyn Z. Jones 8/16/05
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES.	AST	DATE
▲	REVISION	
▲	REFERENCING TRAILER STORAGE PAD	10/20/10
▲	REDLINE DESIGN DRAWINGS	
▲	REVISED PER COUNTY COMMENTS	08/20/11
▲	REVISED SHEET #'S AND INFO.	9/20/11
JED	NOTE RE: MAINTAINING SED BASINS	4/28/16
BY	NO.	REVISION
DATE: 06/05		

TITLE SHEET

ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS

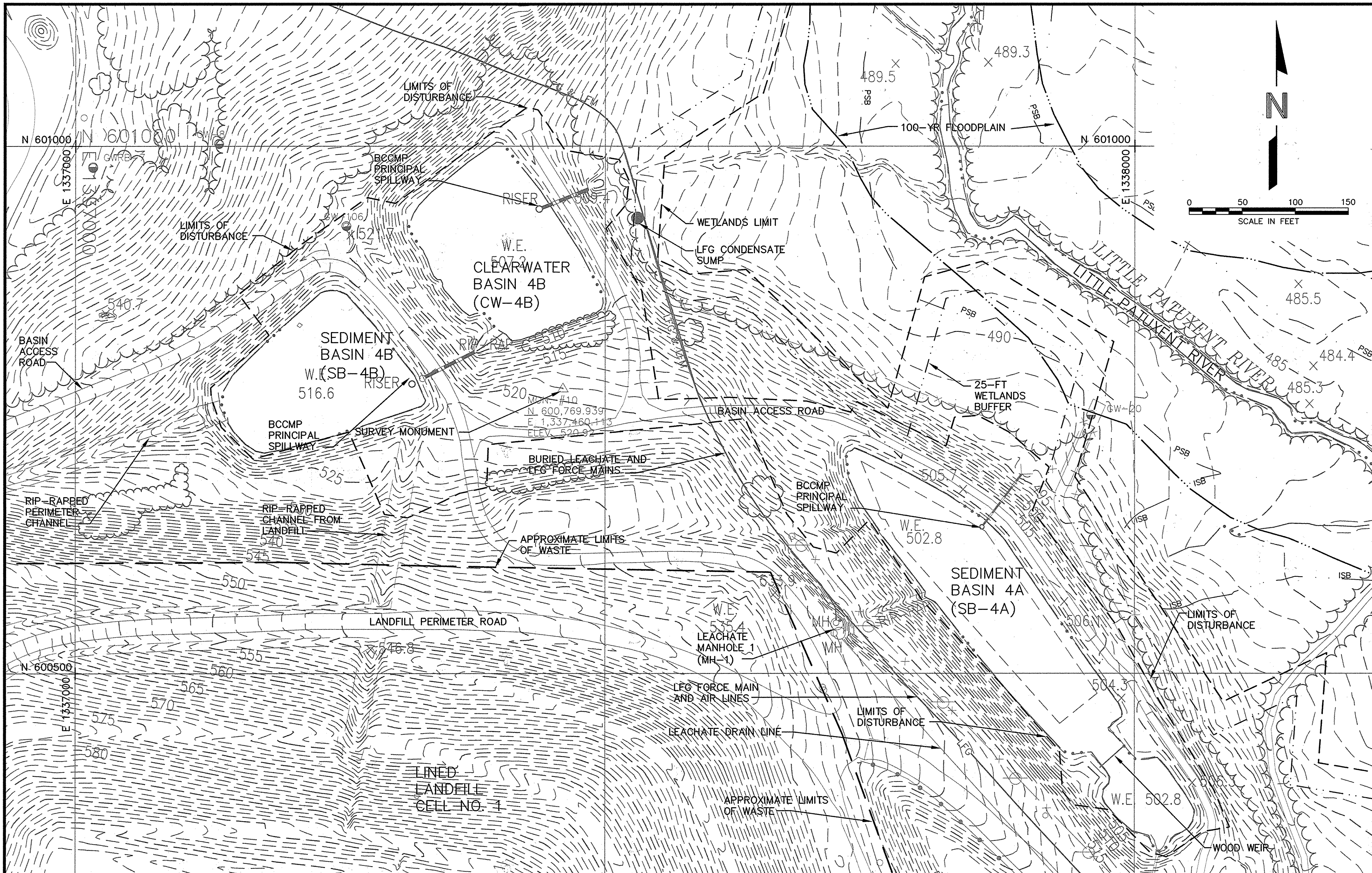
CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

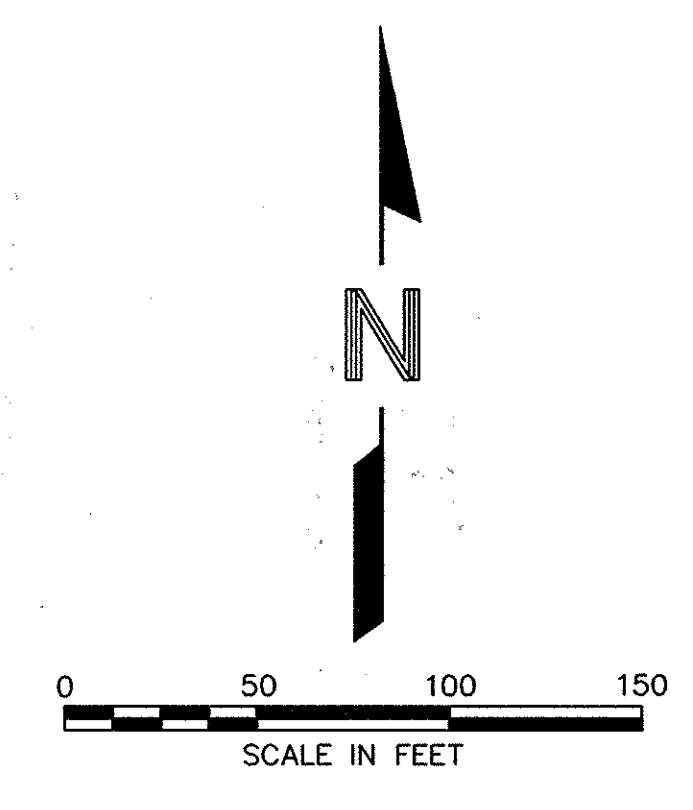
SHEET 27
B1 OF 16

▲ SDP-05-074



GENERAL LEGEND

	SURVEY CONTROL MONUMENT
	GROUNDWATER WELLS (EXISTING)
	100 YEAR FLOODPLAIN
	ISOLATION VALVE LFG HEADER
	EXISTING WATER LINE
	WETLAND LIMITS
	WETLAND BUFFER
	EXISTING LITTER FENCE
	LFG PROBES AND WELLS
	LFG CONDENSATE SUMP
	LFG HEADER AND AIR LINE
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LFG, AIR, AND LEACHATE FORCE MAINS IN SAME TRENCH TO ONE POINT (MH 1)
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	PERENNIAL STREAM BUFFER
	INTERMITTENT STREAM BUFFER



PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER		LOT/PARCEL 253,220.11	
LIBER/FOLIO 10-847/606 16-878/215 10-891/314	ZONE PEC	TAX/ZONE MAP 10 & 16	
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30	

**DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND**

<i>David M. Lytle</i> DIRECTOR	DATE 9/20/05
<i>Michael J. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9/20/05
<i>... ..</i> CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9/20/05

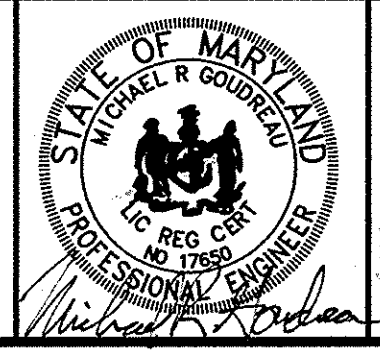
GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS, THE TECHNICAL SPECIFICATIONS (DIVISION 1 TO 16) OF THE PROJECT MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENVIRONMENTAL SERVICES AT (410) 313-6444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- TOPOGRAPHIC INFORMATION ON THIS SHEET WAS COMPILED BY AIR SURVEY CORPORATION, INC. FROM AIR PHOTOGRAPHY DATED DECEMBER 1997.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD, 1983 (HORIZ.) & NGVD, 1929 (VERT.).
- WATER SERVICE IS PUBLIC CONTRACT NUMBER 44-4158 AND THE DRAINAGE AREA IS THE PATUXENT RIVER BASIN.
- SEWER IS PRIVATE.
- STORMWATER MANAGEMENT CONTROL IS TYPE P-2 (WET POND) AND IS OWNED AND MAINTAINED BY HOWARD COUNTY.
- EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS.
- 100 YEAR FLOODPLAIN INFORMATION BASED ON THE 1978 FLOODPLAIN DELINEATION BY CENTURY ENGINEERING AND THE 1986 UPDATE BY BERNARD JOHNSON, INC. HOWARD CO. MAPS: GC-0119-T-36-38, GC-0119-T-35-38, GC-0119-T-234-38, GC-0119-T-35-39. STUDY COMPLETED AS PART OF CAPITAL PROJECT D-1065.
- THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY HOWARD SOIL CONSERVATION SERVICE, DATED
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- PROJECT NAME IS ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER, TAX MAP 10 & 16.
- CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, LEACHATE LINES, CONDENSATE LINES, GROUNDWATER WELLS, AND LANDFILL GAS PIPES AND MANHOLES. UTILITIES DAMAGED AS A RESULT OF CONTRACTOR'S OPERATION SHALL BE REPAIRED/REPLACED BY HOWARD COUNTY AT THE CONTRACTOR'S EXPENSE.
- NIC MEANS "NOT IN CONTRACT".
- WAIVERS GRANTED BY THE PUBLIC WORKS DIRECTOR FOR THE FOLLOWING:
 - SIDESLOPES AND BENCHING
 - FOREBAYS
 - LEVEL AREA AROUND BASIN
 - LANDSCAPING PLAN
 - GEOTECHNICAL REPORT
 - DETAILS TO SCALE
 - ADDITIONAL LAG TIME CALCULATIONS
 - MODELING FLOWS LESS THAN 1-CFS
 - EVALUATING 1-YR STORM OTHER THAN WITH CPV CALCULATIONS
- STORMWATER MANAGEMENT LANDSCAPING IS NOT REQUIRED FOR THIS PROJECT BECAUSE THE FACILITIES ARE INTERNAL TO THE SITE.
- THIS PLAN IS EXEMPT FROM THE REQUIREMENTS FOR FOREST CONSERVATION BECAUSE THE PROPOSED LIMITS OF DISTURBANCE ARE WITHIN THE PREVIOUS LIMIT OF DISTURBANCE, IN ACCORDANCE WITH SECTION 16.1202.b.1.(iii) OF THE SUBDIVISION REGULATIONS.

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND**

<i>David M. Lytle</i> DIRECTOR OF PUBLIC WORKS	DATE 8/17/05
<i>Evelyn E. Janki</i> CHIEF, BUREAU OF ENVIRONMENTAL SERVICES	DATE 9/20/05

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES.	AST		SHEETS B15-B27 ADDED TO SPP-05-074	9/20/11
DRN.	AST			
CHK.	MRG			
DATE:	06/05	BY	NO.	REVISION

**EXISTING SITE CONDITIONS,
GENERAL NOTES AND LEGEND**

**ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS**

CAPITAL PROJECT NO. C-0299-A
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

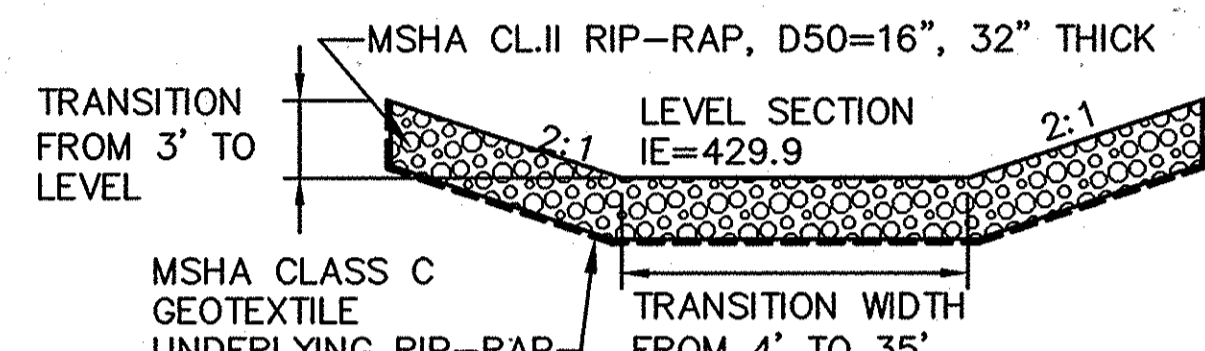
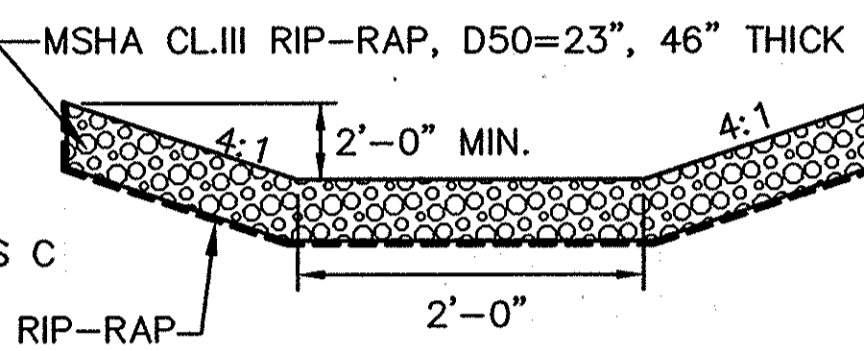
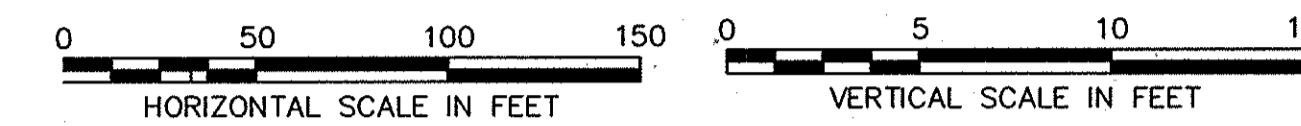
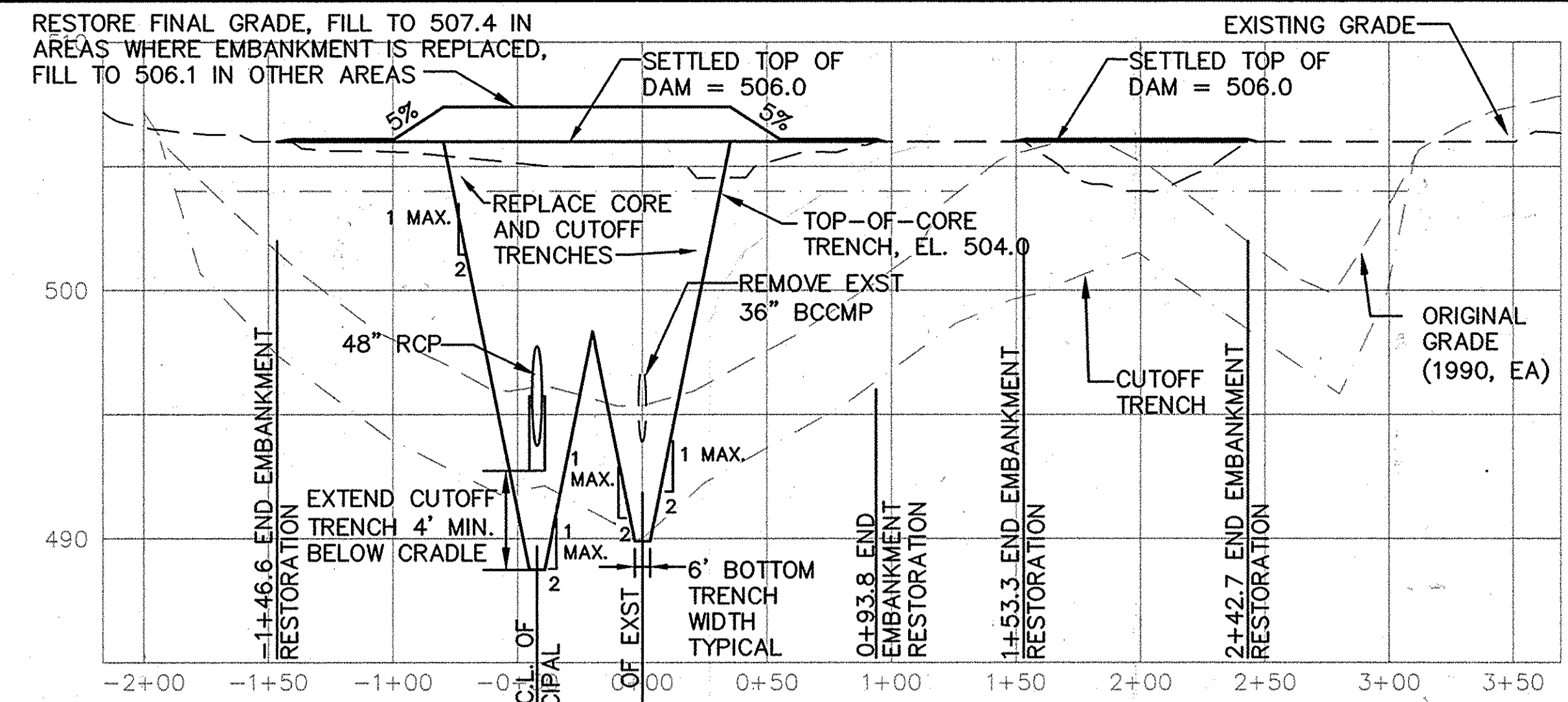
SHEET 27
B2 OF 16

S:\ACAD\ACAD3\02203023.10 EXISTING CONDITIONS

SDP 05.79

SB-4A CENTERLINE OF EMBANKMENT

- EMBANKMENT CENTERLINE NOTES:**
- LIMITS OF CORE TRENCH AND CUTOFF TRENCH BASED ON EA ENGINEERING AS-BUILT, 1990.
 - CONTRACTOR SHALL MINIMIZE DISTURBANCE OF THE CORE AND CUTOFF TRENCHES, EXCEPT AS NECESSARY TO REMOVE EXISTING SPILLWAY AND INSTALL NEW SPILLWAY.
 - FILL MATERIAL FOR REPLACING THE CENTER OF THE EMBANKMENT AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL. MINIMUM REQUIRED DENSITY SHALL BE 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ± 2% OF THE OPTIMUM.
 - CONSTRUCTED TOP OF DAM = 507.4 IN DISTURBED AREA, OTHERWISE 506.1
 - SETTLED TOP OF DAM = 506.0
 - CONTRACTOR SHALL NOTIFY GEOTECHNICAL ENGINEER OF THE TIME WHEN BREACHES WILL BE MADE AND ASSIST THE ENGINEER WITH INSPECTION AS NECESSARY.
 - GEOTECHNICAL ENGINEER SHALL OBSERVE WORK AND INSPECT EXPOSED FACE OF EXISTING EMBANKMENT REMAINING WHEN BREACH IS MADE BY CONTRACTOR.
 - GEOTECHNICAL ENGINEER SHALL ASSESS WHETHER THE EXST EMBANKMENT MEETS CURRENT REGULATORY REQUIREMENTS.
 - CONTRACTOR SHALL SCARIFY, BLEND AND COMPACT THE NEW CORE TRENCH WITH THE EXISTING CORE TRENCH TO REMAIN.



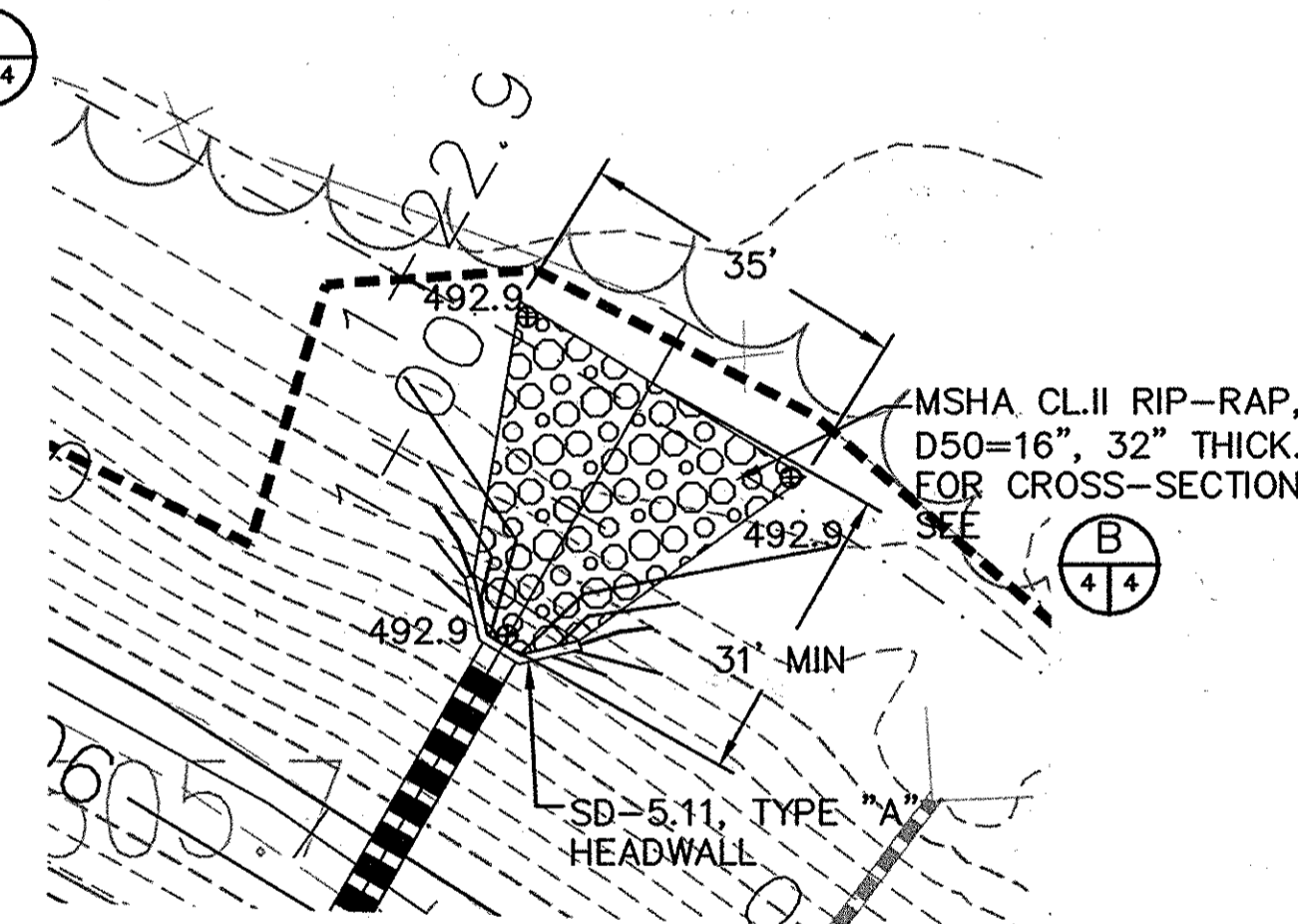
SB-4A MAIN INLET CHANNEL (A) 4/4
NOT TO SCALE

SB-4A OUTLET CHANNEL (B) 4/4
NOT TO SCALE

15-FT NO WOODY VEGETATION BUFFER (BY OTHERS)

LIMITS OF DISTURBANCE

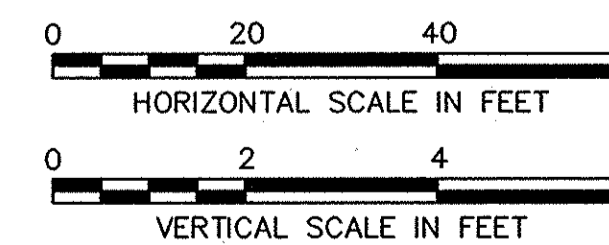
(A) 4/4



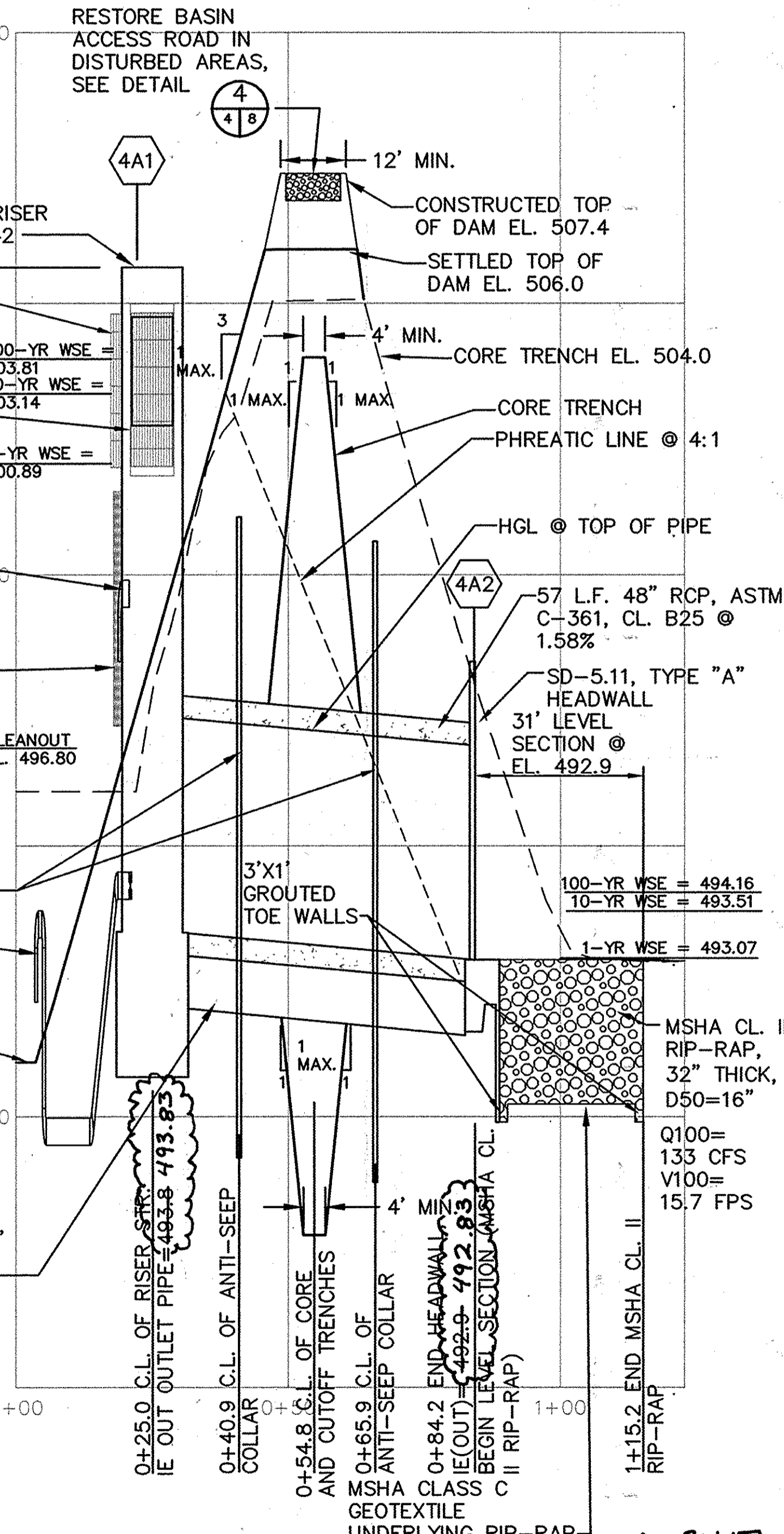
SB-4A OUTLET CHANNEL (1) 4/4
1\"/>

SB-4A OUTLET PROFILE

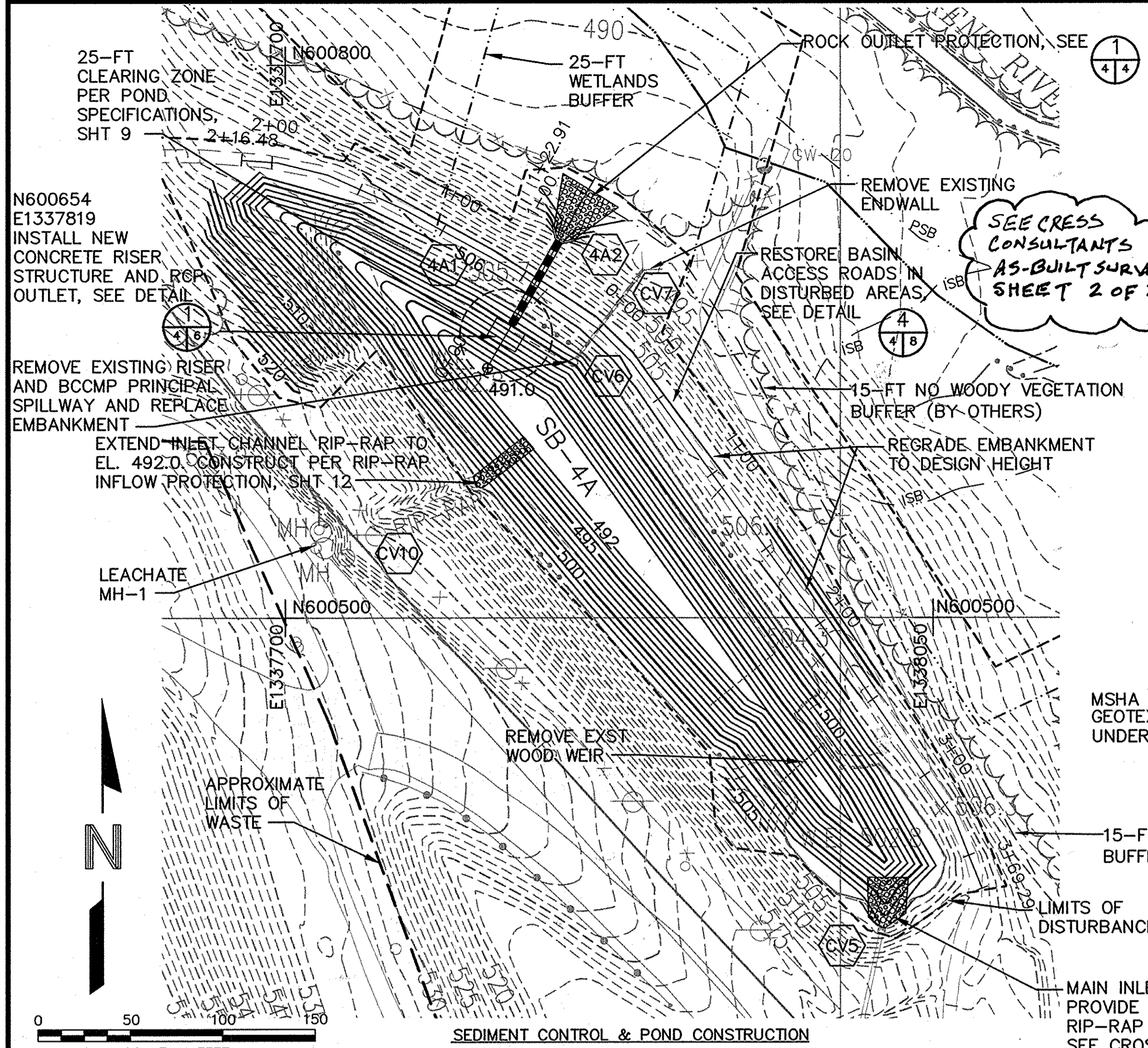
- NOTES:**
- NO Rev WSEL PROVIDED, SINCE Rev CAN NOT BE HANDLED IN A WET POND (P-2)



SB-4A PLAN AND PROFILES



AS-BUILT



- NOTES:**
- FUTURE (AFTER CONSTRUCTION) BASIN MAINTENANCE IS RESPONSIBILITY OF OWNER, HOWARD COUNTY.
 - SB-4A BASIN INFORMATION:
VOLUME: 6.9 AC-FT
AREA: 1.0 AC
RIM ELEVATION: 506.0 FT
BOTTOM ELEVATION: 492.0 FT
TYPE: P-2 (WET POND)
DAM HAZARD CLASS A
 - WATER QUALITY WATER SURFACE ELEVATIONS:
WQv (Rev INCLUDED) = 499.5
Cpv = 500.0
Qp AND Qf NOT REQUIRED

SIGNATURE OF DEVELOPER: *Michael R. Anderson* DATE: 8/12/05
 PRINT NAME BELOW SIGNATURE: MICHAEL R. ANDERSON
 BY THE ENGINEER: *Michael R. Anderson* DATE: 8/12/05
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
 SIGNATURE OF ENGINEER: *Michael R. Anderson* DATE: 8/12/05
 PRINT NAME BELOW SIGNATURE: MICHAEL R. ANDERSON
 THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE: 9/15/05
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD SOIL CONSERVATION DISTRICT DATE: 9/15/05

PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220,11
LIBER/FOLIO 10-847/606 16-878/215 10-891/314	ZONE PEC TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
CENSUS TR. 60-30	

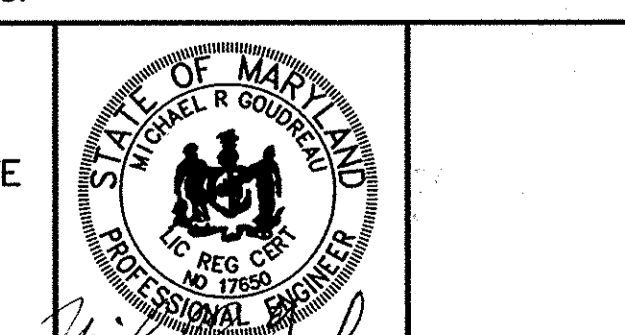
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
 Director: *Debra DeLaugh* DATE: 7/30/05
 Chief, Development Engineering Division: *John DeLaugh* DATE: 9/2/05
 Chief, Division of Land Development: *Judy Hamilton* DATE: 7/30/05

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 Signature: *Michael R. Anderson* PE NO. 17650 DATE: 2/27/09
 CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OPERATION, MAINTENANCE AND INSPECTION
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
 Director: *Paul S. Spon* DATE: 8/17/05
 Chief, Bureau of Environmental Services: *Evelyn E. Jones* DATE: 8/16/05

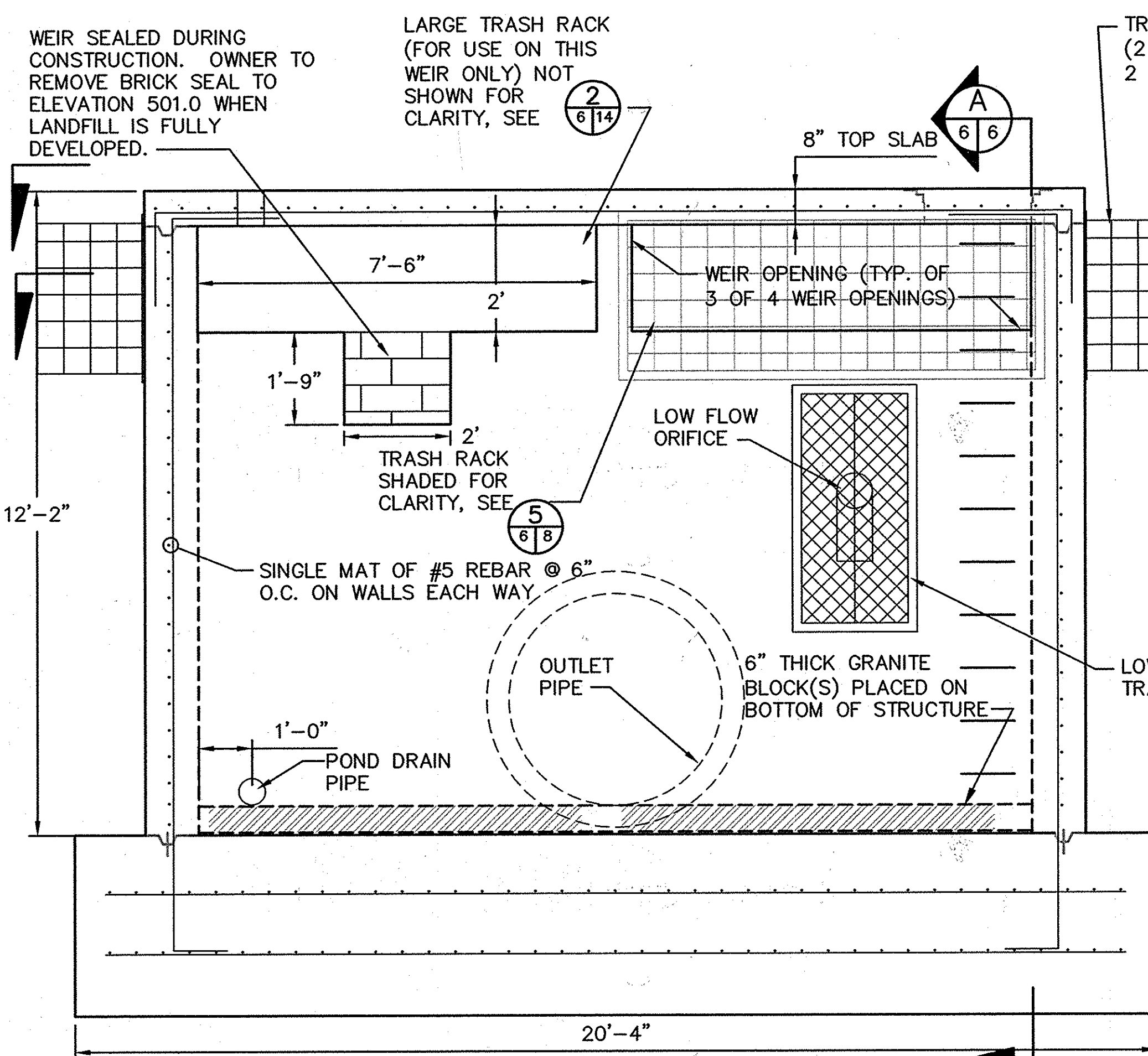
SCS ENGINEERS
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11260 ROGER BACON DRIVE
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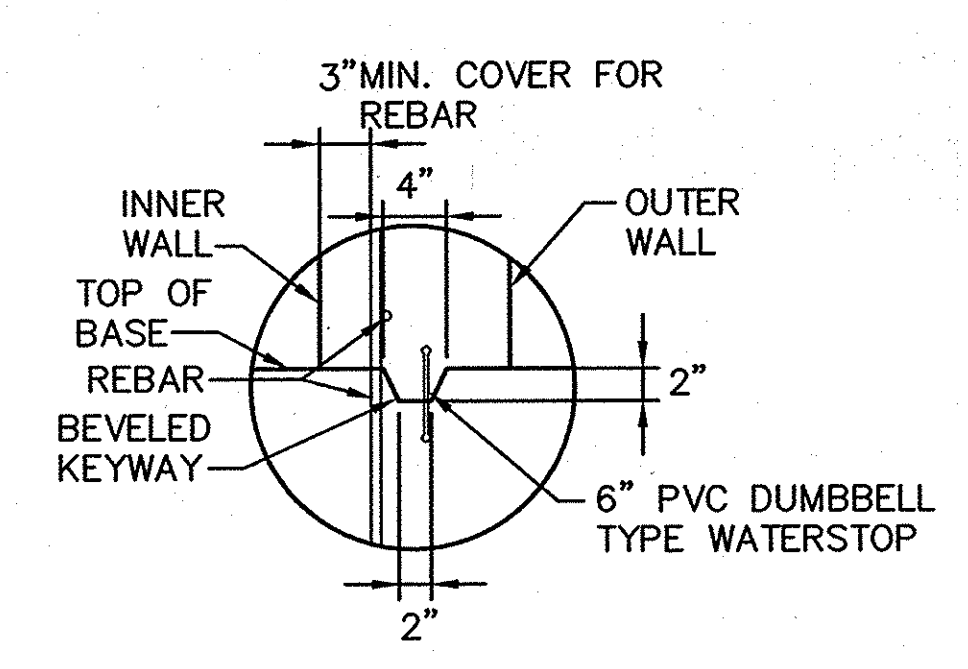
DES. AST					
DRN. AST					
CHK. MRG					
DATE: 06/05	BY: NO.	REVISION	DATE		

ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS
 CAPITAL PROJECT NO. C-0299-A
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

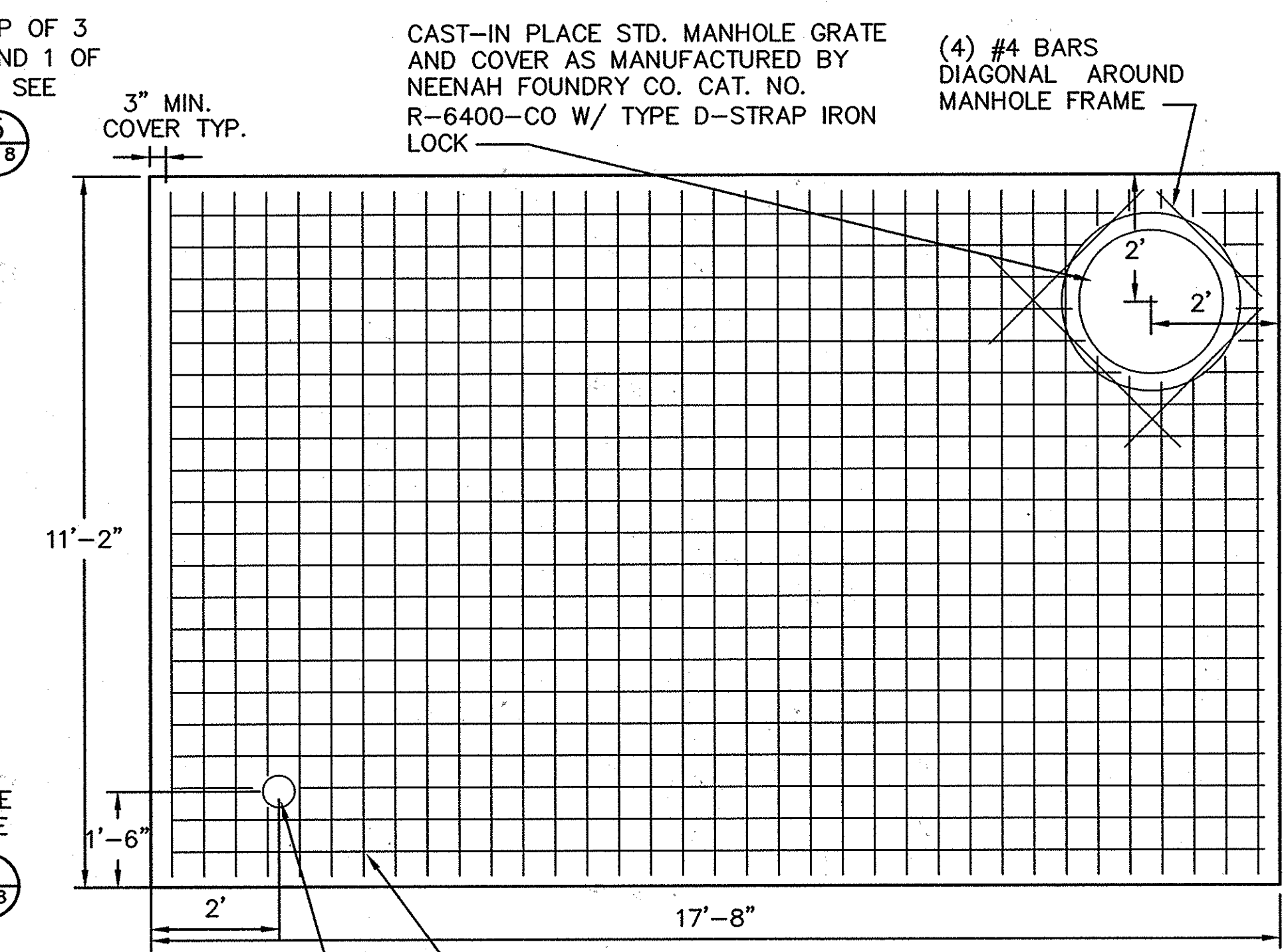
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 SHEET 27 OF 45
 SDP 05.74



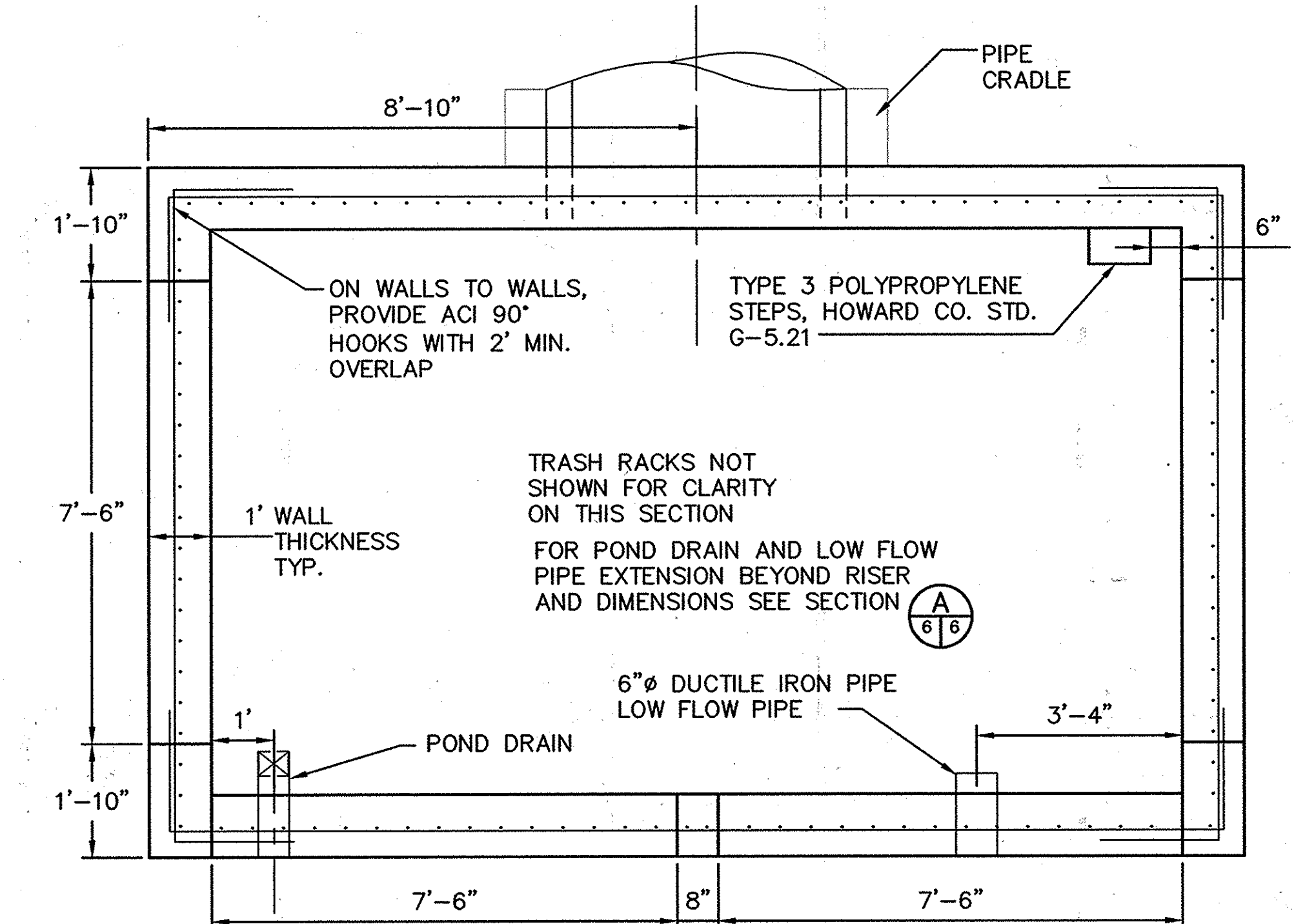
RISER STRUCTURE DETAIL 1
SCALE: 1/2"=1'-0"



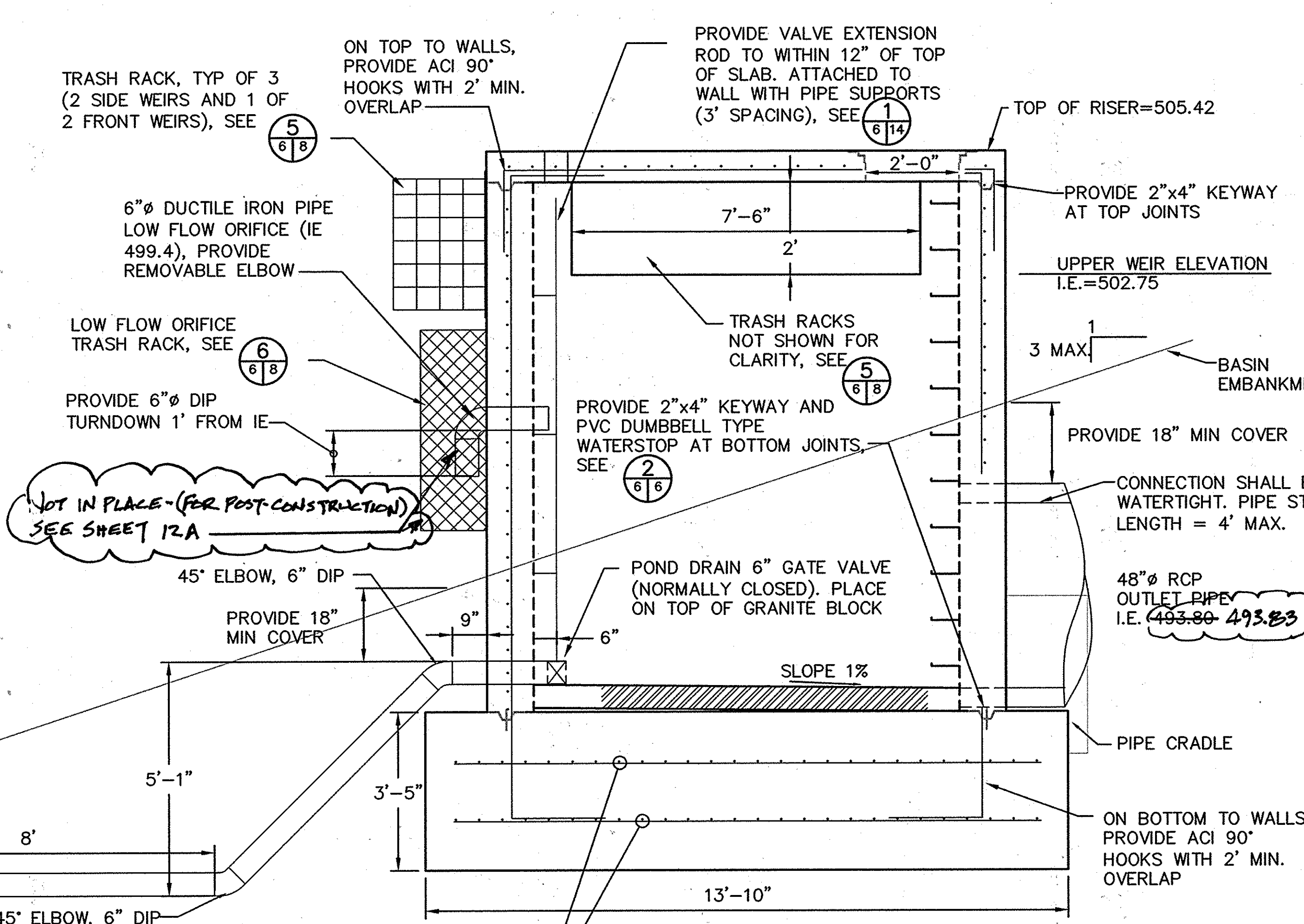
KEYED JOINT WITH WATERSTOP DETAIL 2
NOT TO SCALE



RISER STRUCTURE SECTION B
SCALE: 1/2"=1'-0"



RISER STRUCTURE SECTION C
SCALE: 1/2"=1'-0"



RISER STRUCTURE SECTION A
SCALE: 1/2"=1'-0"

- NOTES:
1. CONCRETE OUTLET RISER SHALL BE POURED IN PLACE UNLESS CONTRACTOR RECEIVES APPROVAL FROM HOWARD CO. FOR A WATERTIGHT PRECAST OUTLET RISER DESIGN.
 2. POND DRAIN VALVE SHALL BE RESEATING.
 3. CONTRACTOR SHALL PROVIDE EXTENSION ARM TO ALLOW PERSONNEL TO OPEN OR CLOSE POND DRAIN VALVE FROM HANDHOLE.
 4. DUCTILE IRON PIPE (DIP) SHALL BE AWWA C-151, CLASS 52.
 5. FOR RISER CONFIGURATION DURING TEMPORARY CONDITIONS, SEE SHEET 12A

SEDIMENT CONTROL & POND CONSTRUCTION

BY THE DEVELOPER: I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Evelyn G. Tomlin 9/9/2005
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE

BY THE ENGINEER: I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Michael R. Goudreau 8/12/05
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Jim Myer 9/15/05
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
Michael R. Goudreau PE NO. 17650
SIGNATURE DATE 2/27/09

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OPERATION, MAINTENANCE AND INSPECTION
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL

AS-BUILT

PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220.11
LIBER/FOLIO 10-847/606 16-878/215 10-691/314	ZONE PEC
TAX/ZONE MAP 10 & 16	
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
CENSUS TR. 60-30	

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Danah DeLoach 9/20/05
DIRECTOR DATE

Mark Williams 9/20/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

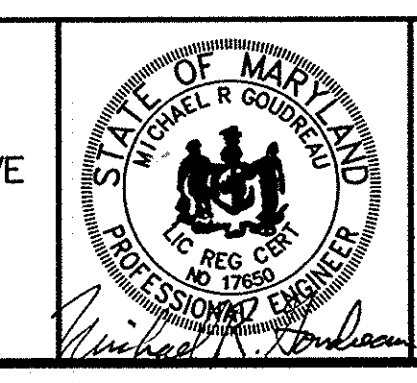
Wade Hamilton 7/18/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Donald S. Brown 8/17/05
DIRECTOR OF PUBLIC WORKS DATE

Evelyn G. Tomlin 8/16/05
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES.	AST	▲	SHEETS 815-829 ADDOP TO SPP-05-074	9/21/11
DRN.	AST	▲		
CHK.	MRG	▲		
DATE:	06/05			
BY	NO.		REVISION	DATE

DETAILS
SB-4A RISER

ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS

CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET 27
OF 28

SDP 05-74

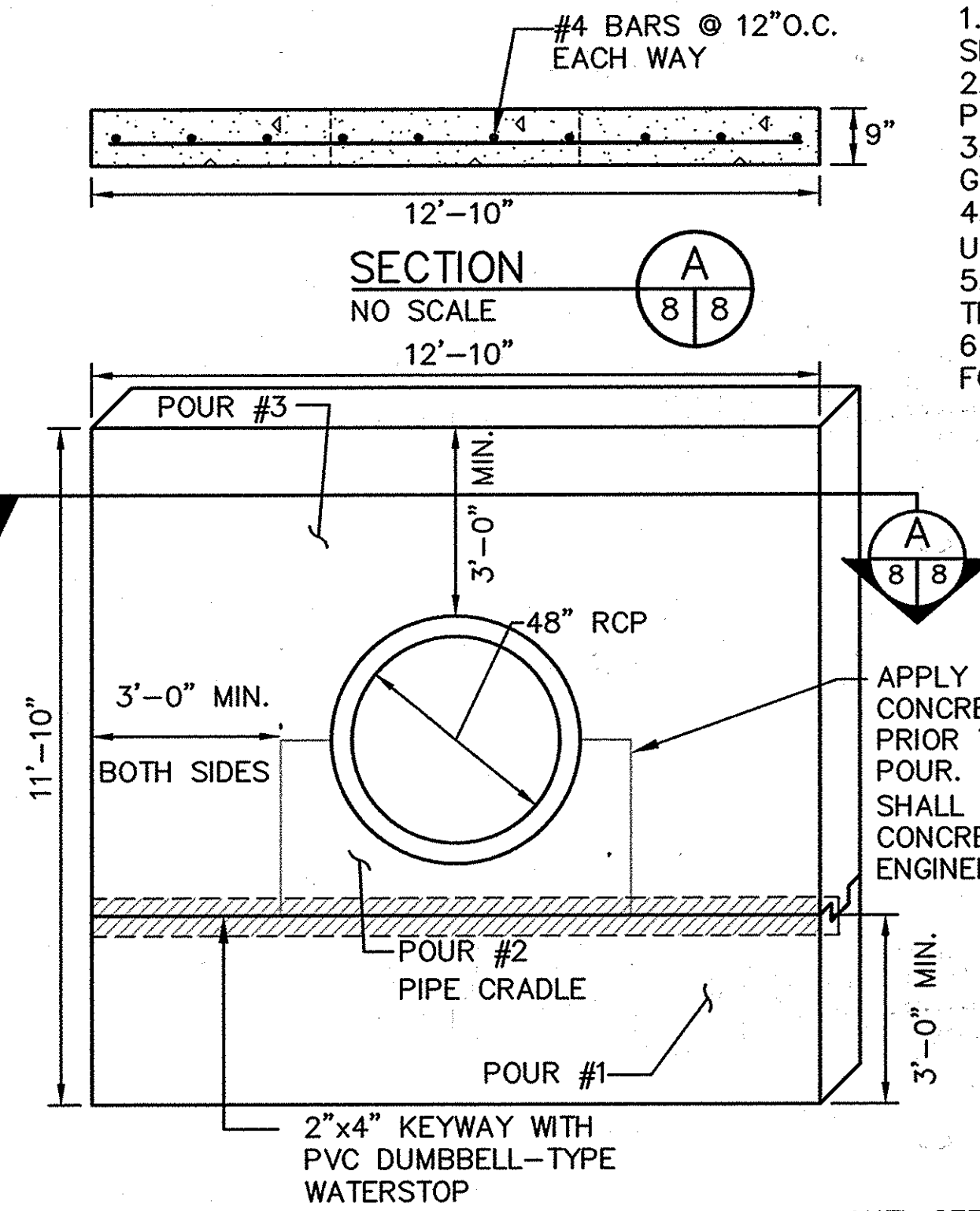
		WATER QUALITY INFORMATION (CF UNLESS OTHERWISE NOTED)							WATER QUANTITY INFORMATION (CFS)				RISER		OUTLET PIPE			ANTI-SEEP COLLAR		DAM			EMERG. SPILLWAY		CORE TRENCH		CUT-OFF TRENCH		WATER SURFACE ELEV.					
POND	TYPE	DRAINAGE AREA ACRES	WQV REQUIRED	WQV PROVIDED	REV REQUIRED	REV PROVIDED	CPV REQUIRED	CPV PROVIDED	Qp10 REQUIRED	Qp10 PROVIDED	Qp100 REQUIRED	Qp100 PROVIDED	WEIR HT.	WEIR WIDTH	CREST ELEV.	STR. WIDTH	DIA. IN.	L FT.	U/S INV.	D/S INV.	QTY.	APPROX. SIZE	TOP WIDTH FT.	CONSTR. HEIGHT	SETTLED HEIGHT	ELEV.	BOTTOM WIDTH FT.	TOP WIDTH FT.	SIDE SLOPES	BOT. WIDTH FT.	SIDE SLOPES	1 YR.	10 YR.	100 YR.
SB-4A	P-2	51.3	37,244	93,512	.31 AC	NA	9,440	40,154	NR	47	NR	129	2'	30'	501.0	11.17' x 17.67'	48	57'	492.83	492.83	2	11.83' H. 12.83' W.	10'	506.1	506.0	NA	NA	4'	1:1	4'	1:1	500.89	503.14	503.81
CW-4B	P-2	27.0	19,602	56,500	.32 AC	NA	7,562	58,962	NR	49	NR	116	2'-6"	18'	505.8	6.67' x 14.67'	48	43'	500.57	500.09	2	11.83' H. 12.83' W.	10'	510.1	510.0	NA	NA	4'	1:1	4'	1:1	504.87	506.67	507.70

TYPE P-2, WET PONDS, HAVE BEEN SELECTED AS THE BMPS FOR THE SITE. THE CRITERIA FOR THEIR SELECTION ARE NOTED BELOW:

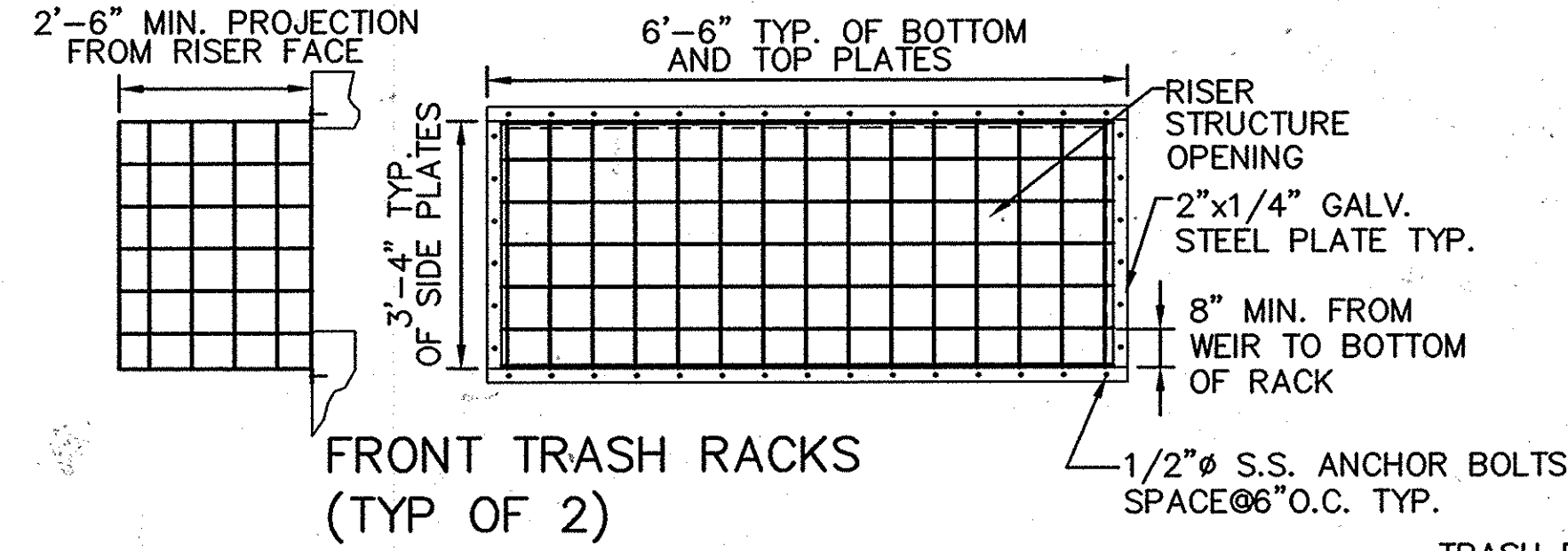
1. WATERSHED FACTORS: THE PROJECT IS NOT LOCATED IN A WATERSHED THAT REQUIRES A SPECIAL DESIGN AND WET PONDS ALREADY EXIST AT THE PROJECT SITE.
2. TERRAIN FACTORS: THE PROJECT IS NOT LOCATED IN A PORTION OF THE STATE THAT REQUIRES A SPECIAL DESIGN AND WET PONDS ALREADY EXIST AT THE PROJECT SITE.
3. STORMWATER TREATMENT SUITABILITY: FOR THE PROJECT, WET PONDS CAN MEET CPV AND QP REQUIREMENTS AND ARE USED TO MEET THEM. REV IS MET WITH GRASSED LINE CHANNEL CREDITS.
4. PHYSICAL FEASIBILITY FACTORS: A GEOTECHNICAL REPORT FOR THE PROJECT HAS BEEN WAIVED. HOWEVER, THE EXISTING WET PONDS WHICH ARE BEING UPGRADED AS PART OF THIS PROJECT MET THE GEOTECHNICAL REQUIREMENTS IN THE EARLY 1990'S.
5. COMMUNITY AND ENVIRONMENTAL FACTORS: AS EXISTING WET PONDS ARE BEING UPGRADED THERE ARE NOT IMPORTANT COMMUNITY OR ENVIRONMENTAL ISSUES THAT MIGHT INFLUENCE THE SELECTION PROCESS.
6. LOCATIONAL AND PERMITTING FACTORS: THERE ARE WETLANDS, A FLOODPLAIN, AND WOODED AREAS DOWNSTREAM OF THE EXISTING WET PONDS. THE DESIGN HAS FOCUSED ON LIMITING THE FOOTPRINT OF WET POND UPGRADES IN ORDER TO AVOID CONFLICTS WITH THE AREAS NOTED ABOVE.

TABLE NOTES:

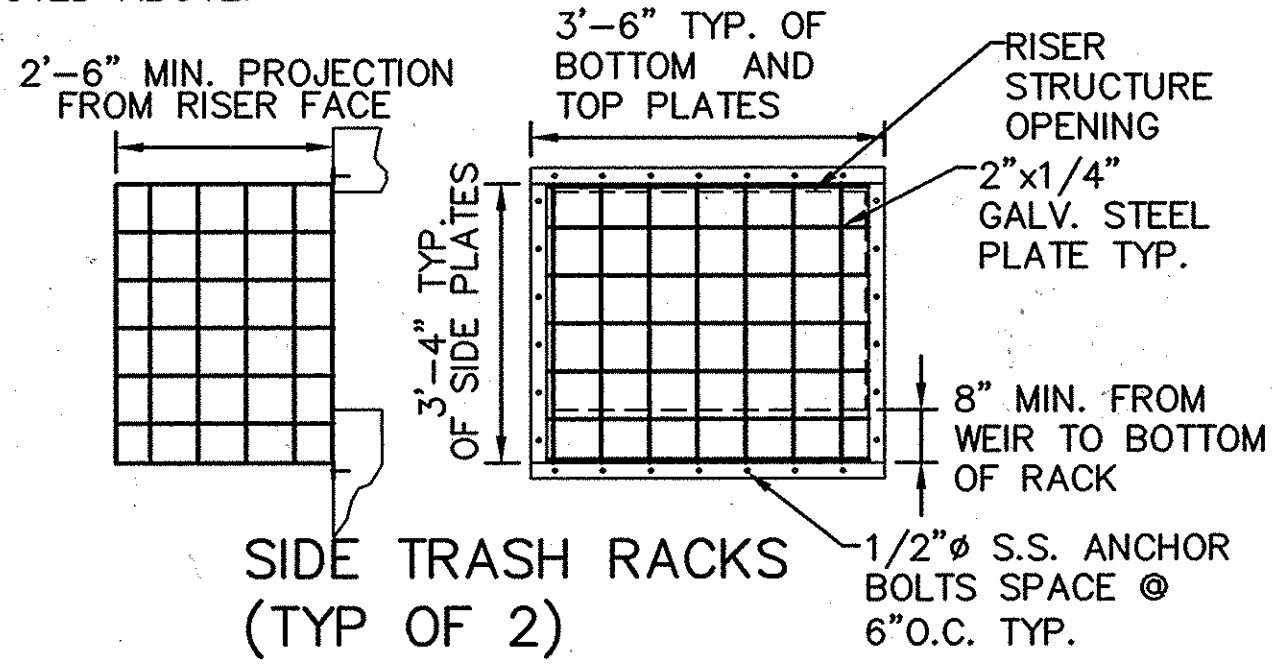
1. Qp AND Qf NOT REQUIRED (NR) FOR BASINS.
2. THE WET PONDS, SB-4A AND CW-4B, ARE USED TO ACHIEVE REQUIREMENTS OF MDE SWM DESIGN MANUAL.



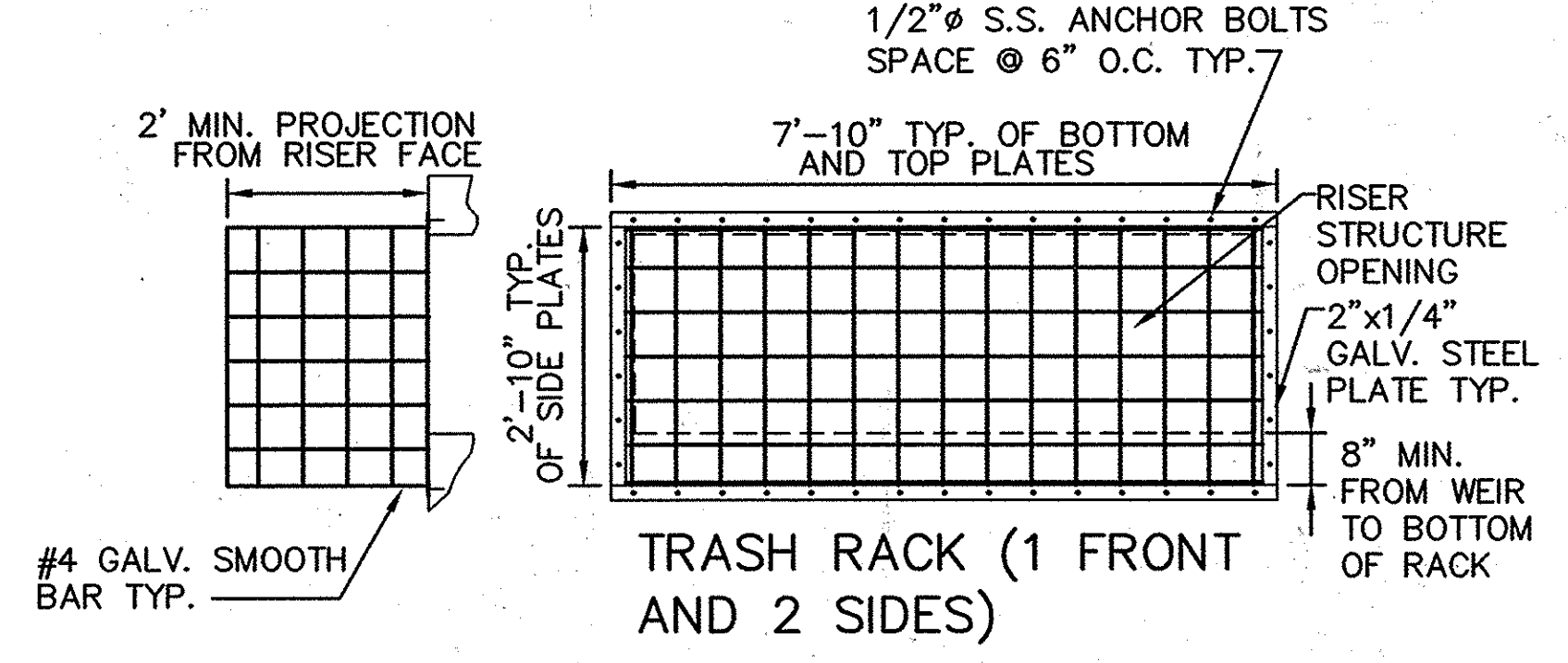
APPLY EPOXY ADHESIVE TO CONCRETE PIPE AND CRADLE PRIOR TO THIRD CONCRETE POUR. EPOXY ADHESIVE SHALL BE MASTERBUILDER'S CONCRESE PASTE LPL OR ENGINEER APPROVED EQUAL.



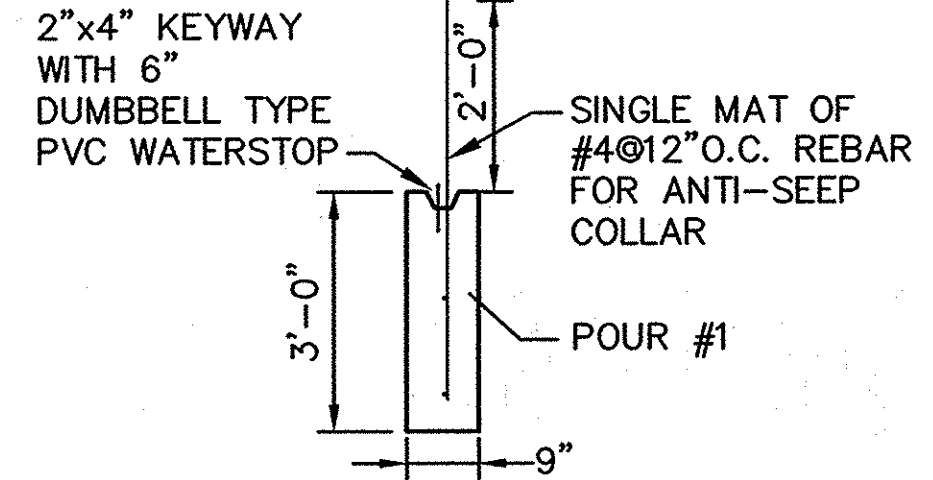
FRONT TRASH RACKS (TYP OF 2) TRASH RACK DETAIL - CW-4B (3) NOT TO SCALE



SIDE TRASH RACKS (TYP OF 2) TRASH RACK DETAIL - SB-4A (5) NOT TO SCALE



TRASH RACK DETAIL - SB-4A (5) NOT TO SCALE

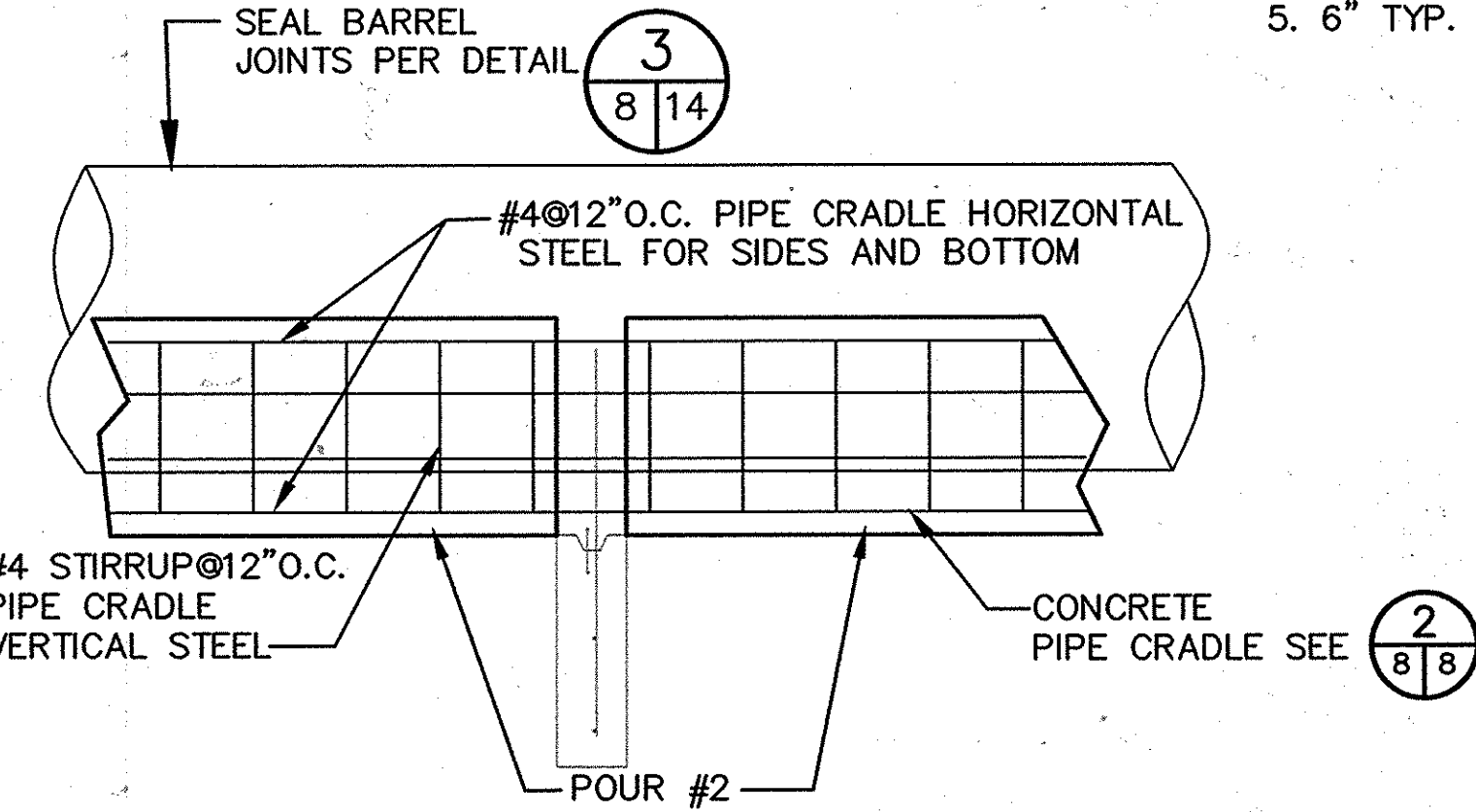


ANTI-SEEP COLLAR CONSTRUCTION SEQUENCE

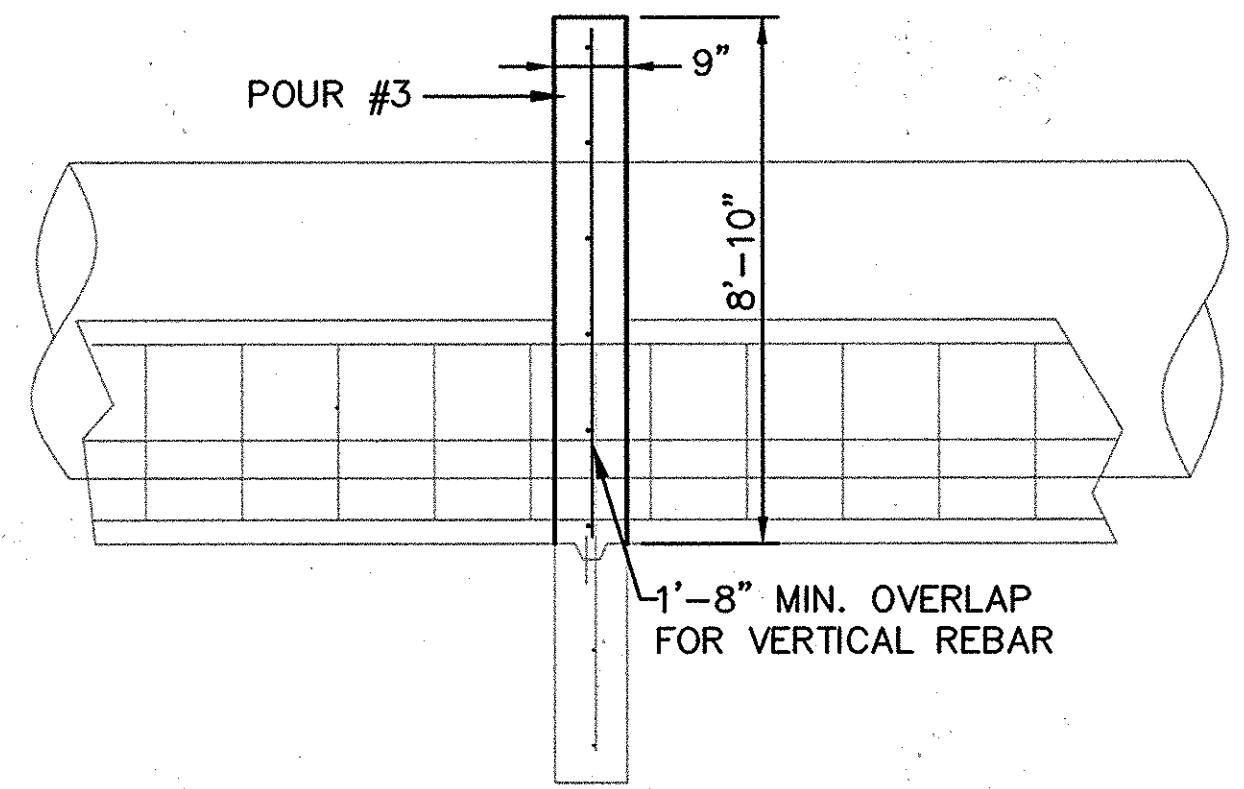
ANTI-SEEP COLLAR NOTES:

1. ANTI-SEEP COLLAR TO BE POURED AT LEAST TWO (2) FEET FROM NEAREST PIPE JOINT.
2. ANTI-SEEP COLLAR IS TO BE CONSTRUCTED IN THREE POURS: BOTTOM HALF TO BE POURED FIRST, PLACE PIPE AND POUR CRADLE SECOND, THEN TOP PORTION OF COLLAR POURED THIRD.
3. BACKFILL SHALL BE PLACED EVENLY ON BOTH SIDES OF THE ANTI-SEEP COLLAR.
4. REINFORCED CONCRETE: $f_c = 4,000$ psi @ 28 DAYS.
5. PROVIDE TWO COLLARS FOR EACH BASIN.
6. EPOXY ADHESIVE TO BE APPLIED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN PIPE AND CRADLE.

ANTI-SEEP COLLAR DETAIL SB-4A AND CW-4B (1) NOT TO SCALE



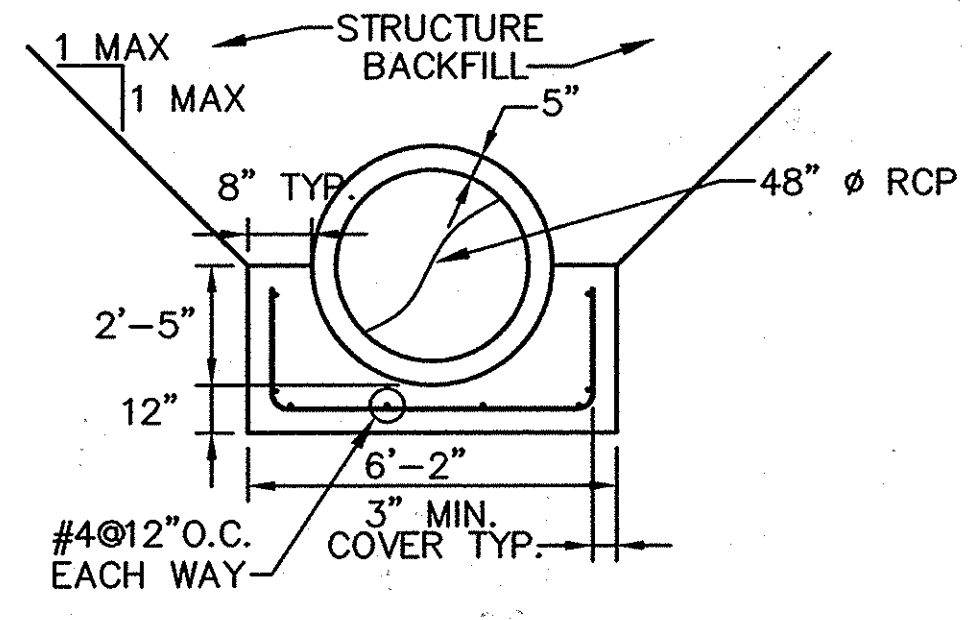
TRASH RACK DETAIL - CW-4B (3) NOT TO SCALE



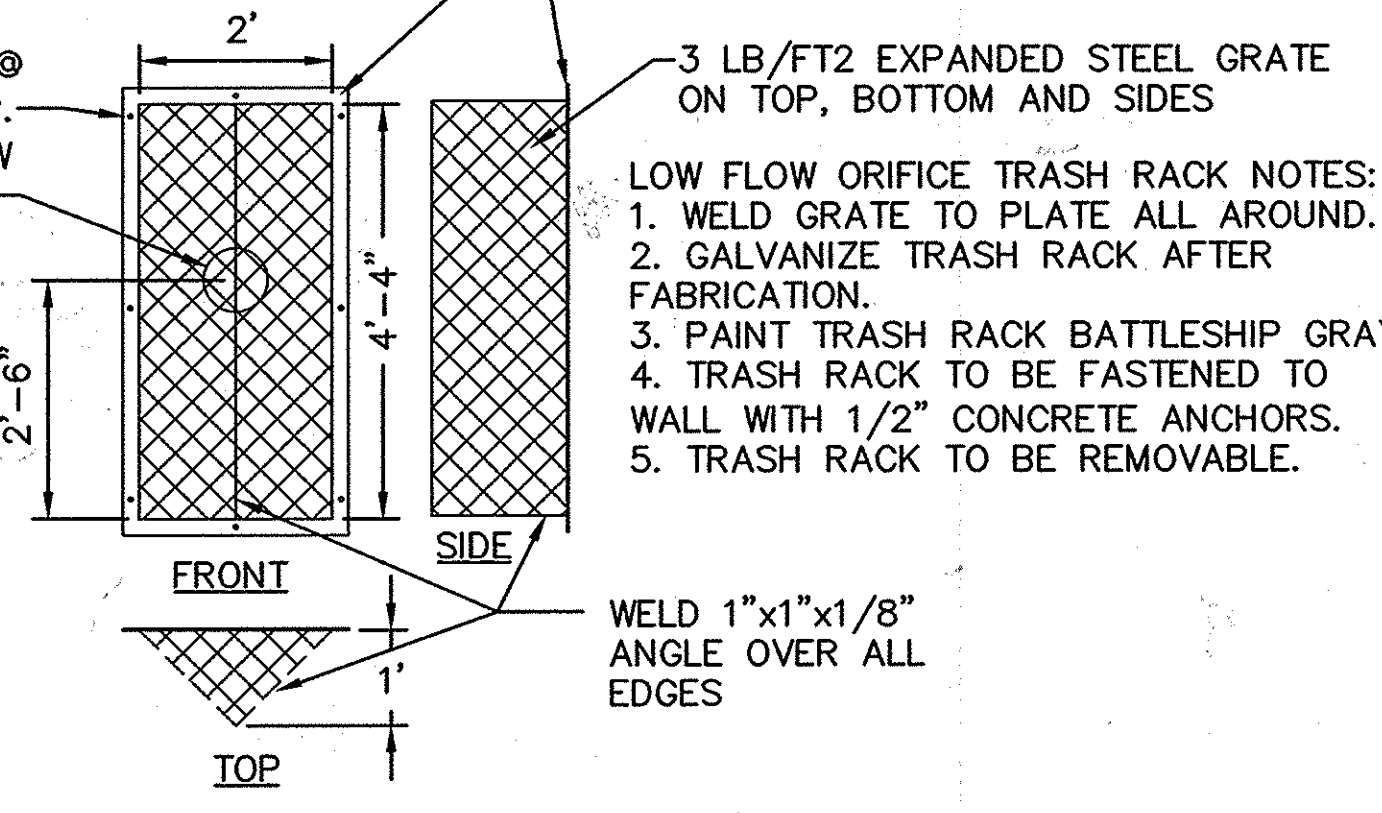
PIPE CRADLE DETAIL SB-4A AND CW-4B (2) NOT TO SCALE

CRADLE NOTES:

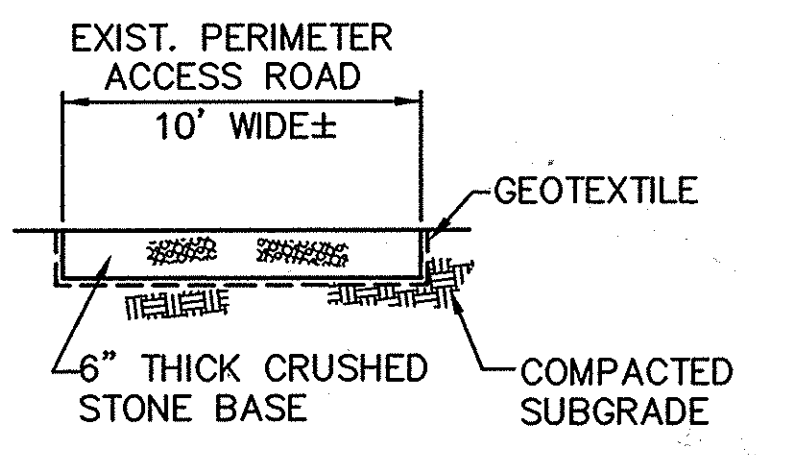
1. PIPE CRADLE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 psi @ 28 DAYS
2. USE GRADE 60 REINFORCING STEEL
3. CONCRETE CRADLE SHALL CONFORM TO THE REQUIREMENTS OF "SCS TR-46 A-2 CONCRETE CRADLE."
4. INSTALL CRADLE WITH MONOLITHIC CONTINUOUS POUR OF CONCRETE.



PIPE CRADLE DETAIL SB-4A AND CW-4B (2) NOT TO SCALE



LOW FLOW ORIFICE TRASH RACK DETAIL SB-4A (6) NOT TO SCALE



BASIN ACCESS ROAD (4) NOT TO SCALE

PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220,11	TAX/ZONE MAP 10 & 16	
LIBER/FOLIO 10-847/606 16-878/215 10-891/314	ZONE PEC	CENSUS TR. 60-30	
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 60-30	

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Derek M. ... 7/26/05
DIRECTOR DATE

Cheryl ... 8/12/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cheryl ... 7/26/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Paul ... 8/17/05
DIRECTOR OF PUBLIC WORKS DATE

Evelyn ... 8/16/05
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES. AST	1	▲	SHEETS B15-B27 ADDED TO SDP-05-074	9/20/11
DRN. AST	1	▲		
CHK. MRG	1	▲		
DATE: 06/05	BY: NO.	REVISION	DATE	

DETAILS
BASINS

ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS

CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET 27
88 OF 95

SEDIMENT CONTROL & POND CONSTRUCTION

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD CO. SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Evelyn E. Tomlin 8/16/05
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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 CO. SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD CO. SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Michael R. Goudreau 8/12/05
 SIGNATURE OF ENGINEER DATE
 PRINT NAME BELOW SIGNATURE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD CO. SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Jim Myers 9/5/05
 USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD CO. SOIL CONSERVATION DISTRICT.

Howard Co. Soil Conservation District 9/15/05
 HOWARD CO. SOIL CONSERVATION DISTRICT DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Michael R. Goudreau PE NO. 17650
 SIGNATURE DATE 2/27/09

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220,11
LIBER/FOLIO 10-847/606 16-878/215 10-891/314	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
CENSUS TR. 60-30	

**DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND**

Derek L. Leyle 3/30/05
 DIRECTOR DATE
Michael R. Goudreau 9/21/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
John S. Swindle 7/6/05
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SPECIFICATIONS FOR PERMANENT POND CONSTRUCTION

CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL, ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1.

AREAS TO BE COVERED BY THE RESERVOIR (AKA THE AREA WITHIN THE BASIN) WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER.

MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ±2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.
2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE STRUCTURE BACKFILL SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

NORFOLK 022020023.10.DWG'S POND SPEC'S & CERTS

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Michael R. Goudreau 8/17/05
 DIRECTOR OF PUBLIC WORKS DATE
Evelyn E. Tomlin 8/16/05
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

SCS ENGINEERS
 CONSULTING ENGINEERS
 11260 ROGER BACON DRIVE
 SUITE 300
 RESTON, VIRGINIA 20190
 PH. (703) 471-6150
 FAX. (703) 471-6676



DES.	AST	▲	SHEETS B15- B27 ADDED TO SDP-05-094	9/20/11
DRN.	AST	▲		
CHK.	MRG	▲		
DATE:	06/05	BY:	NO:	REVISION

POND CONSTRUCTION
 SPECIFICATIONS AND
 CERTIFICATIONS

ALPHA RIDGE LANDFILL
 POND 4A & 4B MODIFICATIONS

CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

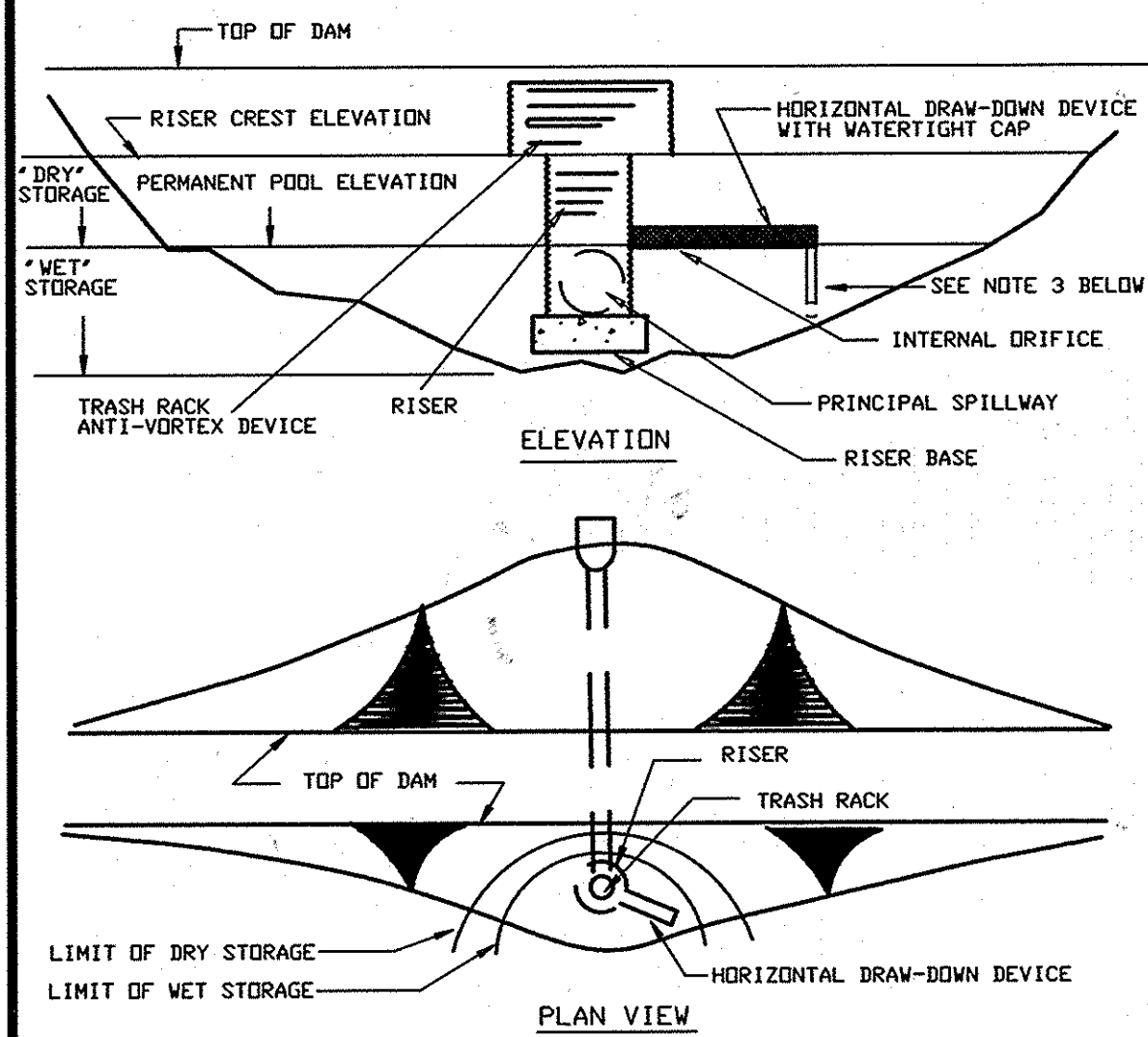
SCALE:
 AS SHOWN

SHEET 27
 B9 OF 76

AS-BUILT

SDP-05-74

BASIN DRAWDOWN SCHEMATIC
HORIZONTAL DRAW-DOWN DEVICE

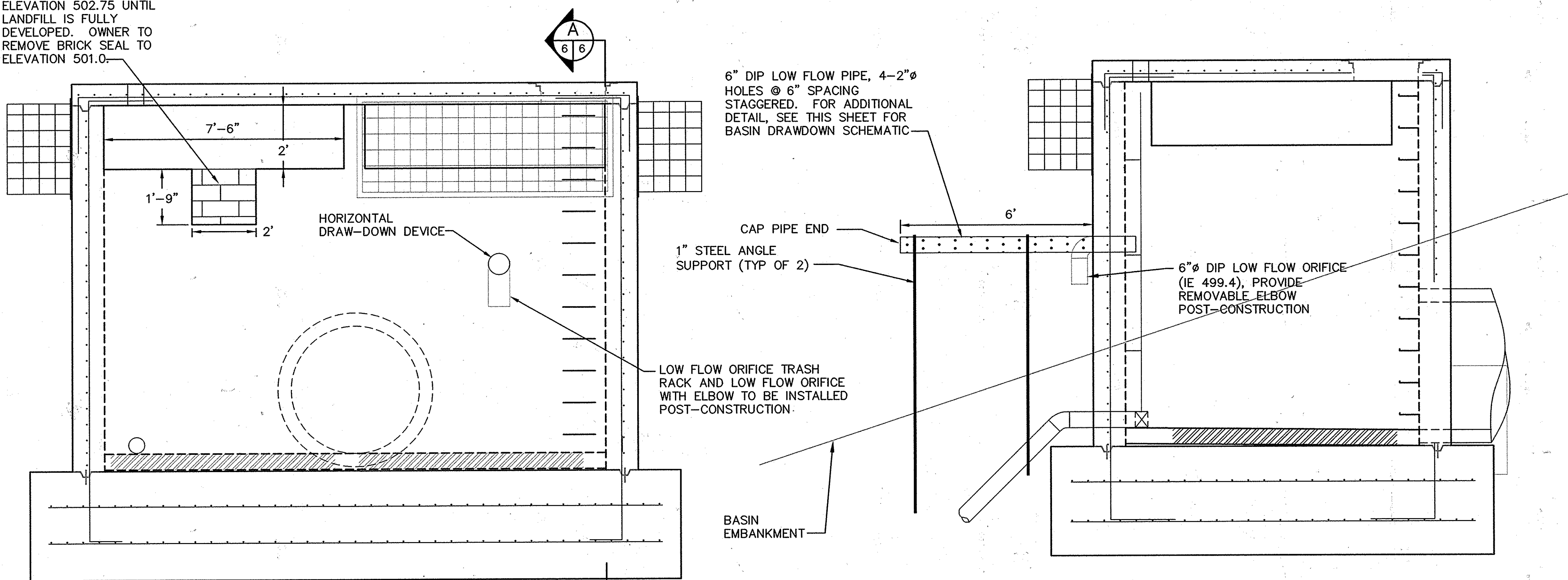


Construction Specifications

1. The total area of the perforations must be greater than 2 times the area of the internal orifice.
2. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class C.
3. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

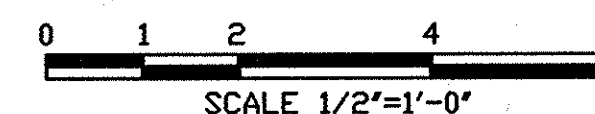
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-18-29 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEAL WEIR UP TO ELEVATION 502.75 UNTIL LANDFILL IS FULLY DEVELOPED. OWNER TO REMOVE BRICK SEAL TO ELEVATION 501.0.



SB-4A RISER CONFIGURATION DURING CONSTRUCTION
SCALE: 1/2"=1'-0"

RISER STRUCTURE SECTION A
SCALE: 1/2"=1'-0"



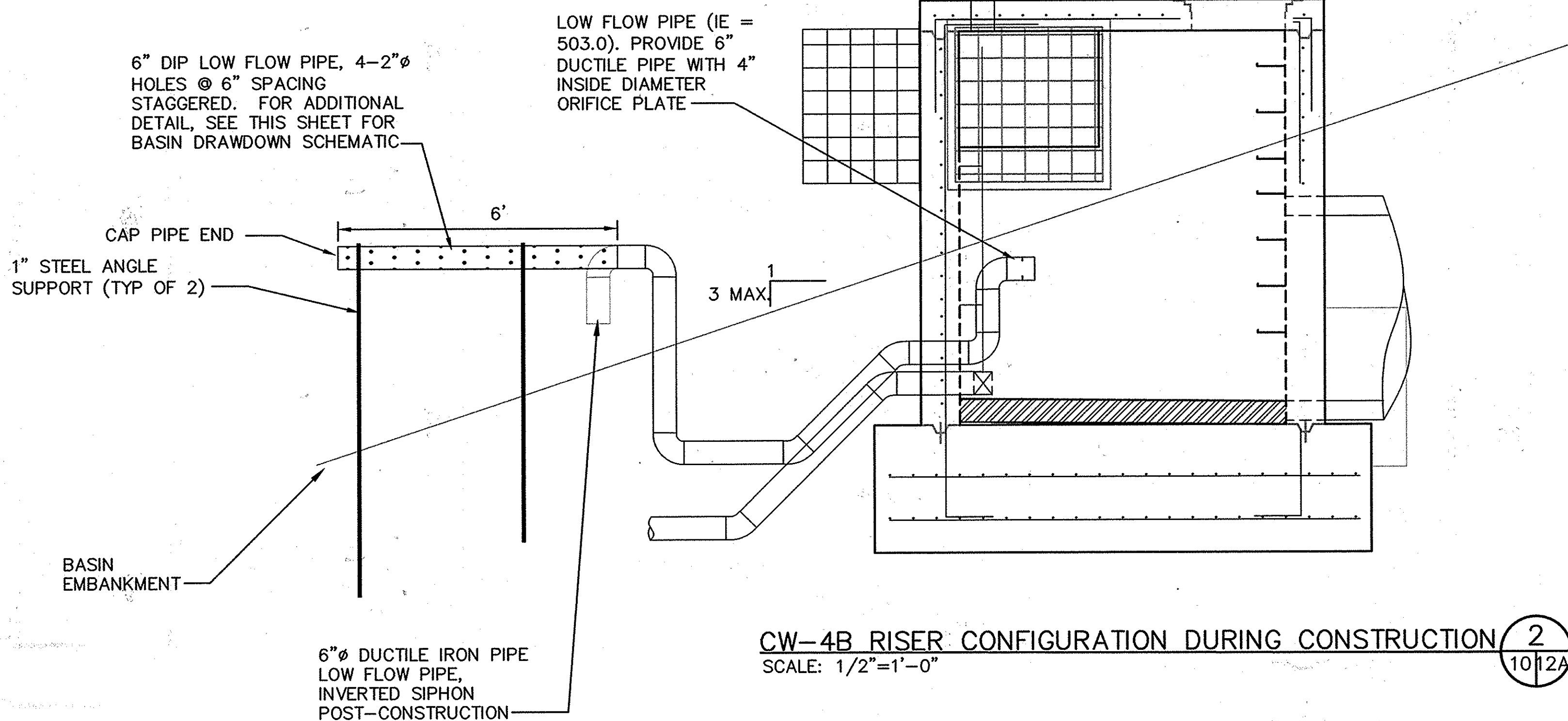
PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220,11
LIBER/FOLIO 10-847/606 16-878/215 10-691/314	ZONE PEC
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
TAX/ZONE MAP 10 & 16	CENSUS TR. 60-30

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Mark L. Coughlin 9/30/05
DIRECTOR DATE

Michael J. Williams 9/21/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Judy Hamilton 9/20/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



CW-4B RISER CONFIGURATION DURING CONSTRUCTION
SCALE: 1/2"=1'-0"

NOTE: FOR ADDITIONAL RISER INFORMATION, SEE RISER DETAIL SHEETS, SHEETS 6 AND 7.

AS-BUILT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Richard P. Brown 8/17/05
DIRECTOR OF PUBLIC WORKS DATE

Evelyn Z. Jank 8/16/05
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES.	AST	▲	SHEETS B15-B27 ADDED TO SDP-05-074	9/20/11
DRN.	AST	▲		
CHK.	MRG	▲		
DATE:	06/05			
BY	NO.		REVISION	DATE

EROSION & SEDIMENT CONTROL DETAILS - 2

ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS

CAPITAL PROJECT NO. C-0299-A
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

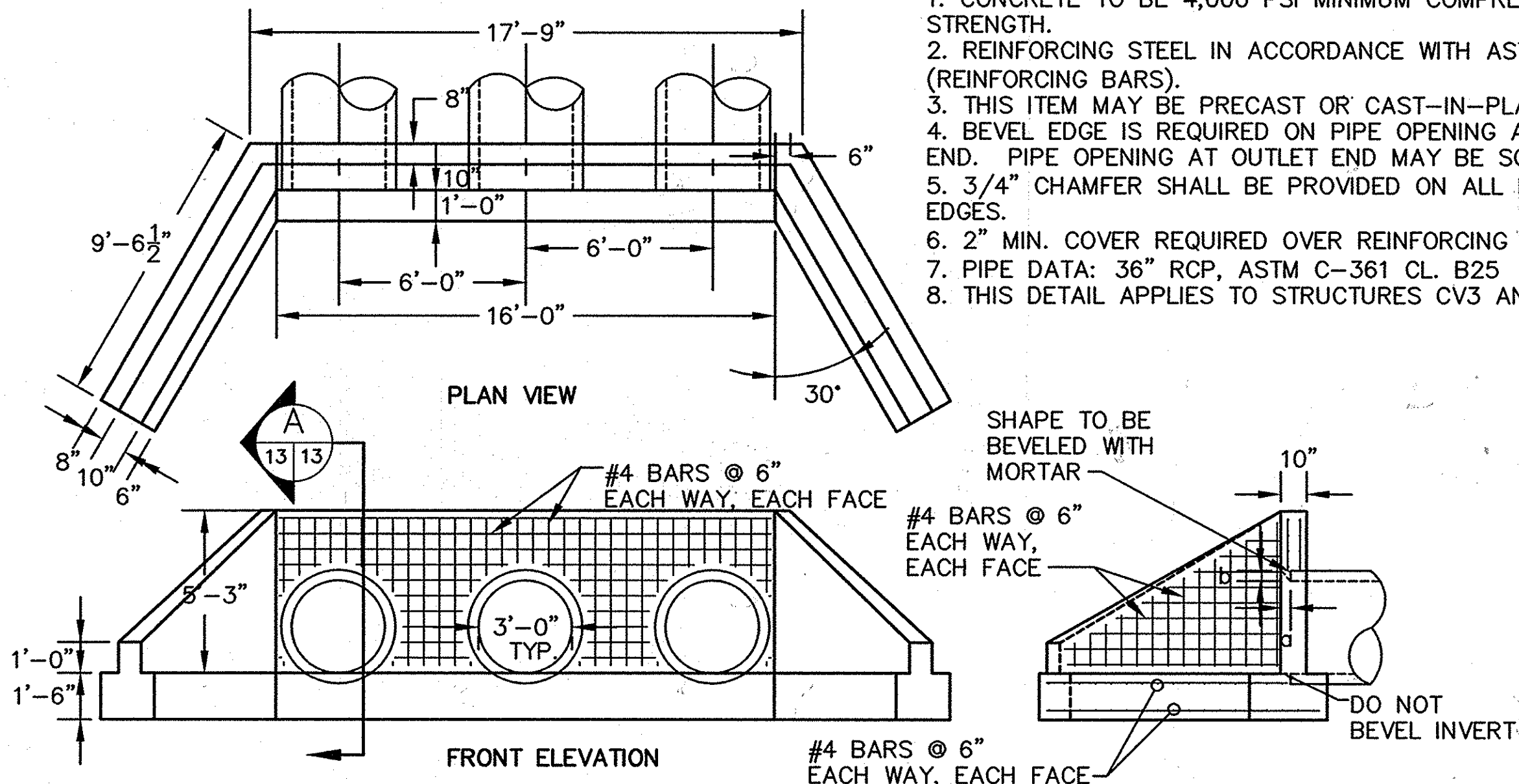
SCALE:
AS SHOWN

SHEET 27
B12A OF 15

NORFOLK 022030323.10.DWG'S & E&S DETAILS

SDP-05-79

- NOTES:
 1. CONCRETE TO BE 4,000 PSI MINIMUM COMPRESSION STRENGTH.
 2. REINFORCING STEEL IN ACCORDANCE WITH ASTM A-615 (REINFORCING BARS).
 3. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
 4. BEVEL EDGE IS REQUIRED ON PIPE OPENING AT THE INLET END. PIPE OPENING AT OUTLET END MAY BE SQUARE EDGED.
 5. 3/4" CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES.
 6. 2" MIN. COVER REQUIRED OVER REINFORCING BARS.
 7. PIPE DATA: 36" RCP, ASTM C-361 CL. B25
 8. THIS DETAIL APPLIES TO STRUCTURES CV3 AND CV4.



ENDWALL FOR MULTIPLE PIPE CULVERT **1**
 NO SCALE 5.13 13

SECTION **A**
 $a = 1.25'' \pm / \text{FOOT DIAMETER}$
 $b = 1'' / \text{FOOT DIAMETER}$
 13 13

STRUCTURE SCHEDULE (CW-4B CULVERTS)	
ID NO.	STANDARD DETAIL
CV1	SEE DETAIL 1 THIS SHEET
CV2	SEE DETAIL 1 THIS SHEET
CV3	HOWARD CO. SD 5.21
CV4	HOWARD CO. SD 5.21

PIPE SCHEDULE (CW-4B CULVERTS)				
FROM	TO	SIZE	TYPE	LENGTH
CV1	CV2	18"	RCP ASTM C-76 CL. III	77'
CV3	CV4	36"	RCP ASTM C-361 CL. B25	64'

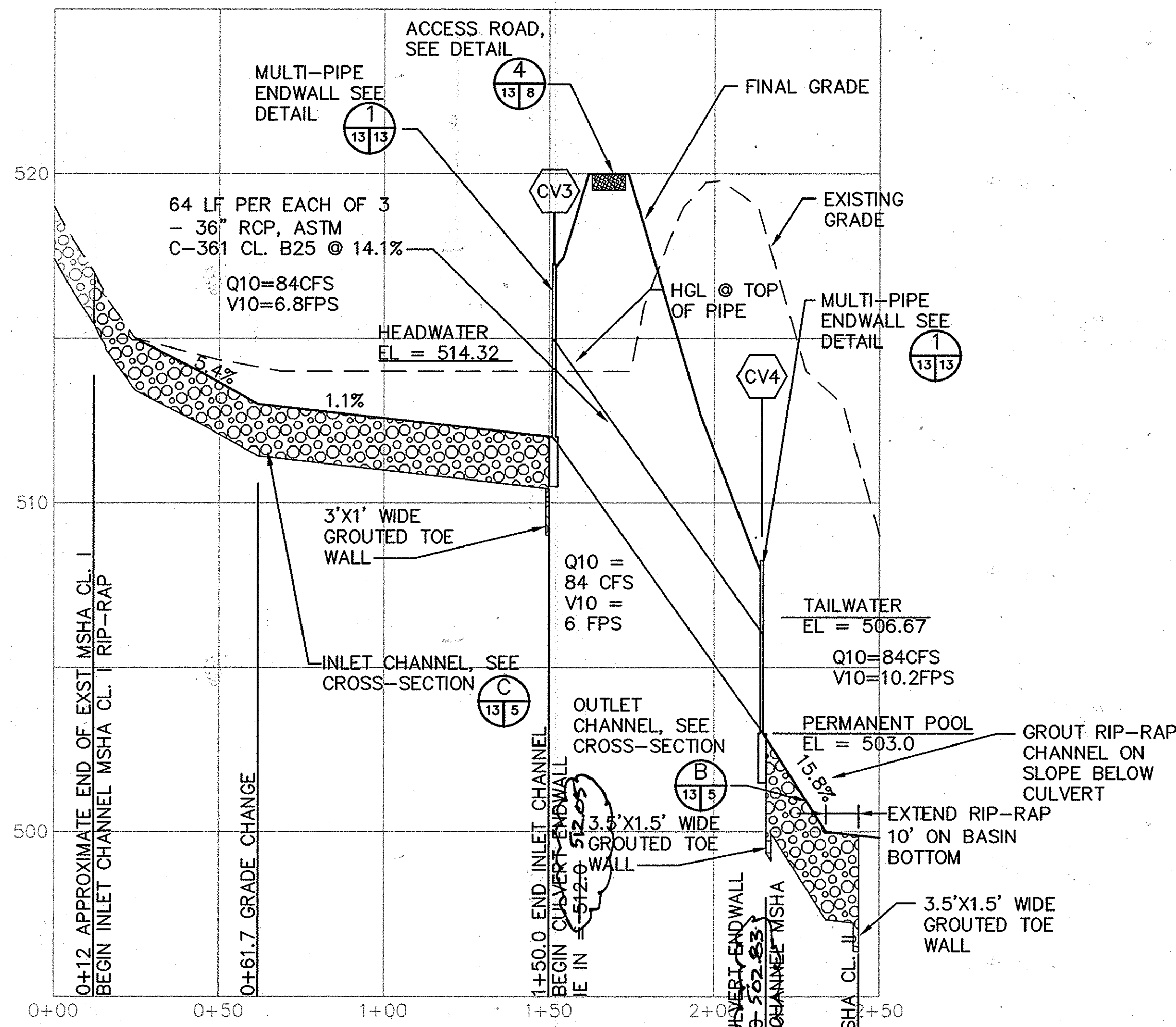
PROJECT NAME ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER	LOT/PARCEL 253,220,11
LIBER/FOLIO 10-847/806 18-878/215 10-691/314	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
CENSUS TR. 60-30	

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND

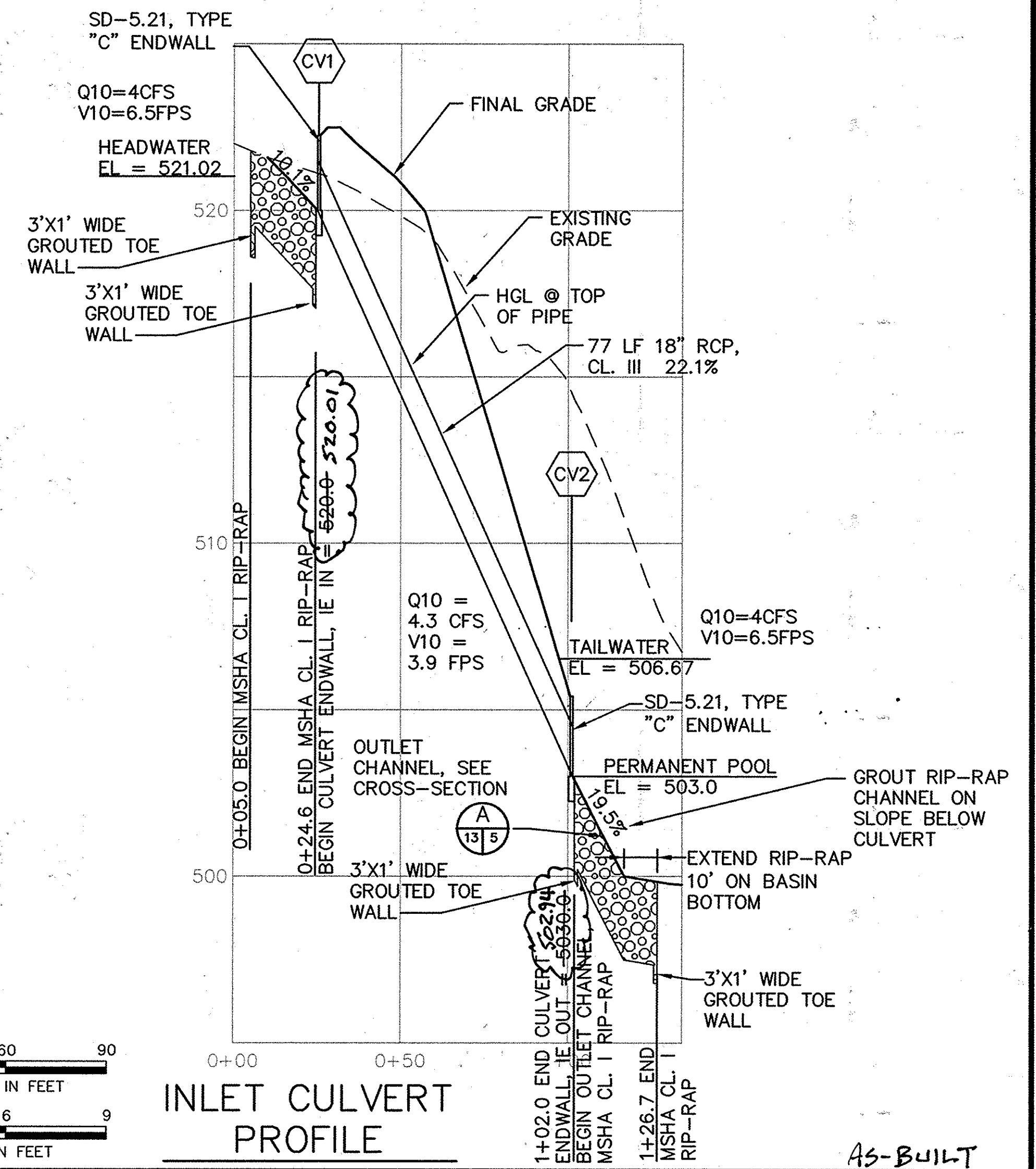
Mark A. Leyle 9/30/05
 DIRECTOR DATE

Mark A. Leyle 9/26/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 9/26/05
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



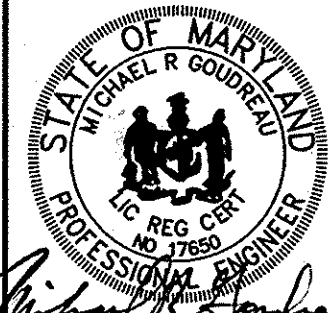
ROADWAY CULVERT PROFILE
 HORIZONTAL SCALE IN FEET
 VERTICAL SCALE IN FEET



INLET CULVERT PROFILE
 HORIZONTAL SCALE IN FEET
 VERTICAL SCALE IN FEET

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

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DRN.	AST	△		
CHK.	MRG	△		
DATE:	06/05	BY:	NO.	REVISION

DETAILS CULVERTS

ALPHA RIDGE LANDFILL
 POND 4A & 4B MODIFICATIONS

CAPITAL PROJECT NO. C-0299-A
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

AS-BUILT
 SCALE: AS SHOWN
 SHEET 27
 B13 OF 16

NORFOLK PROJECT 02203023.10.DWG(S) DETAILS_CULVERT

4 #4 STRAIGHT BARS VERTICAL IN FRONT FACE FOR 12" DIA. TO 18" DIA. PIPE ENDWALLS INCLUSIVE.

2 #4 STRAIGHT BARS HORIZONTAL 1 EA FACE FOR 36" DIA. TO 60" DIA. PIPE ENDWALLS INCLUSIVE.

#4 STRAIGHT BARS HORIZONTAL @ 1'-0" BOTH SIDES OF OPENING FOR 36" TO 60" DIA. PIPE ENDWALLS.

#4 STRAIGHT BARS HORIZONTAL @ 1'-0" ALL ENDWALLS.

#4 STRAIGHT BARS HORIZONTAL @ 1'-0" MIN. TO 2'-0" MAX. FRONT FACE FOR 24" DIA. TO 60" DIA. PIPE ENDWALLS INCLUSIVE.

1 #4 STRAIGHT BAR HORIZONTAL-ALL ENDWALLS.

2 #4 STRAIGHT BARS HORIZONTAL FOR 36" TO 60" DIA. PIPE ENDWALLS.

#4 BENT BARS @ 1'-0" ALL ENDWALLS.

ELEVATION

SECTION A-A

DISPOSITION OF BARS - DETAIL

PLAN

REINFORCING-DEFORMED STEEL BARS (1/2" DIA.) CHAMFER ALL EXPOSED EDGES (1" OR AS DIRECTED). CONC. SHALL BE S.H.A. MIX NO. 2.

OPENINGS	DIMENSIONS							VOLUME	STEEL
D	A	B	C	E	F	H	L	CONC. C.Y.	LBS.
12	0.79	9'	6"	6"	1'-9"	9'	1'-9"	6.6	38
15	1.23	9'	6"	6"	1'-9"	9'	2'-9"	7.9	55
18	1.78	9'	6"	6"	1'-9"	9'	2'-9"	9.0	62
24	3.14	9'	14'	6"	2'-9"	9'	2'-9"	11.6	91
30	4.91	9'	14'	6"	2'-9"	12'	3'-6"	14.2	136
36	7.07	12'	16'	10'	3'-2"	12'	4'-0"	19.18	222
42	9.62	12'	16'	10'	3'-2"	12'	4'-0"	19.2	265

REV. MAR. 1986

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved: *[Signature]* 10-8-86
Chief-Bureau of Engineering

TYPE "C" ENDWALL
CIRCULAR PIPE

DRAWN BY: J.L.R.
CHECKED BY: J.L.R.
SCALE: NONE
5D-5.21

K&E BALTIMORE 1" 33 MERCURILENE MC234

4-18" #4 T&B STAGGERED

PLAN

FRONT ELEVATION

SECTION A-A

SECTION B-B

D	E	F	G	H	J	K	L	N	R	VOL. C.Y.
18"	3'-0"	7'-6"	3'-0"	3'-0"	2'-0"	8"	8"	8"	#5-12"	1.70
21"	3'-4"	7'-9"	3'-0"	3'-3"	2'-0"	8"	8"	8"	#5-12"	1.80
24"	3'-8"	8'-0"	3'-0"	3'-6"	2'-0"	8"	8"	8"	#5-12"	1.90
27"	3'-11"	8'-3"	3'-0"	3'-9"	2'-0"	8"	8"	8"	#5-12"	2.00
30"	4'-2"	8'-6"	3'-0"	4'-0"	2'-1/2"	8"	8"	10"	#5-12"	2.85
36"	4'-8"	10'-0"	3'-6"	4'-6"	2'-3"	8"	10"	10"	#5-12"	3.15
42"	5'-3"	11'-6"	4'-0"	5'-0"	2'-9"	8"	10"	10"	#5-12"	3.87
48"	5'-10"	13'-0"	4'-6"	5'-6"	3'-0"	8"	10"	12"	#5-12"	5.08
54"	6'-5"	14'-6"	5'-0"	6'-0"	3'-3"	9"	12"	12"	#6-8"	6.50
60"	7'-0"	16'-0"	5'-6"	6'-6"	3'-6"	9"	12"	12"	#6-8"	7.98
66"	7'-7"	17'-6"	6'-0"	7'-0"	3'-9"	9"	12"	14"	#6-8"	9.14
72"	8'-2"	19'-0"	6'-6"	7'-6"	4'-3"	9"	12"	14"	#6-8"	11.10

NOTE: CONTRACTOR SHALL PROVIDE 3"-45° BEVEL AROUND PIPE OPENINGS ON UP-STREAM HEADWALLS.

REV. JAN. 1989
REV. MAR. 1986

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved: *[Signature]* 10-8-86
Chief-Bureau of Engr. Date

TYPE 'A' HEADWALL
CIRCULAR

DRAWN BY: J.L.R.
CHECKED BY: J.L.R.
SCALE: NONE
5D-5.11

LONGITUDINAL REINFORCEMENT

MASTIC JOINT SEALER

BELL RING

REINFORCEMENT CAGE

PIPE I.D.

RUBBER GASKET

SPIGOT RING

BARREL JOINT SEAL DETAIL

NO SCALE

3
8/14

3'-9" MIN. PROJECTION FROM RISER FACE

1/2" S.S. ANCHOR BOLTS SPACE @ 6" O.C. TYP.

7'-10" TOP PLATE

2" x 1/4" GALV. STEEL PLATE TYP.

8" MIN. FROM WEIR TO BOTTOM OF RACK

2'-10" MIDDLE PLATE, TYP OF 2

8" MIN. FROM WEIR TO BOTTOM OF RACK

2'-6" BOTTOM PLATE

1'-10" LOWER SIDE PLATES

2'-10" UPPER SIDE PLATES

#4 GALV. SMOOTH BAR TYP.

LARGE TRASH RACK
DETAIL - SB-4A
NOT TO SCALE

2
4,6/14

NOTES:

- STEPS SHALL BE DESIGNED SO THAT FEET CANNOT SLIDE OFF THE END.
- STEPS SHALL BE ALIGNED TO FORM A CONTINUOUS LADDER WITH STEPS EQUALLY SPACED VERTICALLY AT A DISTANCE OF 12 INCHES APART.
- BOTTOM STEP SHALL BE 12 INCHES ABOVE TOP OF BENCH.
- TOP STEP SHALL BE 2'-0" BELOW TOP OF MANHOLE COVER FOR BRICK MANHOLES AND 6" BELOW TOP OF PRECAST SECTION FOR PRECAST CONCRETE MANHOLES.

TYPE 1 DUCTILE IRON
STEP FOR PRECAST MANHOLE

TYPE 3 POLYPROPYLENE PLASTIC
STEP FOR PRECAST MANHOLE

TYPE 2 CAST IRON
STEP FOR BRICK MANHOLE

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Approved: *[Signature]* 2-10-81
Chief-Bureau of Engineering

TYPICAL STEPS FOR
MANHOLES AND INLETS

DRAWN BY: J.M.C.
CHECKED BY: J.M.C.
SCALE: NONE
6.5.21

PROJECT NAME: ALPHA RIDGE SOLID WASTE MANAGEMENT CENTER

LOT/PARCEL: 253,220.11

LIBER/FOLIO: 10-847/806, 16-878/215, 10-891/314

ZONE: PEC

TAX/ZONE MAP: 10 & 16

WATER CODE: PUBLIC, CONTRACT 44-4158 PRIVATE, EXISTING

SEWER CODE: 60-30

CENSUS TR.: 60-30

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

DIRECTOR: *[Signature]* DATE: 3/6/05

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 3/21/05

CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 3/23/05

PROVIDE BUSHING AS SPACER TO ACCOMMODATE VALVE EXTENSION STEM

1/4" x 1-1/4" STEEL BAR WITH 2 BOLT AND NUTS, GALVANIZED AFTER FABRICATION

2" INSIDE DIA.

3/8" DIA CONCRETE ANCHOR (TYP)

8-1/2"

PIPE/EXTENSION BAR SUPPORT
NOT TO SCALE

1
6,7/14

SEDIMENT CONTROL & POND CONSTRUCTION

BY THE DEVELOPER:

"I WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Signature: Evelyn E. Tomik DATE: 9/12/05

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Signature: Michael R. Goudreau DATE: 8/12/05

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Signature: Jim Myers DATE: 9/15/05

USDA - NATURAL RESOURCES CONSERVATION SERVICE

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

Signature: *[Signature]* DATE: 9/15/05

HOWARD SOIL CONSERVATION DISTRICT

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Signature: Michael R. Goudreau DATE: 2/27/09

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

NORFOLK PROJECT 022030323-10-DWG'S DETAILS - CULVERT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676

DES. AST

DRN. AST

CHK. MRG

DATE: 06/05

BY NO. REVISION DATE

SHEETS B15-B27 ADDED TO SDP-05-074 9/21/11

DETAILS - STORMWATER

ALPHA RIDGE LANDFILL
POND 4A & 4B MODIFICATIONS

CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

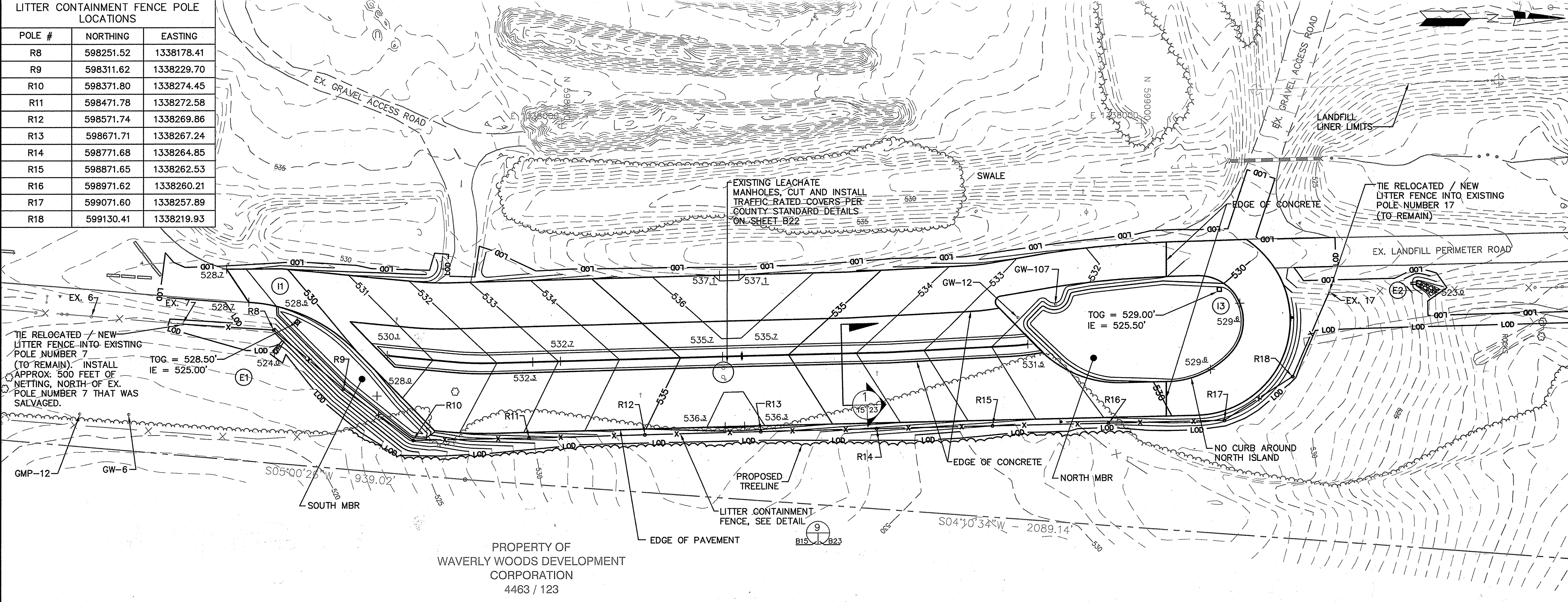
SCALE: AS SHOWN

SHEET 27
B14 of 16

SDP05-71

LITTER CONTAINMENT FENCE POLE LOCATIONS

POLE #	NORTHING	EASTING
R8	598251.52	1338178.41
R9	598311.62	1338229.70
R10	598371.80	1338274.45
R11	598471.78	1338272.58
R12	598571.74	1338269.86
R13	598671.71	1338267.24
R14	598771.68	1338264.85
R15	598871.65	1338262.53
R16	598971.62	1338260.21
R17	599071.60	1338257.89
R18	599130.41	1338219.93



PLAN VIEW
SCALE: 1"=40'

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE MOST RECENT VERSION OF THE HOWARD COUNTY DESIGN MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENVIRONMENTAL SERVICES AT (410) 313-6444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 811 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- TOPOGRAPHIC INFORMATION ON THIS SHEET WAS COMPILED BY AERO-METRIC, INC. FROM AIR PHOTOGRAPHY DATED DECEMBER 2008.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM NAD, 1983 (HORIZ.) & NGVD, 1929 (VERT.).
- WATER SERVICE IS PUBLIC CONTRACT NUMBER 44-4158 AND THE DRAINAGE AREA IS THE PATUXENT RIVER BASIN.
- SEWER IS PRIVATE.
- STORMWATER MANAGEMENT CONTROL IS TYPE P-2 (WET POND) DOWNSTREAM WITH ESD ONSITE. FACILITIES OWNED AND MAINTAINED BY HOWARD COUNTY.
- EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS.
- 100 YEAR FLOODPLAIN INFORMATION BASED ON THE 1978 FLOODPLAIN DELINEATION BY CENTURY ENGINEERING AND THE 1986 UPDATE BY BERNARD JOHNSON, INC. HOWARD CO. MAPS: GC-0119-T-36-38, GC-0119-T-35-38, GC-0119-T-234-38, GC-0119-T-35-39. STUDY COMPLETED AS PART OF CAPITAL PROJECT D-1065. NO 100-YR FLOODPLAIN NEAR SITE.
- NO WETLAND DELINEATION STUDY WAS CONDUCTED FOR SITE.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.

- ORIGINAL PROJECT NAME IS ALPHA RIDGE LANDFILL POND 4A & 4B MODIFICATIONS.
- CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, LEACHATE LINES, CONDENSATE LINES, GROUNDWATER WELLS, AND LANDFILL GAS PIPES AND MANHOLES. UTILITIES DAMAGED AS A RESULT OF CONTRACTOR'S OPERATION SHALL BE REPAIRED/REPLACED BY HOWARD COUNTY AT THE CONTRACTOR'S EXPENSE.
- NIC MEANS "NOT IN CONTRACT".
- NO WAIVERS HAVE BEEN GRANTED BY THE PUBLIC WORKS DIRECTOR.
- STORMWATER MANAGEMENT LANDSCAPING IS NOT REQUIRED FOR THIS PROJECT BECAUSE THE FACILITIES ARE INTERNAL TO THE SITE.
- THIS PLAN IS EXEMPT FROM THE REQUIREMENTS FOR FOREST CONSERVATION BECAUSE THE AMOUNT OF FORESTED AREA TO BE DISTURBED IS LESS THAN 20,000 SQUARE FEET, IN ACCORDANCE WITH SECTION 16.1202.b.1.(iii) OF THE SUBDIVISION REGULATIONS.
- CLEARING OF FORESTED LAND IS APPROXIMATELY 18,706 SF.
- FOR PROPOSED COVER (I.E., CONCRETE AREA) AND MARKINGS SEE SHEET B16.
- STORM DRAIN ALIGNMENTS AND OTHER UNDERGROUND PIPING PRESENTED ON SHEET B17.
- FOR SUPPLEMENTAL EXISTING CONDITIONS INFORMATION (MORE DETAILED THAN SHEET B2) AND DEMOLITION REQUIREMENTS SEE SHEET B27.
- IN DETAIL BUBBLES, 'B' DELETED FROM SHEET NUMBERS REFERENCED.

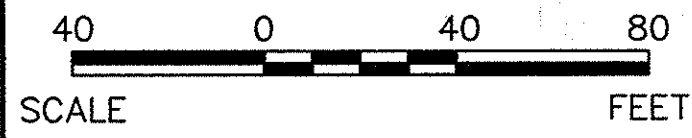
PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.

GENERAL LEGEND

— UT — UT —	UNDERGROUND TELEPHONE LINE	— 510 —	PROPOSED INDEX CONTOUR
— UGE — UGE —	UNDERGROUND ELECTRIC LINE (DIRECT BURY)	— — — — —	PROPOSED INTERMEDIATE CONTOUR
— X — X —	EXISTING LITTER FENCE	— — — — —	PROPOSED EDGE OF PAVEMENT
— — — — —	EXISTING INDEX CONTOUR	— — — — —	PROPOSED LEACHATE DRAINAGE AREA
— — — — —	EXISTING INTERMEDIATE CONTOUR	⊠ (15)	PROPOSED STORM DRAIN INLET
— — — — —	EXISTING TREE LINE	⊠ (E1)	PROPOSED STORM DRAIN ENDSECTION
— RIP — RAP —	EXISTING RIP-RAP	— X — X —	PROPOSED RELOCATED LITTER FENCE
— — — — —	PROPERTY LINE		
TOG	TOP OF GRATE		
MBR	MICRO BIORETENTION		
R10	RELOCATED LITTER CONTAINMENT FENCE POLES		

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PROJECT ADDRESS 2350 MARRIOTTVILLE ROAD MARRIOTTVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302	
LIBER/FOLIO 10-847/808 18-878/215 10-891/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16	
WATER CODE PUBLIC CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00	

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas S. Suckler 10/20/11
DIRECTOR DATE

David Dorman 10/15/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Victor DeLuca 10/22/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark DeLuca 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Howard E. Edgerly 10/19/11
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, #514
COLUMBIA, MARYLAND 21046
PH. (410) 313-6419

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES. AST/MAK	▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN. KEA	▲			
CHK. MAK	▲			
DATE: 06/11	▲			
BY NO.		REVISION	DATE	

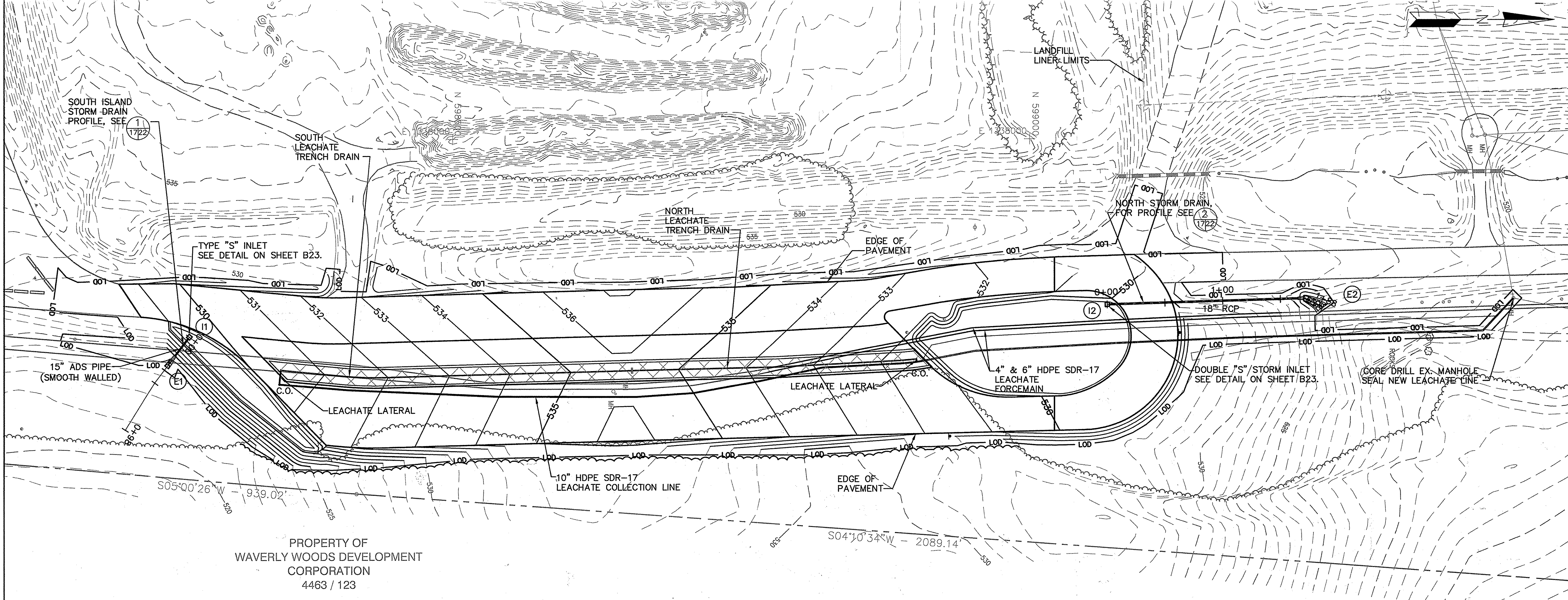
SITE GRADING PLAN FOR
TRAILER STORAGE AREA

PROJECT TITLE:
ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS
CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

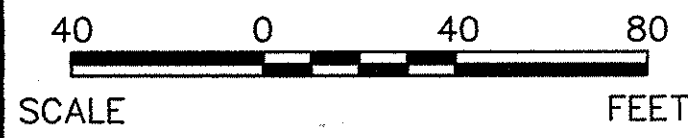
SCALE:
AS SHOWN

SHEET
B15 OF 27



PROPERTY OF
 WAVERLY WOODS DEVELOPMENT
 CORPORATION
 4463 / 123

PLAN VIEW
 SCALE: 1"=40'



GENERAL LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING TREE LINE
- EXISTING PIPE
- RIP-RAP
- PROPERTY LINE
- ⊠ (15) PROPOSED STORM DRAIN INLET
- ⊠ (E1) PROPOSED STORM DRAIN ENDSECTION
- C.O. CLEANOUT
- PROPOSED TREE LINE
- 510 PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PROPOSED STORM DRAIN
- PROPOSED EDGE OF PAVEMENT
- PROPOSED LEACHATE DRAINAGE AREA

YARD PIPING NOTES:

1. PROVIDE MANHOLE AND HANDHOLE PER MSHA DETAILS.
2. FOR TRENCH DRAIN, SEE DETAIL
3. FOR LEACHATE COLLECTION LINE AND LEACHATE FORCEMAIN STATIONING, SEE SHEETS B18 & B19.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.

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LIBER/FOLIO 10-847/096 16-878/215 10-891/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	
<i>Thomas J. Butts</i> DIRECTOR	10/20/11 DATE
<i>John J. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	10/13/11 DATE
<i>Keith ...</i> CHIEF, DIVISION OF LAND DEVELOPMENT	10/20/11 DATE

OWNER/DEVELOPER:
 HOWARD COUNTY DPW, BUREAU
 OF ENVIRONMENTAL SERVICES
 6751 GATEWAY DRIVE, #514
 COLUMBIA, MARYLAND 21046
 PH. (410) 313-6419

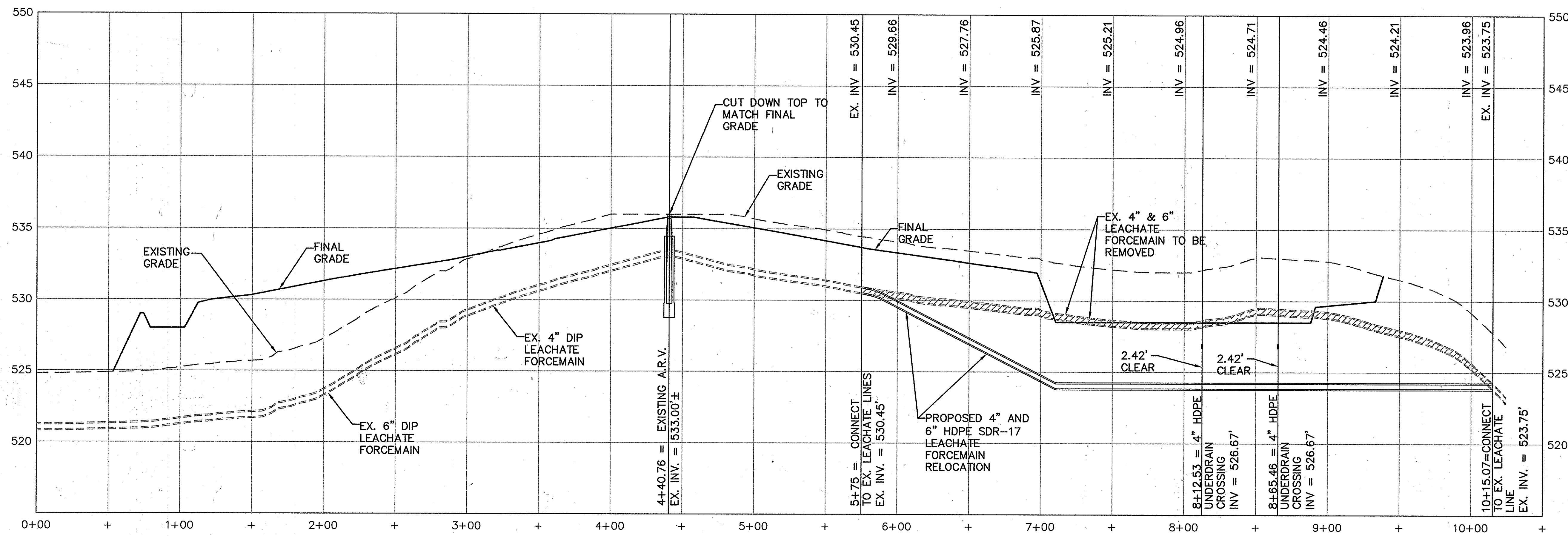
SCS ENGINEERS
 CONSULTING ENGINEERS
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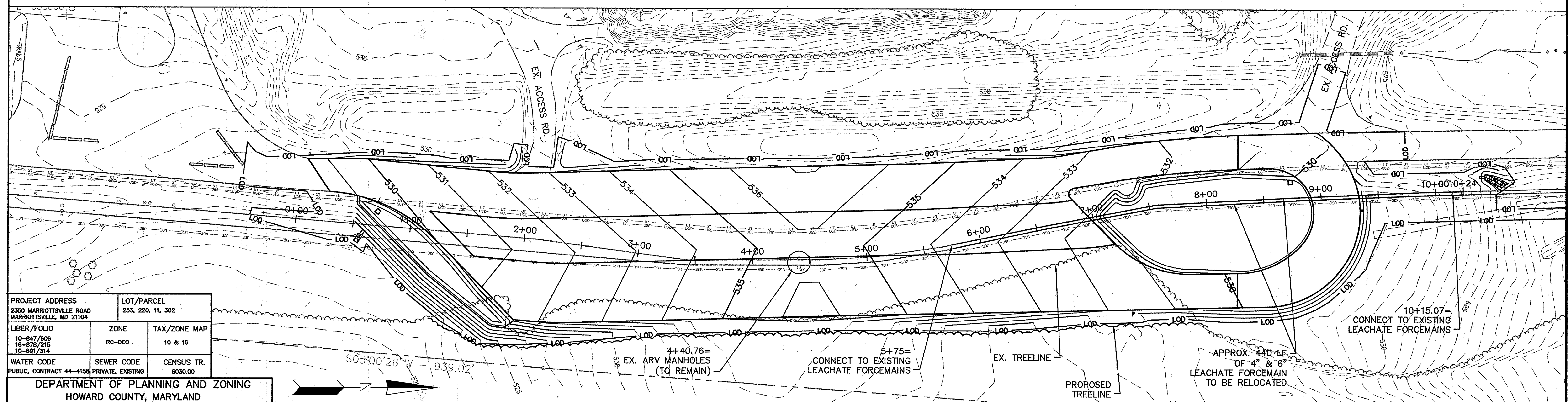
DES. AST/MAK	▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN. KEA	▲			YARD PIPING PLAN
CHK. MAK	▲			
DATE: 06/11	▲			
BY NO.	▲	REVISION	DATE	

PROJECT TITLE:	ALPHA RIDGE LANDFILL RED LINE OF POND 4A&4B MODIFICATIONS CAPITAL PROJECT NO. C-0299-A
3rd ELECTION DISTRICT	HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET B17 OF 27



LEACHATE FORCEMAIN PROFILE



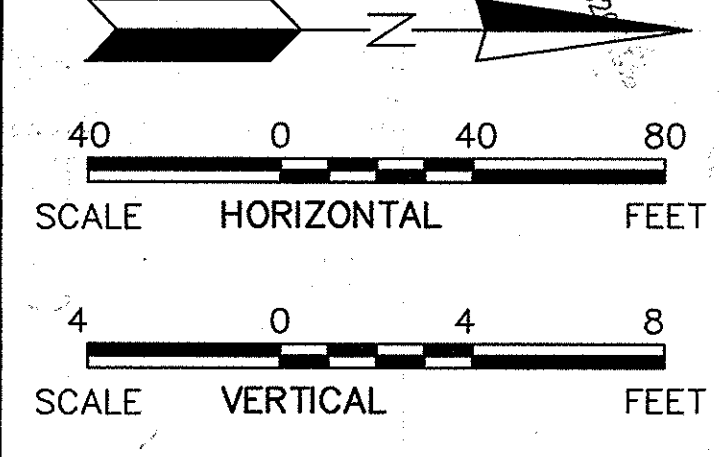
PROJECT ADDRESS 2350 MARIOTTSVILLE ROAD MARIOTTSVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302
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WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas E. Sudler 10/20/11
DIRECTOR DATE

John P. ... 10/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Ken ... 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



PROPERTY OF
WAVERLY WOODS DEVELOPMENT
CORPORATION
4463 / 123

PLAN VIEW
SCALE: 1"=40'

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark ... 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Howard ... 10/19/11
ACTING CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
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CHK. MAK	▲			
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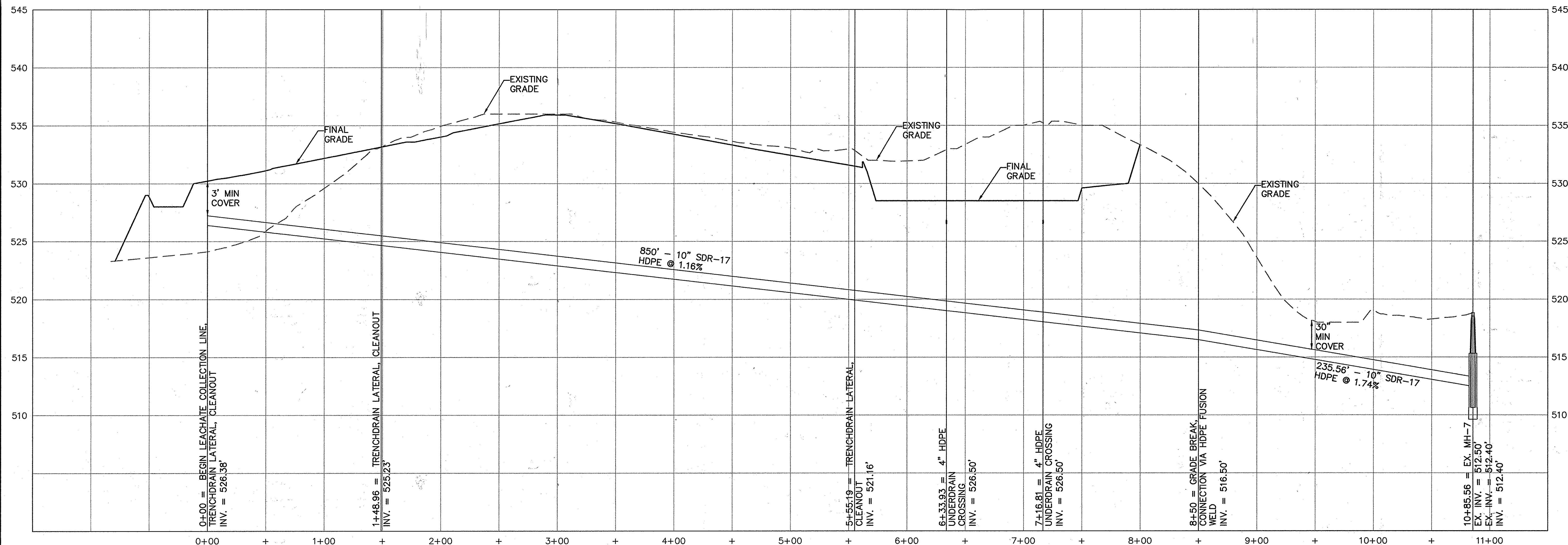
LEACHATE PLAN & PROFILES

PROJECT TITLE:
ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS
CAPITAL PROJECT NO. C-0299-A

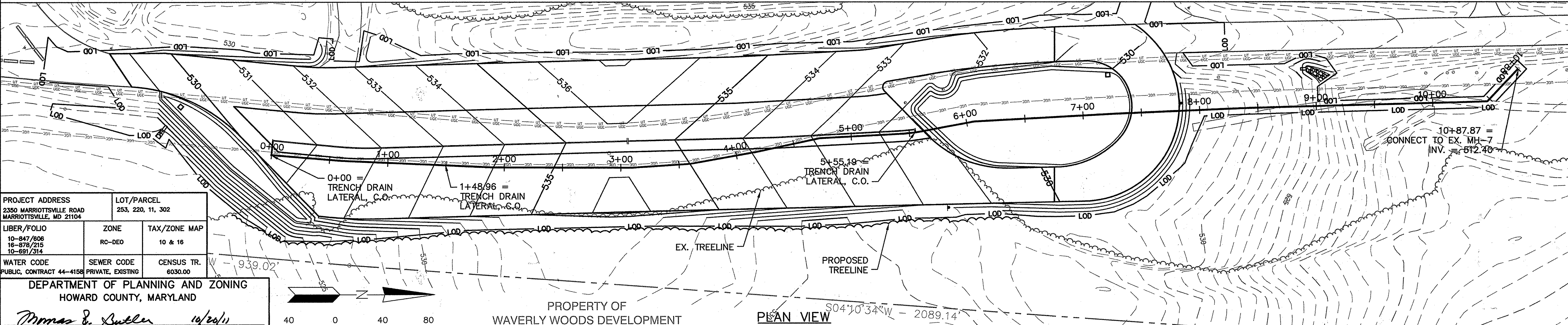
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET
B18 OF 27



LEACHATE COLLECTION LINE PROFILE



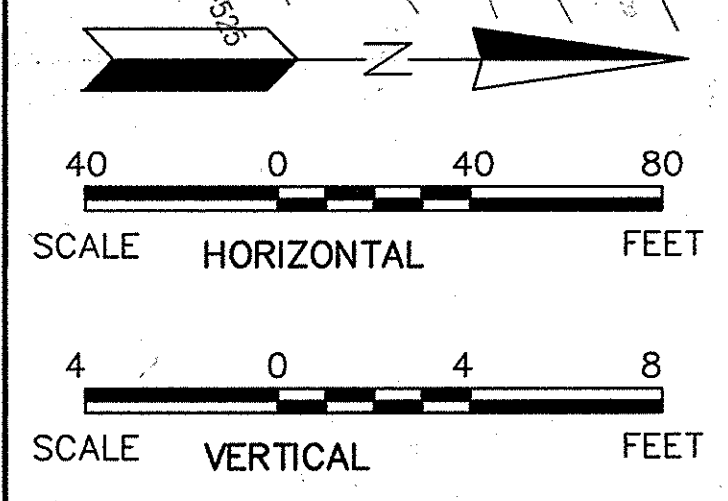
PROJECT ADDRESS 2350 MARIOTTVILLE ROAD MARIOTTVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302
LIBER/FOLIO 10-847/896 18-876/215 10-891/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas R. Butler 10/20/11
DIRECTOR DATE

John J. ... 10/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Vart ... 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



PROPERTY OF
WAVERLY WOODS DEVELOPMENT
CORPORATION
4463 / 123

PROFESSIONAL CERTIFICATION
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CONDITIONS VARY FROM THOSE SHOWN HEREON.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark ... 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

John ... 10/19/11
ACTING CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
HOWARD COUNTY DPW, BUREAU
OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, #514
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DRN. KEA	▲			
CHK. MAK	▲			
DATE: 06/11	▲			
BY NO.	▲	REVISION	DATE	

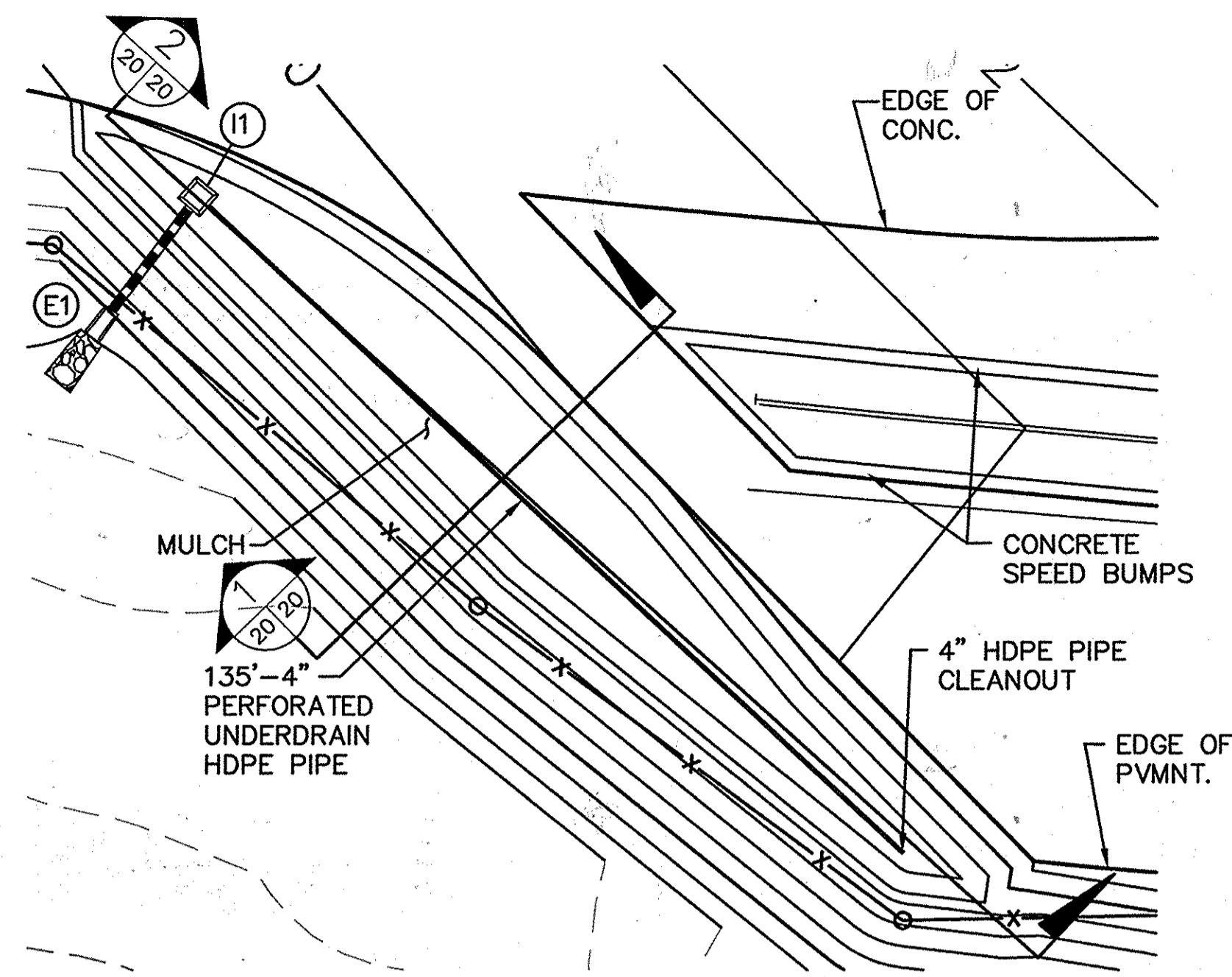
LEACHATE PLAN
& PROFILES

PROJECT TITLE:
ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS
CAPITAL PROJECT NO. C-0299-A

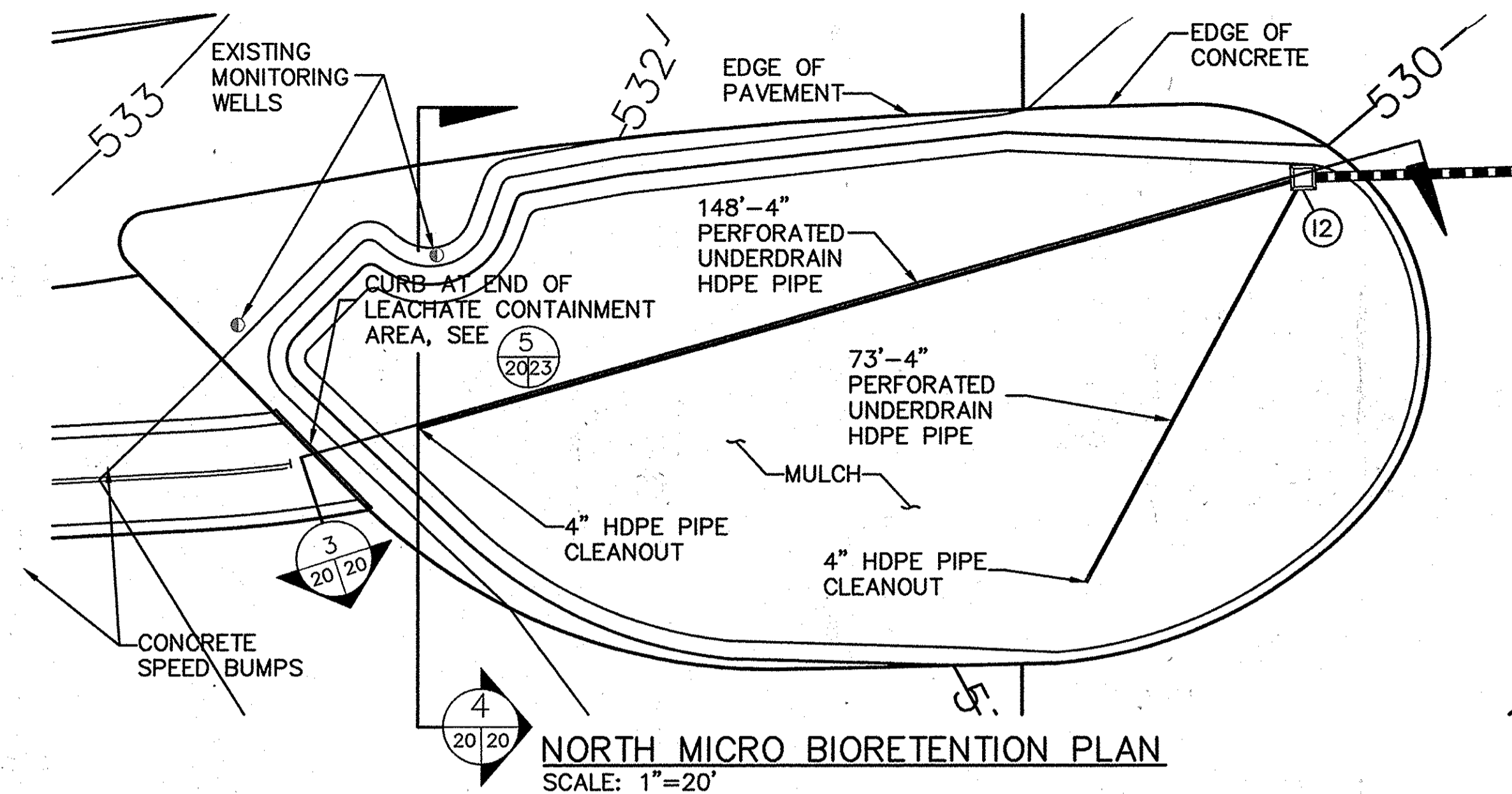
SCALE:
AS SHOWN

SHEET
B19 OF 27

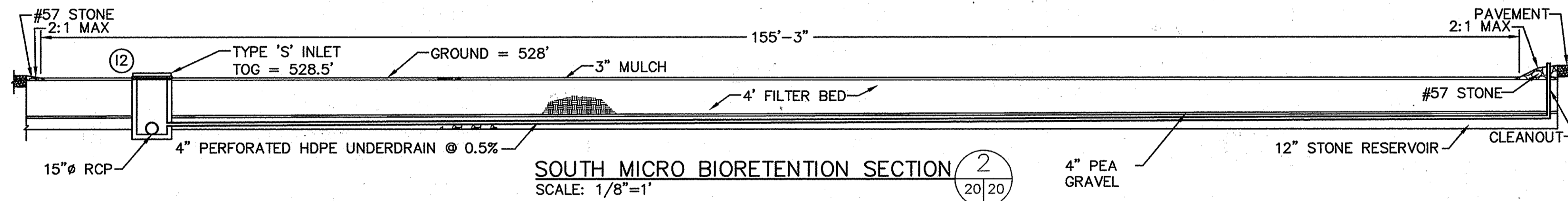
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



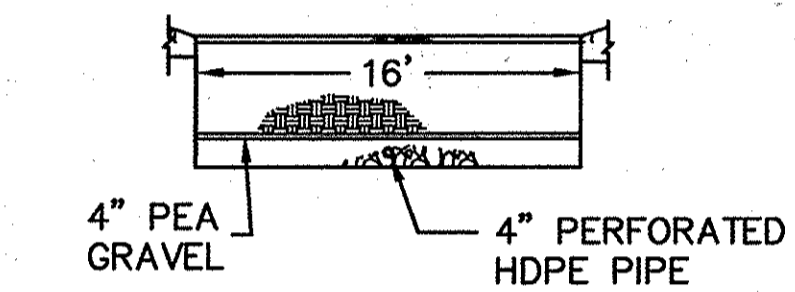
SOUTH MICRO BIORETENTION PLAN
SCALE: 1"=20'



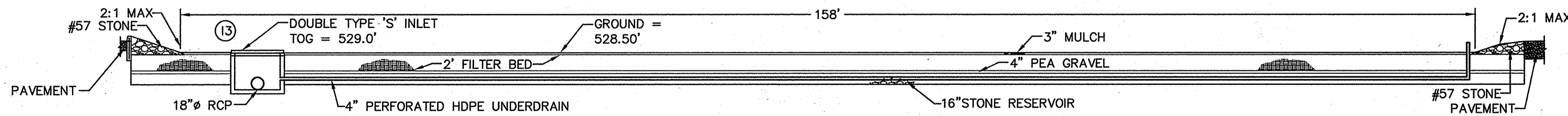
NORTH MICRO BIORETENTION PLAN
SCALE: 1"=20'



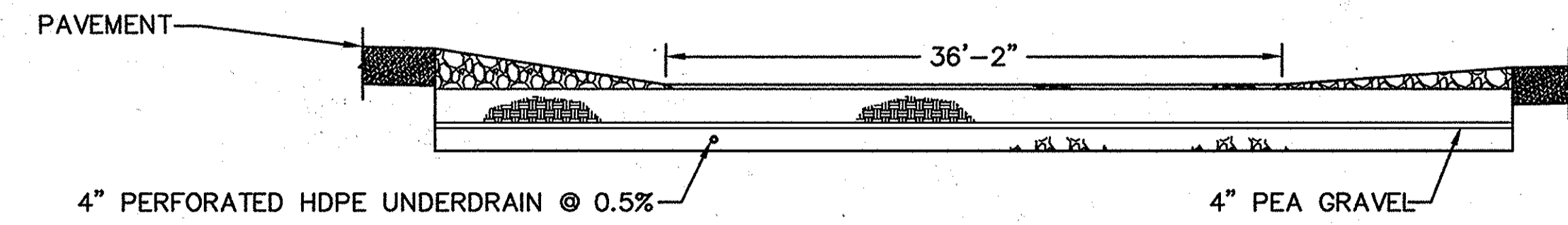
SOUTH MICRO BIORETENTION SECTION 2
SCALE: 1/8"=1'



SOUTH MICRO BIORETENTION SECTION 1
SCALE: 1/8"=1'



NORTH MICRO BIORETENTION SECTION 3
SCALE: 1/8"=1'



NORTH MICRO BIORETENTION SECTION 4
SCALE: 1/8"=1'

PROJECT ADDRESS 2350 MARIOTTSVILLE ROAD MARIOTTSVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302
LIBER/FOLIO 10-847/606 18-876/215 10-691/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas E. Suttler 10/20/11
DIRECTOR DATE

William J. Deane 10/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Robert J. Landwehr 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. Green 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Harold E. Seltzer 10/19/11
ACTING CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, #514
COLUMBIA, MARYLAND 21046
PH. (410) 313-6419

SCS ENGINEERS
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FAX. (703) 471-6676



DES. AST/MAK		▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN. KEA		▲			ESD PLANS AND SECTIONS
CHK. MAK		▲			
DATE: 06/11		▲			
BY NO.		▲	REVISION	DATE	

PROJECT TITLE:
**ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS**
CAPITAL PROJECT NO. C-0299-A

SCALE:
AS SHOWN

SHEET
B20 OF 27

3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

MICRO BIORETENTION NOTES:

1. MATERIAL SPECIFICATIONS:

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1, OF THE MARYLAND STORMWATER DESIGN MANUAL.

2. FILTERING MEDIA:

THE SOIL SHALL BE UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

- SOIL COMPONENT – LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
- ORGANIC CONTENT – MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%–65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
- CLAY CONTENT – MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
- PH RANGE – SHOULD BE BETWEEN 5.5 – 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION:

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL:

RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3., OF THE MARYLAND STORMWATER DESIGN MANUAL.

5. PLANT INSTALLATION:

COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED AT THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING AREAS, TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8th OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS:

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

- PIPE– SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OR HDPE).
- PERFORATIONS – IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO.4 OR 4X4) GALVANIZED HARDWARE CLOTH.
- GRAVEL– THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
- THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
- A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 10,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
- A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1,000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS:

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. SCHEDULED PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE-SPECIFIC
FILTERING MEDIA (2' TO 4' DEEP)	LOAMY SAND(60–65%) & COMPOST(35–40%) OR SANDY LOAM(30%), COARSE SAND(30%), & COMPOST(40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT<5%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT (ASTM-D-448)		
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
GRAVEL DIAPHRAGM	ASTM-D-448	NO.57 (3/8" TO 1")	
CURTAIN DRAIN	ORNAMENTAL STONE: WASHED COBBLES	STONE: 2" TO 5"	
GEOTEXTILE		N/A	PE TYPE 1 NONWOVEN
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO M-43	NO57 OR NO6 AGGREGATE (3/8" TO 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	SLOTTED OR PERFORATED PIPE; 3/8" PERF @6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4-INCH GALVANIZED HARDWARE CLOTH
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX NO3; F'C=3500PSI @28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST IN PLACE OR PRE CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND DESIGN TO INCLUDE MEETING ACI CODE 350.R/89; VERTICAL LOADING (H-10 OR H-20); ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND	AASHTO-M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE(AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

PROJECT ADDRESS 2350 MARRIOTTVILLE ROAD MARRIOTTVILLE, MD 21104	LOT/PARCEL 253, 220, 11, 302
LIBER/FOLIO 10-847/806 16-876/215 10-891/314	TAX/ZONE MAP RC-DEO 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING
	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas E. Butler 10/20/11
DIRECTOR DATE

John J. Williams 10/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Vest S. L. L. L. 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.

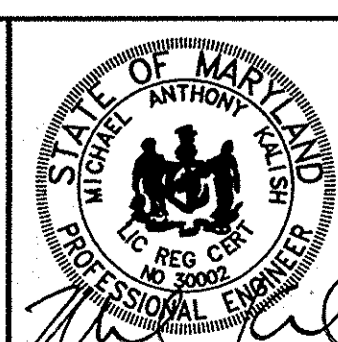
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. ... 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Howard E. ... 10/19/11
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, #514
COLUMBIA, MARYLAND 21046
PH. (410) 313-6419

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES. AST/MAK		▲	SHEET ADDED TO SDP-05-074	09/20/11	
DRN. KEA		▲			
CHK. MAK		▲			
DATE: 06/11		▲			
BY NO.		▲	REVISION	DATE	

SHEET TITLE:
ESD NOTES & SPECIFICATIONS

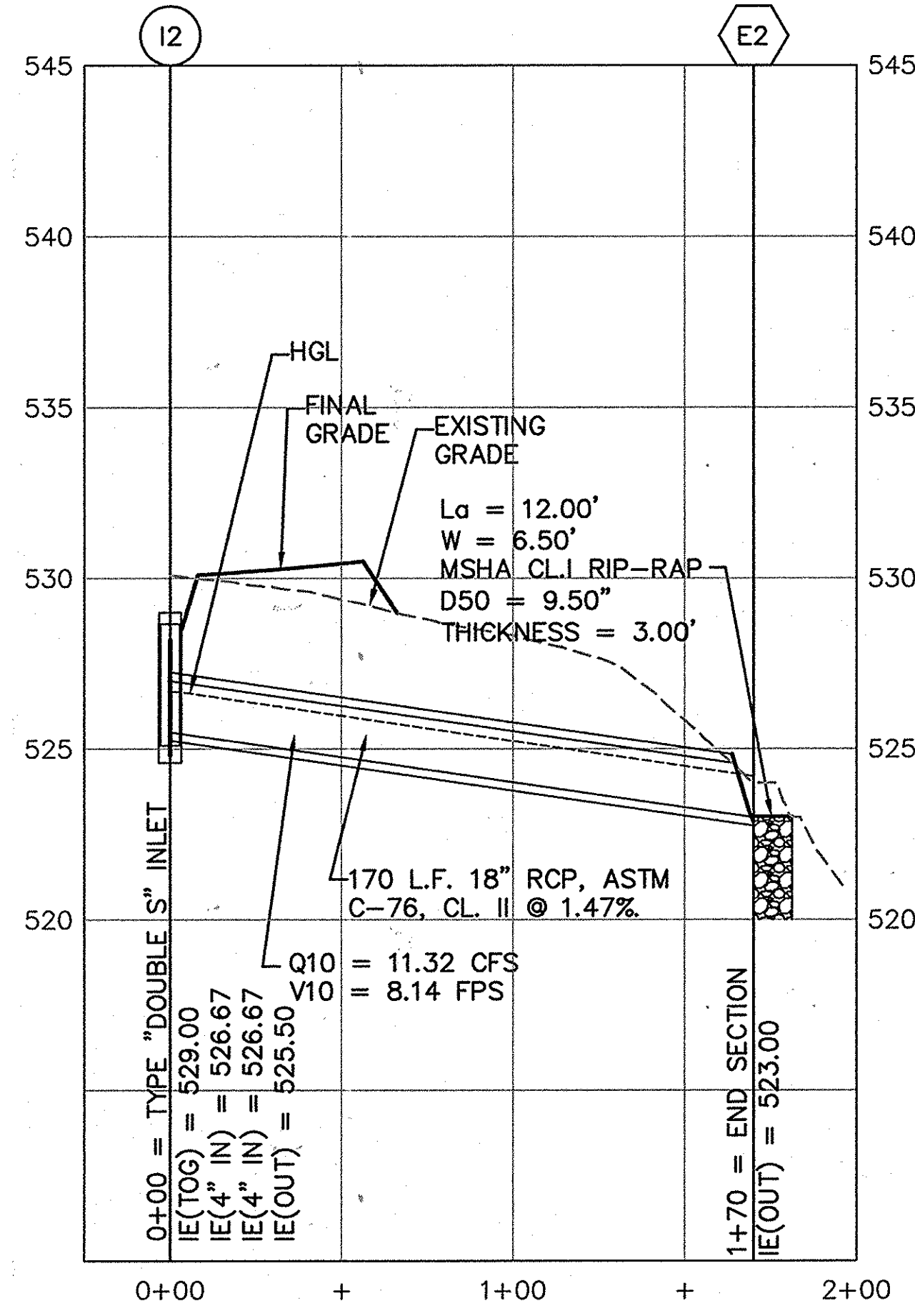
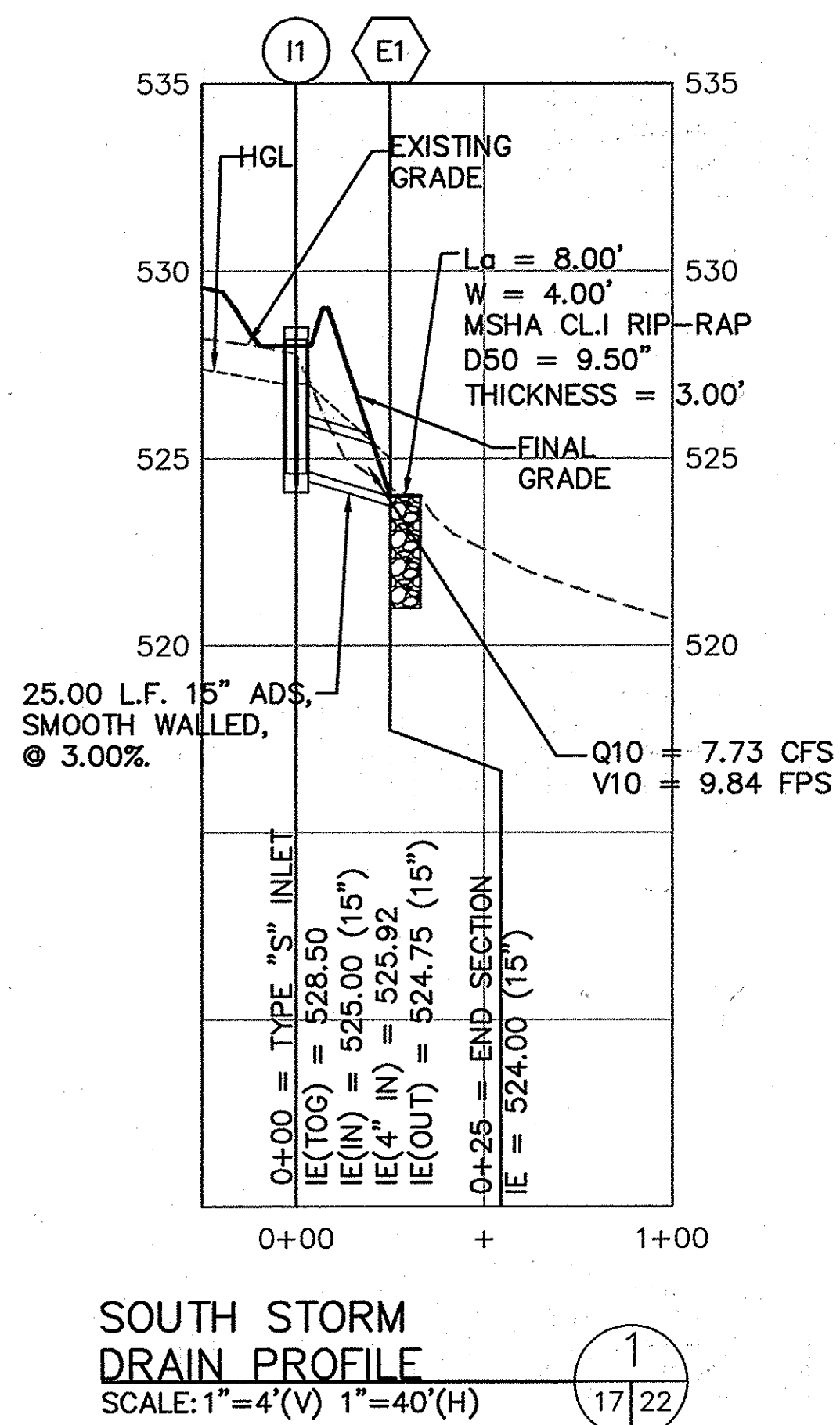
PROJECT TITLE:
ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS
CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

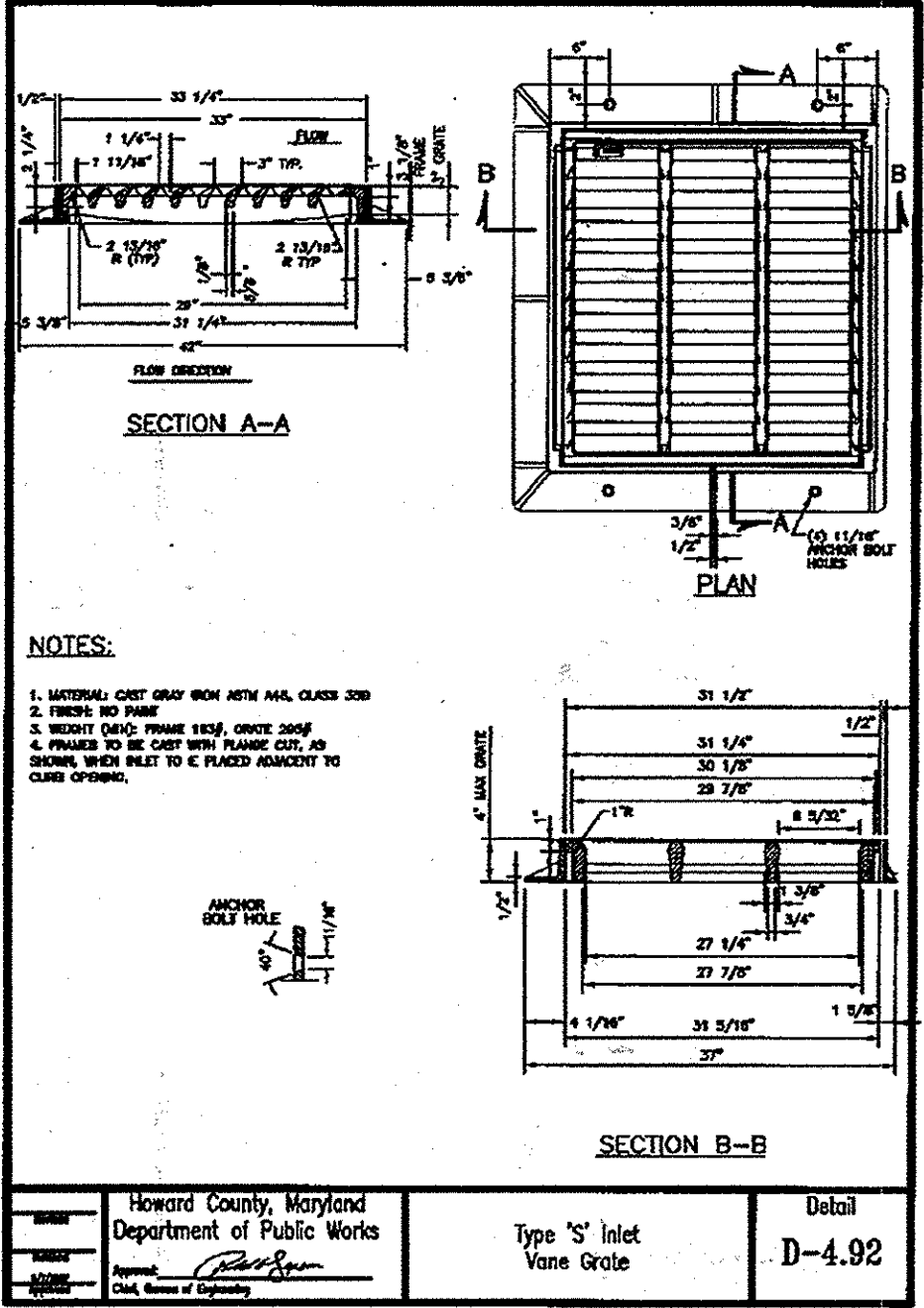
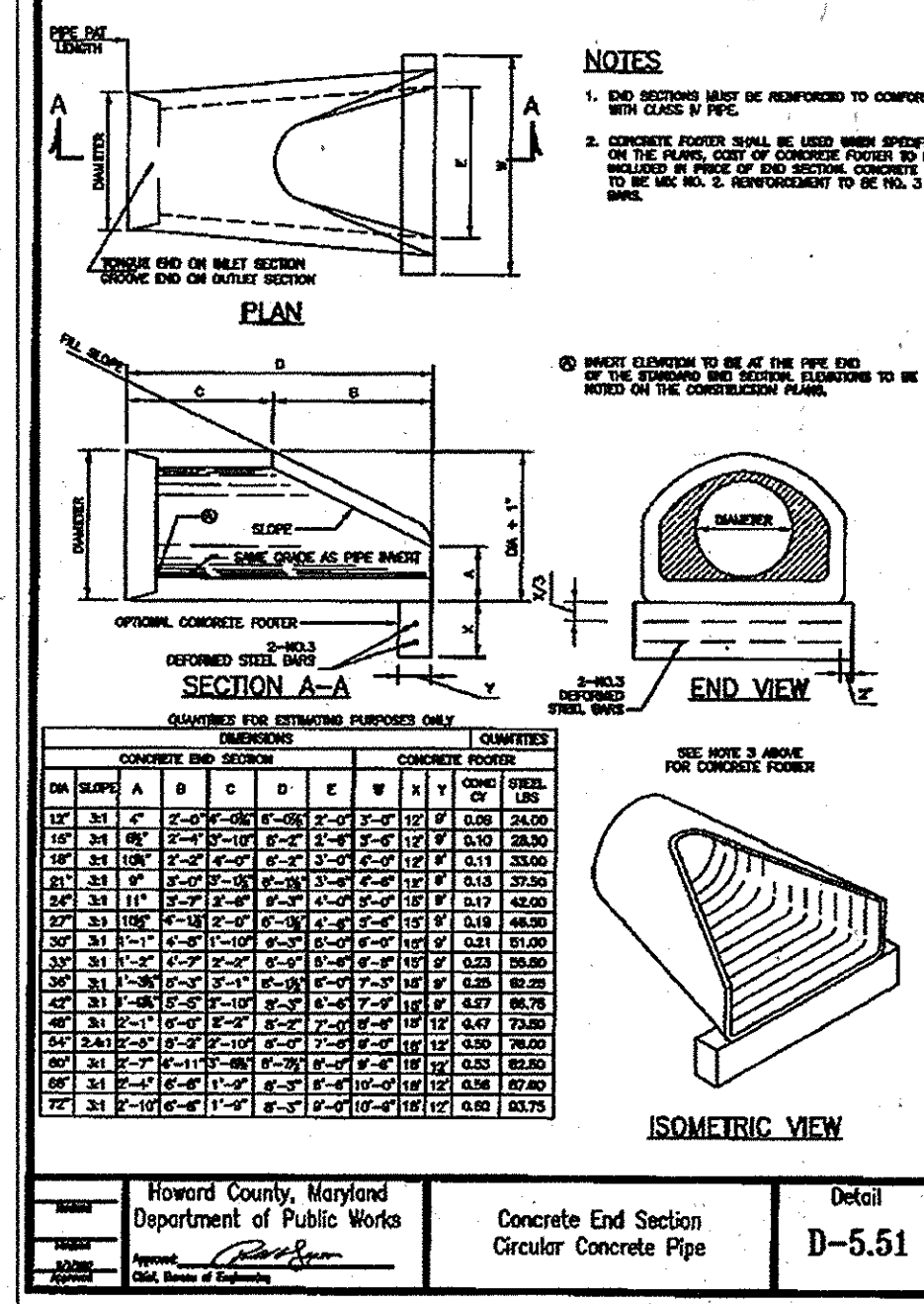
SCALE:
AS SHOWN

SHEET
B21 OF 27



FROM	TO	SIZE	TYPE	LENGTH
I1	E1	15"	RCP ASTM C-76 CL. II	25'
I2	E2	18"	RCP ASTM C-76 CL. II	170'

IMPERVIOUS AREA COMPUTATIONS:
IMPERVIOUS AREA ASSOCIATED WITH THIS PLAN SET CONSISTS OF PAVED AREAS ONLY. THE TOTAL IMPERVIOUS AREA OF THE PROPOSED TRAILER PARKING AREA IS 94,456 S.F.



STORM SEWER DESIGN COMPUTATIONS

FROM	TO	DRAIN AREA	RUNOFF COEFF	INCR Cx A	ACCU Cx A	To TO PIPE	TIME IN PIPE	ACCU TIME	INTEN (I)	INCR FLOW	ACCU FLOW	LENGTH (FT)	PIPE DIA	SLOPE PERCENT	MAX Q	VEL (FPS)	FLOW DEPTH	UPPER INVERT	FALL (FT)	LOWER INVERT	DROP IN	TOP ELEV	REMARKS
I2	E1	1.01	0.90	0.91	0.91	5.00	0.05	5.05	8.50	7.73	7.73	25.00	15	3.00	11.19	9.84	9.16	524.75	0.75	524.00		528.50	
I3	E2	1.48	0.90	1.33	1.33	5.00	0.21	5.21	8.50	11.32	11.32	170.00	18	1.47	12.74	8.14	13.21	525.50	2.50	523.00		528.00	
LEACHATE	LEACHATE	0.22	0.90	0.20	0.20	5.00	2.27	7.27	8.50	1.68	1.68	850.00	10	1.16	2.38	4.70	6.24	526.38	9.88	516.50			
LEACHATE	LEACHATE	0.22	0.90	0.20	0.20	5.00	0.72	7.99	8.50	1.68	1.68	235.56	10	1.74	2.89	5.50	5.48	516.50	4.10	512.40			

GRATE INLET DESIGN COMPUTATIONS

Structure #	Type	Area	"C"	"I"	FLOW	GRATE PERIM	AREA	DEPTH	qorp	qwelf
I1	TYPE "S"	1.01	0.90	8.5	7.73	10.42	3.39	0.39	0.22	0.39
I3	DOUBLE "S"	1.48	0.90	8.5	11.32	15.63	6.78	0.39	0.12	0.39

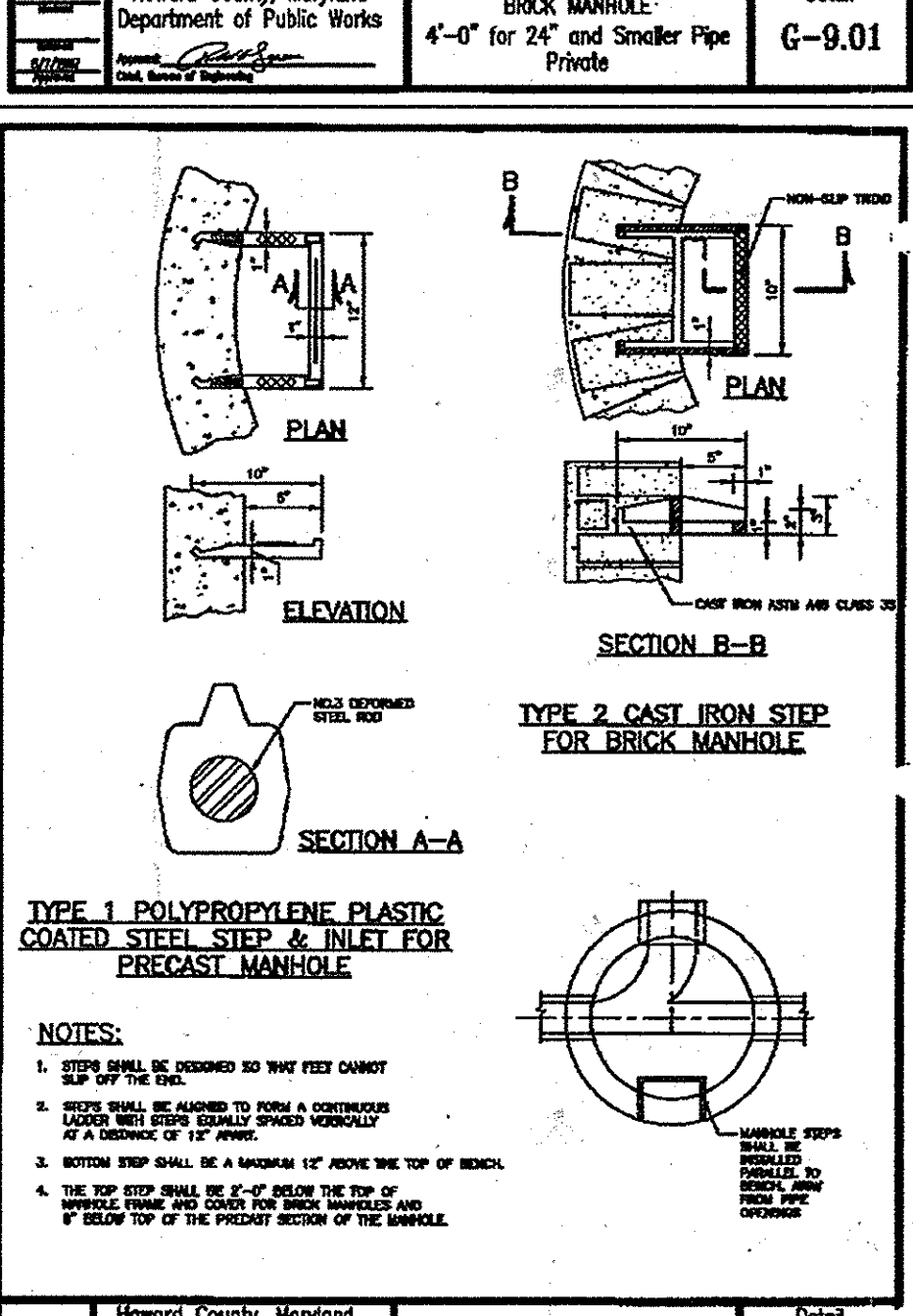
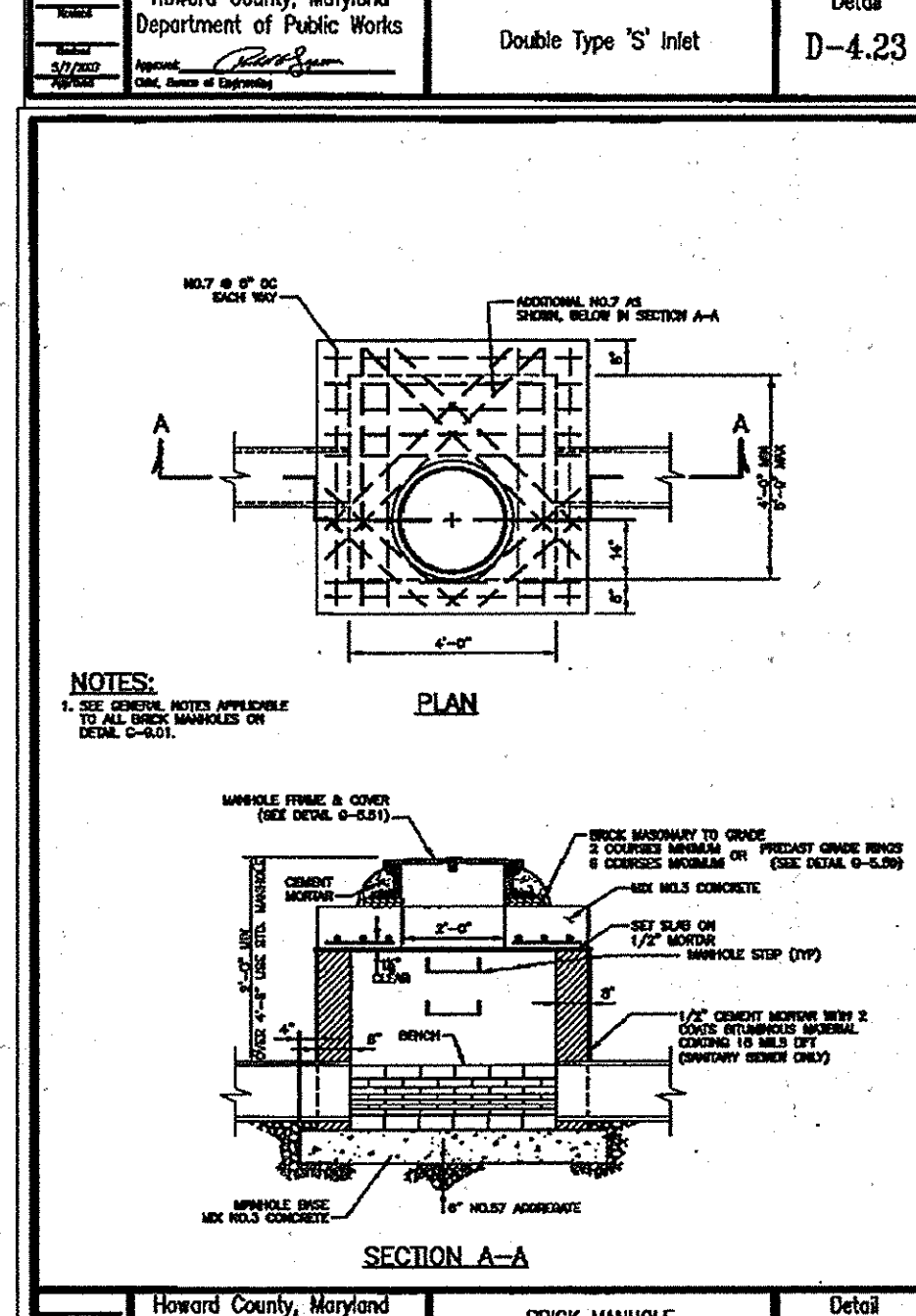
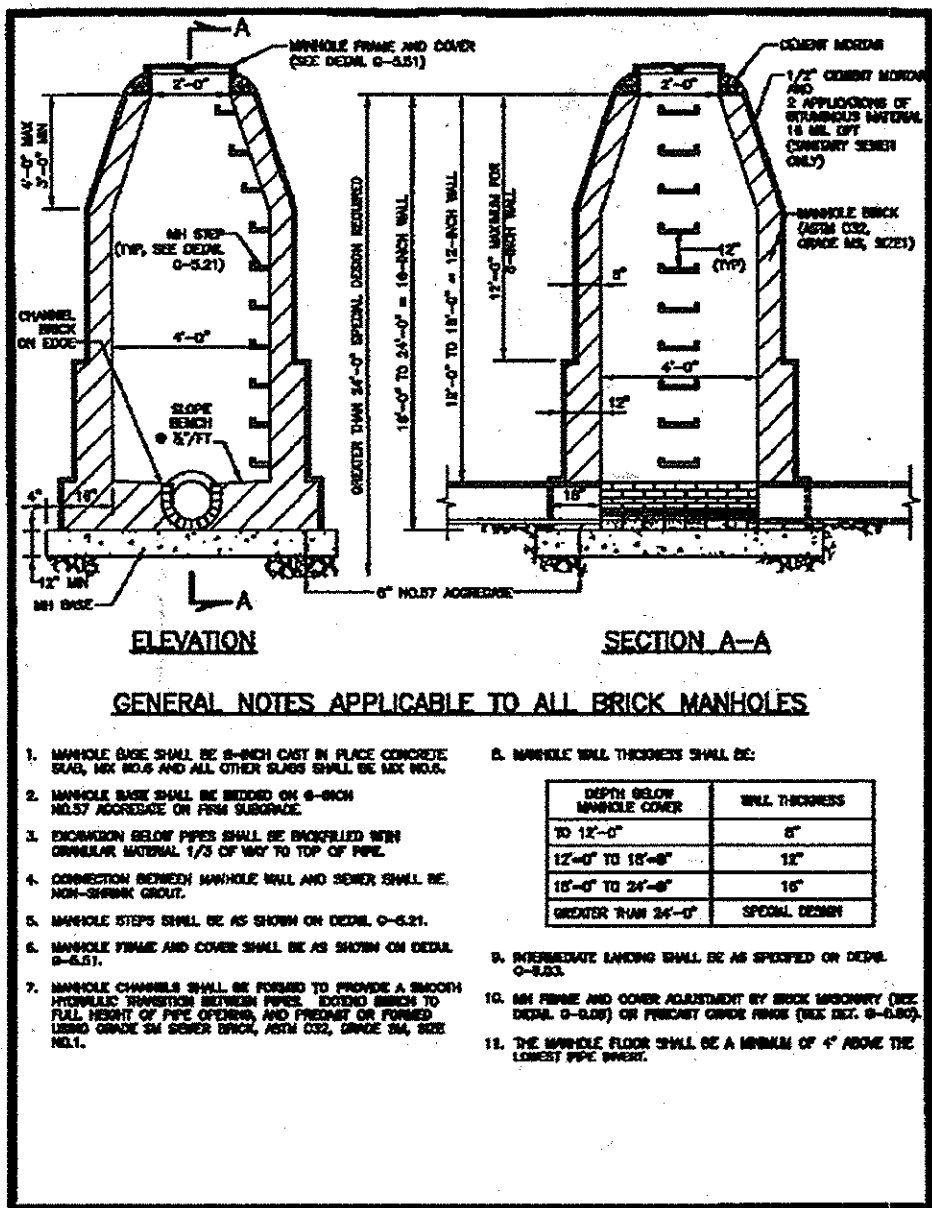
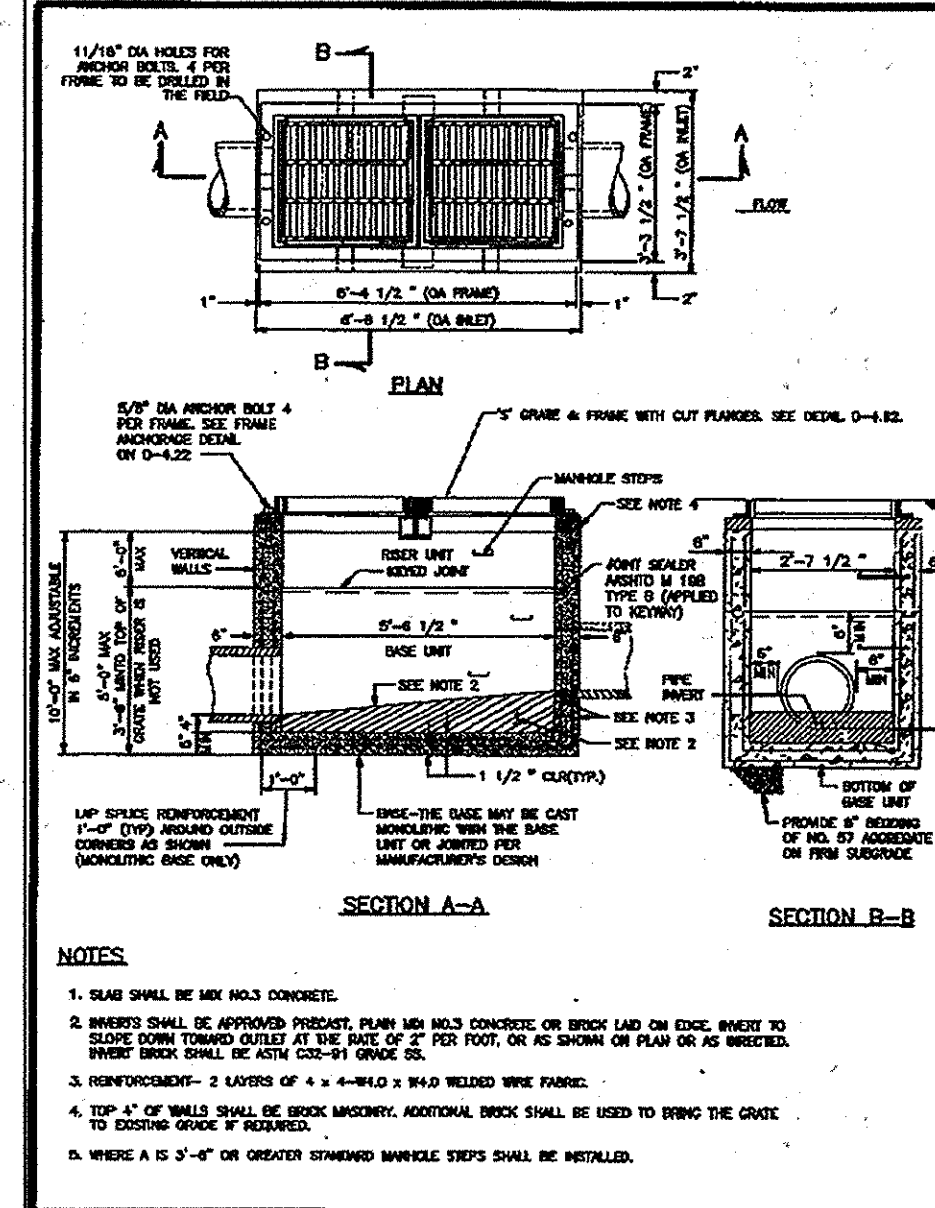
PROFESSIONAL CERTIFICATION
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Figure 4.17 HOWARD COUNTY HYDRAULIC GRADIENT AND HEADLOSS COMPUTATION FORM

JOB NAME: _____ DPZ NO.: _____ DATE: _____

FROM	I1	TO	E1	25.00	FT @	3.00	%	ELEV. -	525.00
@ STRUCTURE NO.	E1				HGL -	2.00			
Q1 =	7.73	V1 =	9.84	A =	0.50	X	1.00	=	0.50
Q2 =		V2 =		B =	1.50	X	1.00	=	1.50
Q3 =		V3 =		C =	0.50	X	0.50	=	0.00
				D =	0.00	X	0.50	=	0.00
				TOTAL				=	2.00
								HGL -	527.00

FROM	I2	TO	E2	170.00	FT @	1.00	%	ELEV. -	524.20
@ STRUCTURE NO.	E2				HGL -	1.47			
Q1 =	11.32	V1 =	8.14	A =	1.10	X	1.00	=	1.10
Q2 =		V2 =		B =	0.37	X	1.00	=	0.37
Q3 =		V3 =		C =	0.00	X	0.50	=	0.00
				D =	0.00	X	0.50	=	0.00
				TOTAL				=	1.47
								HGL -	525.67



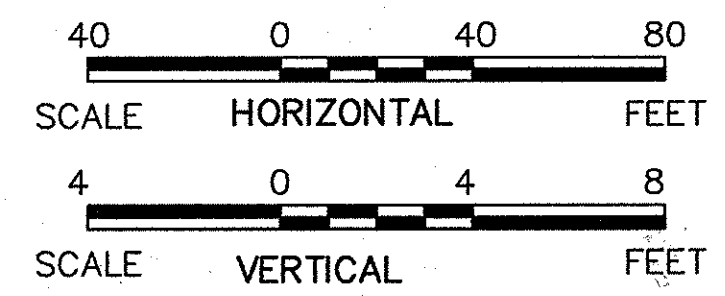
DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

PROJECT ADDRESS: 2350 MARROTTSVILLE ROAD, MARROTTSVILLE, MD 21104
LOT/PARCEL: 253, 220, 11, 302

LIBER/FOLIO: 10-847/606, 16-876/215, 10-591/214
ZONE: RC-DEO
TAX/ZONE MAP: 10 & 16

WATER CODE: PUBLIC, CONTRACT 44-4158
SEWER CODE: PRIVATE, EXISTING
CENSUS TR.: 8030.00

Director: Thomas E. Suttler, 10/20/11
Chief, Development Engineering Division: [Signature], 10/12/11
Chief, Division of Land Development: [Signature], 10/20/11



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

Director: [Signature], 10/11/11
Acting Chief, Bureau of Environmental Services: [Signature], 10/11/11

OWNER/DEVELOPER: HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES, 6751 GATEWAY DRIVE, #514, COLUMBIA, MARYLAND 21046, PH. (410) 313-6419

SCS ENGINEERS CONSULTING ENGINEERS, 11260 ROGER BACON DRIVE, SUITE 300, RESTON, VIRGINIA 20190, PH. (703) 471-6150, FAX. (703) 471-6676



DES. AST/MAK	▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN. KEA	▲			
CHK. MAK	▲			
DATE: 06/11	BY NO.	REVISION	DATE	

STORM DRAIN PROFILES AND DETAILS

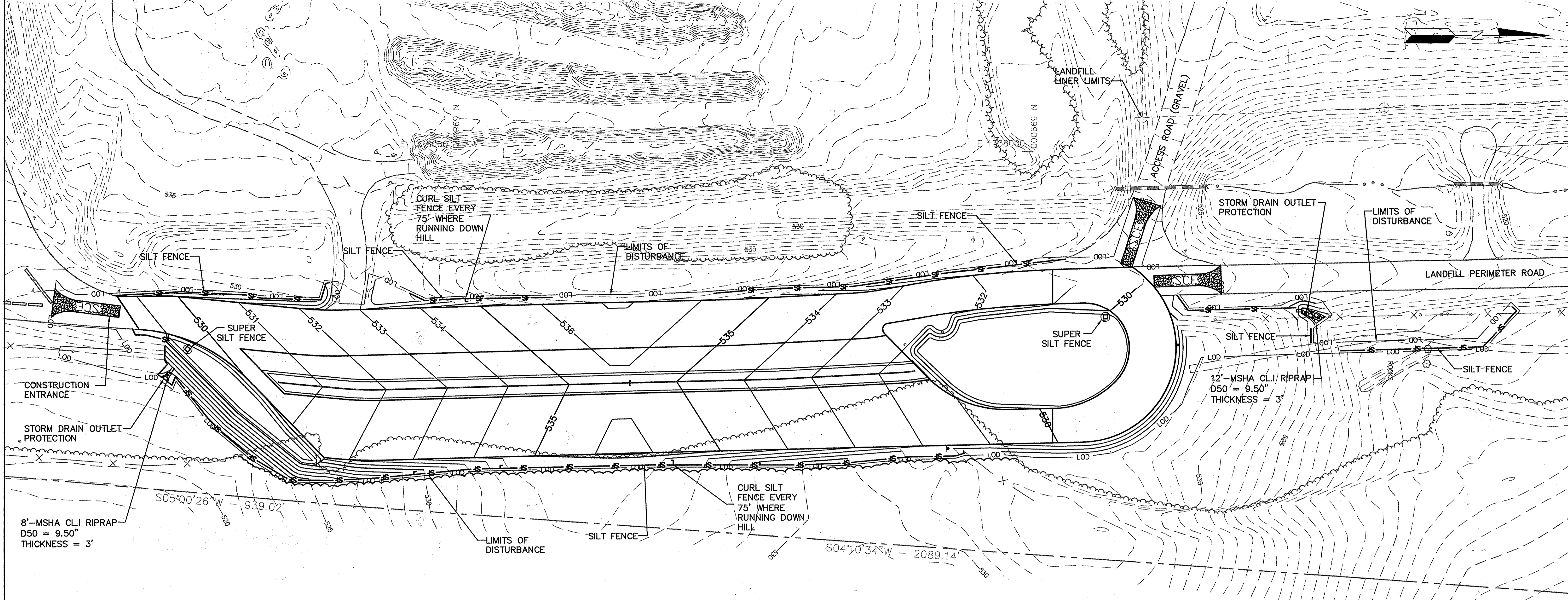
PROJECT TITLE: ALPHA RIDGE LANDFILL RED LINE OF POND 4A&4B MODIFICATIONS, CAPITAL PROJECT NO. C-0299-A

SCALE: AS SHOWN

SHEET: B22 OF 27

3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SDP-05-074



PLAN VIEW
SCALE: 1"=40'

EROSION AND SEDIMENT CONTROL LEGEND

- SILT FENCE
- SUPER SILT FENCE
- LIMITS OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE
- STONE OUTLET PROTECTION

- GENERAL NOTES:
- FOR CONSTRUCTION SEQUENCE, SEE SHEET B25, EROSION AND SEDIMENT CONTROL NOTES
 - FOR EROSION AND SEDIMENT CONTROL DETAILS SEE SHEET B26, EROSION AND SEDIMENT CONTROL DETAILS

NOTE:
THE EXISTING DATA SHOWN HEREON HAS BEEN REPRODUCED FROM DRAWINGS PROVIDED TO SCS ENGINEERS BY OTHERS, DOES NOT NECESSARILY REPRESENT AS-BUILT CONDITIONS AND IS PROVIDED FOR INFORMATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE AS-BUILT CONDITIONS THAT INTERFACE WITH NEW CONSTRUCTION AND NOTIFY THE ENGINEER IMMEDIATELY IF CONDITIONS VARY FROM THOSE SHOWN HEREON.

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.



PROJECT ADDRESS 2350 MARRIOTTVILLE ROAD MARRIOTTVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302
LIBER/FOLIO 10-847/806 18-878/215 10-891/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas J. Fuller 10/20/11
DIRECTOR DATE

John J. Sullivan 10/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Vest Sheehor 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SEDIMENT CONTROL CERTIFICATION BLOCKS

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

John K. Roberts 10/10/11
HOWARD SCD DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

Michael Kacish 9/25/11
SIGNATURE OF ENGINEER DATE
(PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATE

"I / WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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."

Evelyn E. Jemlin 9/27/2011
SIGNATURE OF DEVELOPER DATE
(PRINT NAME BELOW SIGNATURE)

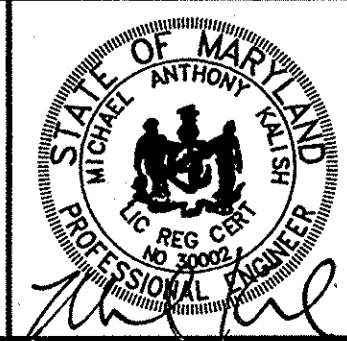
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. ... 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Howard ... 10/19/11
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, #514
COLUMBIA, MARYLAND 21046
PH. (410) 313-6419

SCS ENGINEERS
CONSULTING ENGINEERS
11260 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES. AST/MAK		▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN.	KEA	▲			EROSION & SEDIMENT CONTROL PLAN
CHK.	MAK	▲			
DATE:	06/11	▲			
BY	NO.		REVISION	DATE	

PROJECT TITLE:
ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS
CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT

SCALE:
AS SHOWN

SHEET
B24 OF 27

HOWARD COUNTY, MARYLAND

**HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES**

- A MINIMUM OF 48 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).
 - 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 SHALL 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.
 - SITE ANALYSIS:
TOTAL AREA OF SITE = 3.33 ACRES
AREA DISTURBED = 3.33 ACRES
AREA TO BE ROOFED OR PAVED = 2.17 ACRES
AREA TO BE VEGETATIVELY STABILIZED = 1.16 ACRES
TOTAL CUT = 3,310 CY
TOTAL FILL = 5,097 CY
- OFFSITE WASTE/BORROW AREA LOCATION: TO BE DETERMINED, AND SHALL HAVE AN APPROVED AND ACTIVE GRADING PERMIT. OWNER MAY USE EXCAVATED MATERIAL AS DAILY COVER IN LANDFILL LINED CELL NO. 1.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
 - ADDITIONAL SEDIMENT CONTROL 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.
 - TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
 - ANY STOCKPILED MATERIAL WILL BE STORED WITHIN THE LIMITS OF THE LANDFILL, IN AREAS ALREADY PROTECTED BY EROSION AND SEDIMENT CONTROL MEASURES.
- ** NOTE: DURING GRADING ACTIVITIES, THE CONTRACTOR SHALL PLACE RIP-UP AS SOON AS DITCH/CHANNEL GRADE IS ESTABLISHED.**

PROJECT ADDRESS 2350 MARRIOTTVILLE ROAD MARRIOTTVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302
LIBER/FOLIO 10-847/808 16-876/215 10-891/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas F. Butler 10/25/11
DIRECTOR DATE

John J. ... 10/15/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Walt ... 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark ... 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Howard ... 10/19/11
ACTING CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- PREFERRED -- APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.)
- ACCEPTABLE -- APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING -- FOR THE PERIODS MARCH 1 -- APRIL 30, AND AUGUST 1 -- OCTOBER 15, SEED WITH 60 LBS/ACRE (1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 -- JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS/ACRE (.05 LBS/1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 -- FEBRUARY 28, PROTECT SITE BY:

OPTION 1 -- TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.

OPTION 2 -- USE SOD.

OPTION 3 -- SEER: WITH 60 LBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING -- APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE -- INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: -- LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: -- APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.).

SEEDING: -- FOR PERIODS MARCH 1 -- APRIL 30 AND FROM AUGUST 15 -- OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 -- AUGUST 14, SEED WITH 3 LBS/ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 -- FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: -- APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FT. OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

- THE GRADING PERMIT FOR THE PROJECT WILL BE OBTAINED BY HOWARD COUNTY UPON APPROVAL OF PLAN.
- ACCESS TO THE TRAILER PARKING AREA IS THROUGH EXISTING PAVED ACCESS ROADS.
- INSTALL PERIMETER EROSION CONTROL MEASURES: SILT FENCE AND CONSTRUCTION ENTRANCE EST. CONSTRUCTION DURATION - 3 DAY.
- TRANSFER TRAILER PARKING AREA CONSTRUCTION (EST. CONSTRUCTION DURATION - 6 MONTH):
 - CLEAR AND GRUB, REMOVE TOPSOIL
 - REMOVE AND REINSTALL LITTER FENCE POLES
 - CUT AND FILL TO PAVEMENT SUBGRADES AND MBR SUBGRADES
 - GRADE AND INSTALL STORM SEWER AND OUTFALLS
 - INSTALL SUPER SILT FENCE AROUND INLETS 11 AND 12.
 - INSTALL STONE OUTLET PROTECTION
 - REMOVE AND REPLACE EXISTING LEACHATE FORCEMAINS
 - INSTALL NEW GRAVITY LEACHATE COLLECTION LINE
 - COMPACT PAVEMENT SUBGRADES
 - INSTALL CONCRETE CURBS
 - GRADE AND COMPACT AGGREGATE BASE OR GRAVEL
 - INSTALL SOIL LAYERS IN MBR AREAS, UNDERDRAINS, CLEANOUTS, AND MULCH
 - INSTALL CONCRETE LEACHATE COLLECTION AREA WITH SPEED BUMPS AND TRENCH DRAINS
 - INSTALL NEW CONCRETE PAVEMENT, ASPHALT PAVEMENT, OR FINAL AGGREGATE BASE
 - INSTALL PAVEMENT MARKINGS AND SIGNS
 - PERMANENTLY STABILIZE REMAINING DISTURBED AREAS
 - REMOVE SEDIMENT CONTROL PRACTICES AFTER APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR

NOTE:

THE LEACHATE RELOCATION IS TO BE COMPLETED IN 3 DAYS. THE FORCEMAIN CANNOT BE SHUT DOWN FOR MORE THAN 3 DAYS, OR WHEN HEAVY RAINS ARE EXPECTED.

SPECIFICATIONS FOR TOPSOIL

- TOPSOIL SALVAGE FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
 - FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
 - FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES: (NOT APPLICABLE)
 - TOPSOIL APPLICATION
 - WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
 - GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED SHALL BE MAINTAINED, ALBEIT 4"-8" HIGHER IN ELEVATION.
 - TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
- ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
 - COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
 - COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
 - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
 - COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

SEDIMENT CONTROL CERTIFICATION BLOCKS

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

John K. Roberts 10/11/11
HOWARD SCD DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

Michael Kalish 9-23-11
SIGNATURE OF ENGINEER DATE
(PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATE

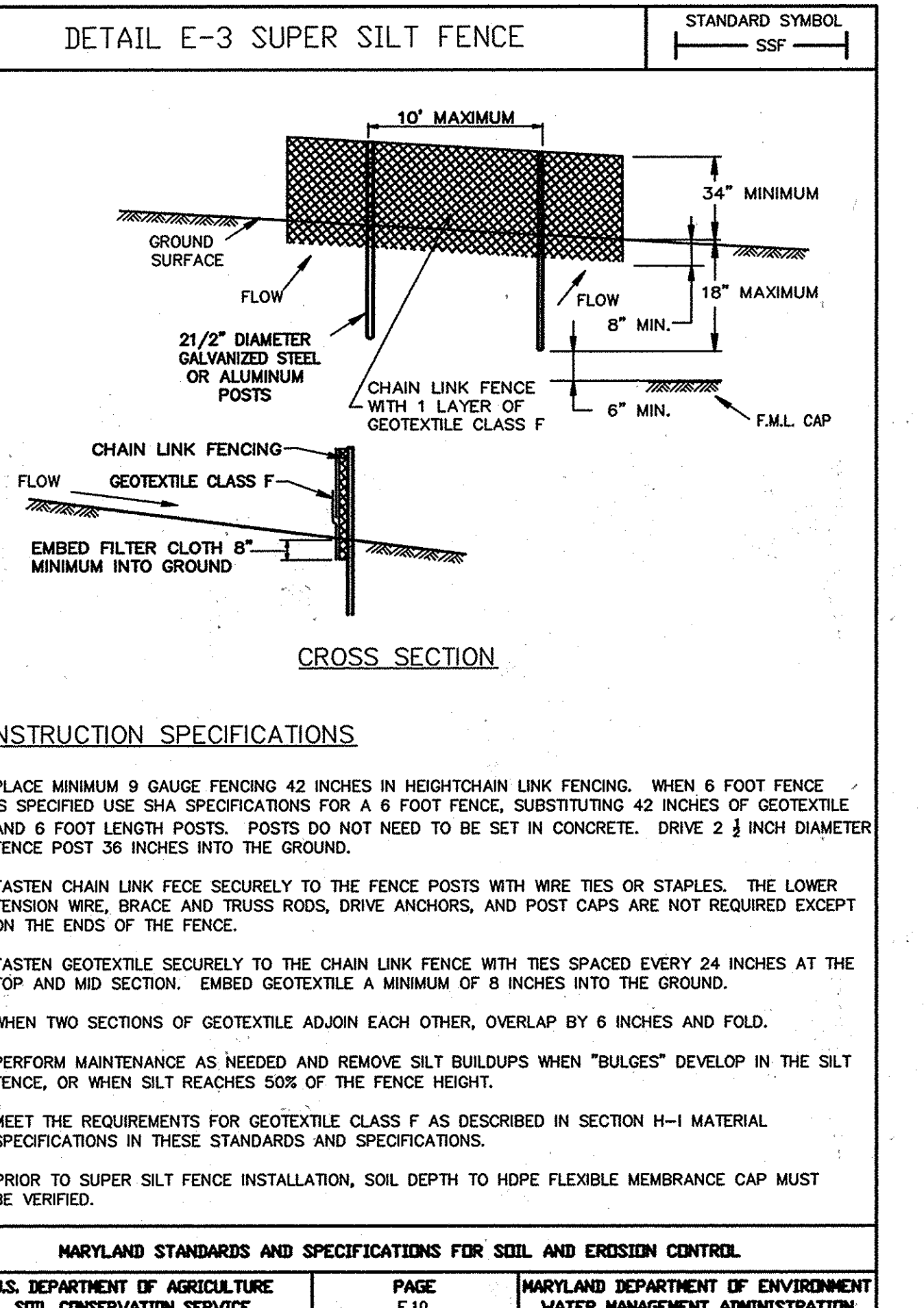
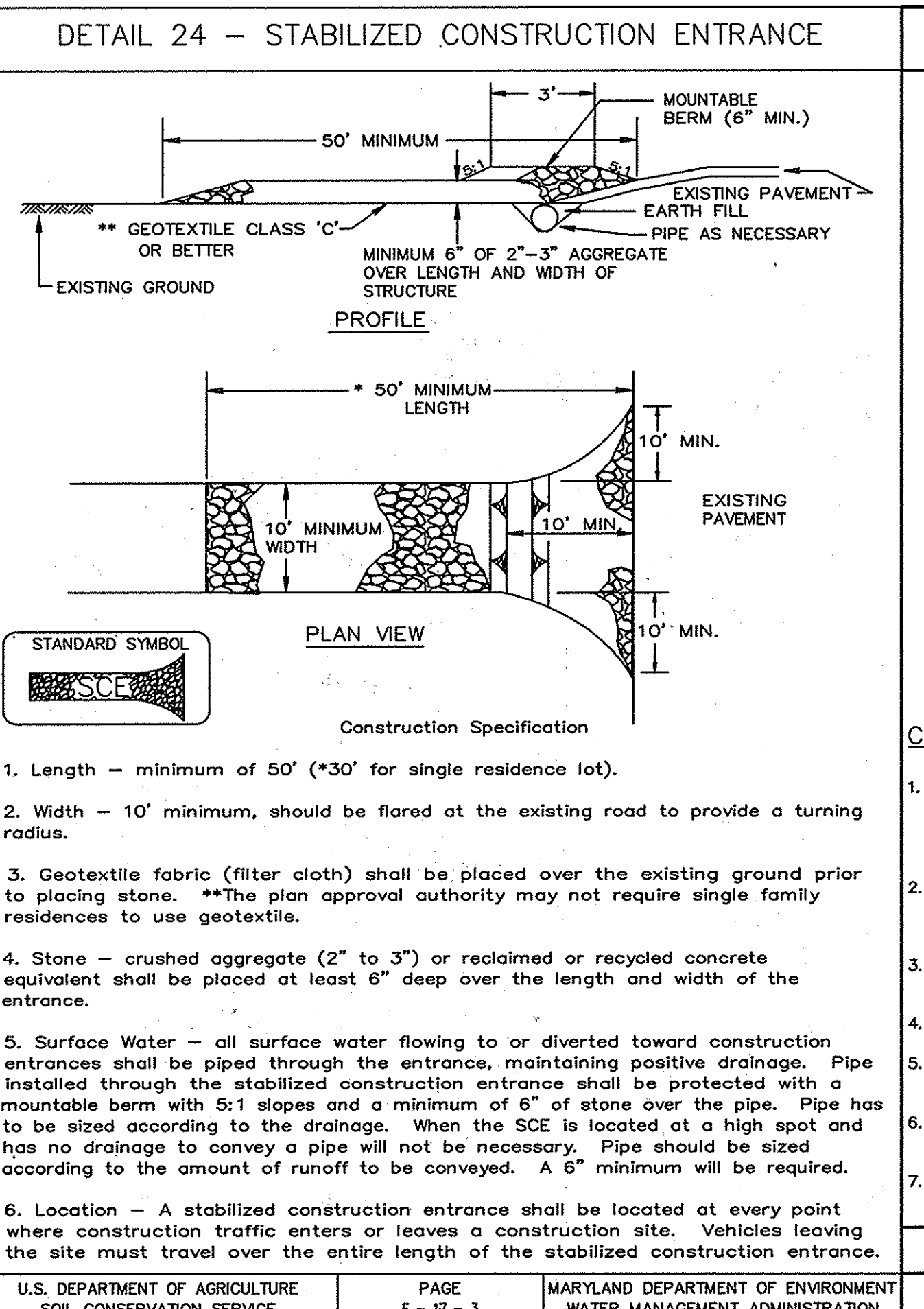
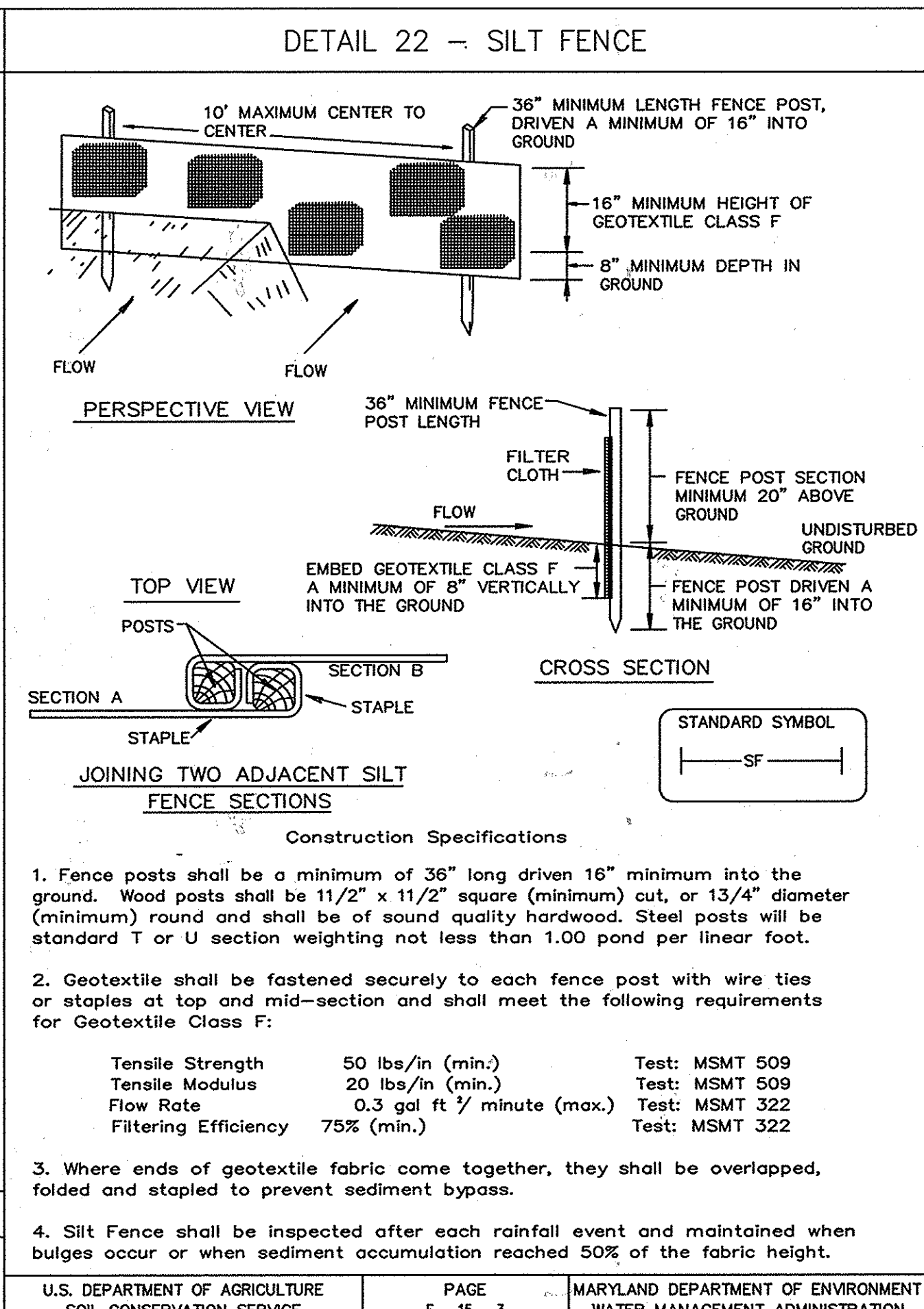
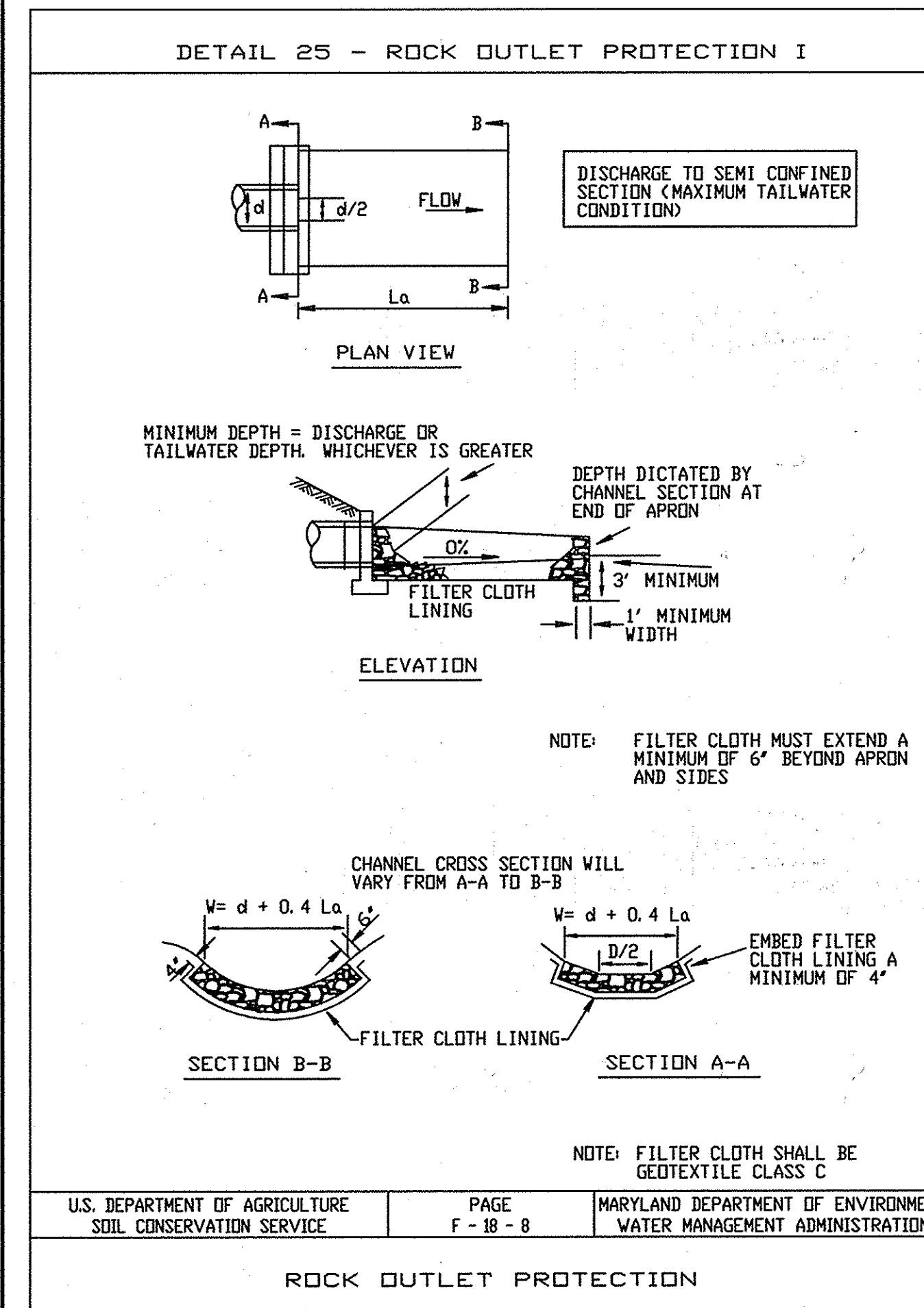
"I / WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE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

Evelyn E. Tomlin 9-27-2011
SIGNATURE OF DEVELOPER DATE
(PRINT NAME BELOW SIGNATURE)

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Mark ...</i> 10/19/11 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Howard ...</i> 10/19/11 ACTING CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE</p>	<p>OWNER/DEVELOPER:</p> <p>HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES 11260 ROGER BACON DRIVE SUITE 300 COLUMBIA, MARYLAND 21046 PH. (410) 313-6419</p>	<p>SCS ENGINEERS CONSULTING ENGINEERS 11260 ROGER BACON DRIVE SUITE 300 RESTON, VIRGINIA 20190 PH. (703) 471-6150 FAX. (703) 471-6676</p>		<table border="1"> <tr> <td>DES. AST/MAK</td> <td>▲</td> <td>SHEET ADDED TO SDP-05-074</td> <td>09/20/11</td> <td>SHEET TITLE:</td> </tr> <tr> <td>DRN. KEA</td> <td>▲</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CHK. MAK</td> <td>▲</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DATE: 06/11</td> <td>▲</td> <td></td> <td></td> <td></td> </tr> <tr> <td>BY NO.</td> <td></td> <td>REVISION</td> <td></td> <td>DATE</td> </tr> </table>	DES. AST/MAK	▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:	DRN. KEA	▲				CHK. MAK	▲				DATE: 06/11	▲				BY NO.		REVISION		DATE	<p>PROJECT TITLE: ALPHA RIDGE LANDFILL RED LINE OF POND 4A&4B MODIFICATIONS CAPITAL PROJECT NO. C-0299-A</p> <p>3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p>	<p>SCALE: AS SHOWN</p> <p>SHEET B25 OF 27</p>
DES. AST/MAK	▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:																											
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BY NO.		REVISION		DATE																											



ROCK OUTLET PROTECTION

Construction Specifications

- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-8A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

RIP-RAP OUTFALL SCHEDULE:

E1
 $L_a = 8.00'$
 $W = 4.00'$
 MSHA CL.I RIP-RAP
 $D_{50} = 9.50"$
 THICKNESS = 3.00'

E2
 $L_a = 12.00'$
 $W = 6.50'$
 MSHA CL.I RIP-RAP
 $D_{50} = 9.50"$
 THICKNESS = 3.00'

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT CONTROL CERTIFICATION BLOCKS

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

John R. Roberts
 HOWARD SCD
 DATE 10/10/11

PROJECT ADDRESS: 2350 MARRIOTTVILLE ROAD, MARRIOTTVILLE, MD 21104
 LOT/PARCEL: 253, 220, 11, 302

LIBER/FOLIO: 10-847/806, 10-876/215, 10-891/314
 ZONE: RC-DEO
 TAX/ZONE MAP: 10 & 16

WATER CODE: PUBLIC, CONTRACT 44-4158
 SEWER CODE: PRIVATE, EXISTING
 CENSUS TR.: 6030.00

DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY, MARYLAND
Thomas J. Sutter 10/20/11
 DIRECTOR DATE
Bob Williams 10/13/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Walt Sember 10/20/11
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
Michael P. ... 10/19/11
 DIRECTOR OF PUBLIC WORKS DATE
Howard E. ... 10/19/11
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
 HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES
 6751 GATEWAY DRIVE, #514
 COLUMBIA, MARYLAND 21046
 PH. (410) 313-6419

SCS ENGINEERS
 CONSULTING ENGINEERS
 11260 ROGER BACON DRIVE
 SUITE 300
 RESTON, VIRGINIA 20190
 PH. (703) 471-6150
 FAX. (703) 471-6676

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 LICENSE NO. 30002
 EXPIRATION DATE: 3.17.2012

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.

DES. AST/MAK	▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN. KEA	▲			
CHK. MAK	▲			
DATE: 06/11				
BY NO.		REVISION		DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

Michael Kalish 9-23-11
 SIGNATURE OF ENGINEER DATE
 (PRINT NAME BELOW SIGNATURE)

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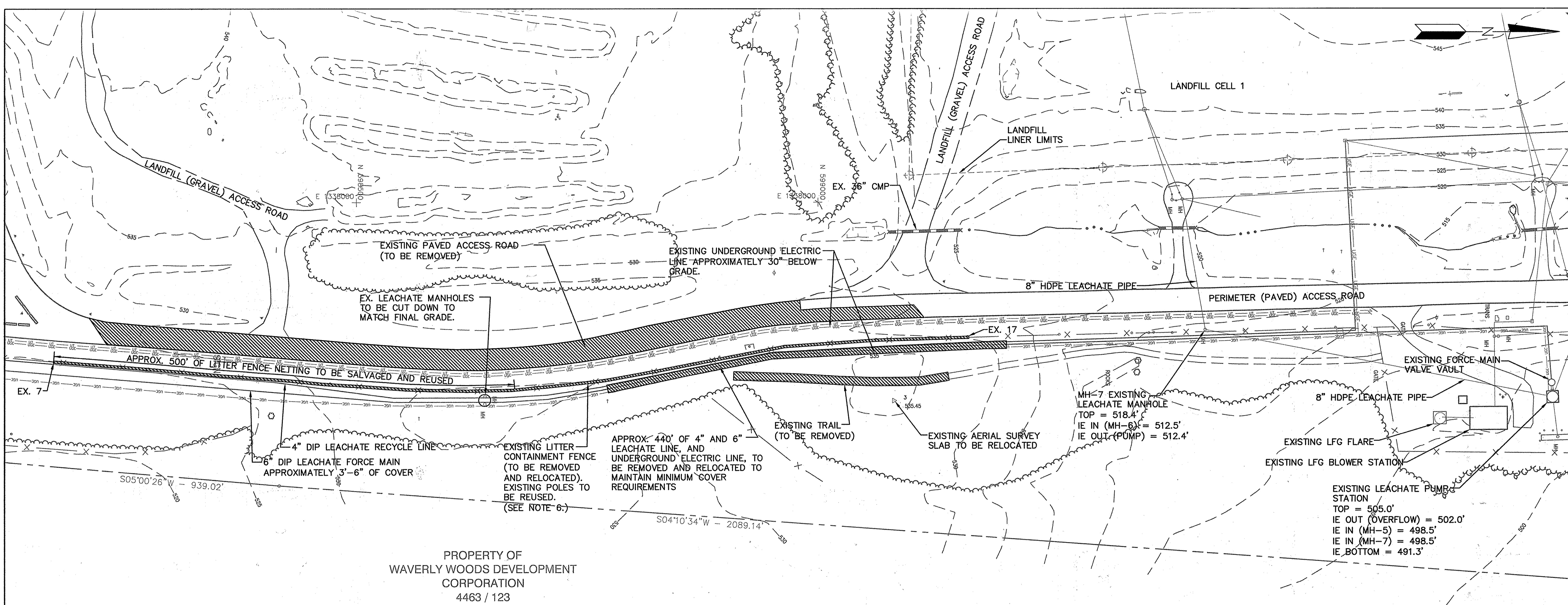
Evelyn E. Tomlin 9-27-2011
 SIGNATURE OF DEVELOPER DATE
 (PRINT NAME BELOW SIGNATURE)

PROJECT TITLE: ALPHA RIDGE LANDFILL
 RED LINE OF POND 4A&4B MODIFICATIONS
 CAPITAL PROJECT NO. C-0299-A

SCALE: AS SHOWN

SHEET B26 OF 27

3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 SDP-05-074



PROPERTY OF
WAVERLY WOODS DEVELOPMENT
CORPORATION
4463 / 123

PLAN VIEW
SCALE: 1"=50'

- GENERAL NOTES:**
- THE PURPOSE OF THIS PLAN IS TO PROVIDE ADDITIONAL EXISTING CONDITIONS DATA BEYOND THAT PROVIDED IN THE ORIGINAL PLAN SET
 - SITE-SPECIFIC BENCH MARKS:
BENCHMARK #3:
N 599,082.44
E 1,338,216.22
ELEVATION 535.45'
BENCHMARK #4:
N 599,875.59
E 1,338,174.12
ELEVATION 506.01'
 - UTILITY INFORMATION ON WEST SIDE OF PERIMETER ACCESS ROAD BASED ON BEST AVAILABLE DESIGN DATA, AS BUILT INFORMATION NOT AVAILABLE.
 - REMOVE TOP SECTIONS OF LEACHATE MANHOLES AND VALVE HAND HOLES WITHIN PROJECT AREA TO ALLOW FOR CONSTRUCTION OF TRAFFIC RATED TOPS AT PROPOSED FINAL GRADE.
 - FOR REALIGNMENT OF EXISTING LEACHATE PIPES SEE SHT B17, YARD PIPING PLAN.
 - EXISTING POLES BETWEEN POLE #7 AND #17 TO BE REMOVED AND REUSED (APPROX. 12 POLES). APPROXIMATELY 500' OF EXISTING FENCE NETTING SHALL BE SALVAGED AND REUSED. REMAINING NETTING SHALL BE REMOVED AND DISCARDED.
 - CONTRACTOR SHALL CAREFULLY EXCAVATE IN THE VICINITY OF THE UTILITIES AND SHALL REPAIR ANY DAMAGE TO ORIGINAL CONDITION AT NO ADDITIONAL CHARGE TO THE COUNTY.

NOTE:
THE EXISTING DATA SHOWN HEREON HAS BEEN REPRODUCED FROM DRAWINGS PROVIDED TO SCS ENGINEERS BY OTHERS, DOES NOT NECESSARILY REPRESENT AS-BUILT CONDITIONS AND IS PROVIDED FOR INFORMATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE AS-BUILT CONDITIONS THAT INTERFACE WITH NEW CONSTRUCTION AND NOTIFY THE ENGINEER IMMEDIATELY IF CONDITIONS VARY FROM THOSE SHOWN HEREON.

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30002, EXPIRATION DATE: 3.17.2012.

EXISTING AND DEMOLISH LEGEND

STRUCTURES TO BE DEMOLISHED

BENCHMARKS

EX. 17 EXISTING LITTER FENCE POLES



PROJECT ADDRESS 2350 MARRIOTTVILLE ROAD MARRIOTTVILLE, MD 21104		LOT/PARCEL 253, 220, 11, 302
LIBER/FOLIO 10-847/006 10-878/215 10-891/314	ZONE RC-DEO	TAX/ZONE MAP 10 & 16
WATER CODE PUBLIC, CONTRACT 44-4158	SEWER CODE PRIVATE, EXISTING	CENSUS TR. 6030.00

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Thomas F. Butler 10/20/11
DIRECTOR DATE

W. J. ... 10/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Keith ... 10/20/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

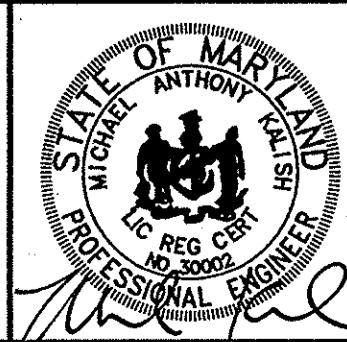
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark ... 10/19/11
DIRECTOR OF PUBLIC WORKS DATE

Howard ... 10/19/11
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

OWNER/DEVELOPER:
HOWARD COUNTY DPW, BUREAU OF ENVIRONMENTAL SERVICES
6751 GATEWAY DRIVE, #514
COLUMBIA, MARYLAND 21046
PH. (410) 313-6419

SCS ENGINEERS
CONSULTING ENGINEERS
11280 ROGER BACON DRIVE
SUITE 300
RESTON, VIRGINIA 20190
PH. (703) 471-6150
FAX. (703) 471-6676



DES. AST/MAK		▲	SHEET ADDED TO SDP-05-074	09/20/11	SHEET TITLE:
DRN. KEA		▲			EXISTING SITE CONDITIONS SUPPLEMENT AND DEMOLITION PLAN
CHK. MAK		▲			
DATE: 06/11		▲			
BY NO.		▲	REVISION	DATE	

PROJECT TITLE:
ALPHA RIDGE LANDFILL
RED LINE OF POND 4A&4B MODIFICATIONS
CAPITAL PROJECT NO. C-0299-A

3rd ELECTION DISTRICT

SCALE:
AS SHOWN

SHEET
B27 OF 27

HOWARD COUNTY, MARYLAND

SDP-05-074