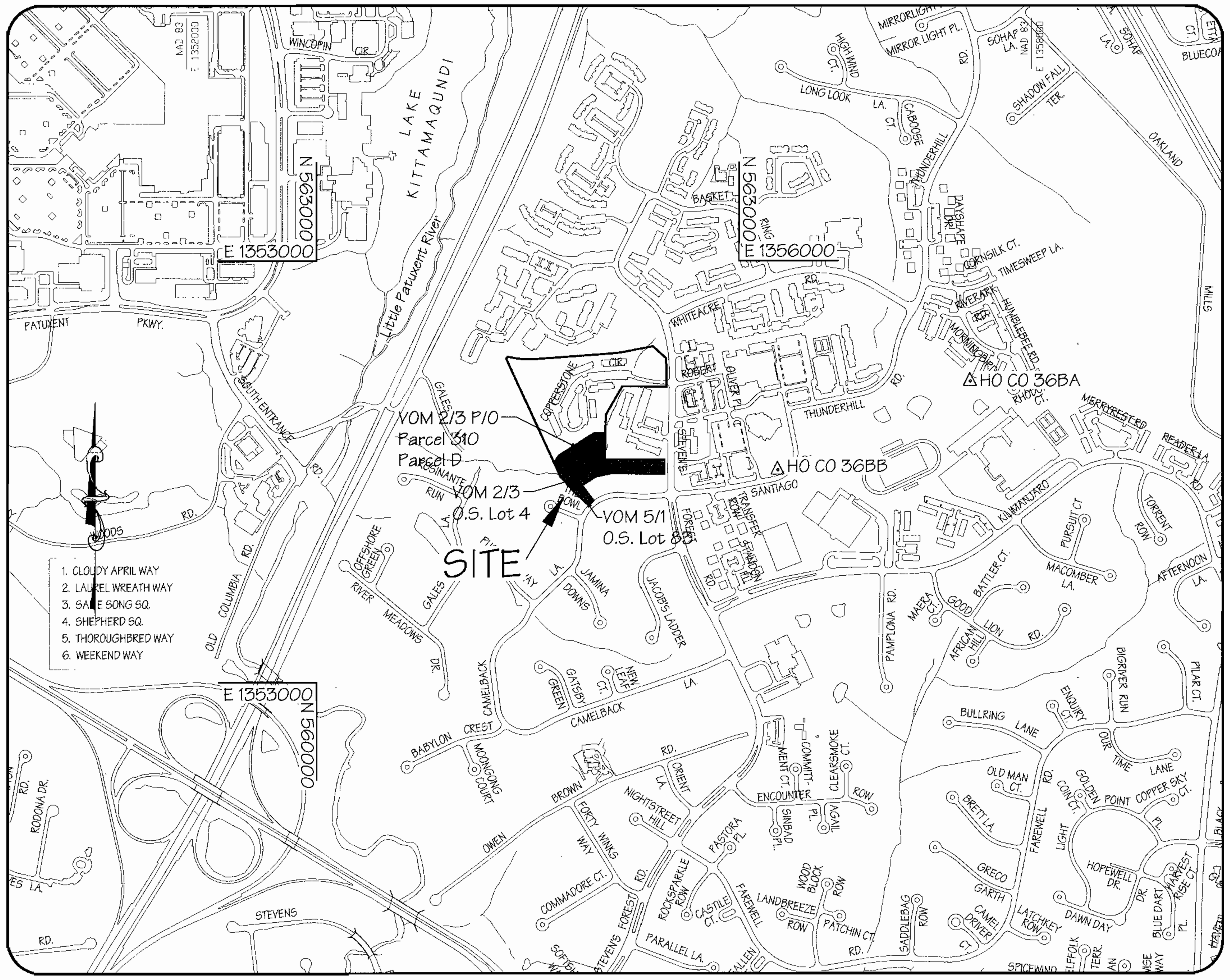
GENERAL NOTES

1. THE PURPOSE OF THIS SITE DEVELOPMENT PLAN IS TO PROVIDE CONSTRUCTION DOCUMENTS FOR THE RECONSTRUCTION OF AN EXISTING POND LOCATED ON COLUMBIA ASSOCIATION OPEN SPACE.
2. All construction shall be in accordance with the latest standards and specifications of Howard County Design Manual Vol. IV and current MDE and MSHA standards & specifications.
3. Project Background:
   - Location: Village of Oakland Mills, Columbia, Maryland
   - Tax Map: Map 36
   - Tax Map Lots: VOM 2/3, Open Space Lot 83 & VOM 5/1, Open Space Lot 4
   - Grid: 9
   - Election District: 6 th
4. Existing zoning: New Town- Credited Open Space Land use per FDP 60 and FDP 79-A-III.
5. Current Plat and Deed References:
   - VOM 2/3, Open Space Lot 4; Plat Book 17, Folio 91; Deed: L. 663, F. 307
   - VOM 5/1, Open Space Lot 83; Plat Book 15, Folio 96; Deed: L. 563, F. 624
6. The Boundary shown hereon is based on the above referenced plats. Plat Book 17, Folio 91 recorded among the Land Records of Howard County on November 24, 1969. Plat Book 15, Folio 96 recorded among the Land Records of Howard County on February 7, 1969.
7. Horizontal and vertical datum's are related to the Maryland State Plane Coordinate System as projected from Howard county control stations No. 36BA and 36BB (NAD 83).
8. Any damage caused by the contractor to existing Camelback Lane public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the contractors expense.
9. The existing utilities shown hereon are located from field surveys and construction drawings of record. The contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service. Any damage incurred to utilities or existing features due to contractor's operation shall be repaired immediately at the contractor's expense.
10. There may be additional utilities not shown on these plans. The engineer assumes no responsibility for utility locations not shown and it shall be the responsibility of the contractor to verify the locations of all existing utilities within the limits of construction and notify the engineer of any discrepancies, prior to the start of construction.
11. Site Analysis Data:
    - a. Total project Area : O.S. Lot 4 - 1.791 Ac ; O.S. Lot 83 - 0.1783 Ac (1.9693 Ac total)
    - b. Existing Offsite Drainage easement area: 0.37 Acres
    - c. Proposed Additional offsite Drainage easement area: 0.66 Acres
    - d. Area of Plan Submission: 3.00 Acres
    - e. Limit of Disturbed Area: 1.81 Acres
    - f. Present Use: Open Space - filled in pond
    - g. Proposed Use: Open Space - Reconstructed SWM Pond
    - h. Applicable DPZ File References: F-68-94c, F-70-29, FDP 60, FDP 79-A-III, F-03-66 (Plat Nos. 15746-47)
12. A wetland study for the subject site was completed by LDE, Inc. in February, 1997.
13. A Wetland Permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Maryland Department of the Environment is required for the proposed disturbances to the onsite nontidal wetlands, wetland buffers and 100 year floodplain prior to beginning construction. The required permit applications have been completed and submitted to MDE. The assigned MDE tracking number is 02-NT-0250/ 200264247. Permit issued March 18,2003.
14. This project is located on existing New Town Open Space lots recorded prior to 1992. Therefore, this project is exempt from the forest conservation requirements. For informational purposes, the total area of existing forest to be retained on the two (2) open space lots is 40,000 square feet. See Subdivision, Subtitle Section 16.1202(b)(I)(iv).
15. This project is subject to the Howard County Landscape requirements per Section 16.124 of the Land Development and Subdivision Regulations. Landscaping for the proposed reconstructed pond will be provided in accordance with the Howard County Landscape Manual.
16. Adjustments to the sequence of construction shall be approved by the Howard County Department of Inspections, Licenses and Permits, prior to such adjustments.
17. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection at (410) 313-1880 at least five (5) working days prior to the start of work.
18. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work.
19. The existing 8" public sewer located within the existing and proposed Bowl Pond will be relocated as shown on the site development plan. Refer to Water and Sewer Contract C-268, sheet 5B of 8 for plan and profile of the relocated sewer.
20. The reconstructed Bowl Pond was designed as a wet pond (MDE Code P-2) to provide 75% water quality and partial quantity management in accordance with the Maryland Department of the Environment "2000 Maryland Stormwater Design Manual, Volumes I & II" and the latest version of "Howard County Design Manual, Volume I- Storm Drainage"
21. Three (3) forebays, located at the pond inflow points will provide pre-treatment for the reconstructed Bowl Pond.
22. The stormwater management pond shall be privately owned and maintained by the Columbia Association.
23. All fill shall be rolled to a minimum degree of compaction of 95% of the dry unit weight as determined by AASHTO T- 180.
24. The existing floodplain limit shown hereon is taken from the approved Howard County Little Patuxent River Study. The 100 year elevations in the pond and forebays is based on TR-20
25. A Geotechnical Report was completed by Hillis Carnes Engineering Associates for the existing pond embankment in March, 1997. Refer to boring logs and recommendations on sheet 7.
26. Earthwork quantities shown on this plan are estimated and should not be used for bid purposes. Contractors should perform independent earthwork analysis for bid purposes.
27. Deviations from these plans and specifications without prior written consent of the civil engineer may cause the work to be unacceptable.
28. The dimensioned distances shall govern if scaled and dimensioned distances on this plan are found to be in disagreement.
29. No clearing, grading or construction is permitted within the nontidal wetlands or their buffers until the MDE Permit is issued.
30. All unsuitable material excavated from the site (dredge spoils) shall be trucked to an approved offsite location. No Material shall be ere stockpiled onsite within the wetlands or their buffers.
31. Clearing, grading or construction is not permitted within the limit of wetlands, 25' wetlands buffer, streams or 50' stream buffer, floodplain, except as shown on this plan approved by the Department of Planning and Zoning.
32. The existing topography shown hereon within the limits of disturbance is taken from a field run survey with two foot contour intervals prepared by LDE, Inc. in March, 1997 and supplemented in February, 2002. The remainder of the topography shown was complied from Howard County Aerial Topography.
33. The gravel access road shown off Camelback Lane on Open Space Lot 83 shall remain after the completion of construction.
34. Capital project number related to the Bowl Pond site:
    - a.) D-1127, pond reconstruction/ drainage improvements.
    - b.) W-8212, relocation of existing 8" sewer. Contract No. 268 W & S.
35. A temporary grading easement and permanent stormwater management access, drainage and utility easement have been obtained by the Columbia Association from Cornerstone/ Stevens Forest, Inc.. The easements are shown on a resubdivision plat titled "Revision Plat, Columbia, Village of Oakland Mills-Stevens Forest, Section 2, Area 3 O.S. Lot 4 and P/O Parcel D & Section 5, Area 1, O. S. Lot 83", dated October, 2002 and recorded among the Land Records of Howard County as plat No. 15746-47.
36. The Howard County Council approved the abandonment of the portion of the existing public sewer easement of the existing public sewer easement shown hereon to be abandoned at the October 30, 2002 meeting; Resolution No. 163-2002.
37. The Department of Planning and Zoning granted approval for all "necessary disturbances" shown within the 100 year floodplain, non-tidal wetlands, wetland buffers, and streams in June, 2002.
38. The Department of Public Works approved Design Manual Waivers from Volume I, Chapter 5, Sections 5.2.1.A, 5.2.3.B.1, 5.2.4.I, 5.2.5.P and 5.2.6.D.5 by letter dated June 7, 2002.
39. The Department of Public Works approved a Design Manual Waiver from Volume I, Chapter 5, Section 5.2.4.I by letter dated November 13, 2002 to allow the relocated sewer to be within 25' of the toe of the pond embankment.



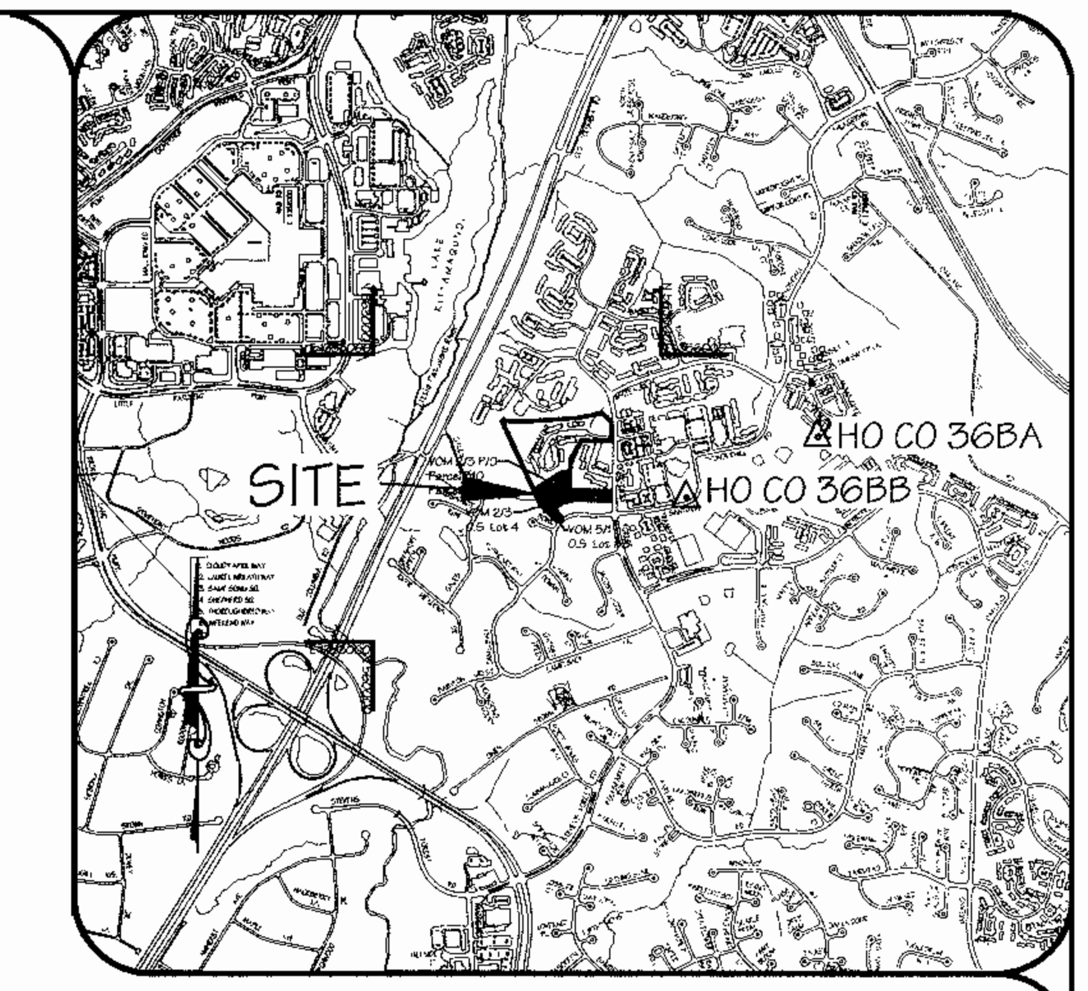
LOCATION MAP

Scale: 1" = 600'

BENCHMARKS

1.) Howard County Control Station 36BA. Elevation= 417.47
Standard stamped disk set on a 3' deep cylindrical concrete base 1.5' south of an existing 4' asphalt pathway, 61 L.F. southwest of an existing storm drain inlet.
N. 562135.523 E. 1357571.64

2.) Howard County Control Station 36BB. Elevation= 409.97
Standard stamped disk set on a 3' deep cylindrical concrete base 6.5 L.F. north of face of curb of Santiago Road south of the Oakland Mills Interfaith Center.
N. 561504.23 E. 1356203.68



VICINITY MAP

Scale: 1" = 2000'

SHEET INDEX

Sheet Number	Description
1	Cover Sheet
2	Site Development Plan
3	Grading & Sediment and Erosion Control Plan
4	Sediment Control Notes & Details & Drainage Area Map
5	Sediment Control Notes & Details
6	Stormwater Management Notes & Details
7	Stormwater Management Notes & Details
8	Stormwater Management Details
9	Sediment Basin Plan, Notes, & Details
10	Existing Conditions Plan
11	Landscape Plan

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE/ PROPOSED LIMIT OF DISTURBANCE
- EXISTING PIPE
- PROPOSED PIPE
- RIP-RAP OUTLET APRON
- LIMIT OF DISTURBANCE (For dam construction only)
- STABILIZED CONSTRUCTION ENTRANCE
- SILT FENCE (SF)
- EARTH DIKE
- NON-TIDAL WETLAND LIMIT (W)
- WETLAND BUFFER LIMIT (WB)
- APPROX. FLOOD PLAIN LIMIT
- 75' STREAM BUFFER (SB)
- NO WOODY VEGETATION ZONE

PUBLIC 100 YEAR FLOODPLAIN DRAINAGE & UTILITY EASEMENT LINE TABLE

NO.	BEARING	DISTANCE
F1	N17°42'24"W	12.04
F2	N53°20'36"W	30.63
F3	N23°56'12"W	16.76
F4	N55°13'14"W	17.02
F5	N73°11'11"W	18.97
F6	N33°58'19"W	9.74
F7	N24°00'54"E	9.06
F8	N34°36'21"E	36.06
F9	N14°47'50"E	29.38
F10	N41°10'59"E	18.14
F11	N10°24'08"E	12.99
F12	N25°17'08"E	12.97
F13	N06°49'48"E	11.30
F14	N28°27'11"W	13.32
F15	N78°48'23"W	7.63
F16	S59°55'02"W	22.22
F17	S53°47'48"W	33.01
F18	S52°46'39"W	40.07
F19	S48°59'27"W	25.81
F20	S45°02'54"W	37.18
F21	S64°05'14"W	22.06
F22	S79°25'03"W	9.02
F23	S88°45'55"W	14.83
F24	N77°06'36"W	16.43
F25	N55°08'45"W	56.64
F26	N67°36'28"W	22.28
F27	N28°15'25"E	10.55
F28	N15°26'06"E	28.64
F29	N25°22'50"E	13.18
F30	N38°32'26"E	16.05
F31	N45°33'16"E	17.78
F32	N51°27'18"E	14.80
F33	N69°49'28"E	35.38
F34	N55°00'31"E	23.75
F35	N66°07'29"E	8.69
F36	N74°09'25"E	70.93
F37	N70°52'12"E	92.33
F38	N64°24'51"E	25.72
F39	N34°50'50"E	12.63
F40	N07°48'17"E	16.08
F41	N05°46'59"E	71.72
F42	N01°36'21"E	138.31
F43	N25°24'27"E	68.92
F44	N33°05'12"E	88.16
F45	N28°48'05"E	90.22
F46	N24°41'19"E	95.26
F47	N18°29'38"E	91.12
F48	N12°02'34"E	46.92
F49	N28°39'48"E	105.47
F50	N22°39'56"E	43.88
F51	N15°58'12"E	20.77
F52	N08°29'43"E	107.36

SITE DEVELOPMENT PLAN
BOWL POND RECONSTRUCTION
Columbia
Village of Oakland Mills
Steven's Forest
Section Two - Area Three
Open Space Lot 4 and P/O Parcel 310, Parcel D &
Section Five - Area One
Open Space Lot 83
6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/21/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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.

Bruce D. Burton — SIGNATURE OF ENGINEER — DATE 4/1/03

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — V.P. — DATE 4-1-03

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER — 4/1/03

ADDRESS CHART

5976	CAMELBACK LANE

REVISIONS

No.	Date	Description

Subdivision Name: Village of Oakland Mills			Sect/Area: 2/3 & 5/1		Parcel/No.: O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No. 3 & 9	Zone NEW-TOWN	Tax Map No. 36	Election District 6th	Census Tract 6066.03
Water Code N/A			Sewer Code N/A		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED		SCALE
S.D.H.	Cover Sheet BOWL POND Village of Oakland Mills Steven's Forest Capital Project #D-1127 Section Two - Area Three Open Space Lot 4 & P/O Parcel 310, Parcel D and Section Five - Area One Open Space Lot 83 Tax Map 36 6th Election District - Howard County, Maryland Previous Submittals:	As Shown
DRAWN: J.D.R. MBJ		DRAWING: 1 of 11
CHECKED: B.D.B.		JOB NO.: 01-008
DATE: 3/2002 Rev 9/02 Rev 1/03	OWNER/DEVELOPER: COLUMBIA ASSOCIATION 10221 Wincopin Circle, Suite 100 Columbia, Maryland 21044-3410 (410) 381-0591	FILE NO.

SDP-02-131

STORMWATER MANAGEMENT SUMMARY TABLE PRIVATE SWM RETENTION POND TOTAL DRAINAGE AREA = 66.4 ACRES			
STORAGE REQUIREMENT		VOLUME	REMARKS
WQv	Required:	135,918 cu. ft.	Approx. 43%
	Provided:	58,477 cu. ft.	of WQv prov'd
REv	Required:	33,979 cu. ft.	Included as part
	Provided:	33,979 cu. ft.	of WQv
Cpv	Required:	176,575 cu. ft.	**
	Provided:	0.00 cu. ft.	
Qp10	Required:	N/A	10 Yr passed
	Provided:		w/ 2.19' freeboard
Qp100	Required:	N/A	100 Yr passed
	Provided:		w/ 1.29' freeboard

** The CPv storage cannot be provided due to the spatial constraints and the requirement to pass the 5 year storm below the emergency spillway crest elevation.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/2/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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.

Bruce D. Burton — 4/1/03

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4-1-03

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

4/1/03

REVISIONS		
No.	Date	Description

Subdivision Name: Village of Oakland Mills				Sect/Area: 2/3 & 5/1	Parcel/No.: O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No. 3 & 9	Zone NEW-TOWN	Tax Map No. 36	Election District 6th	Census Tract 6066.03
Water Code N/A			Sewer Code N/A		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.
DRAWN: J.D.R. M.B.J.
CHECKED: S.W.C.
DATE: 3/2002, Rev 9/02, Rev 1/03

Site Development Plan
BOWL POND
Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER: COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SCALE: 1"=30'
DRAWING: 2 of 11
JOB NO.: 01-008
FILE NO.:

SDP-02-131

F:\Land Projects R2\BOWL\dwg\BOWL-PLAN.dwg, (2)SDP, 4/1/2003 9:27:00 AM

Village of Oakland Mills
Conerstone/Stevens Forest, Inc.
L.3927, F.135
P.B. 17, F.91
Zone: New Town
Parcel "D"
Village of Oakland Mills
D.C.H., Inc. Realty, Co.
Zone: New Town
Temporary Basin Data
Top of Basin Wet Storage Elev.= 335.80'
2YR Basin Elev.= 336.54'
10YR Basin Elev.= 338.23'
100YR Basin Elev.= 339.65'
Public 100 Year Floodplain, Drainage, & Utility Easement Plat #15746-47
Limit of Disturbance @ Proposed Treeline
MSHA Cl. II Rip-Rap, 32" Deep over filter cloth. Line entire bottom width of emergency spillway and 1.0' up side slopes. Line entire plunge pool up to Elev.= 334.00'.
Basin Outfall Data
2YR: Q= 0.60cfs / V= 3.16 fps
10YR: Q= 0.80 cfs / V= 3.45 fps
100YR: Q= 0.90 cfs / V= 3.57 fps
No Woody Vegitation Zone
Ex. Pond W.S.E.L. @ 343.70
Temporary Sediment Basin/Permanent Stormwater Management Retention Pond Private Ownership & Maintenance Hazard Class "A"
10" Temp. dewatering device
5' Safety Bench
(Per latest approved Howard County Little Patuxent River study dated September, 1986) See Sheet 1 for Floodplain Line Table
Patricia M. Imwold & John W. Hunt J/T
L. 1055 F.22
Zone: New Town
Ex. 40' Public Drainage & Utility Easement
Temp. sandbag/ stone diversion.
OPEN SPACE LOT 4
1.791 Ac.±
N88°54'14"W 423.11'
S88°54'18"E 370.00'
Existing Public Drainage Easement (Plat book 17, Folio 91)
Limit of Disturbance @ Proposed Treeline
STEVEN'S FOREST ROAD (80' R/W)
Ex. 42" RCP
Ex. SMH 3489
Ex. SMH 3490
Ex. MH 3486
Ex. 3487
Ex. Public 8" S Contr. #C-288 W&S
No Woody Vegitation Zone
MSHA CL II Rip-Rap 19" deep over approved filter cloth
Temp. sandbag/ stone diversion
Ex. House
Staging Area
Prop. 12" Gravel Temp. Haul Road Permanent Pond Access (to remain)
CAMELBACK LANE (60' R/W) (Howard County Local Road)
Ex. SMH 3711
Ex. SMH 3712
Ex. 8" S Contr. #C288 W&S
OPEN SPACE LOT 83
0.178 Ac.±
S46°53'27"E 135.01'
L= 50.00'
R= 300.37'
Limit of Disturbance
Village of Oakland Mills Section 5 Area 1
P.B. 15 F.96
Zone: New Town
THE BOWL
Ex. House
NO STOCKPILE ON SITE
12
11
10
9
8
7
6
5
4
3
2
1

BASIN DESIGN DATA SUMMARY

Top of Wet Storage Volume, Elev:	335.80
Cleanout Elev:	335.30
Top of Dry Storage Vol., Elev:	336.70
Top of 10" Draw Down Standpipe, Elev:	336.70
Begin Perforations on Draw Down Standpipe, Elev:	335.80
Proposed 2 Year Peak Discharge (inflow):	4.2 cfs
Proposed 10 Year Peak Discharge (inflow):	12.7 cfs
Proposed 2 Year Peak Discharge (outflow):	0.60 cfs
Proposed 10 Year Peak Discharge (outflow):	0.80 cfs
2 Year Peak Elevation:	336.54
10 Year Peak Elevation:	338.23

LEGEND

Limit of disturbance for Dam construction	• • • • • • • •
No Woody Vegetation Zone	— · · —
Silt Fence	—SF—SF—SF—
Super Silt Fence	—SSF—SSF—
Limit of disturbance for Sewer relocation and Pond/Forebay storage areas @ Proposed Treeline	⌒⌒⌒⌒
Stabilized Construction Entrance	SCE

NO WORK IS ALLOWED WITHIN THE ONSITE CLASS I STREAMS FROM MARCH 1st THRU JUNE 15th PER MDE REQUIREMENTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 7/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/21/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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 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 — DATE 4/1/03

STATE OF MARYLAND BRUCE DAVID BURTON No. 19184 REGISTERED PROFESSIONAL ENGINEER

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4.1.03

STATE OF MARYLAND BRUCE DAVID BURTON No. 19184 REGISTERED PROFESSIONAL ENGINEER

4/1/03

REVISIONS

No.	Date	Description

Subdivision Name:	Sect/Area	Parcel/No.
Village of Oakland Mills	2/3 & 5/1	O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83

Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No.	Zone	Tax Map No.	Election District	Census Tract
	3 & 9	NEW-TOWN	36	6th	6066.03

Water Code	Sewer Code
N/A	N/A

LDE, INC.

9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.
DRAWN: J.D.R.
CHECKED: B.D.B.
DATE: 3/2002, Rev 9/02, Rev 1/03

Grading and Sediment Control Plan

BOWL POND

Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER: COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SCALE: 1"=30'
DRAWING: 3 of 11
JOB NO. 01-008
FILE NO.

SDP-02-131

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. 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, (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (Section G) for permanent seeding, sod, temporary seeding, and mulching. Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site	3.00	Acres
Area Disturbed	1.98	Acres
Area to be roofed or paved	0.14	Acres
Area to be vegetatively stabilized	1.84	Acres
Total Cut	5723	Cu. Yds.
Total Fill	1967	Cu. Yds.

Offsite waste/borrow area location 3756 Cu. Yds. to be trucked to an offsite location with an active grading plan.

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.

HOWARD SOIL CONSERVATION DISTRICT

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:

1) PREFERRED -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 600 lbs per 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 per acre 30-0-0 ureaform fertilizer (9 lbs/1000sq. ft.)

2) ACCEPTABLE -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 1000 lbs per 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 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs per acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue and 2 lbs. per acre (.05 lbs/1000sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch 2 tons / acre well anchored straw.

MULCHING -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. 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/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

MAINTENANCE -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

HOWARD SOIL CONSERVATION DISTRICT

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed 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 per acre 10-10-10 fertilizer (14 lbs/1000sq. ft.).

SEEDING -- For periods March 1 thru April 30, and from August 15 thru October 15 seed with 2-12 bushels per acre of annual rye (3.2 lbs/1000sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs/1000sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per 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 per acre (70 to 90 lbs/1000sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged 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.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. 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.
ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
iii. 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.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
   a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
   b. Organic content of topsoil shall be not less than 1.5 percent by weight.
   c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
   d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization --Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. 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.
ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
iii. 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.
iv. 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.

VI. 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:

i. 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:
   a. 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.
   b. 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.
   c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

ii. 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.

References:Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub.#1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit. — 1 Day
2. Notify the Howard County Department of Public Works Construction Inspection Division at 410-313-1855 at least 48 hours prior to beginning construction. — 1 Day
3. Field stake limits of disturbance in accordance with the approved grading and sediment control plan. (Sheet 3) — 1 Day

Note: MDE requires the closure of the onsite streams from March 1 through June 15. No in-stream work is allowed during the closure period.

PHASE I - SEDIMENT CONTROL FOR 8" SEWERMAIN

4. Install SCE with gravel access road and silt fence along proposed relocated 8" sewer alignment, as shown on the approved grading and sediment control plan. — 3 Days
5. Excavate for and construct 8" public sewer. Utilize the filter bag device during trench construction. Note: In the event the material excavated from the proposed sewer trench is unsuitable to use for backfill, the material shall be removed from the site and trucked to an approved spoil location. Material may not be stockpiled within the wetlands, wetland buffers, streams or stream buffers or 100 year floodplain — 8 Days
6. Immediately stabilize all disturbed areas at the end of each day in accordance with the temporary seeding notes. — Daily
7. Once the relocated sewer is fully operational and with the permission of the sediment control inspector, remove all silt fence along the sewer alignment that may interfere with the construction of the pond. — 1 Day

PHASE II - SEDIMENT CONTROL FOR POND RECONSTRUCTION

8. Install perimeter controls, including silt fence, super silt fence, sandbag/ stone diversions, RPS, and temporary diversion pipes. — 5 Days

Note: The temporary sandbag/ stone dams and diversion pipes shall be checked after every storm event to insure they are operating properly. The temporary diversion pipes shall remain in place until all disturbed areas are completely stabilized and the basin is converted to a permanent pond.

9. Clear and grub for pond/ sediment basin. Excavate basin to final bottom elevation (334.5). Install 24" RCP (S-3 to S-4). — 1 Week

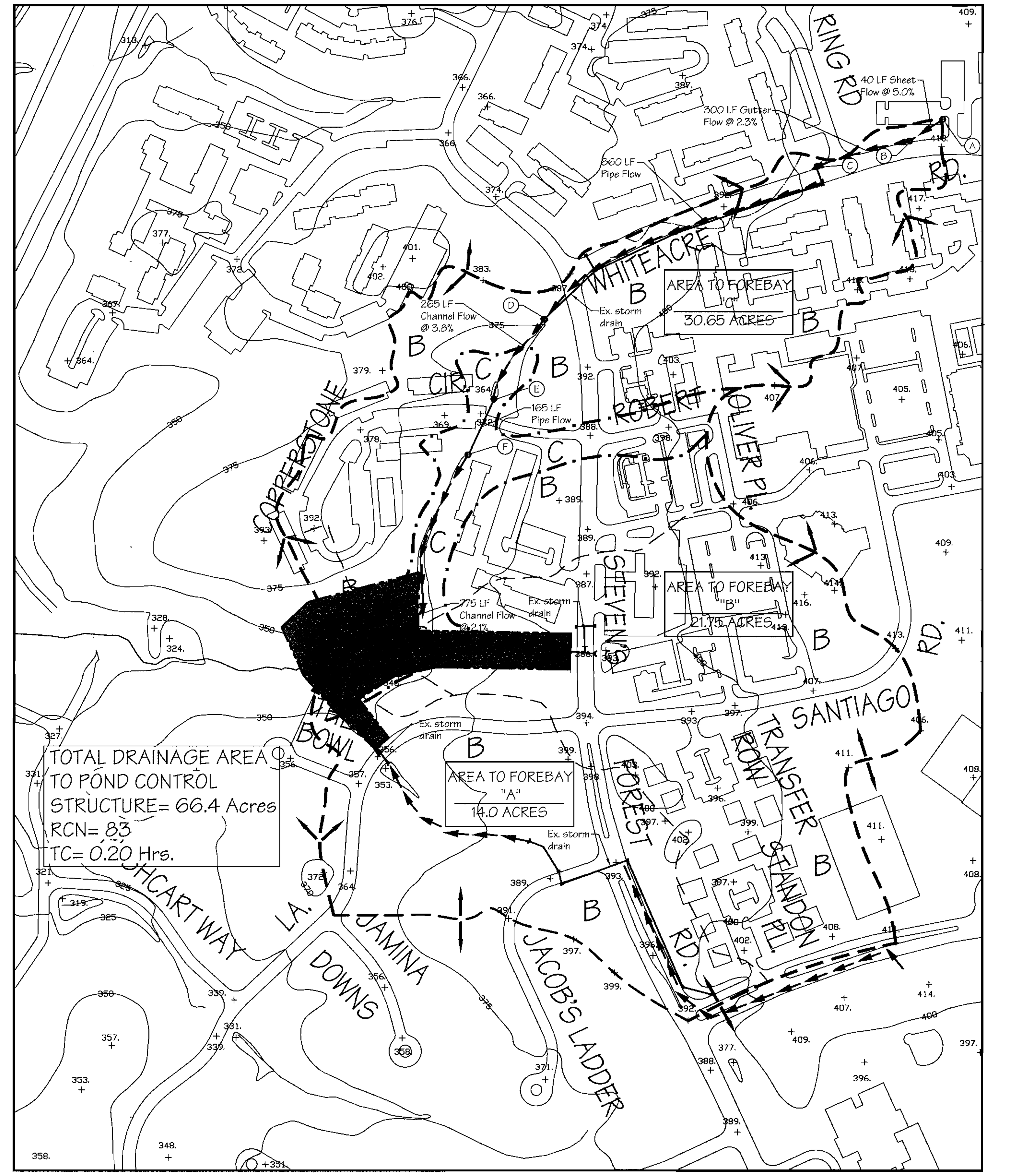
Note: The unsuitable material from the existing bowl pond and vicinity shall be directly loaded into trucks and taken to an approved offsite disposal location. Material shall not be stockpiled within the nontidal wetlands, wetland buffers, stream buffers or 100 year floodplain. With the permission of the sediment control inspector, material may be temporarily stockpiled within the existing pond bed

10. Proposed dam shall not be constructed until:
    a. The body of the pond is dredged, formed and permanent stabilized.
    b. All barrel, riser, endwalls and other principal spillway materials are onsite.
    c. There is a 5 day clear (no precipitation) weather forecast from the National Weather Service
    d. Permission is granted by the sediment control inspector to proceed.
11. Install embankment core trench. Utilize filter bag during trench construction.
12. Install pond riser and barrel (S-1 to S-2), anti-seep collars, endwall, Rip-rap in existing plunge pool, and concrete riser base in accordance with the notes and specifications on sheets 6,7,8, & 9. — 2 Weeks
13. Install 10" D.I.P. pond drain and attach temporary drawdown device. Install removable pumping station. — 1 Day
14. Install embankment cutoff trench and remainder of embankment to constructed top elevation. — 1 Week
15. Grade remainder of basin/ pond, including emergency spillway, 5' safety bench, and 12' maintenance bench in accordance with the approved grading plan (sheet 3). Immediately stabilize all disturbed areas in accordance with the temporary seeding notes. — 2 Weeks
16. Grade forebays B & C in accordance with the approved grading plan (sheet 3). Install forebay gabions and forebay inflow protection for forebays B and C only per details on sheet 8. Install forebay inflow protection — 1 Week
17. Establish final grade in and around pond/ basin area, forebays and emergency spillway. Install rip-rap on emergency spillway outlet channel. Immediately stabilize all disturbed areas in accordance with the permanent seeding notes. — 1 Week
18. Once all disturbed areas are completely stabilized in accordance with the Permanent seeding notes and with the permission of the sediment control inspector, convert basin into permanent pond:
    a. Remove temporary drawdown device from 10" D.I.P. pond drain pipe.
    b. Excavate any accumulated sediment from basin to final design bottom elevation of 334.5.
    c. Install trashracks on all four (4) faces of concrete riser structure in accordance with the details on sheet 8.
    d. Close gate valve on 10" pond drain. — 1 Week
19. Stabilize all remaining disturbed areas in accordance with the permanent seeding notes. With the permission of the sediment control inspector, remove all remaining sediment control devices, including silt fence, super silt fence, sandbag/ stone dams and temporary diversion pipes. Install forebay 'A'. — 1 Week
20. Install landscaping. — 1 Week

Total Estimated Construction Time: 31/2 Months

SOILS LEGEND

MAP SYMBOL	SOIL GROUP NAME	HYDROLOGIC TYPE
GIB2	Glenelg	B
G1D2	Glenelg	B
G1C2	Glenelg	B
GnB2	Glenville	C
ChB2	Chester	B
M1B2	Manor	B
M1C2	Manor	B
M1D3	Manor	B



Drainage Area & Soils Map

1" = 200'

LEGEND

HYDROLOGIC SOIL GROUP BOUNDARY	— · — · —
SUB-AREA DRAINAGE DIVIDE	— — — —
DRAINAGE AREA TO POND	— — —<— —
TC FLOW PATH	—▸—▸—▸—

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — 4/22/03 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 4/21/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/15/03 DATE

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

NATURAL RESOURCE CONSERVATION SERVICE — 4/9/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 4/9/03 DATE

ENGINEER'S CERTIFICATE

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.

Bruce D. Burton — SIGNATURE OF ENGINEER — 4/1/03 DATE

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED — PROFESSIONAL ENGINEER

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — 4.1.03 DATE

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED — PROFESSIONAL ENGINEER — 4/1/03

REVISIONS

No.	Date	Description

Subdivision Name: Village of Oakland Mills	Sect/Area: 2/3 & 5/1	Parcel/No.: O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83

Plat Nos.	Block No.	Zone	Tax Map No.	Election District	Census Tract
15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	3 & 9	NEW-TOWN	36	6th	6066.03

Water Code	Sewer Code
N/A	N/A

LDE, INC.

9250 Rumsey Road, Suite 106, Columbia, MD. 21045

(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.

DRAWN: J.D.R. M.B.J.

CHECKED: B.D.B.

DATE: 3/2002, Rev 9/02, Rev 1/03

Sediment Control Notes & Details & Drainage Area Map

BOWL POND

Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER: COLUMBIA ASSOCIATION, 10221 Wincopin Circle, Suite 100, Columbia, Maryland 21044-3410, (410) 381-0591

SCALE: As Shown

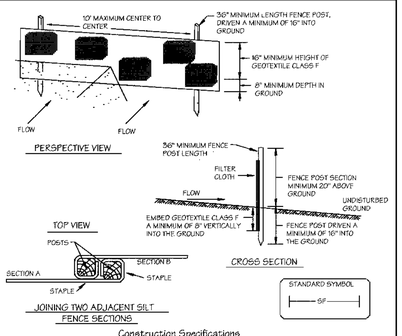
DRAWING: 4 of 11

JOB NO.: 01-008

FILE NO.:

SDP-02-131

DETAIL 22- SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

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

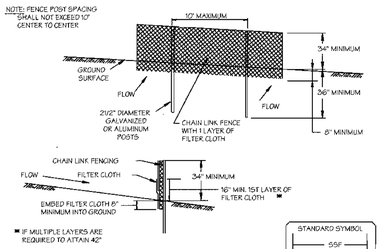
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33- SUPER SILT FENCE



Construction Specifications

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

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

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

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

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

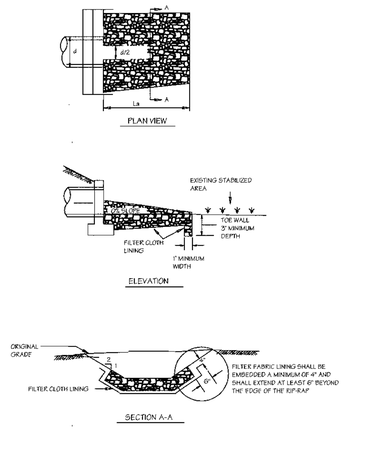
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.

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

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 27- ROCK OUTLET PROTECTION III



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 10	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION III

Construction Specifications

1. 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.

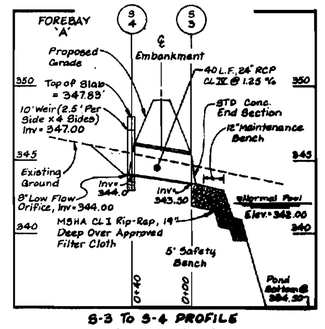
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. 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.

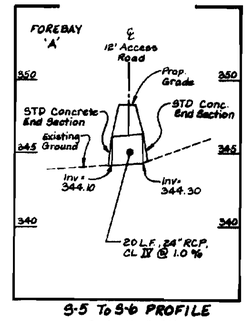
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that 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.

5. 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 - 10A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

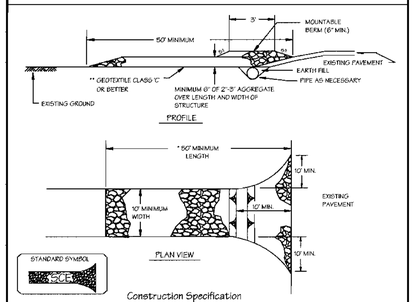


S-3 To S-4 PROFILE
Scale: H: 1" = 30'
V: 1" = 3'



S-5 To S-6 PROFILE
Scale: H: 1" = 50'
V: 1" = 5'

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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

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

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

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

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

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 19 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

1) No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2) Place materials in a location and manner that does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
3) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
4) Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
5) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
6) Rectify any nontidal wetlands, wetland buffers, waterways, or 10a-year floodplain temporarily impacted by any construction.
7) All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Uniola sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. Kentucky 31 fescue shall not be utilized in wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8) After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9) To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:
   Use I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11) Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/21/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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 SHALL EMPLOY A QUALIFIED AND TRAINED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND THAT THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN

BRUCE D. BURTON — 4/1/03

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"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.

Charles Abdelnour — 4-1-03

SIGNATURE OF DEVELOPER — DATE

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19178 — REGISTERED PROFESSIONAL ENGINEER — 4/1/03

REVISIONS

No.	Date	Description

Subdivision Name: Village of Oakland Mills				Sect/Area 2/3 & 5/1	Parcel/No. 0.D. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No. 3 & 9	Zone NEW-TOWN	Tax Map No. 36	Election District 6th	Census Tract 6066.03
Water Code N/A		Sewer Code N/A			

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Sediment Control Detail & Notes BOWL POND Village of Oakland Mills Steven's Forest Capital Project #D-1127 Section Two - Area Three Open Space Lot 4 & P/O Parcel 310, Parcel D and Section Five - Area One Open Space Lot 83 Tax Map 36 6th Election District - Howard County, Maryland Previous Submittals:	SCALE As Shown
DRAWN J.D.R. M.B.J.		DRAWING 5 of 11
CHECKED B.D.B.		JOB NO. 01-008
DATE 3/2002 Rev 9/02 Rev 1/03	OWNER/DEVELOPER COLUMBIA ASSOCIATION 10221 Wincopin Circle, Suite 100 Columbia, Maryland 21044-3410 (410) 381-0691	FILE NO.

SDP-02-131

F:\Land Projects #2\BOWL\Layout\BOWL

POND 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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir 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 to 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 the 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 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 tired, 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 of 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 additional, the core shall be placed concurrently with the outer shell of the embankment.

STRUCTURAL 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 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 he 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 backfillling 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 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.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-196 or M211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specifications M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti seep-collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24" in diameter: flanges on both ends of the pipe, with a circular 3/8" closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12 inch wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12 inch wide hugger type band with O-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugated depth. Pipes 24" in diameter and larger. shall be connected by a 24" long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24" wide by 3/8" thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8" closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill."

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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 Designation 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 "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 length, 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.

Plastic Pipe - The following criteria shall apply for plastic pipe.

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill."

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

DRAINAGE DIAPHRAGMS - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

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.

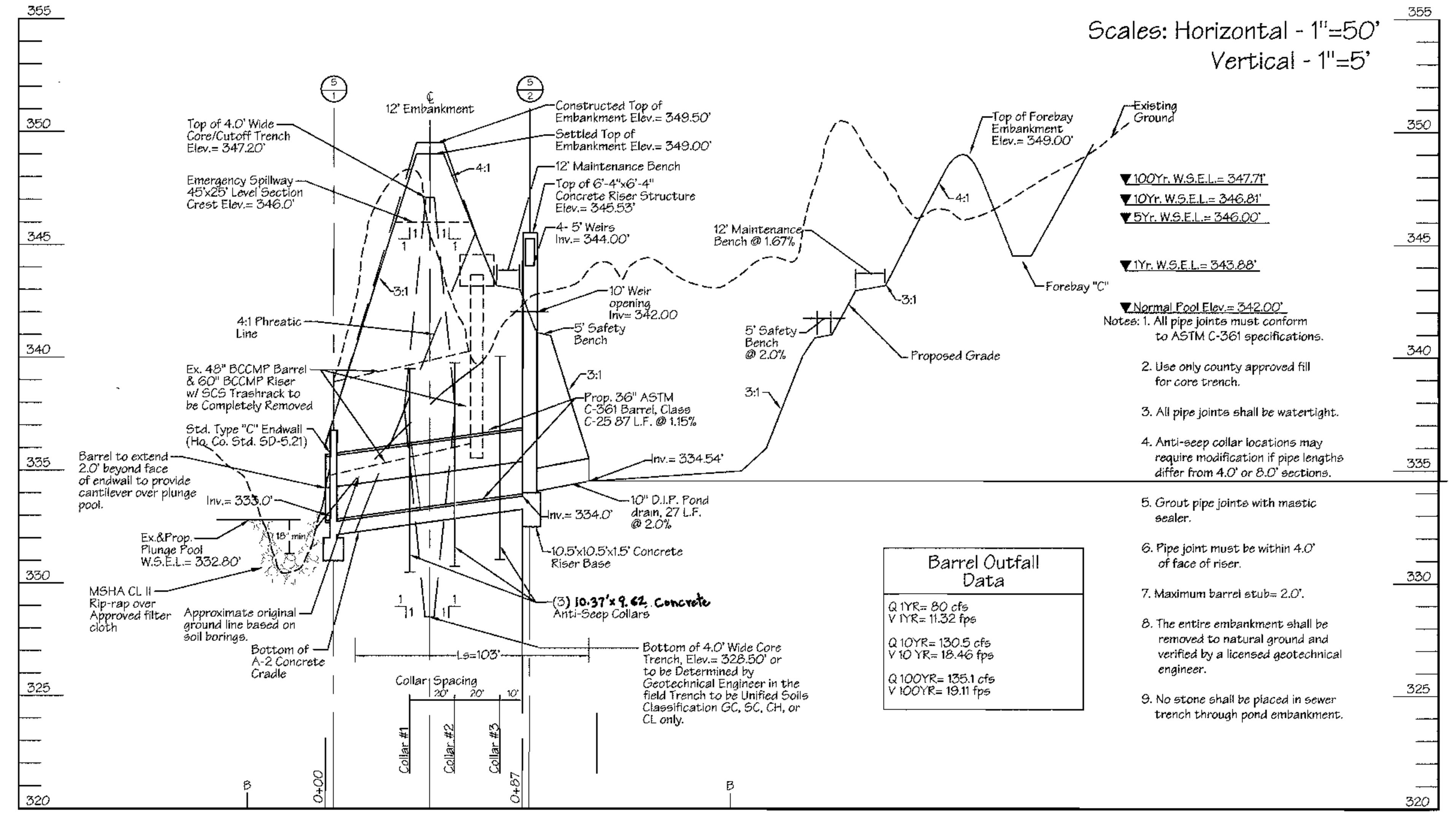
ROCK RIPRAP:

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

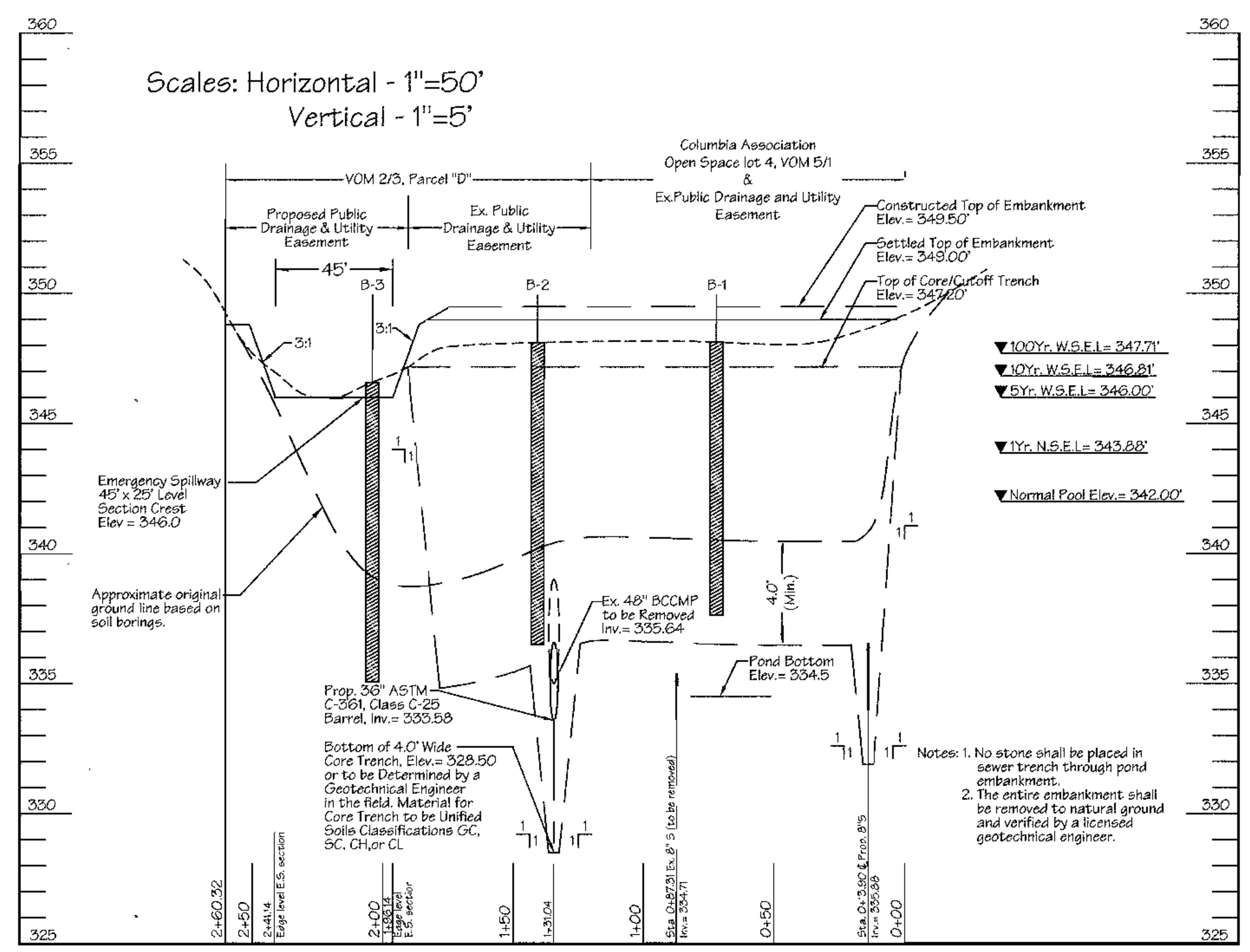
Geotexile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

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 the 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 extend 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 required draining the water to sumps from which the water shall be pumped.



Profile Along Centerline of Principal Spillway and Across Pond (Section B-B)



Profile Along Centerline of Embankment

OPERATION, MAINTENANCE, AND INSPECTION

Inspection of the pond 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 their 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.

OPERATION AND MAINTENANCE SCHEDULE
STORMWATER MANAGEMENT FACILITY
WET POND
PRIVATELY OWNED
OWNERS MAINTENANCE RESPONSIBILITIES:

1. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, and maintenance access should be mowed as needed.
2. Debris and litter shall be removed during regular mowing operations as needed.
3. When deemed necessary for aesthetic reasons, sediment should be removed from the pond. Approval of the Howard County Department of Public Works and Maryland Department of the Environment is required.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 3/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/21/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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 [illegible] 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 — DATE 4/1/03

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4-1-03

4/1/03

REVISIONS

No.	Date	Description

Subdivision Name:			Sect/Area	Parcel/No.
Village of Oakland Mills			2/3 & 5/1	O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83

Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No.	Zone	Tax Map No.	Election District	Census Tract
	3 & 9	NEW-TOWN	36	6th	6066.03

Water Code	Sewer Code
N/A	N/A

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.
DRAWN: J.D.R.
CHECKED: B.D.B.
DATE: 3/2002, Rev 9/02, Rev 1/03

Storm Water Management Notes & Details
BOWL POND
Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER: COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SCALE: As Shown
DRAWING: 6 of 11
JOB NO.: 01-008
FILE NO.

SDP-02-131

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project: The Bowl SWM Pond — Boring # B-1
Location: Columbia, Maryland — Job # 03797A

Datum: MSL
Surf. Elev: 348'
Date Started: 22 Feb, 1997 — Driller: C.Trott — Date Completed: 22 Feb, 1997

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	DEPTH SCALE	BORING & SAMPLING NOTES
±	SURFACE	0.0	
	Gray brown Clayey Silt 2' - 3' (ML)		Topsoil 2"
		2.5	
	Red Silty Clay (CL)		
		5.0	Existing fill materials to 6 feet
	Gray brown Silty Sand (SM)		
	Gray green, silty Sand with decomposing rock (SM)	7.5	
		10.0	
	Boring terminated @ 10.5' Auger refusal		
		12.5	
		15.0	
		17.5	
		20.0	

Ground Water Depth

At 24hrs 8'
Bulk Sample Taken

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project: The Bowl SWM Pond — Boring # B-2
Location: Columbia, Maryland — Job # 03797A

Datum: MSL
Surf. Elev: 348'
Date Started: 22 Feb, 1997 — Driller: C.Trott — Date Completed: 22 Feb, 1997

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	DEPTH SCALE	BORING & SAMPLING NOTES
±	SURFACE	0.0	
	Brown Sandy Silt (ML)		Topsoil 1"
	Red Clay with some silt (CL)	2.5	Fill materials encountered to 6'
	Gray brown sandy Silt (ML)		
		5.0	
	Boring Terminated Auger Refusal		
		7.5	
		10.0	
		12.5	
		15.0	
		17.5	
		20.0	

Ground Water Depth

At 24hrs 5.0'
Bulk Sample Taken

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

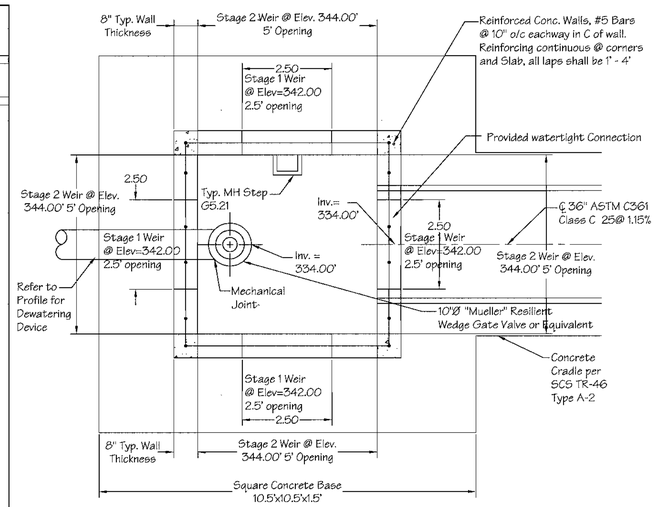
Project: The Bowl SWM Pond — Boring # B-3
Location: Columbia, Maryland — Job # 03797A

Datum: MSL
Surf. Elev: 348'
Date Started: 22 Feb, 1997 — Driller: C.Trott — Date Completed: 22 Feb, 1997

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	DEPTH SCALE	BORING & SAMPLING NOTES
±	SURFACE	0.0	
	Gray brown Clayey Silt 2' - 3' (ML)		Topsoil 2"
		2.5	
	Red Silty Clay (CL) 3.5' - 5.5'		
		5.0	
	Gray brown Silty Sand (SM) 5.5'-6.5'		
	Gray green, silty Sand with decomposing rock (SM) 6.5' - 8'	7.5	
	Topsoil Black with root mat 8- 8.5'		Existing fill materials to 8 feet
	Gleyed Sandy Silt (ML)		
	Gleyed Clay (CL)	10.0	
	Green gray Silty Sand (SM)		
	Boring terminated @ 11.5' Auger refusal		
		12.5	
		15.0	
		17.5	
		20.0	

Ground Water Depth

At 24hrs 9'
Bulk Sample Taken



S-2 Plan View
Scale: 1" = 2'

GEOTECHNICAL RECOMMENDATIONS

EVALUATIONS AND RECOMMENDATIONS

Based on the information obtained from the borings it is our professional opinion that the current pond is not constructed with a suitable cut off trench and core trench per current Md. 378 specifications.

Given the presence of groundwater at or above the proposed bottom of pond elevations stormwater management practices via infiltration are not recommended. Consideration should be given to the design of wet ponds.

It is our understanding that documentation reflecting compliance with current Md. 378 existing pond is not available. Although the borings did encounter some Clay materials within the embankment a core trench extending below the pre-existing natural ground.

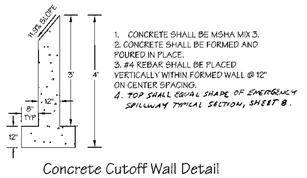
EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

The existing pond embankment should be removed to natural ground. Any topsoil encountered should be removed and stockpile for re-spreading. Any other unsuitable materials such as large rock materials, trees and wood should be removed from the embankment area in accordance with Soil Conservation Guidelines. The existing riser and barrel should also be removed. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitably firm soil, and then grades re-established by backfilling with suitable soil.

Based on the groundwater levels identified in the borings dewatering of excavations should be anticipated. A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut off trench. In accordance with Maryland Soil Conservation Specification 378 soils considered suitable for the center of embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. These soil materials were identified in the soil borings however, the quantity of these materials could not be determined from the borings. Additional exploration with test pits conducted at the time of construction and laboratory testing should be conducted prior to construction to identify and quantify existing core trench materials within the embankment. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.

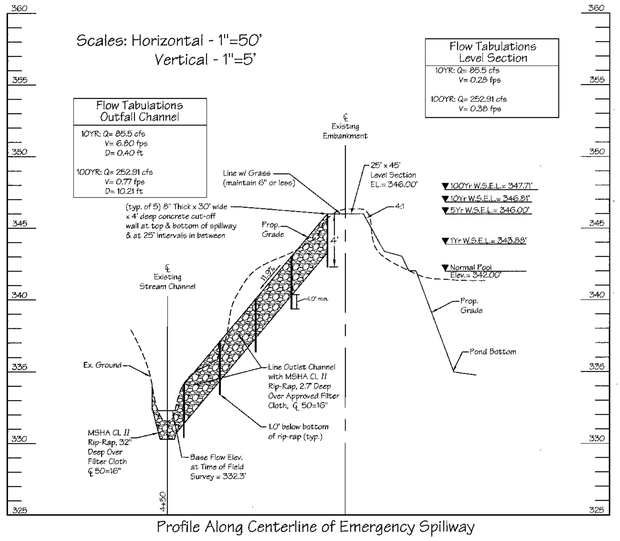
CONCRETE RISER AND STRUCTURE CONSTRUCTION

Based on the surface elevations at borings B-1 through B-3 in correlation with the proposed grades it is our professional opinion that the riser foundation may be designed for a maximum allowable bearing pressure of 2000 Lbs per square foot (psf). Water should not be allowed to pond or collect within the foundation excavations, as this can cause a reduction in the bearing capacity of the soils. As indicated previously dewatering during excavation should be anticipated prior to excavations. A geotechnical engineer or his representative should observe foundation excavations and conduct dynamic cone penetrometer testing (DCP) of the bearing surfaces to depths of three feet.

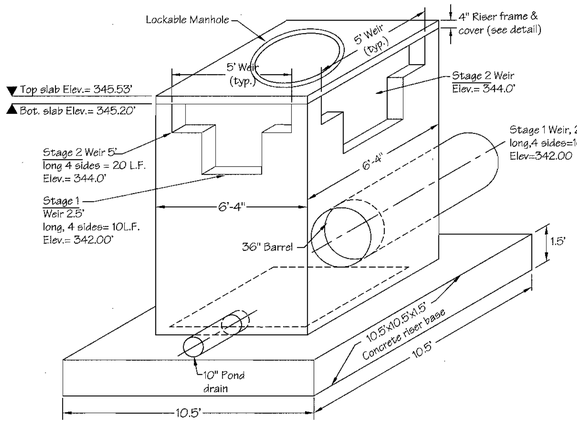


1. CONCRETE SHALL BE MSHA MIX 3.
2. CONCRETE SHALL BE FORMED AND POURED IN PLACE.
3. #4 REBAR SHALL BE PLACED VERTICALLY WITHIN FORMED WALL @ 12" ON CENTER SPACING.
4. TOP SHALL EQUAL SHAPE OF EMERGENCY SPILLWAY TYPICAL SECTION, SHEET 8.

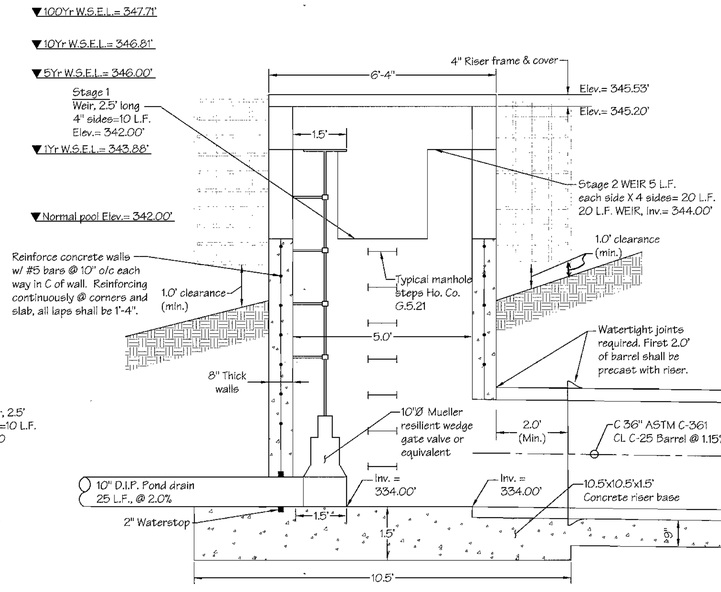
Concrete Cutoff Wall Detail
N.T.S.



Profile Along Centerline of Emergency Spillway

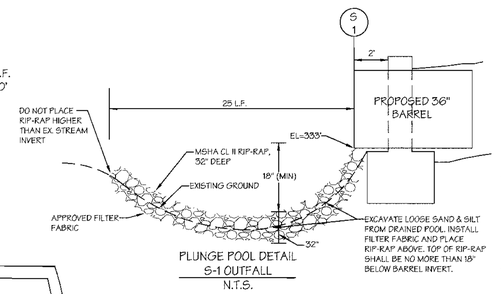


S-2 Isometric View
Not to scale



S-2 Profile
Scale: 1" = 2'

NOTES: 1. Refer to plan view S-2 for weir location.
2. Refer to trashrack details, this sheet.
3. All joints shall be mastic grouted along full length of barrel.



PLUNGE POOL DETAIL
S-1 OUTFALL
N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/9/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE LATEST REVISION OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE SHALL EMPLOY 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.

STATE OF MARYLAND — BRUCE DAVID BUSHEY — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

BRUCE D. BUSHEY — SIGNATURE OF ENGINEER — 4/1/03 DATE

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — 4.1.03 DATE

STATE OF MARYLAND — BRUCE DAVID BUSHEY — No. 19184 — REGISTERED PROFESSIONAL ENGINEER — 4/1/03

REVISIONS

No.	Date	Description

Subdivision Name: Village of Oakland Mills	Sect/Area 2/3 & 5/1
Parcel/No. 0.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 65	
Plat Nos. 13746-47 P.B. 17, Folio 91 P.B. 15, Folio 98	Block No. 3 & 9
Zone NEW-TOWN	Tax Map No. 36
Election District 6th	Census Tract 6066.03
Water Code N/A	Sewer Code N/A

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H. — DRAWN J.D.R. — CHECKED B.D.B. — DATE 3/2002, Rev 9/02, Rev 1/03

Storm Water Management Notes & Details

BOWL POND

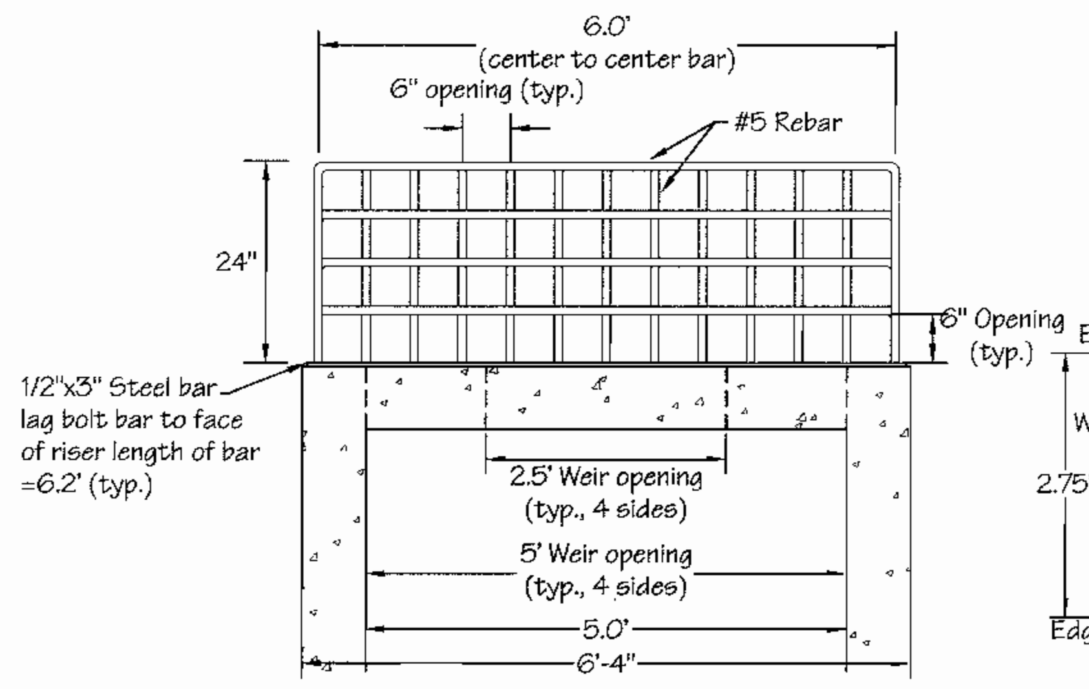
Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 65
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER
COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

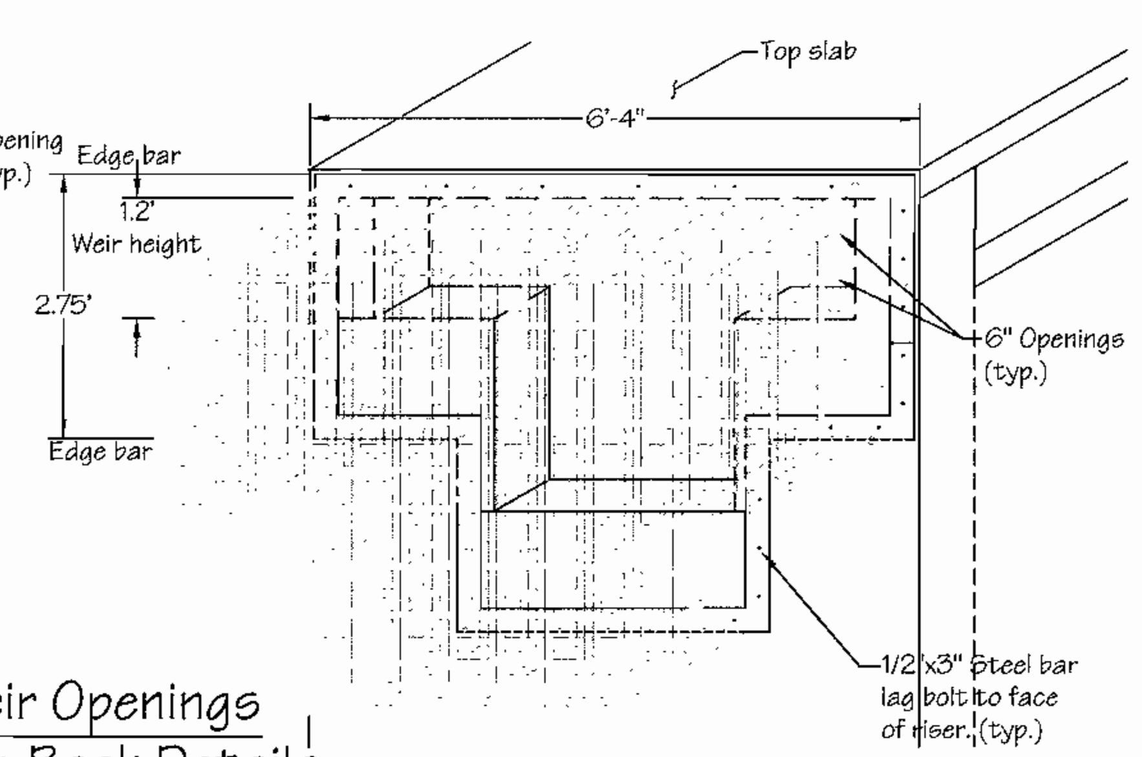
SCALE As Shown — DRAWING 7 of 11 — JOB NO. 01-008 — FILE NO.

SDP-02-131

F:\Land Projects\e 62\BOWL\dwg\BOWL-SWM DETAILS.dwg, (7)SWM Notes & Details, 4/1/2003 9:38:47 AM



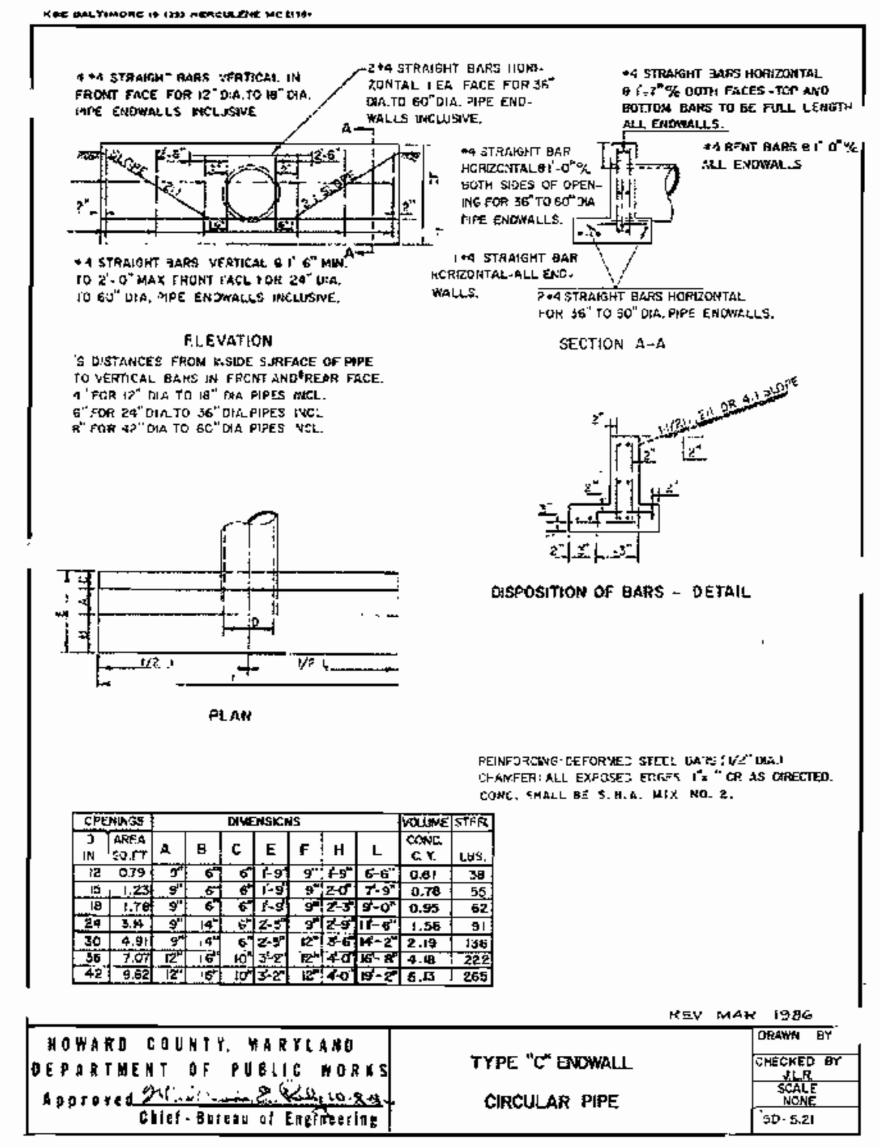
Note: 1. The steel used in the trashrack shall be galvanized and painted battleship grey after fabrication.
2. The #5 rebar to be welded to the 1/2"x3" steel bar and bolted to the face of riser.
3. All bolts used to fasten trash rack to the riser structure shall be galvanized.



Weir Openings
Trash Rack Details

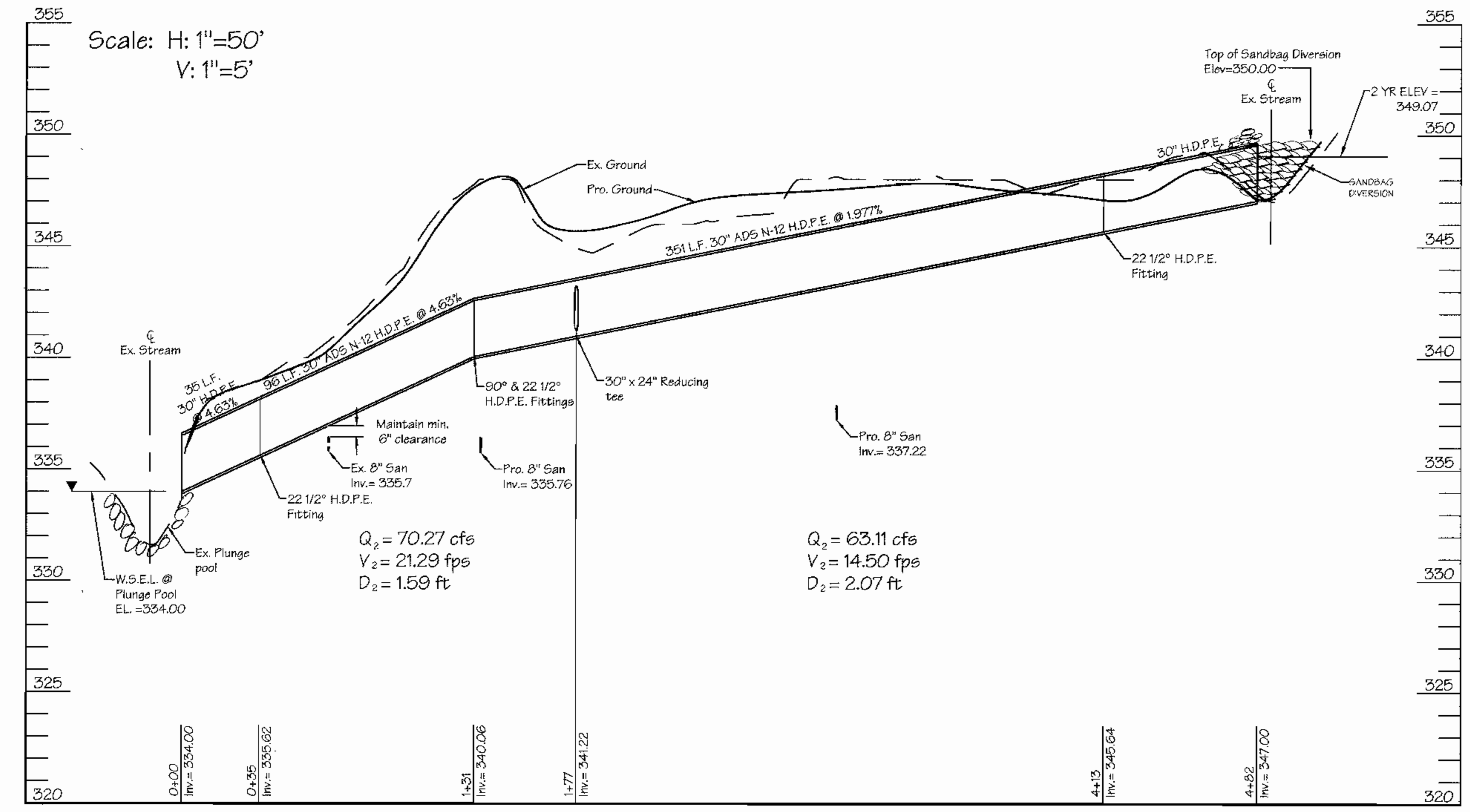
Scale: 1"=2'

Isometric View



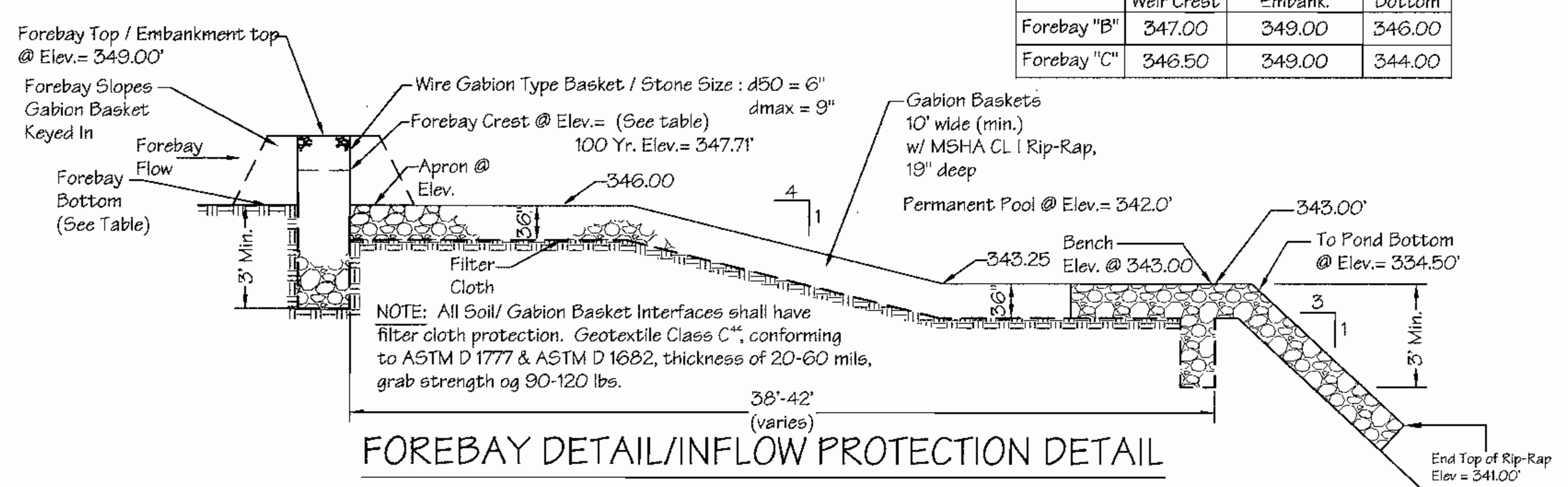
PIPE SCHEDULE		
SIZE	CLASS	TOTAL LENGTH*
36"	ASTM C-361 Conc.	87
24"	RCP, Class IV	60
10"	D.I.P.	25

* The total length of pipe does not take into account the slope of the pipe. This total is for linear feet only.



30" Temporary Pipe Profile
South Side of Pond

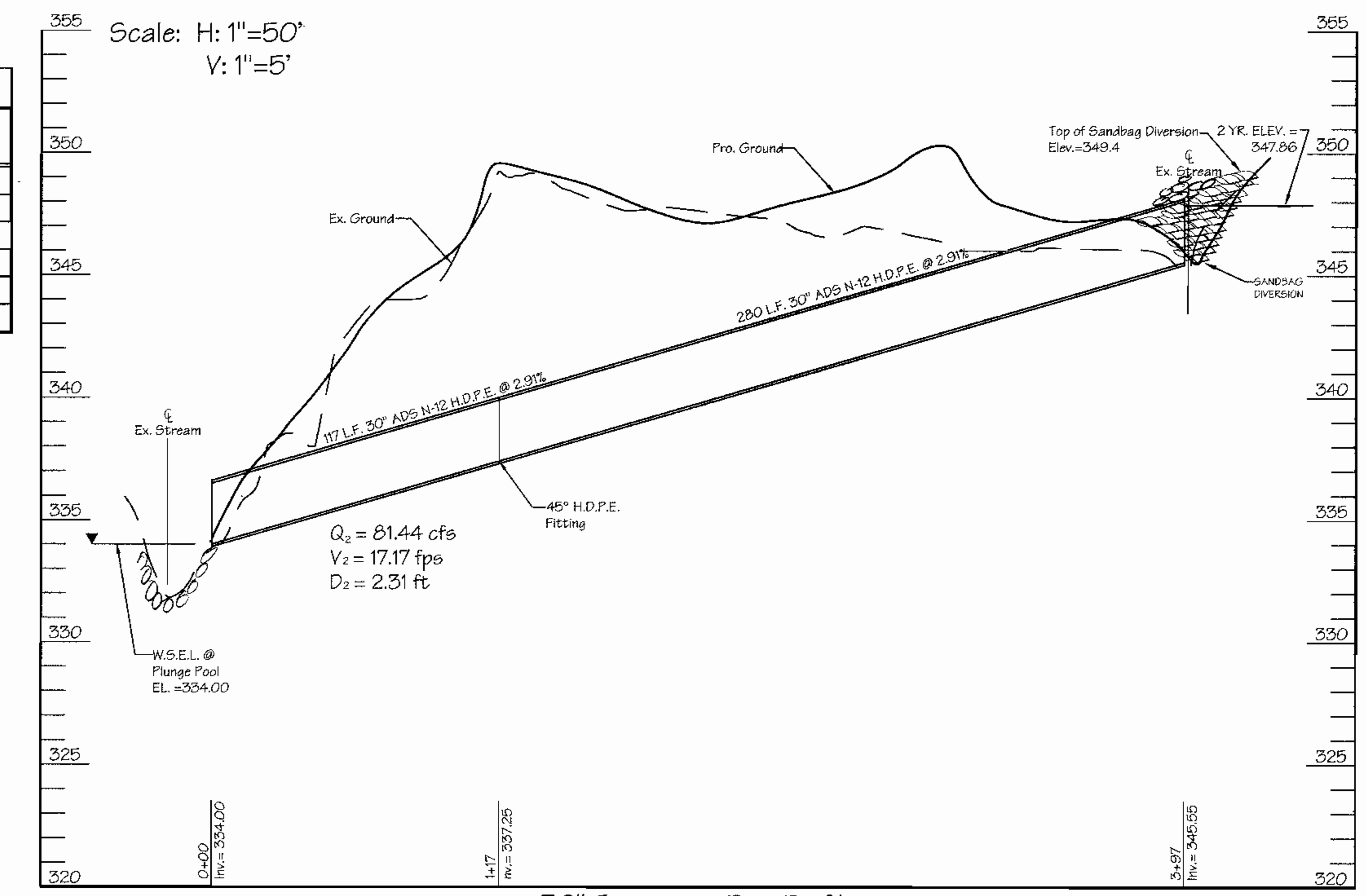
Forebay No.	Forebay Weir Crest	Top of Gabion Embank.	Forebay Bottom
Forebay "B"	347.00	349.00	346.00
Forebay "C"	346.50	349.00	344.00



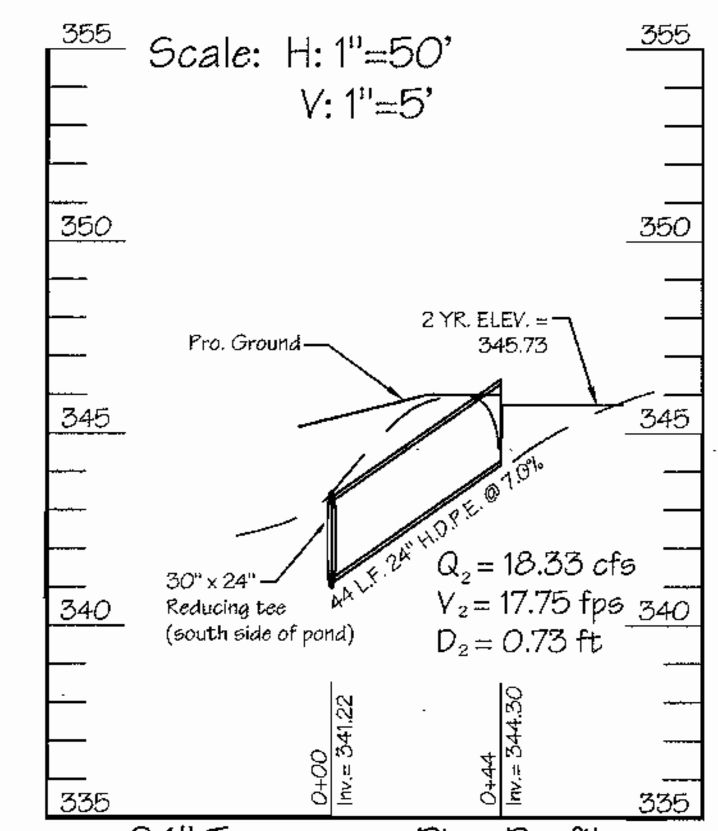
FOREBAY DETAIL/INFLOW PROTECTION DETAIL

PROFILE VIEW
FOREBAYS B & C ONLY
NOT TO SCALE

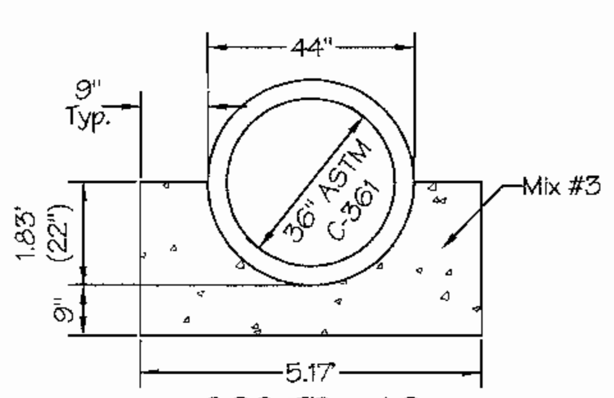
STORM DRAIN STRUCTURE SCHEDULE							
Structure No.	Type	Inv. In.	Inv. Out	Top of Wall/ Pipe	Detail	Location	Remarks
S-1	Type 'C' Endwall	333.03	333.00	336.50	SD 5.21	N 561528.01 / E 1354666.82	Type 'C' for 36" pipe
S-2	Conc. Riser	334.00	334.00	345.53		N 561532.71 / E 1354756.92	See Riser Details
S-3	24" Conc. End sect.	343.50	343.40	345.50	SD 5.51	N 561485.35 / E 1354768.39	24" Conc. End Section
S-4	Type 'D' Inlet	344.00	344.00	-	SD 4.11	N 561445.82 / 1354774.56	See Detail, Sht 5
S-5	24" Conc. End sect.	344.10	344.10	346.10	SD 5.51	N 561416.47 / E 1354779.93	24" Conc. End Section
S-6	24" Conc. End sect.	344.30	344.30	346.30	SD 5.51	N 561389.66 / E 1354783.15	24" Conc. End Section



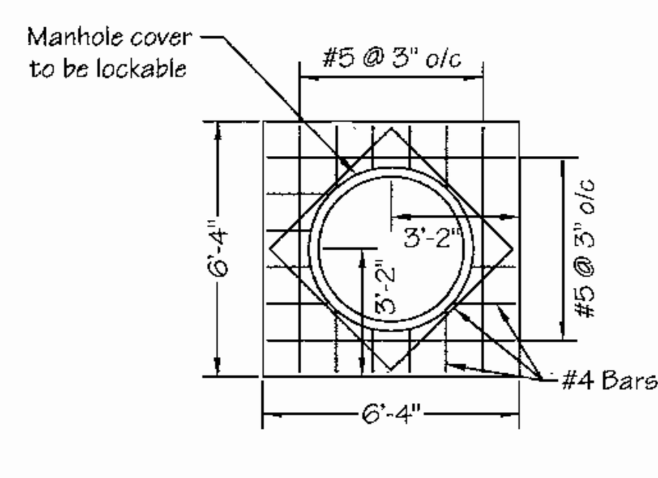
30" Temporary Pipe Profile
North Side of Pond



24" Temporary Pipe Profile
South Side of Pond

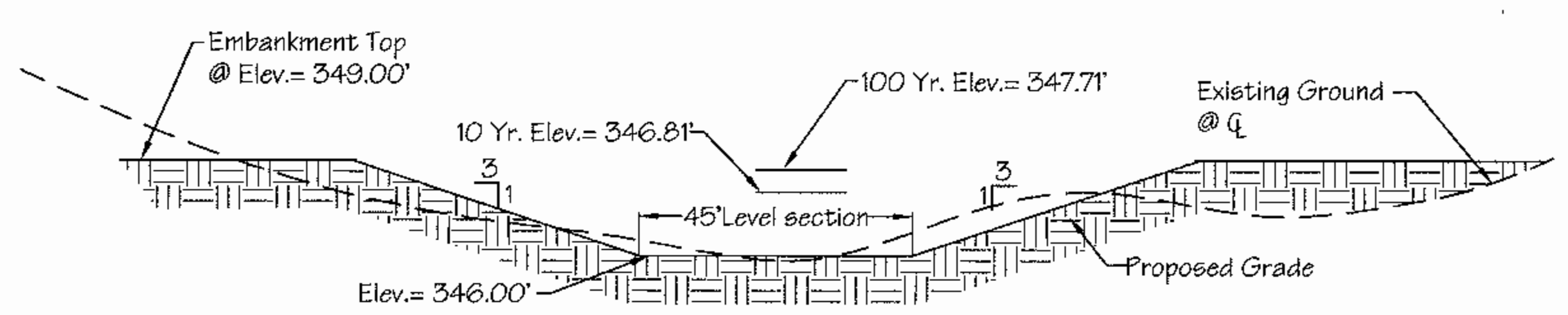


SCS TR - 46
A-2 Cradle
Not to scale



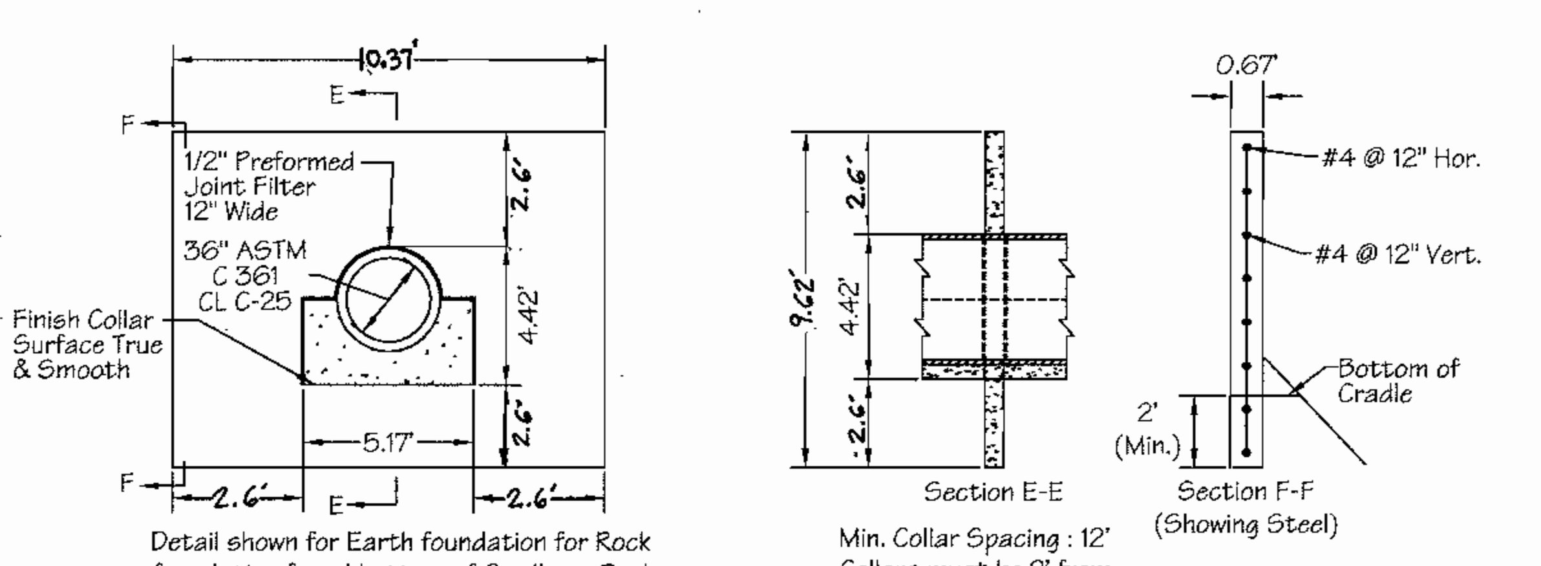
4" RISER FRAME AND COVER DETAIL

NOTE: Riser Frame & Cover shall be bolted to Riser Structure



EMERGENCY SPILLWAY TYPICAL SECTION

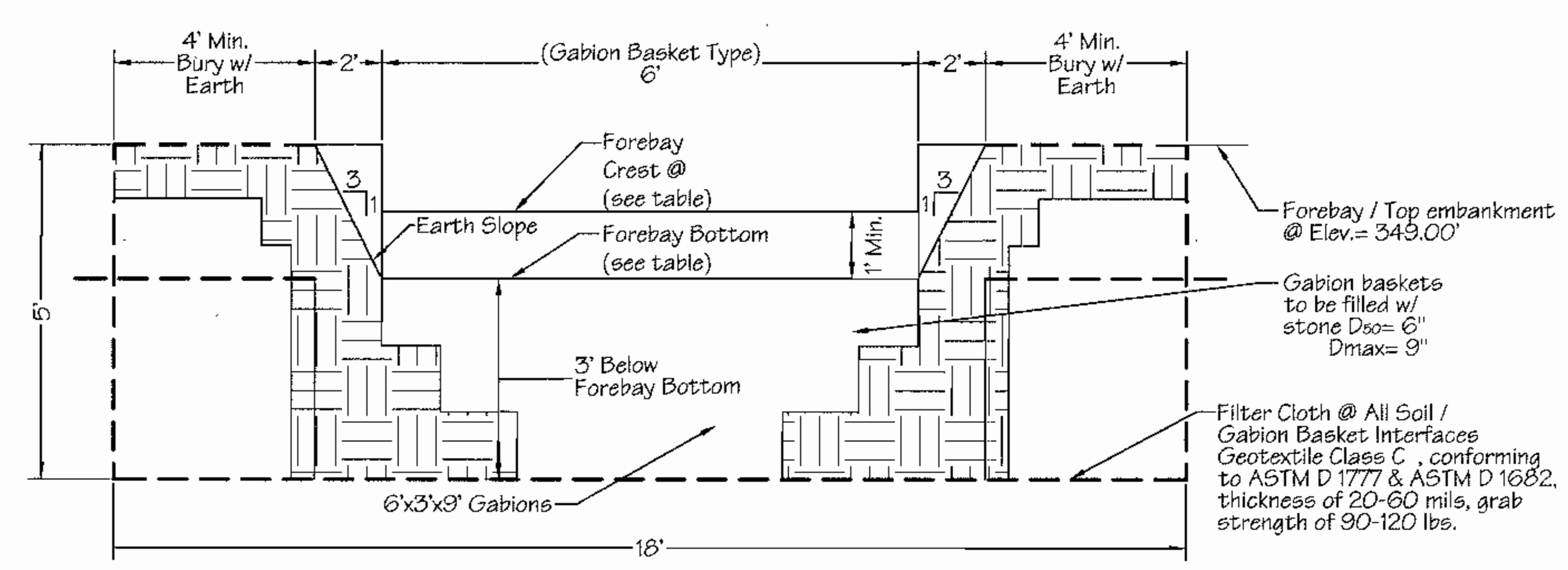
Not to scale



Detail shown for Earth foundation for Rock foundation found bottom of Cradle on Rock line and Key collar "6" into Rock

Min. Collar Spacing : 12' Collars must be 2' from Pipe Joint

Detail of Anti Seep Collar
(Use (3) 10.37' x 9.62')



TYPICAL
FOREBAY DETAIL

Forebays B & C only
PLAN VIEW

Forebay No.	Crest Elev. Pipe	Bottom Elev. Pipe
"A"		
"B"	347.00'	346.00'
"C"	346.50'	344.00'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

SIGNATURE OF ENGINEER — DATE 4/1/03

DEVELOPER'S CERTIFICATE

SIGNATURE OF DEVELOPER — DATE 4-1-03

REVISIONS		
No.	Date	Description

Subdivision Name:			Sect/Area		Parcel/No.
Village of Oakland Mills			2/3 & 5/1		O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No. 3 & 9	Zone NEW-TOWN	Tax Map No. 36	Election District 6th	Census Tract 6066.03
Water Code N/A			Sewer Code N/A		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.
DRAWN J.D.R.
CHECKED B.D.B.
DATE 3/2002 Rev 9/02 Rev 1/03

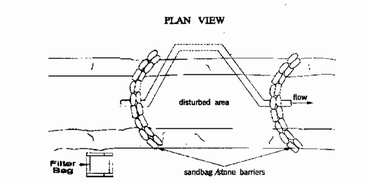
Storm Water Management Details
BOWL POND
Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

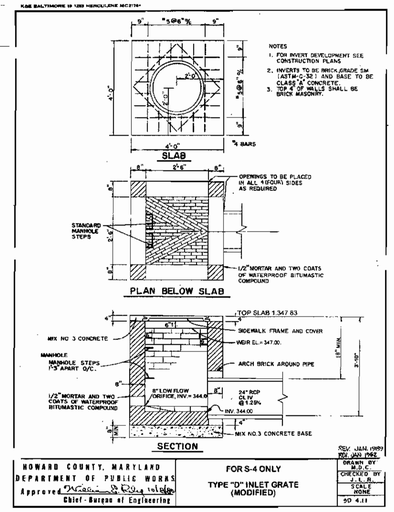
OWNER/DEVELOPER
COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SCALE As Shown
DRAWING 8 of 11
JOB NO. 01-008
FILE NO.

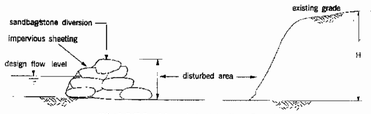
SDP-02-131

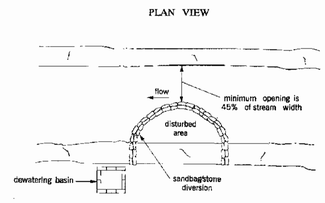
Maryland's Guidelines To Waterway Construction
DETAIL 1.4: DIVERSION PIPE

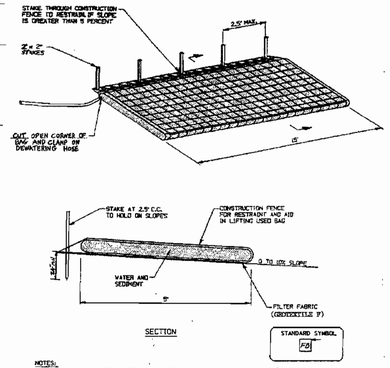




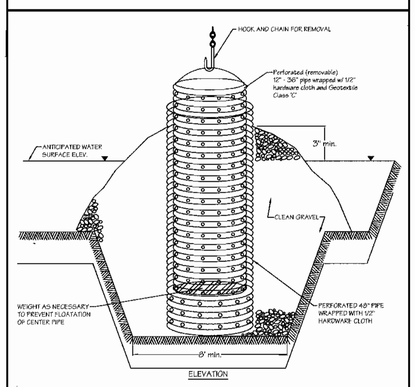
Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION







DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

MGWC 1.4: DIVERSION PIPE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversions pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe erosion of the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low flow.

MATERIAL SPECIFICATIONS

Materials for sandbag and stone stream diversions should meet the following requirements:

- Riprap: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
- Sandbags: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
- Sheeting: Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

INSTALLATION GUIDLINES

All erosion and sediment control devices including mandatory dewatering basins should be installed as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Diversion pipes with sandbag or stone barriers should be completed as follows (refer to Detail 1.4):

1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.
2. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
3. Sediment-laden water from the construction area should be pumped to a dewatering basin.
4. The diversion pipe should have a minimum capacity sufficient to convey the 2-year flow for projects with a duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced accordingly.
5. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.
6. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within stream channel.

EFFECTIVE USES & LIMITATIONS

Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporary measure may not be practical in large channels.

MATERIAL SPECIFICATIONS

Materials for sandbag and stone stream diversions should meet the following requirements:

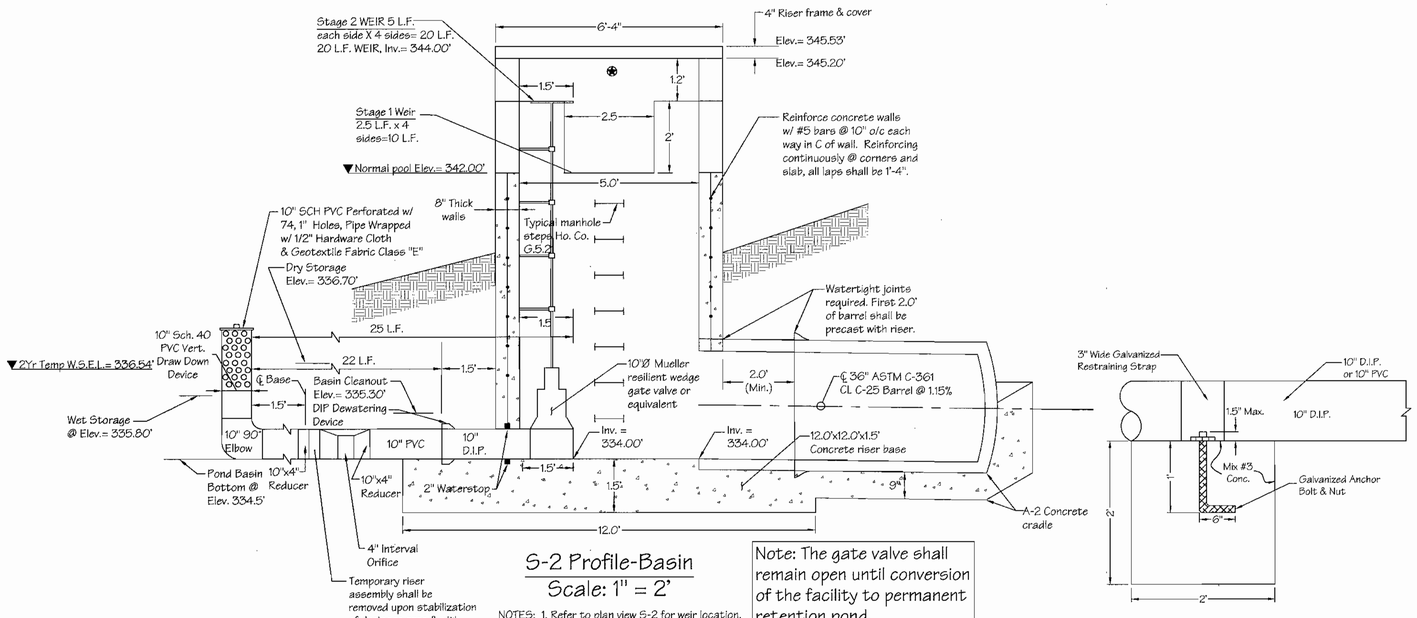
- Riprap: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
- Sandbags: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
- Sheeting: Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

INSTALLATION GUIDLINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Sandbag/stone diversions can be used independently or as components of other stream diversions techniques. Installation of this measure should proceed as follows (refer to Detail 1.5):

1. The diversion structure should be installed from upstream to downstream.
2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach. For projects with a duration less than 2 weeks, the height of the diversion should be one half the streamflow height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.
3. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
4. Sediment-laden water from the construction area should be pumped to a dewatering basin.
5. Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
6. Sandbag or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if project time expected to last more than 2 weeks.
7. Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
8. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.



S-2 Profile-Basin
Scale: 1" = 2'

NOTES: 1. Refer to plan view S-2 for weir location.
2. Refer to trashrack details, this sheet.
3. All joints shall be mastic grouted along full length of barrel.

Note: The gate valve shall remain open until conversion of the facility to permanent retention pond.

DEWATERING / DRAW DOWN DEVICE CONCRETE BASE DETAIL

FIGURE 2 TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

Computed by: S.D.H. Date: 3/4/02 Checked by: _____ Date: _____
Project name: Bowl Pond Basin #'s: 1
Location: VOM, Columbia, Maryland

Total area draining to basin: 66.4 acres (ac) (2.80 Acres)

*Note: A temporary diversion pipe will be used to divert baseflow from the tributaries flowing into the existing pond around the pond and into the existing downstream plunge pool. Therefore the total drainage area to the basin is only the basin area itself and areas draining directly to the basin, or 2.80 acres.

BASIN VOLUME DESIGN

Note: 1. Also see Surface Area Design #30, this form.
2. To convert ft³ to yd³, divide ft³ by 27. To convert ft² to yd², divide ft² by 9.

1. Minimum required volume= 3,600 ft³/ac x 2.8 ac. drainage= 10,080ft³.
2. Actual Volume of basin= 58,477ft³.
3. Excavate 10,080ft³ (375yd³) to obtain required capacity.
4. Volume at dewatering elevation = 1,800ft³/ac x 2.8ac. = 5,040ft³.
5. Volume of basin at cleanout = 900ft³/ac x 2.8ac. = 2,520ft³.
6. Elevation corresponding to minimum required volume of basin (riser crest elevation) 335.80ft.
7. Permanent pool elevation 335.80ft. (Basin only)
8. Distance from riser crest elevation to permanent pool elevation 0.50ft. (Top basin riser= 336.70)
9. Basin cleanout elevation 335.30ft.
10. Distance from riser crest elevation to cleanout elevation 1.4ft.
**Small sediment basin riser-not permanent concrete riser.

SPILLWAY DESIGN N/A

(Emergency spillway will not function during construction due to large storage volume available in basin.)

11. Q_{25}=0.8cfs (peak discharge from 10-year, 24-hour storm event, attach computations)

PRINCIPAL SPILLWAY (Qpe) (See detail 11)
(Permanent Barrel)

12. Design Principal Spillway (Barrel) discharge, Design Q_{pe}= 0.8cfs (minimum 10% of 10-year peak or 8" Diameter Pipe)
13. H= 11.5ft.; Barrel length= 57ft.
14. Barrel Diameter 36inch Note: Q_{pe} must equal or exceed design Q_p.
Q_{pe} = Q (from Table 13 or 14) 10x(lenght correction factor) 0.97 = 9.7cfs.
15. Riser Diameter 60x60inch; Riser Height 11.5ft.; Riser Head (h) = 9ft.
16. Trash Rack Diameter 60inch; Trash Rack Height = 18inch.

EMERGENCY SPILLWAY (Qes) N/A

17. Emergency spillway cap., Q_{es}= Q_p - Q_{pe} = _____ - _____ = _____cfs.
18. Width _____ ft.; Hp _____ ft.
19. Entrance channel slope _____ %
20. Exit channel slope _____ %

ANTI-SEEP COLLAR DESIGN (If required)

21. y= 13.8ft.; z= 4 :1; pipe slope= 1.15%; L=74ft.
22. Use 3 collars, 9ft. - 0 inch square; projection = 2.54ft.

DESIGN ELEVATIONS
(Permanent Pond)

Top elevation=	345.53 ft.		
23. Riser crest 27"wide=	344.00 ft.	24.Design High Water=	348.00 ft. (100-year)
25. Emergency Spillway Crest=	346.00 ft.	26.Minimum allted top of dam=	348.00 ft.
27. Permanent pool=	342.00 ft.	28.Bottom of basin=	334.50 ft.
29. Draw-down orifice invert=	336.70 ft.		

SURFACE AREA DESIGN

30. Minimum basin surface area: SA> 0.0035 x Q_{10} = 0.0035 x 10 cfs < 0.035 ac.
(Actual surface area at elevation 335.10 = 0.037 ac.)
Top of wet storage, Elev.= 335.80 = 0.116 ac.

DRAW-DOWN DEVICE

31. Draw-down device orifice diameter= 4 inch (From Table 11)
32. A_{ori} Total area of perforations > 4A; (Use 1.0" Diameter holes)
A_{ori} = (# of perforation/foot) (0.0055 ft²) (0.90 ft.)
A_{ori} = 0.348 ft²
A_{ori} Internal orifice area (from Table 11 or computed)
(0.55 ft²)
Punch 74, 1" Diameter holes in 10" Pipe, 0.90' high

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/8/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE LATEST HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER OF THE REQUIREMENT TO HAVE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

STATE OF MARYLAND — BRUCE D. BUNTING — No. 19198 — REGISTERED PROFESSIONAL ENGINEER

BRUCE D BUNTING — SIGNATURE OF ENGINEER — 4/1/03 DATE

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4-1-03

STATE OF MARYLAND — BRUCE D. BUNTING — No. 19198 — REGISTERED PROFESSIONAL ENGINEER

BRUCE D BUNTING 4/1/03

REVISIONS

No.	Date	Description

Subdivision Name:	Village of Oakland Mills
Sect/Area	2/3 & 5/1
Parcel/No. (I.D. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83)	
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	
Block No.	3 & 9
Zone	NEW-TOWN
Tax Map No.	36
Election District	6th
Census Tract	6066.03
Water Code	N/A
Sewer Code	N/A

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.	Sediment Basin Notes & Details	SCALE: As Shown
DRAWN: J.D.R.	BOWL POND Village of Oakland Mills Steven's Forest Capital Project #D-1127 Section Two - Area Three Open Space Lot 4 & P/O Parcel 310, Parcel D and Section Five - Area One Open Space Lot 83 Tax Map 36 6th Election District - Howard County, Maryland Previous Submittals:	DRAWING: 9 of 11
CHECKED: B.D.B.		JOB NO.: 01-008
DATE: 3/2002 Rev 3/02 Rev 1/03	OWNER/DEVELOPER COLUMBIA ASSOCIATION 10221 Wincopin Circle, Suite 100 Columbia, Maryland 21044-3410 (410) 381-0591	FILE NO.

SDP-02-131

F:\Land Projects\K2\BOWL\dwg\BOWL

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/21/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

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SIGNATURE OF ENGINEER — DATE 4/1/03

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4-1-03

STATE OF MARYLAND — BRUCE DAVID BURGESS — No. 19184 REGISTERED PROFESSIONAL ENGINEER

4/1/03

REVISIONS

No.	Date	Description

Subdivision Name: Village of Oakland Mills				Sect/Area: 2/3 & 5/1	Parcel/No.: O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No.: 3 & 9	Zone: NEW-TOWN	Tax Map No.: 36	Election District: 6th	Census Tract: 6066.03
Water Code: N/A			Sewer Code: N/A		

LDE, INC.

9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.
DRAWN: J.D.R.
CHECKED: B.D.B.
DATE: 3/2002, Rev 9/02, Rev 1/03

Existing Conditions Plan

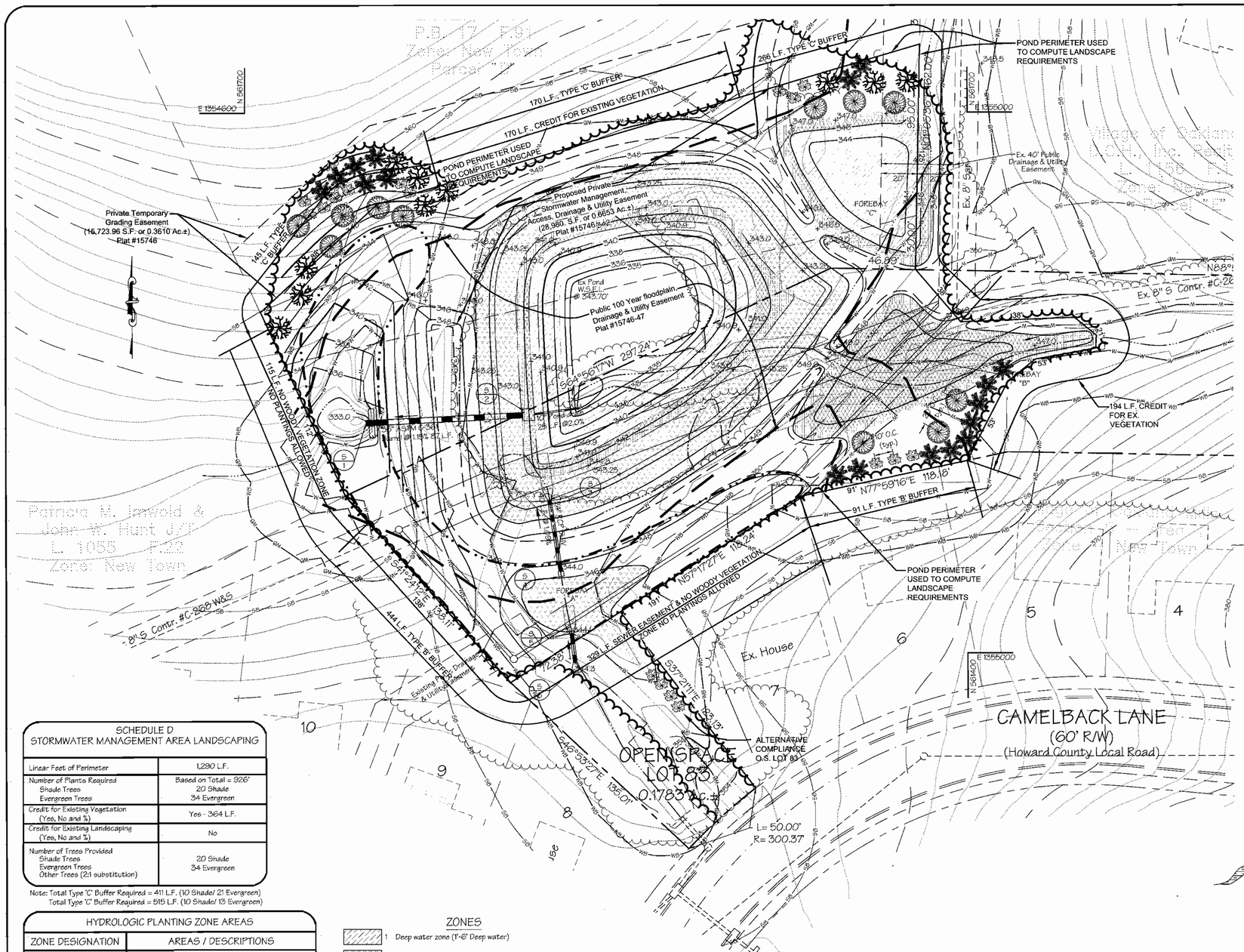
BOWL POND

Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER: COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SCALE: 1"=30'
DRAWING: 10 of 11
JOB NO.: 01-008
FILE NO.:

SDP-02-131



LANDSCAPE SCHEDULE

HERBACIOUS WETLAND PLANTINGS

QNTY	COMMON NAME	SCIENTIFIC NAME	SIZE	*MDE ZONE	FORM
1173 sq. ft.	blue flag iris	Iris virginica	Container	2	Perennial
1173 sq. ft.	arrowhead / duck potato	Sagittaria latifolia	Container	2	Perennial
1173 sq. ft.	water lobelia	Lobelia dortmanna	Container	2	Perennial
1173 sq. ft.	bushy beardgrass	Andropogon glomeratus	Seed mixture	2	grass
1173 sq. ft.	flowering bulrush	Ilex glabra	Seed mixture	2	grass
1173 sq. ft.	softrush	Juncus effusus	Seed mixture	2, 3	grass
919 sq. ft.	forget-me-not	Myosotis acvensis	Container	3	Perennial
612 sq. ft.	shallow sedge	Carex lurida	Seed mixture	3	grass
612 sq. ft.	short-leaf flatsedge	Cyperus brevifolius	Seed mixture	3	grass
919 sq. ft.	new england aster	Aster novae-anglae	Container	3	Perennial
612 sq. ft.	rice cutgrass	Leersia oryzoides	Seed mixture	3	grass
919 sq. ft.	marsh marigold	Caltha palustris	Container	3	Perennial
4882 sq. ft.	birds foot trefoil	Lotus corniculatus	Container	4	Perennial
2628 sq. ft.	partridge-berry	Mitchella repens	Seed / Container	4	Groundcover
4882 sq. ft.	orange coneflower	Rudbeckia fulgida	Container	4	Perennial
2629 sq. ft.	perennial ryegrass	Lolium perenne	Seed / Container	4	Groundcover

* Refers to the pond hydrologic planting zones listed in Appendix A of the "2000 Maryland Stormwater Design Manual, Volumes I and II".

** See Zone legend, This sheet.

NOTES: 1.) The required stormwater management area landscaping includes 20 shade trees and 34 evergreen trees. Only the required landscape materials will be bonded. The remainder of the proposed landscape materials shown are above the Howard County Landscape requirements and are therefore, not required to be bonded.

2.) Perennial plants shall be planted at a rate of approximately 2.0 / sq. ft.

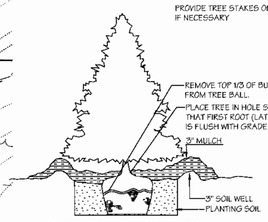
3.) Quantities of perennials and grasses are expressed in square foot areas and equate to the corresponding symbol (shading or hatch patterns) shown on the plan view.

LANDSCAPE SCHEDULE

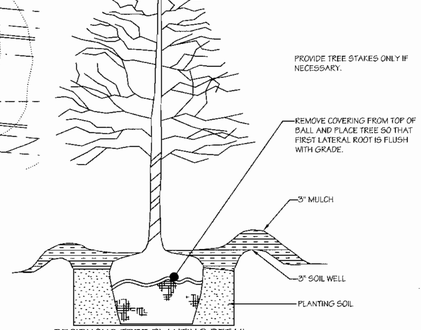
TREES

SYMBOL	QNTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
		TREES			
	10	Red Maple 'October Glory'	Acer...rubrum	2" - 2½ Caliper	B & B
	10	Pin Oak	Quercus palustris	2" - 2½ Caliper	B & B
		EVERGREENS			
	17	American Holly	Ilex Opaca	5' - 6' HT.	B & B
	17	Eastern White Pine	Pinus Strobus	5' - 6' HT.	B & B

TOTAL = 54



EVERGREEN TREE PLANTING DETAIL
N.T.S.



DECIDUOUS TREE PLANTING DETAIL
N.T.S.

PLANTING NOTES

1. Notify "Miss Utility" 72 hours prior to the installation of plant material.
2. Plant installation must conform to minimum standards cited in the latest edition of: "Landscape Specification Guidelines" by the Landscape Contractors Association.
3. Plants to be located in the field by the owner or owner's representative. Notify owner 72 hours in advance of planting.
4. A Certification of Landscape Installation is required as per the Howard County Landscape ordinance.
5. Contract Landscape Architect regarding the substitution of plant material. The number, size and location of plants shall not be changed. Substitutions must be included in the recommended plant lists.
6. Street tree locations have been shown wherever possible. Drive aprons of proposed unit do not allow the typical 1 tree : 40 feet.

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

Linear Feet of Perimeter	1,290 L.F.
Number of Plants Required Shade Trees Evergreen Trees	Based on Total = 926' 20 Shade 34 Evergreen
Credit for Existing Vegetation (Yes, No and %)	Yes - 364 L.F.
Credit for Existing Landscaping (Yes, No and %)	No
Number of Trees Provided Shade Trees Evergreen Trees Other Trees (2:1 substitution)	20 Shade 34 Evergreen

Note: Total Type 'C' Buffer Required = 411 L.F. (10 Shade/ 21 Evergreen)
Total Type 'C' Buffer Required = 515 L.F. (10 Shade/ 13 Evergreen)

HYDROLOGIC PLANTING ZONE AREAS

ZONE DESIGNATION	AREAS / DESCRIPTIONS
ZONE 1	Pond - 6,165 sq. ft. / Forebay C - 3,735 sq. ft.
ZONE 2	Pond - 1,683 sq. ft. / Forebay B - 4,311 sq. ft. / Forebay C - 1,044 sq. ft.
ZONE 3	Pond - 2,151 sq. ft. / Forebay B - 1,503 sq. ft. / Forebay C - 340 sq. ft.
ZONE 4	Pond - 13,086 sq. ft. / Forebay A - 1,935 sq. ft.

ZONES

1 Deep water zone (1'-6' Deep water)

2 Shallow bench/low marsh zone (6"-1.0' Deep water)

3 Shoreline fringe/high marsh (Normal pool to 1.0' above)

4 Riparian fringe (1.0' above normal pool to 4' above normal pool)

DEVELOPER'S/ BUILDER'S CERTIFICATE

I/ We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that upon completion a Certification of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Name — Date 4-1-03

LANDSCAPE NOTES

1. This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Subdivision and Land Development Regulations and the Howard County Landscape Manual.
2. The Owner/Developer is responsible for the planting of all plant material required to meet the standards established by the Howard County Landscape Manual.
3. [redacted] PM/OLD
4. The Owner/Developer shall be responsible for the maintenance of the plant materials.
5. All plant materials shall conform to the American Association of Nurserymen's publication, American Standard Nursery Stock.
6. THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
7. Please see sheet 4 for seeding notes to be used for NON-LANDSCAPING AREAS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/24/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/24/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

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STATE OF MARYLAND — BRUCE DAVID BOYNTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

BRUCE D. BOYNTON — 4/1/03

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 4-1-03

STATE OF MARYLAND — BRUCE DAVID BOYNTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER — 4/1/03

REVISIONS

No.	Date	Description

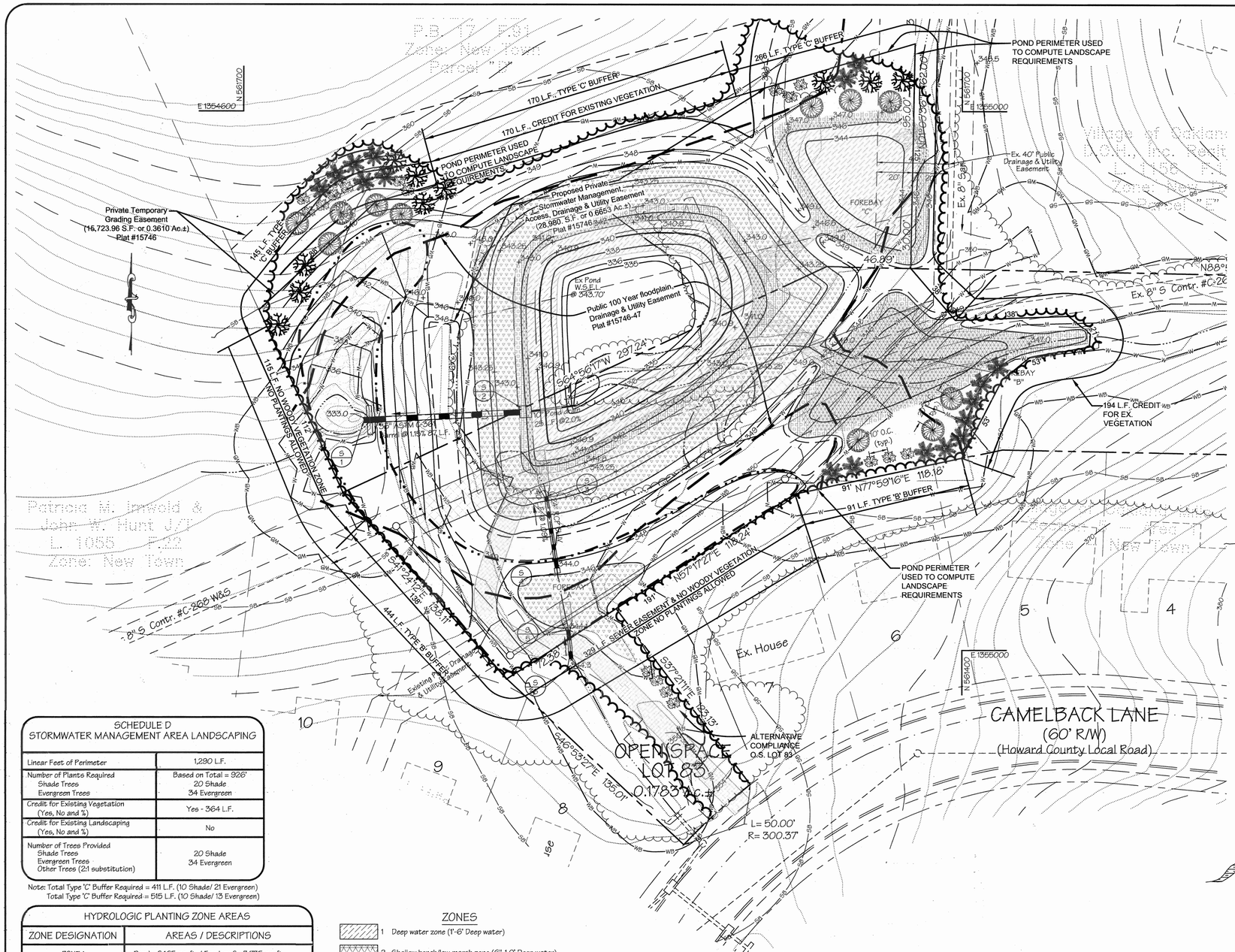
Subdivision Name			Sect/Area		Parcel/No.
Village of Oakland Mills			2/3 & 5/1		O.S. Lots 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47 F.B. 17, Folio 91 F.B. 15, Folio 96	Block No. 3 & 9	Zone NEW-TOWN	Tax Map No. 36	Election District 6th	Census Tract 6066.03
Water Code N/A			Sewer Code N/A		

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Landscape Plan BOWL POND Village of Oakland Mills Steven's Forest Capital Project #D-1127 Section Two - Area Three Open Space Lot 4 & P/O Parcel 310, Parcel D and Section Five - Area One Open Space Lot 83 Tax Map 36 6th Election District - Howard County, Maryland Previous Submittals:	SCALE 1"=30'
DRAWN J.D.R.		DRAWING 11 of 11
CHECKED B.D.B.		JOB NO. 01-008
DATE 3/2002 Rev 9/02 Rev 1/03	OWNER/DEVELOPER COLUMBIA ASSOCIATION 10221 Wincopin Circle, Suite 100 Columbia, Maryland 21044-3410 (410) 381-0691	FILE NO.

SDP-02-131

F:\Land Projects 82\BOWL\dwg\BOWL_PLAN.dwg (11)Landscape Plan, 4/7/2003 9:46:01 AM



SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

Linear Feet of Perimeter	1,290 L.F.
Number of Plants Required Shade Trees Evergreen Trees	Based on Total = 926' 20 Shade 34 Evergreen
Credit for Existing Vegetation (Yes, No and %)	Yes - 364 L.F.
Credit for Existing Landscaping (Yes, No and %)	No
Number of Trees Provided Shade Trees Evergreen Trees Other Trees (2:1 substitution)	20 Shade 34 Evergreen

Note: Total Type 'C' Buffer Required = 411 L.F. (10 Shade/ 21 Evergreen)
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ZONE DESIGNATION	AREAS / DESCRIPTIONS
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ZONE 2	Pond - 1,683 sq. ft. / Forebay B - 4,311 sq. ft. / Forebay C - 1,044 sq. ft.
ZONE 3	Pond - 2,151 sq. ft. / Forebay B - 1,503 sq. ft. / Forebay C - 940 sq. ft.
ZONE 4	Pond - 13,086 sq. ft. / Forebay A - 1,935 sq. ft.

ZONES

1 Deep water zone (1'-6' Deep water)
2 Shallow bench/low marsh zone (6"-1.0' Deep water)
3 Shoreline fringe/high marsh (Normal pool to 1.0' above)
4 Riparian fringe (1.0' above normal pool to 4' above normal pool)

LANDSCAPE SCHEDULE
HERBACIOUS WETLAND PLANTINGS

QNTY	COMMON NAME	SCIENTIFIC NAME	SIZE	*MDE ZONE	FORM
3519 sq. ft.	arrowhead / duck potato	Sagittaria latifolia	Container	2	Perennial
3519 sq. ft.	softrush	Juncus effusus	Seed mixture	2, 3	grass
2297 sq. ft.	shallow sedge	Carex lurida	Seed mixture	3	grass
2297 sq. ft.	new england aster	Aster novae-angliae	Container	3	Perennial
7511 sq. ft.	cardinal flower		Container	4	Perennial
7511 sq. ft.	perennial ryegrass	Lolium perenne	Seed / Container	4	Groundcover

* Refers to the pond hydrologic planting zones listed in Appendix A of the "2000 Maryland Stormwater Design Manual, Volumes I and II".
** See Zone legend, This sheet.

NOTES: 1.) The required stormwater management area landscaping includes 20 shade trees and 34 evergreen trees. Only the required landscape materials will be bonded. The remainder of the proposed landscape materials shown are above the Howard County Landscape requirements and are therefore, not required to be bonded.
2.) Perennial plants shall be planted at a rate of approximately 9 2/ sq. ft. △1
3.) Quantities of perennials and grasses are expressed in square foot areas and equate to the corresponding symbol (shading or hatch patterns) shown on the plan view.

LANDSCAPE SCHEDULE
TREES

SYMBOL	QNTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
TREES					
	10	Red Maple 'October Glory'	Acer...rubrum	2" - 21/2 Caliper	B & B
	10	Pin Oak	Quercus...palustris	2" - 21/2 Caliper	B & B
EVERGREENS					
	17	American Holly	Ilex Opaca	5' - 6' HT.	B & B
	17	Eastern White Pine	Pinus Strobus	5' - 6' HT.	B & B

TOTAL = 54

PROVIDE TREE STAKES ONLY IF NECESSARY
REMOVE TOP 1/3 OF BURLAP FROM TREE BALL.
PLACE TREE IN HOLE SO THAT FIRST ROOT (LATERAL) IS FLUSH WITH GRADE
3" MULCH
3" SOIL WELL
PLANTING SOIL
EVERGREEN TREE PLANTING DETAIL
N.T.S.

PROVIDE TREE STAKES ONLY IF NECESSARY.
REMOVE COVERING FROM TOP OF BALL AND PLACE TREE SO THAT FIRST LATERAL ROOT IS FLUSH WITH GRADE.
3" MULCH
3" SOIL WELL
PLANTING SOIL
DECIDUOUS TREE PLANTING DETAIL
N.T.S.

PLANTING NOTES

1. Notify "Miss Utility" 72 hours prior to the installation of plant material.
2. Plant installation must conform to minimum standards cited in the latest edition of: "Landscape Specification Guidelines" by the Landscape Contractors Association.
3. Plants to be located in the field by the owner or owner's representative. Notify owner 72 hours in advance of planting.
4. A Certification of Landscape Installation is required as per the Howard County Landscape ordinance.
5. Contract Landscape Architect regarding the substitution of plant material. The number, size and location of plants shall not be changed. Substitutions must be included in the recommended plant list.
6. Street tree locations have been shown wherever possible. Drive aprons of proposed unit do not allow the typical 1 tree : 40 feet.

DEVELOPER'S/ BUILDER'S CERTIFICATE

I/ We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that upon completion a Certification of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Name — Date 4-1-03

LANDSCAPE NOTES

1. This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Subdivision and Land Development Regulations and the Howard County Landscape Manual.
2. The Owner/Developer is responsible for the planting of all plant material required to meet the standards established by the Howard County Landscape Manual.
3. [redacted] MD/DLD
4. The Owner/Developer shall be responsible for the maintenance of the plant materials.
5. All plant materials shall conform to the American Association of Nurserymen's publication, American Standard Nursery Stock.
6. THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
7. Please see sheet 4 for seeding notes to be used for NON-LANDSCAPING AREAS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/24/03
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/24/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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 HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE SHALL EMPLOY 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.

STATE OF MARYLAND — BRUCE DAVID BOWLES — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE OF ENGINEER — DATE 4/1/03

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4-1-03

STATE OF MARYLAND — BRUCE DAVID BOWLES — No. 19184 — REGISTERED PROFESSIONAL ENGINEER
4/1/03

REVISIONS

No.	Date	Description
△1	June, 2005	Reduced Pond planting, Species & spacing.

Subdivision Name:	Village of Oakland Mills
Sect/Area	2/3 & 5/1
Parcel/No.	O.S. Lots 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83
Plat Nos. 15746-47, P.B. 17, Folio 31 P.B. 15, Folio 96	
Block No.	3 & 9
Zone	NEW-TOWN
Tax Map No.	36
Election District	6th
Census Tract	6066.03
Water Code	N/A
Sewer Code	N/A

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	S.D.H.
DRAWN	J.D.R.
CHECKED	B.D.B.
DATE	3/2002 Rev 9/03 Rev 1/03

Landscape Plan
BOWL POND
Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310,
Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

SCALE	1"=30'
DRAWING	11 of 11
JOB NO.	01-008
FILE NO.	

OWNER/DEVELOPER
COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SDP-02-131

F:\Land Projects\R2\BOWL\dwg\BOWL-PLAN.dwg (T)\Landscape Plan, 4/1/2003 9:46:11 AM

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

1. 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, (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (Section G) for permanent seeding, sod, temporary seeding, and mulching. Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site	3.00	Acres
Area Disturbed	2.25	Acres ⚠1
Area to be roofed or paved	0.14	Acres
Area to be vegetatively stabilized	1.84	Acres
Total Cut	5723	Cu. Yds.
Total Fill	1967	Cu. Yds.
Offsite waste/borrow area location	3756 Cu. Yds.	to be trucked to

⚠1 VKC 3/2, Open Space Lot 152.

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.

HOWARD SOIL CONSERVATION DISTRICT
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:
1) PREFERRED -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 600 lbs per 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 per acre 30-0-0 ureaform fertilizer (9 lbs/1000sq. ft.)
2) ACCEPTABLE -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 1000 lbs per 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 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs per acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue and 2 lbs. per acre (.05 lbs/1000sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch 2 tons / acre well anchored straw.

MULCHING -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. 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/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

MAINTENANCE -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

HOWARD SOIL CONSERVATION DISTRICT
TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed 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 per acre 10-10-10 fertilizer (14 lbs/1000sq. ft.).

SEEDING -- For periods March 1 thru April 30, and from August 15 thru October 15 seed with 2-12 bushels per acre of annual rye (3.2 lbs/1000sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs/1000sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per 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 per acre (70 to 90 lbs/1000sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged 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.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
   i. 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.
   ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
   iii. 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.

III. For sites having disturbed areas under 5 acres:
   i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:
   i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
      a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
      b. Organic content of topsoil shall be not less than 1.5 percent by weight.
      c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
      d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

   Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

   ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization --Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application
   i. 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.
   ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
   iii. 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.
   iv. 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.

VI. 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:
   i. 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:
      a. 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.
      b. 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.
      c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet,
   ii. 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.

References:Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub.#1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit. — 1 Day
2. Notify the Howard County Department of Public Works Construction Inspection Division at 410-313-1855 at least 48 hours prior to beginning construction. — 1 Day
3. Field stake limits of disturbance in accordance with the approved grading and sediment control plan. (Sheet 3) — 1 Day

   Note: MDE requires the closure of the onsite streams from March 1 through June 15. No in-stream work is allowed during the closure period.

PHASE I - SEDIMENT CONTROL FOR 8" SEWERMAIN

4. Install SCE with gravel access road and silt fence along proposed relocated 8" sewer alignment, as shown on the approved grading and sediment control plan. — 3 Days
5. Excavate for and construct 8" public sewer. Utilize the filter bag device during trench construction. Note: In the event the material excavated from the proposed sewer trench is unsuitable to use for backfill, the material shall be removed from the site and trucked to an approved spoil location. Material may not be stockpiled within the wetlands, wetland buffers, streams or stream buffers or 100 year floodplain. — 8 Days
6. Immediately stabilize all disturbed areas at the end of each day in accordance with the temporary seeding notes. — Daily
7. Once the relocated sewer is fully operational and with the permission of the sediment control inspector, remove all silt fence along the sewer alignment that may interfere with the construction of the pond. — 1 Day

PHASE II - SEDIMENT CONTROL FOR POND RECONSTRUCTION

8. Install perimeter controls, including silt fence, super silt fence, sandbag/ stone diversions, RPS, and temporary diversion pipes. — 5 Days

   Note: The temporary sandbag/ stone dams and diversion pipes shall be checked after every storm event to insure they are operating properly. The temporary diversion pipes shall remain in place until all disturbed areas are completely stabilized and the basin is converted to a permanent pond.

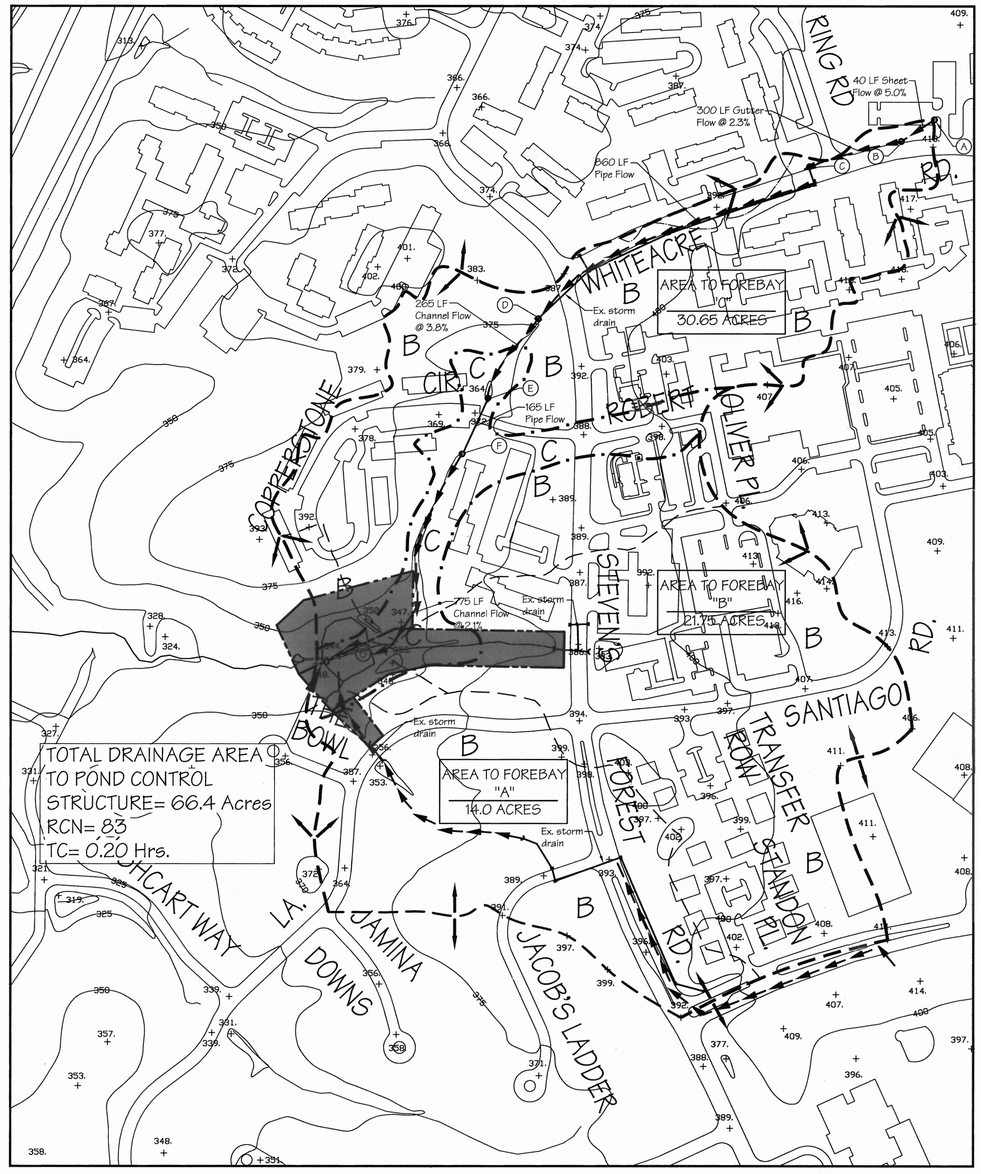
9. Clear and grub for pond/ sediment basin. Excavate basin to final bottom elevation (334.5). Install 24" RCP (S-3 to S-4). — 1 Week

   Note: The unsuitable material from the existing bowl pond and vicinity shall be directly loaded into trucks and taken **to ⚠1 VKC 3/2, Open Space Lot 152 .** Material shall not be stockpiled within the nontidal wetlands, wetland buffers, streambank buffers or 100 year floodplain. With the permission of the sediment control inspector, material may be temporarily stockpiled within the existing pond bed.

10. Proposed dam shall not be constructed until:
    a. The body of the pond is dredged, formed and permanent stabilized.
    b. All barrel, riser, endwalls and other principal spillway materials are onsite.
    c. There is a 5 day clear (no precipitation) weather forecast from the National Weather Service
    d. Permission is granted by the sediment control inspector to proceed.
11. Install embankment core trench. Utilize filter bag during trench construction.
12. Install pond riser and barrel (S-1 to S-2), anti-seep collars, endwall, Rip-rap in existing plunge pool, and concrete riser base in accordance with the notes and specifications on sheets 6,7,8, & 9. — 2 Weeks
13. Install 10" D.I.P. pond drain and attach temporary drawdown device. Install removable pumping station. — 1 Day
14. Install embankment cutoff trench and remainder of embankment to constructed top elevation. — 1 Week
15. Grade remainder of basin/ pond, including emergency spillway, 5' safety bench, and 12' maintenance bench in accordance with the approved grading plan (sheet 3). Immediately stabilize all disturbed areas in accordance with the temporary seeding notes. — 2 Weeks
16. Grade forebays B & C in accordance with the approved grading plan (sheet 3). Install forebay gabions and forebay inflow protection for forebays B and C only per details on sheet 8. Install forebay inflow protection — 1 Week
17. Establish final grade in and around pond/ basin area, forebays and emergency spillway. Install rip-rap on emergency spillway outlet channel. Immediately stabilize all disturbed areas in accordance with the permanent seeding notes. — 1 Week
18. Once all disturbed areas are completely stabilized in accordance with the Permanent seeding notes and with the permission of the sediment control inspector, convert basin into permanent pond:
    a. Remove temporary drawdown device from 10" D.I.P. pond drain pipe.
    b. Excavate any accumulated sediment from basin to final design bottom elevation of 334.5.
    c. Install trashracks on all four (4) faces of concrete riser structure in accordance with the details on sheet 8.
    d. Close gate valve on 10" pond drain. — 1 Week
19. Stabilize all remaining disturbed areas in accordance with the permanent seeding notes. With the permission of the sediment control inspector, remove all remaining sediment control devices, including silt fence, super silt fence, sandbag/ stone dams and temporary diversion pipes. Install forebay 'A'. — 1 Week
20. Install landscaping. — 1 Week

Total Estimated Construction Time: 31/2 Months

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP NAME	HYDROLOGIC TYPE
GIB2	Glenelg	B
G1D2	Glenelg	B
G1C2	Glenelg	B
GnB2	Glenville	C
ChB2	Chester	B
M1B2	Manor	B
M1C2	Manor	B
M1D3	Manor	B



Drainage Area & Soils Map
1" = 200'

LEGEND

- HYDROLOGIC SOIL GROUP BOUNDARY
- SUB-AREA DRAINAGE DIVIDE
- DRAINAGE AREA TO POND
- TC FLOW PATH

Subdivision Name: Village of Oakland Mills			Sect/Area 2/3 & 5/1		Parcel/No. (Eg. Lots 4 & P10 Parcel 310, Parcel D Open Space Lots 4 & 60)
Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No. 3 & 9	Zone NEW-TOWN	Tax Map No. 36	Election District 6th	Census Tract 6066.03
Water Code N/A		Sewer Code N/A			

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/24/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/16/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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 RETAIN A QUALIFIED 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.

STATE OF MARYLAND — BRUCE DAVID BURGESS — No 19184 — REGISTERED PROFESSIONAL ENGINEER

BRUCE D. BURGESS — SIGNATURE OF ENGINEER — DATE 4/1/03

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER — DATE 4.1.03

STATE OF MARYLAND — BRUCE DAVID BURGESS — No 19184 — REGISTERED PROFESSIONAL ENGINEER

BRUCE D. BURGESS 4/1/03

REVISIONS

No.	Date	Description
⚠1	June, 2005	Added unsuitable material disposal location.

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

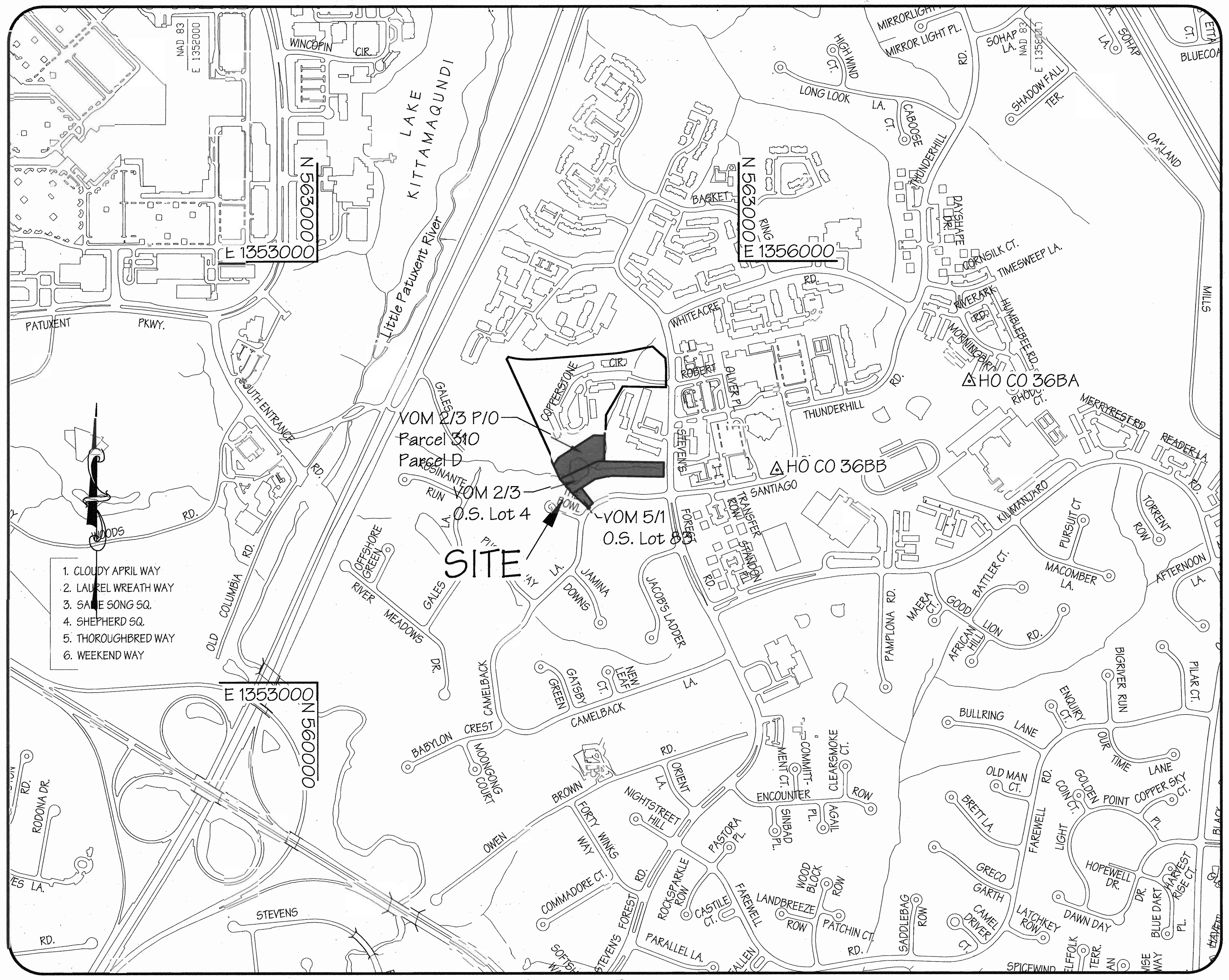
DESIGNED	Sediment Control Notes & Details & Drainage Area Map	SCALE
S.D.H.	BOWL POND Village of Oakland Mills Steven's Forest Capital Project #D-1127 Section Two - Area Three Open Space Lot 4 & P10 Parcel 310, Parcel D and Section Five - Area One Open Space Lot 83 Tax Map 36 6th Election District - Howard County, Maryland Previous Submittals:	As Shown
DRAWN J.D.R. M.B.J.		DRAWING 4 of 11
CHECKED B.D.B.		JOB NO. 01-008
DATE 3/2002 Rev 9/02 Rev 1/03	OWNER/DEVELOPER COLUMBIA ASSOCIATION 10221 Wincopin Circle, Suite 100 Columbia, Maryland 21044-3410 (410) 381-0591	FILE NO.

SDP-02-131

F:\Land Projects R2\BOWL\Ldwg\BOWL-GAS.dwg, (4)Sediment Control Notes & Details & Drainage Area Map, 4/1/2003 8:32:50 AM

GENERAL NOTES

1. THE PURPOSE OF THIS SITE DEVELOPMENT PLAN IS TO PROVIDE CONSTRUCTION DOCUMENTS FOR THE RECONSTRUCTION OF AN EXISTING POND LOCATED ON COLUMBIA ASSOCIATION OPEN SPACE.
2. All construction shall be in accordance with the latest standards and specifications of Howard County Design Manual Vol. IV and current MDE and MSHA standards & specifications.
3. Project Background:
   - Location: Village of Oakland Mills, Columbia, Maryland
   - Tax Map: Map 36
   - Tax Map Lots: VOM 2/3, Open Space Lot 83 & VOM 5/1, Open Space Lot 4
   - Grid: 9
   - Election District: 6 th
4. Existing zoning: New Town- Credited Open Space Land use per FDP 60 and FDP 79-A-III.
5. Current Plat and Deed References:
   - VOM 2/3, Open Space Lot 4; Plat Book 17, Folio 91; Deed: L. 663, F. 307
   - VOM 5/1, Open Space Lot 83; Plat Book 15, Folio 96; Deed: L. 563, F. 624
6. The Boundary shown hereon is based on the above referenced plats. Plat Book 17, Folio 91 recorded among the Land Records of Howard County on November 24, 1969. Plat Book 15, Folio 96 recorded among the Land Records of Howard County on February 7, 1969.
7. Horizontal and vertical datum's are related to the Maryland State Plane Coordinate System as projected from Howard county control stations No. 36BA and 36BB (NAD 83).
8. Any damage caused by the contractor to existing Camelback Lane public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the contractors expense.
9. The existing utilities shown hereon are located from field surveys and construction drawings of record. The contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service. Any damage incurred to utilities or existing features due to contractor's operation shall be repaired immediately at the contractor's expense.
10. There may be additional utilities not shown on these plans. The engineer assumes no responsibility for utility locations not shown and it shall be the responsibility of the contractor to verify the locations of all existing utilities within the limits of construction and notify the engineer of any discrepancies, prior to the start of construction.
11. Site Analysis Data:
    - a. Total project Area : O.S. Lot 4 - 1.791 Ac ; O.S. Lot 83 - 0.1783 Ac (1.9693 Ac total)
    - b. Existing Offsite Drainage easement area: 0.37 Acres
    - c. Proposed Additional offsite Drainage easement area: 0.66 Acres
    - d. Area of Plan Submission: 3.00 Acres
    - e. Limit of Disturbed Area: ⚠1 **2.25** Acres
    - f. Present Use: Open Space - filled in pond
    - g. Proposed Use: Open Space - Reconstructed SWM Pond
    - h. Applicable DPZ File References: F-68-94c, F-70-29, FDP 60, FDP 79-A-III, F-03-66 (Plat Nos. 15746-47)
12. A wetland study for the subject site was completed by LDE, Inc. in February, 1997.
13. A Wetland Permit and Water Quality Certification from the U.S. Army Corps of Engineers and the Maryland Department of the Environment is required for the proposed disturbances to the onsite nontidal wetlands, wetland buffers and 100 year floodplain prior to beginning construction. The required permit applications have been completed and submitted to MDE. The assigned MDE tracking number is 02-NT-0250/ 200264247. Permit issued March 18,2003.
14. This project is located on existing New Town Open Space lots recorded prior to 1992. Therefore, this project is exempt from the forest conservation requirements. For informational purposes, the total area of existing forest to be retained on the two (2) open space lots is 40,000 square feet. See Subdivision, Subtitle Section 16.1202(b)(l)(iv).
15. This project is subject to the Howard County Landscape requirements per Section 16.124 of the Land Development and Subdivision Regulations. Landscaping for the proposed reconstructed pond will be provided in accordance with the Howard County Landscape Manual.
16. Adjustments to the sequence of construction shall be approved by the Howard County Department of Inspections, Licenses and Permits, prior to such adjustments.
17. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection at (410) 313-1880 at least five (5) working days prior to the start of work.
18. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work.
19. The existing 8" public sewer located within the existing and proposed Bowl Pond will be relocated as shown on the site development plan. Refer to Water and Sewer Contract C-268, sheet 5B of 8 for plan and profile of the relocated sewer.
20. The reconstructed Bowl Pond was designed as a wet pond (MDE Code P-2) to provide 75% water quality and partial quantity management in accordance with the Maryland Department of the Environment "2000 Maryland Stormwater Design Manual, Volumes I & II" and the latest version of "Howard County Design Manual, Volume I- Storm Drainage"
21. Three (3) forebays, located at the pond inflow points will provide pre-treatment for the reconstructed Bowl Pond.
22. The stormwater management pond shall be privately owned and maintained by the Columbia Association.
23. All fill shall be rolled to a minimum degree of compaction of 95% of the dry unit weight as determined by AASHTO T- 180.
24. The existing floodplain limit shown hereon is taken from the approved Howard County Little Patuxent River Study. The 100 year elevations in the pond and forebays is based on TR-20
25. A Geotechnical Report was completed by Hillis Carnes Engineering Associates for the existing pond embankment in March, 1997. Refer to boring logs and recommendations on sheet 7.
26. Earthwork quantities shown on this plan are estimated and should not be used for bid purposes. Contractors should perform independent earthwork analysis for bid purposes.
27. Deviations from these plans and specifications without prior written consent of the civil engineer may cause the work to be unacceptable.
28. The dimensioned distances shall govern if scaled and dimensioned distances on this plan are found to be in disagreement.
29. No clearing, grading or construction is permitted within the nontidal wetlands or their buffers until the MDE Permit is issued.
30. All unsuitable material excavated from the site (dredge spoils) shall be trucked to an approved offsite location. No Material shall be ere stockpiled onsite within the wetlands or their buffers. **Unsuitable material shall be trucked to VKC 3/2, Open Space Lot 152.** ⚠1
31. Clearing, grading or construction is not permitted within the limit of wetlands, 25' wetlands buffer, streams or 50' stream buffer, floodplain, except as shown on this plan approved by the Department of Planning and Zoning.
32. The existing topography shown hereon within the limits of disturbance is taken from a field run survey with two foot contour intervals prepared by LDE, Inc. in March, 1997 and supplemented in February, 2002. The remainder of the topography shown was complied from Howard County Aerial Topography.
33. The gravel access road shown off Camelback Lane on Open Space Lot 83 shall remain after the completion of construction.
34. Capital project number related to the Bowl Pond site:
    - a.) D-1127, pond reconstruction/ drainage improvements.
    - b.) W-8212, relocation of existing 8" sewer. Contract No. 268 W & S.
35. A temporary grading easement and permanent stormwater management access, drainage and utility easement have been obtained by the Columbia Association from Cornerstone/ Stevens Forest, Inc.. The easements are shown on a resubdivision plat titled "Revision Plat, Columbia, Village of Oakland Mills-Stevens Forest, Section 2, Area 3 O.S. Lot 4 and P/O Parcel D & Section 5, Area 1, O. S. Lot 83", dated October, 2002 and recorded among the Land Records of Howard County as plat No. 15746-47.
36. The Howard County Council approved the abandonment of the portion of the existing public sewer easement of the existing public sewer easement shown hereon to be abandoned at the October 30, 2002 meeting; Resolution No. 163-2002.
37. The Department of Planning and Zoning granted approval for all "necessary disturbances" shown within the 100 year floodplain, non-tidal wetlands, wetland buffers, and streams in June, 2002.
38. The Department of Public Works approved Design Manual Waivers from Volume I, Chapter 5, Sections 5.2.1.A, 5.2.3.B.1, 5.2.4.I, 5.2.5.P and 5.2.6.D.5 by letter dated June 7, 2002.
39. The Department of Public Works approved a Design Manual Waiver from Volume I, Chapter 5, Section 5.2.4.I by letter dated November 13, 2002 to allow the relocated sewer to be within 25' of the toe of the pond embankment.



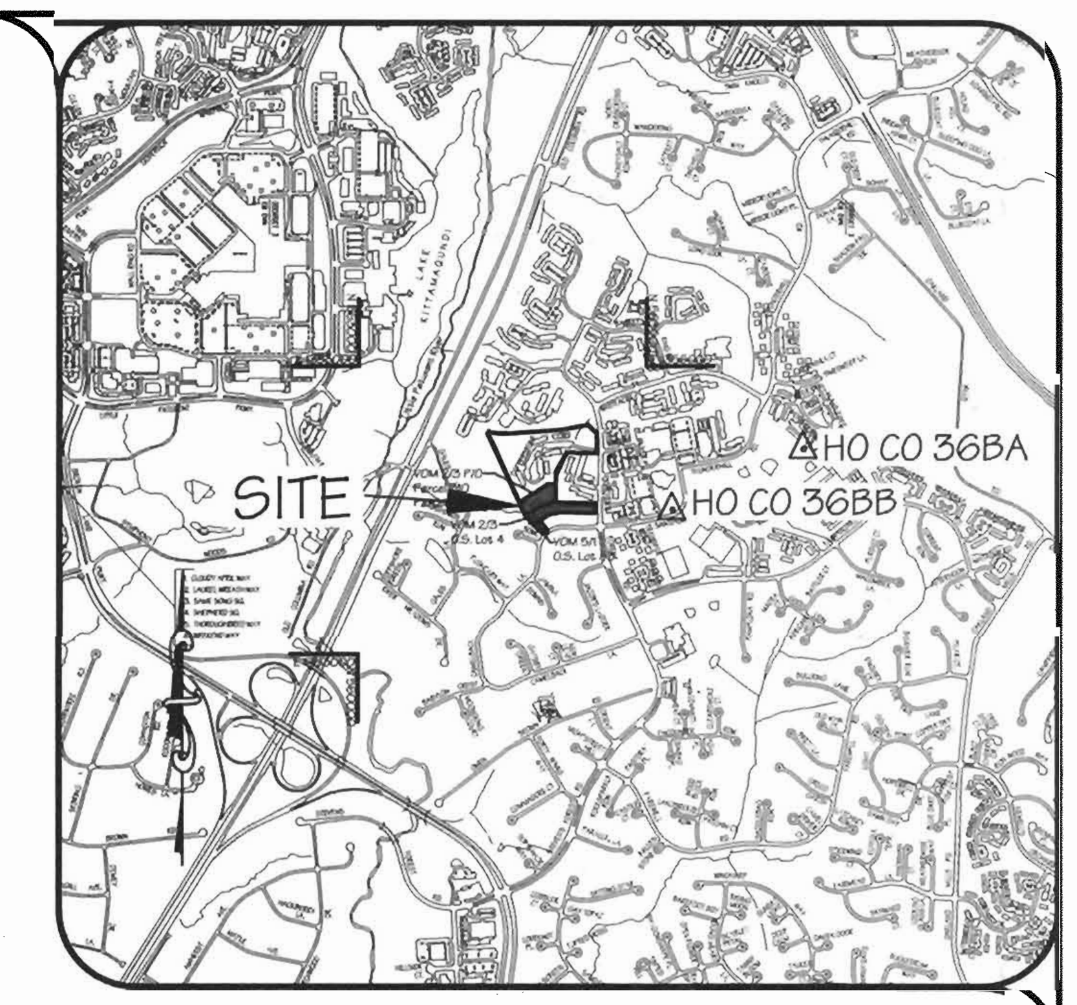
LOCATION MAP

Scale: 1" = 600'

BENCHMARKS

1.) Howard County Control Station 36BA. Elevation= 417.47
Standard stamped disk set on a 3' deep cylindrical concrete base 1.5' south of an existing 4' asphalt pathway, 61 L.F. southwest of an existing storm drain inlet.
N. 562135.523 E. 1357571.64

2.) Howard County Control Station 36BB. Elevation= 409.97
Standard stamped disk set on a 3' deep cylindrical concrete base 6.5 L.F. north of face of curb of Santiago Road south of the Oakland Mills Interfaith Center.
N. 561504.23 E. 1356203.68



VICINITY MAP

Scale: 1" = 2000'

SHEET INDEX

Sheet Number	Description
1	Cover Sheet
2	Site Development Plan
3	Grading & Sediment and Erosion Control Plan
4	Sediment Control Notes & Details & Drainage Area Map
5	Sediment Control Notes & Details
6	Stormwater Management Notes & Details
7	Stormwater Management Notes & Details
8	Stormwater Management Details
9	Sediment Basin Plan, Notes, & Details
10	Existing Conditions Plan
11	Landscape Plan

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE/ PROPOSED LIMIT OF DISTURBANCE
- EXISTING PIPE
- PROPOSED PIPE
- RIP-RAP OUTLET APRON
- LIMIT OF DISTURBANCE (For dam construction only)
- STABILIZED CONSTRUCTION ENTRANCE
- SILT FENCE — SF —
- EARTH DIKE
- NON-TIDAL WETLAND LIMIT — W —
- WETLAND BUFFER LIMIT — WB —
- APPROX. FLOOD PLAIN LIMIT
- 75' STREAM BUFFER — SB —
- NO WOODY VEGETATION ZONE

PUBLIC 100 YEAR FLOODPLAIN DRAINAGE & UTILITY EASEMENT LINE TABLE

NO.	BEARING	DISTANCE
F1	N17°42'24"W	12.04
F2	N53°20'36"W	30.63
F3	N25°56'12"W	16.76
F4	N55°13'14"W	17.02
F5	N73°11'11"W	18.97
F6	N33°58'19"W	9.74
F7	N24°00'54"E	9.06
F8	N34°36'21"E	36.06
F9	N14°47'50"E	29.38
F10	N41°10'59"E	18.14
F11	N10°24'08"E	12.99
F12	N25°17'08"E	12.97
F13	N06°49'48"E	11.30
F14	N28°27'11"W	13.32
F15	N78°48'23"W	7.63
F16	S59°55'02"W	22.22
F17	S53°47'48"W	33.01
F18	S52°46'39"W	40.07
F19	S48°59'27"W	25.81
F20	S45°02'54"W	37.18
F21	S64°05'14"W	22.06
F22	S79°25'03"W	9.02
F23	S88°45'55"W	14.83
F24	N77°06'36"W	16.43
F25	N55°08'45"W	56.64
F26	N67°36'28"W	22.28
F27	N28°15'25"E	10.55
F28	N15°26'06"E	28.64
F29	N25°22'50"E	13.18
F30	N38°32'26"E	16.05
F31	N45°33'16"E	17.78
F32	N51°27'18"E	14.80
F33	N69°49'28"E	35.38
F34	N55°00'31"E	23.75
F35	N66°07'29"E	8.69
F36	N74°09'25"E	70.93
F37	N70°52'12"E	92.33
F38	N64°24'51"E	25.72
F39	N34°50'50"E	12.63
F40	N07°48'17"E	16.08
F41	N05°46'59"E	71.72
F42	N01°36'21"E	138.31
F43	N25°24'27"E	68.92
F44	N33°05'12"E	88.16
F45	N28°48'05"E	90.22
F46	N24°41'19"E	95.26
F47	N18°29'38"E	91.12
F48	N12°02'34"E	46.92
F49	N28°39'48"E	105.47
F50	N22°39'56"E	43.88
F51	N15°58'12"E	20.77
F52	N08°29'43"E	107.36

SITE DEVELOPMENT PLAN
BOWL POND RECONSTRUCTION
Columbia
Village of Oakland Mills
Steven's Forest
Section Two - Area Three
Open Space Lot 4 and P/O Parcel 310, Parcel D & Section Five - Area One
Open Space Lot 83
6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/21/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/15/03

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

NATURAL RESOURCE CONSERVATION SERVICE — DATE 4/9/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/03

ENGINEER'S CERTIFICATE

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 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.

Bruce D. Burton — SIGNATURE OF ENGINEER — DATE 4/1/03

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER

DEVELOPER'S CERTIFICATE

"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.

V.P. — SIGNATURE OF DEVELOPER — DATE 4-1-03

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19184 — REGISTERED PROFESSIONAL ENGINEER — 4/1/03

ADDRESS CHART

5976	CAMELBACK LANE

REVISIONS

No.	Date	Description
⚠1	June, 2005	Added disposal site location to note 30.

Subdivision Name	Sect/Area	Parcel/No.
Village of Oakland Mills	2/3 & 5/1	O.S. Lot 4 & P/O Parcel 310, Parcel D Open Space Lots 4 & 83

Plat Nos. 15746-47 P.B. 17, Folio 91 P.B. 15, Folio 96	Block No.	Zone	Tax Map No.	Election District	Census Tract
	3 & 9	NEW-TOWN	36	6th	6066.03

Water Code: N/A — Sewer Code: N/A

LDE, INC.
9250 Rumsey Road, Suite 106, Columbia, MD. 21045
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.
DRAWN: J.D.R. MBJ
CHECKED: B.D.B.
DATE: 3/2002, Rev 9/02, Rev 1/03

Cover Sheet
BOWL POND
Village of Oakland Mills
Steven's Forest
Capital Project #D-1127
Section Two - Area Three
Open Space Lot 4 & P/O Parcel 310, Parcel D and Section Five - Area One
Open Space Lot 83
Tax Map 36
6th Election District - Howard County, Maryland
Previous Submittals:

OWNER/DEVELOPER: COLUMBIA ASSOCIATION
10221 Wincopin Circle, Suite 100
Columbia, Maryland 21044-3410
(410) 381-0591

SCALE: As Shown
DRAWING: 1 of 11
JOB NO.: 01-008
FILE NO.:

SDP-02-131