ROAD CONSTRUCTION PLANS

FRIENDSHIP LAKES, LOTS 5 THRU 15

AND PRESERVATION PARCEL "A" & "B"

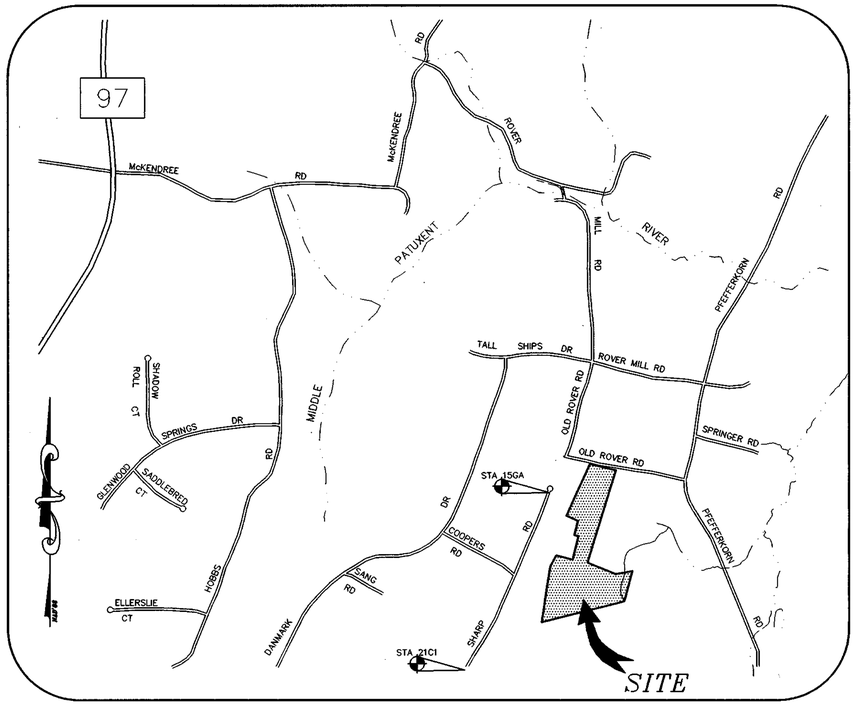
A RESUBDIVISION OF FRIENDSHIP LAKES, LOTS 1, 2 AND 4

THIRD ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

SHEET INDEX

COVER SHEET	1
ROAD PLAN, PROFILE & TYPICAL SECTIONS	2
ROAD PROFILES & TYPICAL SECTION	3
GRADING, EROSION AND SEDIMENT CONTROL PLAN	4
GRADING, EROSION AND SEDIMENT CONTROL PLAN	5
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	6
STORM DRAIN PROFILES AND DETAILS	7
DRAINAGE AREA AND SOILS MAP	8
STORMWATE MANAGEMENT PLAN, PROFILES & DETAILS	9
POND SPECIFICATION & SOIL BORING LOGS	10
LANDSCAPE PLAN	11
FOREST CONSERVATION PLAN	12



VICINITY MAP

SCALE: 1"=1000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK:

MISS UTILITY	1-800-257-7777
C&P TELEPHONE COMPANY	(410) 725-9976
HOWARD COUNTY BUREAU OF UTILITIES	(410) 313-4900
AT&T CABLE LOCATION DIVISION	(410) 393-3533
BALTIMORE GAS & ELECTRIC	(410) 685-0123
STATE HIGHWAY ADMINISTRATION	(410) 531-5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION	(410) 313-1880

4. PROJECT BACKGROUND:
   LOCATION: THIRD ELECTION DISTRICT – TAX MAP 15 – PARCEL 175 – BLOCK 19
   ZONING: RR-DEO
   DEED REFERENCE : L. 3450 F. 661
   TOTAL TRACT AREA : 27.70 ACRES ±
   NUMBER OF PROPOSED LOTS: 12 (12 BUILDABLE)
   ACREAGE OF PROPOSED LOTS : 10.05 ACRES ± (BUILDABLE)
   ACREAGE OF PROPOSED PRESERVATION PARCELS : 16.57 ACRES ± (BUILDABLE)
   AREA OF RIGHT OF WAY: 1.08 ACRES±
   DPZ REFERENCE #: F-88-204, SP-99-13
5. TOPOGRAPHIC DATA BASED ON HOWARD COUNTY'S 200 SCALE MAPS FOR OFFSITE AND FIELD RUN BY MILDENBERG, BOENDER & ASSOCIATES, INC. FOR ONSITE IN APRIL 1999.
6. HORIZONTAL AND VERTICAL DATUMS BASED ON (NAD'83) MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.

STA No. 21CA	N 588,897.344 E 1,311,235.701	EL.= 613.273
STA No. 15GA	N 591,743.505 E 1,312,790.715	EL.= 588.446

7. STREET LIGHTS ARE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
8. PRIVATE WATER AND PRIVATE SEWERAGE WILL BE UTILIZED. PUBLIC SHARED SEPTIC TO BE FOR LOT 11 THRU 14 AND PRESERVATION PARCEL "A".
9. SOILS DATA BASED ON HOWARD COUNTY SOIL SURVEY DATED 1968, SHEET 13.
10. STORMWATER MANAGEMENT CONTROL WILL BE PROVIDED BY THE METHOD OF DETENTION FOR QUANTITY & STORMCEPTOR FOR QUALITY. THE FACILITY WILL BE PRIVATELY OWNED & MAINTAINED.
11. NO FLOODPLAIN STUDY IS REQUIRED PER SECTION 16.115(d) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. FLOODPLAIN EXISTS ON THE PRESERVATION PARCEL AT A LOCATION NOT CRITICAL TO THE PROPOSED DEVELOPMENT. 100 YEAR FLOODPLAIN AND UTILITY EASEMENT BASED ON F-88-204, PLAT 8239. AREA OF 100 YEAR FLOODPLAIN IS 2.53 ACRES.
12. WETLAND STUDY BY WILDMAN ENVIRONMENTAL SERVICES ON OCTOBER, 1997.
13. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
14. COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T-180.
15. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
16. PROPERTY IS LOCATED WITHIN THE NO PLANNED SERVICE AREA.
17. BASED ON AVAILABLE COUNTY DATA, NO HISTORIC STRUCTURES OR BURIAL GROUNDS EXIST ON SITE.
18. NO STEEP SLOPES EXIST ON-SITE.
19. OPEN SPACE IS NOT REQUIRED PER SUBDIVISION REGULATIONS, SEC. 16.121.(a)(2)*. NO OPEN SPACE IS NEEDED BECAUSE PRESERVATION PARCEL "B", TO BE OWNED BY THE HOME OWNERS ASSOCIATION, MEETS THE ACREAGE REQUIREMENT FOR OPEN SPACE.
20. ALL EXISTING STRUCTURES, DRIVEWAYS AND PAVING TO BE REMOVED AND EXISTING WELL(S) AND SEPTIC SYSTEM(S) TO BE PROPERLY ABANDONED.
21. PRESERVATION PARCEL "A" IS TO BE USED FOR THE PURPOSE OF ONE SINGLE FAMILY DETACHED UNIT AND FOREST CONSERVATION ONLY.
22. NON-BUILDABLE PRESERVATION PARCEL "B" IS TO BE USED FOR THE PURPOSE OF PUBLIC SHARED SEPTIC SYSTEM AND PRIVATELY MAINTAINED STORMWATER MANAGEMENT FACILITY.
23. INSTALL SPEED CONTROL DEVICE PER DETAILS SHOWN ON SHEET 2.
24. A MINIMUM OF TWO (2) PARKING SPACES ARE PROVIDED FOR EACH LOT. NO OFF-STREET PARKING IS REQUIRED.
25. USE-IN-COMMON DRIVEWAY MUST BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS TO ENSURE SAFE VEHICLES FOR LOTS 12 THRU 14 AND PRESERVATION PARCEL "A".
    A) WIDTH- 12 FEET (14 FEET IF SERVING MORE THAN ONE RESIDENCE)
    B) SURFACE- 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
    C) GEOMETRY- MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45 FT TURNING RADIUS
    D) STRUCTURES (CULVERTS/BRIDGES)- CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING)
    E) DRAINAGE ELEMENTS- CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
    F) STRUCTURE CLEARANCES- MINIMUM 12 FEET
    G) MAINTENANCE- SUFFICIENT TO INSURE ALL WEATHER USE.
26. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
27. GEOTECHNICAL REPORT BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. ON MAY 27, 1999.
28. FOREST STAND DELINEATION WAS COMPLETED BY WILDMAN ENVIRONMENTAL SERVICES ON JUNE 2, 1999.
29. LANDSCAPING FOR LOTS 5 THRU 15 IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN ON FILE WITH THIS PLAT IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. LANDSCAPE SURETY IN THE AMOUNT OF $25,650.00. HAS BEEN POSTED AS PART OF THE DEVELOPERS AGREEMENT.
30. SURETY FOR THE 5.65 ACRES OF REFORESTATION IN THE AMOUNT OF $73,854.20 HAS BEEN POSTED AS PART OF THE DEVELOPERS AGREEMENT.
31. EXISTING POND ON PRESERVATION PARCEL "A" IS TO BE REMOVED. THE CONTRACTOR SHALL FOLLOW THE SPECIAL GUIDLINES FOR REMOVAL AND STABILAIZATION OF THE POND (SHEET 6 OF 12)
32. ACCESS TO EXISTING LOT 3 TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. PERMANENT ACCESS TO BE PROVIDED VIA PUBLIC ROAD.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 4/16/01

J. Thomas Scrivener
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 4/16/01

R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

STATE OF MARYLAND — R. JACOB HIKMAT — 17942 — PROFESSIONAL ENGINEER

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

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 5/18/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/18/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/11/01

99010/DWG/FINAL/ROAD/COVER

OWNER/DEVELOPER

ROVER MILL, LLC
8808 CENTRE PARK DRIVE, SUITE 209
COLUMBIA, MARYLAND 21045
(410) 964 5522

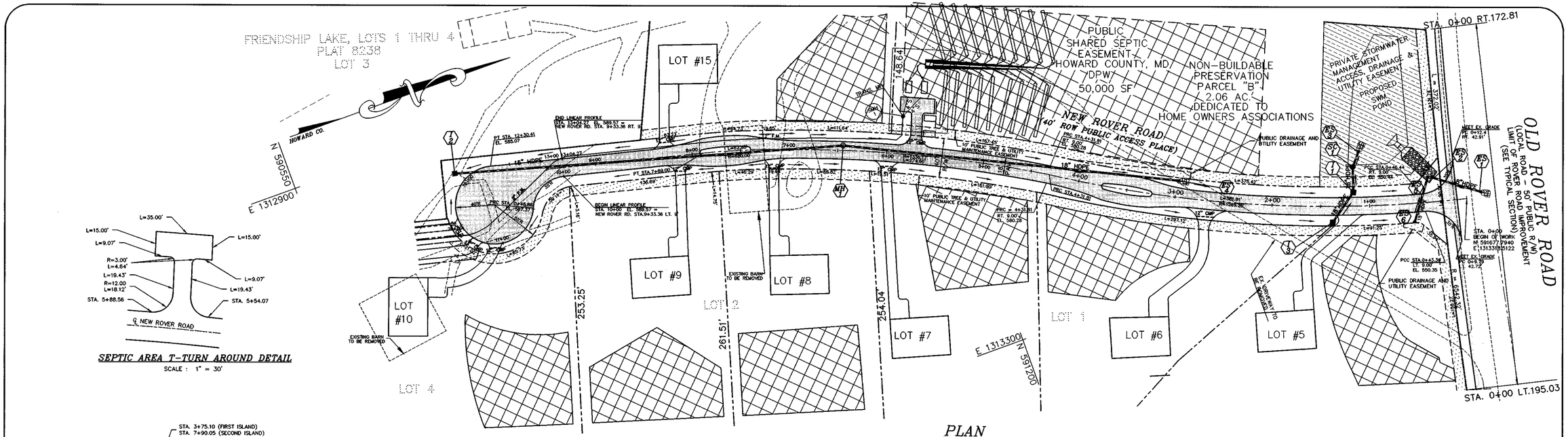
project	date
99010	APR. 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	HJB

no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
COVER SHEET

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

F-01-12

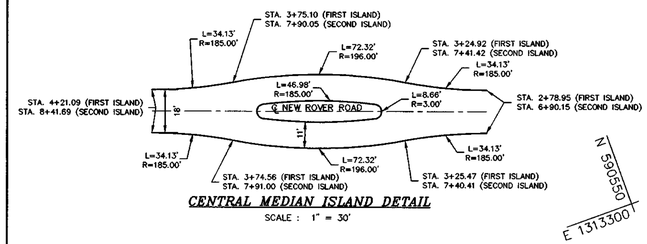


PLAN

SCALE: 1" = 50'

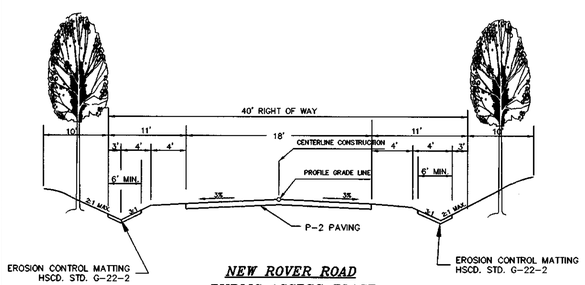
SEPTIC AREA T-TURN AROUND DETAIL

SCALE : 1" = 30'



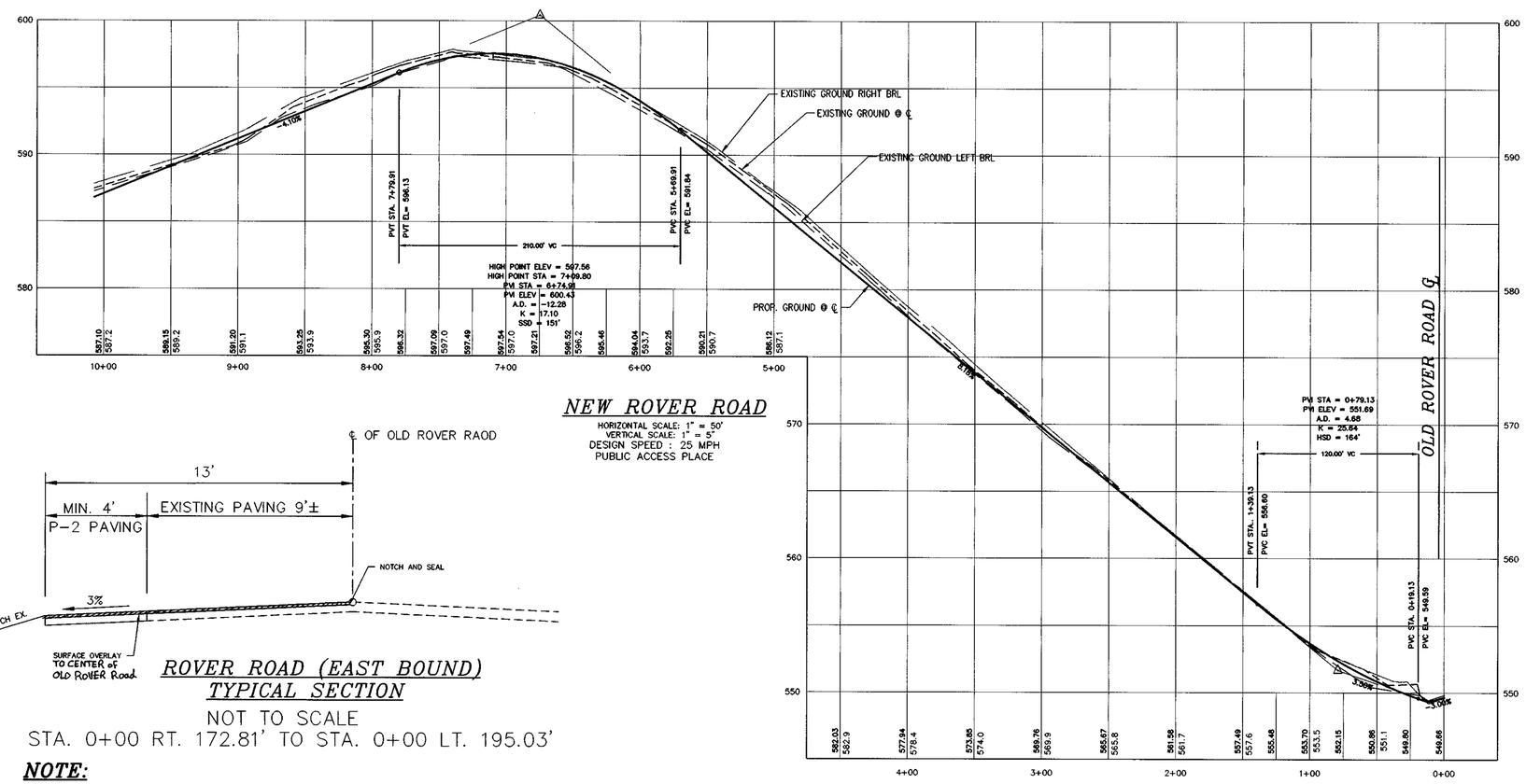
CENTRAL MEDIAN ISLAND DETAIL

SCALE : 1" = 30'



NEW ROVER ROAD PUBLIC ACCESS PLACE

NOT TO SCALE



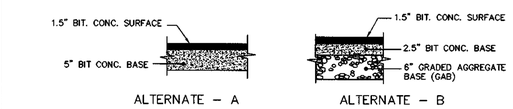
NEW ROVER ROAD

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'
DESIGN SPEED : 25 MPH
PUBLIC ACCESS PLACE

ROVER ROAD (EAST BOUND) TYPICAL SECTION

NOT TO SCALE

STA. 0+00 RT. 172.81' TO STA. 0+00 LT. 195.03'



P-2 PAVING STANDARD DETAIL R 2.01

NOT TO SCALE

NOTE:

ROAD IMPROVEMENT FOR OLD ROVER ROAD TO BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL (R-10.01)

NOTE: FOR STREET TREES SEE LANDSCAPE PLAN ON SHEET 11.

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF BUREAU OF HIGHWAYS	DATE 5-1-01
APPROVED: DEPARTMENT OF PLANNING AND ZONNING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/23/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5/11/01

STATE OF MARYLAND — JACOB HUNT — PROFESSIONAL ENGINEER

99010/DWG/FINAL/ROAD/ROAD-1

project	date
99010	APR. 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHOWN	RJH

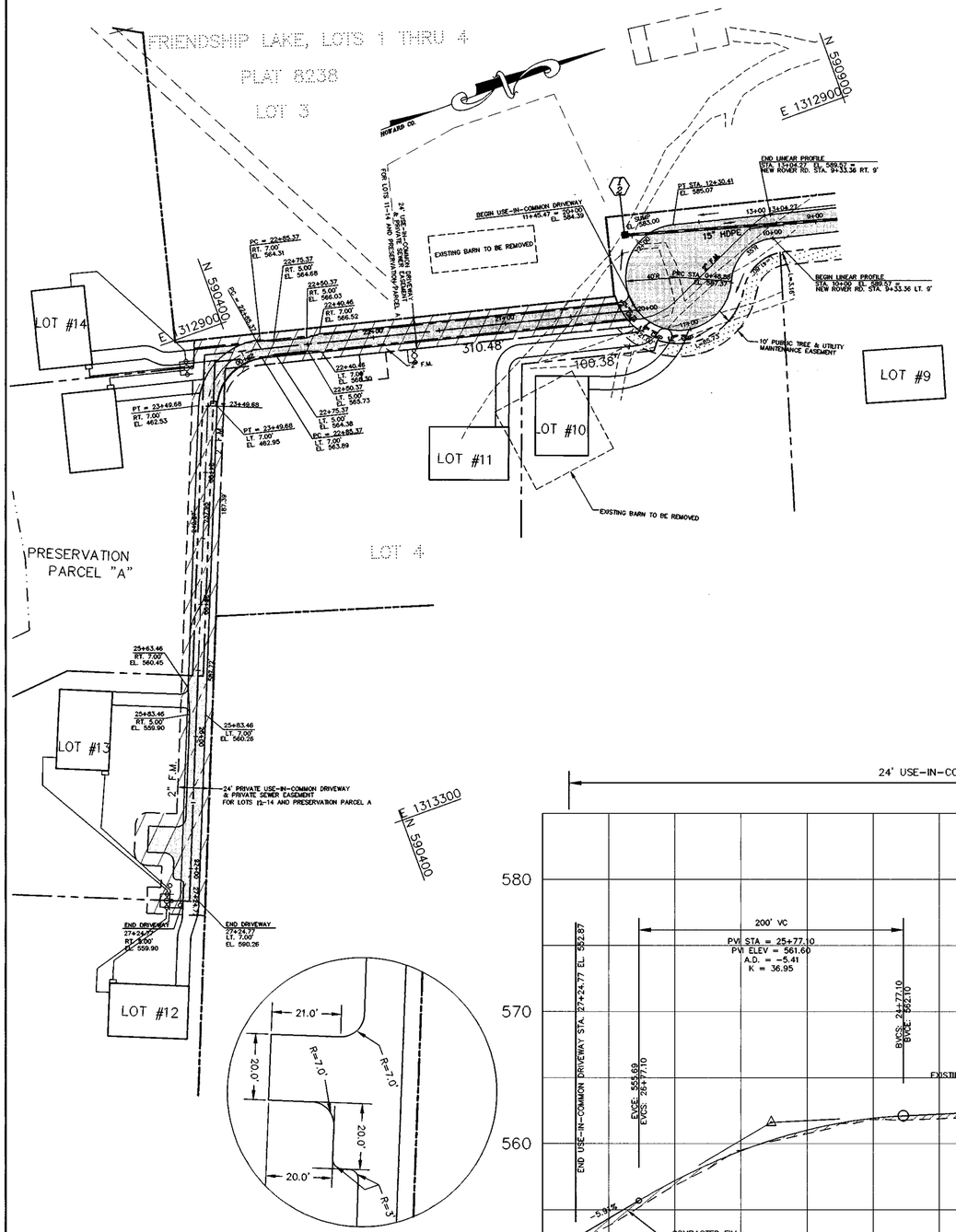
no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
HOWARD COUNTY, MARYLAND
THIRD ELECTION DISTRICT

ROAD PLAN, PROFILES AND SECTIONS

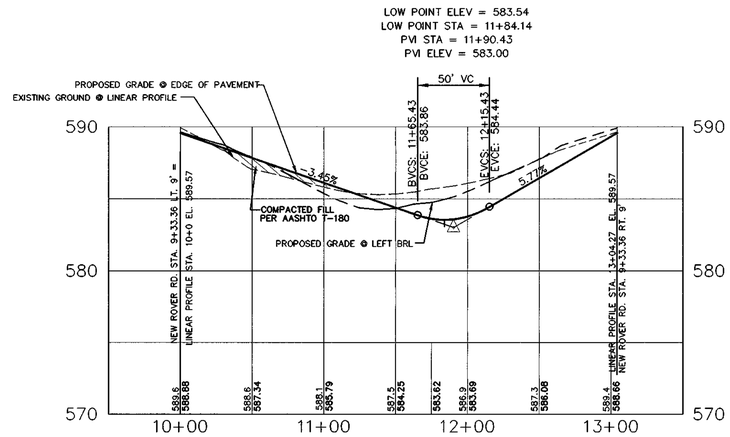
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-01-12



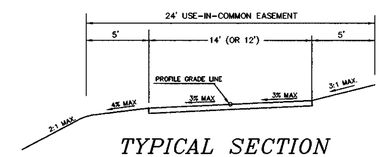
T-TURN-AROUND DETAIL

SCALE: 1" = 20'



NEW ROVER ROAD

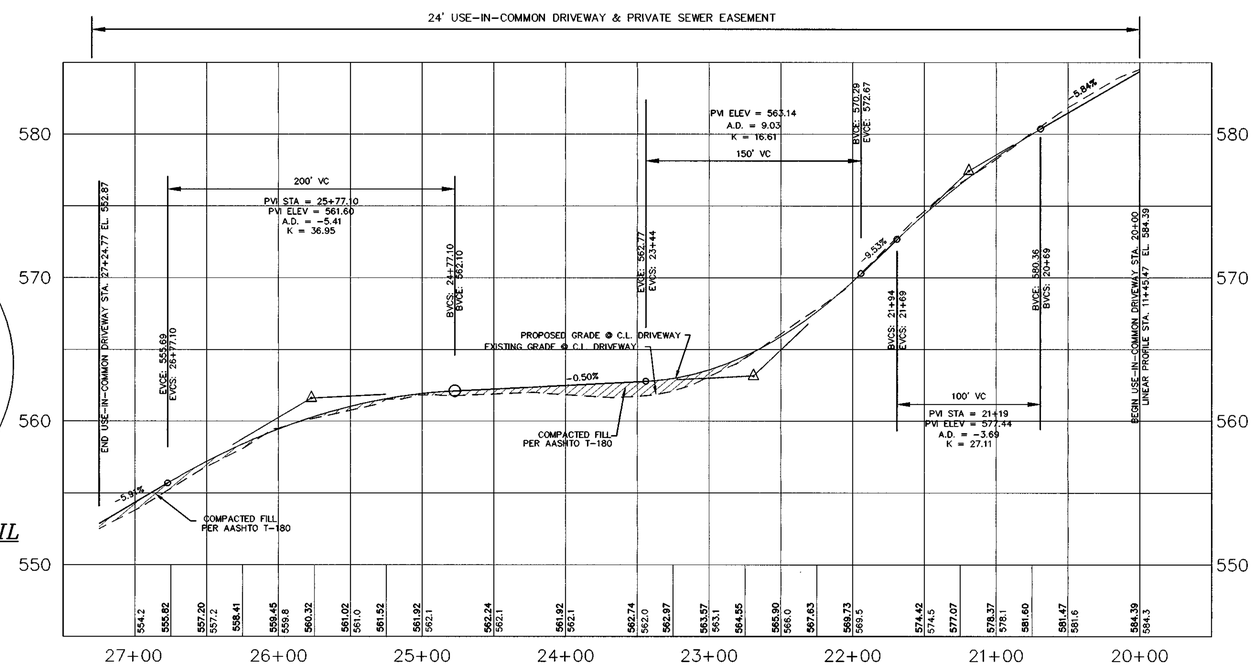
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5"
LINEAR PROFILE
PUBLIC ACCESS PLACE



TYPICAL SECTION USE-IN-COMMON DRIVEWAY

NOTE

CROSS SLOPE TO BE IN THE SAME DIRECTION OF THE OVERALL SLOPES OF THE SITE



USE-IN-COMMON DRIVEWAY

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5"
DESIGN SPEED : 15 MPH
USE-IN-COMMON DRIVEWAY

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF BUREAU OF HIGHWAYS	DATE 5-1-01
APPROVED: DEPARTMENT OF PLANNING AND ZONNING CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/22/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5/11/01

5/11/01

99010/DWG/FINAL/ROAD/010-ROAD-2

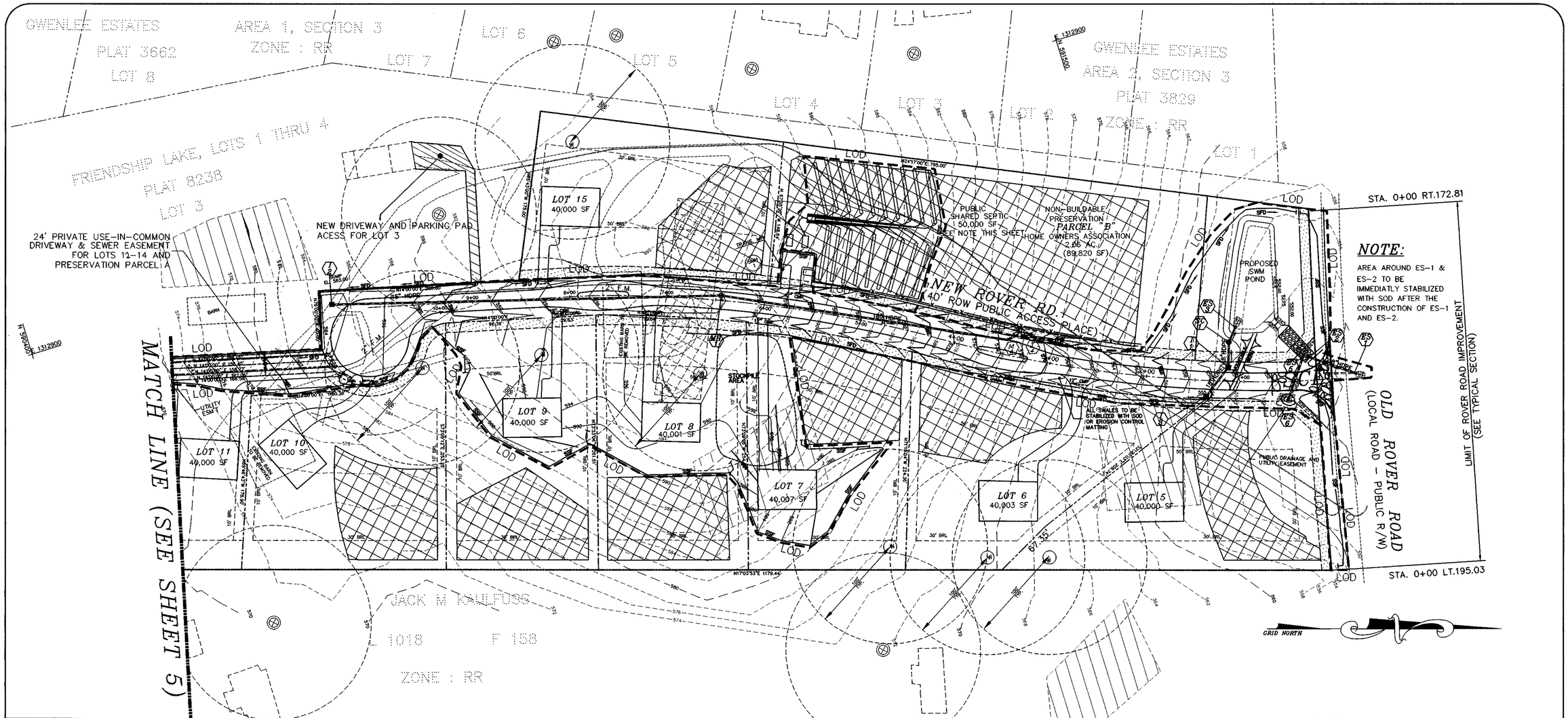
project	date
99010	JAN 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	RJH

no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
ROAD PLAN, PROFILES AND SECTIONS

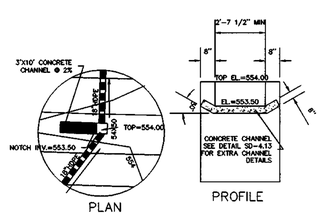
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-01-12



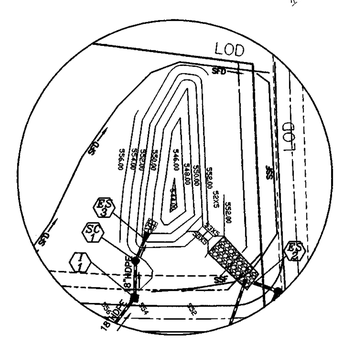
NOTE:

SEPTIC SYSTEM SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY FOR DESIGN AND DETAILS REFER TO CONTRACT # 50-3871-D



I-1 DETAIL

SCALE: 1"=20'



SEDIMENT TRAP GRADING

SCALE: 1"=50'

SEDIMENT CONTROL

DRAINAGE AREA - 3.60 ACRES
REQUIRED DRY STORAGE - 6,480 CF
REQUIRED WET STORAGE - 6,480 CF
PROVIDED WET STORAGE - 12,003 CF
PROVIDED DRY STORAGE - 6,970 CF
WET STORAGE EL. 551.00
DRY STORAGE EL. 552.50
CLEANOUT EL. 549.50

LEGEND

- EXISTING SEPTIC AREA.
- PROPOSED SEPTIC EASEMENT.
- PROPOSED 10' PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT.
- EXISTING WELL
- PROPOSED WELL
- LOD — LIMIT OF DISTURBANCE
- A-1 — EARTH DIKE
- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- SFD — SILT FENCE DIVERSION
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- LANDSCAPE FENCE

NOTE:
THIS PLAN IS FOR GRADING & SEDIMENT CONTROL USES ONLY.

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4/16/01
J. Thomas Sodavena
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWNEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

SIGNATURE OF ENGINEER — DATE 4/16/01
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA - NATURAL RESOURCE CONSERVATION SERVICE — DATE 5/8/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/8/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 5/1/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

99010/DWG/FINAL/ROAD/SED-1

project	date
99010	APR. 2001
illustration	engineering
SAA	SAA
scale	approval
1" = 50'	RJH

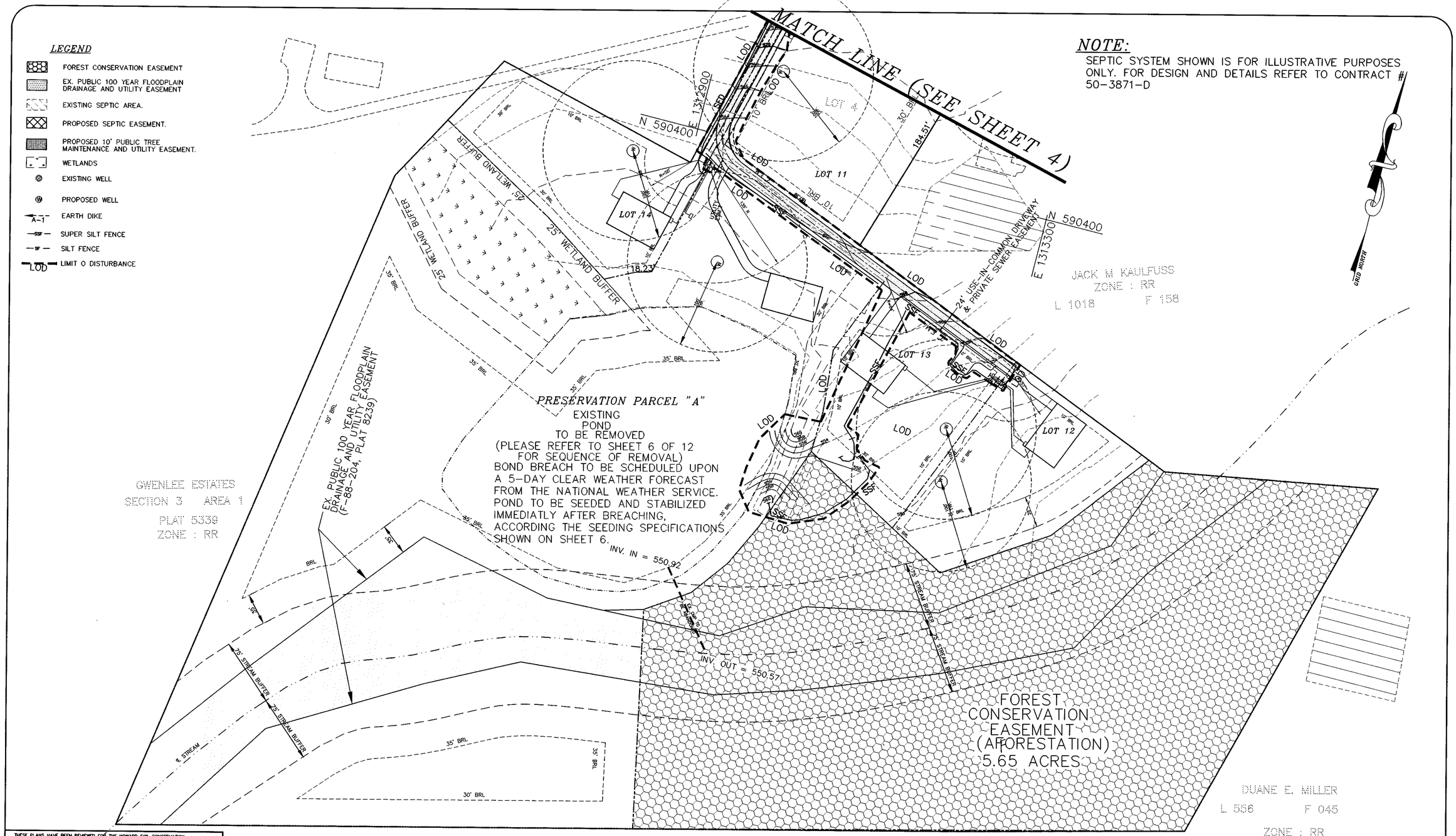
no.	description	date
1	ADD I-4 & N-2 TO PLAN - ADD I-1 DETAIL	05/21/02

revisions

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
HOWARD COUNTY, MARYLAND
THIRD ELECTION DISTRICT
GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Bal. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-01-12



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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 5/10/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/15/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/11/01

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4/16/01

J. Thomas Sommerville
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

SIGNATURE OF ENGINEER — DATE 4/16/01

R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

STATE OF MARYLAND — R. JACOB HIKMAT — 17942 — PROFESSIONAL ENGINEER

NOTE:
THIS PLAN IS FOR GRADING & SEDIMENT CONTROL USES ONLY.

99010/DWG/FINAL/ROAD/SED-2

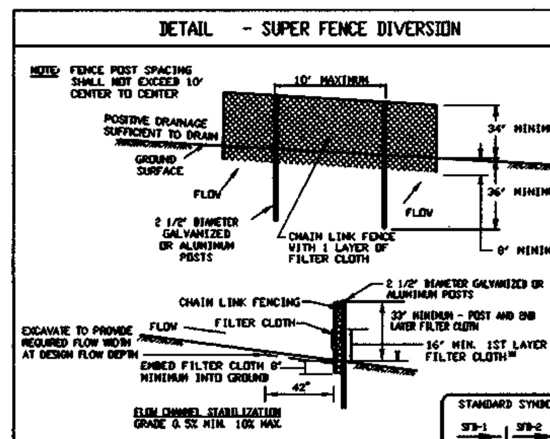
project	date
99010	APR. 2001
Illustration	engineering
SAA	SAA
scale	approval
1" = 50'	RJH

no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

DETAIL - SUPER FENCE DIVERSION



1. Seed and cover with straw mulch.
2. Seed and cover with erosion control matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

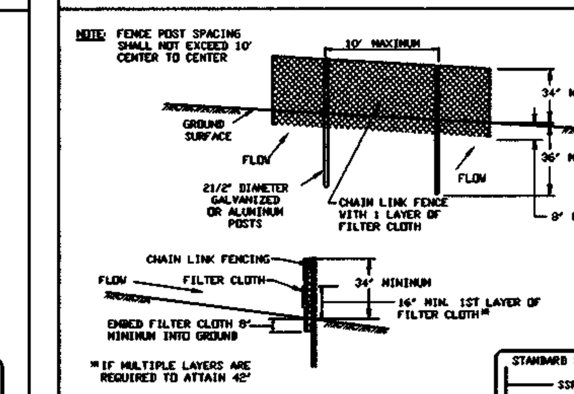
Construction Specifications

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.

1. The poles do not need to set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Filter cloth and erosion control matting 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE | 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/ft²/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

SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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

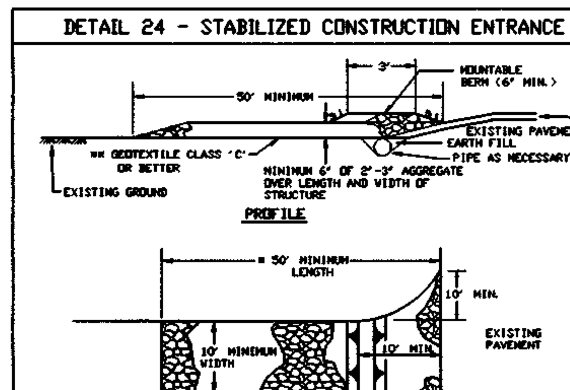
SUPER FENCE DIVERSION

Construction Specifications (Continued)

7. All temporary SFD dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grade less than 1%.
8. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
9. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
10. All trees, brush, stumps, obstructions and other objectional material shall be removed and disposed of so as not to interfere withe the proper funtioning of the dike.
11. The dike shall be excavated or shaped to lin, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
12. Fill shall be compacted by earth moving equipment.
13. All earth removed and not needed for construction shall be placed so that it will not interfere withe the functioning of the dike.
14. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

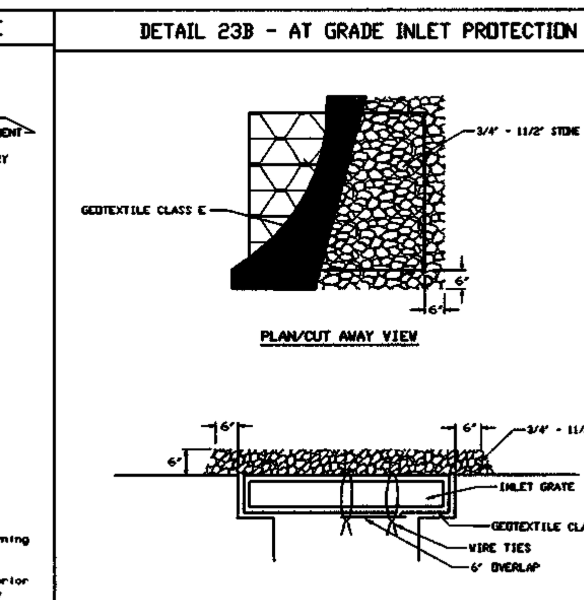


Construction Specification

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-17-3 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B - AT GRADE INLET PROTECTION

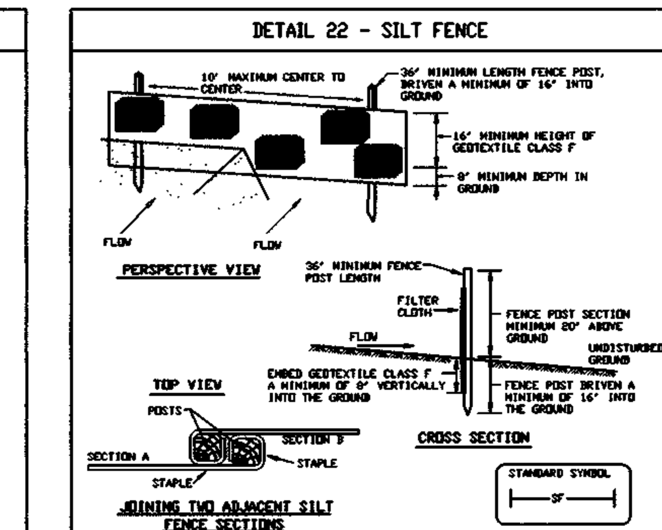


Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 11/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE E-16-5A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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 11/2" x 11/2" square (minimum) cut, or 13/4" 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 ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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

SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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

EROSION CONTROL MATTING

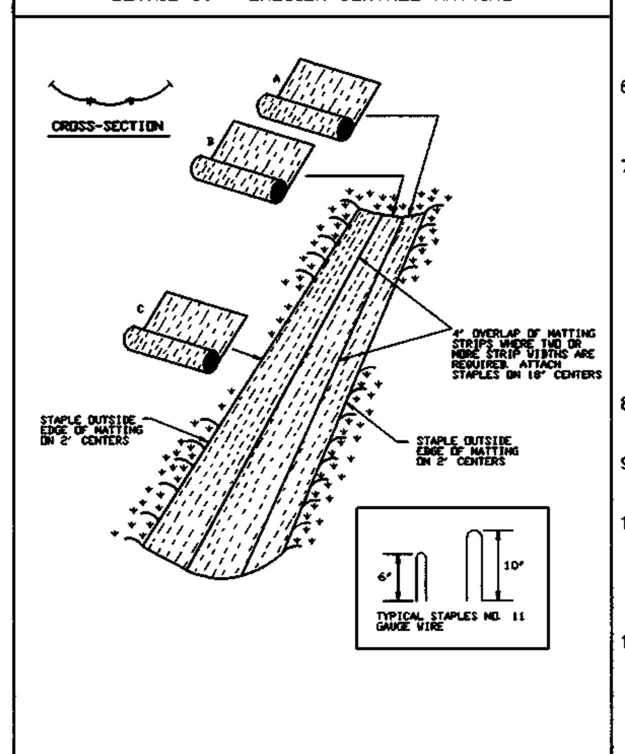
Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G-22-2A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G-22-2 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 4/16/01

J. Thomas Scrivener
PRINTED NAME OF DEVELOPER

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 4/16/01

R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 5/18/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/18/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

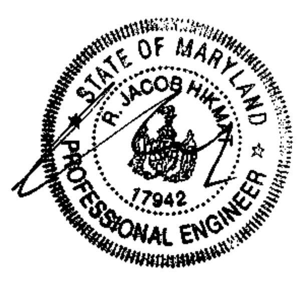
CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/11/01

99010/DWG/FINAL\ROAD\SEDNOTE



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/1000 SQ.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./1000 SQ.FT.).
2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.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/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LOBS. PER ACRE (.05 LBS./1000 SQ.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./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONE/ACRE WELL ANCHORED STRAW.

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

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

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE 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, FOR NOT PREVIOUSLY LOOSENED.

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

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 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./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

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

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 NAY 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 12, 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 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC.51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC.52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

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:	27.7±	ACRES
AREA DISTURBED:	4.2±	ACRES
AREA TO BE ROOFED OR PAVED:	0.96±	ACRES
AREA TO BE VEGITATIVELY STABILIZED:	2.23±	ACRES
TOTAL CUT:	5,000	CU. YDS.
TOTAL FILL:	5,000	CU. YDS.
TOTAL WASTE/BORROW AREA LOCATION:	-----	

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY.
CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITY MEASUREMENTS.

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.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES, WITH MOUNTABLE BERM, AT LOCATIONS SHOWN. (1 DAY)
3. CONSTRUCT SEDIMENT TRAP/POND (PER DETAIL SHOWN ON SHEET 3) TREE PROTECTION FENCE, SILT FENCES, SUPER SILT FENCES, ES-1 TO ES-2 (THE POND OUTFALL) & EARTH DIKES. (3 DAYS).
4. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR BRING SITE TO GRADE & INSTALL THE PROPOSED STORM DRAINS, STORMCEPTOR & PRIVATE SEWER FORCE MAIN. (15 DAYS)
5. CONSTRUCT ROAD & USE-IN-COMMON DRIVEWAY PER TYPICAL SECTIONS AS SHOWN ON PLAN. (15 DAYS)
6. DEWATER THE EX. POND BY OPENING THE EX. RISER STRUCTRE AND ALLOWING THE WATER TO FLLOW THROUGHT THE EX. 10" CMP.
7. ABANDON THE 10" CMP BY BLOCKING IT AT THE END AND FILLING IT WITH LOW SLUMP CONCRETE.
8. GRADE THE SIDE OF THE POND AS SHOWN ON SHEET 5.
9. IMMEDIATLY SEED THE BOTTOM OF THE EX. POND WITH WATER TOLERANT GRASS (RICE CUT GRASS, BULRUSH GRASS, SEDGES OR EQUIVILENT) AND PROVIDE INFLOW PROTECTION AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.
10. STABILIZE ALL REMAINING DISTURBED AREAS. (3 DAYS)
11. WHEN ALL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, CONVERT THE SEDIMENT BASIN TO THE PROPOSED STORMWATER MANAGEMENT POND. (3 DAYS)
12. CLEAN THE INSTALLED STORMCEPTER. (1 DAY)
13. STABILIZE THE REMAINING DISTURBED AREA. (2 DAYS)
14. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES. (1 DAY)

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 SPECIFICATION. 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, JOHNSON-SON GRASS, 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 TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PERSCRIBED 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 APPLLICATION
   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" TO 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 AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
      a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO 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 LEASE 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHOURUS, 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.
   iv. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILLIZER 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.

GUIDLINES FOR POND REMOVAL AND STABILIZATION.

1. BEFORE ATTEMPTING TO REMOVE ANY BASIN, ALL WATER IN THE BASIN SHALL BE DRAINED BY PHYSICALLY ALTERING THE RISER INVERT ELEVATION TO GRADUALLY LOWER THE WATER LEVEL. THIS MAY BE ACCOMPLISHED BY PUNCHING HOLES IN THE RISER BELOW THE WATER LINE. IN CASES WHERE PHYSICAL DAMAGE TO THE RISER IS UNDESIRABLE OR WHERE PHYSICAL ALTERATION OF THE RISER IS NOT FEASIBLE THE POND SHALL BY PUMPED.
2. PRIOR TO COMMENCING WORK ON DAM REMOVAL, A METHOD OF MINIMIZING DOWN S STREAM SEDIMENTATION SHALL BE APPROVED ON SITE BY THE HOWARD SOIL CONSERVATION DISTRICT.
3. IN CASES WHERE THE BASIN TO BE REMOVED IS FED BY A STREAM WITH A CONTINUOS BASE FLOW, MEASURES SHALL BE TAKEN TO DIVERT, RETARD, OR OTHERWISE REDUCE THE EROSION EFFECTS OF THE BASE FLOW DURING REMOVAL OPERATION.
4. REMOVE PORTION OF THE EX. DAM AND SPREAD TO CONFORM WITH SURROUNDING CONTOURS.(SEE SHEET 5)

project	date
99010	APR. 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHOWN	RJH

no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SEDIMENT CONTROL NOTES & DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F-01-12

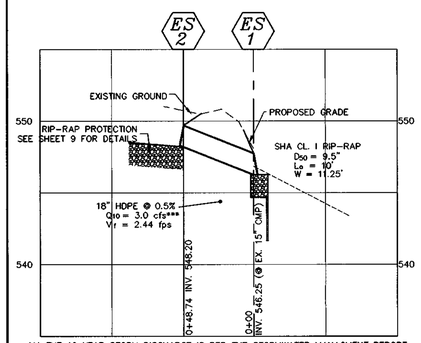
STRUCTURE SCHEDULE

NO.	LOCATION	TOP	INV. IN	INV. OUT	COMMENTS
I-1*	N 591570.542 E 1313272.759**	554.00	551.41	551.16	INLET TYPE S (HO. CO. STD SD 4.22) – SUMP (PUBLIC)
I-2*	N 590709.218 E 1312941.533	583.00	----	579.75	INLET TYPE S (HO. CO. STD SD 4.22) – SUMP (PUBLIC)
I-3*	N 591540.370 E 1313294.543	555.00	----	551.60	INLET TYPE S (HO. CO. STD SD 4.22) – SUMP (PUBLIC)
MH1*	N 591094.275 E 1313049.842	596.21	577.59	577.38	STANDARD PRECAST MANHOLE (HO. CO. STD G 5.11) (PUBLIC)
ES1	N 591692.552 E 1313316.119	----	----	546.25	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES2	N 591653.242 E 1313287.306	----	----	548.20	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES3	N 591589.213 E 1313236.017	----	----	550.81	18" ø ADS END SECTION (PART No. 1810 NP)(PRIVATE)
ES4*		----	----	566.50	18" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES5	N 591646.506 E 1313285.524	----	----	548.00	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES6	N 591620.686 E 1313321.259	----	----	548.22	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
SC1*	N 591578.741 E 1313248.479	554.02	551.03	550.96	STORMCEPTOR MODEL STC900 (SEE DETAILS)

* COORDINATES SHOWN INDICATE CENTER OF STRUCTURE.
** COORDINATES SHOWN INDICATE APPROXIMATE END OF THE EXISTING 15" CMP AT NORTH SIDE OF OLD ROVER ROAD.

ADS END SECTION INSTALATION INSTRUCTIONS

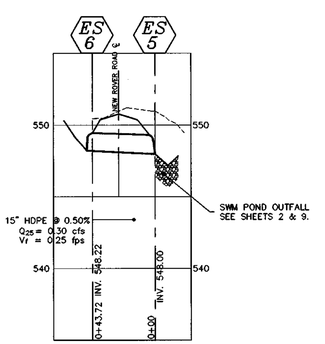
1. SPREAD THE ENDSECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
3. PLACE BANKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.



*** THE 10 YEAR STORM DISCHARGE IS PER THE STORMWATER MANAGMENT REPORT.

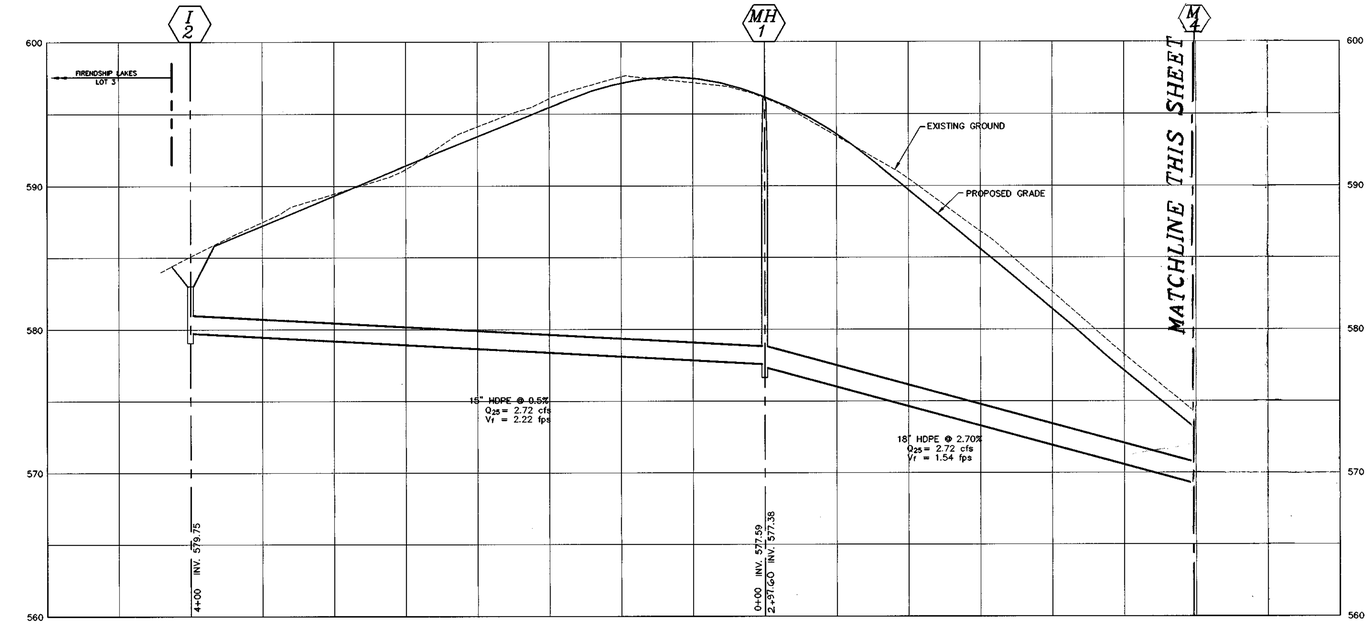
ES-2 TO ES-1

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



ES-5 TO ES-6

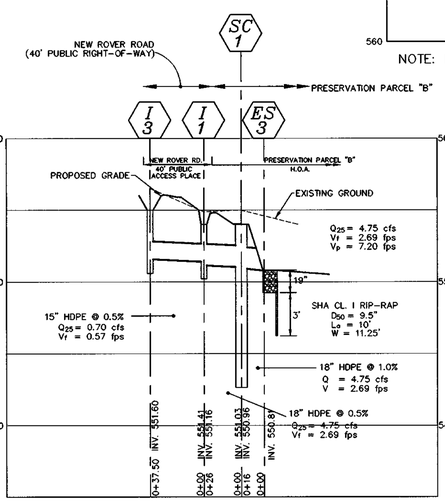
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



NOTE: HGL ARE AT CROWN OF ALL STORM DRAINS.

I-2 TO ES-4

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

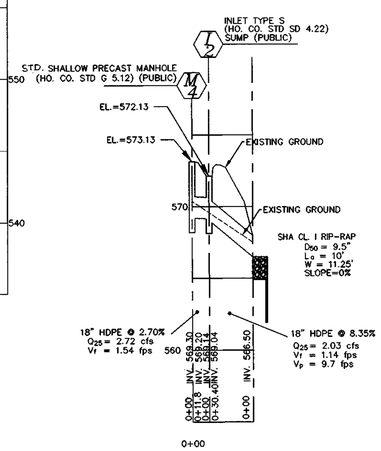


I-3 TO ES-3

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

PIPE SCHEDULE

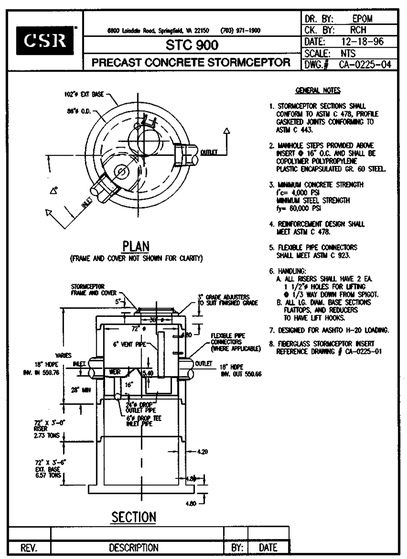
	SIZE	LENGTH
PUBLIC	15" HDPE	483'
	18" HDPE	404'
PRIVATE	18" HDPE	31'



M-4 TO I-2

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

STORMCEPTOR MANHOLE SC-1



Order Request Form

Precast Concrete Stormceptor®

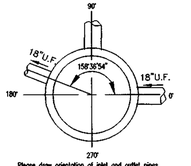
* TO BE INCLUDED ON SWM PLAN BY DESIGNER

CONTRACTOR INFORMATION

Name
Address
City
State
Zip Code
Contact
Phone
Fax

OWNER INFORMATION

Name
Phone
Fax



Please draw orientation of inlet and outlet pipes on diagram along with the pipe inside diameter (in), and invert elevation (ft). Clearly mark inlet pipes with an "I" and outlet pipes with an "O". Please provide the inlet/outlet pipe angle in degrees.

IMPERVIOUS DRAINAGE AREA FOR THIS UNIT

Stormceptor® Model		
STC		
900	■	3600
1200	□	4800
1800	□	6000
2400	□	7200

Insert Size	
DISC	□
22"	■
32"	□
44"	□
CUSTOM	

Manhole Number	SC-1
Top Elevation (ft)	554.02
Inlet Pipe Invert (ft)	551.03
Outlet Pipe Invert (ft)	550.96
Pipe Type	HDPE
Inlet Pipe Inside Diameter (ID)	18"
Inlet Pipe Outside Diameter (OD)	–
Outlet Pipe Inside Diameter (ID)	18"
Outlet Pipe Outside Diameter (OD)	–

Project Name: FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
Approximate time frame of delivery (weeks)
Delivery Address: Street
City: State: Zip Code
Designer Company: MILDENBERG, BOENDER & ASSOC., INC.
Designer Contact: SAMER A. ALOMER Phone 410-997-0296 Fax

PLEASE FILL OUT COMPLETELY AND FAX TO: CSR

ATTN: ED O'MALLEY FAX: (703)922-3659, PHONE: (703)971-1900
FOR TECHNICAL ASSISTANCE PLEASE CALL MIKE BARG,
PHONE (703)971-1900

OPERATION AND MAINTENANCE SCHEDULE FOR STORMCEPTOR WATER QUALITY DEVICE

1. STORMCEPTOR WATER QUALITY STRUCTURES WILL REQUIRE PERIODIC INSPECTION AND CLEANING TO MAINTAIN OPERATION AND FUNCTION. OWNERS WILL HAVE THE STORMCEPTOR UNIT INSPECTED YEARLY OR AS REQUIRED BY HOWARD COUNTY. UTILIZING THE STORMCEPTOR INSPECTION/MONITORING FORM. INSPECTIONS CAN BE DONE BY USING A CLEAR PLEXIGLASS TUBE ("SLUDGE JUDGE") TO EXTRACT A WATER COLUMN SAMPLE. WHEN SEDIMENT DEPTHS EXCEED THE SPECIFIED LEVEL (TABLE 6 OF TECHNICAL MANUAL) THEN CLEANING OF THE UNIT IS REQUIRED.
2. STORMCEPTOR WATER QUALITY STRUCTURES MUST BE CHECKED AND CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS, CONTACT APPROPRIATE REGULATORY AGENCIES.
3. MAINTENANCE OF STORMCEPTOR UNITS SHOULD BE DONE BY A VACUUM TRUCK WHICH WILL REMOVE THE WATER, SEDIMENT, DEBRIS, FLOATING HYDROCARBONS AND OTHER MATERIALS IN UNIT. THE PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED.
4. INLET AND OUTLET PIPES MUST BE CHECKED FOR ANY OBSTRUCTIONS AND IF ANY OBSTRUCTIONS ARE FOUND THEY MUST BE REMOVED. STRUCTURAL PARTS OF THE STORMCEPTOR WILL BE REPAIRED AS NEEDED.
5. OWNER SHALL RETAIN AND MAKE STORMCEPTOR INSPECTION/MONITORING FORMS AVAILABLE TO HOWARD COUNTY OFFICIALS UPON THEIR REQUEST.

STATE OF MARYLAND JACOB HIKOM PROFESSIONAL ENGINEER

STRUCTURE	LOCATION
I-4	NEW ROVER ROAD STA. 3+35.9, 22.8 RT.
M-2	NEW ROVER ROAD STA. 3+47.7, 15.3 RT.
ES-4	NEW ROVER ROAD STA. 3+03.3, 23 RT.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/4/01

99010/DWG/FINAL/ROAD/SD-PROFILES

project	date
99010	JAN 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHOWN	RJH

no.	description	date
1	ADD I-4 & M-2 TO PROFILE	5/12/02

revisions

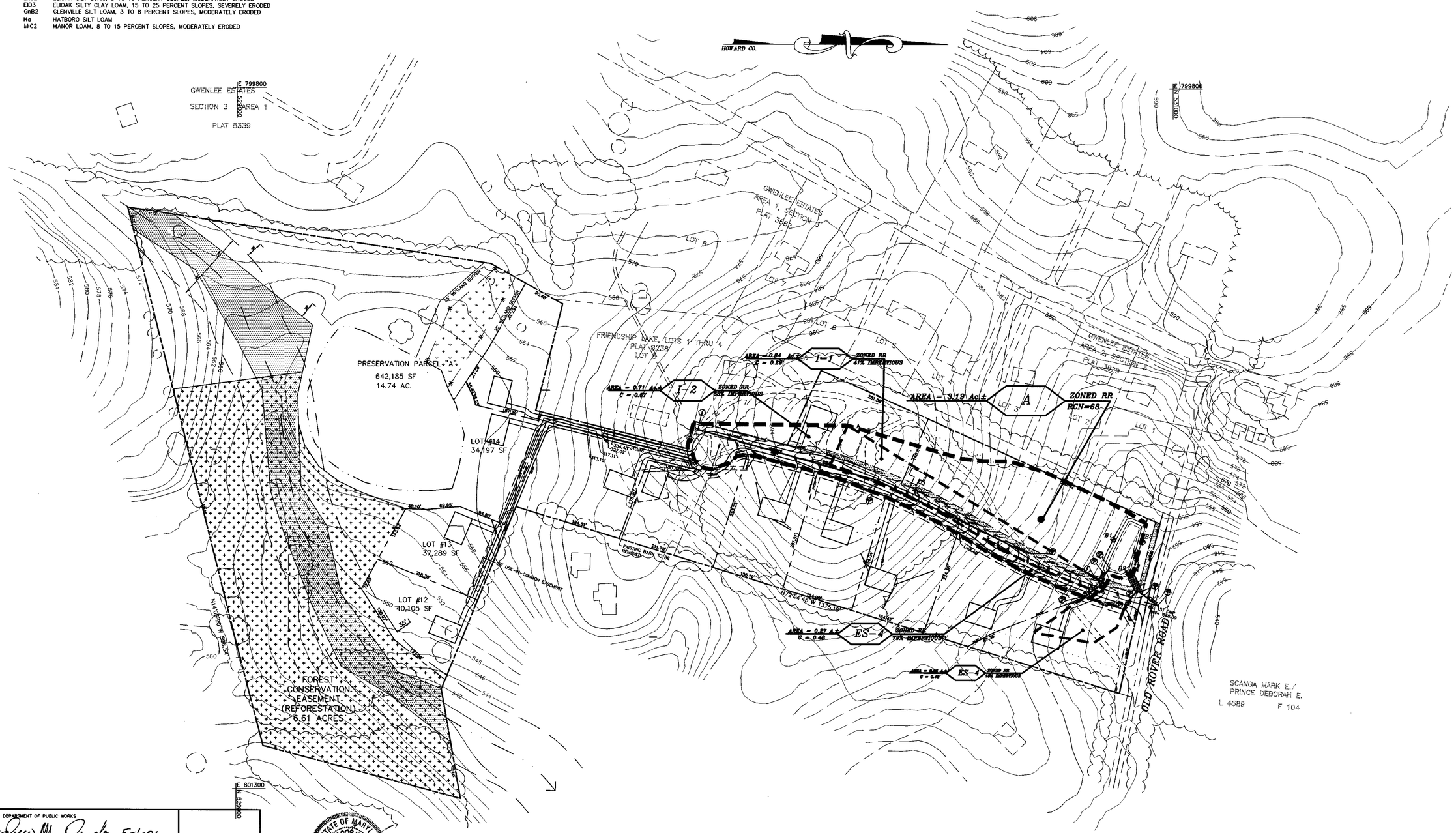
FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORM DRAIN PROFILES & DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

SOIL LEGEND

HSG	SYMBOL	NAME
D	Ba	BAILE SILT LOAM
B	ChA	CHESTER SILT LOAM, 0 TO 3 PERCENT SLOPES
B	ChB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
B	ChC2	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
B	CgB2	CHESTER GRAVELLY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
B	CgC2	CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELYLY ERODED
C	EkB2	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
C	EkC2	ELIOAK SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
C	ElD3	ELIOAK SILTY CLAY LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED
C	GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
D	Ho	HATBORO SILT LOAM
B	MlC2	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED

NOTE:
THIS PLAN IS FOR THE PURPOSE OF DRAINAGE AREA & SOILS MAP ONLY



APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/25/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/11/01

STATE OF MARLAND — RICHARD J. KUBOB — 11760 — PROFESSIONAL ENGINEER

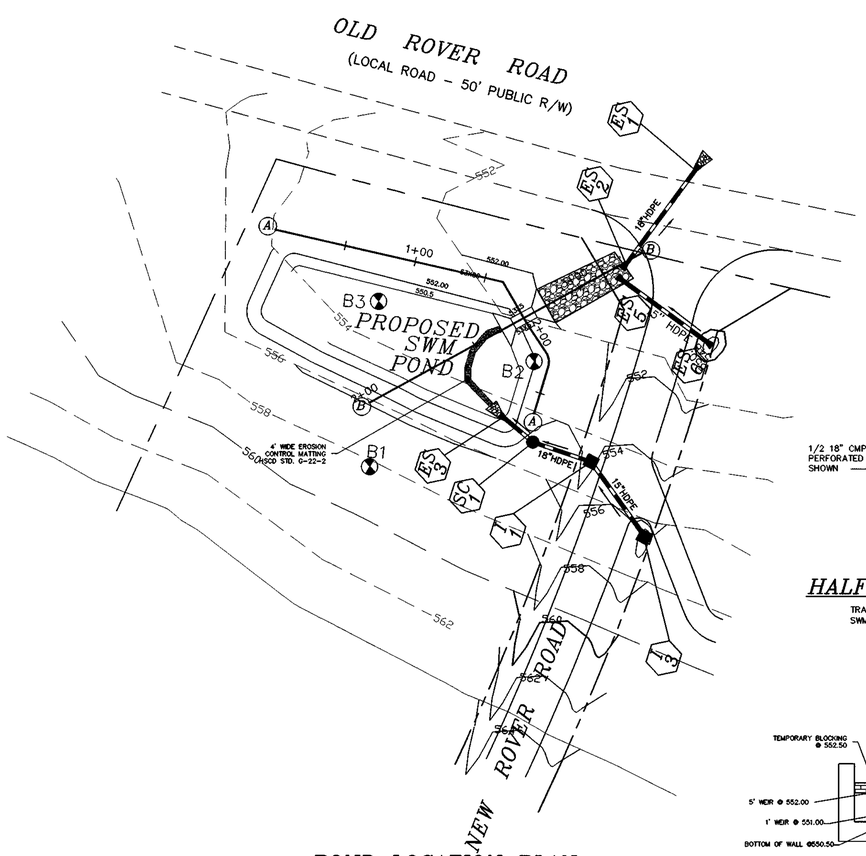
99010/DWG/FINAL/ROAD/DA

project	date
99010	JAN 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	RJH

no.	description	date
	revisions	

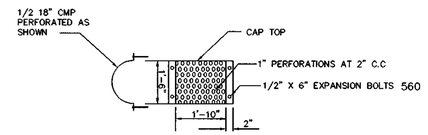
FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DRAINAGE AREA & SOILS MAP

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.



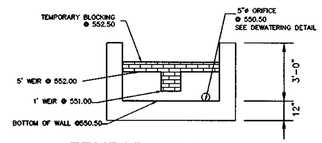
POND LOCATION PLAN

SCALE : 1" = 30'



HALF SHELL TRASH RACK

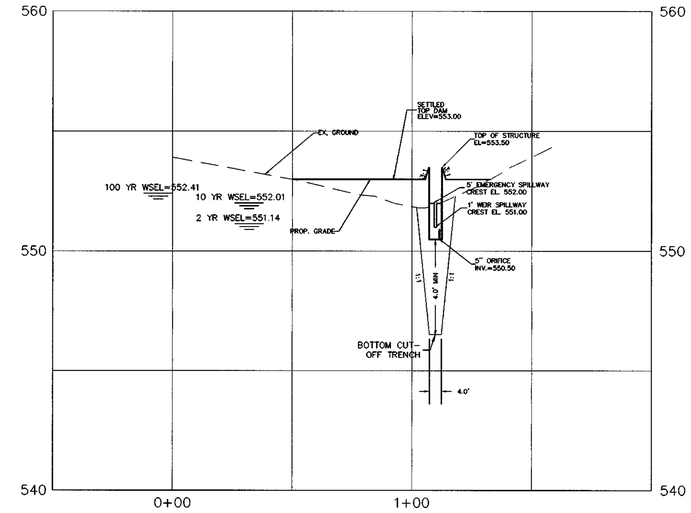
TRASH RACK SHOWN TO BE USED FOR PERMANENT SWM, AND TO BE INSTALLED ON 5" ORIFICE



TEMPORARY BLOCKING

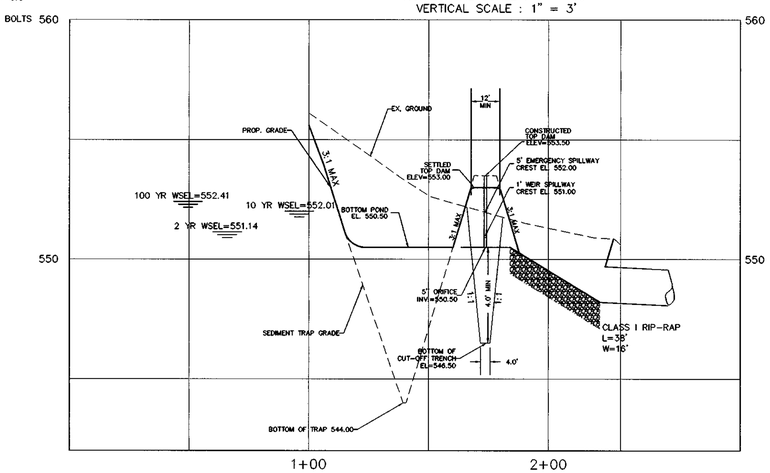
NTS

CONTROL WALL TO BE BLOCKED USING THE DEWATERING DEVICE, WHERE PERFORATIONS START AT 551.00.



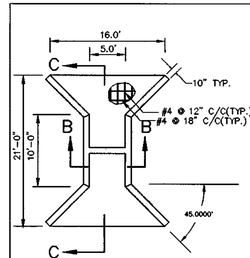
PROFILE ALONG EMBANKMENT A-A

HORIZONTAL SCALE : 1" = 30'
VERTICAL SCALE : 1" = 3'



PROFILE ALONG SPILLWAY B-B

HORIZONTAL SCALE : 1" = 30'
VERTICAL SCALE : 1" = 3'



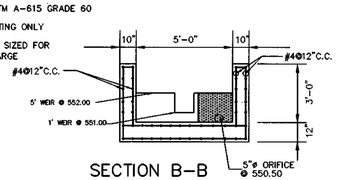
PLAN

NOTES:

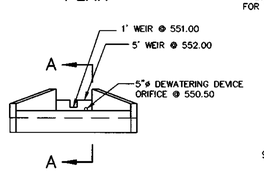
1. ALL EXPOSED EDGES TO HAVE 3/4" X 3/4" CHAMFER OR AS DIRECTED
2. CONCRETE SHALL BE SHA MIX NO. 3 (fc'=3500 PSI @ 28 DAYS)
3. REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60
4. QUANTITIES IN TABLE FOR ESTIMATING ONLY
5. WEIR CONTROL SECTION SHALL BE SIZED FOR APPROPRIATE CONTROL OF DISCHARGE RATES

VOL CONC. (cy)	STEEL (lbs)
14.5	1100

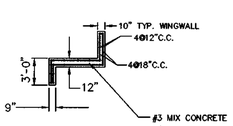
VALUES SHOWN ARE APPROXIMATE FOR THE MAXIMUM SIZE OF THE STRUCTURE



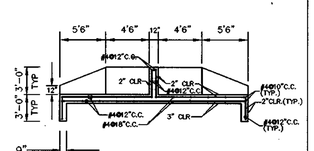
SECTION B-B



FRONT ELEVATION



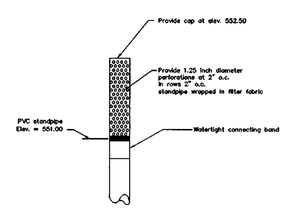
SECTION A-A



SECTION C-C

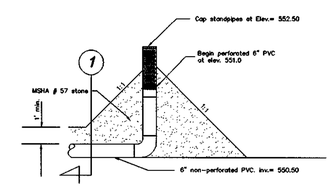
LOW RISE STORMWATER MANAGEMENT CONTROL STRUCTURE
(NOT TO SCALE)

HOWARD COUNTY STANDARD DETAIL
SD-7.00



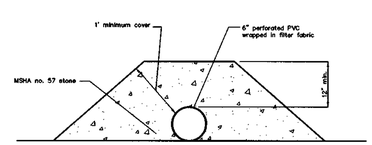
TEMPORARY STANDPIPE DETAIL

NTS



TEMPORARY DEWATERING STANDPIPES

NTS



SECTION 1

NTS

APPROVED DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4/26/01

J. Thomas Scrivener
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWNEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

SIGNATURE OF ENGINEER — DATE 4/16/01

R. JACOB HILMAT
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA - NATURAL RESOURCE CONSERVATION SERVICE — DATE 5/18/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/18/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 5/4/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/25/01

STATE OF MARYLAND — R. JACOB HILMAT — 17942 — PROFESSIONAL ENGINEER

99010/DWG/FINAL/ROAD/SWM-DET-1

project	date
99010	JAN 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	RJH

no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
STORMWATER PLAN, PROFILES & DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

F-01-12

POND SPECIFICATIONS

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

SITE PREPARATION

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

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED TO THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 50 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 QUALITY 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. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

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

COMPACTION- THE MOVEMENT OF AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSE BY NOT LESS THAN ONE TREAD TRACK OF THE 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.

WHERE A MINIMUM REQUIRED DENSITY IS SPECIFIED, IT SHALL NOT BE LESS 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

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

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL MATERIAL 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 FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

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- (STEEL PIPE)- THIS PIPE AND ITS APPURTENANCE SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A WITH WATERTIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROVED EQUAL MAY BE USED: NEXON, PLASTI-COTE, BLAC-KLAD, AND BETH-CU-LOY. COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-245 AND M-246.

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. ANY ALUMINUM COATING DAMAGED OF OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.?

MATERIALS-(ALUMINUM PIPE)- THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLINGS BANDS OR FLANGES. 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 AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS- ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-STEEP 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 OF NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE-ROLLED AND ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPE LESS THAN 24" IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE, A 12" WIDE STANDARD LAP TYPE BAND WITH 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12" WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING MINIMUM DIAMETER OF 1/2" GREATER THAN THE CORRUGATION DEPTH. PIPES 24: IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24" LONG ANNULAR CORRUGATED BAND USING RODS AND LUGS. A 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED ON THE END OF EACH PIPE FOR A TOTAL OF 24"

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- ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 10% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.

3. LAYING PIPE- BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 2 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.

POLYVINYL CHLORIDE (PVC) PIPE- ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:

1. MATERIALS-PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.

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.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 905.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE REPLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.?

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON THE 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 EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF THE REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL AND CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

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

EROSION AND SEDIMENT CONTROL

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

SWM POND MAINTENANCE REQUIREMENTS

ROUTINE MAINTENANCE

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. 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, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE

1. STRUCTURAL COMPANENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSAR BY THE HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BY 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 THE 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.

GEOTECHNICAL RECOMMENDATIONS

a. WITHIN THE EMBANKMENT AREA, STRIP THE TOPSOIL AND ANY SOFT OR OTHERWISE UNSUITABLE MATERIALS TO EXPOSE STABLE, UNDISTURBED NATIVE SOILS.

b. PROOF ROLL THE STRIPPED SURFACE TO A UNIFORM CONDITION FURTHER CUTTING OUT ANY SOFT OR OTHERWISE UNSUITABLE SPOTS AND REPLACING WITH CONTROLLED FILL.

c. EXCAVATE THE CUT OFF TRENCH, BACKFILL THE RESULTING EXCAVATION WITH ACCEPTABLE FINE-GRAINED MATERIALS AND CONSTRUCT THE PROPOSED RISER AND OUTFALL PIPE. THE CUT OFF TRENCH, RISER AND OUTFALL PIPE CONSTRUCTION FOR THE SWM POND SHOULD BY COMPLETED IN ACCORDANCE WITH APPROPRIATE COUNTY SPECIFICATIONS. THE SOIL TYPES USED IN THE CUT OFF TRENCH CONSTRUCTION SHOULD BE APPROVED FOR THE INTENDED USAGE.

d. FILL THE DESIGNATED EMBANKMENT AREA WITH CONTROLLED FILL TO ACHIEVE PLAN GRADE. IT IS RECOMMENDED THAT THE EMBANKMENT BE PROVIDED WITH AN IMPERVIOUS CORE EXTENDING UPWARDS TO THE 100-YEAR RETENTION LEVEL SO THAT THE MORE GRANULAR MATERIALS AVAILABLE ON SITE MAY BE USED IN THE OUTER REGIONS OF THE EMBANKMENT WITH THE MOST POROUS MATERIALS PLACED IN THE DOWNSTREAM CONSTRUCTION. ALL FILL PLACEMENT AND COMPACTION SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS.

e. WITHIN THE POND BASIN AREA, CUT THE POND TO PLAN GRADE. IT IS NOTED THAT VERY DENSE DISINTEGRATED ROCK WAS ENCOUNTERED ABOVE THE UPPER AND LOWER LIMITS OF THE PLAN POND BOTTOM AT B-8 WITH HARD ROCK ENCOUNTERED NEAR THE LOWER PLAN BOTTOM AT B-9. ACCORDINGLY, IN ORDER TO ACHIEVE THE POND BOTTOM GRADE, PRE-RIPPING COMBINED WITH JACKHAMMERING WILL MOST LIKELY BE REQUIRED IN VARIOUS AREAS TO EXCAVATE THE VERY DENSE DISINTEGRATED TO HARD ROCK MATERIALS. BLASTING WITHIN THE POND AREA IS NOT RECOMMENDED, SINCE STRESS FRACTURES WITHIN THE UNDERLYING ROCK MAY DEVELOP; THEREBY, POSSIBLY DAMAGING THE INTEGRITY OF THE SWM POND.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: FRIENDSHIP LAKES SWM BORING # B-1
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99198A

DATUM ____ HAMMER WT. 140 LBS. HOLE DIAMETER 8" FOREMAN PAIMER STEPHENS
SURF. ELEV. ____ HAMMER DROP 30 INCHES ROCK CORE DIA. ____ INSPECTOR
DATE STARTED 05-19-99 PIPE SIZE 2.0 INCHES OD BORING METHOD HSA DATE COMPLETE 05-19-99

ELEV.	SOIL DESCRIPTION (COLOR, MOISTURE, DENSITY, SIZE, PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE		0.0					
	BROWN, DRY, MEDIUM DENSE FINE SNADY SILT/SILTY SAN, TRACE QUARTZ, ROCK FRAGMENTS(ML/SM) (LOAM)							6" TOPSOIL
				D	4-6-8	1	12"	NO GROUND WATER ENCOUNTERED WHILE DRILLING
	BROWN DRY MEDIUM DENSE SILTY FINE SAND WITH LITTLE MICA, QUARTZ ROCK AND WEATHERED ROCK FRAGMENTS(SM)(SNADY LOAM)	3.0						
	S-3 IS LOOSE			D	5-11-9	2	15"	CAVED IN AT 4.5' AT COMPLETION
				D	4-4-4	3	14"	CAVED IN AT 3' AFTER 2 DAYS
				D	8-11-13	4	14"	BACKFILLED AFTER 2 DAYS
	BOTTOM OF HOLE	10.0						
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE
SAMPLER CONDITIONS: D-DISINTEGRATED I-INTACT U-UNDISTURBED L-LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 2 DAYS DRY FT. AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS CFA-CONT. FLIGHT AUGERS DC-DRIVING CASING MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: FRIENDSHIP LAKES SWM BORING # B-3
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99198A

DATUM ____ HAMMER WT. 140 LBS. HOLE DIAMETER 6" FOREMAN PAIMER STEPHENS
SURF. ELEV. ____ HAMMER DROP 30 INCHES ROCK CORE DIA. ____ INSPECTOR
DATE STARTED 05-19-99 PIPE SIZE 2.0 INCHES OD BORING METHOD HSA DATE COMPLETE 05-19-99

ELEV.	SOIL DESCRIPTION (COLOR, MOISTURE, DENSITY, SIZE, PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE		0.0					
	BROWN, DRY TO VERY MOIST, LOOSE TO MEDIUM DENSE FINE SANDY SILT WITH SOME MICA(ML) (LOAM)							7" TOPSOIL
				D	3-3-5	1	12"	NO GROUND WATER ENCOUNTERED WHILE DRILLING
				D	3-5-7	2	15"	CAVED IN AT 5.0' AT COMPLETION
				D	4-4-7	3	14"	CAVED IN AT 4' AFTER 2 DAYS
	BROWN DRY MEDIUM DENSE MICACEOUS SILTY SAND WITH QUARTZ FRAGMENTS(SM)(SHADY LOAM)	8.0						
				D	10-8-9	4	15"	BACKFILLED AFTER 2 DAYS
	BOTTOM OF HOLE	10.0						
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE
SAMPLER CONDITIONS: D-DISINTEGRATED I-INTACT U-UNDISTURBED L-LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 2 DAYS DRY FT. AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS CFA-CONT. FLIGHT AUGERS DC-DRIVING CASING MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

PROJECT NAME: FRIENDSHIP LAKES SWM BORING # B-2
LOCATION : HOWARD COUNTY, MARYLAND JOB # 99198A

DATUM ____ HAMMER WT. 140 LBS. HOLE DIAMETER 8" FOREMAN PAIMER STEPHENS
SURF. ELEV. ____ HAMMER DROP 30 INCHES ROCK CORE DIA. ____ INSPECTOR
DATE STARTED 05-19-99 PIPE SIZE 2.0 INCHES OD BORING METHOD HSA DATE COMPLETE 05-19-99

ELEV.	SOIL DESCRIPTION (COLOR, MOISTURE, DENSITY, SIZE, PROPORTION)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC	BORING & SAMPLING NOTES
	SURFACE		0.0					
	BROWN, DRY, LOOSE SILT, LITTLE MICA)ML/SM) (LOAM)							7" TOPSOIL
				D	2-2-4	1	12"	NO GROUND WATER ENCOUNTERED WHILE DRILLING
	BROWN DRY MEDIUM DENSE SILTY FINE SAND WITH LITTLE MICA AND WEATHERED ROCK FRAGMENTS(SM)(SNADY LOAM)	3.0						
				D	9-6-7	2	15"	CAVED IN AT 5.0' AT COMPLETION
				D	6-8-10	3	14"	CAVED IN AT 5' AFTER 2 DAYS
				D	6-5-7	4	15"	BACKFILLED AFTER 2 DAYS
	BOTTOM OF HOLE	10.0						
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE CA-CONTINUOUS FLIGHT AUGER RC-ROCK CORE
SAMPLER CONDITIONS: D-DISINTEGRATED I-INTACT U-UNDISTURBED L-LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT. AFTER 2 DAYS DRY FT. AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS CFA-CONT. FLIGHT AUGERS DC-DRIVING CASING MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — 4/16/01 DATE
J. Thomas Scrivener
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

SIGNATURE OF ENGINEER — 4/16/01 DATE
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA - NATURAL RESOURCE CONSERVATION SERVICE — 5/18/01 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 5/18/01 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 5/11/01 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT JK — 5/23/01 DATE

STATE OF MARYLAND R. JACOB HIKMAT 17942 PROFESSIONAL ENGINEER

APPROVED DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — 5-1-01 DATE

99010/DWG/FINAL/ROAD SWM-SPEC

project	date	illustration	engineering	scale	approval
99010	JAN 2001	SAA	SAA	N.A.	RJH

no.	description	date

revisions

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

POND SPECIFICATION & SOIL BORING LOGS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE	B (PERIMETER 1)	A (PERIMETERS 2 TO 17)
LINEAR FEET OF PERIMETER	150.28 LF	4700.31 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	NO	YES, 700 LF OF EXISTING TREES
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	 3 SHADE TREES 4 EVERGREEN TREES 0 SHRUBS	 67 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION)	 3 SHADE TREES 4 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS	 65 SHADE TREES 0 EVERGREEN TREES 7 SUBSTITUTION TREES 0 SHRUBS

PERIMETER		EDGE TYPE
PERIMETER 1		
SFD SIDE TO ROAD – 150.28 LF		B
1 SHADE TREE / 50 LF	3	
1 EVERGREEN / 40 LF	4	
PERIMETER 2		
SFD TO SFD – 700 LF		A
EXISTING TREES TO REMAIN		
SFD TO SFD – 675.16 LF		A
1 SHADE TREE / 60 LF	11	
PERIMETER 3		
SFD TO SFD – 400.33 LF		A
1 SHADE TREE / 60 LF	7	
PERIMETER 4		
SFD TO PRES. PARCEL – 267.13 LF		A
1 SHADE TREE / 60 LF	5	
PERIMETER 5		
SFD TO PRES. PARCEL – 206.47 LF		A
1 SHADE TREE / 60 LF	3	
PERIMETER 6		
SFD TO PRES. PARCEL – 220.78 LF		A
1 SHADE TREE / 60 LF	4	

PERIMETER		EDGE TYPE
PERIMETER 7		
SFD TO PRES. PARCEL – 234 LF		A
1 SHADE TREE / 60 LF	4	
PERIMETER 8		
SFD TO PRES. PARCEL – 241.03 LF		A
1 SHADE TREE / 60 LF	4	
PERIMETER 9		
SFD TO PRES. PARCEL – 249.44 LF		A
1 SHADE TREE / 60 LF	4	
PERIMETER 10		
SFD TO SFD – 90.46 LF		A
1 SHADE TREE / 60 LF	2	
PERIMETER 11		
SFD TO SFD – 235.73 LF		A
1 SHADE TREE / 60 LF	4	
PERIMETER 12		
SFD TO SFD – 338.58 LF		A
1 SHADE TREE / 60 LF	6	
PERIMETER 13		
SFD TO SFD – 60.00 LF		A
1 SHADE TREE / 60 LF	1	

PERIMETER		EDGE TYPE
PERIMETER 14		
SFD TO SFD – 206.00 LF		A
1 SHADE TREE / 60 LF	3	
PERIMETER 15		
SFD TO SFD – 175.00 LF		A
1 SHADE TREE / 60 LF	3	
PERIMETER 16		
SFD TO SFD – 251.56 LF		A
1 SHADE TREE / 60 LF	4	
PERIMETER 17		
SFD TO PRES PARCEL – 148.64 LF		A
1 SHADE TREE / 60 LF	2	
TOTAL PLANTING OBLIGATION		
SHADE TREES	70	
EVERGREEN TREES	4	
SHRUBS	0	

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

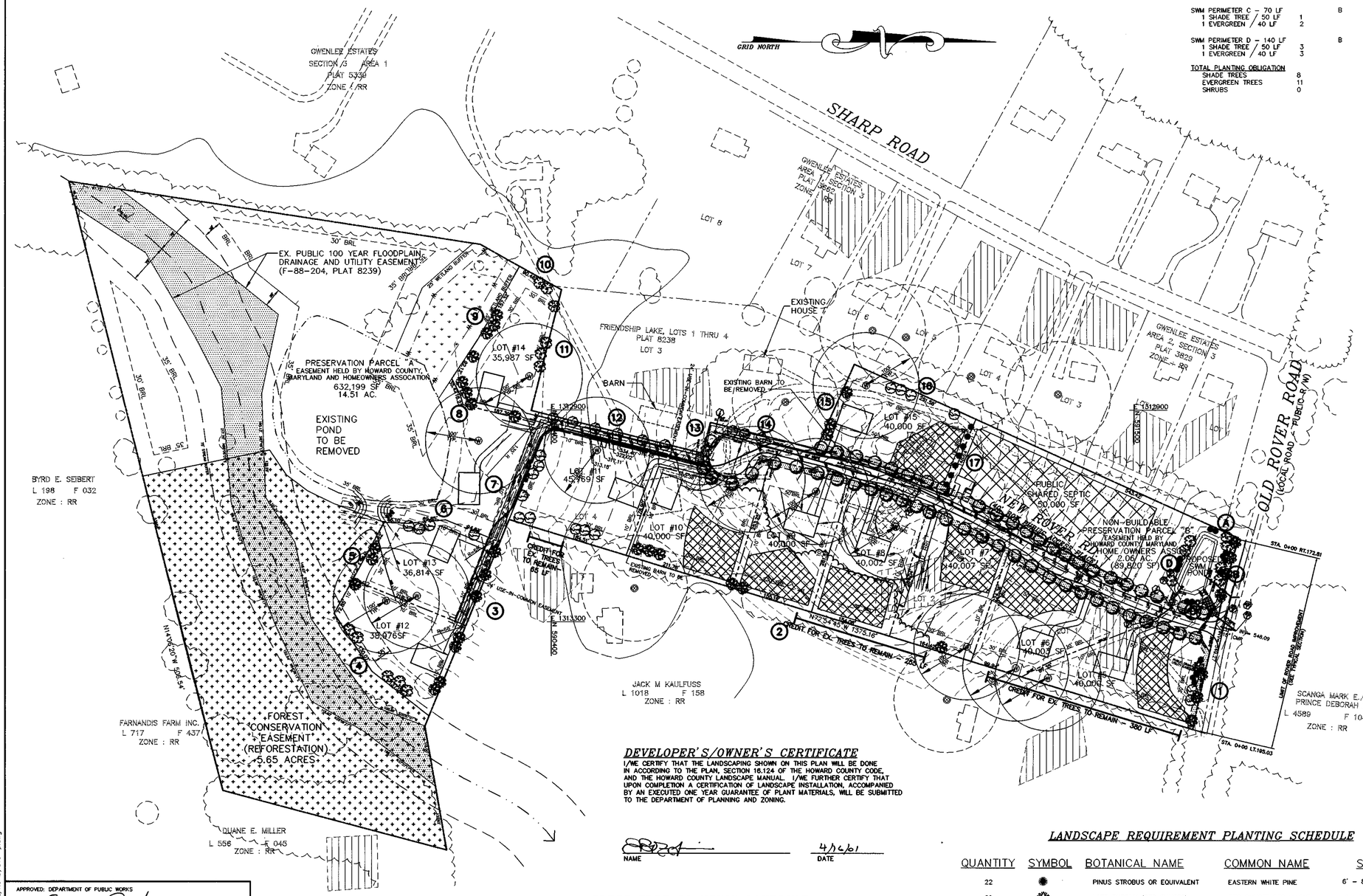
NOTES:

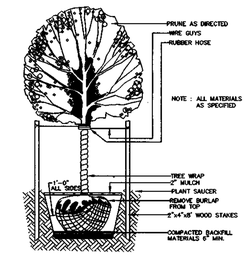
1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING, 78 SHADE TREES AND 15 EVERGREENS, HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $25,650.00.

SWM PERIMETER		EDGE TYPE
SWM PERIMETER A – 45 LF		B
1 SHADE TREE / 50 LF	1	
1 EVERGREEN / 40 LF	2	
SWM PERIMETER B – 140 LF		B
1 SHADE TREE / 50 LF	3	
1 EVERGREEN / 40 LF	4	
SWM PERIMETER C – 70 LF		B
1 SHADE TREE / 50 LF	1	
1 EVERGREEN / 40 LF	2	
SWM PERIMETER D – 140 LF		B
1 SHADE TREE / 50 LF	3	
1 EVERGREEN / 40 LF	3	
TOTAL PLANTING OBLIGATION		
SHADE TREES	8	
EVERGREEN TREES	11	
SHRUBS	0	

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

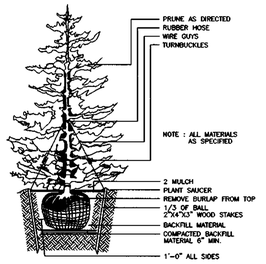
LINEAR FEET OF PERIMETER	395 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	N/A
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	 8 SHADE TREES 11 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION)	 8 SHADE TREES 11 EVERGREEN TREES 0 TREES (0 SUBSTITUTION TREES)





TYPICAL DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE

DEVELOPER'S/OWNER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN 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 4/26/01

STATE OF MARYLAND — LANDSCAPE ARCHITECT — 4/26/01

LEGEND

- FOREST CONSERVATION EASEMENT
- EX. PUBLIC 100 YEAR FLOODPLAIN DRAINAGE AND UTILITY EASEMENT
- EXISTING SEPTIC AREA.
- PROPOSED SEPTIC EASEMENT.
- PROPOSED 10' PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT.
- WETLANDS
- EXISTING WELL
- PROPOSED WELL
- PERIMETER LANDSCAPE EDGE
- SPLIT RAIL FENCE

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
22		PINUS STROBUS OR EQUIVALENT	EASTERN WHITE PINE	6' – 8' HT.
29		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
28		ACER PLATANOIDES OR EQUIVALENT	NORWAY MAPLE	2 1/2" – 3" CAL.
19		ACER RUBRUM 'OCTOBER GLORY' OR EQUIVALENT	OCTOBER GLORY RED MAPLE	2 1/2" – 3" CAL.
TOTAL 98 TREES (76 SHADE TREES, 22 EVERGREEN TREES)				

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
7		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
54		TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLELEAF LINDEN	2 1/2" – 3" CAL.
TOTAL 61 STREET TREES				

STREET TREE CALCULATIONS

OLD ROVER ROAD – 282 / 40 = 7
NEW ROVER ROAD – 2147 / 40 = 54

TOTAL TREES REQUIRED = 61 TREES
TOTAL TREES PROVIDED = 61 TREES

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS		5-1-01 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT		5/25/01 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		5/1/01 DATE

99010.DWG/FINAL/ROAD/010-lp.dwg

project 99010	date APR 2001		
illustration SAA/SJD	engineering SJD		
scale 100'	approval		

no.	description	date
	revisions	

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

1. PROTECTION FENCING AND SILT FENCES FOR SEDIMENT AND EROSION CONTROL ARE TO BE INSTALLED AS A FIRST ORDER OF BUSINESS, IF NECESSARY.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. AS SHOWN ON THE DETAIL VIEW, A PLANTING FIELD OF RADIUS = 5 X DIAMETER OF THE ROOT BALL OR CONTAINER IS RECOMMENDED.
3. SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
4. SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
5. ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

1. FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
2. FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
3. PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
4. UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT .

PLANT INSTALLATION

1. THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELD. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
2. PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
3. CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THRU LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED PLEASE TRY TO DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES. THEY WERE HERE FIRST.
4. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
5. FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
6. FOR TREES PLANTED IN THE AFFORESTATION AREA, CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FOUR (4), PER SPECIES, OVER THE ENTIRE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED ON PLANT LIST.
7. AVOID PLANTING IN A STRAIGHT GRID PATTERN. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED ON PLANT LISTS TO OBTAIN A MORE NATURAL APPEARANCE.
8. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE WELL DRAINED NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

FERTILIZING

1. DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
2. NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE ITS NEEDS.
3. IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALLY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A THREE YEAR PERIOD.
2. ASSESS TREE MORTALITY OF PLANTING STOCK, REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
3. VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION IS TO BE EXPECTED. DO NOT DISCOURAGE THIS EFFORT UNLESS IT IS NEGATIVELY EFFECTING THE PLANTED STOCK.
4. REMOVE THROUGH MANUAL MEANS (GRUBBING, PULLING, CUTTING) AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
5. REMOVE AND DISPOSE OF MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN ENTIRE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK.
6. A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS MAY BE REQUIRED TO ACHIEVE THIS GOAL.

SUPERVISION

ALL FOREST CONSERVATION ACTIVITIES SHALL BY DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

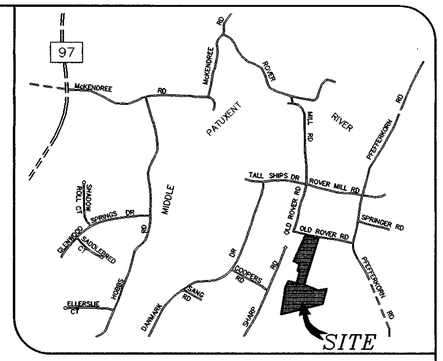
STANDARD NON-DISTURBANCE NOTE:

"THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY HOWARD COUNTY ."

NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

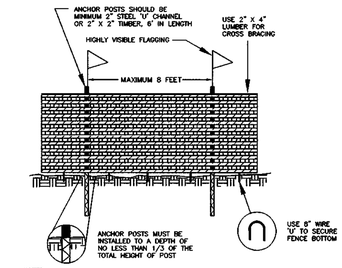
NOTES :

1. **THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY ON-SITE REFORESTATION IN THE AMOUNT OF 5.65 ACRES. FINANCIAL SURETY HAS BEEN PROVIDED IN THE AMOUNT OF $73,834.20.**
2. **THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.**



VICINITY MAP

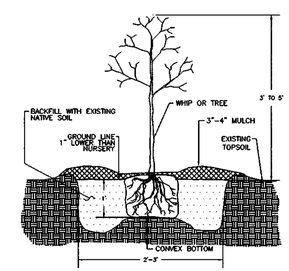
SCALE: 1" = 2000'



NOTES
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

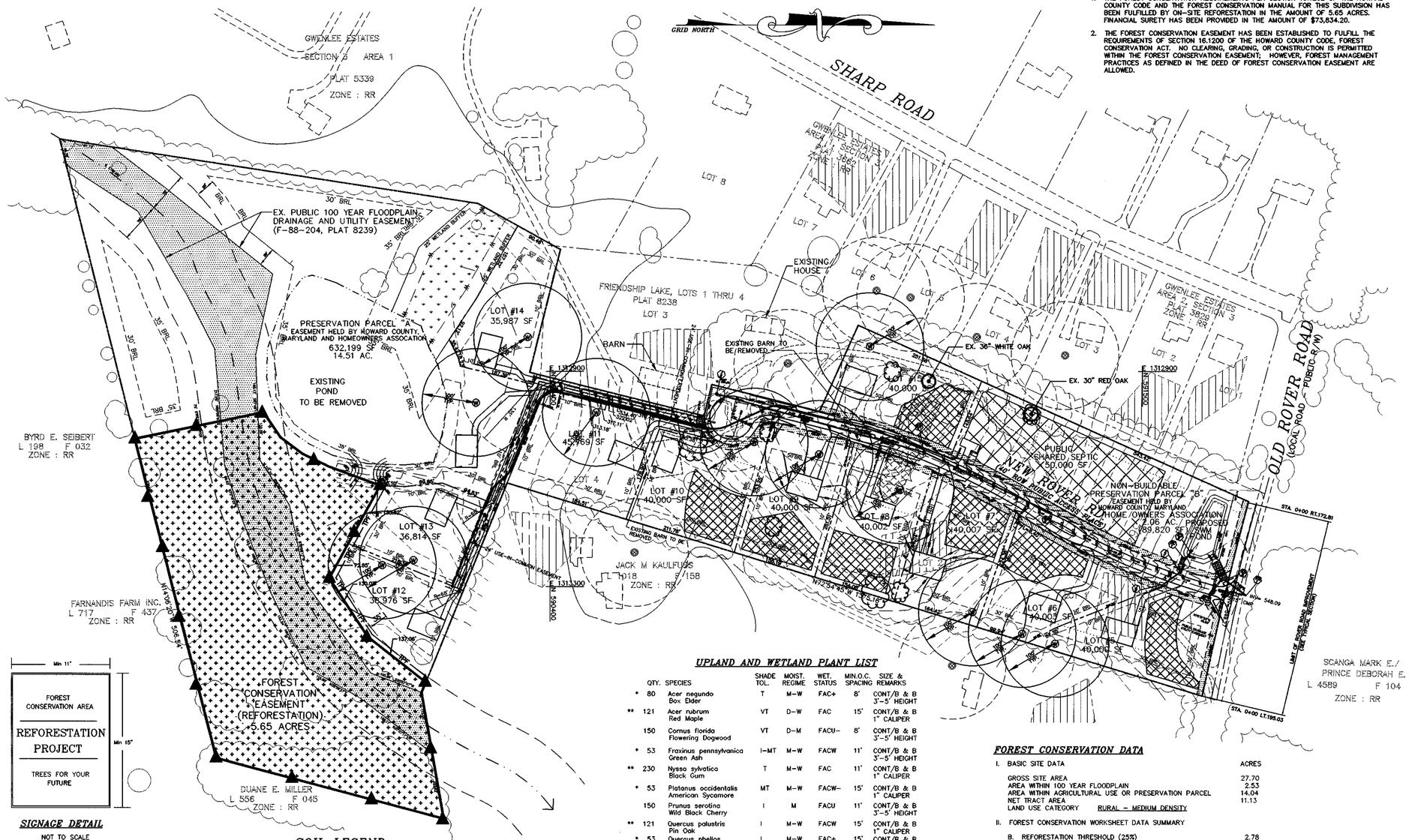
PROTECTIVE FENCE DETAIL

BLAZE ORANGE PLASTIC MESH



TREE PLANTING DETAIL

CONTAINER GROWN



SIGNAGE DETAIL

NOT TO SCALE

UPLAND AND WETLAND PLANT LIST

	QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
*	80	Acer negundo Box Elder	T	M-W	FAC+	8'	CONT/B & B 3'-5' HEIGHT
**	121	Acer rubrum Red Maple	VT	D-W	FAC	15'	CONT/B & B 1" CALIPER
	150	Cornus florida Flowering Dogwood	VT	D-M	FACU-	8'	CONT/B & B 3'-5' HEIGHT
*	53	Fraxinus pennsylvanica Green Ash	I-MT	M-W	FACW	11'	CONT/B & B 3'-5' HEIGHT
**	230	Nyssa sylvatica Black Gum	T	M-W	FAC	11'	CONT/B & B 1" CALIPER
*	53	Platanus occidentalis American Sycamore	MT	M-W	FACW-	15'	CONT/B & B 1" CALIPER
	150	Prunus serotina Wild Black Cherry	I	M	FACU	11'	CONT/B & B 3'-5' HEIGHT
**	121	Quercus palustris Pin Oak	I	M-W	FACW	15'	CONT/B & B 1" CALIPER
*	53	Quercus phellos Willow Oak	I	M-W	FAC+	15'	CONT/B & B 1" CALIPER
	66	Quercus rubra Red Oak	MT	D-M	UPL	15'	CONT/B & B 1" CALIPER
*	53	Salix nigra Black Willow	VI	M-W	FACW+	15'	CONT/B & B 1" CALIPER

TOTAL
1130 TREES

* THESE SPECIES SHOULD BE USED IN STREAM BUFFER AND FLOODPLAIN AREAS.
** THESE SPECIES SHOULD BE USED IN BOTH UPLAND AND STREAM BUFFER/FLOODPLAIN AREAS.

NOTE : WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3' - 5' TREES. IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 3.5 TO DETERMINE THE NUMBER OF TREES REQUIRED.

FOREST CONSERVATION DATA

		ACRES
I.	BASIC SITE DATA	
	GROSS SITE AREA	27.70
	AREA WITHIN 100 YEAR FLOODPLAIN	2.53
	AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	14.04
	NET TRACT AREA	11.13
	LAND USE CATEGORY RURAL - MEDIUM DENSITY	
II.	FOREST CONSERVATION WORKSHEET DATA SUMMARY	
	B. REFORESTATION THRESHOLD (25%)	2.78
	C. AFFORESTATION MINIMUM (20%)	2.23
	D. EXISTING FOREST ON NET TRACT AREA	3.14
	E. FOREST AREAS TO BE CLEARED	3.14
	F. FOREST AREAS TO BE RETAINED	0.00
IV.	REFORESTATION CALCULATIONS	
	G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD	0.36
	H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	2.78
	I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	0.00
	REFORESTATION FOR CLEARING ABOVE THRESHOLD	0.09
	REFORESTATION FOR CLEARING BELOW THRESHOLD	5.56
	TOTAL REFORESTATION REQUIRED	5.65
	TOTAL REFORESTATION PROVIDED	5.65

SOIL LEGEND

HSG	SYMBOL	NAME
D	Ba	BAILE SILT LOAM
B	ChA	CHESTER SILT LOAM, 0 TO 3 PERCENT SLOPES
B	ChB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
B	ChC2	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
B	CgB2	CHESTER GRAVELLY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
B	CgC2	CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELYLY ERODED
C	ExB2	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
C	ExC2	ELIOAK SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
C	ElD3	ELIOAK SILTY CLAY LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED
C	GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
D	Ha	HATBORO SILT LOAM
B	MlC2	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 5-1-01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/11/01

99010/DWG/FINAL/ROAD/010-fcp.dwg

	date
project 99010	APR. 2001
illustration	engineering
SAA/SJD	SAA
scale 100'	approval

no.	description / revisions	date

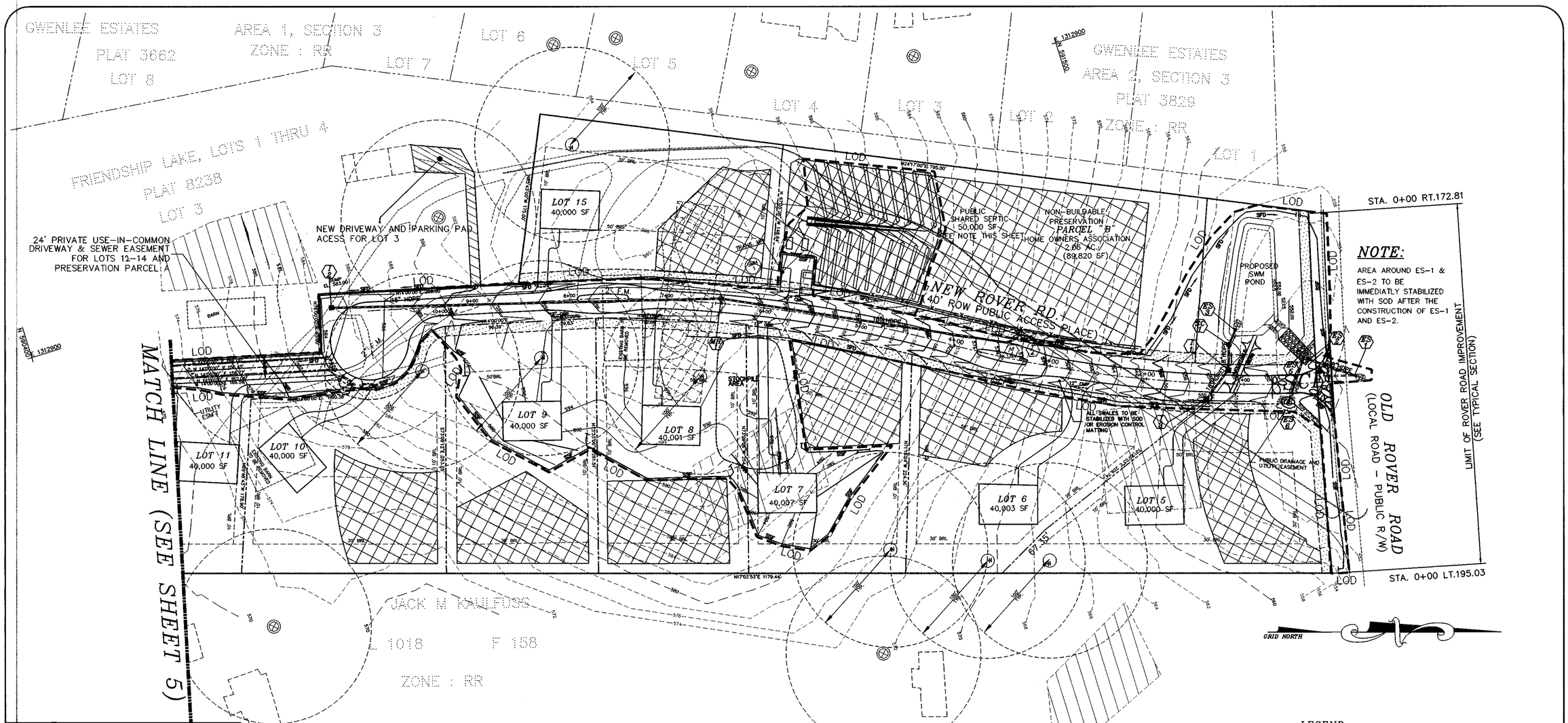
FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Bal. (301) 621-5321 Wash. (410) 997-0298 Fax.

STATE OF MARYLAND — STEPHANIE DENISE DEMCHIK — No. 4000 — LANDSCAPE ARCHITECT

MD DNR QUALIFIED PROFESSIONAL

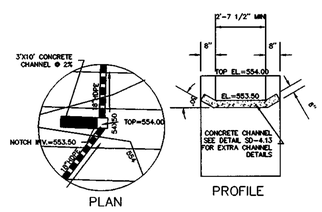
Stephanie Demchik 4/16/01
STEPHANIE DEMCHIK



NOTE:

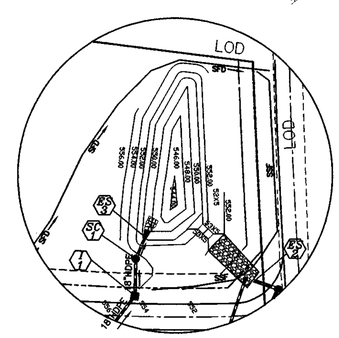
SEPTIC SYSTEM SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY FOR DESIGN AND DETAILS REFER TO CONTRACT # 50-3871-D

STATE OF MARYLAND
R. JACOB HIKMAT
17942
PROFESSIONAL ENGINEER



I-1 DETAIL

SCALE: 1"=20'



SEDIMENT TRAP GRADING

SCALE: 1"=50'

SEDIMENT CONTROL

DRAINAGE AREA - 3.60 ACRES
REQUIRED DRY STORAGE - 6,480 CF
REQUIRED WET STORAGE - 6,480 CF
PROVIDED WET STORAGE - 12,003 CF
PROVIDED DRY STORAGE - 6,970 CF
WET STORAGE EL. 551.00
DRY STORAGE EL. 552.50
CLEANOUT EL. 549.50

LEGEND

- EXISTING SEPTIC AREA.
- PROPOSED SEPTIC EASEMENT.
- PROPOSED 10' PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT.
- EXISTING WELL
- PROPOSED WELL
- LOD — LIMIT OF DISTURBANCE
- A-1 — EARTH DIKE
- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- SFD — SILT FENCE DIVERSION
- SCE — STABLIZED CONSTRUCTION ENTRANCE
- LANDSCAPE FENCE

NOTE:
THIS PLAN IS FOR GRADING & SEDIMENT CONTROL USES ONLY.

DEVELOPERS CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4/16/01
J. Thomas Sodavena
PRINTED NAME OF DEVELOPER

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATURAL RESOURCE CONSERVATION SERVICE.

SIGNATURE OF ENGINEER — DATE 4/16/01
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

USDA - NATURAL RESOURCE CONSERVATION SERVICE — DATE 5/18/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 5/18/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 5/11/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01

99010/DWG/FINAL/ROAD/SED-1

project	date
99010	APR. 2001
illustration	engineering
SAA	SAA
scale	approval
1" = 50'	RJH

no.	description	date
1	ADD I-4 & N-2 TO PLAN; ADD I-1 DETAIL	05/02/02

revisions

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
HOWARD COUNTY, MARYLAND
THIRD ELECTION DISTRICT
GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

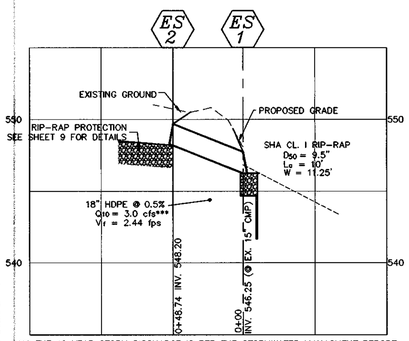
STRUCTURE SCHEDULE

NO.	LOCATION	TOP	INV. IN	INV. OUT	COMMENTS
I-1*	N 591570.542 E 1313272.759**	554.00	551.41	551.16	INLET TYPE S (HO. CO. STD SD 4.22) – SUMP (PUBLIC)
I-2*	N 590709.218 E 1312941.533	583.00	----	579.75	INLET TYPE S (HO. CO. STD SD 4.22) – SUMP (PUBLIC)
I-3*	N 591540.370 E 1313294.543	555.00	----	551.60	INLET TYPE S (HO. CO. STD SD 4.22) – SUMP (PUBLIC)
MH1*	N 591094.275 E 1313049.842	596.21	577.59	577.38	STANDARD PRECAST MANHOLE (HO. CO. STD G 5.11) (PUBLIC)
ES1	N 591692.552 E 1313316.119	----	----	546.25	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES2	N 591653.242 E 1313287.306	----	----	548.20	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES3	N 591589.213 E 1313236.017	----	----	550.81	18" ø ADS END SECTION (PART No. 1810 NP)(PRIVATE)
ES4*		----	----	566.50	18" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES5	N 591646.506 E 1313285.524	----	----	548.00	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
ES6	N 591620.686 E 1313321.259	----	----	548.22	15" ø ADS END SECTION (PART No. 1810 NP)(PUBLIC)
SC1*	N 591578.741 E 1313248.479	554.02	551.03	550.96	STORMCEPTOR MODEL STC900 (SEE DETAILS)

* COORDINATES SHOWN INDICATE CENTER OF STRUCTURE.
** COORDINATES SHOWN INDICATE APPROXIMATE END OF THE EXISTING 15" CMP AT NORTH SIDE OF OLD ROVER ROAD.

ADS END SECTION INSTALATION INSTRUCTIONS

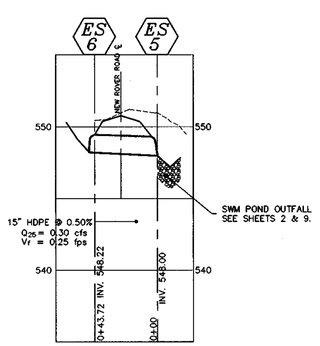
1. SPREAD THE ENDSECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
3. PLACE BANKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.



*** THE 10 YEAR STORM DISCHARGE IS PER THE STORMWATER MANAGMENT REPORT.

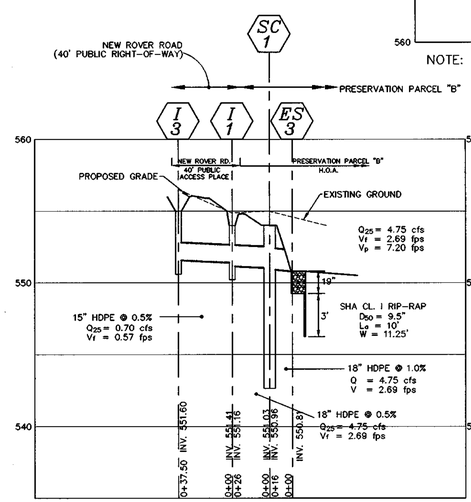
ES-2 TO ES-1

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



ES-5 TO ES-6

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

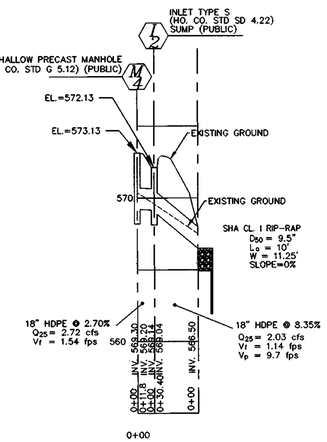


I-3 TO ES-3

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

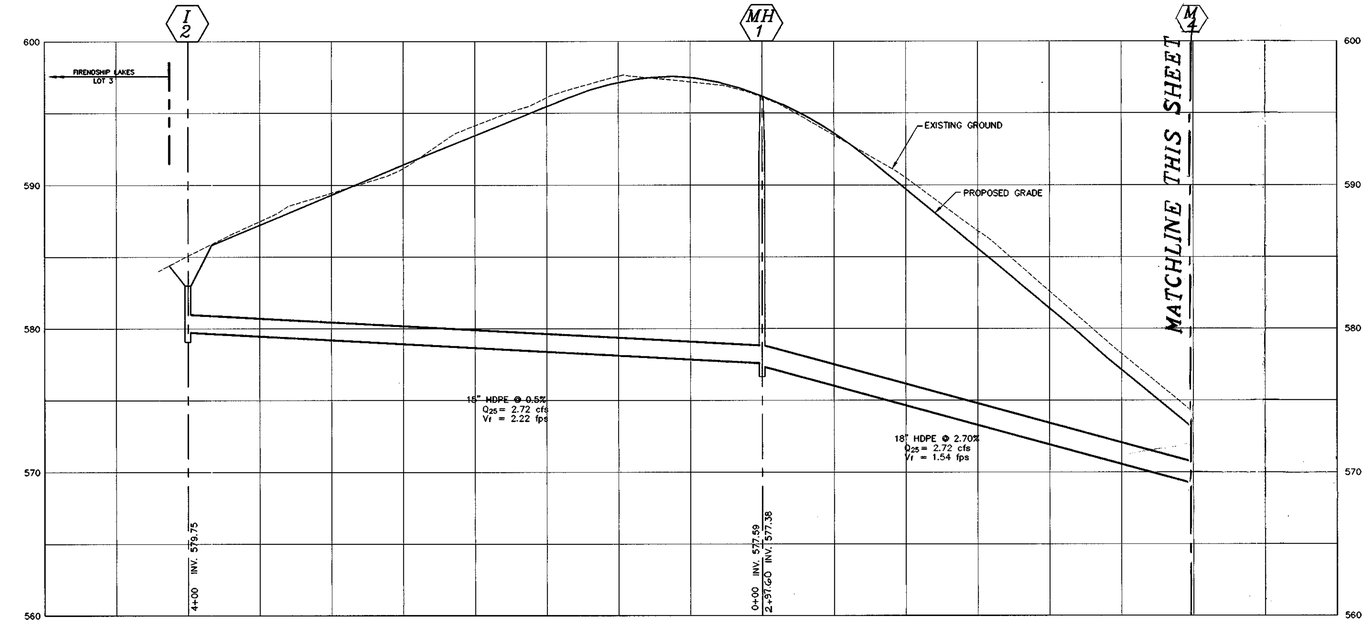
PIPE SCHEDULE

	SIZE	LENGTH
PUBLIC	15" HDPE	483'
	18" HDPE	404'
PRIVATE	18" HDPE	31'



M-4 TO I-2

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

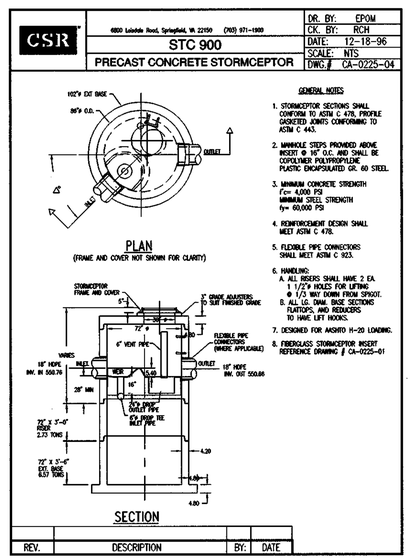


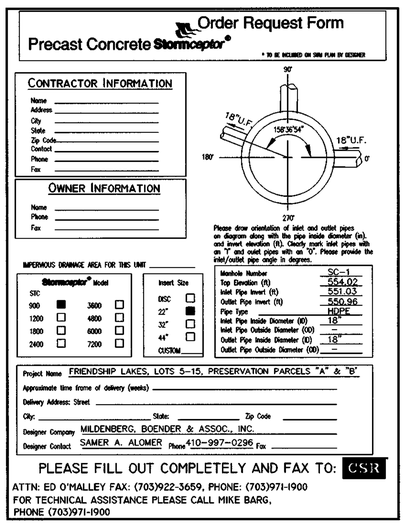
NOTE: HGL ARE AT CROWN OF ALL STORM DRAINS.

I-2 TO ES-4

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

STORMCEPTOR MANHOLE SC-1





STRUCTURE	LOCATION
I-4	NEW ROVER ROAD STA. 3+35.9, 22.8 RT.
M-2	NEW ROVER ROAD STA. 3+47.7, 15.3 RT.
ES-4	NEW ROVER ROAD STA. 3+03.3, 23 RT.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMCEPTOR WATER QUALITY DEVICE

1. STORMCEPTOR WATER QUALITY STRUCTURES WILL REQUIRE PERIODIC INSPECTION AND CLEANING TO MAINTAIN OPERATION AND FUNCTION. OWNERS WILL HAVE THE STORMCEPTOR UNIT INSPECTED YEARLY OR AS REQUIRED BY HOWARD COUNTY. UTILIZING THE STORMCEPTOR INSPECTION/MONITORING FORM. INSPECTIONS CAN BE DONE BY USING A CLEAR PLEXIGLASS TUBE ("SLUDGE JUDGE") TO EXTRACT A WATER COLUMN SAMPLE. WHEN SEDIMENT DEPTHS EXCEED THE SPECIFIED LEVEL (TABLE 6 OF TECHNICAL MANUAL) THEN CLEANING OF THE UNIT IS REQUIRED.
2. STORMCEPTOR WATER QUALITY STRUCTURES MUST BE CHECKED AND CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS, CONTACT APPROPRIATE REGULATORY AGENCIES.
3. MAINTENANCE OF STORMCEPTOR UNITS SHOULD BE DONE BY A VACUUM TRUCK WHICH WILL REMOVE THE WATER, SEDIMENT, DEBRIS, FLOATING HYDROCARBONS AND OTHER MATERIALS IN UNIT. THE PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED.
4. INLET AND OUTLET PIPES MUST BE CHECKED FOR ANY OBSTRUCTIONS AND IF ANY OBSTRUCTIONS ARE FOUND THEY MUST BE REMOVED. STRUCTURAL PARTS OF THE STORMCEPTOR WILL BE REPAIRED AS NEEDED.
5. OWNER SHALL RETAIN AND MAKE STORMCEPTOR INSPECTION/MONITORING FORMS AVAILABLE TO HOWARD COUNTY OFFICIALS UPON THEIR REQUEST.

STATE OF MARYLAND JACOB HIKARI LITWIN PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 5-1-01
APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/4/01

99010/DWG/FINAL/ROAD/SD-PROFILES

project	date
99010	JAN 2001
illustration	engineering
SAA	SAA
scale	approval
AS SHWN	RJH

no.	description	date
1	ADD I-4 & M-2 TO PROFILE	5/22/02

revisions

FRIENDSHIP LAKES, LOTS 5-15, PRESERVATION PARCELS "A" & "B"
A RESUBDIVISION OF FRIENDSHIP LAKE, LOTS 1, 2, & 4
TAX MAP 15, PARCEL 175
HOWARD COUNTY, MARYLAND
THIRD ELECTION DISTRICT
STORM DRAIN PROFILES & DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

F-01-12