SHEET INDEX	
SHEET No.	SHEET
1	TITLE SHEET
2	FRAGRANT LILIES WAY AND LOVE SONG COURT PLAN AND PROFILES
3	FILLET PROFILE AND DETAILS
4	GRADING AND SEDIMENT CONTROL PLAN
5	SEDIMENT CONTROL NOTES AND DETAILS
6	SEDIMENT CONTROL NOTES AND DETAILS
7	STREET TREE AND LANDSCAPE PLAN
8	STORM DRAIN DRAINAGE AREA MAP
9	STORM DRAIN PROFILES

FINAL ROAD CONSTRUCTION, GRADING AND SEDIMENT CONTROL PLANS

EMERSON

SECTION 2, PHASE 2

LOTS 1 THRU 63 AND OPEN SPACE LOT 64

(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3

TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8

SIXTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4/24/03

APPROVED: DEPARTMENT OF PLANNING AND ZONING

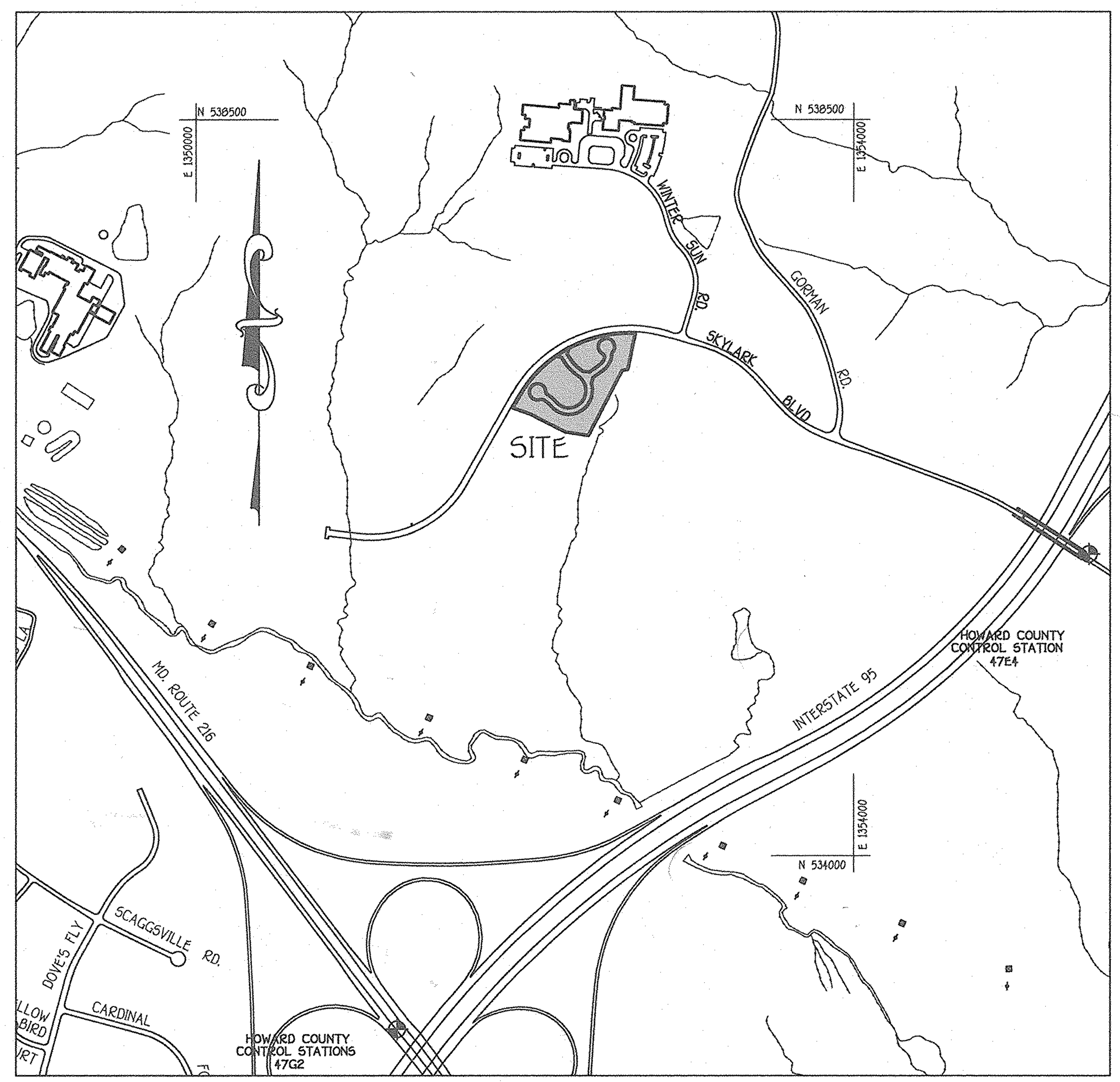
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE 4/25/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 4/25/03

ROAD CLASSIFICATION CHART		
ROAD NAME	CLASSIFICATION	R/W WIDTH
FRAGRANT LILIES WAY	PUBLIC ACCESS PLACE	40'
LOVE SONG COURT	PUBLIC ACCESS PLACE	40'

STREET LIGHT CHART			
STREET NAME	STATION	OFF-SET	FIXTURE/POLE TYPE
FRAGRANT LILIES WAY	0+33	24' R	100-WATT "TRADITIONAIRE" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FRAGRANT LILIES WAY	2+85.84	24' L	100-WATT "TRADITIONAIRE" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FRAGRANT LILIES WAY	4+40	15' L	100-WATT "TRADITIONAIRE" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FRAGRANT LILIES WAY	5+65	15' L	100-WATT "TRADITIONAIRE" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FRAGRANT LILIES WAY	4+40	15' L	100-WATT "TRADITIONAIRE" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
FRAGRANT LILIES WAY	L.P. STA. 1+38	3' L	100-WATT "TRADITIONAIRE" H.P.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
FRAGRANT LILIES WAY	0+43	20'L	STOP	R1-1
FRAGRANT LILIES WAY	2+04	19'R	SPEED LIMIT 25	R2-1
LOVE SONG COURT	0+25	20'L	STOP	R1-1



VICINITY MAP
SCALE: 1" = 1200'

GENERAL NOTES

1. ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS, WAIVERS ARE APPROVED.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, DIVISION OF CONSTRUCTION INSPECTION AT 410-313-1880 AT LEAST (5) WORKING DAYS. PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.
4. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH 2' CONTOURS INTERVALS PREPARED BY AIR SURVEY CORPORATION DATED 4/3/98.
5. PROPERTY IS LOCATED WITHIN METROPOLITAN DISTRICT.
6. WATER QUALITY AND STORMWATER MANAGEMENT HAS BEEN PROVIDED IN SECTION 2 PHASE 1A AND PHASE 1B BY F-01-136 AND F-01-137.
7. UTILITIES SHOWN HEREON ARE TAKEN FROM CURRENT HOWARD COUNTY CONTRACT DRAWINGS, CONTRACT No. 34-4061-D.
8. HOWARD COUNTY CONTROL STATIONS:
   - 47E4 N 535846.153, E 1355431.224, ELEV. 338.909'
   - 47G2 N 532938.9642, E 1351224.0950, ELEV. 364.210'
9. AREA TABULATION (THE DIVISION OF LAND DEVELOPMENT WILL MONITOR THE RESUBDIVISION PLANS FOR "OR" PARCELS. OPEN SPACE WILL BE TABULATED AS "OR" LAND USE.)
   - A. TOTAL NUMBER OF BUILDABLE LOTS TO BE RECORDED 63
   - B. TOTAL NUMBER OF OPEN SPACE LOTS TO BE RECORDED 1
   - C. TOTAL NUMBER OF LOTS TO BE RECORDED 64
   - D. TOTAL AREA OF BUILDABLE LOTS TO BE RECORDED 3.12 AC.±
   - E. TOTAL AREA OF OPEN SPACE LOTS TO BE RECORDED 1.72 AC.±
   - F. TOTAL AREA OF ROADWAY TO BE RECORDED 1.19 AC.±
   - G. TOTAL AREA TO BE RECORDED 6.03 AC.
10. NOISE STUDY PROVIDED UNDER S-99-12.
11. FOREST CONSERVATION OBLIGATIONS FOR THIS AREA OF THE EMERSON MXD PROJECT WERE ADDRESSED UNDER F-01-137.
12. THERE IS NO 100 YEAR FLOODPLAIN WITHIN THIS SITE.
13. THERE ARE NO WETLANDS WITHIN THIS SITE.
14. NO CEMETERIES EXIST ON THE PROPERTY.
15. THE APFO/TRAFFIC STUDY PROVIDED UNDER S-99-12 AND AS RE-APPROVED UNDER PB-359.
16. THIS PLAN SUBJECT TO HOWARD COUNTY FILES: ZB-979M, PB-339, PB-359, S-99-12, SP-02-12, F-01-136, F-01-137, F-01-145, F-02-167.
17. OPEN SPACE LOT 64 IS TO BE DEDICATED TO HOMEOWNERS' ASSOCIATION.
18. a) THE REQUIRED REAR TO REAR DISTANCE BETWEEN TOWNHOUSES DOES NOT INCLUDE DECKS, BUT IS MEASURED FROM REAR FACE OF BUILDING TO REAR FACE OF BUILDING.
    b) PER SECTION 128.A.1.(c) OF THE ZONING REGULATIONS, THE FRONT STAIRS OF ANY TOWNHOUSE MAY NOT EXTEND MORE THAN 10 FEET INTO THE FRONT SETBACK.
19. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND 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 AND STREET LIGHT AND ANY TREE.

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 201
ELLICOTT CITY, MARYLAND 21043

ROAD & STORM DRAIN AS-BUILT

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Owner and Developer

Ryland Homes
7250 Parkway Drive, Suite 520
Hanover, MD 21076
410-712-7012

TITLE SHEET
EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64
(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003
SHEET 1 OF 9

F-03-63

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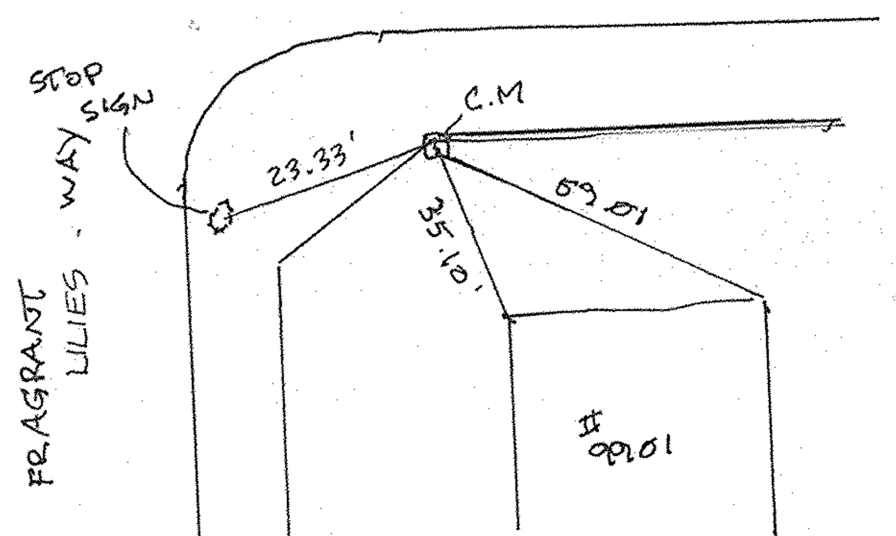

CURVE DATA CHART

NUMBER	ROAD NAME	STA. TO STA.	RADIUS	LENGTH	DELTA	TANGENT	CHORD
1	FRAGRANT LILIES WAY	0+81.19 TO 2+01.80	295'	120.61	23°25'30"	61.16	S43°39'17"E 119.77'
2	FRAGRANT LILIES WAY	2+01.80 TO 3+81.91	125'	180.12	82°33'35"	109.74	S14°05'14"E 164.93'
3	FRAGRANT LILIES WAY	3+87.91 TO 6+28.56	120'	240.64	114°53'56"	188.00	N84°38'31"E 202.30'
4	FRAGRANT LILIES WAY	6+28.56 TO 6+62.89	112'	34.33	17°33'47"	17.30	N46°41'24"W 34.20
5	LOVE SONG COURT	1+14.14 TO 2+06.35	110'	92.21	48°01'44"	49.01	N31°07'07"E 89.53
6	LOVE SONG COURT	2+06.35 TO 2+46.11	75'	39.75	30°22'13"	20.36	N08°04'52"W 39.29

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 201
ELLICOTT CITY, MARYLAND 21043

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED HDPE TO RCCP CL IV	10-20-03

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 4/25/03
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE

[signature] 4/22/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] for 4/23/03
CHIEF, BUREAU OF HIGHWAYS — DATE

[seal: STATE OF MARYLAND — OSCAR SCOTT SHANABERGER — PROFESSIONAL LAND SURVEYOR]
[signature] 5/11/2006

ROAD/STORM DRAIN AS-BUILT

EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64
(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)
ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FRAGRANT LILIES WAY AND LOVE SONG COURT
PLAN AND PROFILES

Owner and Developer
Ryland Homes
7250 Parkway Drive, Suite 520
Hanover, MD 21076
410-712-7012

STATE OF MARYLAND CHARLES S. CROVO PROFESSIONAL ENGINEER

SCALE: AS SHOWN	DATE: APRIL 9, 2003	DWG. NO. 2 OF 9
DES. F.M.	DRN. F.M.	CHK. K.R.P.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F-03-63

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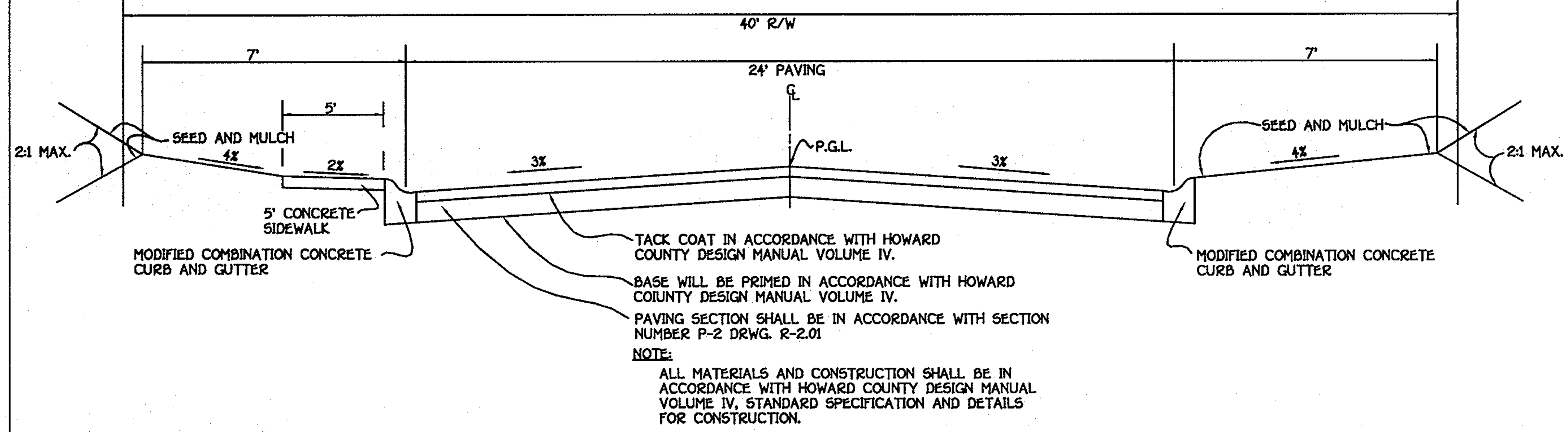


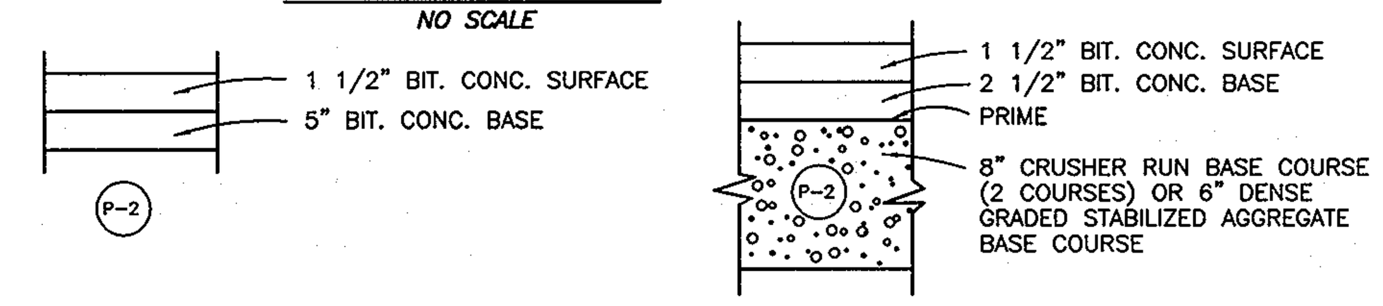
NOTE:
ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

TYPICAL ROADWAY SECTION

NO SCALE

PAVING SECTION P-2

NO SCALE

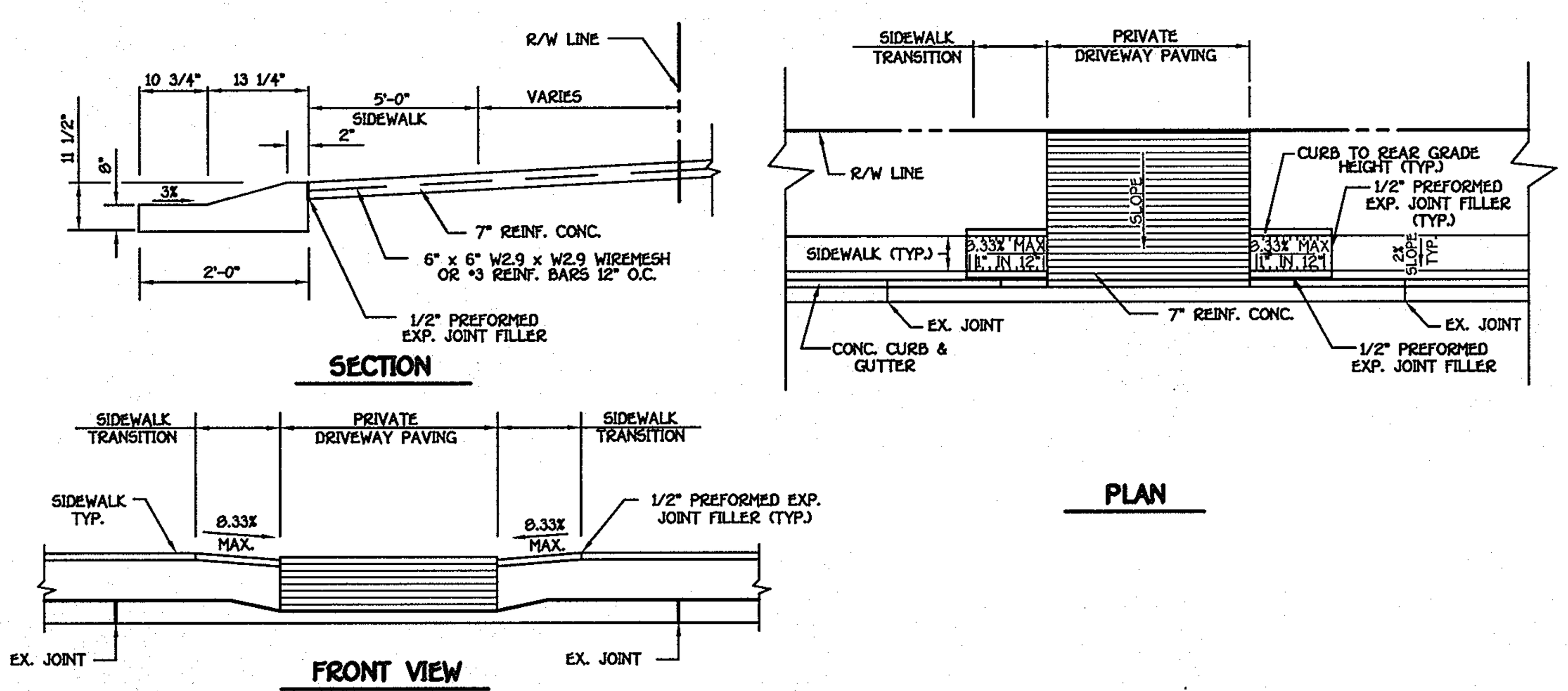


SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 201
ELLICOTT CITY, MARYLAND 21043

5/11/2006
ROAD & STORM DRAIN AS-BUILT

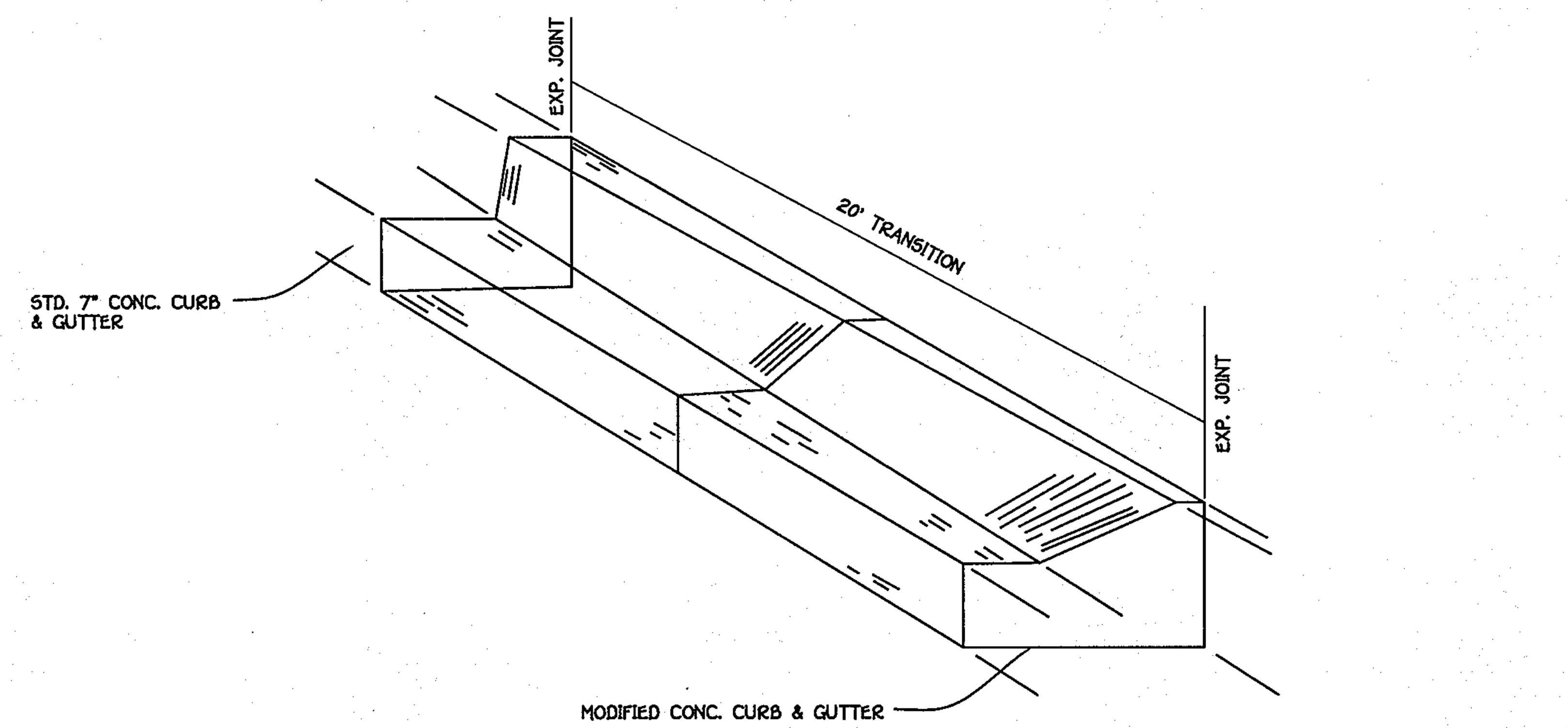
ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	PAVING SECTION
FRAGRANT LILIES WAY	PUBLIC ACCESS PLACE	25 M.P.H.	PEC-MXD-3	0+00 TO 6+84.03	P-2
LOVE SONG COURT	PUBLIC ACCESS PLACE	25 M.P.H.	PEC-MXD-3	0+00 TO 1+77.53	P-2



RESIDENTIAL DRIVEWAY ENTRANCE CLOSED SECTION WITH MODIFIED COMBINATION CURB & GUTTER AND SIDEWALK

NO SCALE



CONCRETE CURB & GUTTER TRANSITION

NO SCALE

REVISIONS		
NO.	DESCRIPTION	DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/25/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4/23/03

EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64

(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)
ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FILLET PROFILES AND DETAILS

Owner and Developer
Ryland Homes
7250 Parkway Drive, Suite 520
Hanover, MD 21076
410-712-7012

SCALE: AS SHOWN	DATE: APRIL 9, 2003	DWG. NO. 3 OF 9
DES.	DRN.	CHK.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F-03-63

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — Date 4/10/03

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary."

Signature Of Developer — Date 4/10/03

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.

U.S.D.A. - Natural Resources Conservation Service — Date 4/22/03

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — Date 4/22/03

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development HS — Date 4/25/03

Chief, Development Engineering Division MK — Date 4/25/03

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — Date 4/28/03

TEMPORARY S.W.M. P.O.S.T. NO. 1

INITIAL DRAINAGE AREA = 3.14 AC.±
FINAL DRAINAGE AREA = 3.14 AC.±
STORAGE REQUIRED:
WET = 1800 x 3.14± 5,652 CU. FT.
DRY = 1800 x 3.14 ± 5,652 CU. FT.
STORAGE PROVIDED:
WET = 6,352 CU. FT. @ ELEV. 330.75
DRY = 11,749 CU. FT. @ ELEV. 332.67
BOTTOM ELEV. = 329.50
STORAGE DEPTH = 3.17'
SIDE SLOPES = 2:1
TOP OF EMBANKMENT = 334.00
CLEANOUT ELEV. = 330.20
8" LOW FLOW ORIFICE = 330.75
RISER CREST ELEV. = 332.67
Q2 EXISTING = 2.1 c.f.s.
Q2 PROPOSED = 2.1 c.f.s.

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED HDPE TO RCCP CL IV	10-20-03

PHASE I GRADING

E/S CONTROL FROM EMERSON, SECTION 2, PHASE 1B (F-03-34) PHASE I GRADING

PHASE II GRADING

E/S CONTROL FROM EMERSON, SECTION 2, PHASE 1B (F-03-34) PHASE II GRADING

LEGEND

LOD — LIMIT OF DISTURBANCE
SSF SSF — SUPER SILT FENCE
SF SF — SILT FENCE
TYPE 'A-2' EARTH DIKE

Owner and Developer

Ryland Homes
7250 Parkway Drive, Suite 520
Hanover, MD 21076
410-712-7012

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

GRADING AND SEDIMENT CONTROL PLAN
EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64
(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003
SHEET 4 OF 9

F-03-63

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STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

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

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

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
   i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 11/2" in diameter.
   ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson 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.

II. 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.

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

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

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

V. Topsoil Application
   i. When top soiling, 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 top soiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
   iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
   iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
   i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
      a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
      b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
      c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
   iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

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

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
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 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
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	6.03	ACRES
AREA DISTURBED	5.87	ACRES
AREA TO BE ROOFED OR PAVED	2.84	ACRES
AREA TO BE VEGETATIVELY STABILIZED	3.03	ACRES
TOTAL CUT	15,000	CU. YDS.
TOTAL FILL	15,000	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY 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 SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (Up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.
Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.
Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation
   i. Install erosion and sediment control structures (either temporary of permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
   ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
   iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
B. Soil Amendments (Fertilizer and Lime Specifications)
   i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
   iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
   iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
C. Seedbed Preparation
   i. Temporary Seeding
      a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. In corporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedezas is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. Soil must contain sufficient pore space to permit adequate root penetration.
         6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
      b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
      c. Apply soil amendments as per soil test or as included on the plans.
      d. Mix soil amendments into the top 3-5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.
D. Seed Specifications
   i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
   Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
   ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective.
E. Methods of Seeding
   i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder.
      a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.
      b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
   ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
   iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
F. Mulch Specifications (In order of preference)
   i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
   ii. Wood Cellulose Fiber Mulch (WCFM)
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
      d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      e. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic.
      f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm. , diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
   Note: Only sterile straw mulch should be used in areas where one species of grass is desired.
G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
   i. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
   ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
   iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
   ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
I. Incremental Stabilization - Cut Slopes
   i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
   ii. Construction sequence (Refer to Figure 3 below):
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
      b. Perform Phase 1 excavation, dress, and stabilize.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.

J. Incremental Stabilization of Embankments - Fill Slopes
   i. Embankments shall be constructed in lifts as prescribed on the plans.
   ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
   iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
   iv. Construction sequence: Refer to Figure 4 (below).
      a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

Owner and Developer
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410-712-7012

SECTION 2 - TEMPORARY SEEDING

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

A. Seed mixtures - Temporary Seeding

i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.

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

Seed Mixture (Hardiness Zone __6b__) From Table 26					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15, 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/ac (15 lb/1000sf)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

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

A. Seed mixtures - Permanent Seeding

i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Techinical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

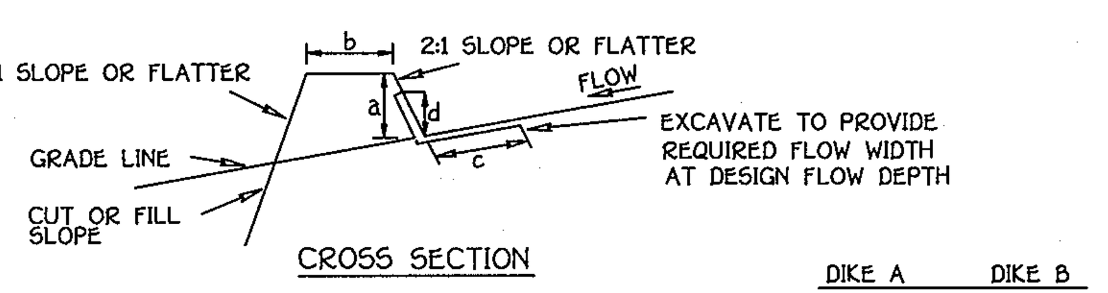
ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.

iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardiness Zone __6b__) From Table 25					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	
3	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"				

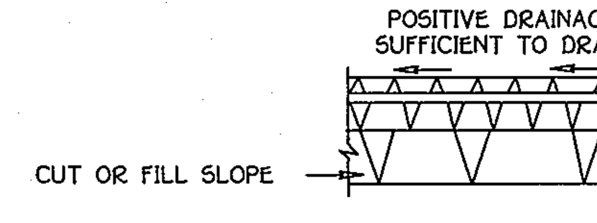
EARTH DIKE

NOT TO SCALE



CROSS SECTION

	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"



PLAN VIEW

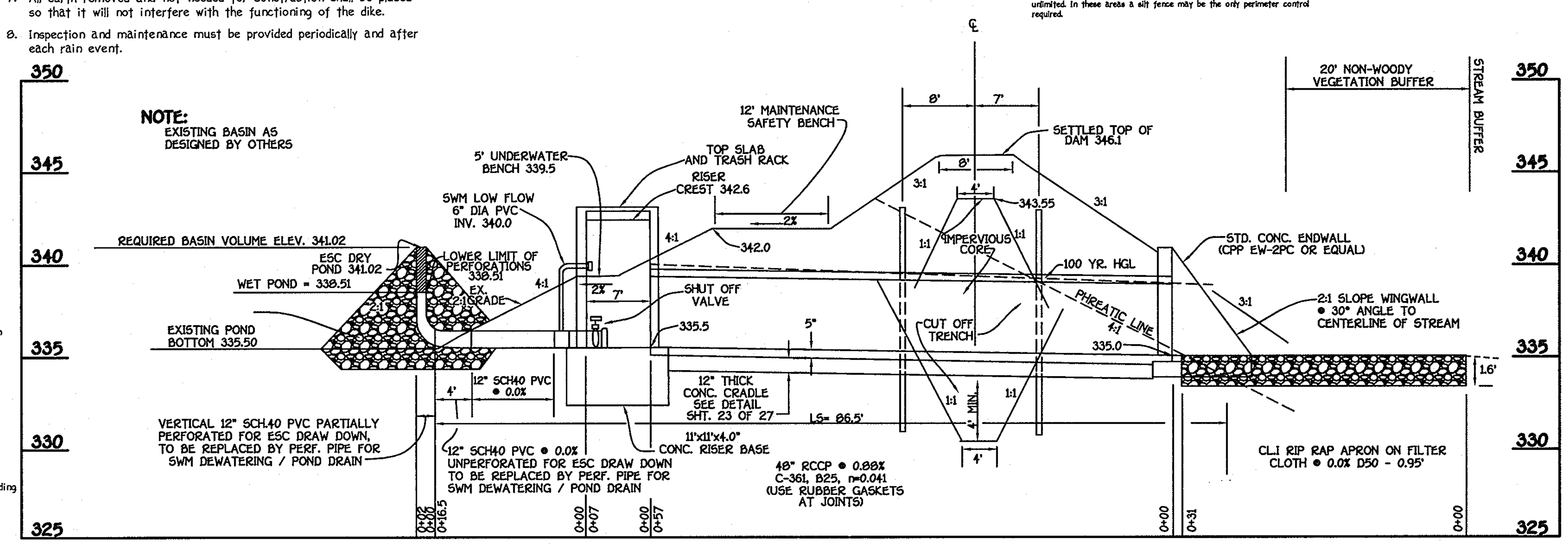
STANDARD SYMBOL
A-2 B-3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

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

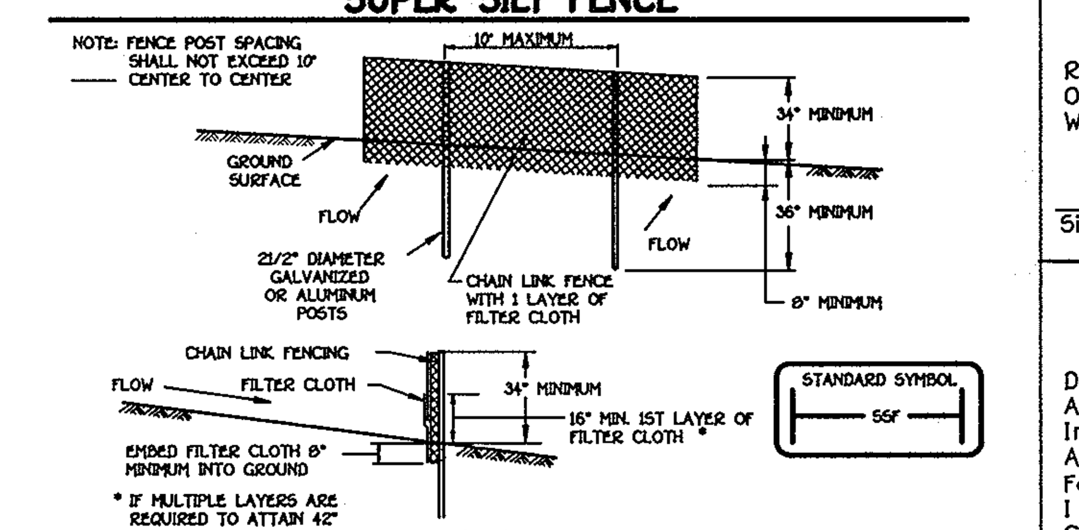
1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, 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.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.



PROFILE ALONG PRINCIPAL SPILLWAY OF EXISTING SEDIMENT BASIN VI (F 01-136)

SCALE: HORZ. 1" = 10'
VERT. 1" = 5'

SUPER SILT FENCE



Construction Specifications

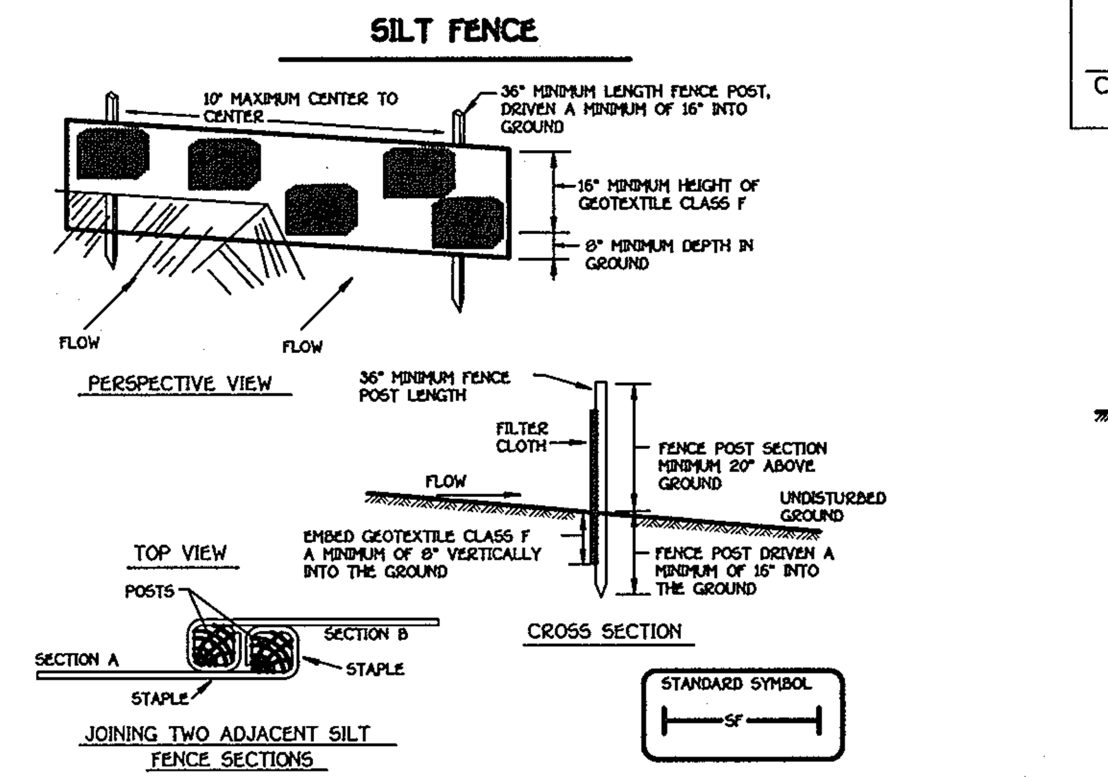
1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

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

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

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 ft / minute (max.)*	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

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

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.

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 4/11/03 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary."

Signature Of Developer — 4/10/03 Date

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.

U.S.D.A. - Natural Resources Conservation Service — 4/22/03 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 4/22/03 Date

Approved: Department Of Planning And Zoning

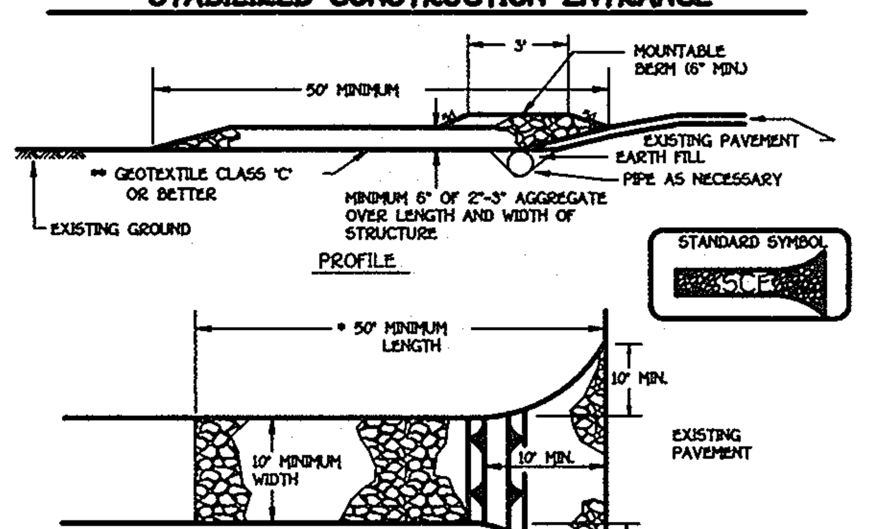
Chief, Division Of Land Development — 4/25/03 Date

Chief, Development Engineering Division — 4/25/03 Date

Approved: Howard County Department Of Public Works

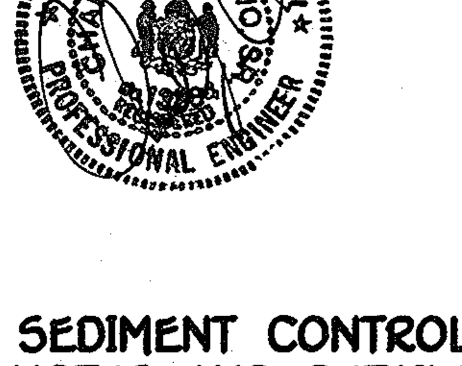
Chief, Bureau Of Highways — 4/23/03 Date

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.



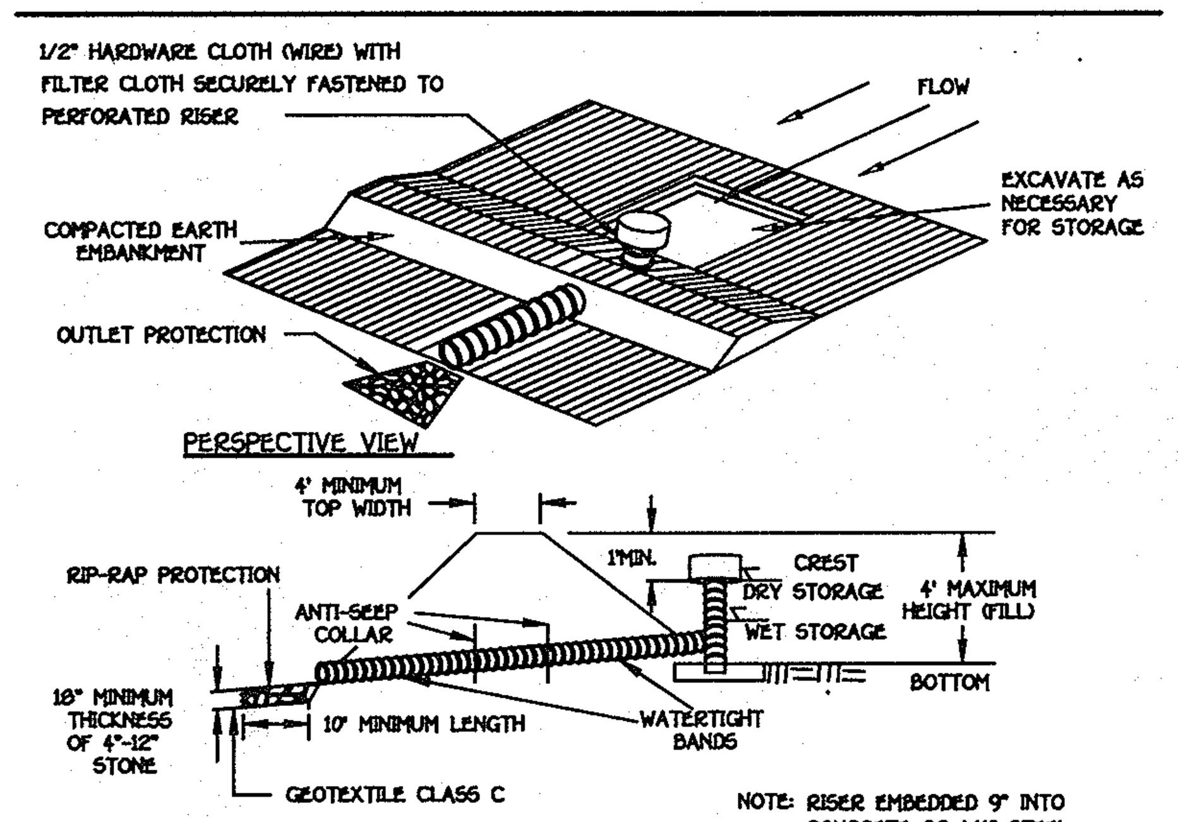
SEDIMENT CONTROL NOTES AND DETAILS
EMERSON
SECTION 2, PHASE 2 LOTS 1 THRU 63 AND OPEN SPACE LOT 64

(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003
SHEET 5 OF 9 **F-03-63**

J:\50001 Emerson Property\dwg\Sec2Phase2\40367-Ryland\FINALS\40367 SHEET 5 SEC Details.dwg, 4/10/2003 9:22:04 AM

PIPE OUTLET SEDIMENT TRAP - ST I



EMBANKMENT SECTION THROUGH RISER

NOTE: RISER EMBEDDED 9" INTO CONCRETE OR 1/4" STEEL PLATE ATTACHED TO RISER WITH A CONTINUOUS WELD ON BOTTOM AND 2" OF STONE PLACED ON STEEL PLATE TWICE THE RISER DIAMETER (MIN.)

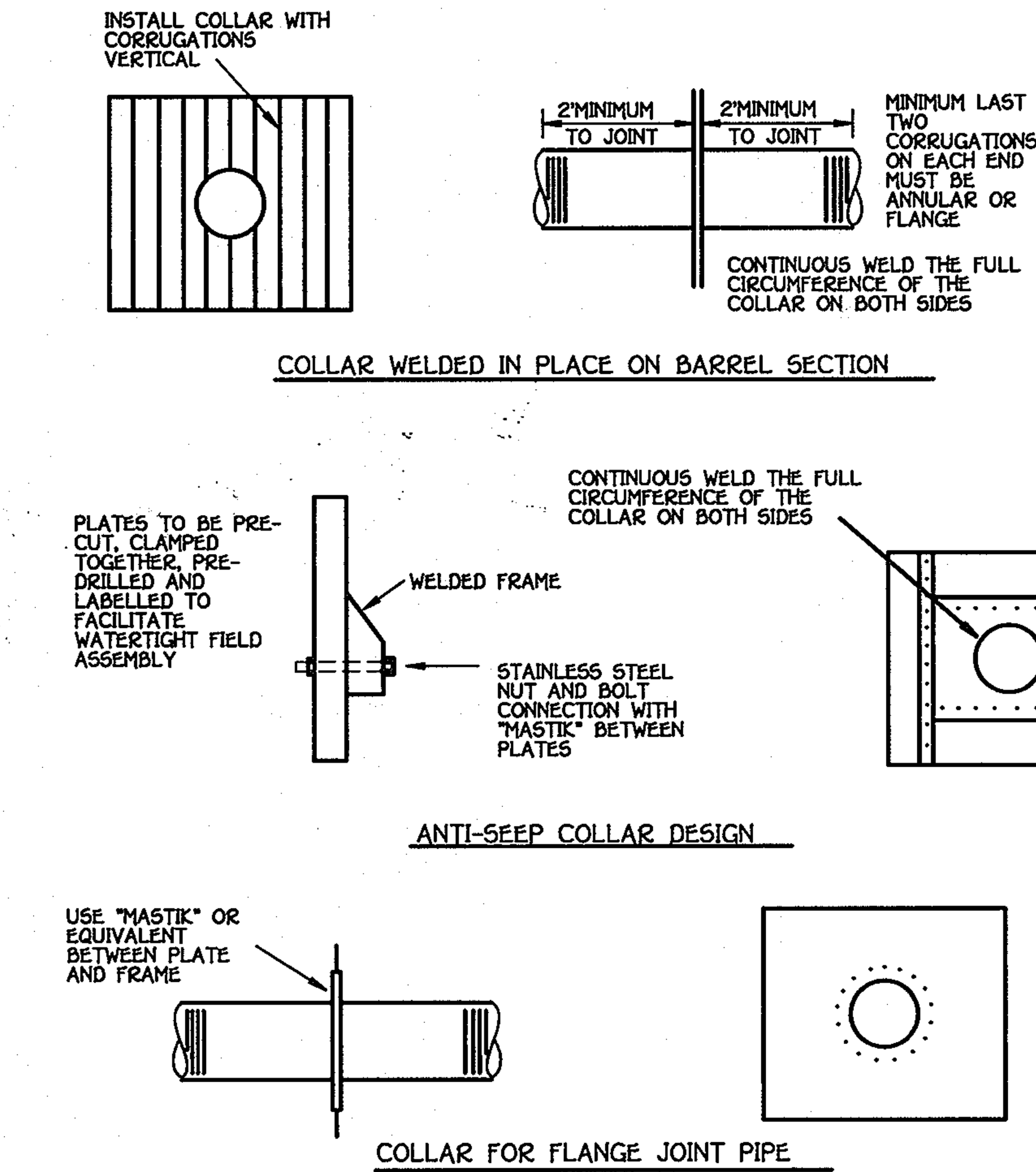
Construction Specifications

1. The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be ≥1' above the riser crest elevation.
4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.
5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

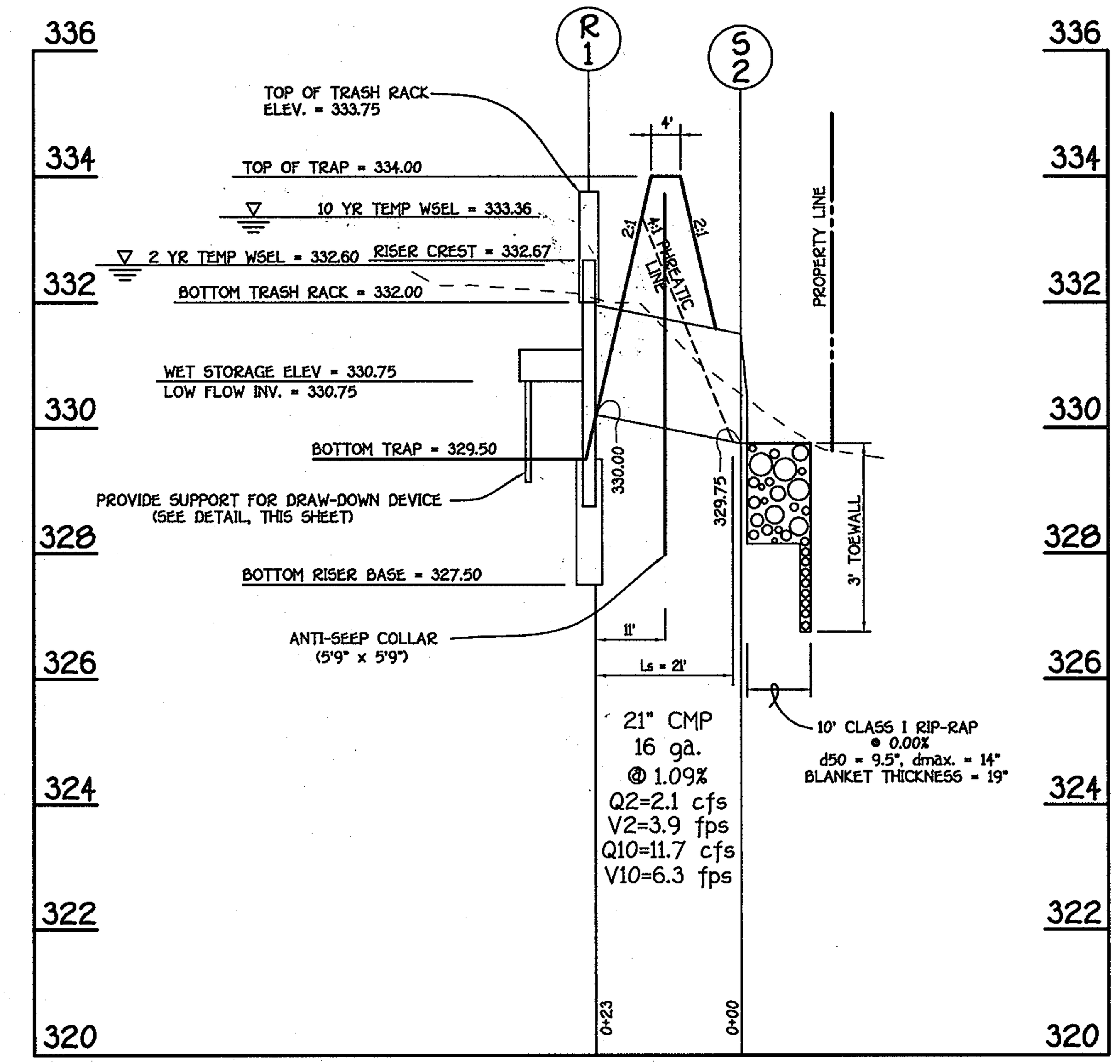
PIPE OUTLET SEDIMENT TRAP - ST I

6. Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.
8. All cut and fill slopes shall be 2:1 or flatter.
9. All pipe connections shall be watertight.
10. Above the wet storage elevation, the riser shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal barrel.
11. The riser shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.
12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.
14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.
15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).
16. Concentric trash rack and anti-vortex device design details are on Detail 16.
17. Refer to Section D for dewatering requirements of sediment traps.
18. Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.
19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

TYPICAL ANTI-SEEP COLLARS



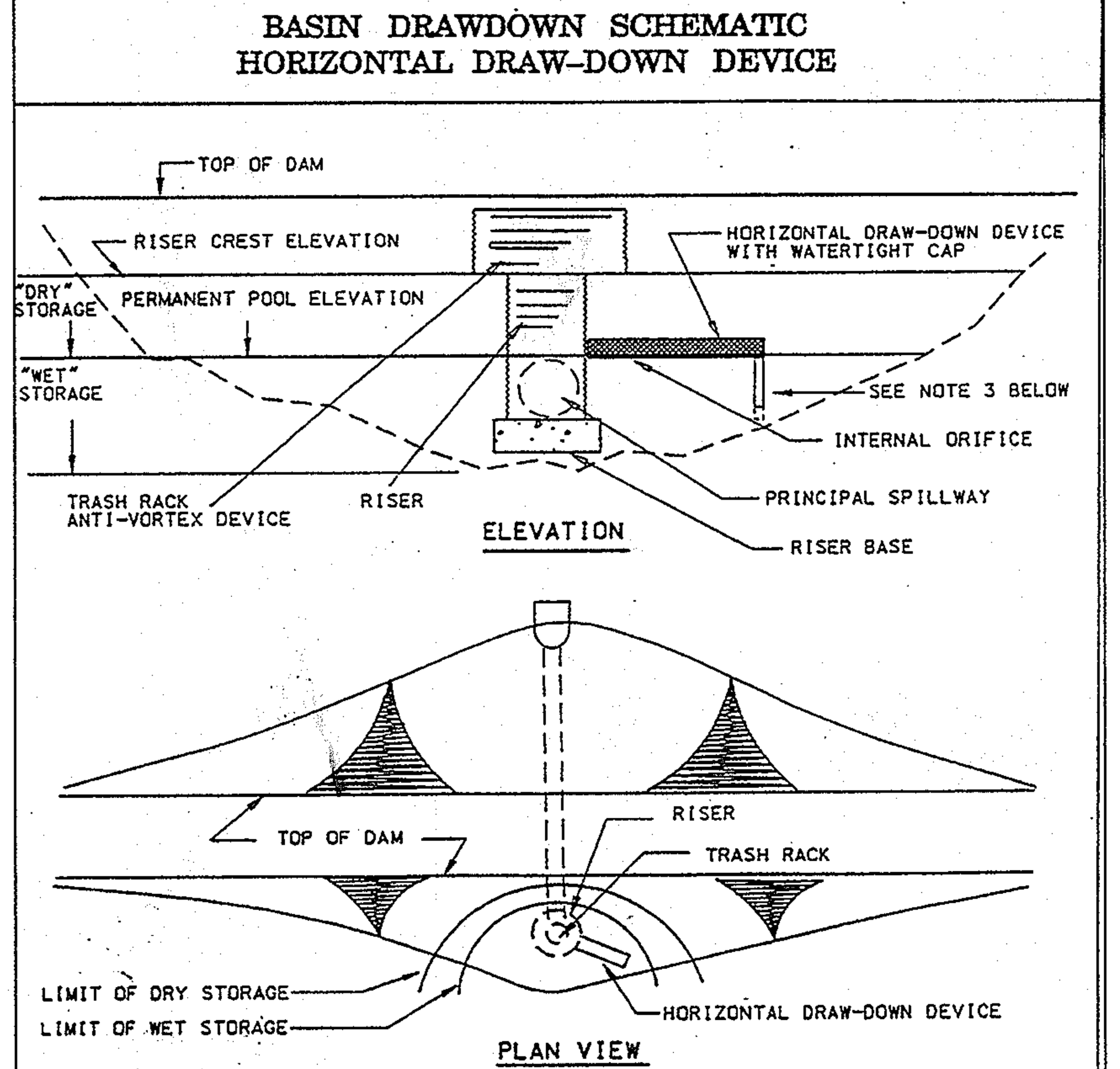
CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE



PROFILE THRU PRINCIPAL SPILLWAY

SCALE: HORIZ. : 1" = 20'
VERT. : 1" = 2'

BASIN DRAWDOWN SCHEMATIC
HORIZONTAL DRAW-DOWN DEVICE

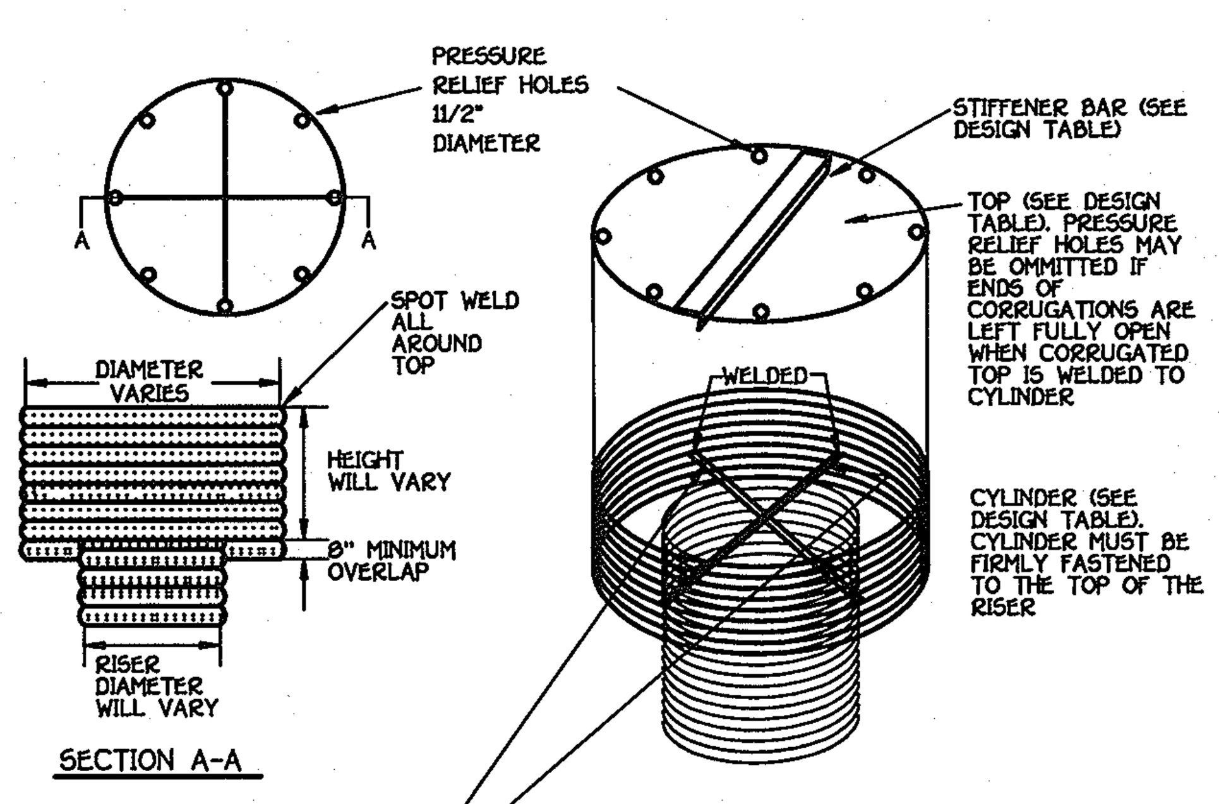


Construction Specifications

1. The total area of the perforations must be greater than 2 times the area of the internal orifice.

2. The perforated portion of the draw-down device shall be wrapped with ½" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.

3. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1' by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

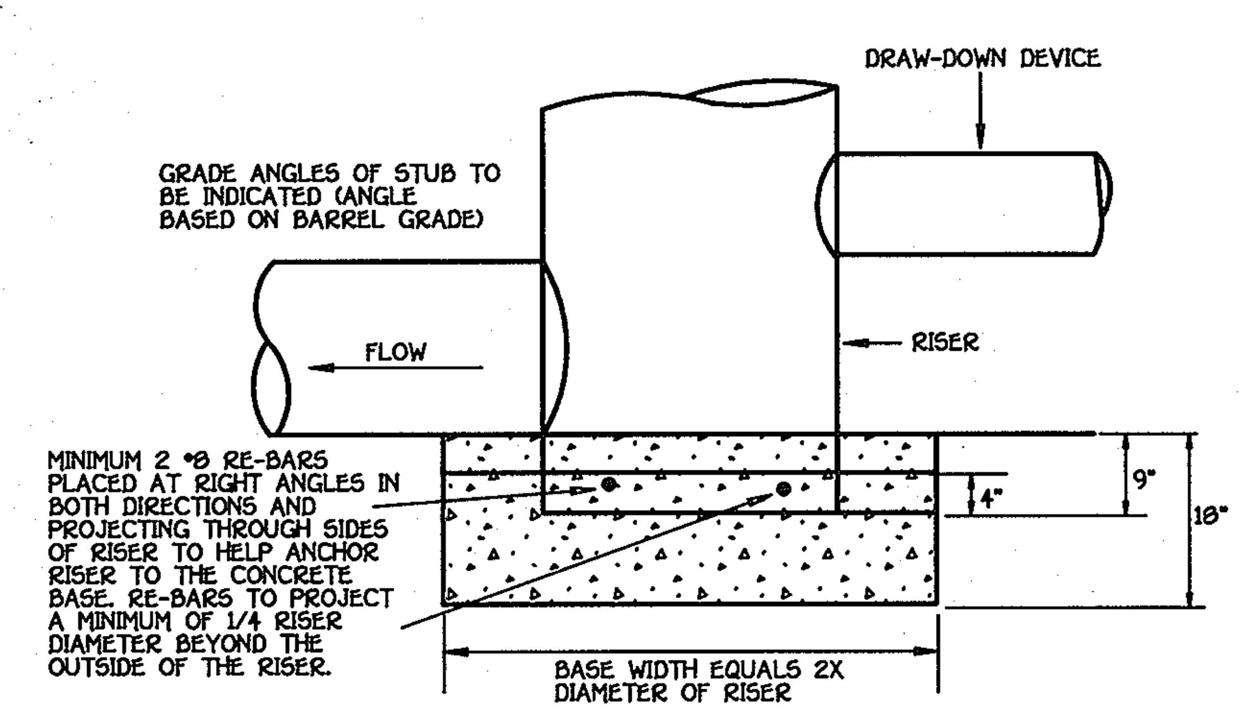


SUPPORT BAR SIZE 3/4 DIAMETER MINIMUM, BARS ARETO BE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS TO THE TOP OF THE RISER

Riser Diam., in.	Trash Rack Cylinder Diam. in.	Thick., gage	H, in.	Minimum Size Support Bar	Minimum Top Thickness	Stiffener
12	18	16	6	#6 rebar	16 ga.	—
15	21	16	7	#6 rebar	16 ga.	—
18	27	16	8	#6 rebar	16 ga.	—
21	30	16	11	#6 rebar	16 ga.	—
24	36	16	13	#6 rebar	14 ga.	—
27	42	16	15	#6 rebar	14 ga.	—
36	54	14	17	#8 rebar	12 ga.	—
42	60	14	19	#8 rebar	12 ga.	—
48	72	12	21	1-1/4" pipe or 1-1/4x1-1/4x1/4 angle	10 ga.	—
54	78	12	25	"	10 ga.	—
60	90	12	29	1-1/2" pipe or 1-1/2x1-1/2x1/4 angle	8 ga.	—
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga. w/stiffener	2x2x1/4 angle
72	102	10	36	"	8 ga. w/stiffener	2-1/2x2-1/2x 1/4 angle
78	114	10	39	2-1/2" pipe or 2x2x1/4 angle	8 ga. w/stiffener	2-1/2x2-1/2x 1/4 angle
84	120	10	42	2-1/2" pipe or 2-1/2x2-1/2x1/4 angle	8 ga. w/stiffener	2-1/2x2-1/2x 5/16 angle

Note: The above trash rack and anti-vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

RISER BASE DETAIL



NOTE: ANCHORING BARS SHOULD PROJECT 1/4 DIAMETER BEYOND OUTSIDE OF THE RISER.

Construction Specifications

The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers 10" or less in height are:

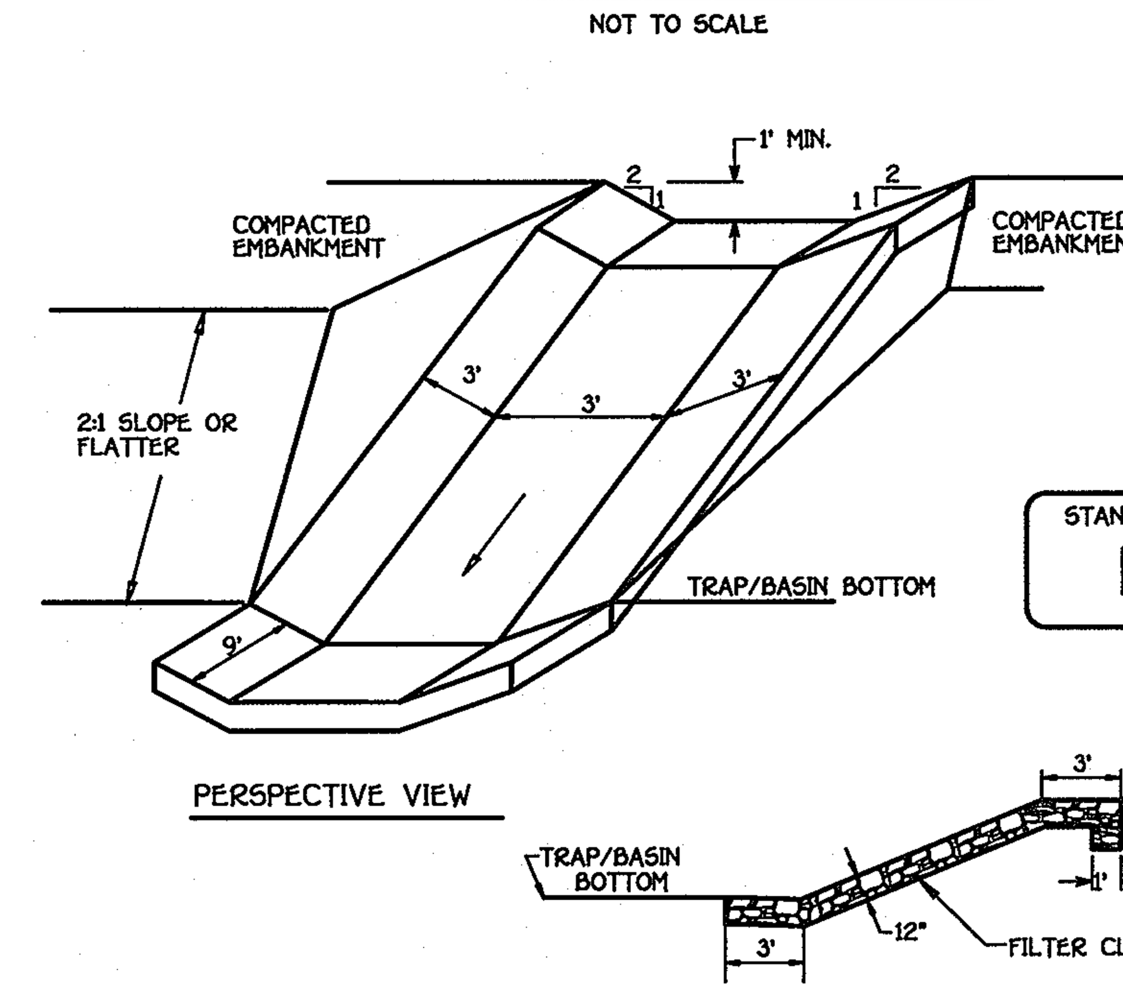
1. A concrete base 18" thick with the riser embedded 9" in the base.

2. A 1/4" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2' of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

Note: For risers greater than ten feet high computations shall be made to design a base which will prevent floatation. The minimum factor of safety shall be 1.20 (downward forces = 1.20 x upward forces).

GABION INFLOW PROTECTION

NOT TO SCALE



STANDARD SYMBOL
GM

Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" - 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

ENGINEER'S CERTIFICATE

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature Of Engineer — 4/11/03 Date

DEVELOPER'S CERTIFICATE

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary."

Signature Of Developer — 4/10/03 Date

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.

U.S.D.A. - Natural Resources Conservation Service — 4/22/03 Date

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

District Howard Soil Conservation Dist. — 4/22/03 Date

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development HB — 4/25/03 Date

Chief, Development Engineering Division MK — Date

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 4/23/03 Date

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMITS. (2 WEEKS)

2. NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777, NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-313-1870 AT LEAST 24 HOURS BEFORE STARTING ANY WORK. IN ADDITION, NOTIFY AT&T PRIOR TO ANY ACTIVITY WITHIN THEIR EASEMENT.

3. GRADING OPERATIONS WILL BE PHASED FOR THIS PROJECT IN SUCH THAT THE CONSTRUCTION OF TOWNHOUSE LOTS 23-27 CANNOT TAKE PLACE UNTIL SUCH TIME AS THE PROPOSED ROADS ARE CONSTRUCTED TO SUBGRADE AND THE STORM DRAIN SYSTEM IS FUNCTIONING. GRADING OPERATIONS AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT WILL BE SYNCHRONIZED WITH THE GRADING OPERATIONS AND SEDIMENT CONTROL MEASURES OF EMERSON, SECTION 2, PHASE 1B (F-03-34).

4. INSTALL PHASE I SEDIMENT CONTROL MEASURES FOR THIS PROJECT WHICH INCLUDE STABILIZED CONSTRUCTION ENTRANCE, A SEDIMENT TRAP, AND SILT FENCE IN CONJUNCTION WITH THE SEDIMENT CONTROL MEASURES OF EMERSON, SECTION 2, PHASE 1B (F-03-34). THE CONTRACTOR SHALL INSPECT EXISTING SEDIMENT BASIN VI AND COMPLETELY REFURBISH THIS BASIN ACCORDING TO THE SPECIFICATIONS OF F-01-136. (1 WEEK)

5. AFTER PERMISSION TO PROCEED IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR GRADE SITE TO SUBGRADE AND STABILIZE ALL AREAS USING TEMPORARY SEEDING NOTES. THEN INSTALL STORM DRAINS, WATER MAINS, AND SEWER MAINS WITHIN THE LIMITS OF THE GRADING. UTILIZE DUST CONTROL MEASURES DURING THIS OPERATION. (8 WEEKS)

6. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENTS FROM EXISTING BASIN VI (F-01-136) AND P.O.S.T. #1 WHEN CLEANOUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP DEVICE.

7. INSTALL ROADWAY BASE COURSE PAVING. (1 WEEK)

8. STABILIZE ALL DISTURBED AREAS FOR PHASE I GRADING AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED TO PHASE 2 OF THE SITE WORK. (1 WEEK)

9. APPLY TACK COAT TO BASE COURSE PAVING AND LAY SURFACE COURSE. (1 WEEK)

10. INSTALL PHASE II SEDIMENT CONTROL MEASURES WHICH INCLUDE EARTH DIKE AND SILT FENCE. CONFIRM THAT THE ENTIRE STORM DRAIN SYSTEM FOR EMERSON, SECTION 2, PHASE 1B (F-03-34) HAS BEEN CONSTRUCTED PRIOR TO INSTALLATION OF PHASE II SEDIMENT CONTROL MEASURES. WHEN ALL CONTRIBUTING AREAS TO P.O.S.T. #1 HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. (2 WEEKS)

11. WHEN ALL CONTRIBUTING AREAS TO THE PHASE II SEDIMENT CONTROL DEVICES (EARTH DIKES AND SILT FENCE) HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICES MAY BE REMOVED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. THE EXISTING SWM/BASIN CAN REMAIN IN PLACE AS A BASIN FOR A PERIOD OF 3 YEARS SO THEY CAN BE UTILIZED FOR FUTURE PHASES OF THIS EMERSON DEVELOPMENT. (4 WEEKS)

12. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT OR COMPLETION OF EACH PHASE OF THE SITE GRADING.

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(410) 461 - 2855

Owner and Developer
Ryland Homes
7250 Parkway Drive, Suite 520
Hanover, MD 21076
410-712-7012

STATE OF MARYLAND — CHARLES J. CROVO — PROFESSIONAL ENGINEER

SEDIMENT CONTROL NOTES AND DETAILS
EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64
(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003
SHEET 6 OF 9

F-03-63

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PERIMETER PLANT SCHEDULE

KEY	QUANT	BOTANICAL NAME	COMMON NAME	SIZE
	MAJOR SHADE TREES			
AO	5	Acer rubrum October glory	October Glory Maple	2.5-3"cal.
ZG	7	Zelkova 'Green Vase'	Green Vase Zelkova	2.5-3"cal.
	FLOWERING / INTERMEDIATE TREES			
AC	7	Amelanchier canadensis	Shadblow Clump 3-5 stem	2-2.5"cal.
CC	6	Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	2-2.5"cal.
PN	2	Prunus cerasifera Newport	Newport Flowering Plum	2-2.5"cal.
PR	10	Prunus subhirtella 'Rosy Cloud'	Rosy Cloud Cherry	2-2.5"cal.
	EVERGREEN TREES			
IF	18	Ilex attenuata 'Fosteri'	Foster Holly	7-8' Ht
PO	34	Picea omorica	Serbian Spruce	7-8' Ht
PS	8	Pinus strobus	Eastern White Pine	7-8' Ht
SJ	16	Ilex aquipernyi 'San Jose'	San Jose Holly	5-6' ht.
	SHRUBS			
BT	46	Berberis t. a. n. Crymson Pigmy	Crymson Pigmy Barberry	18-24"sp.

NOTE:
BUFFER AND STREET TREE PLANTINGS ARE PART OF THE 3 TREES PER UNIT REQUIREMENT FOR SFA DEVELOPMENT PARCELS ULTIMATELY TO BE PROVIDED AT THE SDP STAGE.
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWAR COUNTY LANDSCAPE MANUAL.
FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES AND SHRUBS HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $20,130.

STREET TREE PLANT SCHEDULE

KEY	QUANT	BOTANICAL NAME	COMMON NAME	SIZE
TC	40	Tilia cordata 'Greenspire'	Greenspire Linden	2.5-3"cal.
PN	12	Prunus cerasifera Newport	Newport Flowering Plum	2-2.5"cal.min.
	52	TOTAL STREET TREES		

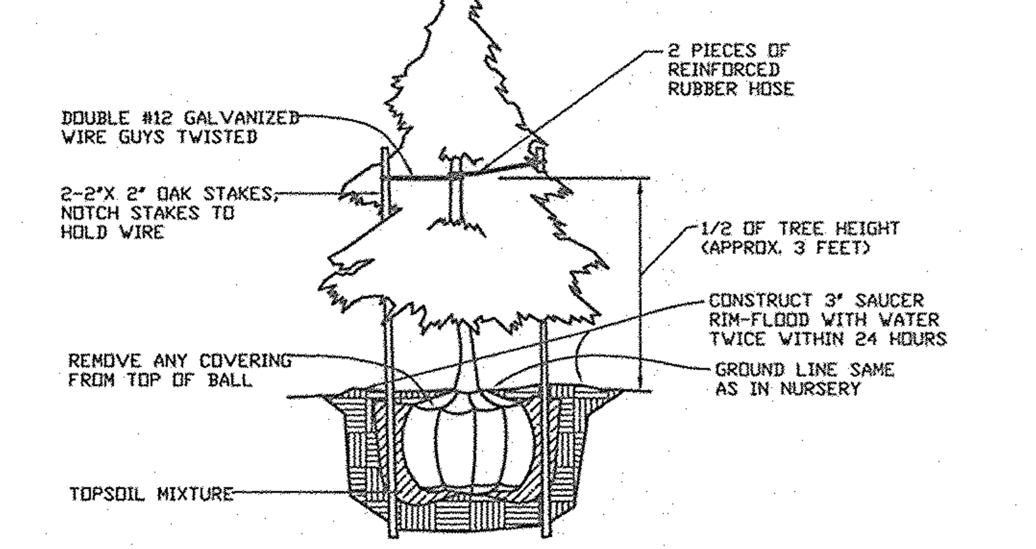
SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	P-7 : 225'
NUMBER OF TREES REQUIRED: SHADE TREES EVERGREEN TREES	 5 6
NUMBER OF TREES PROVIDED: SHADE TREES EVERGREEN TREES	 5 6
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO

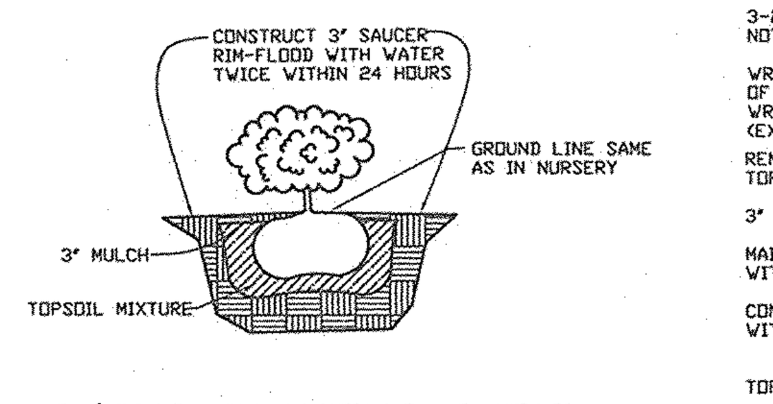
Approved: Department Of Planning And Zoning	
Chief, Division Of Land Development	4/25/03 Date
Chief, Development Engineering Division MK	4/28/03 Date
Approved: Howard County Department Of Public Works	
Chief, Bureau Of Highways	4/23/03 Date

SCHEDULE A PERIMETER LANDSCAPE EDGE

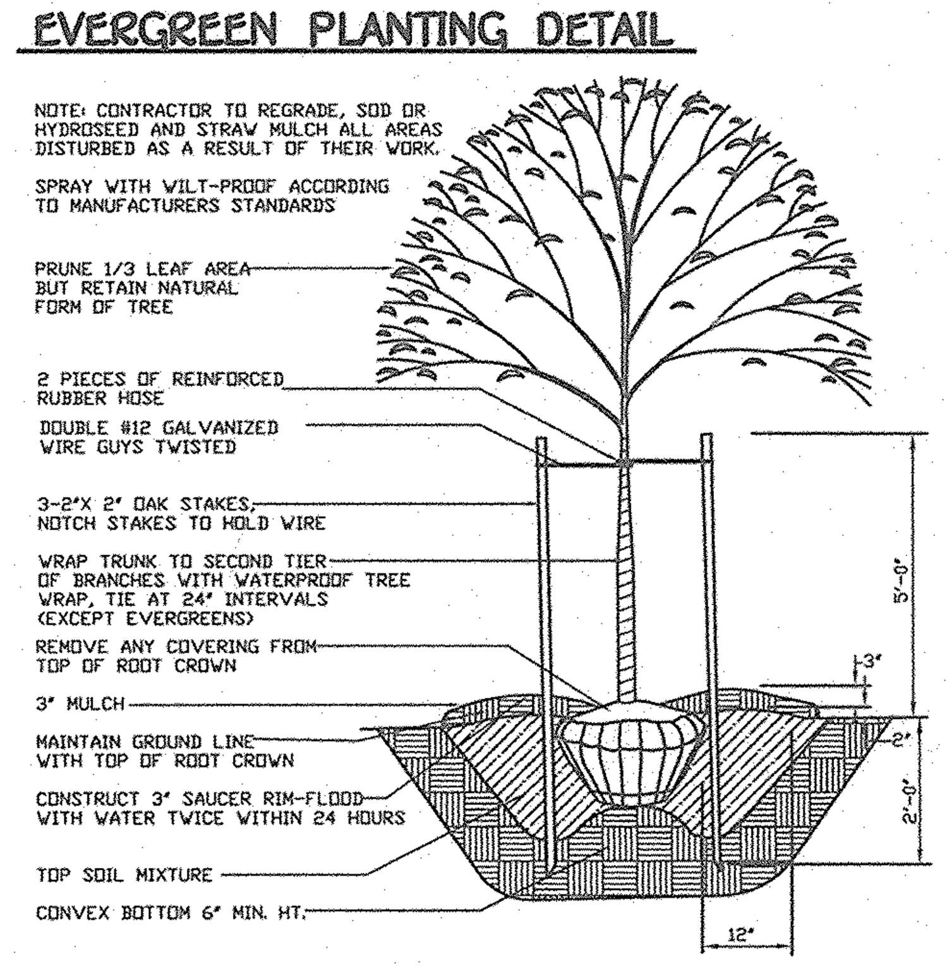
CATEGORY	PERIMETER EDGE							
	P-1	P-2	P-3	P-4	P-5	P-6	P-8	P-9
LANDSCAPE TYPE	C	E	C	C	E	C	N/A	B
LINEAR FEET OR ROADWAY FRONTAGE/PERIMETER	117	102	198	199	80	143	643	493
CREDIT FOR EXISTING VEGETATION (YES, NO LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	-	-	-	-	-	-	YES	-
CREDIT FOR WALL, FENCE OR BERM (YES, NO LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	-	-	-	-	-	-	-	-
NUMBER OF PLANTS REQUIRED								
SHADE TREES	3	3	10	10	2	4	-	10
EVERGREEN TREES	6	-	-	-	-	7	-	12
SHRUBS	-	26	-	-	20	-	-	-
NUMBER OF PLANTS PROVIDED								
SHADE TREES	3	3	10	10	2	4	-	10
EVERGREEN TREES	6	-	-	-	-	7	-	12
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-	-	-	-	-
SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-	26	-	-	20	-	-	-



EVERGREEN PLANTING DETAIL



SHRUB PLANTING DETAIL



TREE PLANTING DETAIL

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no healed-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to 'Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas', (hereinafter 'Landscape Guidelines') approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and 'Miss Utility' a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor id responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be base on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence

All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope).

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded.

This plan is intended for landscape use only. see other plan sheets for more information on grading, sediment control, layout, etc.

NO	REVISION	DATE
2	REVISED HDPE TO RCCP CL IV	10-20-03
1	REVISED PLANT LOCATIONS AND SCHEDULES	8-15-03

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CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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Owner and Developer

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7250 Parkway Drive, Suite 520
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410-712-7012

DEVELOPER'S/OWNER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

4/17/03
DEVELOPER'S/OWNER'S NAME

4/17/03
DATE

STATE OF MARYLAND — CHARLES J. CROWO — PROFESSIONAL ENGINEER

STREET TREE AND LANDSCAPE PLAN
EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64
(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003
SHEET 7 OF 9

F-03-63

Approved: Department Of Planning And Zoning	
Cindy Hamilton (signature) — Chief, Division Of Land Development HB	4/25/03 Date
(signature) — Chief, Development Engineering Division MK	4/21/03 Date
Approved: Howard County Department Of Public Works	
(signature) for — Chief, Bureau Of Highways	4/23/03 Date

DRAINAGE AREA	AREA	'C' FACTOR	STRUCTURE No.	% IMP
A	0.66 Ac.	0.55	I-1	56.9
B	0.73 Ac.	0.63	I-2	60.9
C	0.26 Ac.	0.82	I-3	95.6
D	0.70 Ac.	0.39	I-4	32.2
E	0.49 Ac.	0.67	I-5	72.7
F	0.45 Ac.	0.73	I-6	81.1
G	0.61 Ac.	0.75	I-7	83.3
H	0.43 Ac.	0.66	I-8	72.5

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED HDPE TO RCCP CL IV	10-20-03

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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Owner and Developer

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Hanover, MD 21076
410-712-7012

STATE OF MARYLAND — CHARLES ... PROFESSIONAL ENGINEER (seal)

STORM DRAIN DRAINAGE AREA MAP

EMERSON

SECTION 2, PHASE 2

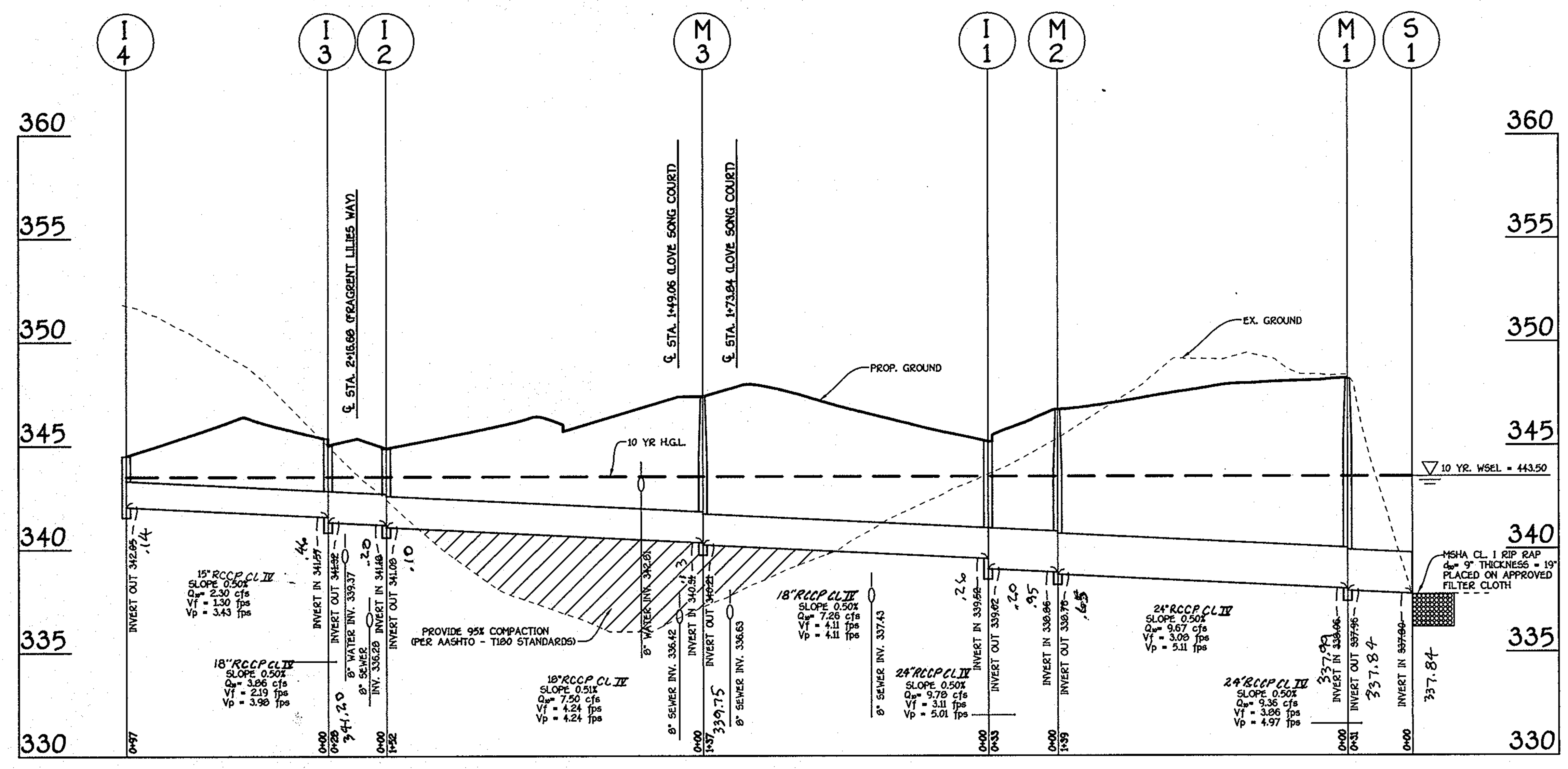
LOTS 1 THRU 63 AND OPEN SPACE LOT 64

(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

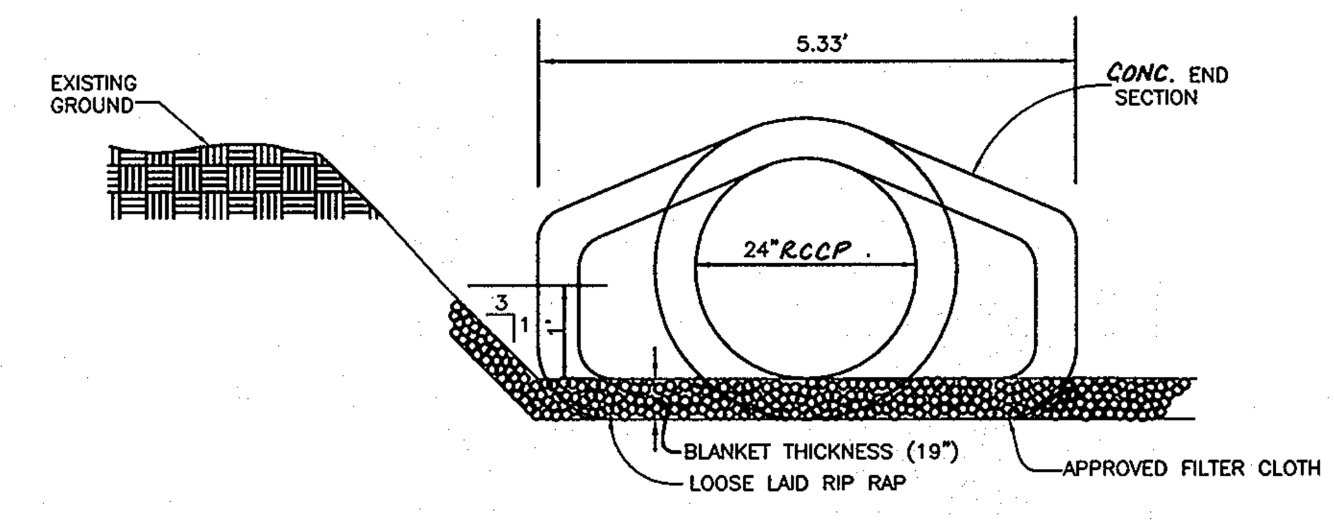
ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003
SHEET 8 OF 9

F-03-63

Approved: Department Of Planning And Zoning		
Cindy Hamilton	4/25/03	Date
Chief, Division Of Land Development		
	4/30/03	Date
Chief, Development Engineering Division MK		
Approved: Howard County Department Of Public Works		
	4/23/03	Date
Chief, Bureau Of Highways		



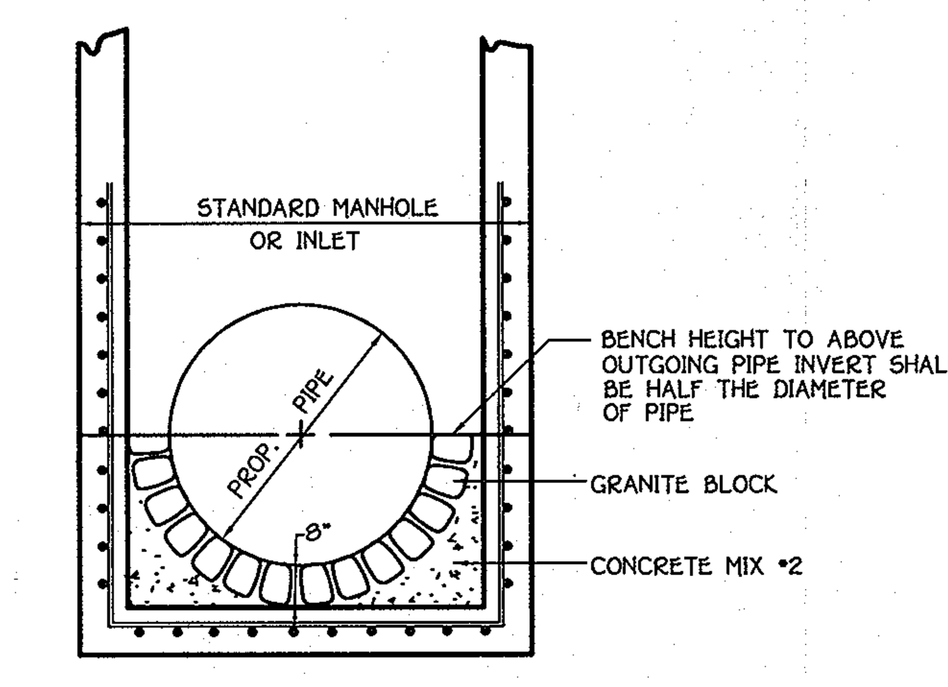
PROFILE
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



RIP RAP CHANNEL DETAIL
NO SCALE

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional shall hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



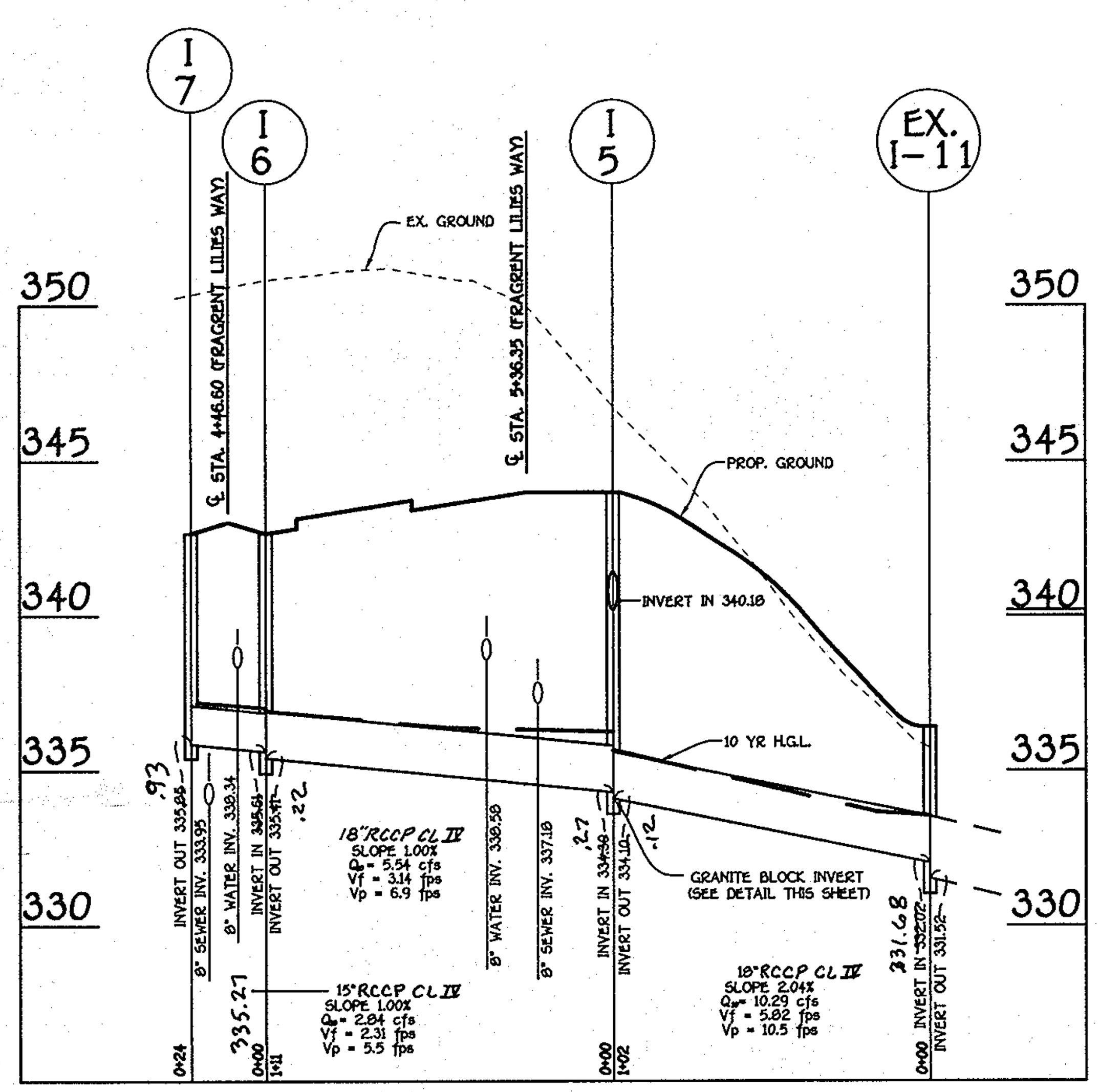
GRANITE BLOCK DETAIL
NOT TO SCALE

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	345.10 4.77	339.52 .26	339.02 .20	LOVE SONG COURT	L.P. STA. 1+72.61	25	DOUBLE 'S'	SD 4.23
I-2	344.97 5.00	341.18 .20	341.08 .10	FRAGRANT LILIES WAY	2+19.41 2+20.50	13.18' L	SINGLE 'S'	SD 4.22
I-3	345.39 .86	341.57 .46	341.32 .29	FRAGRANT LILIES WAY	2+12.50 2+13.30	12' R	A-5	SD 4.01
I-4	344.50* 48	27 ---- 339.97	342.05 .14	----	N 536859 E 1352271	----	'D' INLET	SD 4.11
I-5	344.00 .02	334.30 / 340.10	334.10 .12	FRAGRANT LILIES WAY	5+50.97 .81	12' L	SINGLE 'S'	SD 4.22
I-6	342.66 .82	335.61 .27	335.41 .22	FRAGRANT LILIES WAY	4+46.60 .86	12' R	DOUBLE 'S'	SD 4.23
I-7	342.65 .88	----	335.85 93	FRAGRANT LILIES WAY	4+46.60 .63	12' L	DOUBLE 'S'	SD 4.23
I-8	344.83 5.11	----	341.32 .41	FRAGRANT LILIES WAY	6+11.16 .28	12' R	SINGLE 'S'	SD 4.22
					7 135	26.59		
M-1	348.20 7.94	338.06 7.84	337.96 .99	----	N 537179 E 1352519	----	STD. MANHOLE	G. 5.12
M-2 349.20	348.75	338.86 .95	338.76 .65	----	N 537010 E 1352499	----	STD. MANHOLE	G 5.12
M-3	347.36 .30	340.31 .13	340.21 339.75	LOVE SONG COURT	1+58.85 .94	5.92' R	STD. MANHOLE	G 5.12
					38			
S-1	----	----	337.80 .95	----	N 537145 E 1352661	60	CONC. END SECTION	S.O.S.S1
S-2 N/A	----	----	329.75	----	N 536864 E 1352527	----	21" CMP END SECTION	S.D 5.61
R-1 N/A	333.75	----	330.00	----	N 536886 E 1352515	----	24" CMP RISER	----

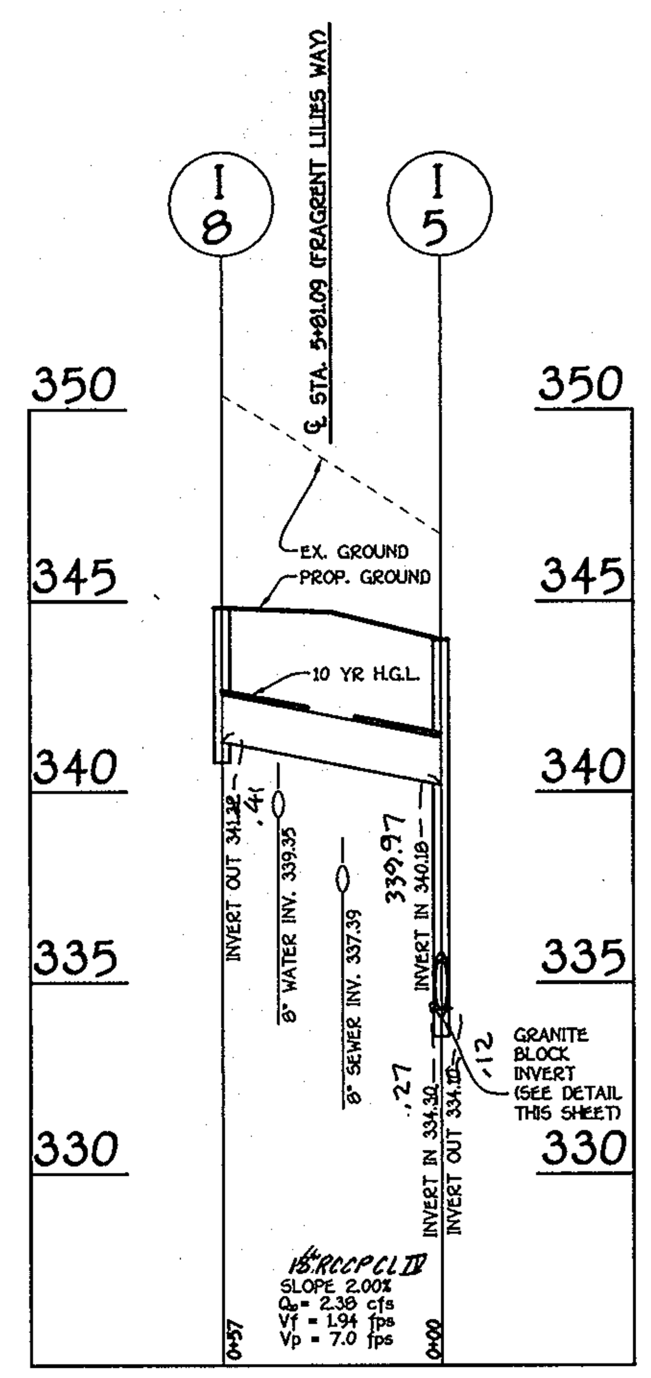
* - DENOTES THROAT ELEVATION

NOTE: ADVANCED DRAINAGE SYSTEMS
LONDON, OHIO
1-800-733-9554



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

NOTE:
FOR CONTINUATION SEE CONSTRUCTION PLANS FOR EMERSON SECTION 2, PHASE 1-B



PROFILE
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VERT. 1" = 5'

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 201
ELLICOTT CITY, MARYLAND 21043

PIPE SCHEDULE

SIZE	CLASS	LENGTH
15"	RCCP	178'
18"	RCCP	530'
24"	RCCP	203'
21"	CMP	23'

ROAD STORM DRAIN AS-BUILT 8/11/2006

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED HDPE TO RCCP CL IV	10-20-03

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

Owner and Developer
Ryland Homes
7250 Parkway Drive, Suite 520
Hanover, MD 21076
410-712-7012

STORM DRAIN PROFILES
EMERSON
SECTION 2, PHASE 2
LOTS 1 THRU 63 AND OPEN SPACE LOT 64
(A RESUBDIVISION OF PARCEL B-1, EMERSON, SECTION 2, AREA 2, PLAT No. 15455)

ZONED: PEC-MXD-3 AND R-SC-MXD-3
TAX MAP: 47 P/O PARCELS: 3 AND 837 GRID: 8
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: APRIL 9, 2003

F-03-63

J:\50001 Emerson Property\dwg\Sec2Phase2\40367-Ryland\FINALS\40367 STORM DRAIN PROFILE.dwg, 4/10/2003 9:42:34 AM