

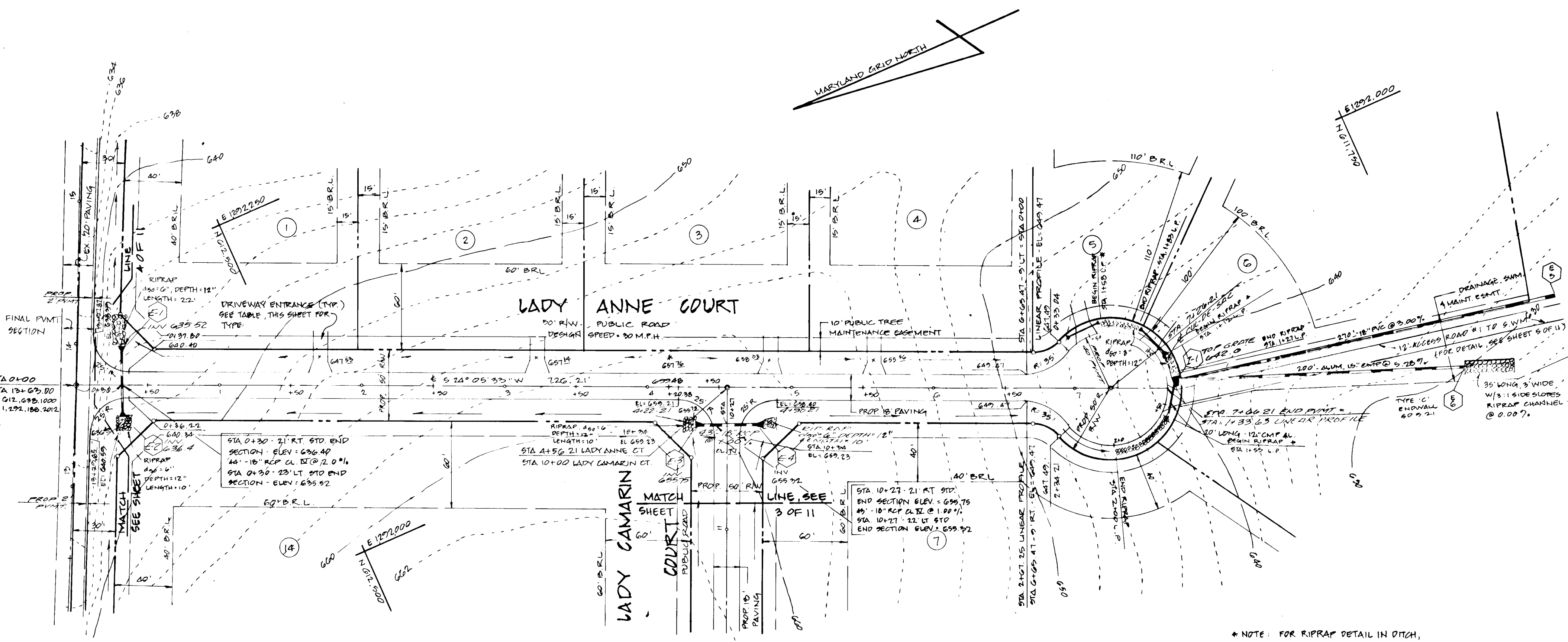


1309

DATE: BY:
PLAN
SHEETED:
NOTE BOOK:
ALIGNMENT CHECKED:
RT. OF WAY CHECKED:

DATE: BY:
PROFILE
SHEETED:
NOTE BOOK:
GRADES CHECKED:
B.M. NOTED:
SPECIFIC SOLUTIONS CHECKED:

OLD FREDERICK ROAD



PLAN: LADY ANNE COURT
SCALE: 1" = 50'

Table with 5 columns: LOT, STATION, DESCRIPTION, TYPE, REMARKS. Lists 14 entries for driveway culverts and swales along Lady Anne Court.

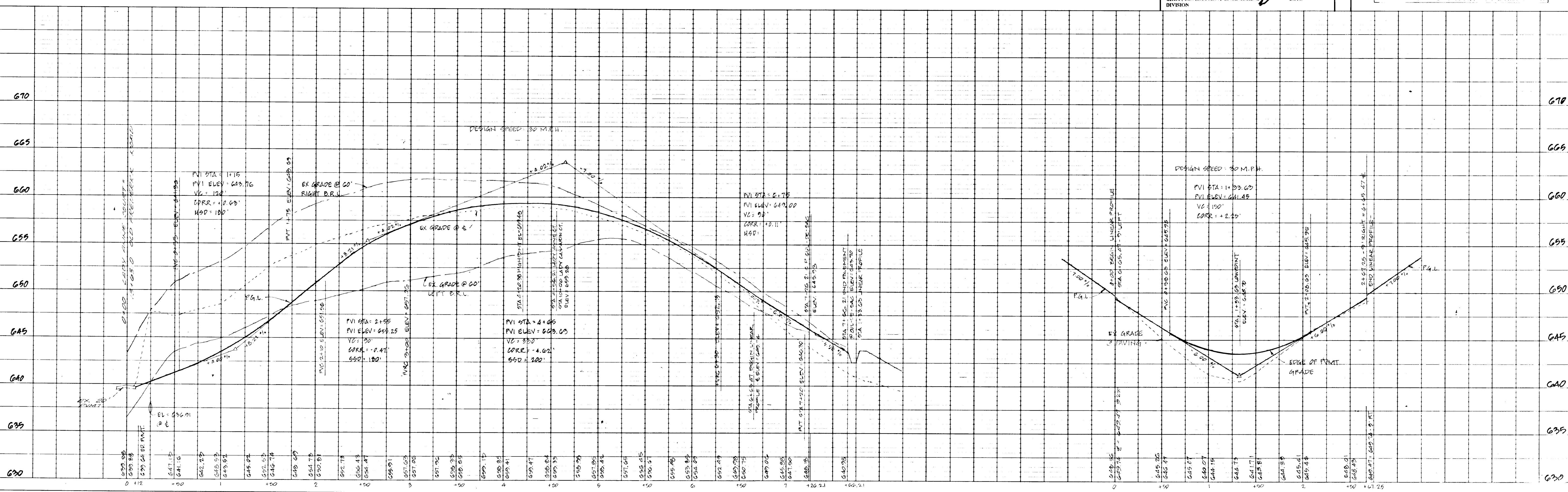
DRIVEWAY CULVERT / SWALE SCHEDULE
CULVERT DATA
STA 0+00 TO STA 0+33.04
RADIUS = 36.00'
ARC = 33.04'
DELTA = 54°04'45"

NOTE: ALL PIPES ARE TO BE 20 FEET LONG CMP ALUMINUM WITH END SECTION

Professional stamps and signatures for approval. Includes 'STATE OF MARYLAND PROFESSIONAL ENGINEER' stamps for Howard Soil Conservation District and Howard County Department of Public Works, dated 4-13-96 and 4/21/96.

STORM DRAIN, PAVING & GRADE ESTABLISHMENT PLAN. LADY ANNE COURT STA. 0+00 TO STA. 7+26.21. ROYAL HOLLOW. TAX MAP: 7 PARCEL: 84. FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND. SCALE: AS SHOWN APRIL, 1995. VANMAR ASSOCIATES INC. Engineers - Surveyors - Planners.

\* NOTE: FOR RIPRAP DETAIL IN DITCH, SEE SECTION ON SHEET 7 OF 11



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

PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
PRINTED IN U.S.A.

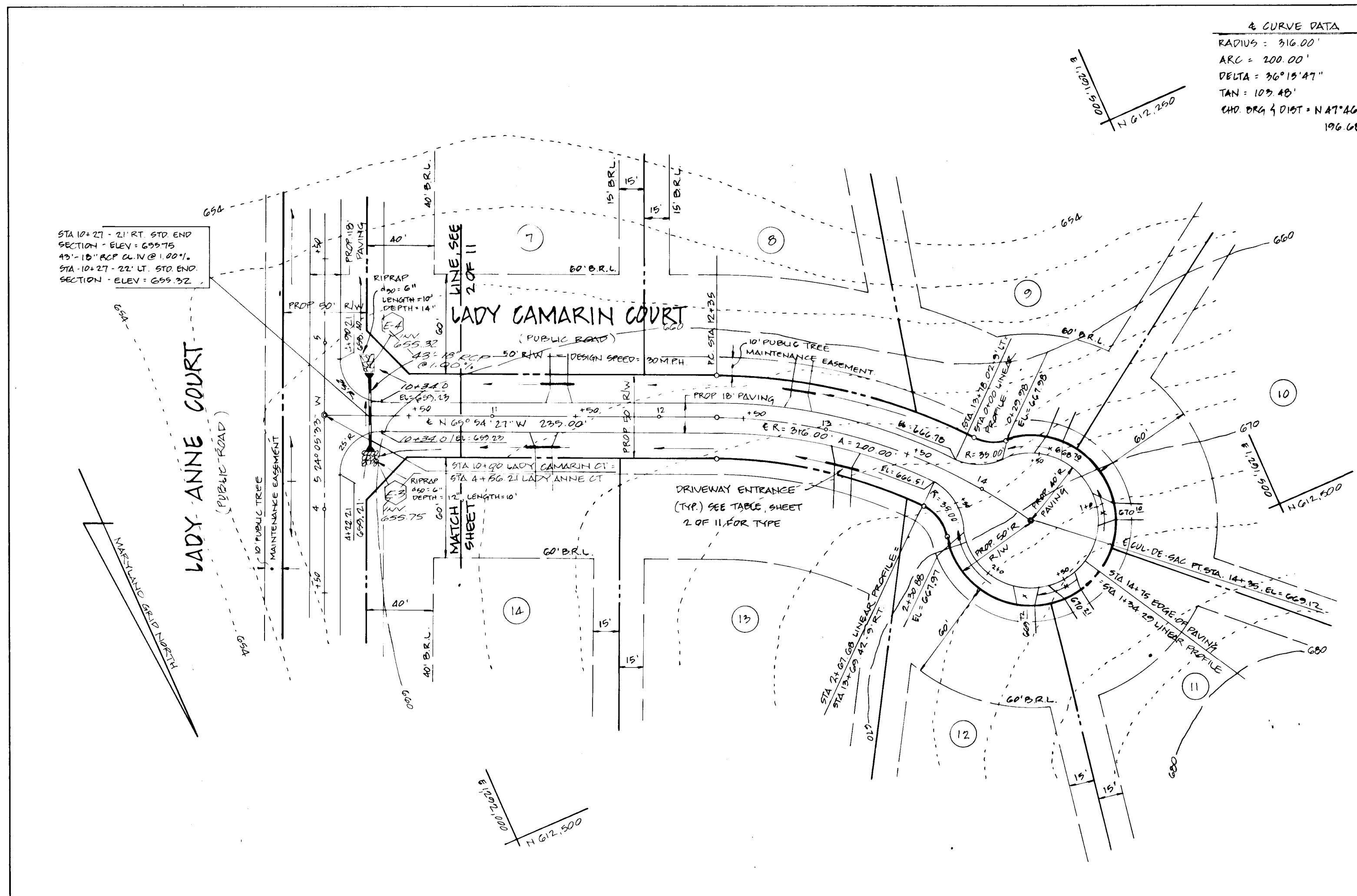
LINER PROFILE
SCALE: HORIZ. 1" = 50' VERT. 1" = 5'



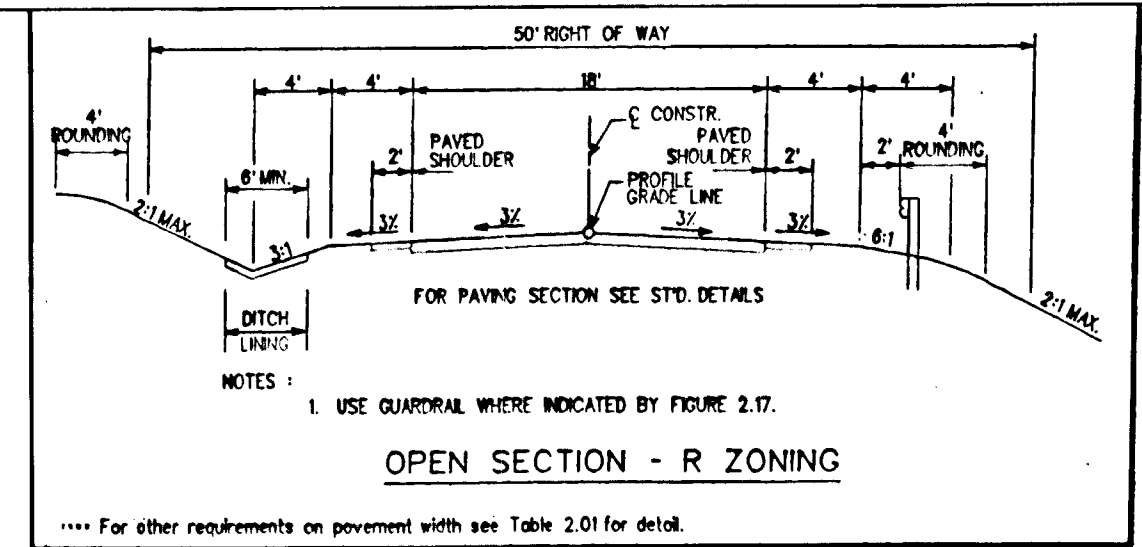
PLAN SURVEYED BY DATE  
 PLOTTED BY DATE  
 NOTE BOOK NO. 111111  
 FT. OF WAY CHECKED

PROFILE SURVEYED BY DATE  
 PLOTTED BY DATE  
 NOTE BOOK NO. 111111  
 STRUCTURE NOTATIONS CHECKED

1309



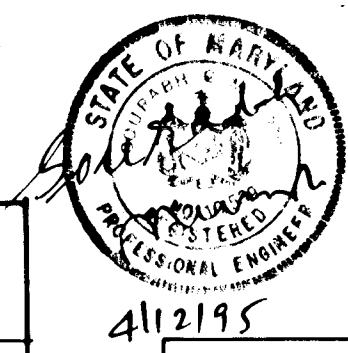
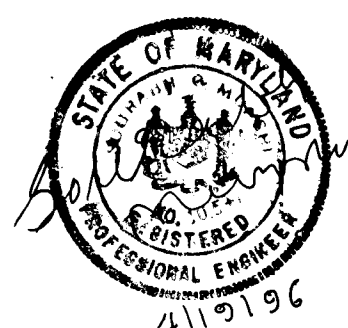
**2 CURVE DATA**  
 RADIUS = 316.00'  
 ARC = 200.00'  
 DELTA = 96°15'47"  
 TAN = 109.48'  
 CHD BRG. & DIST. = N47°46'34\"/>



FOR OTHER REQUIREMENTS ON PAVEMENT WIDTH SEE TABLE 2.01 FOR DETAIL.  
 LOCAL ROAD, CAL-DE-SAC UNDER 250 ADT TYPICAL SECTIONS  
 HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS  
 FIGURE: 2.10  
 DATE: 2-1-93  
 REVISED:

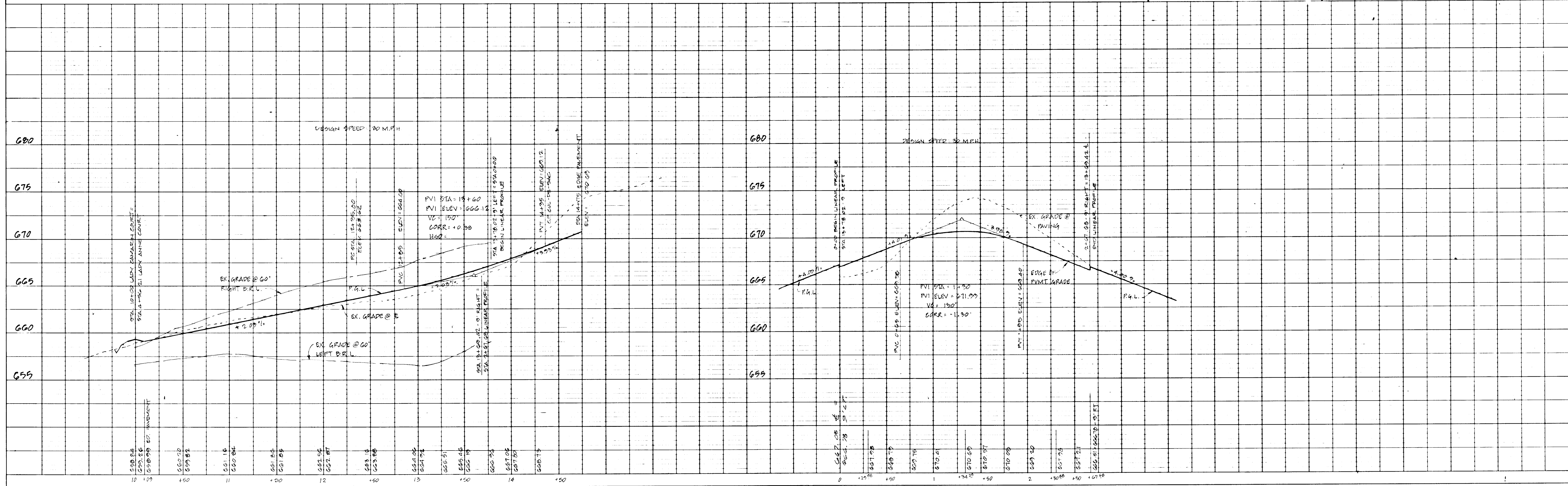
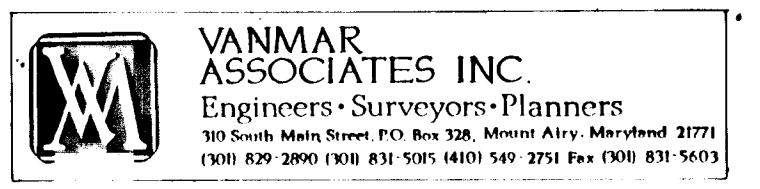
P-2	RESIDENTIAL ZONES LOCAL CAL-DE-SAC STS. ALLEYS AND PRIVATE ROADS SERVING INDIVIDUAL LOTS	1 1/2\"/>
	TRAVELWAYS APARTMENTS AND COMMERCIAL-INDUSTRIAL ZONES WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY	5\"/>

**CUL-DE-SAC CURVE DATA**  
 STA 2+00 TO STA 2+29.70  
 RADIUS = 39.00'  
 ARC = 29.95'  
 DELTA = 89°04'54"  
 TAN = 19.95'  
 CHD BRG. & DIST. = N 64°31'01\"/>



REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MISSISSIPPI TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.  
 NATURAL RESOURCE CONSERVATION SERVICE DATE: 4-23-96  
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 HOWARD SOIL CONSERVATION DISTRICT DATE:  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Division of Land Development and Research  
 DATE: 4/26/96

STORM DRAIN, PAVING & GRADE ESTABLISHMENT PLAN  
**LADY CAMARIN COURT**  
 STA. 10+00 TO STA. 14+35  
**ROYAL HOLLOW**  
 TAX MAP: 7 PARCEL: 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN APRIL, 1995



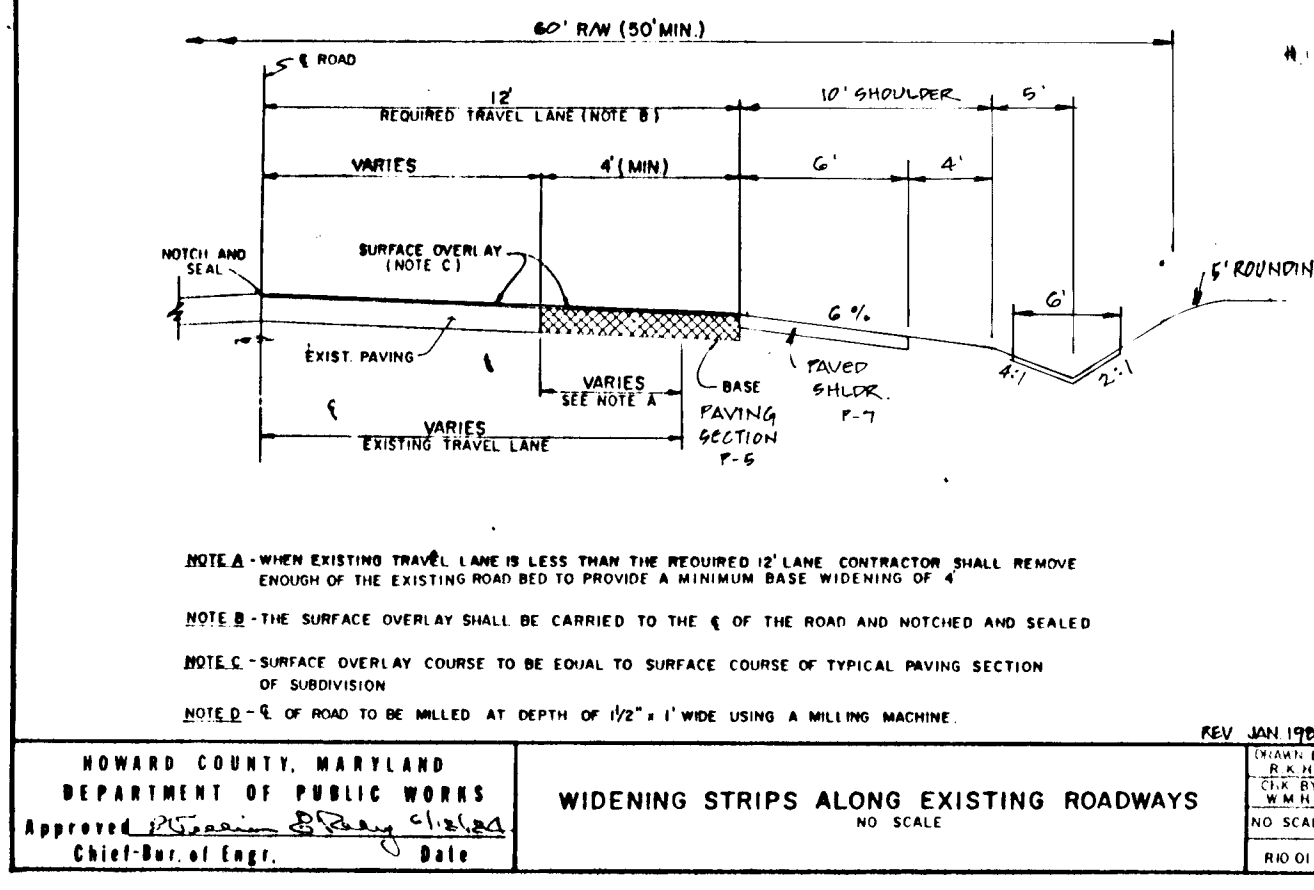
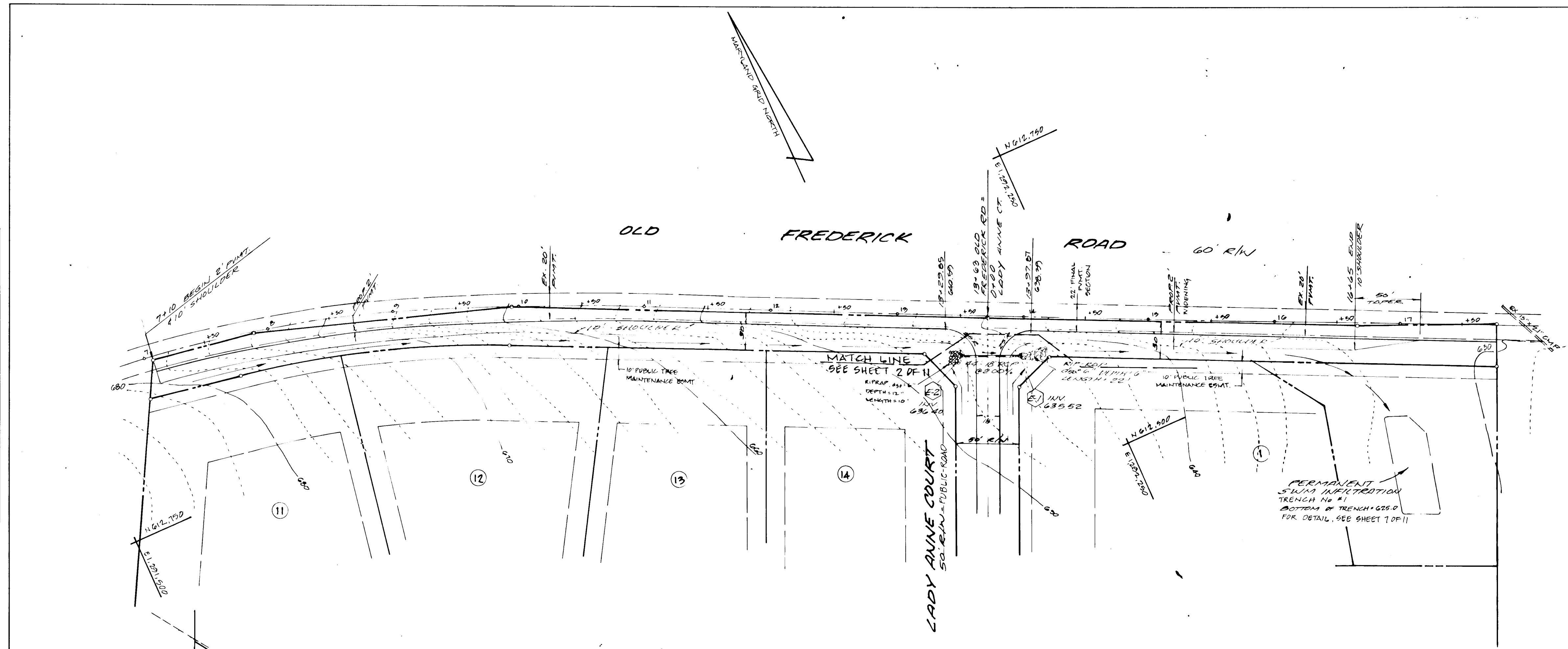
PROFILE: LADY CAMARIN COURT  
 SCALE: HORIZ. 1"=50'  
 VERT. 1"=5'

PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE  
 HIGHWAY FEDERAL AID SHEET  
 TELEPHONE  
 PRINTED IN U.S.A.

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

PLAN  
 BY: [ ] DATE: [ ]  
 UNDATED  
 NOTED  
 NOTE BOOK NO. [ ]  
 ALIGNMENT CHECKED  
 ST. OF WAY CHECKED

PROFILE  
 BY: [ ] DATE: [ ]  
 UNDATED  
 NOTED  
 NOTE BOOK NO. [ ]  
 GRADES CHECKED  
 A. I. NOTED  
 SPECIFICATIONS CHECKED



REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL. MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 CHIEF, BUREAU OF HIGHWAYS  
 [Signature] 4-23-96

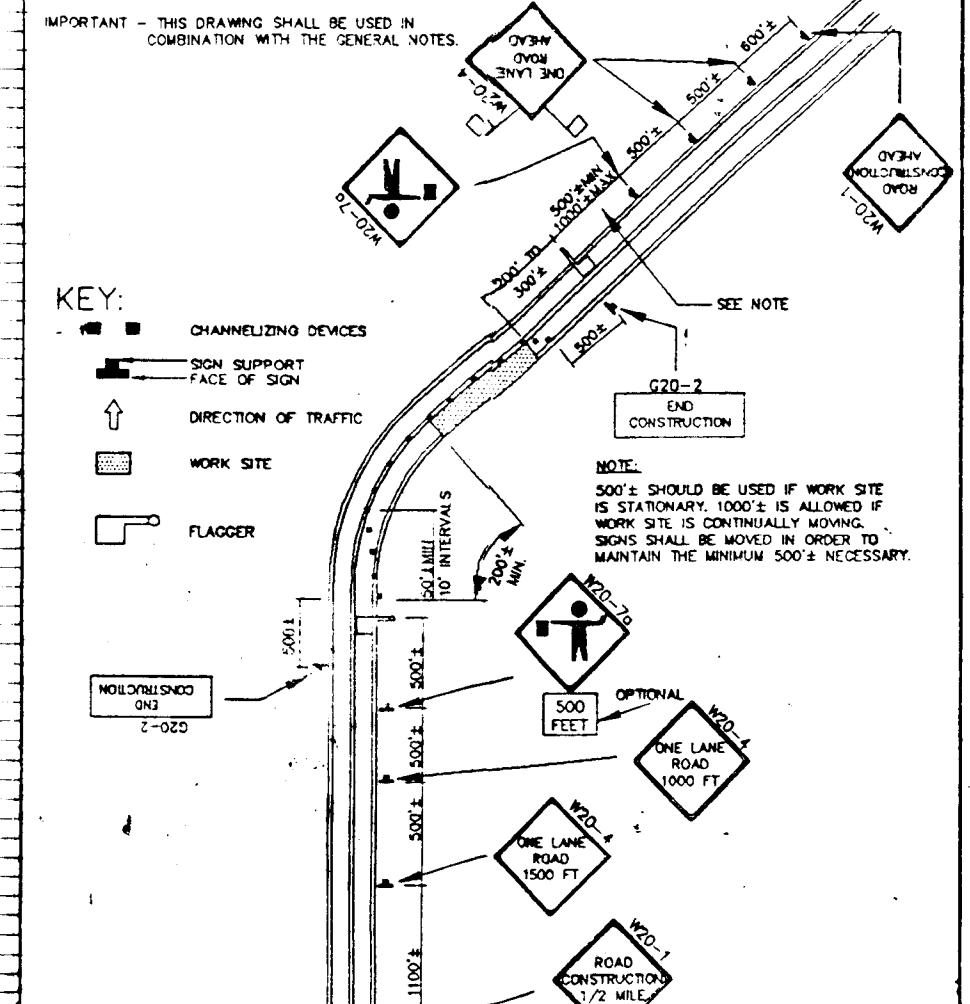
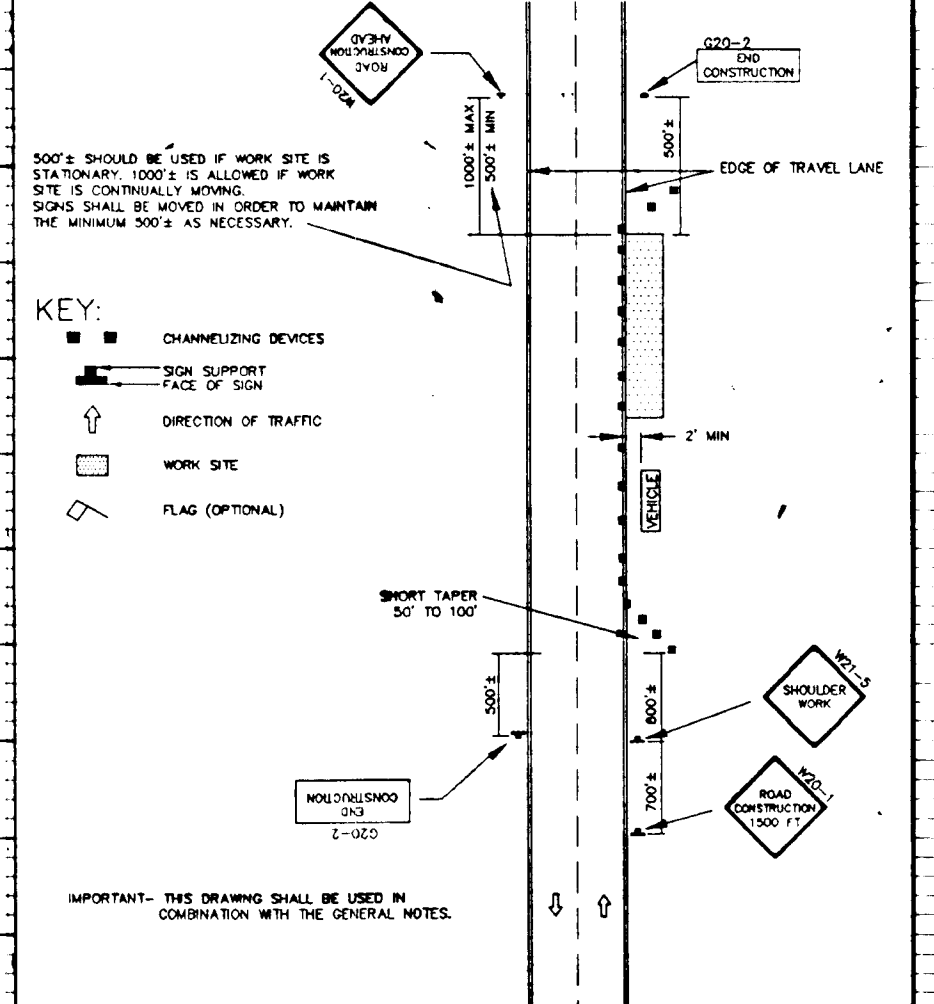
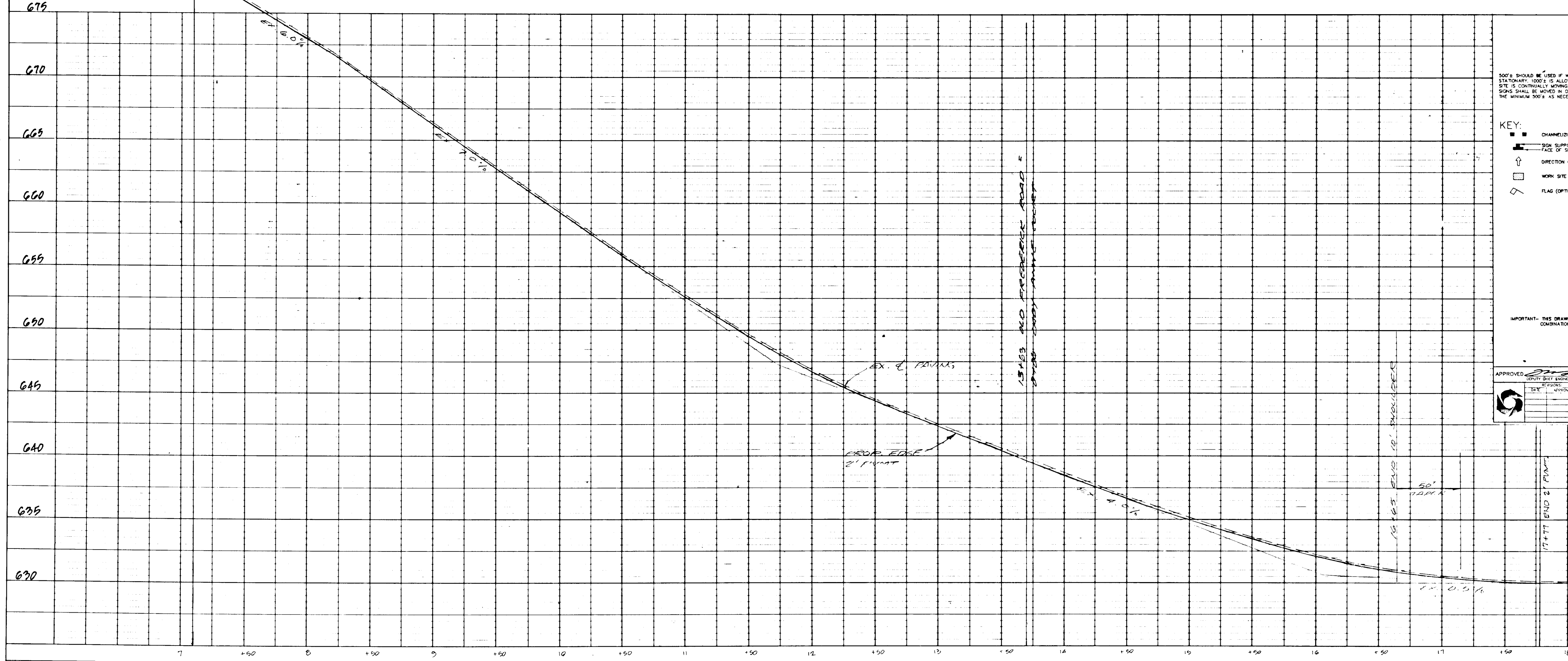
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH  
 [Signature] 4/29/96

APPROVED: [Signature] 4/26/96  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

ROAD IMPROVEMENT PLAN  
**OLD FREDERICK ROAD**  
**ROYAL HOLLOW**

TAX MAP: 7 PARCEL: 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN APRIL, 1995

VANMAR ASSOCIATES INC.  
 Engineers - Surveyors - Planners  
 300 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771  
 (301) 820-2800 (301) 811-5655 (410) 540-2754 Fax (301) 811-5603



APPROVED: [Signature] 4-23-96  
 STATE DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 WORK ZONE TRAFFIC CONTROL TYPICAL

SHOULDER WORK  
 OVER 24 HRS. OFF ROAD/QL/LESS THAN 40 MPH  
 2 LANES, 2 WAY STANDARD NO. MD-104.10B

APPROVED: [Signature] 4-23-96  
 STATE DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 WORK ZONE TRAFFIC CONTROL TYPICAL

FLAGGING OPERATION  
 OVER 24 HRS. ON ROAD/QL/LESS THAN 40 MPH  
 2 LANES, 2 WAY STANDARD NO. MD-104.10A

1309

OLD FREDERICK ROAD  
 SCALE: HOR: 1"=50'  
 VERT: 1"=5'  
 HIGHWAY FEDERAL AID SHEET  
 PLATE I-SINGLE PLAN AND PROFILE-FULL LINE  
 PRINTED IN U.S.A.



OPERATION AND MAINTENANCE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITY

MAINTENANCE SHALL BE PERFORMED JOINTLY BY HOWARD COUNTY AND THE OWNER OF PRESERVATION PARCEL 'B' AS FOLLOWS:

**ROUTINE MAINTENANCE:**

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. INSPECTION SHOULD BE PERFORMED DURING WET WEATHER TO INSURE THAT THE FACILITY IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF EMBANKMENT SHALL BE MOWED ~~ONCE~~ <sup>MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER.</sup> OTHER SIDE SLOPES, THE BOTTOM OF BASIN AND MAINTENANCE ACCESS SHOULD BE MOWED ~~BY THE OWNER OF PRESERVATION PARCEL 'B'~~ <sup>BY THE COUNTY.</sup> VEGETATION WITHIN THE BASIN AREA SHALL NOT EXCEED 18" IN HEIGHT.
3. ACCUMULATED DEBRIS, LITTER AND TRASH WILL BE REMOVED ~~BY THE OWNER OF PRESERVATION PARCEL 'B'~~ <sup>BY THE COUNTY.</sup> AS NECESSARY.

**NON-ROUTINE MAINTENANCE:**

1. CITY SHALL BE ADVISED BY THE COUNTY FROM BOTTOM OF BASIN WHEN THE ACCUMULATIVE EXCEEDS 1".
2. STRUCTURAL DAMAGE DETECTED TO TRENCH BOTTOM, SIDE SLOPES AND EMBANKMENT SPILLWAY SHALL BE REPAIRED BY THE COUNTY.
3. THE DRAINAGE PIPE SHALL BE CLEANED AS REQUIRED.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED BY HOMEOWNERS ASSOCIATION STORMWATER MANAGEMENT FACILITY INFILTRATION TRENCH

**ROUTINE MAINTENANCE:**

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM INCLUDING OBSERVATION WELL. INSPECTION SHOULD BE PERFORMED DURING WET WEATHER TO INSURE THAT THE TRENCH IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF 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 TRENCH AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED. IN ANY EVENT, VEGETATION WITHIN THE TRENCH AREA SHALL NOT EXCEED 18" IN HEIGHT.
3. ACCUMULATED DEBRIS, LITTER, TRASH WILL BE REMOVED AS NECESSARY.

**NON-ROUTINE MAINTENANCE:**

1. SILT SHALL BE REMOVED FROM BOTTOM OF TRENCH WHEN THE ACCUMULATIVE EXCEEDS 1".
2. WHEN THE TRENCH DOES NOT DRAIN DOWN WITHIN 96 HOURS, THE CORRECTIVE MAINTENANCE IS REQUIRED.
3. ANY STRUCTURAL DAMAGE DETECTED TO TRENCH BOTTOM, SIDE SLOPES, AND EMERGENCY SPILLWAY SHALL BE REPAIRED.

**SUMMARY**

**EXTENDED DETENTION BASIN #2**  
 WATER QUALITY STRUCTURE  
 DRAINAGE AREA (ROAD RIGHT OF WAY ONLY) 1.88 AC±  
 ALLOWABLE RELEASE RATE 0.1 CFS  
 INFLOW TO THE FACILITY 1.25 CFS  
 DISCHARGE FROM THE FACILITY 0.83 CFS  
 ELEVATION OF THE FACILITY AT DISCHARGE 625.14  
 STORAGE VOLUME PROVIDED 0.851 AC±

**INFILTRATION TRENCH #1**  
 WATER QUALITY STRUCTURE  
 DRAINAGE AREA (ROAD RIGHT OF WAY ONLY) 1.52 AC±  
 DRAINAGE AREA PASSING THROUGH FACILITY NOT REQ'D TO CONTROL 0.12 AC±  
 FREQUENCY 2 YR. 10 YR. 100 YR.  
 ALLOWABLE RELEASE RATE 5.01 16.63 32.24  
 INFLOW TO THE FACILITY 5.01 16.63 32.24  
 DISCHARGE FROM THE FACILITY 4.61 15.64 30.54  
 ELEVATION AT DISCHARGE 628.62 628.89 631.24  
 STORAGE VOLUME PROVIDED (AC) 6.45 8.482 8.524

**PRESERVATION PARCEL 'B'**  
 1,786,772 SQ. FT. OR 41.036 AC±  
 (INCLUDING FOREST CONSERVATION EASEMENTS)  
 PARCEL 1 = 98,929 SQ. FT. OR 2.271 AC±  
 PARCEL 2 = 1,687,843 SQ. FT. OR 38.265 AC±

EXTENDED DETENTION SWM BASIN #2 WILL BE PUBLICLY OWNED BY HOWARD CO AND JOINTLY MAINTAINED WITH THE OWNER OF PRESERVATION PARCEL 'B'

HAZARD CLASSIFICATION CLASS 'A'

HAZARD CLASSIFICATION CLASS 'A'

PERMANENT SWM INFILTRATION TRENCH (12' x 1')  
 BOTTOM OF TRENCH = 625.00  
 10 YR. HIGH WAT. = 628.00  
 100 YR. HIGH WAT. = 630.00

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND METS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEASURES OF THE HOWARD SOIL CONSERVATION DISTRICT

NATURAL RESOURCES CONSERVATION SERVICE DATE: \_\_\_\_\_

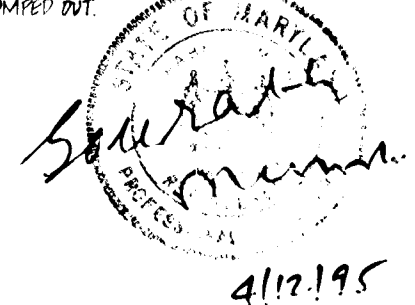
HOWARD SOIL CONSERVATION DISTRICT DATE: \_\_\_\_\_

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Robert M. Dwyer* 4-23-96 DATE

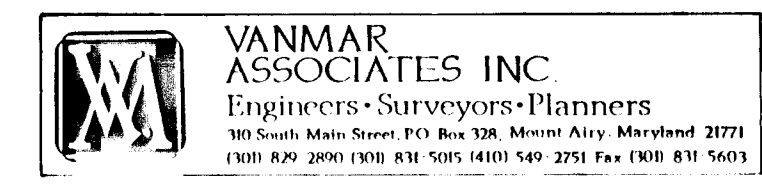
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Uma Stammann* 4/29/96 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH SA

*Robert M. Dwyer* 4/26/96 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

REVISION  
 1. REVISED O&M FOR PRIVATE SWM FACILITY. 7/19/96

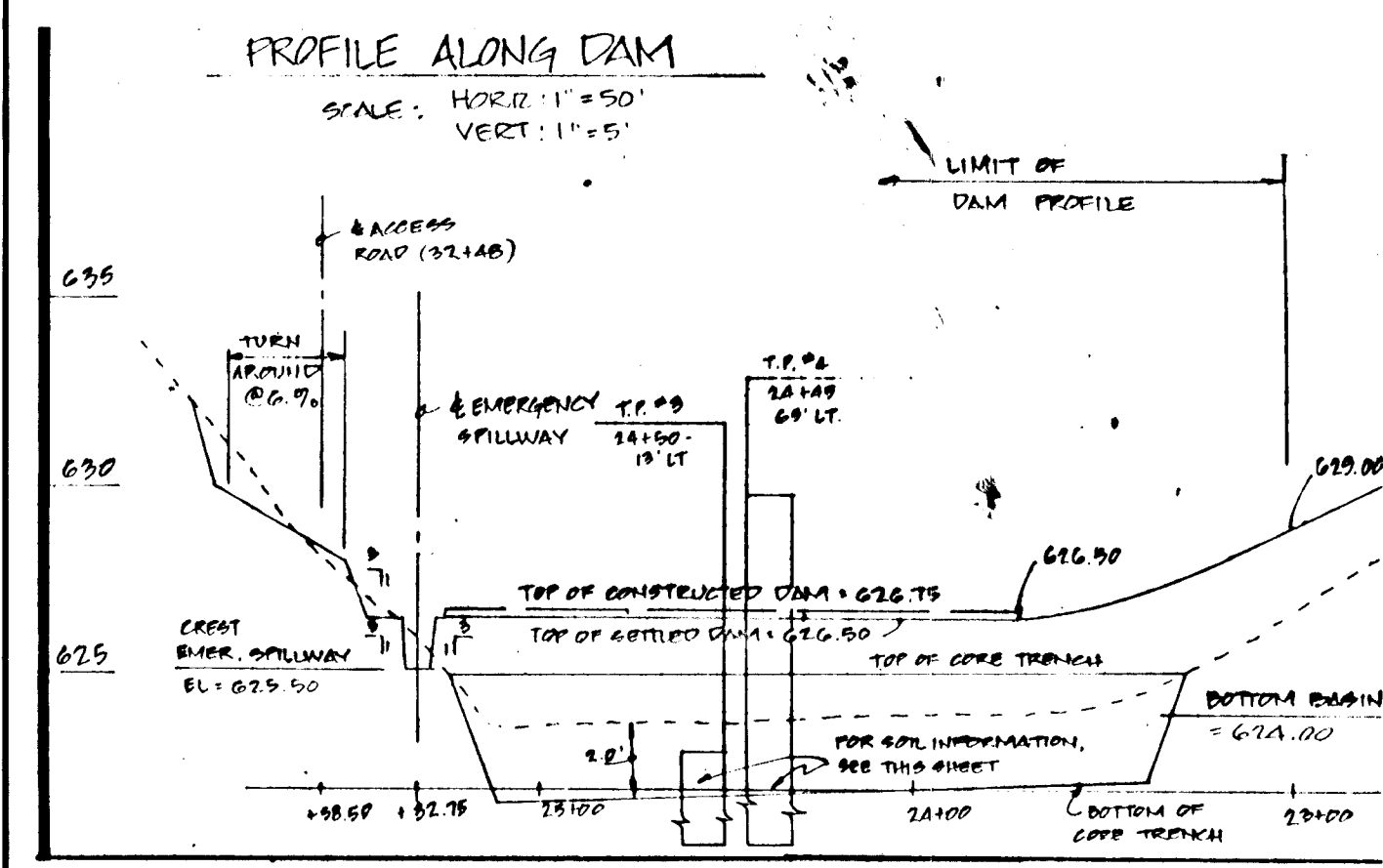
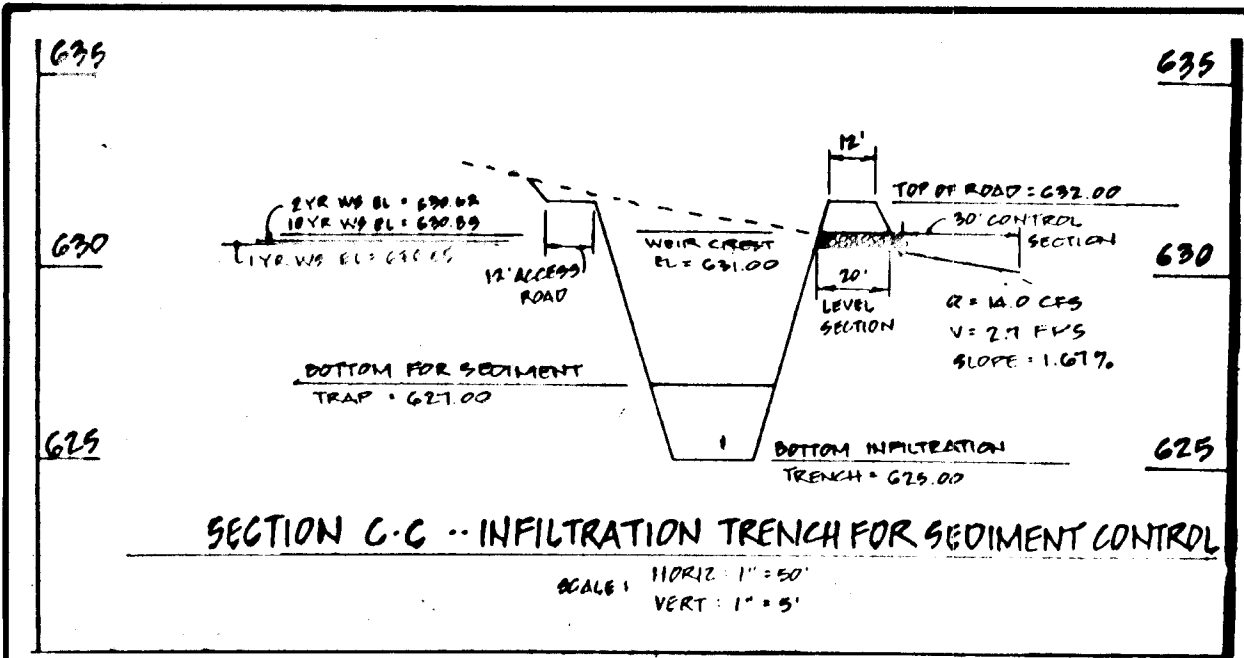


GRADING AND STORM WATER MANAGEMENT PLAN  
**ROYAL HOLLOW**  
 TAX MAP: 7 PARCEL: 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 50' APRIL, 1995



1807





- SEQUENCE OF CONSTRUCTION
1. Obtain grading permit.
  2. Install stone construction entrance.
  3. Install forest protection fence and sign.
  4. Construct Stone Outlet Sediment Trap ST II #1 and ST II #2 and Storm/Riprap Outlet Sediment Trap ST IV #1.
  5. Install earth dikes and fill fence. 5.2. INSTALL CROSS CULVERT AT LADY ANNE COURT.
  6. Grade Lady Anne Court and Lady Cameron Court.
  7. Install cross culverts at Lady Cameron Court. Install Sid. K inlet and 15" RCP. Block the 15" RCP opening at inlet until completion of Stone Outlet Sediment Trap ST II #2 to extended detention SWM facility. Install 12" PVC without the screw in type 12" cap with 6" offset.
  8. Stabilize all the disturbed areas as per temporary seeding notes.
  9. Install pavement.
  10. Grade Old Frederick Road for road widening.
  11. Install pavement for widening Old Frederick Road.
  12. Install riprap at all cross culverts and pipe outlets. Install erosion control matting in proposed swale along Old Frederick Road for the full length of property.
  13. Stabilize all the disturbed areas as per permanent seeding control notes.
  14. Upon approval from the Sediment Control Inspector, convert storm/riprap outlet sediment trap ST IV #1 to permanent SWM infiltration trench.
    - A. Pump out all the water.
    - B. Remove inlet sediment.
    - C. Excavate trench to per elevation 628.50, shown on plan and maintain one-foot of soil. Backfill with 6" concrete and ASTM 2407-92. Install filter cloth on sides and backfill with stone and cover top with filter cloth.
    - D. Backfill with soil.
    - E. Remove riprap and construct emergency spillway. Install checkdam.
    - F. Final grade all the areas as per plan if disturbed during construction.
  15. Stabilize all disturbed areas as per permanent seeding notes.
    - A. Pump out water.
    - B. Remove inlet sediment.
    - C. Clean up stone around vertical river and drain by the stone as required.
    - D. Install checkdam.
    - E. Remove riprap and construct emergency spillway.
    - F. Remove blocking of 15" RCP at inlet.
    - G. Install screw in type cap at end of 12" PVC with 6" offset at inlet.
  16. Stabilize all disturbed areas as per permanent seeding notes.
    - A. Remove all sediment control devices and stabilize all the disturbed areas as per permanent seeding notes.

TEMPORARY STONE OUTLET SEDIMENT TRAP ST II #2	STONE OUTLET SEDIMENT TRAP ST II #1
DRAINAGE AREA.....2.00 AC	DRAINAGE AREA.....1.00 AC
STORAGE REQUIRED.....3600 FT <sup>3</sup>	STORAGE REQUIRED.....1,800 C.F.
STORAGE PROVIDED.....1100 FT <sup>3</sup>	STORAGE PROVIDED.....1,992 C.F.
BOTTOM WIDTH.....80'	BOTTOM WIDTH.....35'
BOTTOM LENGTH.....20'	BOTTOM LENGTH.....20'
BOTTOM ELEVATION.....624.0	BOTTOM ELEVATION.....655.00
TOP OF BERM.....626.0	TOP OF BERM.....658.00
WEIR LENGTH.....8'	WEIR LENGTH.....4'
WEIR CREST ELEV.....625.50	WEIR CREST ELEV.....657.00
CLEAN OUT ELEV.....624.75	CLEANOUT ELEV.....656.00
STORAGE ELEV.....1.5'	STORAGE DEPTH.....2.00'



REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

*J. H. Washburn* 4/19/96  
DATE

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

*John K. Robertson* 4/19/96  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Christopher M. Havelle* 4-23-96  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Gina Zimmerman* 4/29/96  
DATE

*David Zimmerman* 4/20/96  
DATE

TEMPORARY STORMWATER MANAGEMENT STONE/RIPRAP OUTLET SEDIMENT TRAP ST IV #1

DRAINAGE AREA.....8.12 AC
STORAGE REQUIRED.....14,616 C.F. (FOR SEDIMENT CONTROL)
STORAGE PROVIDED.....14,700 C.F.
BOTTOM WIDTH.....SEE PLAN
BOTTOM LENGTH.....SEE PLAN
BOTTOM ELEVATION.....627.50
TOP OF BERM.....632.00
WEIR LENGTH.....32'
WEIR CREST ELEV.....631.00
CLEANOUT ELEV.....628.50
STORAGE DEPTH.....3.50'



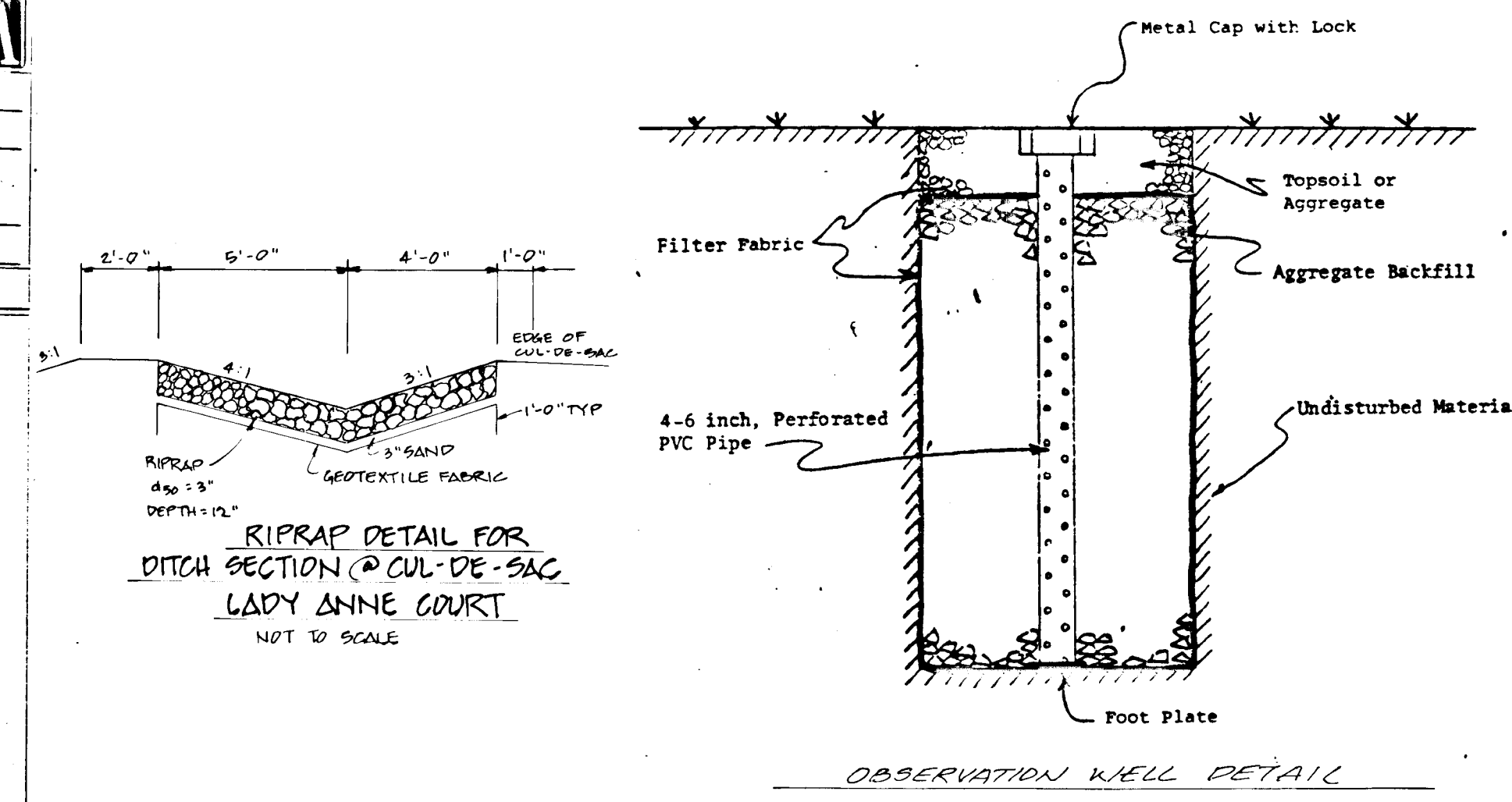
SEDIMENT CONTROL PLAN  
**ROYAL HOLLOW**

TAX MAP: 7 PARCEL: 84  
FOURTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: "1" = 50' APRIL, 1995

**VANMAR ASSOCIATES INC.**  
Engineers-Surveyors-Planners  
30 South Main Street, P.O. Box 20, Mount Airy, Maryland 20711  
410-427-0200 FAX 410-505-1000 2751 1A 1301 8H 5031

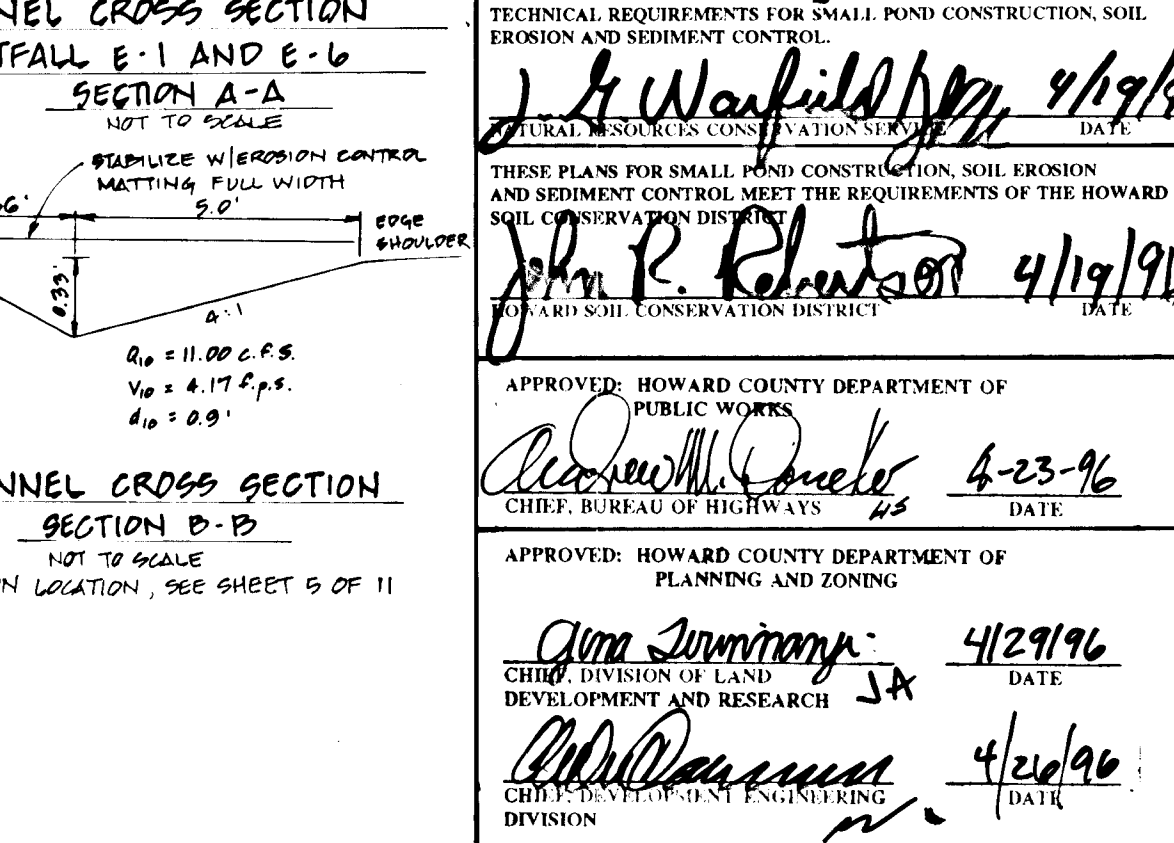
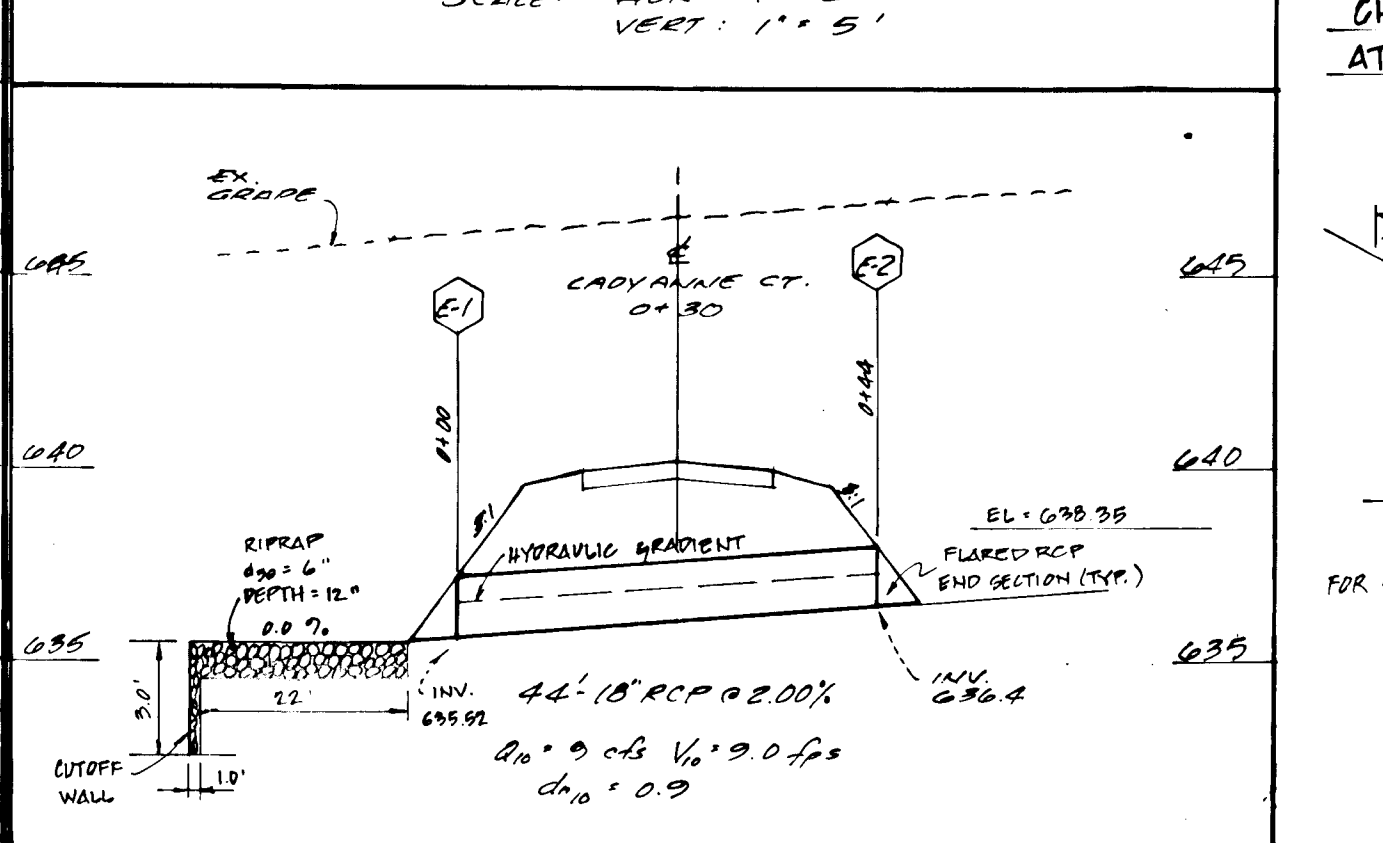
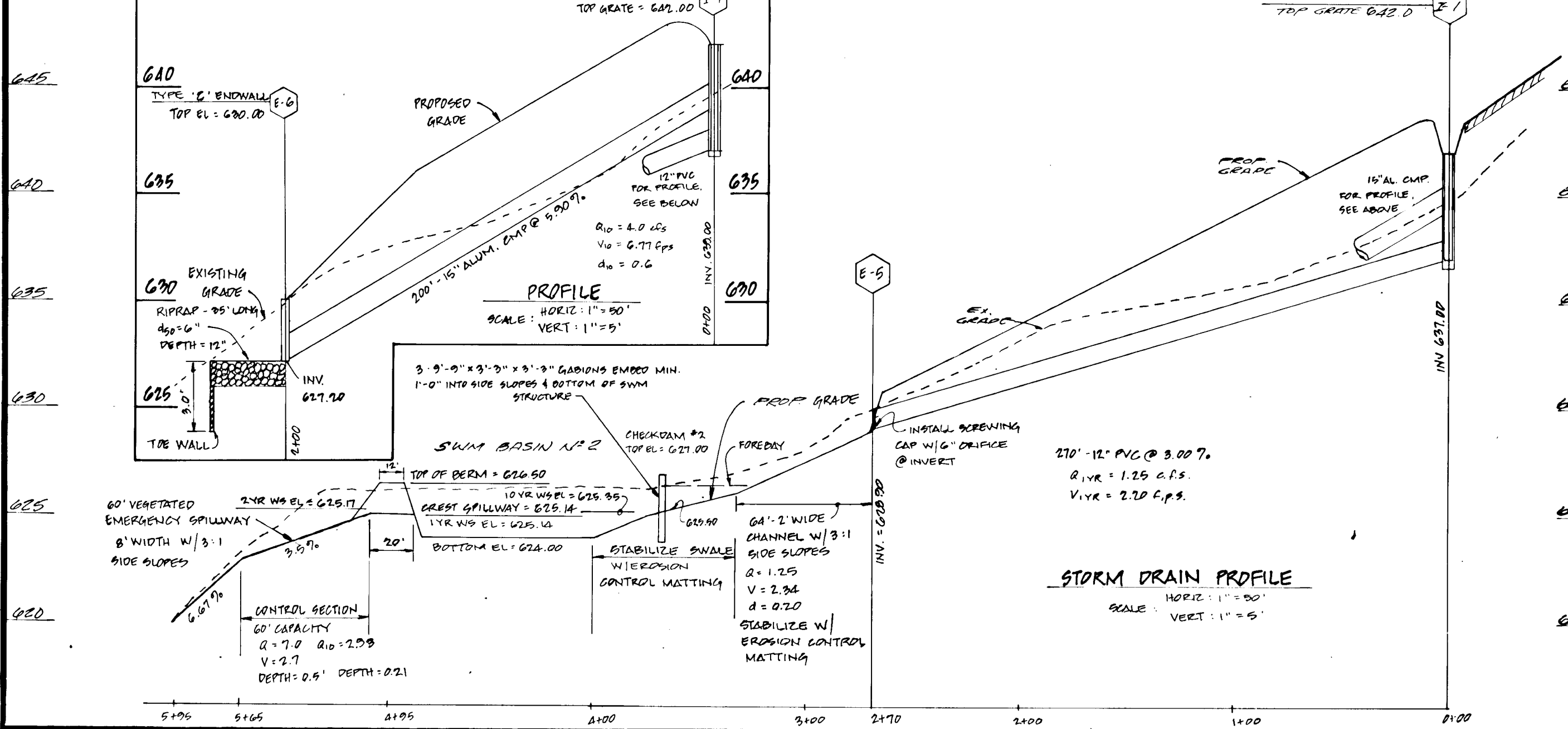
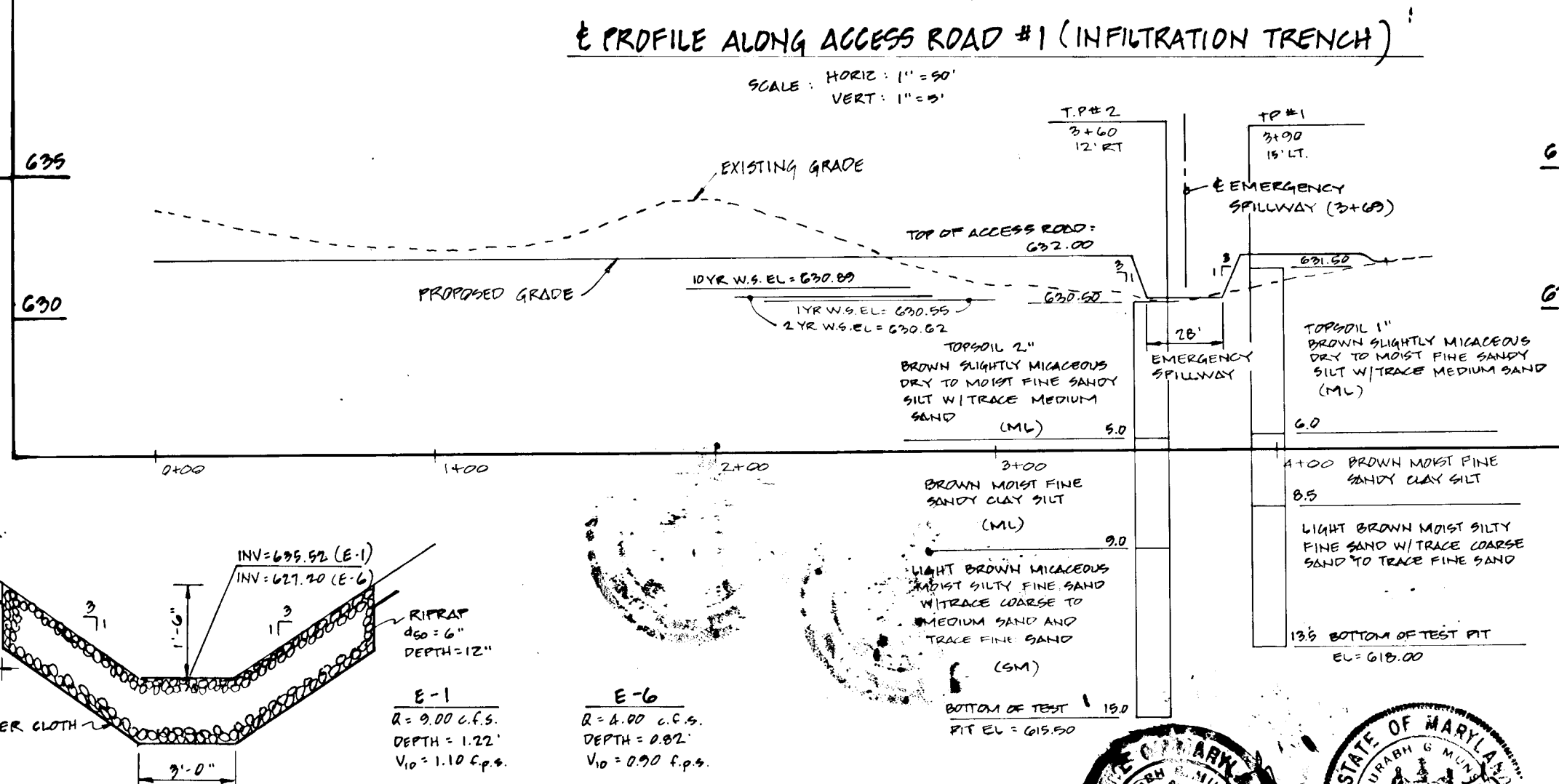
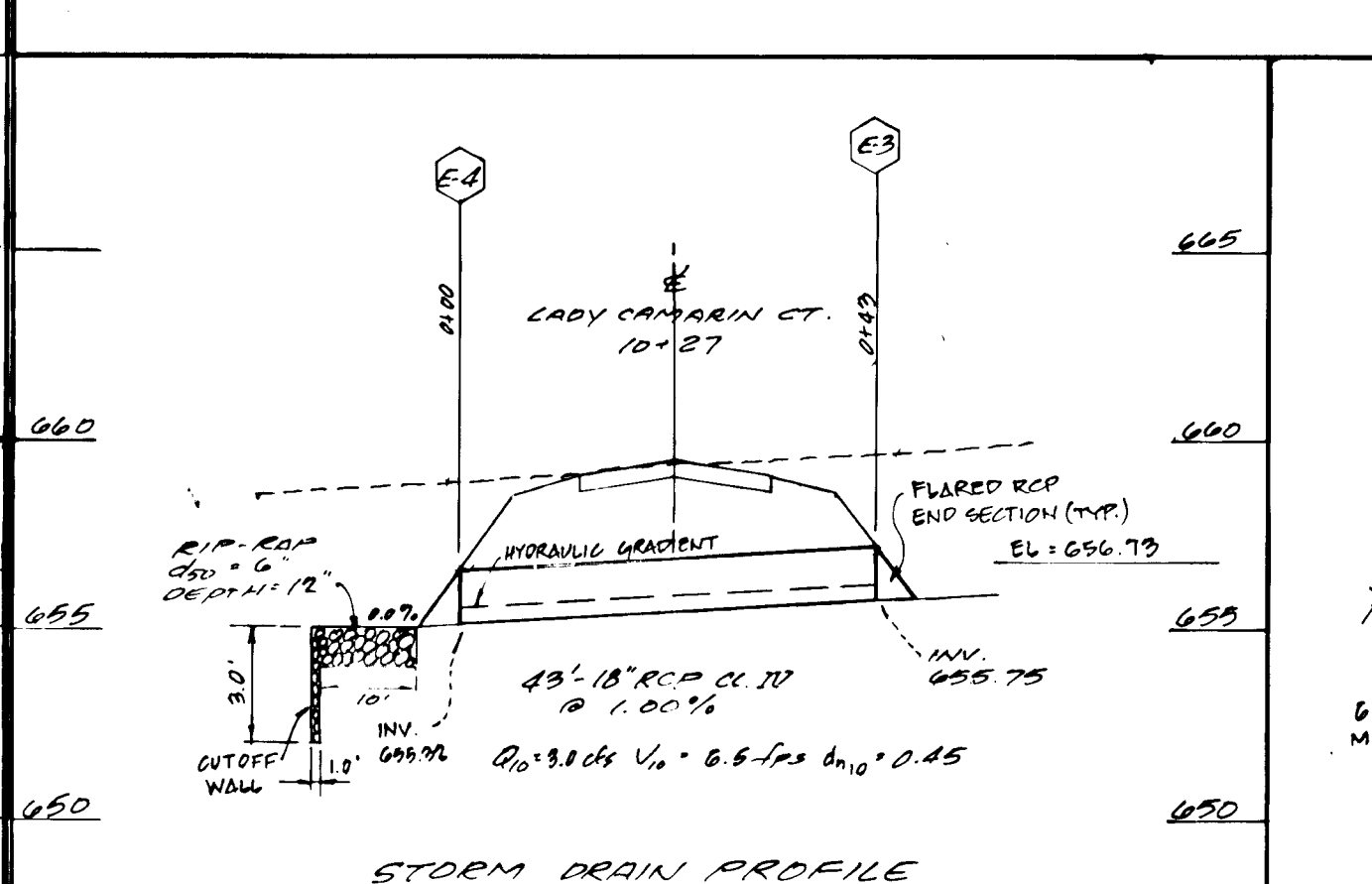
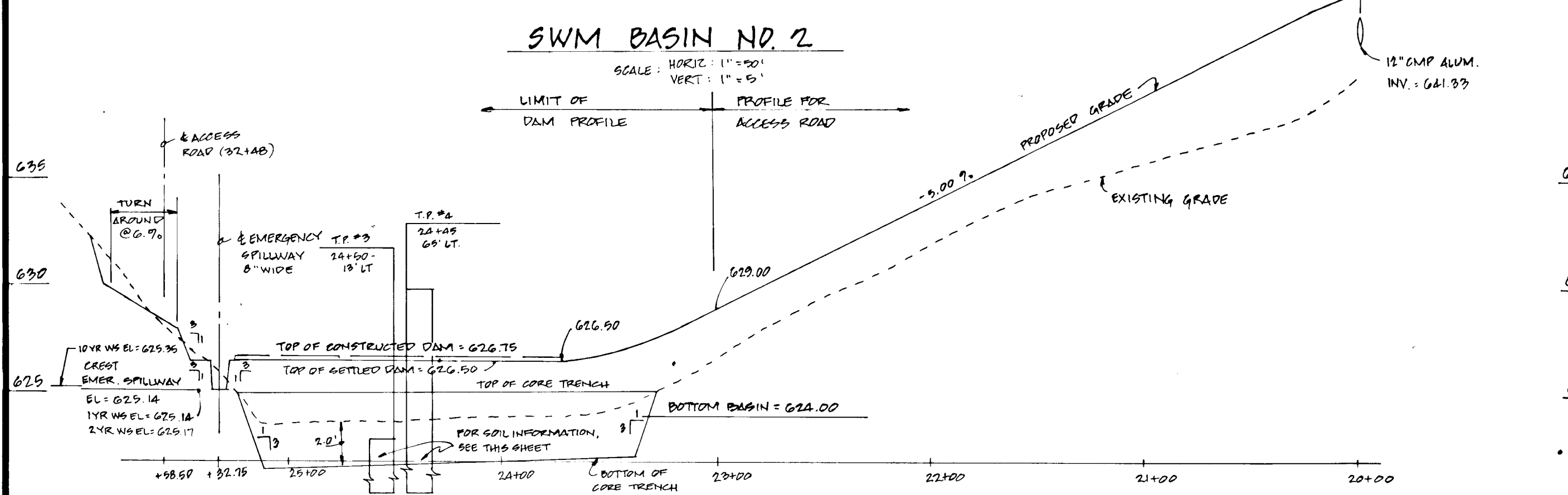
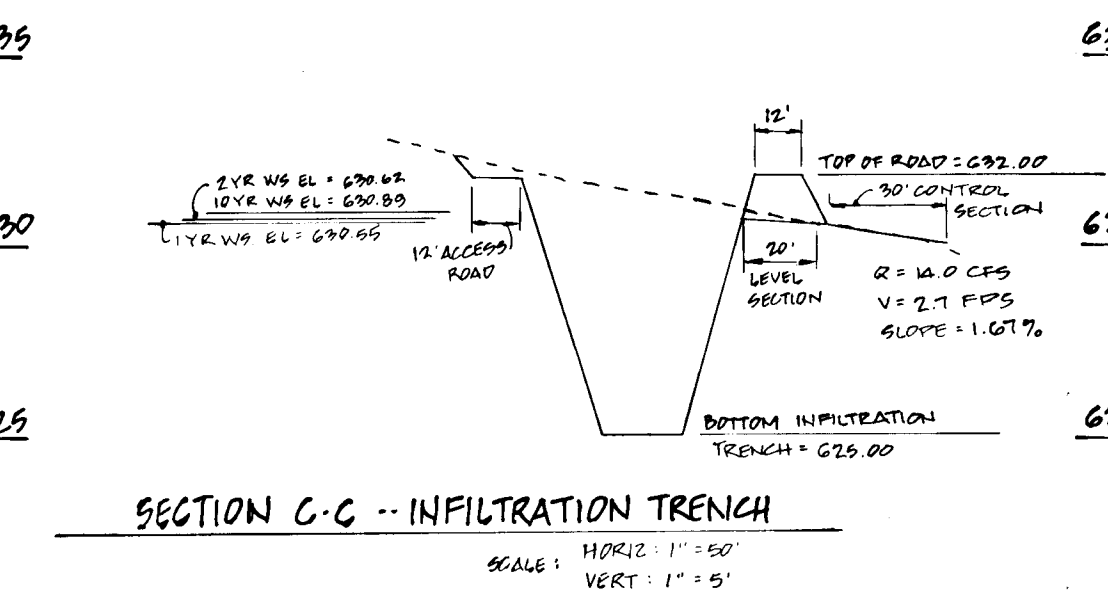
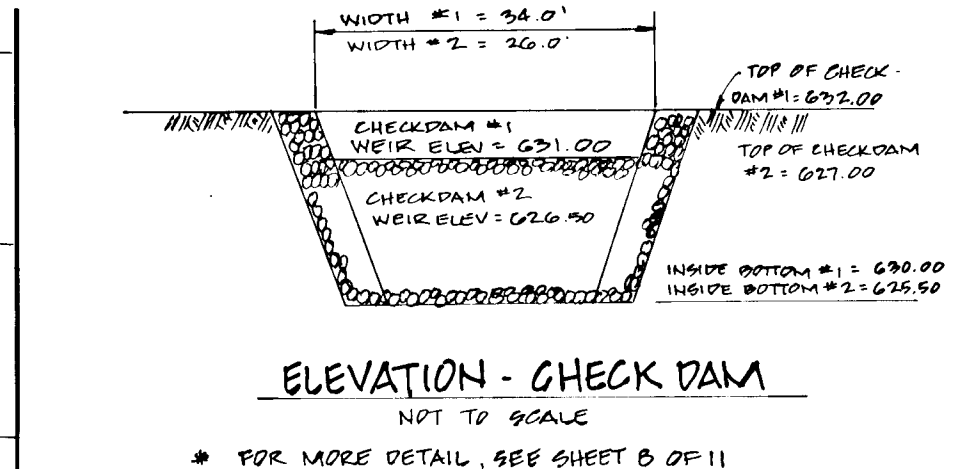
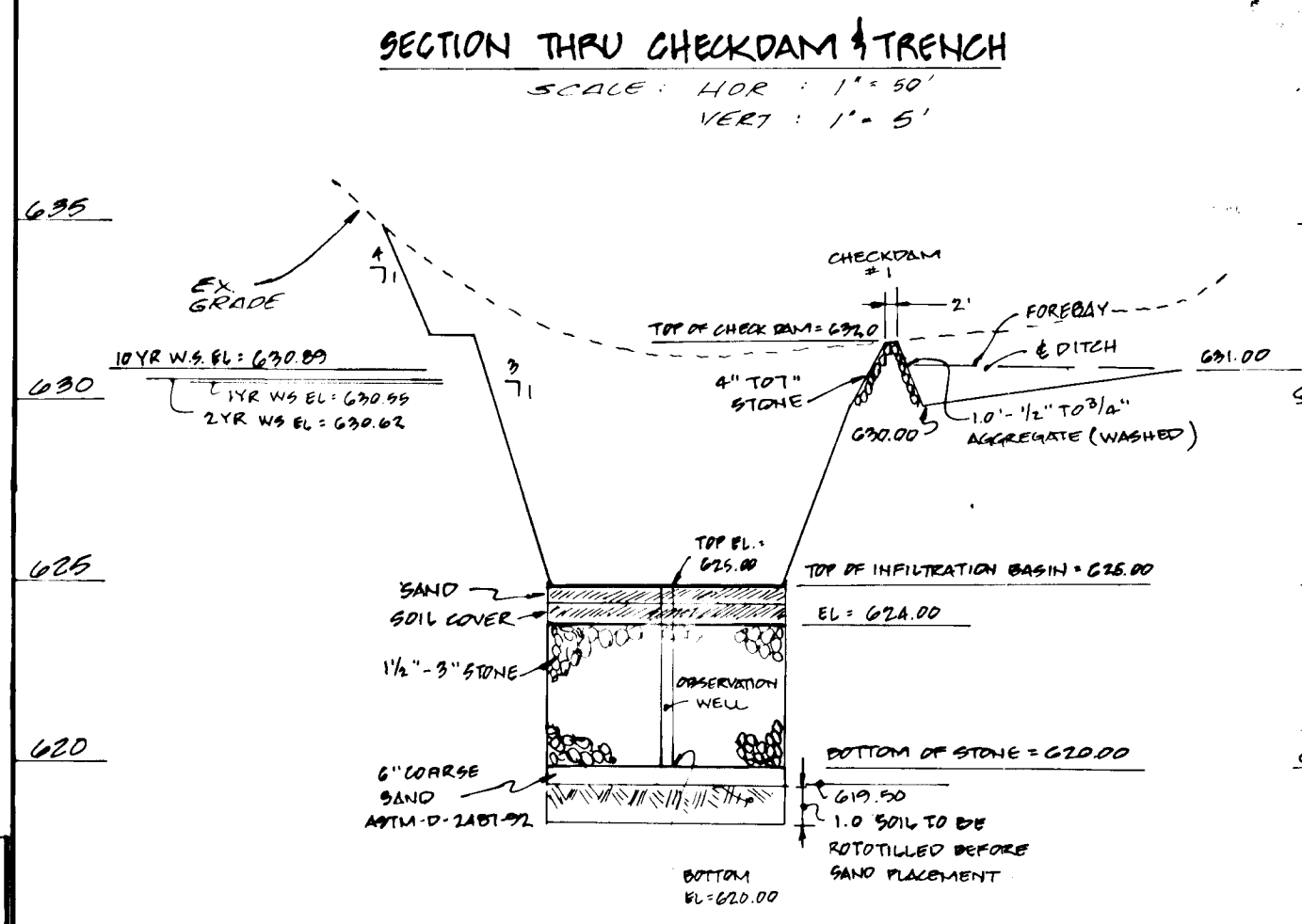
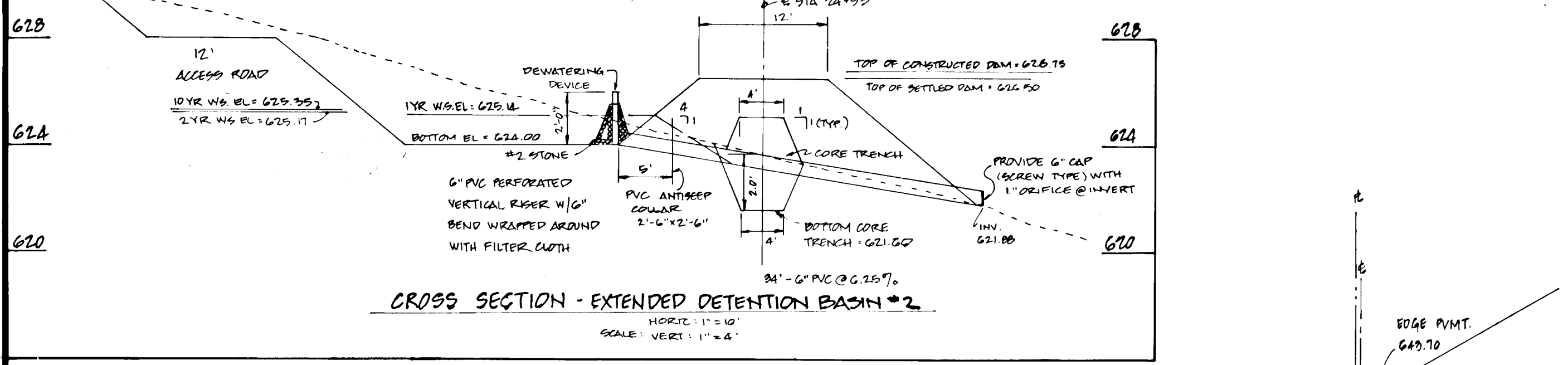


TEST PIT LOG VANMAR ASSOCIATES, INC.			TEST PIT LOG VANMAR ASSOCIATES, INC.			TEST PIT LOG VANMAR ASSOCIATES, INC.			TEST PIT LOG VANMAR ASSOCIATES, INC.		
Project Name: Royal Hollow	Project No.: 933391	Test Pit No.: 1	Project Name: Royal Hollow	Project No.: 933391	Test Pit No.: 2	Project Name: Royal Hollow	Project No.: 933391	Test Pit No.: 3	Project Name: Royal Hollow	Project No.: 933391	Test Pit No.: 4
Location: Howard County, Maryland	Sheet: 1 of 1	Date: 6-30-94	Location: Howard County, Maryland	Sheet: 1 of 1	Date: 6-30-94	Location: Howard County, Maryland	Sheet: 1 of 1	Date: 6-30-94	Location: Howard County, Maryland	Sheet: 1 of 1	Date: 6-30-94
Groundwater Observation	Surface Elevation: 631.5'	Inspector: R.L. PYZEK	Groundwater Observation	Surface Elevation: 629.6'	Inspector: R.L. PYZEK	Groundwater Observation	Surface Elevation: 629.0'	Inspector: R.L. PYZEK	Groundwater Observation	Surface Elevation: 629.0'	Inspector: R.L. PYZEK
At ft. After ** Hours			At ft. After ** Hours			At ft. After ** Hours			At ft. After ** Hours		
Depth	Strata Change	Description of Materials	Remarks	Depth	Strata Change	Description of Materials	Remarks	Depth	Strata Change	Description of Materials	Remarks
0		Brown slightly micaceous dry to moist fine sandy silt w/trace medium sand.	Topsoil to 1"	0		Brown slightly micaceous dry to moist fine sandy silt w/trace fine sand	Topsoil to 2"	0		Reddish brown dry to moist clayey silt w/trace fine sand	Topsoil to 4"
5	625.5	Brown moist fine sandy clayey silt	Big Sample # 3 ft. INFILTRATION RATE @ 3.0' = 0.21"/HR.	5	625.5	Brown moist fine sandy clayey silt	Big Sample # 6 ft. INFILTRATION RATE @ 6.0' = 0.21"/HR.	5	625.5	Brown moist fine sandy silt w/trace to little clay	Big Sample # 5 ft. INFILTRATION RATE @ 5.0' = 0.21"/HR.
10	625.0	Light brown micaceous moist silty fine sand w/trace coarse to medium sand & trace fine gravel.	Big Sample # 10 ft. INFILTRATION RATE @ 10.0' = 1.02"/HR.	10	615.0	Light brown moist highly micaceous silty fine sand w/trace coarse to medium sand & trace fine gravel.		10	629.5	Light brown moist highly micaceous silty fine sand w/trace coarse to medium sand & trace fine gravel.	Big Sample # 8.5 ft. INFILTRATION RATE @ 8.5' = 1.02"/HR.
15		Bottom of test pit @ EL. 615.0		15		Bottom of test pit @ EL. 615.0		15		Bottom of test pit @ EL. 615.0	
20				20				20			



NO.	TYPE	INV. IN	INV. OUT	REMARKS	LOCATION
E-1	STD CONC END SECTION	635.52	SD 5.51		0+30 LADY ANNE CT 23' LT
E-2	"	636.70	"		0+30 LADY ANNE CT 21' RT
E-3	"	655.75	"		10+27 LADY CAMARIN CT 21' RT
E-4	"	655.32	"		10+27 LADY CAMARIN CT 22' LT
E-5	VERTICAL END W/CAP	628.00	"		SEE GRADING PLAN FOR DIMENSIONS
I-1	STD TYPE 'K' INLET	642.0	SD 4.12		7+21 LADY ANNE CT 5' LT
E-6	TYPE 'C' ENDWALL	627.20	SD 5.21		SEE GRADING PLAN FOR DIMENSIONS

PIPE	SIZE	MATERIAL	CLASS	LENGTH
E1-E2	18"	RCP	IV	44'
E3-E4	18"	RCP	IV	43'
I1-E5	12"	PVC	SCH 40	270'
I1-E6	15"	ACMP	16 GA	200'
RISER DISCHARGE	6"	PVC	SCH 40	34'
DRIVEWAYS	12"	ACMP	16 GA	7 @ 20'



STORM WATER MANAGEMENT DETAILS AND NOTES

**ROYAL HOLLOW**

TAX MAP: 7 PARCEL: 84  
FOURTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN APRIL, 1995

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF LAND DEVELOPMENT AND RESEARCH

APPROVED: HOWARD COUNTY DEPARTMENT OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF LAND DEVELOPMENT AND RESEARCH

APPROVED: HOWARD COUNTY DEPARTMENT OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF SOIL CONSERVATION DISTRICT

1304



FOLLOWING INITIAL SOIL DISTURBANCE OR RESTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (1) SEVEN (7) CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; (2) FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON PROJECT SITE.

NOTE: THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTOR/SURVEY DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 792-7272.

DEVELOPER'S CERTIFICATE

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

*B. Smith* 4/2/96  
OWNER/DEVELOPER DATE

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 HOWARD SOIL CONSERVATION DISTRICT."

*Sourabh G. Munshi* 4/12/95  
SOURABH G. MUNSHI, PROF. ENGINEER DATE

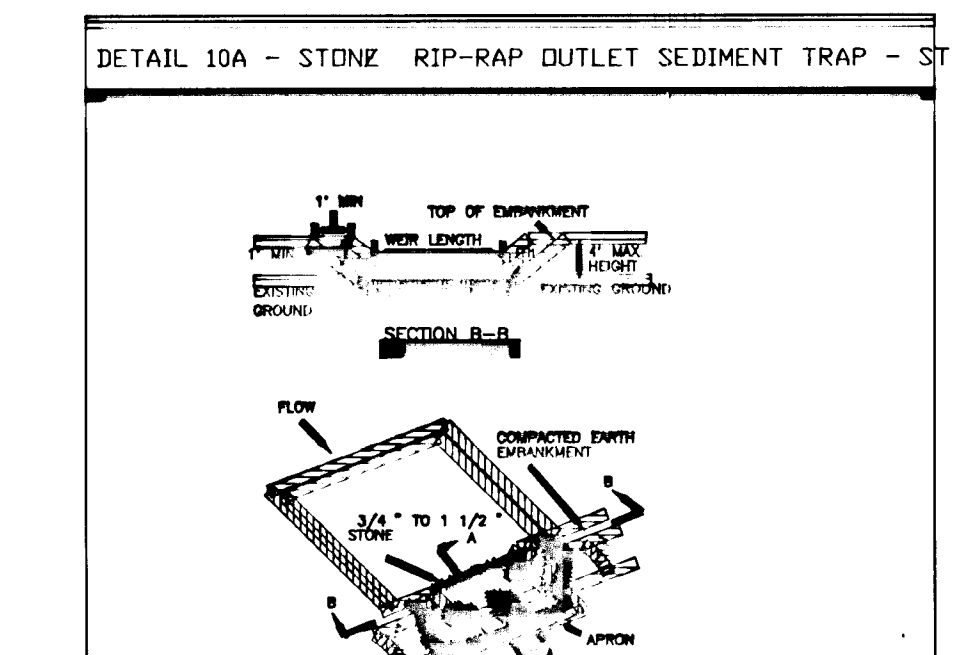
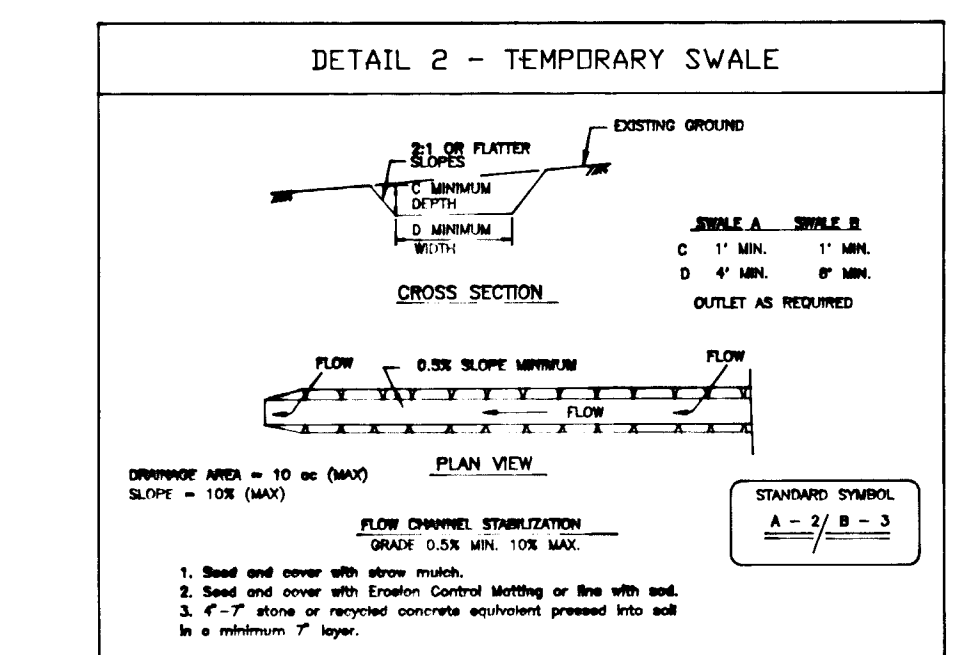
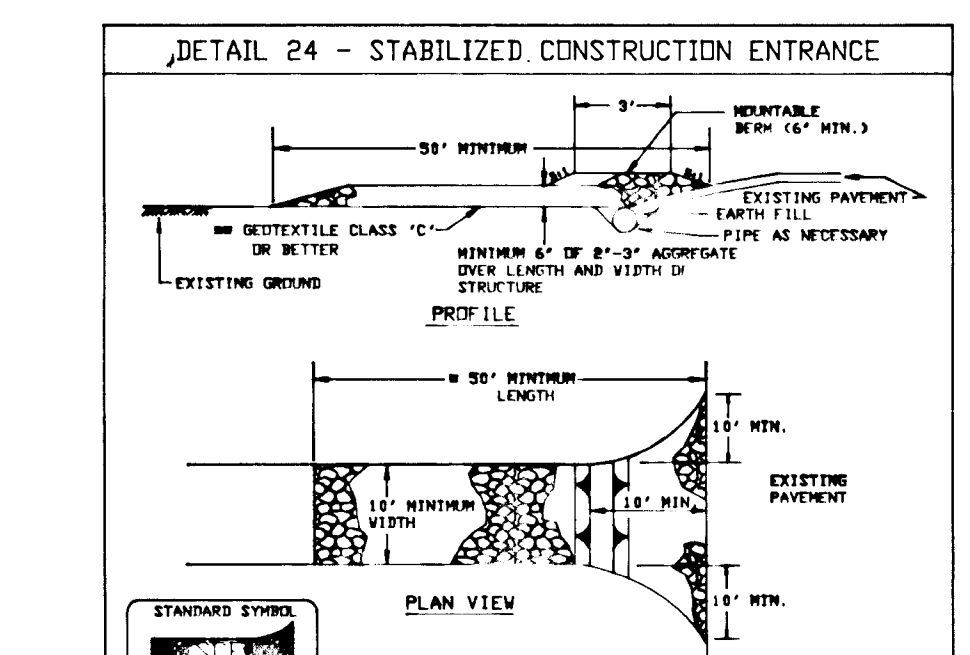
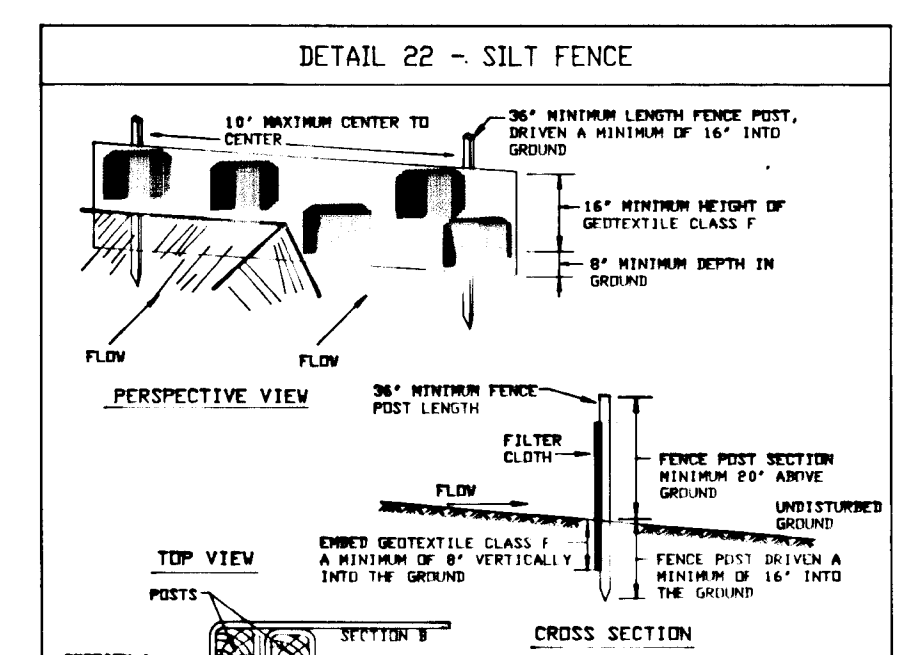
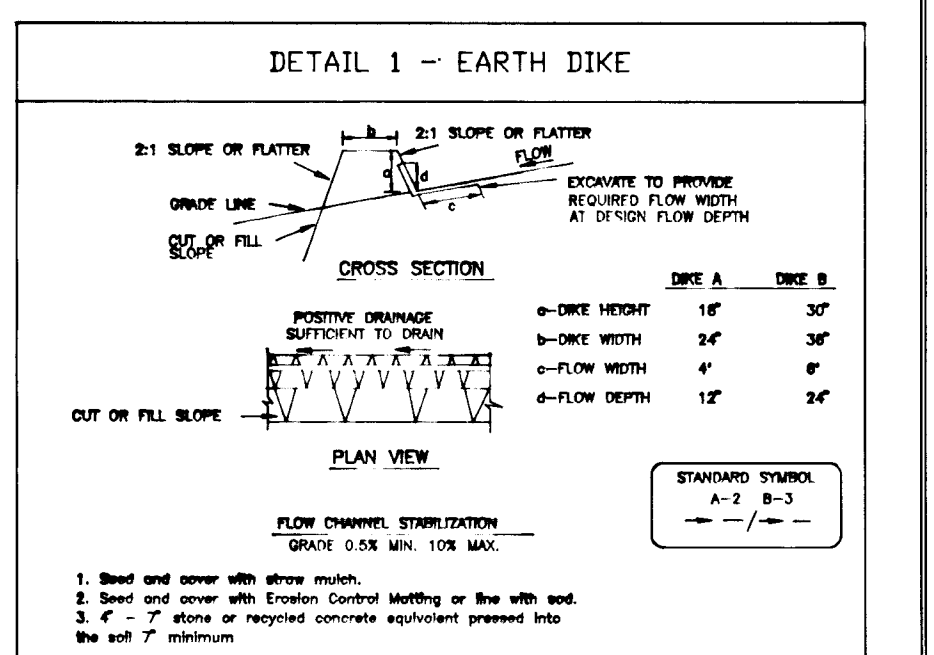
REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

*J. J. Wafar* 4/19/96  
*John R. Hunter* 4/19/96  
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daulton* 4-23-96  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Jim Zimmerman* 4/29/96  
CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH

APPROVED: HOWARD COUNTY DEPARTMENT OF ENGINEERING DIVISION  
*Abdulmumim* 4/26/96  
CHIEF, DEPARTMENT OF ENGINEERING DIVISION



**Construction Specifications**

1. Bed and cover with three inches.
2. Bed and cover with Erosion Control Matting or Bio with bed.
3. 2" - 7" stone or recycled concrete crushed into the soil 7" minimum.

**Flow Channel Stabilization**  
SWALE 0.5% MIN. 10% MAX.  
STANDARD SYMBOL A-2 B-3

**Construction Specifications**

1. All temporary work shall have undisturbed profile grade to a final. 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 collect directly into an undisturbed, established area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of as not to interfere with the proper functioning of the dike.
5. The site shall be protected or shored to the grade and cross section as required to meet the criteria specified herein and be free of bank projections or other impediments 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.

U.S. DEPARTMENT OF AGRICULTURE PAGE 1  
SOIL CONSERVATION SERVICE A-1-1-6  
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**Construction Specifications**

1. Length - minimum of 90' (450' for single residence lots).
2. Slope - minimum, should be flared at the existing grade to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. After plan approval authority may not require single flared ends.
4. Stone - crushed aggregate (2" to 3") or recycled or recycled concrete equipment shall be placed at least 6" deep over the length and width of the structure.
5. Surface Water - all surface water flowing or diverted toward construction entrances shall be piped through the entrance, retaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a manhole with 3:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the size 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 water 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 entrance.

**Construction Specifications**

1. Fence posts shall be a minimum of 36" long driven 18" minimum into the ground. Posts shall be 1/2" x 1/2" square (minimum) or 1/2" x 1/2" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be allowed for U section having a minimum of 1.00 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire line staples. Top and bottom edges shall meet the following requirements for Geotextile Class 'F':  
Tensile Strength 50 lbs/in (min.) Test: MHT 309  
Tear Resistance 25 lbs/in (min.) Test: MHT 309  
Flow Rate 0.2 gal/F<sup>2</sup>/minute (max.) Test: MHT 309  
Filtering Efficiency 95% (min.)
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 broken or when sediment accumulation reaches the top of the fabric.

U.S. DEPARTMENT OF AGRICULTURE PAGE 1  
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U.S. DEPARTMENT OF AGRICULTURE PAGE 1  
SOIL CONSERVATION SERVICE A-1-1-6  
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**Construction Specifications**

1. Bed and cover with three inches.
2. Bed and cover with Erosion Control Matting or Bio with bed.
3. 2" - 7" stone or recycled concrete crushed into the soil 7" minimum.

**Flow Channel Stabilization**  
SWALE 0.5% MIN. 10% MAX.  
STANDARD SYMBOL A-2 B-3

**Construction Specifications**

1. All temporary work shall have undisturbed profile grade to a final. 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 collect directly into an undisturbed, established area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of as not to interfere with the proper functioning of the dike.
5. The site shall be protected or shored to the grade and cross section as required to meet the criteria specified herein and be free of bank projections or other impediments 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.

U.S. DEPARTMENT OF AGRICULTURE PAGE 1  
SOIL CONSERVATION SERVICE A-2-4  
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**Construction Specifications**

1. Bed and cover with three inches.
2. Bed and cover with Erosion Control Matting or Bio with bed.
3. 2" - 7" stone or recycled concrete crushed into the soil 7" minimum.

**Flow Channel Stabilization**  
SWALE 0.5% MIN. 10% MAX.  
STANDARD SYMBOL A-2 B-3

**Construction Specifications**

1. All temporary work shall have undisturbed profile grade to a final. Spot elevations may be necessary for grades less than 1%.
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U.S. DEPARTMENT OF AGRICULTURE PAGE 1  
SOIL CONSERVATION SERVICE A-2-4  
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**POND SPECIFICATIONS**

These specifications are appropriate to all ponds within the scope of the Standard for Pond-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 3:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry structures management ponds, a minimum of a 90 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

**Earth Fill**

**Material:** The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6" frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CK or CL. Embankment if 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 placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

**Compaction:** The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one track tread 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 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 than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by ASTM Method T-99.

**Cut Off Trench:** The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation with the minimum width being four feet. The depth shall be at least four feet before existing grade or as shown on the plans. The side slopes of the trench shall be 3:1 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 shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet measured horizontally to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

**Pipe Conducts**

All pipes shall be circular in cross section.

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

1. **Material:** (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully galvanized. AASHTO Specification M-190 or M-211 with water-tight coating bands. Flanges. Aluminum surfaces that are to be in contact with concrete shall be coated with cold applied bituminous compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 80 mil (2.0 mm) on both sides of the pipe. The following coatings on an approved equal may be used: Nexon, Plast-Coat, Bar-Coat and Beth-Curley. Coated corrugated steel pipe shall meet the requirements of AASHTO M-243 and M-246.
2. **Material:** (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with water-tight coating bands. Flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous compound.
3. **Material:** (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with water-tight coating bands. Flanges. Aluminum surfaces that are to be in contact with concrete shall be coated with cold applied bituminous compound. Hot dip galvanized pipes may be used for connections. The Ph of the surrounding soils shall be between 4 and 9.
4. **Coupling bands, anti-seep collars, and sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 3/16 inch in thickness.**
5. **Connections:** All connections with pipes must be completely water-tight. The drain pipe or burial connection to the pipe shall be welded or bolted when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in a manner that will not interfere with the pipe and riser are not considered to be water-tight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be repaired an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 2/8" thick closed cell circular neoprene gasket and a 12" wide rubber type band with 1/2" diameter having a 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 10 inch wide by 3/8 inch thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24 inches.

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 conforming 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. **Material:** 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 to a depth of at least 10 inches in 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. The joints 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. **Material:** PVC pipe shall be PVC-1100 or PVC-1200 conforming to ASTM D-1785 or ASTM D-2441.
2. **Joints and connections:** anti-seep collars shall be completely water-tight.
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 608, Mix No. 3.

**Rock Riprap**

Rock riprap shall meet the requirements of Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, Section 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 homogeneous 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 placed under all riprap and shall meet the requirements of Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, Section 912.

**Care of Water during Construction**

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and steam diversions necessary to protect the areas to be occupied by 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 infiltration 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 excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the location being refilled shall be maintained below the bottom of the excavation at such locations which may require drawing 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) 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 prevented. 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.

**VEGETATIVE SPECIFICATIONS AND NOTES**

1. Disturb as small an area of the present cover as possible while performing grading.
2. Limit duration of exposure of bare earth from grading operation to 7 days by the establishment of temporary vegetation (or mulching if appropriate) or by completing permanent seeding within 14 days.
3. Establish permanent vegetative cover immediately after final grading is completed. (This includes all grading on or off the site that is affected by the construction.) If final grading is completed at a time other than the seeding, the permanent ground cover such as mulching will be used to stabilize the bare soil.
4. **Recommended temporary seed mixture:**  
Seed: 30 lbs/acre of 90 lb per acre  
Rate: 2 tons ground limestone per acre  
Fertilizer: 10-10-10 of 1,000 lbs. per acre  
Mulch: SS-1 or equivalent of 200 gal. per acre  
Asphalt: SS-1 or equivalent of 200 gal. per acre
5. **Recommended permanent seed mixture:**  
Seed: 30 lbs/acre of 90 lb per acre  
Rate: 2 tons ground limestone per acre  
Fertilizer: 10-10-10 of 1,000 lbs. per acre  
Asphalt: SS-1 or equivalent of 200 gal. per acre
6. All points of construction ingress and egress shall be protected by 30 ft (9m) of crushed stone to prevent tracking of mud onto public roads.
7. Following initial soil disturbance or redistribution, permanent or temporary stabilization (specified on plans) shall be completed within seven calendar days as to the surface of all perimeter control, dikes, water ditches, perimeter slopes, and all slopes greater than 3:1 horizontal to 1 vertical (3:1) and fourteen days as to all other disturbed or graded areas on the project site.
8. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be required 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. Approval shall be required upon final stabilization of all sites with disturbed areas in excess of 2 acres before removal of sediment controls.

**HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES:**

1. A minimum of all 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 (313-1002).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and one to be in accordance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereof as of the date of this plan.
3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1 horizontal to 1 vertical (3:1) and 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/berms 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 periods specified above in accordance with the 1993 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, for permanent seeding (Sec. 51) and (Sec. 54) temporary seeding (Sec. 51) and mulching (Sec. 52).
6. Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
7. Site Analysis:  
Total Area of Site: 2.0 Acres  
Area Disturbed: 2.0 Acres  
Area to be vegetatively stabilized: 2.0 Acres  
Total Cut: 2.0 Cu. Yds.  
Off-site waste/borrow area location: [ ]
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 required 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. Approval shall be required upon final stabilization of all sites with disturbed areas in excess of 2 acres before removal of sediment controls.
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.

**TEMPORARY SEEDING NOTES:**

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

**Seeding 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/acre dolomitic limestone (92 lb/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lb/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 urea-form fertilizer (9 lb/1000 sq. ft.).  
2. Acceptable - Apply 2 tons/acre dolomitic limestone (92 lb/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lb/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

**Seeding:** For the periods March 1-April 30, and August 1-October 15, seed with 80 lbs/acre (1.4 lb/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1-July 31, seed with 80 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (20 lb/1000 sq. ft.) of seeding legumes. During the period of October 16-February 28, per acre:  
Option 1 - Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring.  
Option 2 - Use seed.  
Option 3 - Seed with 80 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

**Mulching:** Apply 1-1/2 to 2 tons per acre (70 to 90 lb/1000 sq. ft.) of unrotted animal grain straw immediately after seeding. Anchor mulch immediately after application using mulch chocking 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 re-disturbed where a short-term vegetative cover is needed.

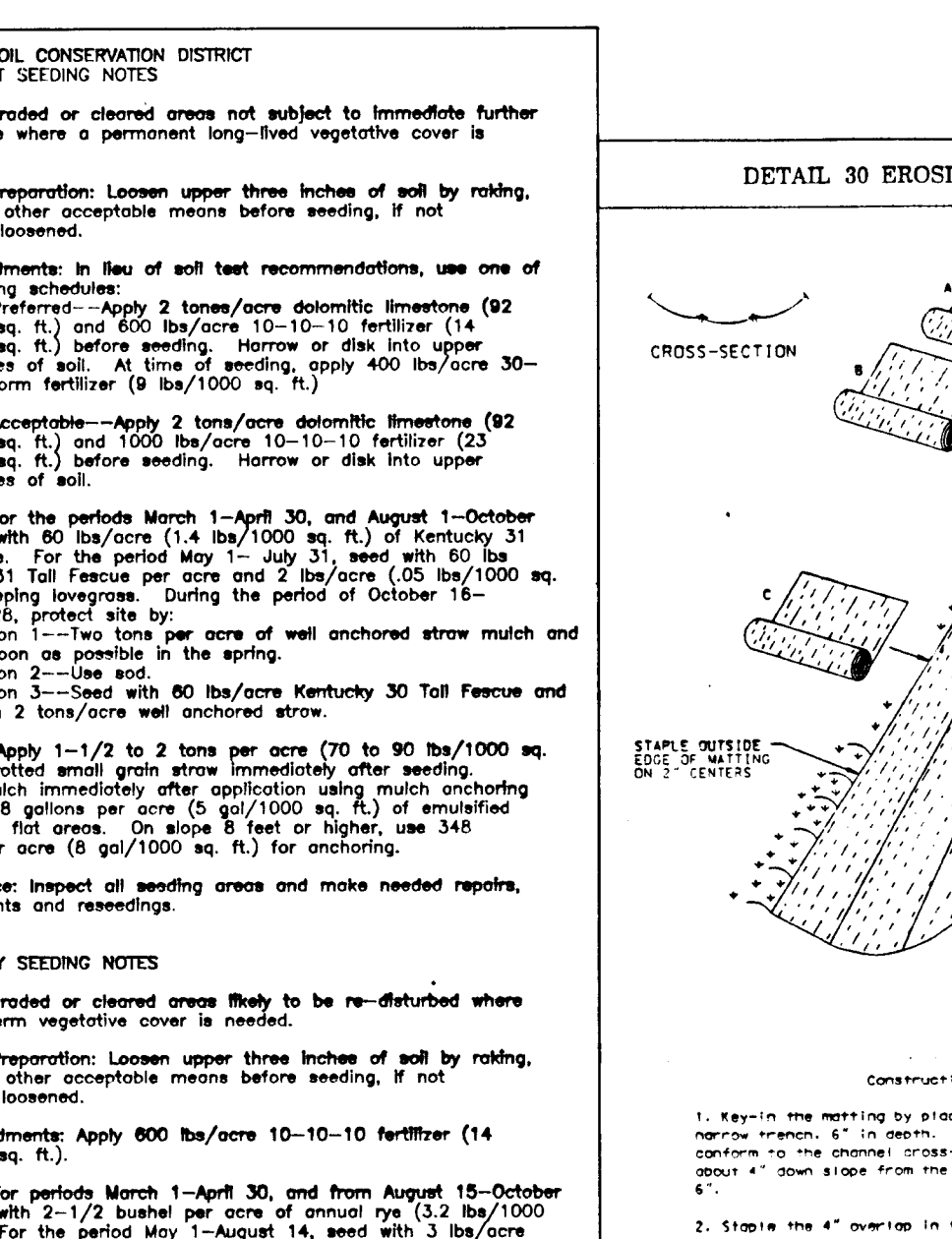
**Seeding Preparation:** Loosen upper three inches of soil by raking, disking or other acceptable means before seeding. If not previously loosened.

**Soil Amendments:** Apply 800 lbs/acre 10-10-10 fertilizer (14 lb/1000 sq. ft.).

**Seeding:** For periods March 1-April 30, and from August 15-October 15, seed with 2-1/2 bushel per acre of annual ryegrass (1.2 lb/1000 sq. ft.). For the period May 1-August 14, seed with 3 lbs/acre of seeding legumes (0.7 lb/1000 sq. ft.). For the period November 15-February 28, protect site by applying 2 tons of well anchored straw mulch and seed as soon as possible in the spring, or use seed.

**Mulching:** Apply 1-1/2 to 2 tons/acre (70 to 90 lb/1000 sq. ft.) of unrotted seed-free, animal grain straw immediately after seeding. Anchor mulch immediately after application using mulch chocking 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.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, for additional rates and methods not covered.



**Figure J-5 Three Strand Barbed Wire**

ANCHOR POINTS SHOULD BE MINIMUM 2' STEEL WIRE CHANNELS 2" WIDE, 12" DEEP.

MIN. 11"

MIN. 15"

FOR EACH REINFORCING AREA

ANCHOR POINTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL LENGTH OF THE POST.

ATTACH PLANCHES TO REINFORCING WITH WIRE TIE WITH 6" SPACING.

Notes:

1. Forest protection device only.
2. Rebar shall be installed in the steel process.
3. Reinforcement Area should be staked and flagged.
4. Avoid contact with existing structures.
5. Barbed wire should be securely attached to posts.
6. Device should be properly maintained during construction.
7. Protective signage a site recommendation.

**Figure J-5 Three Strand Barbed Wire**

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4. Avoid contact with existing structures.
5. Barbed wire should be securely attached to posts.
6. Device should be properly maintained during construction.
7. Protective signage a site recommendation.

**GEOTEXTILE FABRIC SPECIFICATIONS**

PROPERTY	TEST METHOD	UNIT	SPECIFICATION (MIN. AVG.)
MATERIAL	NONWOVEN GEOTEXTILE FABRIC		
MASS PER UNIT AREA	ASTM D-5241	OZ/SY	72
FLOW RATE	ASTM D-4491	GP/MSF	80
PUNCTURE STRENGTH	ASTM D-4833	LB.	115
MULLEN BURST	ASTM D-3786	PSI	360
TENSILE STRENGTH	ASTM D-4632	LB.	215
AOS	ASTM D-4751	US SIEVE	80
PERMEABILITY	ASTM D-4491	CMSEC	0.25
THICKNESS	ASTM D-5199	MILS	85

1309

SEDIMENT CONTROL DETAILS AND NOTES

ROYAL HOLLOW

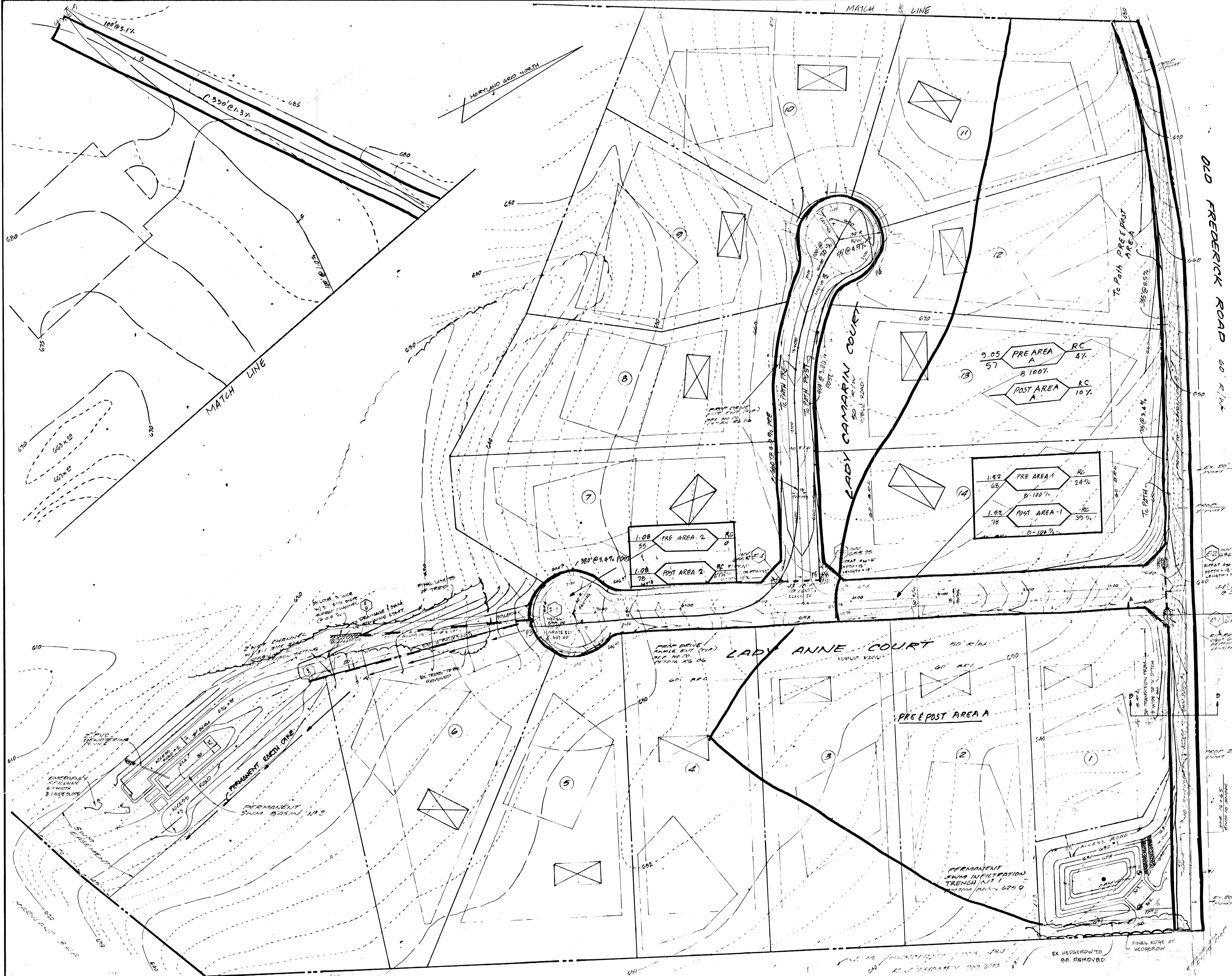
TAX MAP: 7 PARCEL: 84  
FOURTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
NO SCALE APRIL, 1995

YANMAR ASSOCIATES INC.  
Engineers - Surveyors - Planners  
960 South Main Street, P.O. Box 278, Mount Airy, Maryland 20771  
Phone: 410-266-1970 Fax: 410-266-1971 Telex: 1900 831-5003

F-95-145 SHEET 8 OF 11



18081



DESIGN FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*James M. Pauley* 4-23-96  
 CHIEF OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Chris Spang* 4/23/96  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

*Chris Spang* 4/23/96  
 CHIEF, DIVISION OF PLANNING AND ZONING

NOTE:  
 SOIL TYPES:  
 G102, G102, G103, G1A

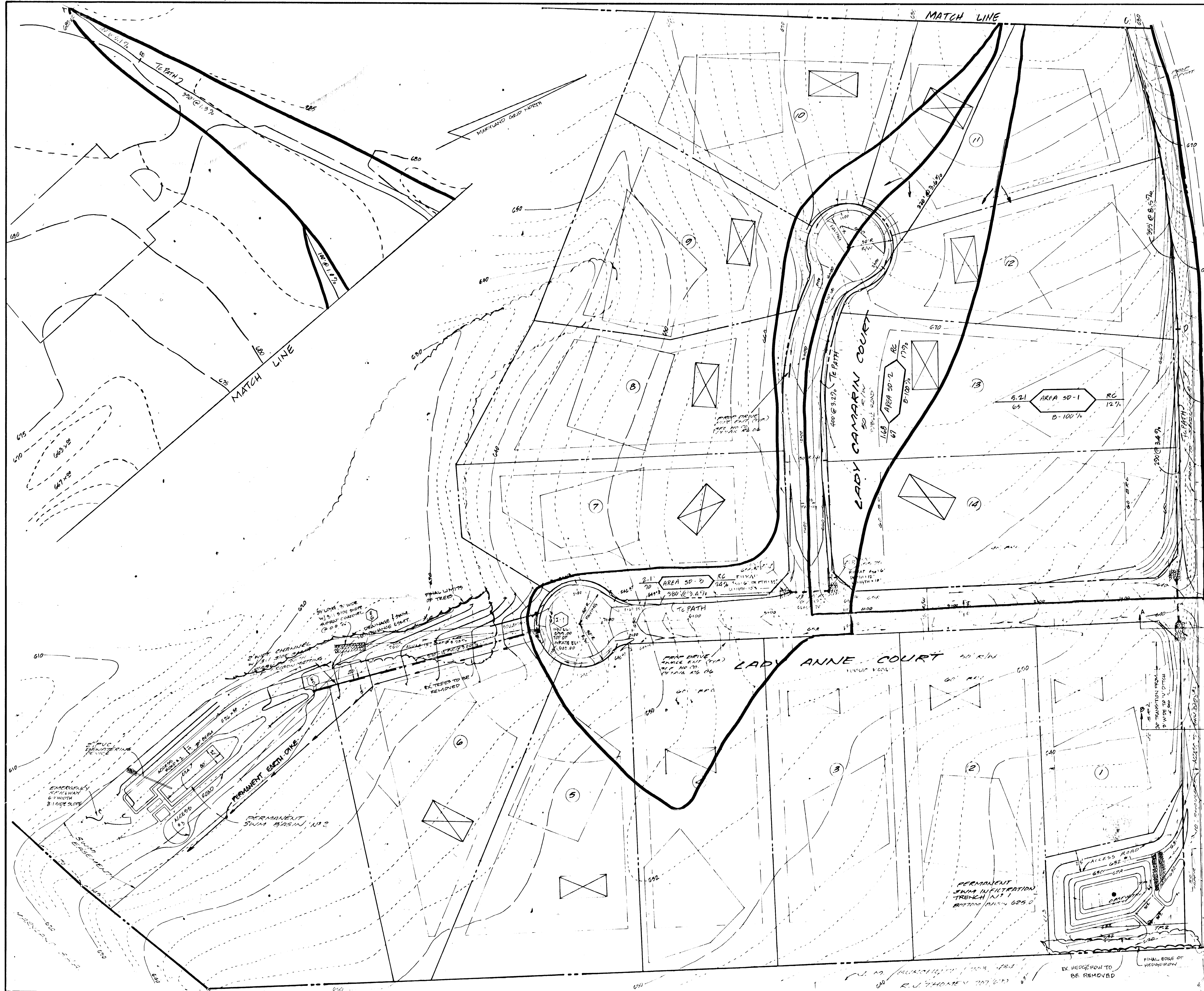


DRAINAGE AREA MAP FOR  
 STORM WATER MANAGEMENT  
**ROYAL HOLLOW**

TAX MAP: 7 PARCEL: 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 50' APRIL, 1995

**VANMAR ASSOCIATES INC.**  
 Engineers - Surveyors - Planners  
 400 South Main Street P.O. Box 306 Mount Airy, Maryland 21272  
 410-879-2000 FAX 410-879-2001 410-879-2002 410-879-2003





REVIEW FOR HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING AND MEETS TECHNICAL REQUIREMENTS FOR POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Richard M. Daulton* 4/23/96  
 CHIEF, DEPT. OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Gary Summy* 4/29/96  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Robert D. ...* 4/26/96  
 CHIEF, DIVISION OF PLANNING AND ZONING

NOTE:  
 SOIL TYPES:  
 G102, G102, G103, G1A



DRAINAGE AREA MAP FOR STORM DRAINAGE

**ROYAL HOLLOW**

TAX MAP: 7 PARCEL: 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 50' APRIL, 1995

**VANMAR ASSOCIATES, INC.**  
 Engineers, Surveyors, Planners  
 300 South Main Street, P.O. Box 328, Mount Airy, Maryland 20721  
 4100 870 2700 FAX 410 870 2701 FAX 410 870 2702

6081



**RESIDENTIAL PERIMETER LANDSCAPE EDGE CALCULATION**

EDGE TYPE	Calculation	Result
OLD FREDERICK ROAD	SFD side/rear to road: 620 + 350 = 970 LF 1 Shade Tree/90 LF 1 Evergreen Tree/40 LF	19 24
EAST RESIDENTIAL PROPERTY LINE	SFD TO SFD: 700 LF = 160 LF EX. ADDITIONAL: 800 LF 1 Shade Tree/90 LF	10
PRESERVATION PARCEL PROPERTY LINE	SFD in preservation parcel: 900 LF 1 Shade Tree/90 LF	5
WEST RESIDENTIAL PROPERTY LINE	SFD to RC same: 550 LF 1 Shade Tree/90 LF	9

**STREET TREE LANDSCAPING REQUIREMENTS (Informal Streetscape)**

EDGE TYPE	Calculation	Result
OLD FREDERICK ROAD	620 + 350 = 970 LF Large deciduous trees 40 ft. apart in right-of-way.	24
LADY ANNE COURT	1309 LF Large Deciduous trees 40 ft. apart in right-of-way.	34
LADY CAMARIN COURT	940 LF Large deciduous trees 40 ft. apart in right-of-way.	24
<b>Total Street Tree Requirement</b>		<b>82</b>

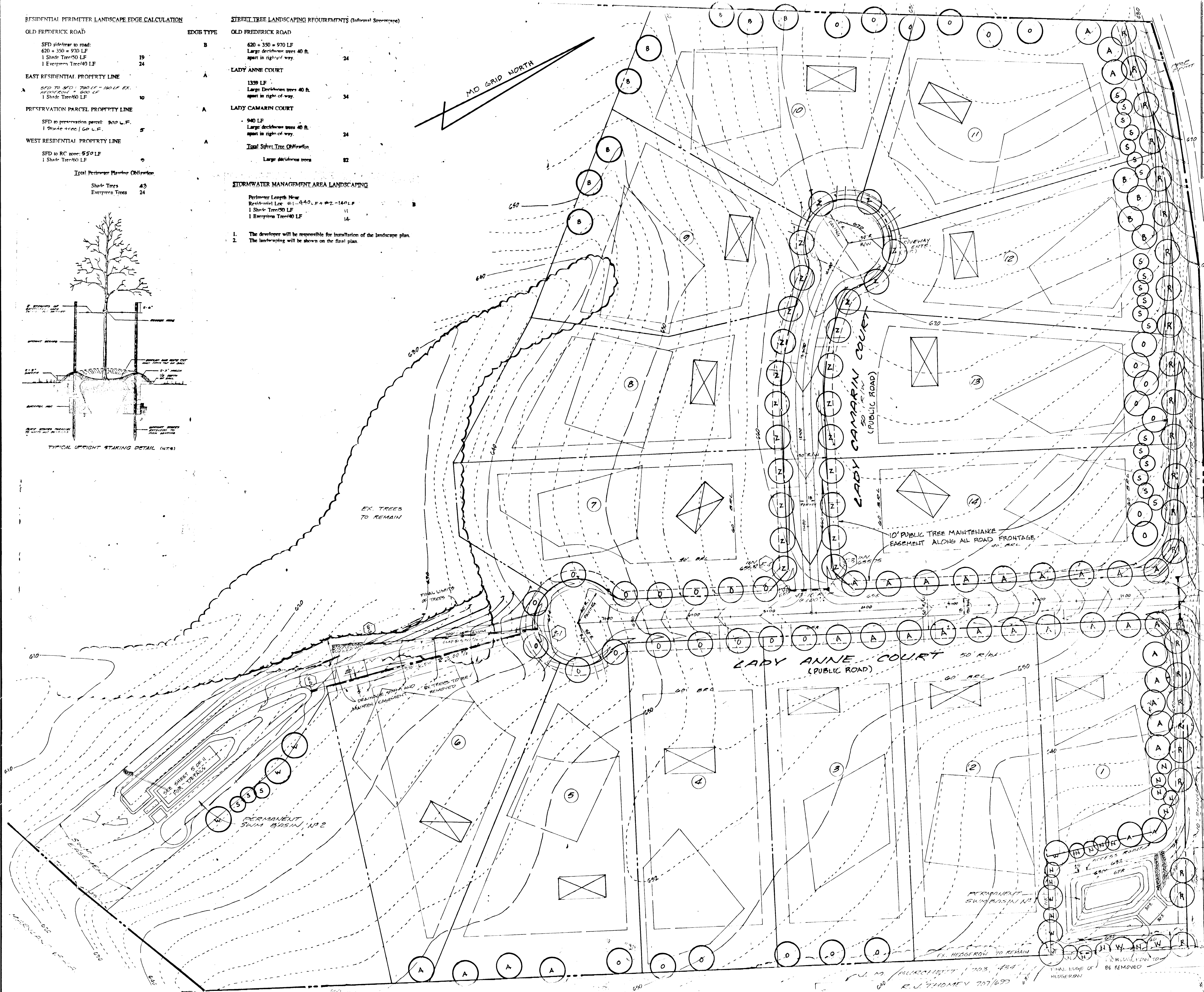
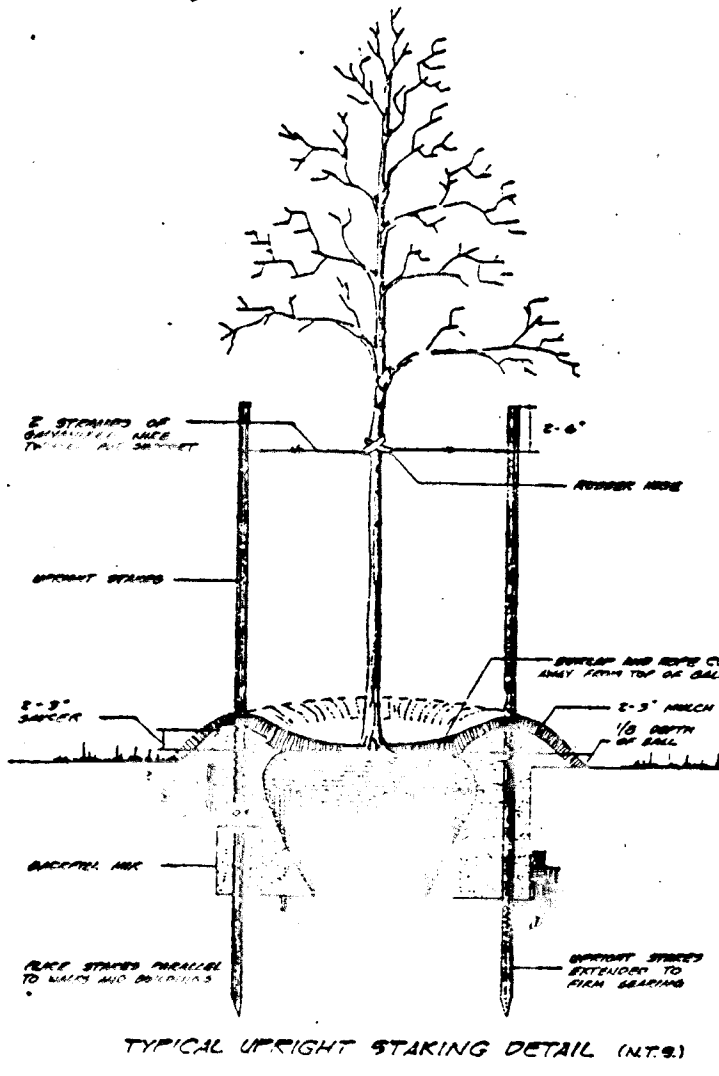
**STORMWATER MANAGEMENT AREA LANDSCAPING**

Requirement	Calculation	Result
Perimeter Length Near Retention Line: 41'-4-4/2, 12 + 12 = 140 LF		
1 Shade Tree/90 LF		11
1 Evergreen Tree/40 LF		14

- The developer will be responsible for installation of the landscape plan.
- The landscaping will be shown on the final plan.

**Total Perimeter Planting Obligation**

Shade Trees	43
Evergreen Trees	24



Letter	Quantity	Species	Size	Notes
O	34	Acer Rubrum "October Glory" October Glory Maple	2 1/2 - 3" caliper	B & B
A	33	Acer Rubrum "Red Sunset" Red Sunset Maple	2 1/2 - 3" caliper	B & B
R	24	Quercus Rubra Red Oak	2 1/2 - 3" caliper	B & B
B	12	Platanus X Acerifolia "Bloodgood" Bloodgood London Plane	2 1/2 - 3" caliper	B & B
W	9	Sally Bobolonia Weeping Willow	2 1/2 - 3" caliper	B & B
Z	24	Zelkova Serrata "Village Green" Village Green Zelkova	2 1/2 - 3" caliper	B & B
S	72	Pinus Strobus - White Pine	6-8" HL	B & B
N	16	Picea Abies - Norway Spruce	6-8" HL	B & B

OLD FREDERICK ROAD 60' R/W

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION SOIL EROSION PREVENTION MEASURES

NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Richard M. Donley* 4-23-96  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Ann Strimling* 4/24/96  
 CHIEF, DIVISION OF LAND USE DEVELOPMENT AND RESEARCH DATE

*John DeWitt* 4/20/96  
 CHIEF, DIVISION OF ENGINEERING DIVISION DATE

This planting plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and Landscape Manual.

Financial surty for the required 92 Landscape trees in the amount of \$ 2,620.00 is part of the Developers Agreement.

*Sam Hales*  
 OWNERS SIGNATURE  
 4/12/96  
 DATE

**LANDSCAPE PLAN  
 ROYAL HOLLOW**

TAX MAP: 7 PARCEL: 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 50' APRIL, 1995

**VANMAR ASSOCIATES INC.**  
 Engineers - Surveyors - Planners  
 100 South Main Street, Suite 200, P.O. Box 1000, Beltsville, MD 20814  
 TEL: 301-261-1000 FAX: 301-261-1001

1809