

SHEET INDEX	
SHEET No.	SHEET
1	TITLE SHEET
2	OLD ROXBURY ROAD - PLAN & RIVERCREST COURT - PLAN AND PROFILE
3	OLD ROXBURY ROAD - PLAN AND PROFILE
4 - 5	STREET TREE, GRADING, AND SEDIMENT CONTROL PLAN
6	LANDSCAPE PLAN AND STORM DRAIN DRAINAGE AREA MAP
7 - 8	STORM DRAIN PROFILES
9	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
10	STORMWATER MANAGEMENT FACILITY NO. 1 NOTES AND SPECIFICATIONS
11	STORMWATER MANAGEMENT FACILITY NO. 1 PROFILES AND DETAILS
12	FOREST CONSERVATION PLAN
13	SOIL BORING PROFILES
14	OLD ROXBURY ROAD GRADING AT MARYLAND ROUTE 97 GRADING, CROSS-SECTIONS & TRAFFIC CONTROL PLAN

# FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

# RIVERCREST

**LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A',  
NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C'  
AND NON-BUILDABLE BULK PARCEL 'D'**

**(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429)**

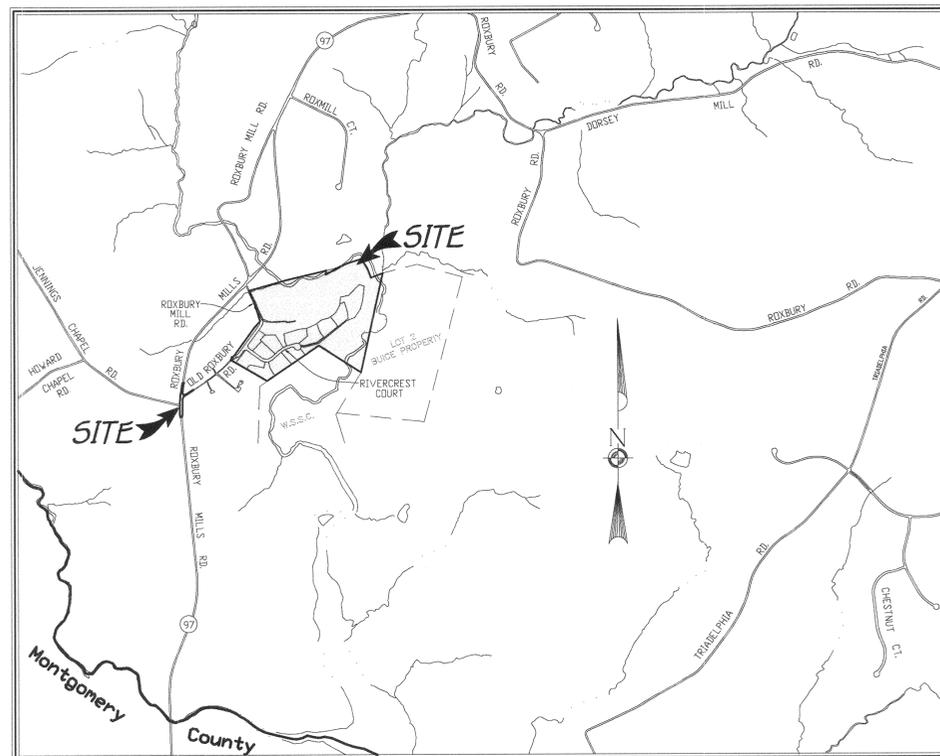
**ZONED: RC-DEO**

ROADWAY INFORMATION CHART			
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
OLD ROXBURY ROAD	PUBLIC ACCESS PLACE	25 MPH	VARIES
RIVERCREST COURT	PUBLIC ACCESS PLACE	25 MPH	40'

TRAFFIC CONTROL SIGNS				
ROAD NAME	C.L. STA.	OFFSET	POSTED SIGN	SIGN CODE
RIVERCREST COURT	0+30	22'L	STOP	R1-1
RIVERCREST COURT	1+00	12'R	SPEED LIMIT 25	R2-1

**HOWARD COUNTY HEALTH DEPARTMENT GENERAL NOTES**

- THIS PROPERTY IS LOCATED WITHIN 2500 FEET OF THE TRIADAPLHIA RESERVOIR. COMAR 26.04.02.04K STATES: "A LOT LOCATED WITHIN 2500 FEET OF THE NORMAL WATER LEVEL OF EXISTING OR PROPOSED WATER SUPPLY RESERVOIRS, MEASURED HORIZONTALLY OR WITHIN A 5000-FOOT RADIUS UPSTREAM FROM THE WATER INTAKE ON STREAMS USED AS POTABLE WATER SUPPLY SOURCES AND A 5000-FOOT RADIUS OF WATER INTAKE LOCATED WITHIN A RESERVOIR SHALL HAVE AN AREA OF NOT LESS THAN 2 ACRES WITH A MINIMUM WIDTH OF 175 FEET...". A VARIANCE FROM MDE TO THIS SECTION OF THE REGULATION WAS GRANTED BY HDE ON MARCH 11, 2003 SUBJECT TO THE FOLLOWING CONDITIONS OF APPROVAL.
- THE SEWAGE EASEMENTS SHOWN CAN NOT BE ADJUSTED WITHOUT ADDITIONAL PERCOLATION TESTS AND SITE EVALUATION.



**TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84**

**FOURTH ELECTION DISTRICT**

**HOWARD COUNTY, MARYLAND**

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 William F. Chubb, Jr.  
 CHIEF, BUREAU OF HIGHWAYS MS 12-21-05 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Gandy J. Jarama  
 CHIEF, DIVISION OF LAND DEVELOPMENT JA 1/4/06 DATE

APPROVED: DEPARTMENT OF ENGINEERING  
 Michael R. Kelly  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 12/21/05 DATE

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY MISS UTILITIES AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- COORDINATES BASED ON NAD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0042 AND NO. 21EA  
 HOWARD COUNTY MONUMENT NO. 0042 N 582,055.477 E 1,298,524.947  
 HOWARD COUNTY MONUMENT NO. 21EA N 492,977.123 E 1,300,655.657
- A.P.D. TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, INC. DATED NOV. 1999 AND APPROVED UNDER 5.0516
- BACKGROUND INFORMATION  
 A. SUBDIVISION NAME: RIVERCREST  
 B. TAX MAP NO.: 21  
 C. PARCEL NAME: LOTS 1 THRU 10  
 D. ZONING: RC-DEO  
 E. ELECTION DISTRICT: FOURTH  
 F. TOTAL TRACT AREA: 51.02 AC.  
 G. TOTAL AREA OF 25% OR GREATER SLOPES: 2.28 AC.  
 H. TOTAL AREA OF 100 YEAR FLOODPLAIN: 24.64 AC.  
 I. NO. OF BUILDABLE LOTS: 10  
 J. NO. OF OPEN SPACE LOTS: 0  
 K. NO. OF NON-BUILDABLE PRESERVATION PARCELS: 2  
 L. NUMBER OF BUILDABLE PRESERVATION PARCELS: 1  
 M. NO. OF NON-BUILDABLE BULK PARCELS: 1  
 N. AREA OF BUILDABLE LOTS: 11,459  
 O. AREA OF OPEN SPACE LOTS: 0.00 AC.  
 P. AREA OF NON-BUILDABLE PRESERVATION PARCELS: 0.061 AC.  
 Q. AREA OF BUILDABLE PRESERVATION PARCEL: 34,439 AC.  
 R. AREA OF NON-BUILDABLE BULK PARCEL: 5,208 AC.  
 S. TOTAL AREA OF ROADWAY TO BE DEDICATED: 2,074 AC.  
 T. PREVIOUS FILE NOS.: 5 01-16, P 02-20 & WP 05-23
- NO CONCRETE EXIST ON THE PROPERTY
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 90% COMPACTION OF AASHTO T-99.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 161200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- STORMWATER MANAGEMENT FACILITY:  
 TYPE - MICRO-POOL DESIGN, EXTENDED DETENTION  
 OWNER - HOMEOWNERS ASSOCIATION WITH JOINT MAINTENANCE CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA  
 STORMWATER MANAGEMENT PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 37B SPECIFICATIONS. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF DRY SWALES. WATER QUALITY AND CHANNEL PROTECTION VOLUME WILL BE PROVIDED BY A MICRO-POOL POND. OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUME ARE NOT REQUIRED FOR THIS SITE.  
 12. THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE.  
 13. THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT.  
 14. TOPOGRAPHIC INFORMATION IS BASED ON DIGITAL HOWARD COUNTY AERIAL TOPOGRAPHY ALONG WITH FIELD RUN TOPOGRAPHY PREPARED BY FISHER, COLLINS & CARTER.  
 15. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PIPESTEM DRIVEWAY.  
 Use-In-Common Driveways shall be provided prior to Residential Occupancy to ensure safe access for fire and emergency vehicles for the following minimum requirements:  
 a) Width - 12 Feet (4 Feet Serving More Than One Residence)  
 b) Surface - Six (6) Inches Of Compacted Crusher Run Base With Tar And Chip Center (4 - 1/2" Minimum)  
 c) Geometry - Maximum 15% Grade, Maximum 10% Grade Change And 45-Foot Turning Radius  
 d) Structures (Culverts/Bridges) - Capable Of Supporting 25 Gross Tons (425-Loadings)  
 e) Drainage Elements - Capable Of Safely Passing 100 Year Flood With No More Than 1 Foot Depth Over Surface  
 f) Structure Clearances - Minimum 12 Feet  
 g) Maintenance - Sufficient To Ensure All Weather Use
- WETLAND AND FOREST STAND DELINEATION INFORMATION WAS TAKEN FROM REPORTS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED NOV. 1999 AND APPROVED UNDER 5.01-16.
- SOILS INFORMATION TAKEN FROM SOIL MAP NO. 17, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1968 ISSUE.  
 THIS PROJECT IS SUBJECT TO THE 4TH EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND TO THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 50-2008.  
 19. SUBJECT PROPERTY ZONED RC-DEO PER 10/18/93 COMPREHENSIVE ZONING PLAN.  
 20. THERE ARE STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY "SLOPES THAT AVERAGE 25% OR GREATER OVER 10 VERTICAL FEET". PER SECTION 161000(A)(5) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, TOTAL AREA OF 25% OR GREATER SLOPES = 2.28 AC.
- PRESERVATION PARCEL 'A' SHALL BE PRIVATELY OWNED AND MAINTAINED AND ENCLUMBERED WITH AN EASEMENT AGREEMENT WITH THE HOWARD COUNTY AGRICULTURAL LAND PRESERVATION PROGRAM. NON-BUILDABLE PRESERVATION PARCEL 'B' SHALL BE PRIVATELY OWNED AND MAINTAINED WITH AN EASEMENT AGREEMENT WITH HOWARD COUNTY, MARYLAND AND HOWARD COUNTY HOMEOWNERS ASSOCIATION, INC. NON-BUILDABLE PRESERVATION PARCEL 'C' SHALL BE PRIVATELY OWNED AND MAINTAINED BY RIVERCREST HOMEOWNERS ASSOCIATION, INC. AND EASEMENT AGREEMENT WITH HOWARD COUNTY, MARYLAND.  
 AS PER SECTION 104(F)(4) OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR SWM FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS.  
 "Non-Buildable Preservation Parcel 'C' To Be Privately Owned And Maintained By HOA. And The Easement Holder Shall Be Howard County, Maryland. This Agreement Prohibits Further Subdivision Of The Parcel, Outlines The Maintenance Responsibilities Of Their Owners And Enumerates The Uses Permitted On The Parcel."
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED BUFFERS EXCEPT PER NOTES 26 & 28 BELOW. SEE ALSO NOTE 30.
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 161200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION SHALL BE FULFILLED BY PROVIDING 1210 AC. OF FOREST RETENTION ON-SITE WITHIN PRESERVATION PARCEL 'A'. THE FOREST CONSERVATION SURETY AMOUNT WILL BE \$105,000.
- THE LANDSCAPE SURETY IN THE AMOUNT OF \$217,500 FOR PERMETER LANDSCAPE REQUIREMENTS OF SECTION 16124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
- EXISTING SEPTIC FIELD LOCATED ON PRESERVATION PARCEL 'A' WILL REMAIN ALONG WITH THE TWO EXISTING FARM STRUCTURES. THESE TWO STRUCTURES WILL BE UTILIZED AS A FARM TENANT HOUSE AND PARKING OPERATION USES.
- IN ACCORDANCE WITH SECTION 16106(A) & 16115(A), FLOODPLAIN AND WETLANDS NEED NOT BE DELINEATED IN CLUSTER SUBDIVISIONS. THE WETLANDS AND BUFFERS WILL NOT BE IMPACTED BY THE PROPOSED LOTS OR DEVELOPMENT EXCEPT ALONG THE EXISTING 30 FOOT PUBLICLY OWNED AND MAINTAINED ROAD RIGHT-OF-WAY (ROXBURY HILL ROAD) LOCATED NEAR THE NORTHERN SITE ENTRANCE.
- TENTATIVE APPROVAL OF THE SKETCH PLAN (5-01-16) IS GRANTED, SUBJECT TO COMPLIANCE WITH THE REQUIREMENTS OF COMAR 26.04.02.04K. SINCE THIS PROJECT IS LOCATED WITHIN 2,500 FEET OF THE NORMAL WATER LEVEL OF THE EXISTING TRIADAPLHIA RESERVOIR, THE MINIMUM LOT SIZE SHALL BE 2 ACRES. THE DENSITY FOR THIS PROJECT WILL YIELD AN AVERAGE LOT SIZE OF 511 AC./12 LOTS = 4.258 ACRES. THE 12 UNITS ARE THE "BY-RIGHT" YIELD AND PER SECTION 104(F)(4), THE PROJECT IS ENTITLED TO A BONUS LOT FOR A TOTAL OF 13 LOTS. ALSO PER ZONING SECTION 104(B)(5), THIS PROJECT IS NOT ELIGIBLE TO BE DENSITY-RECEIVING SINCE IT IS LOCATED WITHIN 2,500 FEET OF THE NORMAL WATER LEVEL OF A WATER SUPPLY RESERVOIR.
- THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING HAS DETERMINED THAT DISTURBANCE TO ENVIRONMENTAL AREAS FOR THE PURPOSE OF THE NORTHERN ROAD CROSSING TO BE A NECESSARY DISTURBANCE IN ACCORDANCE WITH SECTION 16106 OF THE SUBDIVISION REGULATIONS.
- BULK PARCEL 'D' RESERVES THE RIGHT TO BE FURTHER SUBDIVIDED INTO A MAXIMUM OF TWO (2) ONE ACRE CLUSTER LOTS.
- THIS PROPERTY IS SUBJECT TO BA CASE NO. BA-02-69C FOR A CONDITIONAL USE FOR THE EXISTING FARMHOUSE AND OFFICE TO BE USED INSTEAD AS A TENANT HOUSE AND WAS APPROVED BY HOWARD COUNTY.  
 Conditions of approval for BA Case No. 02-69C are as follows:  
 1. The petitioner must obtain a building permit for the construction of the new dwelling on the property within eight years of the date of this decision and order.  
 2. The petitioner must commence the use of the conditional use within two years after the building permit is issued.
- PRESERVATION PARCEL 'A' IS ENCLUMBERED BY AN AGRICULTURAL LAND PRESERVATION EASEMENT HELD BY THE HOWARD COUNTY AGRICULTURAL LAND PRESERVATION PROGRAM AND IS RESTRICTED BY AN ACCOMPANYING DEED OF PRESERVATION EASEMENT, ENTERED INTO BY THE OWNERS, OUTLINES MAINTENANCE RESPONSIBILITIES OF THE PARCEL OWNER, ENUMERATES PERMITTED USES AND PROHIBITS RESUBDIVISION OF THE PARCEL.
- A WAIVER PETITION (WP 05-23) FOR THIS PROPERTY WAS APPROVED ON NOVEMBER 5, 2004 FROM SECTION 16116.1 TO ALLOW GRADING AND REMOVAL OF VEGETATION WITHIN EXISTING STEEP SLOPES ADJACENT TO THE EAST SIDE OF LOT 2.

**RIVERCREST**  
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A',  
 NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C'  
 AND NON-BUILDABLE BULK PARCEL 'D'  
 (A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429)  
 ZONED: RC-DEO  
 TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 1 OF 14

FISHER, COLLINS & CARTER, INC.  
 CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 481-2855

**OWNER**  
 Mr. Robert Preston Buice  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

**DEVELOPER**  
 Rivercrest, LLC  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

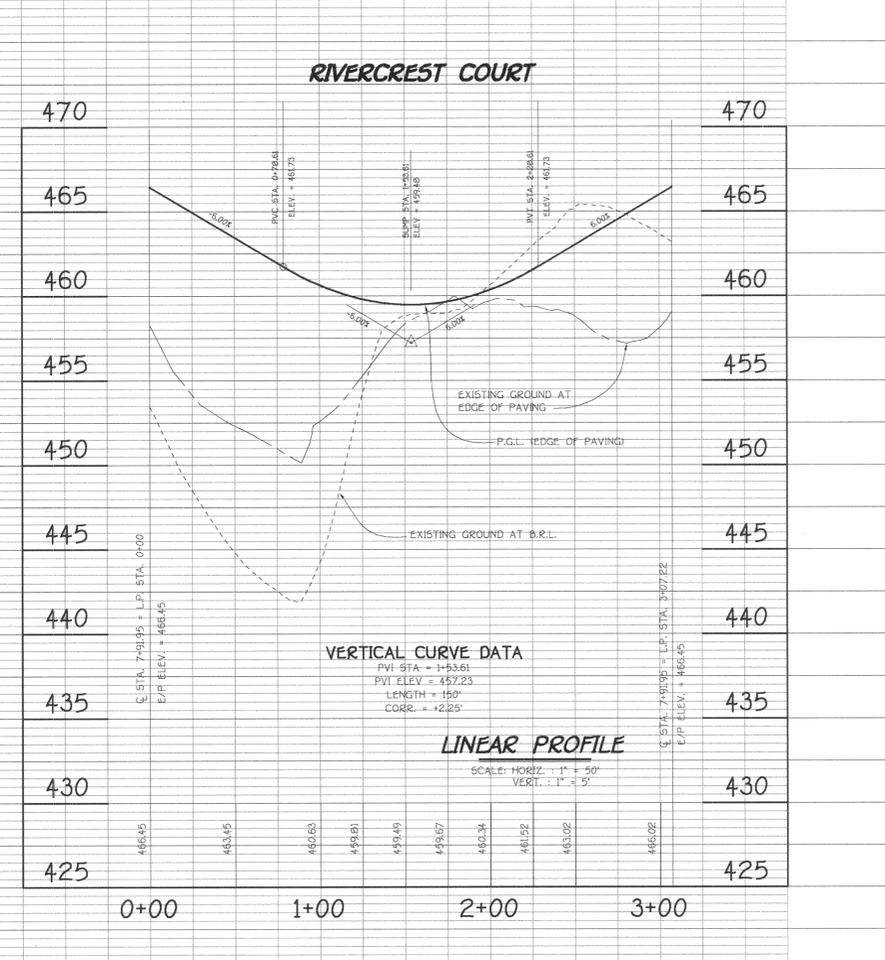
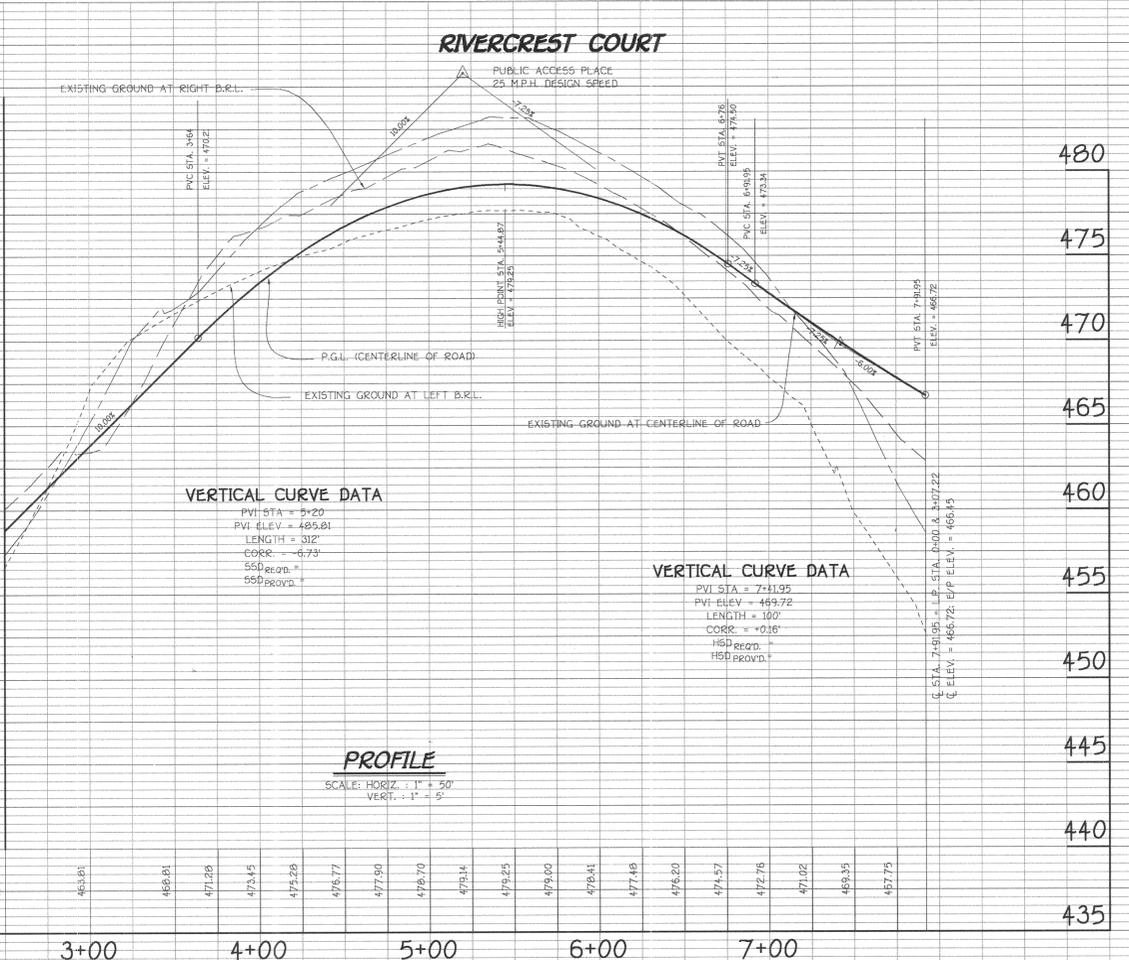
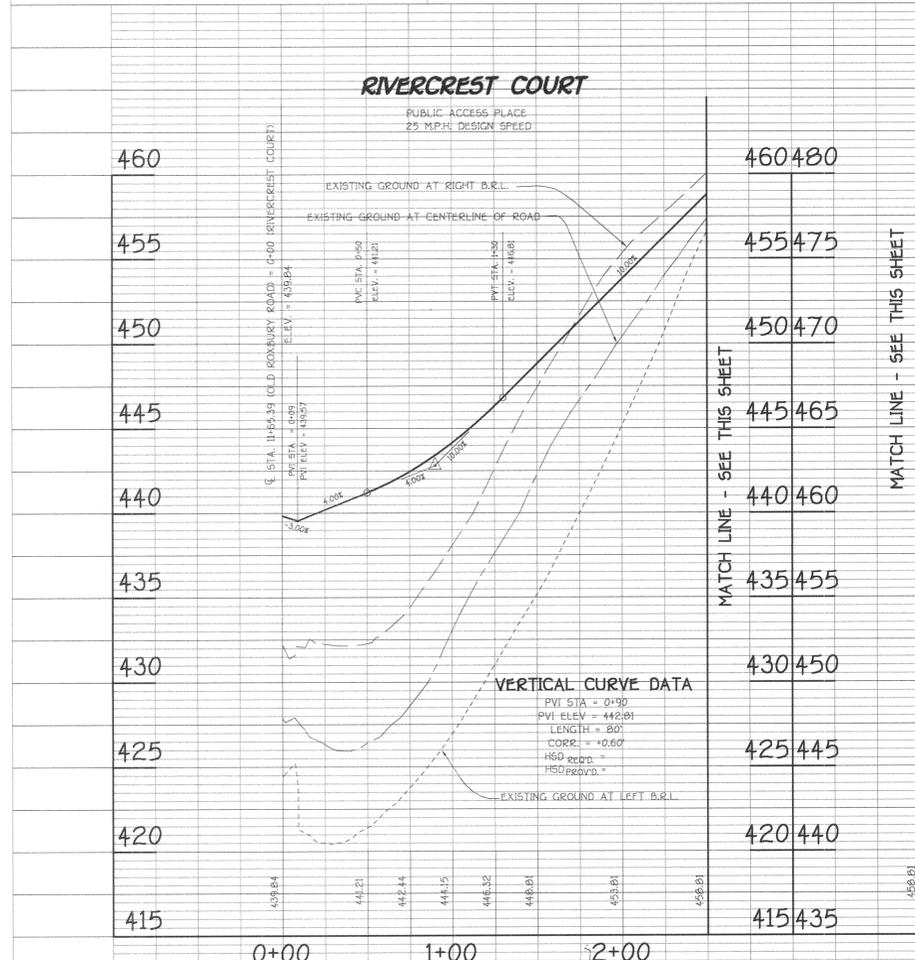
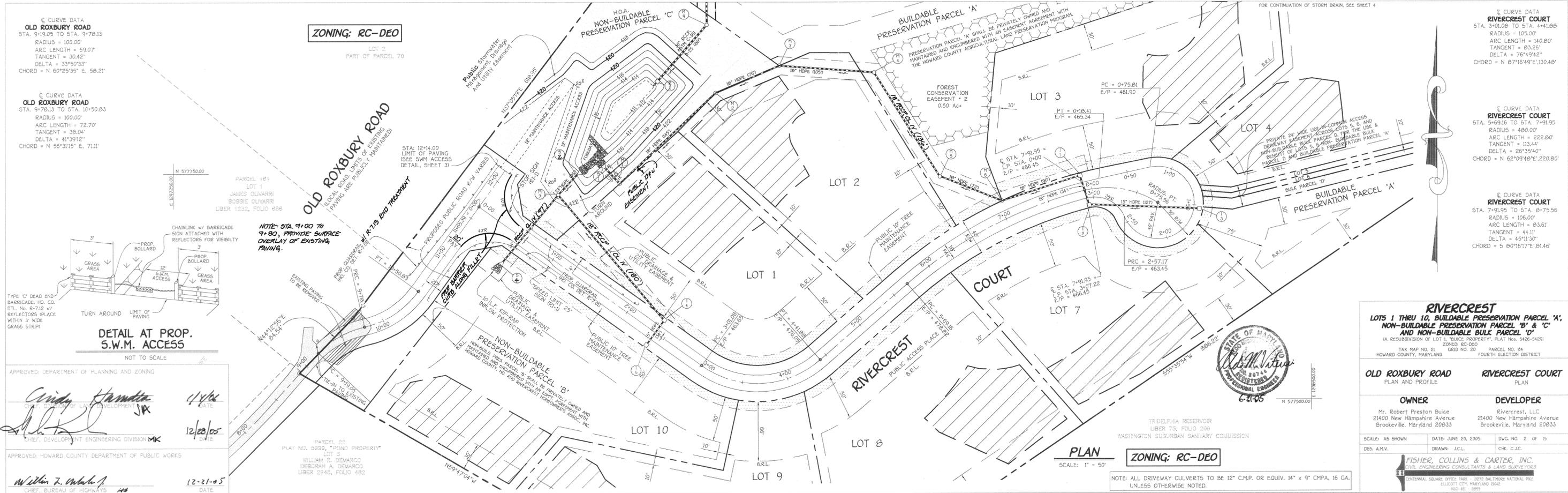


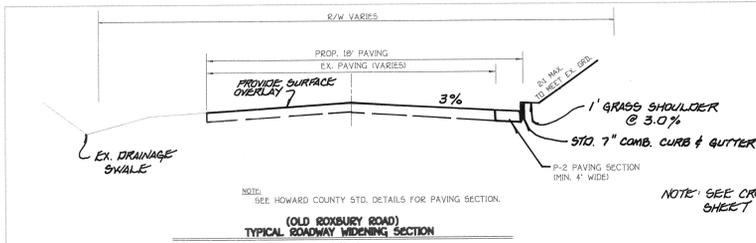
6-21-05  
 DATE

F 04-57

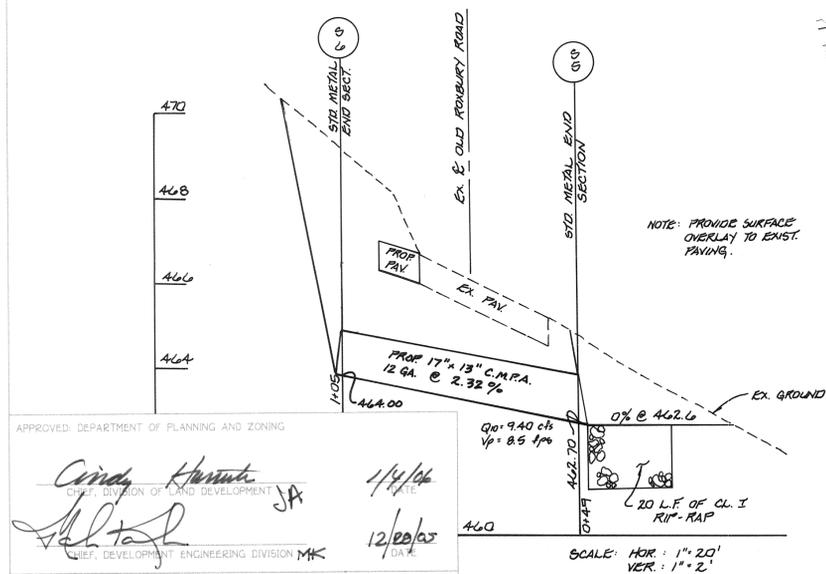
F.04.57

K:\SDS\PROJ\030636 BUICE MD 8704\W\FINAL\REVISED FINALS (RECEIVED 2004\3036 SHEET 1 TITLE SHEET) DWG 0202005 1 18 42 PM

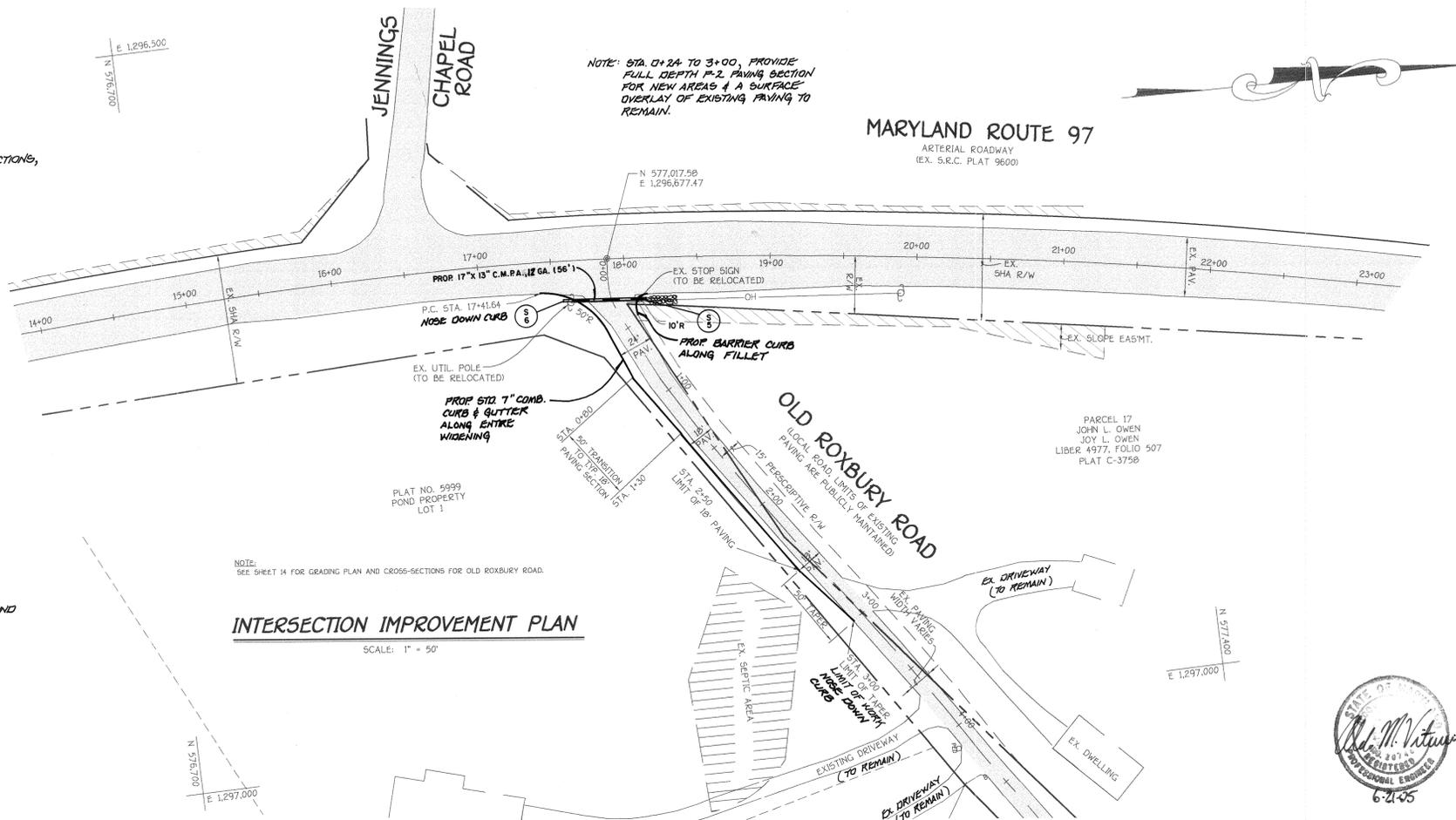




ROADWAY INFORMATION CHART					
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
OLD ROXBURY ROAD	PUBLIC ACCESS PLACE	25 MPH	RC-060	1480 TO 2150	F-2



APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cinda Harvath* 1/14/06  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*Altaf* 12/20/05  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William J. Mahan* 12-21-05  
 CHIEF, BUREAU OF HIGHWAYS



**INTERSECTION IMPROVEMENT PLAN**

SCALE: 1" = 50'



**RIVERCREST**  
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A';  
 NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C'  
 AND NON-BUILDABLE BULK PARCEL 'D'

1A RESUBDIVISION OF LOT L "BUICE PROPERTY", PLAT No. 5426-5429;  
 ZONED: RC-060  
 TAX MAP NO. 21 GRID NO. 02 PARCEL NO. 04  
 HOWARD COUNTY, MARYLAND FOURTH ELECTION DISTRICT

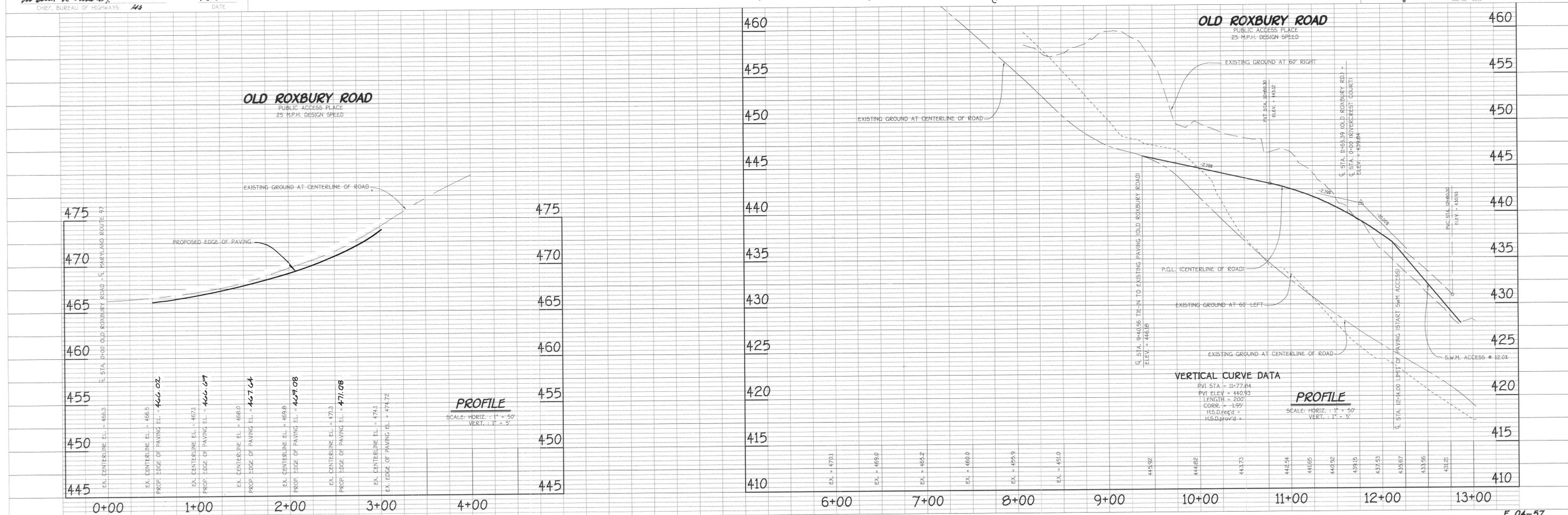
**OLD ROXBURY ROAD**  
 PLAN AND PROFILE

**OWNER** Mr. Robert Preston Buice  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

**DEVELOPER** Rivercrest, LLC  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

SCALE: AS SHOWN DATE: JUNE 20, 2005 DWG. NO. 3 OF 15  
 DES. A.M.V. DRAWN: J.C.L. CHK. C.J.C.

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENAL SQUARE OFFICE PARK 10017 BALTIMORE NATIONAL PIKE  
 ELKLOTT CITY, MARYLAND 20842  
 (301) 461-2895



STREET TREE SCHEDULE				
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	16	PLATANUS X ACERIFOLIA LONDON PLANETREE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (RIVERCREST COURT)
	44	ACER SACCHARUM GREEN MOUNTAIN GREEN MOUNTAIN SUGAR MAPLE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W (ROXBURY MILL ROAD)

FINANCIAL SURETY FOR THE 60 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$18,000.00.

**TEMPORARY SEDIMENT BASIN DATA**

INITIAL D.A. = 0.34 Ac+  
FINAL D.A. = 0.95 Ac+  
STORAGE REQUIRED  
WET = 1800 x 0.95 = 16,110 CuFt.  
DRY = 1800 x 0.95 = 16,110 CuFt.  
STORAGE PROVIDED  
WET = 17,208 CuFt. • ELEV. 416.10  
DRY = 17,594 CuFt. • ELEV. 419.50  
BOTTOM ELEV. = 411.00  
STORAGE DEPTH = 8.5'  
SIDE SLOPES = 3:1  
TOP OF EMBANKMENT = 420.75  
CLEAN OUT ELEV. = 414.35  
2 YR. CREST ELEV. = 419.50  
EXIST. = 4.5 CFS  
PROP. = 3.6 CFS  
EXIST. = 1.8 CFS  
PROP. = 2.8 CFS  
NOTE: FOR BASIN OPERATION, DO NOT GRADE IN 9' BENCH AT ELEVATION 414.0.



By the Developer:  
 I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.  
 Signature of Developer: *Robert P Buice* Date: 6/21/05  
 Printed Name of Developer: Robert P Buice  
 By the Engineer:  
 I Certify That The Pond Construction, Erosion And Sediment Control Represents A Practical And Feasible Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Informed The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion.  
 Signature of Engineer: *John M. Vitale* Date: 6-21-05  
 Printed Name of Engineer: John M. Vitale  
 These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.  
 USDA-Natural Resources Conservation Service  
 District Administrator: *Jim Maguire* Date: 6/23/05  
 These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.  
 Howard Soil Conservation District  
 Approved: Department Of Public Works  
 Chief: *William F. O'Leary* Date: 12-31-05  
 Approved: Department Of Planning And Zoning  
 Chief: *Andy Hamilton* Date: 1/4/06  
 Chief: *William F. O'Leary* Date: 12/21/05  
 Chief: Development Engineering Division: *MK*

**AS-BUILT CERTIFICATION**  
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.  
 Signature: \_\_\_\_\_ P.E. No. \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Release Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

**LEGEND**

	SUPER-SILT FENCE
	SILT FENCE
	TREE PROTECTION FENCE
	INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	EARTH DIKE
	LIMIT OF DISTURBANCE
	RIP-RAP INFLOW PROTECTION
	EROSION CONTROL MATTING
	25% OR GREATER SLOPES
	15% TO 24.99% SLOPES

- SEQUENCE OF CONSTRUCTION**
- OBTAIN A GRADING PERMIT.
  - NOTIFY MISS UTILITY AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION INSPECTION AT 410-333-3330 24 HOURS BEFORE STARTING WORK.
  - CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES ONLY. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SEDIMENT BASIN. (2 weeks)
  - INSTALL REMAINING SEDIMENT CONTROL MEASURES, EARTH DIKES, TREE PROTECTION FENCE, AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF THE PROPOSED SEDIMENT BASIN, WHERE NECESSARY, JETTING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF EACH FACILITY. (2 weeks)
  - OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEED.
  - CLEAR AND GRUB THE REMAINDER OF SITE. (2 weeks)
  - GRADE SITE TO PROPOSED SUBGRADE AND INSTALL STORM SYSTEM AND UTILITIES. STABILIZE ALL ROADWAY SLOPES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. (4 weeks)
  - INSTALL BASS COURSE FOR THE PROPOSED ROADS. (1 week)
  - STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED.
  - APPLY FACE COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 week)
  - WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES AND TEMP. SEDIMENT BASIN HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACK FILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. THIS INCLUDES THE FINAL CONSTRUCTION OF SWM FACILITY. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 weeks)
  - NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

**S.O.C. NOTES:**  
 1. 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 ALL TRAPS WHEN CLEAN OUT ELEVATIONS ARE REACHED. ALL SEDIMENTS MUST BE PLACED UPSTREAM OF AN APPROVED TRAP DEVICE. (1 week)

**STREET TREE, GRADING & SEDIMENT CONTROL PLAN**  
**RIVERCREST**  
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A',  
 NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C'  
 AND NON-BUILDABLE BULK PARCEL 'D'  
 (A. RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT NO. 5425-5429)  
 ZONED: RC-DEO  
 TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 4 OF 14

**OWNER**  
 Mr. Robert Preston Buice  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

**DEVELOPER**  
 Rivercrest, LLC  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

**PLAN**  
 SCALE: 1" = 50'

**DATE:** 6-21-05

**PROJECT:** F10457

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10277 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 410.461.7825







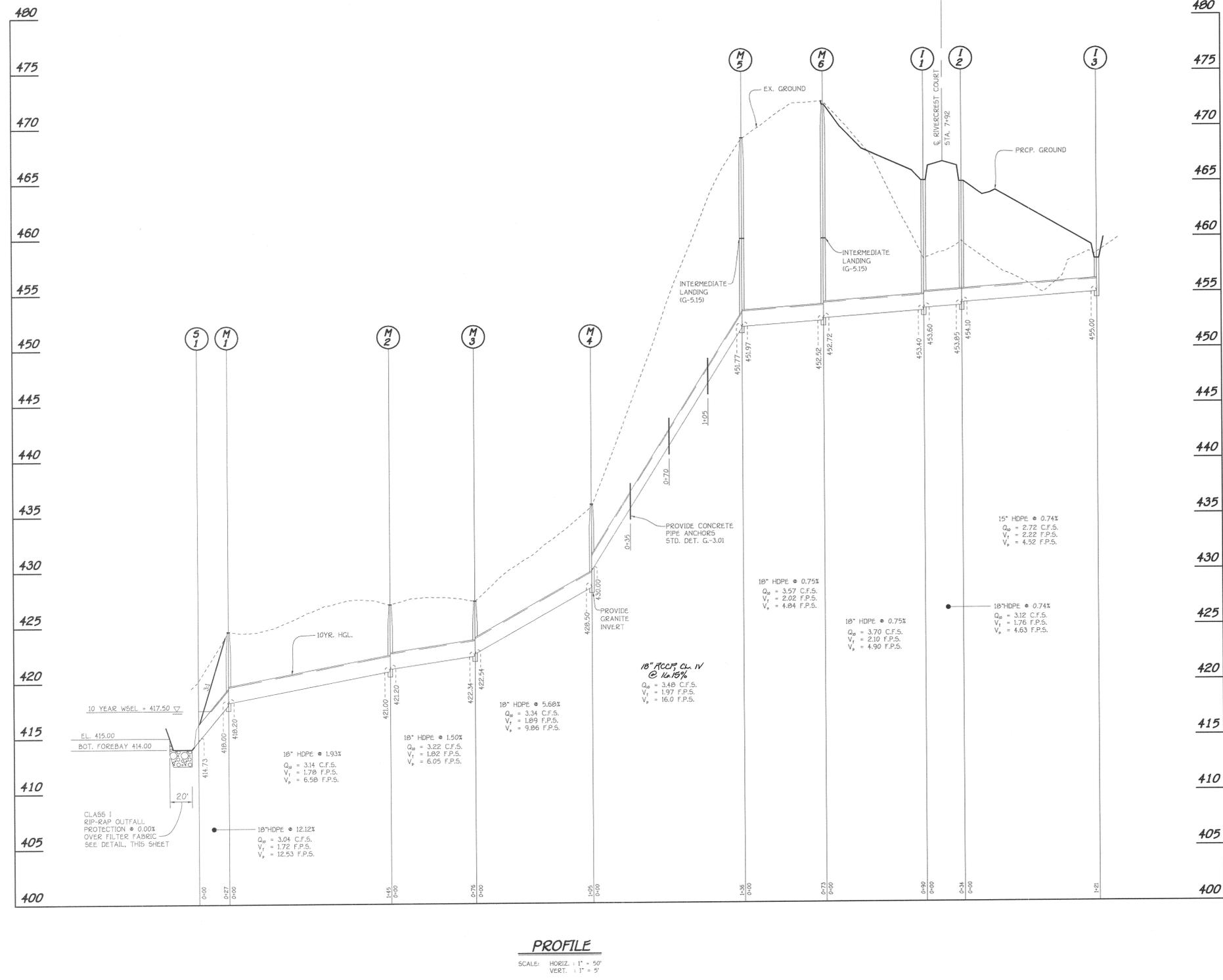


APPROVED: DEPARTMENT OF PUBLIC WORKS  
*William Z. Mahan Jr.* 12-21-05  
 CHIEF, BUREAU OF HIGHWAYS DATE

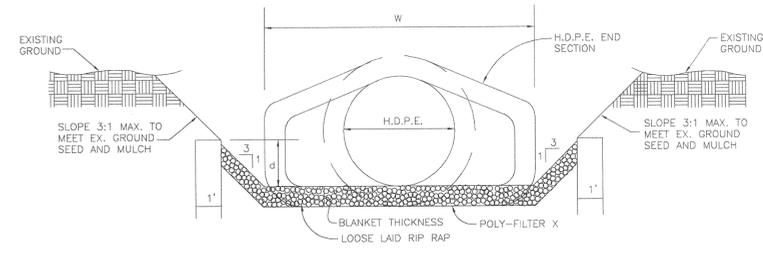
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamaker* 1/4/06  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Michael J. ...* 12/21/05  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

REVISIONS		
NO.	DESCRIPTION	DATE

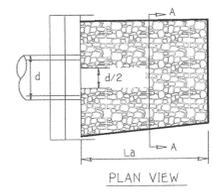


480  
475  
470  
465  
460  
455  
450  
445  
440  
435  
430  
425  
420  
415  
410  
405  
400

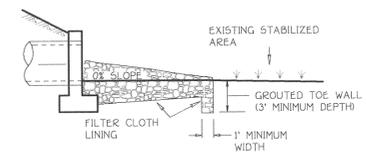


RIP RAP CHANNEL DETAIL 'A-A'  
NO SCALE

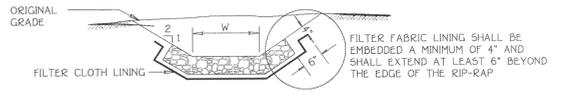
RIP-RAP CHANNEL DESIGN DATA																
STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V (F.P.S.)	Q (C.F.S.)	RP-RAP SIZE d <sub>50</sub>	d <sub>max</sub>	BLANKET THICKNESS	Q <sub>10</sub>	DIA.
S-1	2.44 S.F.	7.50'	0.3253'	0.4730	0.0050	0.0707	3.0'	0.40'	0.04	1.24	3.04	9.5"	15"	19"	3.04	18"
S-2	5.38 S.F.	9.71'	0.5541'	0.6746	0.0050	0.0707	4.0'	0.74'	0.04	1.77	9.54	9.5"	15"	19"	9.54	24"
S-3	14.84 S.F.	14.75'	1.0061'	1.0041	0.0050	0.0707	6.0'	1.54'	0.04	2.64	39.13	9.5"	15"	19"	39.13	30"



PLAN VIEW



ELEVATION



SECTION A-A

NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

ROCK OUTLET PROTECTION III  
NO SCALE

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

PROFILE

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





# STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

## Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation roots and other objectionable material shall be removed. Channel banks and shrub breaks shall be spaced to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fence, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

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

## EARTH FILL

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood rubbish, stones greater than 6" frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL, and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

## Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, the pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

## Pipe Conduits

All pipes shall be circular in cross section.

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

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

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

Materials - Aluminum Pipe - This pipe and its appearance shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

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

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

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

5. Backfilling shall conform to "Structure Backfill".

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

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

- Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.
- Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
- Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.
- Backfilling shall conform to "Structure Backfill".
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

## Plastic Pipe

The following criteria shall apply for plastic pipe:

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type 5, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type 5.
- Joints and connections to anti-seep collars shall be completely watertight.
- 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.
- Backfilling shall conform to "Structure Backfill".
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction.

## Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

## Rock Riprap

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

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

## Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary structures shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at all locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water surps from which the water shall be pumped.

## Stabilization

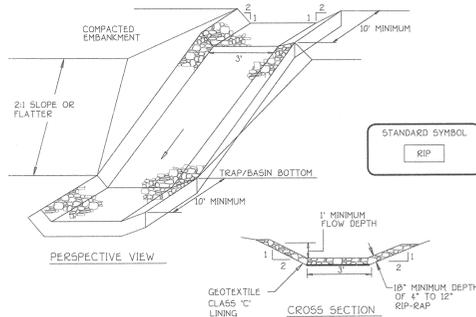
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, silt and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (WD-342) or as shown on the accompanying drawings.

## Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

## OPERATION AND MAINTENANCE

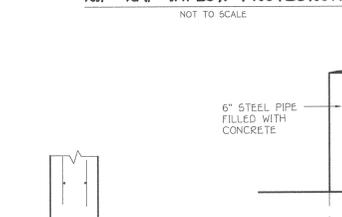
An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from their original design specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.



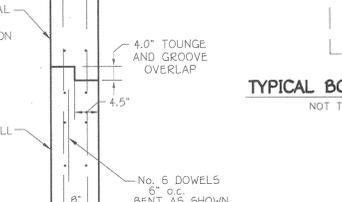
## Construction Specifications

- Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
- Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
- Entrance and exit sections shall be installed as shown on the detail section.
- Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
- Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
- Rip-rap should blend into existing ground.
- Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Sand Using Criteria.

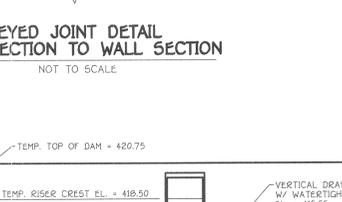
## RIP-RAP INFLOW PROTECTION



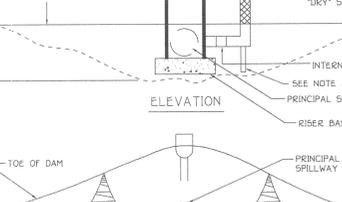
## KEYED JOINT DETAIL



## CONCRETE PIPE JOINT DETAIL



## OPERATION AND MAINTENANCE



## CONSTRUCTION SPECIFICATIONS

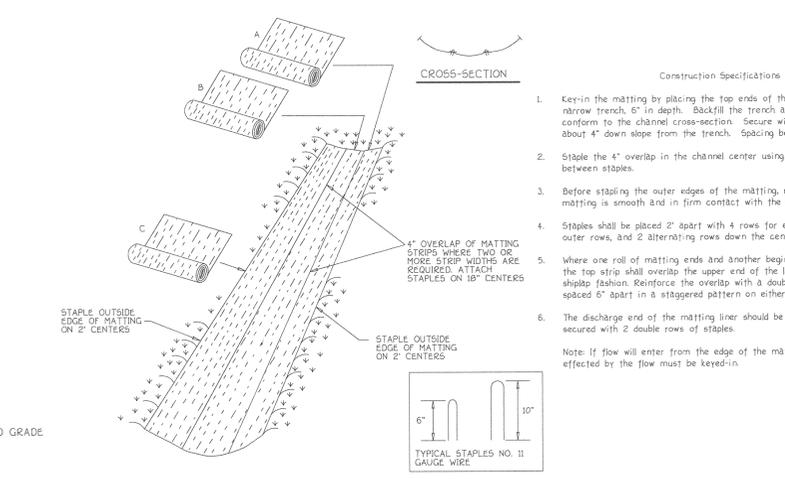
- PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
- THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
- THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
- PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR IT 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.

## VERTICAL DRAW-DOWN DEVICE



## Embankment and Cut-off Trench Construction

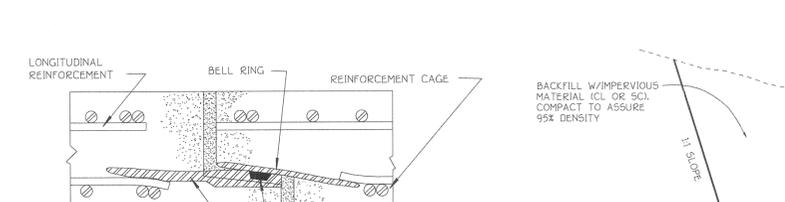
THE AREA OF THE PROPOSED SWM POND SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL. A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL. IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. BASED ON OUR VISUAL CLASSIFICATIONS IT APPEARS THAT SOME OF THE ON-SITE SOILS, ESPECIALLY THE NEAR SURFACE SOILS, WILL BE SUITABLE FOR USE AS CORE TRENCH MATERIAL. IT IS RECOMMENDED THAT ADDITIONAL EXPLORATION AND LABORATORY TESTING BE PERFORMED PRIOR TO POND CONSTRUCTION TO IDENTIFY AND QUANTIFY POTENTIAL BORROW AREAS FOR CORE TRENCH MATERIAL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED WITH MD SCS 378 SPECIFICATIONS.



## EROSION CONTROL MATTING



## CONCRETE PIPE JOINT DETAIL



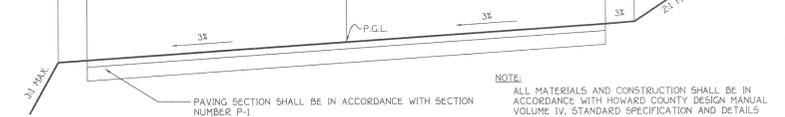
## OPERATION AND MAINTENANCE



## CONSTRUCTION SPECIFICATIONS

- PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
- THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
- THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
- PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR IT 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.

## VERTICAL DRAW-DOWN DEVICE



## ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
RIVERCREST COURT	PUBLIC ACCESS PLACE	25 MPH	RC-DEO	0+00 TO B+75.56	P-2
OLD ROXBURY ROAD	PUBLIC ACCESS PLACE	25 MPH	RC-DEO	9+19.05 TO 12+41.00	P-2

## ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
DRIVEWAY	PRIVATE DRIVEWAY	15 MPH	RC-DEO	0+00 TO 0+05	P-1

By The Developer:  
 I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature of Developer: *Robert P Buice*  
 Printed Name of Developer: Robert P Buice  
 Date: 6/21/05

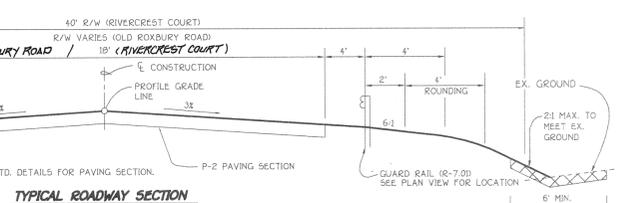
By The Engineer:  
 I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have a Professional Engineer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature of Engineer: *William Z. Mahan*  
 Printed Name of Engineer: William Z. Mahan  
 Date: 12-21-05  
 Approved: Department Of Public Works  
 Chief: Bureau Of Highways  
 Signature of Engineer: *Caroly Hamilton*  
 Printed Name of Engineer: Caroly Hamilton  
 Date: 1/4/06  
 Approved: Department Of Planning And Zoning  
 Chief: Division Of Land Development  
 Signature of Engineer: *Mike K...*  
 Printed Name of Engineer: Mike K...  
 Date: 12/20/05

AS-BUILT CERTIFICATION  
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.  
 Signature: \_\_\_\_\_ P.E. No. \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



## TYPICAL ROADWAY SECTION



## ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
RIVERCREST COURT	PUBLIC ACCESS PLACE	25 MPH	RC-DEO	0+00 TO B+75.56	P-2
OLD ROXBURY ROAD	PUBLIC ACCESS PLACE	25 MPH	RC-DEO	9+19.05 TO 12+41.00	P-2

## ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
DRIVEWAY	PRIVATE DRIVEWAY	15 MPH	RC-DEO	0+00 TO 0+05	P-1

NOTE: ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.  
 Signature of Engineer: *Rob M. V...*  
 Date: 6-21-05

STORMWATER MANAGEMENT NOTES AND DETAILS  
**RIVERCREST**  
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A',  
 NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C'  
 AND NON-BUILDABLE BULK PARCEL 'D'  
 (A SUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429)  
 ZONED RC-DEO  
 TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 10 OF 14

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

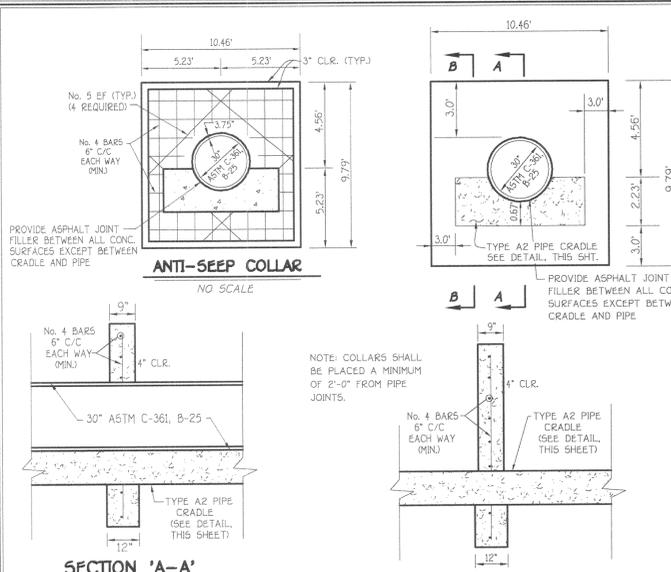
CENTENAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 MD 46 - 3925

OWNER

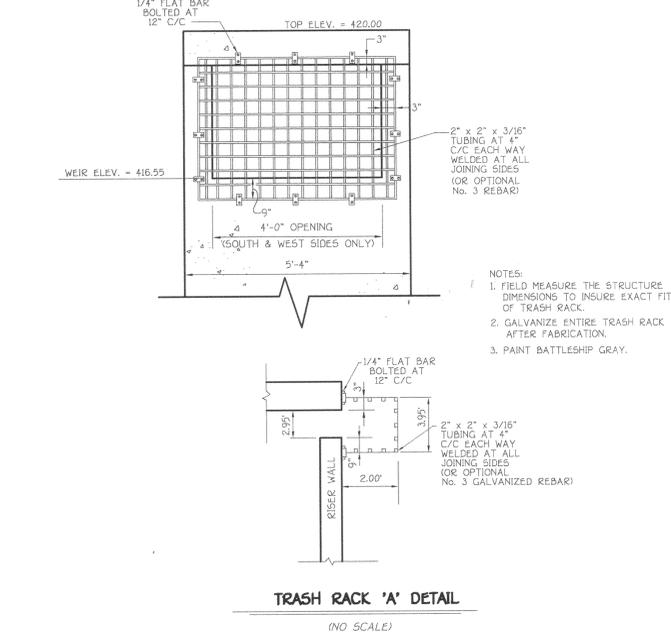
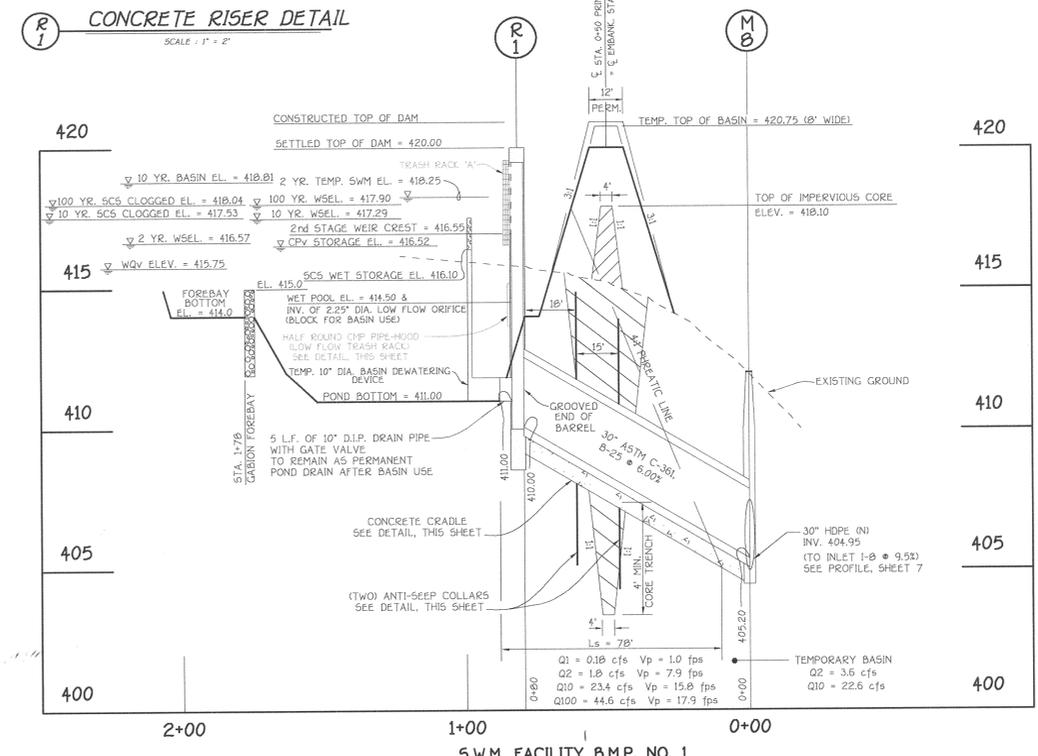
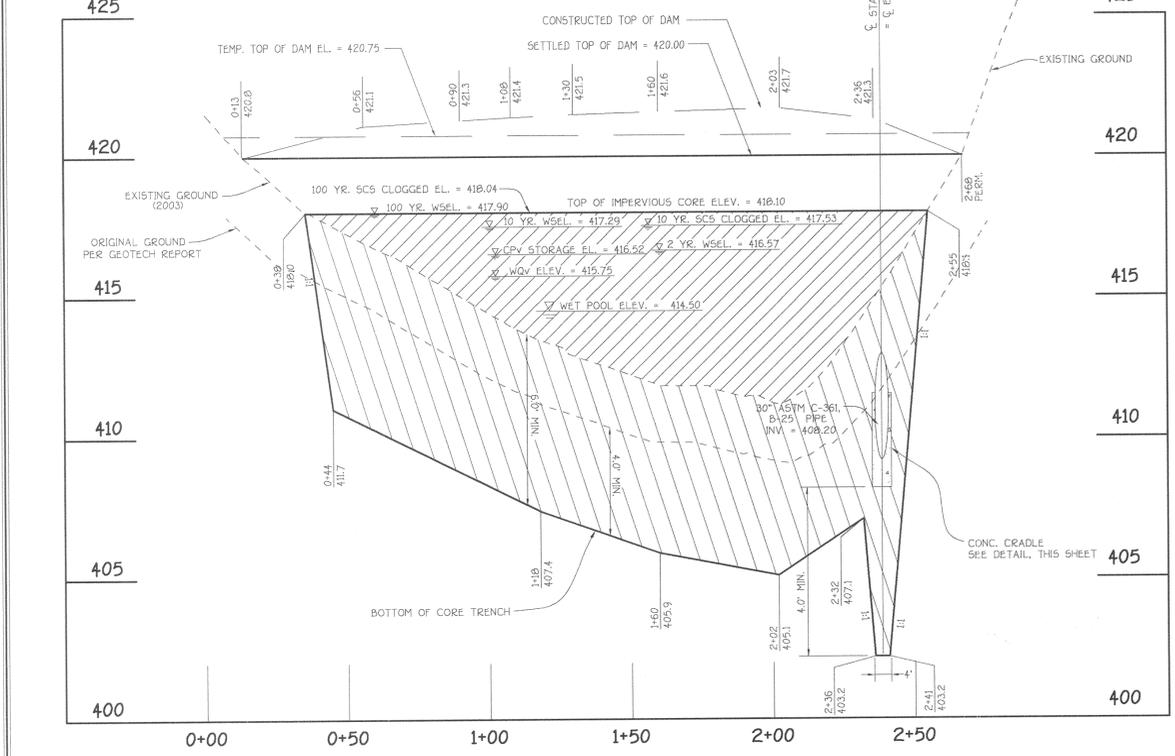
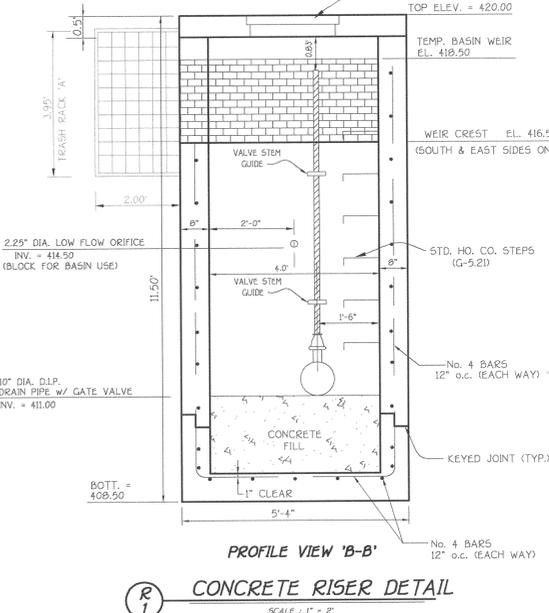
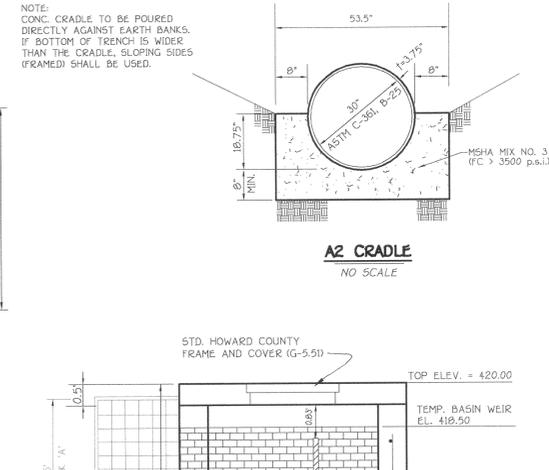
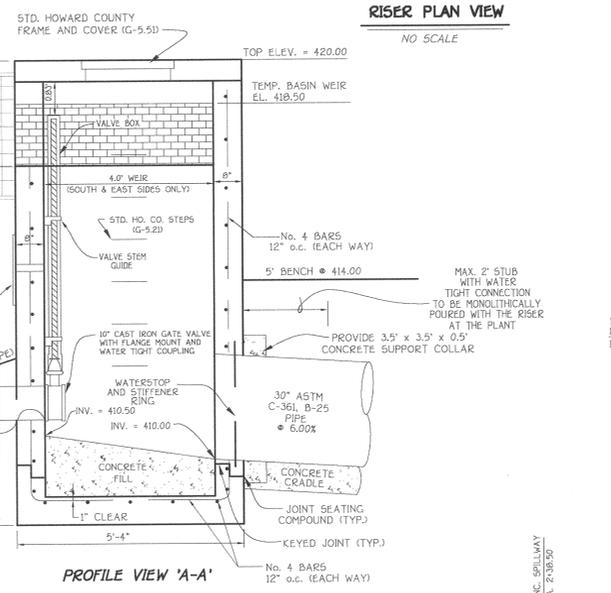
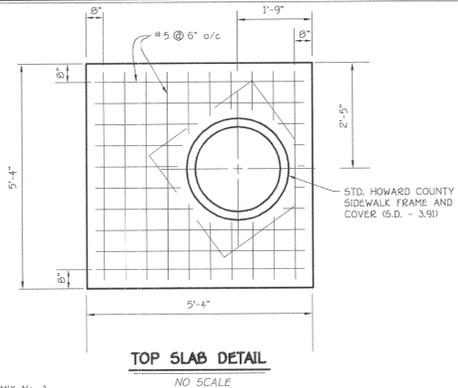
Mr. Robert Preston Buice  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

DEVELOPER

Rivercrest, LLC  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833



- NOTES:
- CONCRETE SHALL BE MSHA MIX NO. 3 (FC > 3500 P.S.I.)
  - REINFORCING STEEL: GRADE 60
  - FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOFIELD CO. T-9055 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
  - PROVIDE ROUGH BROOM FINISH.
  - ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
  - ALL REINFORCING SPICES SHALL BE LAP SPICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWN.



**STORMWATER MANAGEMENT FACILITY NO. 1**  
**PROFILES AND DETAILS**  
**RIVERCREST**  
LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A',  
NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C',  
AND NON-BUILDABLE BULK PARCEL 'D'

(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429)  
ZONED: RC-DEO  
TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84  
FOURTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: JUNE 29, 2005  
SHEET 11 OF 14

By the Developer:  
"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer: *Robert P Buice* Date: *6/21/05*  
Printed Name Of Developer: **Robert P Buice**

By the Engineer:  
"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Feasible Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have No Doubt The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."

Signature: *Robert P Buice* Date: *6-21-05*  
Printed Name: **Robert P Buice**

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service Date: *6/21/05*

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Howard Soil Conservation District Date: *6/21/05*

Approved: Department Of Public Works Date: *12-21-05*  
Signature: *William Z. ...*  
Chief, Bureau Of Highways

Approved: Department Of Planning And Zoning Date: *1/4/06*  
Signature: *Cynthia ...*  
Chief, Division Of Land Development

Signature: *Fahk ...* Date: *12/21/05*  
Chief, Development Engineering Division

AS-BUILT CERTIFICATION

I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: \_\_\_\_\_ P.E. No. \_\_\_\_\_  
Date: \_\_\_\_\_

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Believe Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



Approved: Department Of Public Works  
 Chief: Bureau Of Highways *Walter J. ...* Date: 12-21-05  
 Approved: Department Of Planning And Zoning  
 Chief: Division Of Land Development *Candy ...* Date: 1/4/06  
 Chief: Development Engineering Division *...* Date: 12/20/05

**ON-SITE SIGNAGE**

**FOREST CONSERVATION EASEMENT**

UNAUTHORIZED DISTURBANCE OF VEGETATION IS PROHIBITED. VIOLATORS SUBJECT TO PENALTIES UNDER THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1991.

TREES FOR YOUR FUTURE

15" MINIMUM  
11" MINIMUM

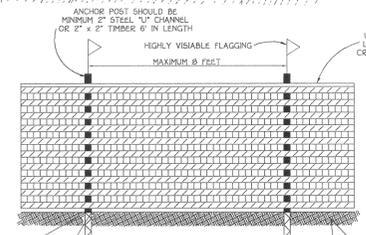
**FOREST CONSERVATION NOTES**

- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
- Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
- Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
- There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
- No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
- Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
- Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.
- All FCA calculations shown to the nearest 0.1 acre as per the FCA requirements.
- Planting plans, signage, fencing and details for Forest Conservation Easement reforestation areas will be provided on the Forest Conservation Plan.
- The forest conservation obligation is based on the memo interpretation of appendix 'L' dated May 9, 2003 allowing inclusion of wooded floodplain in net tract area for credited retention of forest in which the Preservation Parcel Easement is held by the ALLFP.

study for retention = \$105,415 (12.1 acres @ \$70.20/s.f.)

**FOREST CONSERVATION WORKSHEET**

NET TRACT AREA:	
A. TOTAL TRACT AREA	51.10
B. DEDUCTIONS (area of non-wooded floodplain)	13.24
C. NET TRACT AREA (net tract area - total area (A) - deductions (B))	37.86
LAND USE CATEGORY: Medium Density Residential	
D. AFFORESTATION THRESHOLD (net tract area (C) x 20%)	7.57
E. FOREST CONSERVATION THRESHOLD (net tract area (C) x 25%)	9.47
EXISTING FOREST COVER:	
F. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	22.64
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	13.17
BREAK EVEN POINT:	
H. BREAK EVEN (amount of forest that must be retained so that no mitigation is required)	12.10
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION	10.54
PROPOSED FOREST CLEARING:	
J. TOTAL AREA OF FOREST TO BE CLEARED	10.53
K. TOTAL AREA OF FOREST TO BE RETAINED (AREA 'I' AND 'J')	12.10
PLANTING REQUIREMENTS:	
L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	0.00
M. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	2.00
N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	0.00
O. TOTAL REFORESTATION REQUIRED	0.00
P. TOTAL AFFORESTATION REQUIRED	0.00
Q. TOTAL PLANTING REQUIRED	0.00



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

**FOREST CONSERVATION PLAN**  
**RIVERCREST**  
 LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D'

(A RESUBDIVISION OF LOT 1, BUICE PROPERTY, PLAT NOS. 5426-5429)

ZONED: RC-DEO  
 TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 04  
 FOURTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 12 OF 14

NOTE: THIS PLAN IS FOR FOREST CONSERVATION INFORMATION ONLY.

**OWNER**  
 Mr. Robert Preston Buice  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

**DEVELOPER**  
 Rivercrest, LLC  
 21400 New Hampshire Avenue  
 Brookeville, Maryland 20833

MD DNR Qualified Professional  
 USACOE Wetland Delineator  
 Certification # WDCP93MD06100448

*John R. Canoles*  
 JOHN R. CANOLES

Eco-Science Professionals, Inc.  
 CONSULTING ECOLOGISTS

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

621-05



