

SHEET	DESCRIPTION
1	COVER SHEET
2	GRADING PLAN
3	GRADING PLAN
4	SEDIMENT & EROSION CONTROL PLAN-PHASE 1
5	SEDIMENT & EROSION CONTROL PLAN-PHASE 1
6	SEDIMENT & EROSION CONTROL FINAL GRADING
7	SEDIMENT & EROSION CONTROL FINAL GRADING
8	SEDIMENT & EROSION CONTROL NOTES
9	SEDIMENT & EROSION CONTROL DETAILS
10	SEDIMENT & EROSION CONTROL DETAILS
11	STORMDRAIN DRAINAGE AREA MAP & PROFILE
12	STORMWATER MANAGEMENT NOTES AND DETAILS
13	STORMWATER MANAGEMENT NOTES AND DETAILS
14	STORMWATER MANAGEMENT NOTES AND DETAILS
15	LANDSCAPE PLAN
16	SWM FACILITY LANDSCAPE PLAN

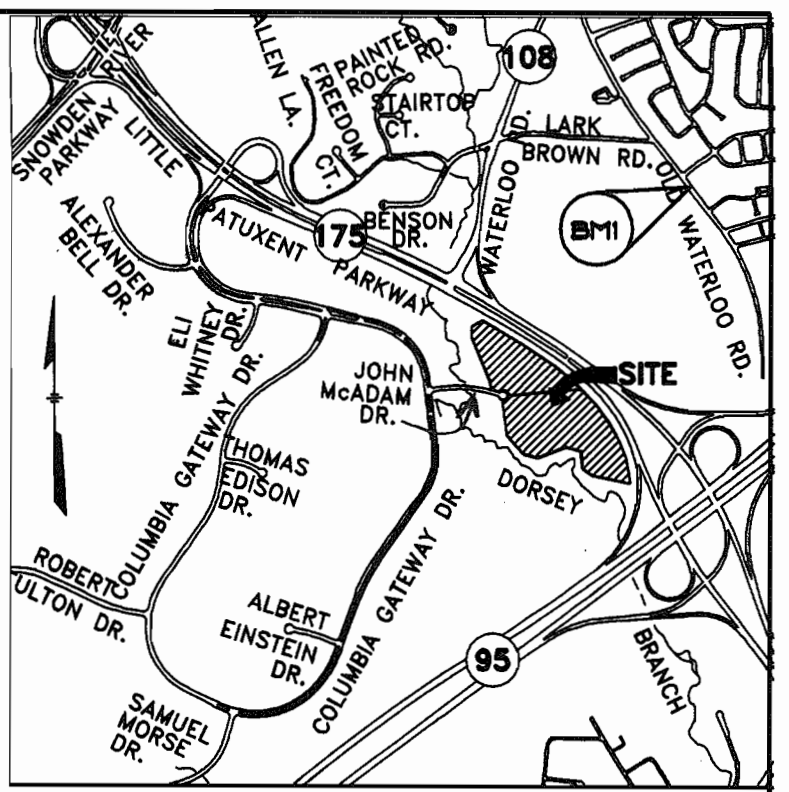
# SITE DEVELOPMENT PLAN

for

## COLUMBIA GATEWAY

### PARCELS T-17 & T-8 & T-16

**TAX MAP 43, GRID 2, P/O PARCEL 671, PLAT Nos. 14265-14267 & 17110-17111**  
**6TH ELECTION DISTRICT HOWARD COUNTY, MD**



VICINITY MAP  
SCALE: 1"=2000'

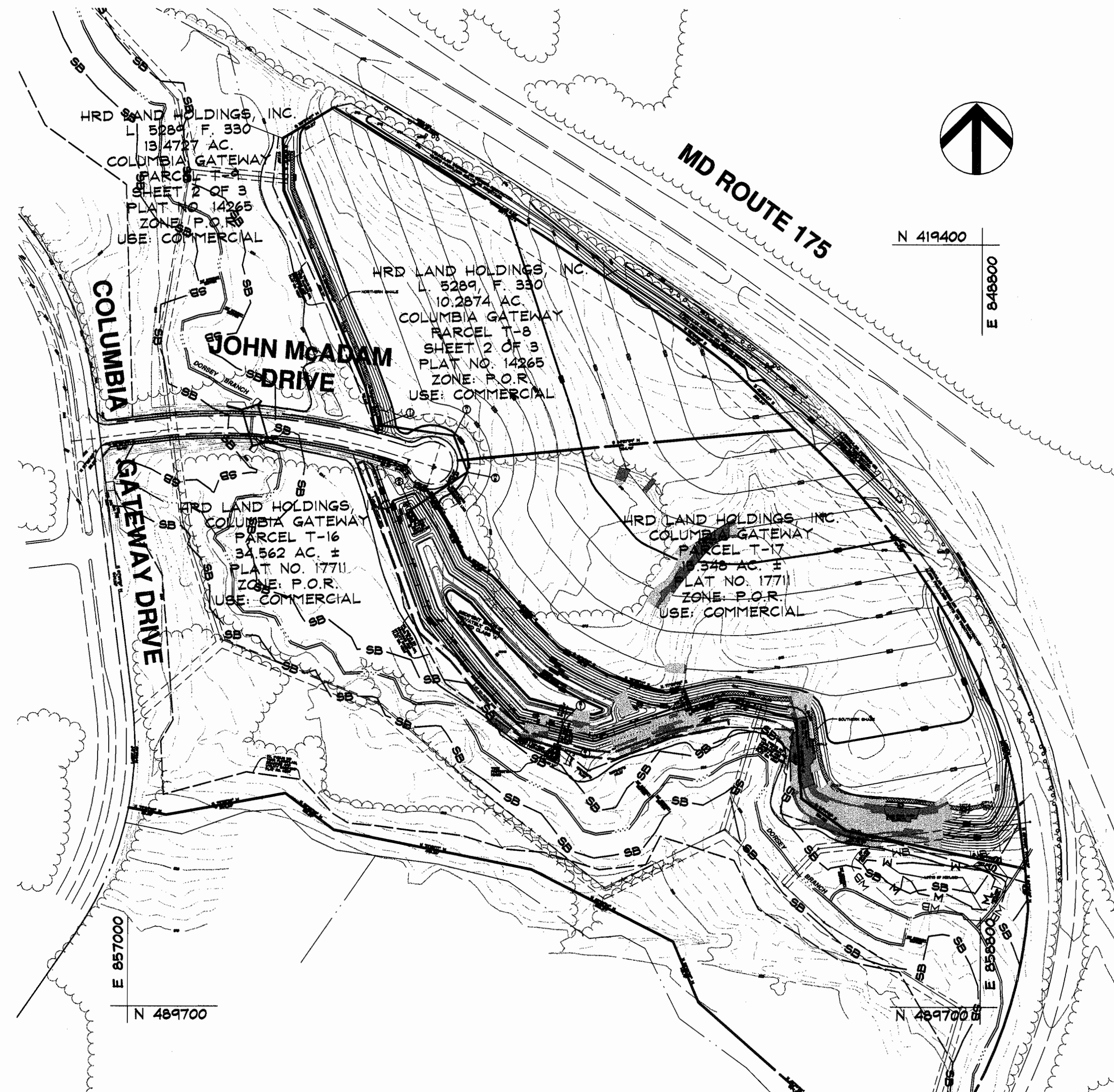
#### BENCHMARK

#### DESCRIPTION

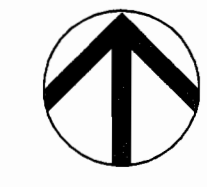
N. 95587.3595  
E. 137502.7577  
B.M. #1, HO. CO. BENCHMARK 37GMB  
ELEV. 289.663

#### 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 five (5) working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- The existing topography is taken from aerial survey with two foot contour intervals prepared by Maps, Inc. This topography is supplemented by a field run survey prepared by DeMario Design Consultants, Inc., dated February 2005.
- The coordinates shown hereon are based upon the Howard County Geodetic Control which is based up on the Maryland State Plane Coordinate System. Howard County Monument No. 37GMB was used for this project.
- Water service is not required for this mass grading plan.
- Temporary stormwater management has been provided for this mass grading plan through the use of a sediment basin. Permanent stormwater management will be provided under a future site development plan for the pad sites of Parcels T-17 & T-8.
- All existing water and sewer per contracts 20-1264, 24-3748-D and 24-4209-D.
- The 100-year floodplain study for this project was prepared by Wallace, Montgomery & Associates dated October 1998, and was approved under F-99-91 on July 1999.
- The wetlands delineation study for this project was prepared by R. Pais and Associates dated July 1998, and was approved under F-99-91 on July 1999. A supplemental wetlands certification was performed by Bray Hill, LLC, dated August 2005.
- This project is exempt from the forest conservation requirements, per Section 16.1202(b) of the Howard County Code. Parcels T-17, T-16 & T-8 are part of a planned business park greater than 75 acres in size with a preliminary plan approved prior to December 31, 1992. 16.1202(c)(1)(v)
- This project complied with the APFO roads test on March 19, 1999, under F-99-91.
- The subject property is zoned P.O.R per the 02/02/04 comprehensive zoning plan.
- No clearing, grading or construction is permitted within the required wetlands, stream or their buffers and the floodplain easement.
- Coordinates based on NAD 27 Maryland Coordinate System.
- Project background information: See Department of Planning and Zoning file numbers: VP-84-150, VP-85-34, VP-85-35, S-84-44, S-85-28, F-85-63, F-86-22, VP-86-61, VP-86-73, VP-86-119, F-86-127, F-86-182, F-87-125, F-87-163, WP-88-47, WP-99-70, F-99-91 and F-06-016.
- Geotechnical study has been prepared by The Robert B. Balter Company and is dated on or about February 9, 2005.
- There are no known cemeteries, historic structures or scenic roads on or adjacent to this property.
- This plan has been prepared in accordance with Section 16.124 of the Howard County Code. It is important to note that landscape perimeter obligations adjacent to Maryland Route 175 will be deferred and satisfied as part of the Site Development Plans for pad sites on Parcels T-17 & T-8. These pad sites will seek alternative compliance with the "Guidelines for Commercial-Industrial Development" prepared by The Howard Research & Development Corporation for Columbia, Maryland.
- Landscape surety in the amount of \$10,050.00 has been posted as a part of Developer's Agreement.
- The metes and bounds and elevations of the existing public 100-year floodplain, drainage and utility easement are described on previously recorded plat nos. 14267 and 17711.
- Roadside Tree Permit-Individual (RTI) No. 2006-0197 has been granted to perform tree removal along eastbound Maryland Route 175.



OVERALL PLAN  
SCALE: 1"=200'



N 419400  
E 848800

E 857000  
N 489700

N 489700

#### DRAWING LEGEND

662	EXISTING MINOR CONTOUR (2' INTERVAL)
660	EXISTING MAJOR CONTOUR (10' INTERVAL)
---	ADJACENT PROPERTY LINE
---	EXISTING PROPERTY BOUNDARY
---	EX. ROAD / EDGE OF PAVING
---	EX. BENCH LINE & MANHOLES, CLEAN-OUTS
---	EX. OVERHEAD ELECTRIC & UTILITY POLES
662	PROPOSED MINOR CONTOUR (2' INTERVAL)
660	PROPOSED MAJOR CONTOUR (10' INTERVAL)
---	EX. BUILDING
---	PROPOSED BUILDING EXPANSION
---	PROPOSED SPOT ELEVATION & FLOW ARROW
---	EXISTING TREELINE
---	LIMIT OF DISTURBANCE
SF	PROPOSED SILT FENCE
SSF	PROPOSED SUPER SILT FENCE
---	PROPOSED EARTH DIKE
---	15.00% - 24.99% SLOPES
---	25.00% AND GREATER SLOPES
---	EROSION CONTROL MATTING

ADDRESS CHART	
LOT/PARCEL #	STREET ADDRESS
T-17	8200 JOHN McADAM DRIVE
T-8	8201 JOHN McADAM DRIVE

### DeMario Design Consultants, Inc.

The Old Firehouse Phone: (410) 386-0560  
66 East Main Street, Suite 200 Fax: (410) 386-0564  
Westminster, MD 21157 eMail: ddc@demariodesigns.com

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORP.  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MD 21044-3456  
410-992-6284  
SITE ADDRESS:  
8200 & 8201 JOHN McADAM DRIVE  
COLUMBIA, MD 21046

COLUMBIA GATEWAY  
PARCELS T-17 & T-8 & T-16

#### COVER SHEET

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
Chief, Bureau of Highways	Date
	N.A.
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
Chief, Development Engineering Division	Date
	3/7/06
Chief, Division of Land Development	Date
	3/7/06
Director	Date
	3/6/06

#### SITE ANALYSIS DATA CHART

- Total Project Area: 60.20 Acres  
Total Area Parcel T-8: 10.29 Acres  
Total Area Parcel T-16: 34.56 Acres  
Total Area Parcel T-17: 15.35 Acres
- Area of Plan Submission: 60.20 Acres
- Limit of Disturbed Area: 32.08 Acres
- Present Zoning Designation: P.O.R
- Proposed Uses for Site and Structures: Future Commercial
- Applicable DPZ File References: F-99-91 & F-06-016

OPTION 2: EXEMPT	FOREST CONSERVATION DATA SUMMARY
FILE NUMBER: SDP-05-111	PROJECT/SUBDIVISION NAME: COLUMBIA GATEWAY PARCELS T-7 & T-8
REGULATION SECTION: SECTION 16.1202(b) OF THE HOWARD COUNTY CODE	16.1202(b)(1)(v)
PARCELS T-7 & T-8 ARE PART OF A PLANNED BUSINESS PARK GREATER THAN 75 ACRES IN SIZE WITH A PRELIMINARY PLAN APPROVED PRIOR TO DECEMBER 31, 1992.	

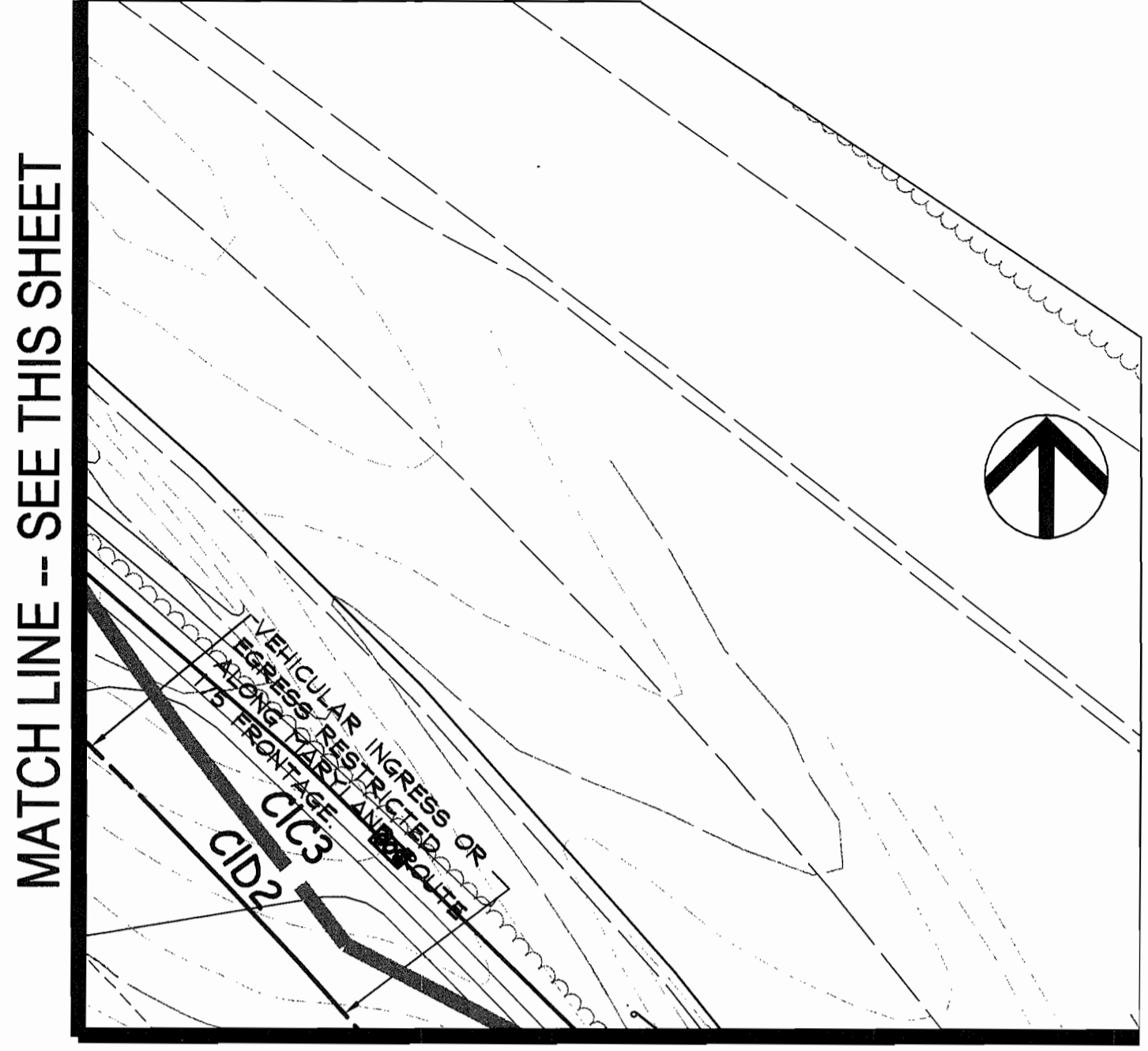
PERMIT INFORMATION CHART			
SUBDIVISION NAME: COLUMBIA GATEWAY	SECTION/AREA: N/A	LOT/PARCEL NO.:	PAR. T-8, T-16, T-17
PLAT # OR L.F. GRID#: 14265-7, 17710-1	ZONING: P.O.R	TAX MAP NO.:	43
WATER CODE: N/A	SEWER CODE: N/A	ELECT. DISTRICT:	6TH
		CENSUS TRACT:	6067, 03

2/8/06  
DATE

JEFFREY M. ZIELINSKI, P.E. No. 29935

6TH ELECTION DISTRICT HOWARD COUNTY, MD				
REVISIONS				
NO.	DESCRIPTION OF CHANGES	DRN	REV.	DATE
	TAX ACC. # 563066/563104		DES. BY: JMZ	
	ZONE / USE: P.O.R.		DRN. BY: JMZ	
	DWG. SCALE: AS SHOWN		CHK. BY:	
	DATE: 02/14/06			
	DDC JOB#: 04139.1			





**DRAWING LEGEND**

	EXISTING MINOR CONTOUR (2' INTERVAL)
	EXISTING MAJOR CONTOUR (10' INTERVAL)
	ADJACENT PROPERTY LINE
	EXISTING PROPERTY BOUNDARY
	EX. ROAD / EDGE OF PAVING
	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
	EX. OVERHEAD ELECTRIC & UTILITY POLES
	PROPOSED MINOR CONTOUR (2' INTERVAL)
	PROPOSED MAJOR CONTOUR (10' INTERVAL)
	EX. BUILDING
	PROPOSED BUILDING EXPANSION
	PROPOSED SPOT ELEVATION & FLOW ARROW
	EXISTING TREELINE
	LIMIT OF DISTURBANCE
	PROPOSED SILT FENCE
	PROPOSED SUPER SILT FENCE
	PROPOSED EARTH DIKE
	15.00% - 24.99% SLOPES
	25.00% AND GREATER SLOPES
	EROSION CONTROL MATTING

HRD LAND HOLDINGS, INC.  
 L. 5289, F. 330  
 10.2874 AC.  
 COLUMBIA GATEWAY  
 PARCEL T-8  
 SHEET 2 OF 3  
 PLAT NO. 14265  
 ZONE: P.O.R.  
 USE: COMMERCIAL

HRD LAND HOLDINGS, INC.  
 L. 5289, F. 330  
 3.4721 AC.  
 COLUMBIA GATEWAY  
 PARCEL T-9  
 SHEET 2 OF 3  
 PLAT NO. 14265  
 ZONE: P.O.R.  
 USE: COMMERCIAL

**DeMario Design Consultants, Inc.**  
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 66 East Main Street, Suite 200 Fax: (410) 388-0564  
 Westminster, MD 21157 eMail: ddc@demariodesignus

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD 21044-3456  
 410-982-6284  
 SITE ADDRESS:  
 8200 & 8201 JOHN MCADAM DRIVE  
 COLUMBIA, MD 21046

**COLUMBIA GATEWAY  
 PARCELS T-17 & T-8 & T-16  
 GRADING PLAN**

T1 43 BLK 2  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Michael M. K...* 2/7/06  
 Chief, Development Engineering Division  
*Cindy Hamilton* 2/7/06  
 Chief, Division of Land Development  
*Mark A. W...* 2/2/06  
 Director

2/8/06  
 DATE  
  
 JEFFREY M. ZIELINSKI, P.E. No. 29935

SCALE: 1" = 50'

MATCH LINE -- SEE SHEET 3

MATCH LINE -- SEE THIS SHEET

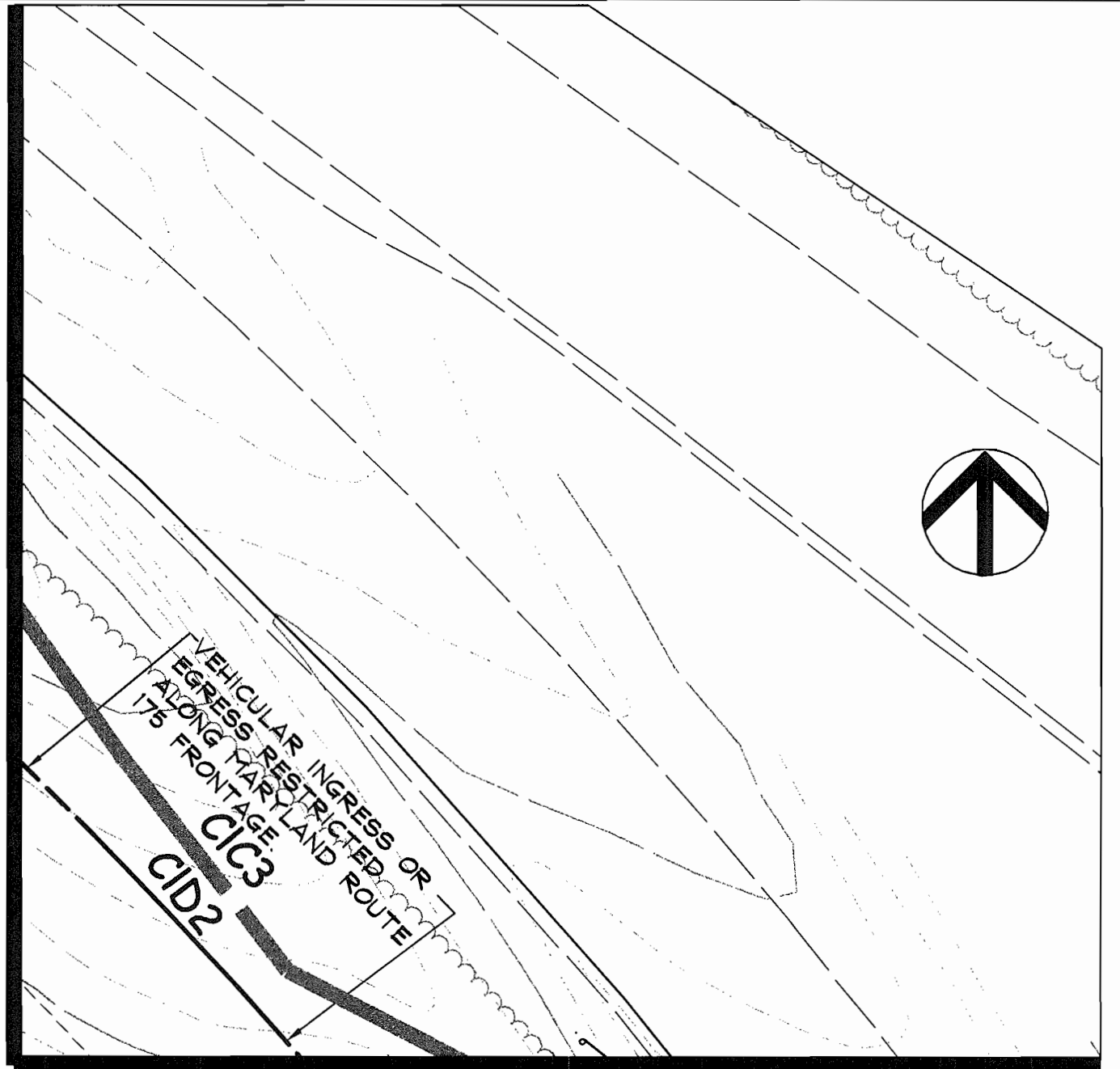
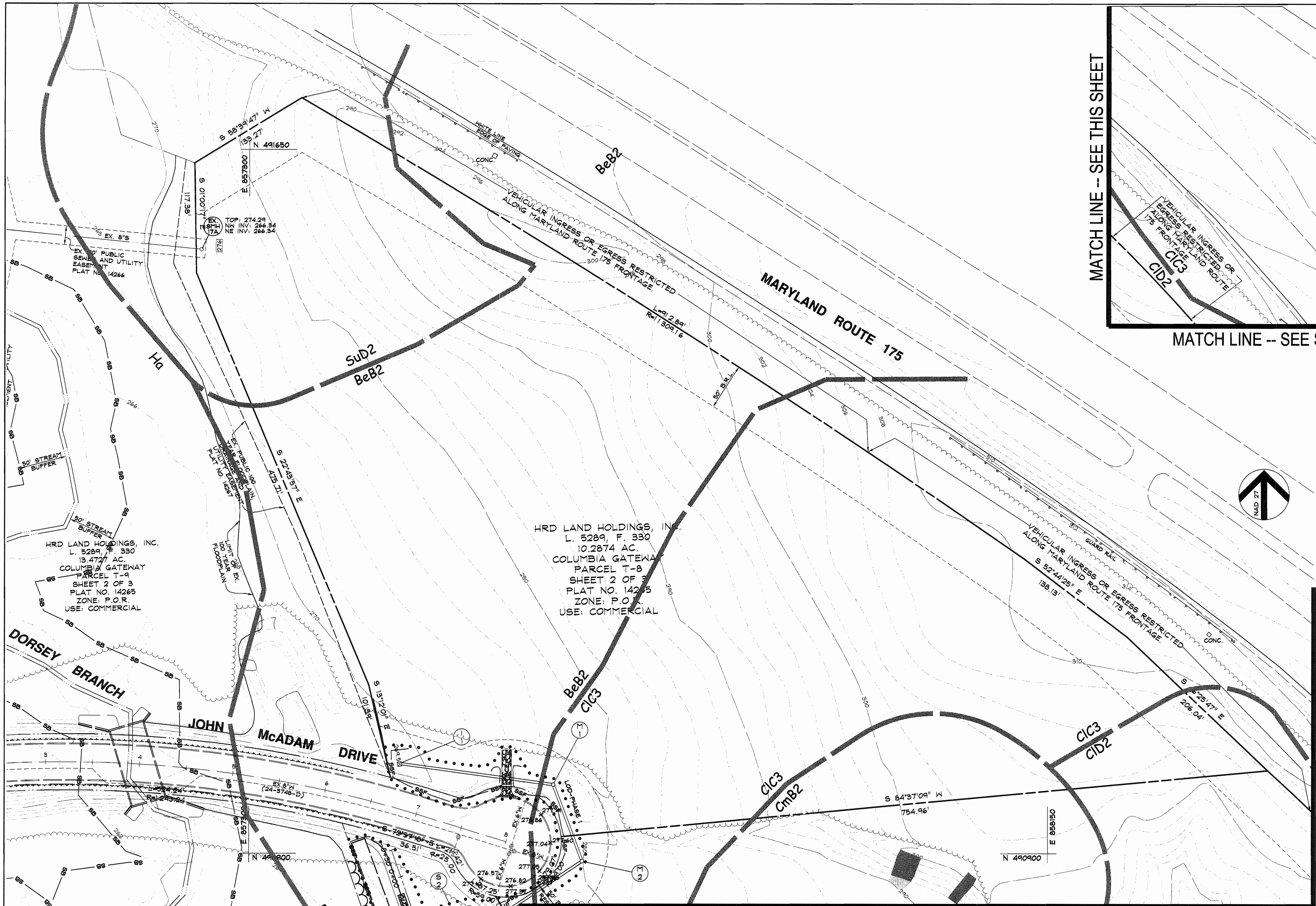
MATCH LINE -- SEE THIS SHEET

MATCH LINE -- SEE SHEET 3









**DRAWING LEGEND**

---	EXISTING MINOR CONTOUR (2' INTERVAL)
---	EXISTING MAJOR CONTOUR (10' INTERVAL)
---	ADJACENT PROPERTY LINE
---	EXISTING PROPERTY BOUNDARY
---	EX. ROAD / EDGE OF PAVING
---	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
---	EX. OVERHEAD ELECTRIC & UTILITY POLES
---	PROPOSED MINOR CONTOUR (2' INTERVAL)
---	PROPOSED MAJOR CONTOUR (10' INTERVAL)
---	EX. BUILDING
---	PROPOSED BUILDING EXPANSION
---	PROPOSED SPOT ELEVATION & FLOW ARROW
---	EXISTING TREELINE
---	LIMIT OF DISTURBANCE
---	PROPOSED SILT FENCE
---	PROPOSED SUPER SILT FENCE
---	PROPOSED EARTH DIKE
---	15.00% - 24.99% SLOPES
---	25.00% AND GREATER SLOPES
---	EROSION CONTROL MATTING

HRD LAND HOLDINGS, INC.  
 L. 5289, F. 330  
 10.2874 AC.  
 COLUMBIA GATEWAY  
 PARCEL T-8  
 SHEET 2 OF 3  
 PLAT NO. 14265  
 ZONE: P.O.R.  
 USE: COMMERCIAL

HRD LAND HOLDINGS, INC.  
 L. 5289, F. 330  
 13.4771 AC.  
 COLUMBIA GATEWAY  
 PARCEL T-9  
 SHEET 2 OF 3  
 PLAT NO. 14265  
 ZONE: P.O.R.  
 USE: COMMERCIAL

MATCH LINE -- SEE THIS SHEET

SCALE: 1" = 50'

MATCH LINE -- SEE SHEET 5

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

*[Signature]* Date: 3/7/06  
 Chief, Development Engineering Division

*[Signature]* Date: 3/7/06  
 Chief, Division of Land Development

*[Signature]* Date: 3/14/06  
 Director

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.

*[Signature]* Date: 2/23/06  
 USDA Natural Resource Conservation Service

These plans for small pond construction, soil erosion and sediment control meet the requirements of the HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* Date: 2/23/06  
 Howard Soil Conservation District

**DEVELOPER'S CERTIFICATE**

"I 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]* Date: 2/18/06  
 Signature of Developer (print name below signature)  
 JEFFREY M. ZIELINSKI, P.E.

**ENGINEER'S CERTIFICATE**

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

*[Signature]* Date: 2/8/06  
 Signature of Engineer (print name below signature)  
 JEFFREY M. ZIELINSKI, P.E.

2/8/06  
 DATE

*[Signature]*  
 JEFFREY M. ZIELINSKI, P.E. No. 29935

**DeMario Design Consultants, Inc.**  
 The Old Firehouse Phone: (410) 386-0560  
 66 East Main Street, Suite 200 Fax: (410) 386-0564  
 Westminster, MD 21157 eMail: ddc@demariodesign.us

**OWNER / DEVELOPER:**  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD 21044-3456  
 410-992-6284

**SITE ADDRESS:**  
 8200 & 8201 JOHN MCADAM DRIVE  
 COLUMBIA, MD 21046

**COLUMBIA GATEWAY  
 PARCELS T-17 & T-8 & T-16  
 SEDIMENT & EROSION  
 CONTROL PLAN  
 PHASE 1**

T.M. 4-3 BLK 2  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
TAX ACC. #:	563066/563104	DES. BY:	JMZ	
ZONE / USE:	P.O.R.	DRN. BY:	JMZ	
DWG. SCALE:	AS SHOWN	CHK. BY:	JMZ	
DATE:	02/14/06			
DDC JOB#:	04139.1			



DRAWING LEGEND

- 652 --- EXISTING MINOR CONTOUR (2' INTERVAL)
- 650 --- EXISTING MAJOR CONTOUR (10' INTERVAL)
- --- ADJACENT PROPERTY LINE
- --- EXISTING PROPERTY BOUNDARY
- --- EX. ROAD / EDGE OF PAVING
- --- EX. SEWER LINE & MANHOLES, CLEAN-OUTS
- --- EX. OVERHEAD ELECTRIC & UTILITY POLES
- --- PROPOSED MINOR CONTOUR (2' INTERVAL)
- --- PROPOSED MAJOR CONTOUR (10' INTERVAL)
- --- EX. BUILDING
- --- PROPOSED BUILDING EXPANSION
- --- PROPOSED SPOT ELEVATION & FLOW ARROW
- --- EXISTING TIE LINE
- --- LIMIT OF DISTURBANCE
- --- PROPOSED SILT FENCE
- --- PROPOSED SUPER SILT FENCE
- --- PROPOSED EARTH DIKE
- --- 15.00% - 24.99% SLOPES
- --- 25.00% AND GREATER SLOPES
- --- EROSION CONTROL MATTING

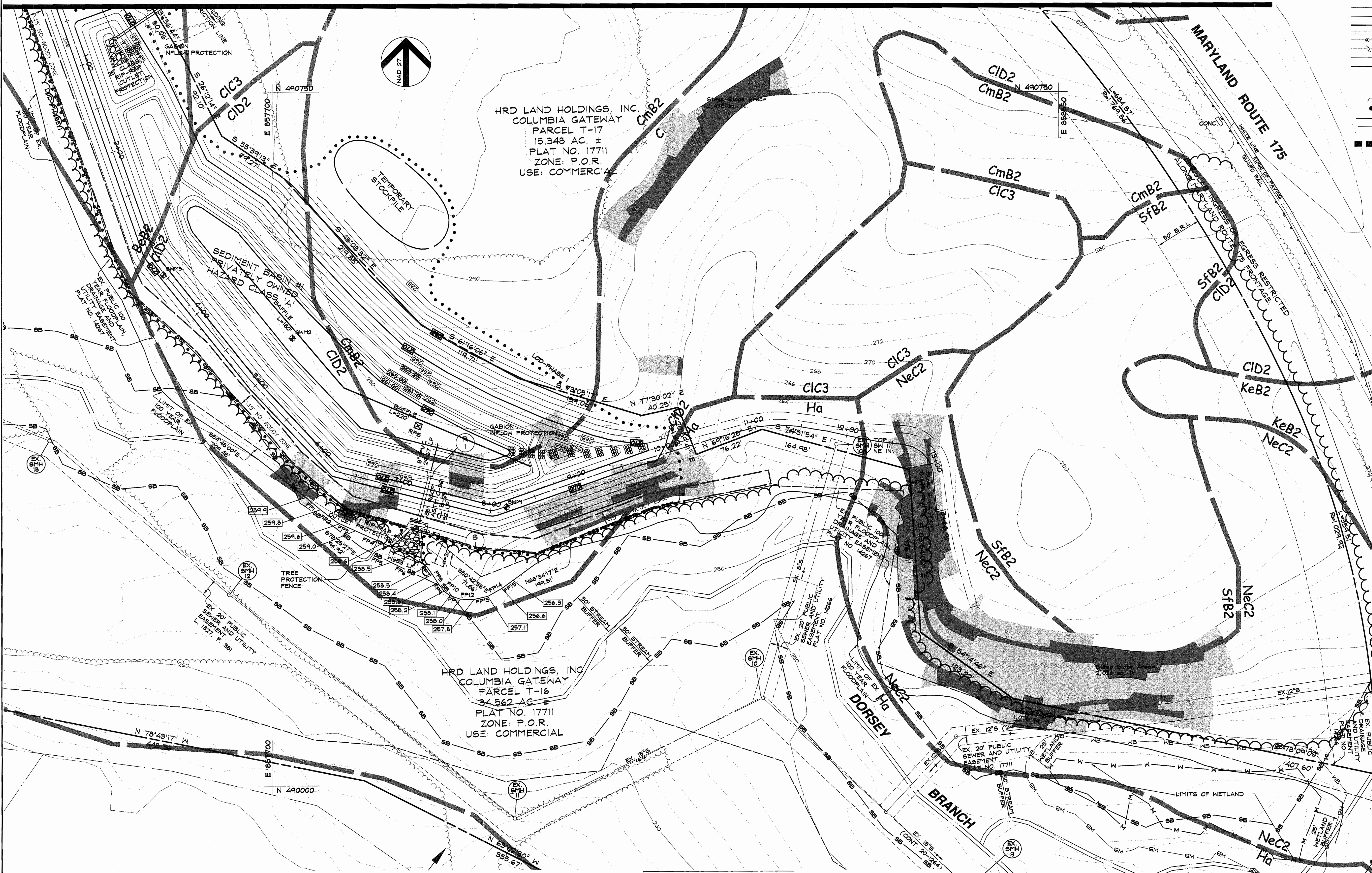
BASIN TABLE	
BASIN NUMBER	1
EXISTING DRAINAGE AREA (ACRES)	6.97
INTERIM DRAINAGE AREA (ACRES)	28.46
PROPOSED DRAINAGE AREA (ACRES)	28.46
STORAGE REQUIRED (CUBIC FEET)	
WET	51,264
DRY	51,264
TOTAL	102,528
STORAGE PROVIDED (CUBIC FEET)	
WET	52,467
DRY	182,888
TOTAL	235,355
EXISTING GROUND ELEVATION	265.00
TOP EMBANKMENT ELEVATION	270.00
EMERGENCY SPILLWAY CREST ELEVATION	N/A
RISER CREST ELEVATION	264.00
WET STORAGE ELEVATION	262.25
CLEANOUT ELEVATION	261.30
BOTTOM ELEVATION	260.00
G2 EXISTING (CFB)	1.5
G INTO BASIN (CFB)	93.8
G OUT BARREL (CFB)	1.4
G OUT EMERGENCY SPILLWAY (CFB)	N/A
BASIN DEPTH	
WET	2.25
DRY	3.75
TOTAL	6.00
DESIGN HIGHWATER	268.0
FREEBORD PROVIDED	2.00
BARREL DIAMETER	36"
RISER DIAMETER	6.33' X 6.33'
EMERGENCY SPILLWAY WIDTH	N/A
WET STORAGE ZONE ELEVATION	260.00-262.25
DRY STORAGE ZONE ELEVATION	262.25-264.00
BOTTOM DIMENSIONS	SEE PLAN
S.E.C. CONTROL PLATE ORIFICE SIZE (IN)	5.25

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COLUMBIA GATEWAY  
 PARCELS T-17 & T-8 & T-16  
**SEDIMENT & EROSION  
 CONTROL PLAN  
 PHASE 1**  
 T.M.43 BLK. 2  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
	TAX ACC. #: 563066/563104	DES. BY:	JMZ	
	ZONE / USE: P.O.R.	DRN. BY:	JMZ	
	DWG. SCALE: AS SHOWN	CHK. BY:	JMZ	
	DATE: 02/14/06			
	DDC JOB#: 04139.1			



SCALE: 1" = 50'

LINE	DISTANCE	BEARING	FPP9	FPP10	FPP11	FPP12	FPP13	FPP14	FPP15
FP1	20.53'	S41°18'07"E	11.93'	S96°13'04"E					
FP2	22.95'	S2°13'35"E	8.29'	S82°34'35"E					
FP3	21.44'	S65°22'31"E	11.95'	S71°34'28"E					
FP4	32.31'	S65°50'42"E	14.74'	S88°31'55"E					
FP5	32.63'	S64°38'04"E	15.13'	N77°00'44"E					
FP6	21.07'	S57°27'31"E	17.25'	N61°12'04"E					
FP7	10.81'	S36°24'03"E	15.15'	N54°18'47"E					
FP8	10.64'	S92°01'10"E							

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 2/7/06  
 Chief, Development Engineering Division  
 [Signature] 2/7/06  
 Chief, Division of Land Development  
 [Signature] 2/7/06  
 Director

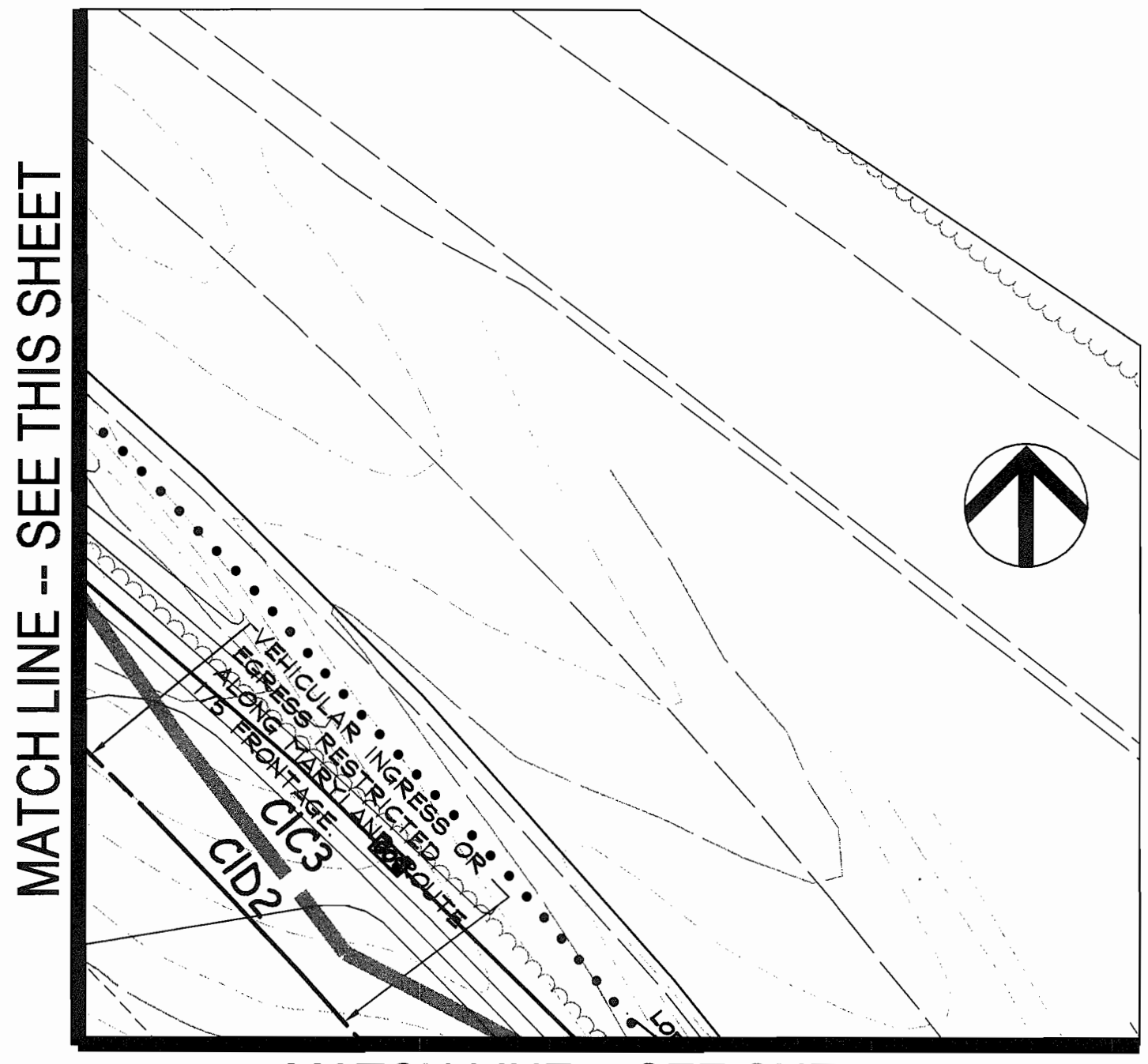
These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.  
 [Signature] 2/23/06  
 USA - Natural Resources Conservation Service  
 These plans for small pond construction, soil erosion and sediment control meet the requirements of the HOWARD SOIL CONSERVATION DISTRICT.  
 [Signature] 2/23/06  
 Howard Soil Conservation District

DEVELOPER'S CERTIFICATE  
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 [Signature] 2/8/06  
 Signature of Developer (print name below signature)  
 Date

ENGINEER'S CERTIFICATE  
 "I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."  
 [Signature] 2/8/06  
 Signature of Engineer (print name below signature)  
 Date  
 JEFFREY M. ZIELINSKI, P.E.

2/8/06  
 DATE  
 [Seal of State of Maryland Professional Engineer]  
 JEFFREY M. ZIELINSKI, P.E. No. 29935





**DRAWING LEGEND**

	EXISTING MINOR CONTOUR (2' INTERVAL)
	EXISTING MAJOR CONTOUR (10' INTERVAL)
	ADJACENT PROPERTY LINE
	EXISTING PROPERTY BOUNDARY
	EX. ROAD / EDGE OF PAVING
	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
	EX. OVERHEAD ELECTRIC & UTILITY POLES
	PROPOSED MINOR CONTOUR (2' INTERVAL)
	PROPOSED MAJOR CONTOUR (10' INTERVAL)
	EX. BUILDING
	PROPOSED BUILDING EXPANSION
	PROPOSED SPOT ELEVATION & FLOW ARROW
	EXISTING TREE LINE
	LIMIT OF DISTURBANCE
	PROPOSED SILT FENCE
	PROPOSED SUPER SILT FENCE
	PROPOSED EARTH DIKE
	15.00% - 24.99% SLOPES
	25.00% AND GREATER SLOPES
	EROSION CONTROL MATTING

HRD LAND HOLDINGS, INC.  
 L. 5289, F. 330  
 10,2874 AC.  
 COLUMBIA GATEWAY  
 PARCEL T-8  
 SHEET 2 OF 3  
 PLAT NO. 14265  
 ZONE: P.O.R.  
 USE: COMMERCIAL

HRD LAND HOLDINGS, INC.  
 L. 5289, F. 330  
 13,4727 AC.  
 COLUMBIA GATEWAY  
 PARCEL T-9  
 SHEET 2 OF 3  
 PLAT NO. 14265  
 ZONE: P.O.R.  
 USE: COMMERCIAL

SCALE: 1"=50'

MATCH LINE -- SEE SHEET 7

**APPROVED:**

	DEPARTMENT OF PLANNING AND ZONING	Date: 3/7/06
	Chief, Division of Land Development	Date: 3/2/06
	Director	Date: 3/2/06

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: 2/23/06
	Howard Soil Conservation District	Date: 2/23/06

**DEVELOPER'S CERTIFICATE**

"I 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 (print name below signature)	Date: 2/8/06
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**ENGINEER'S CERTIFICATE**

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

	Signature of Engineer (print name below signature)	Date: 2/8/06
--	--	--------------

JEFFREY M. ZIELINSKI, P.E.

2/8/06  
DATE

JEFFREY M. ZIELINSKI, P.E. No. 29935

**DeMario Design Consultants, Inc.**  
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 66 East Main Street, Suite 200  
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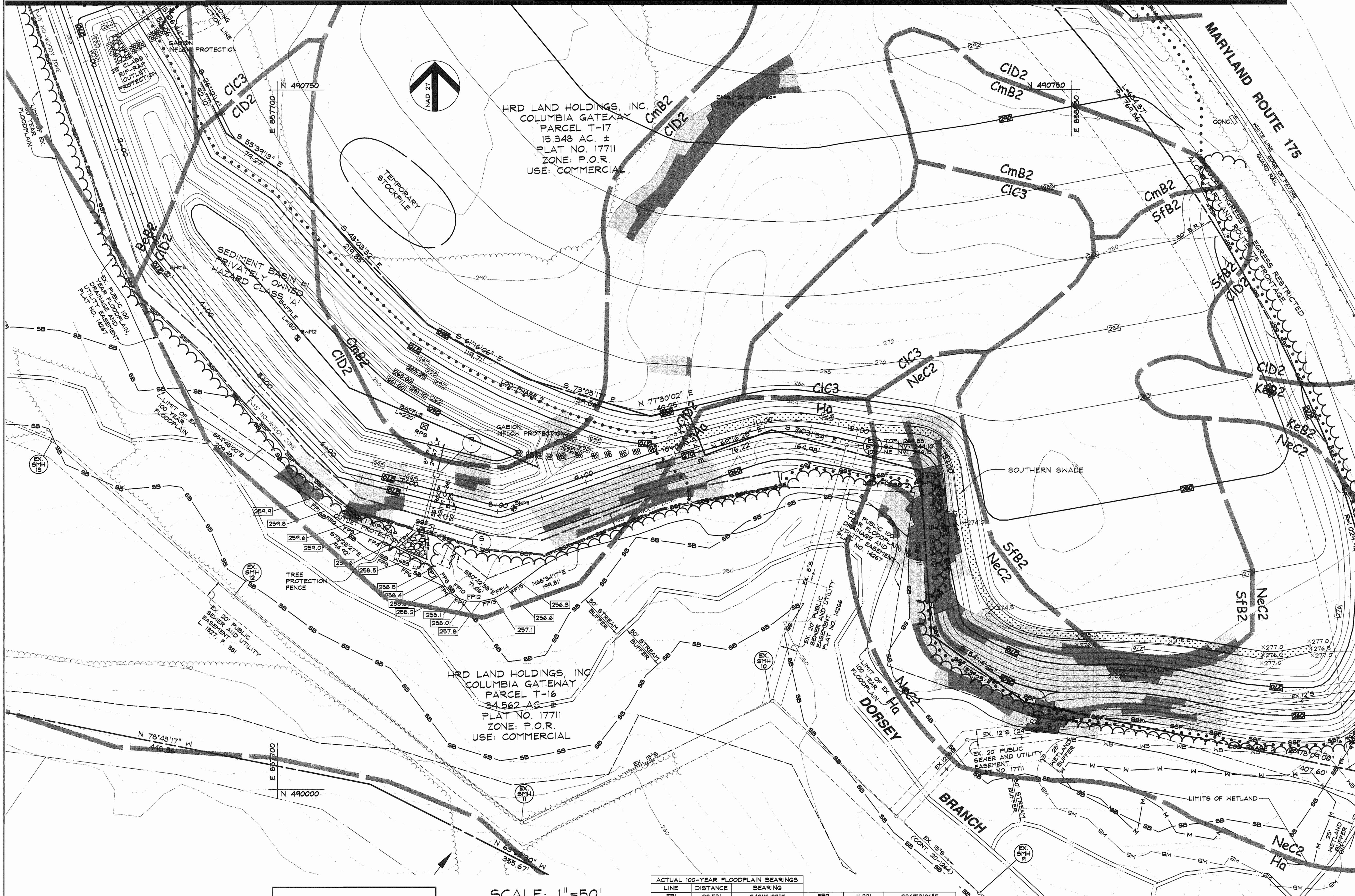
OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD 21044-3456  
 410-992-0284  
 SITE ADDRESS:  
 8200 & 8201 JOHN MCADAM DRIVE  
 COLUMBIA, MD 21046

COLUMBIA GATEWAY  
 PARCELS T-17 & T-8 & T-16  
**SEDIMENT & EROSION  
 CONTROL PLAN  
 PHASE 2**  
 TM 43 BLK 2  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
TAX ACC. #:	563066/563104	DES. BY:	JMZ	
ZONE / USE:	P.O.R.	DRN. BY:	JMZ	
DWG. SCALE:	AS SHOWN	CHK. BY:	JMZ	
DATE:	02/14/06			
DDC JOB#:	04139.1			

**6 of 16**





**DRAWING LEGEND**

- EXISTING MINOR CONTOUR (2' INTERVAL)
- EXISTING MAJOR CONTOUR (10' INTERVAL)
- ADJACENT PROPERTY LINE
- EXISTING PROPERTY BOUNDARY
- EX. ROAD / EDGE OF PAVING
- EX. SEWER LINE & MANHOLES, CLEAN-OUTS
- EX. OVERHEAD ELECTRIC & UTILITY POLES
- PROPOSED MINOR CONTOUR (2' INTERVAL)
- PROPOSED MAJOR CONTOUR (10' INTERVAL)
- EX. BUILDING
- PROPOSED BUILDING EXPANSION
- PROPOSED SPOT ELEVATION & FLOW ARROW
- EXISTING TREELINE
- LIMIT OF DISTURBANCE
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED EARTH DIKE
- 15.00% - 24.99% SLOPES
- 25.00% AND GREATER SLOPES
- EROSION CONTROL MATTING

**BASIN TABLE**

BASIN NUMBER	T	
EXISTING DRAINAGE AREA (ACRES)	6.97	
INTERIM DRAINAGE AREA (ACRES)	20.56	
PROPOSED DRAINAGE AREA (ACRES)	20.56	
STORAGE REQUIRED (CUBIC FEET)	WET	18,504
	DRY	18,504
	TOTAL	37,008
STORAGE PROVIDED (CUBIC FEET)	WET	35,082
	DRY	126,273
	TOTAL	164,355
EXISTING GROUND ELEVATION	265.00	
TOP EMBANKMENT ELEVATION	270.00	
EMERGENCY SPILLWAY CREST ELEVATION	N/A	
RISER CREST ELEVATION	264.75	
WET STORAGE ELEVATION	261.75	
CLEANOUT ELEVATION	261.05	
BOTTOM ELEVATION	260.00	
G2 EXISTING (CFS)	1.4	
G INTO BASIN (CFS)	64.8	
G OUT BARREL (CFS)	1.3	
G OUT EMERGENCY SPILLWAY (CFS)	N/A	
BASIN DEPTH	WET	1.75
	DRY	3.00
	TOTAL	4.75
DESIGN HIGHWATER	265.0	
FREEBOARD PROVIDED	2.00	
BARREL DIAMETER	36"	
RISER DIAMETER	6.33' X 6.33'	
EMERGENCY SPILLWAY WIDTH	N/A	
WET STORAGE ZONE ELEVATION	260.00-261.75	
DRY STORAGE ZONE ELEVATION	261.75-264.75	
BOTTOM DIMENSIONS	SEE PLAN	
S.E.C. CONTROL PLATE ORIFICE SIZE (IN)	5.5	

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**ACTUAL 100-YEAR FLOODPLAIN BEARINGS**

LINE	DISTANCE	BEARING	FP9	FP10	FP11	FP12	FP13	FP14	FP15	FP16
FP1	20.53'	S44°18'07"E	11.33'	S36°53'06"E						
FP2	22.95'	S52°36'35"E	8.09'	S52°36'35"E						
FP3	21.49'	S68°22'31"E	11.95'	S71°34'28"E						
FP4	32.31'	S69°30'42"E	14.74'	S69°31'55"E						
FP5	32.43'	S64°28'04"E	19.19'	N77°02'44"E						
FP6	21.07'	S57°27'51"E	17.25'	N61°12'09"E						
FP7	10.81'	S36°21'03"E	15.15'	N54°10'47"E						
FP8	10.64'	S32°01'10"E								

SCALE: 1" = 50'

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director

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  
 These plans for small pond construction, soil erosion and sediment control meet the requirements of the HOWARD SOIL CONSERVATION DISTRICT.

**DEVELOPER'S CERTIFICATE**  
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 Signature of Engineer (print name below signature)  
 Date

2/8/06  
 DATE  
 STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 JEFFREY M. ZIELINSKI, P.E. No. 29935



STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Section I - Vegetative Stabilization Methods and Materials

- A. Site Preparation
1. Install erosion and sediment control structures...
2. Perform all grading operations at right angles to the slope...
3. Schedule required soil tests to determine soil amendment composition...
B. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil test must be performed to determine the exact ratios and application rates...
2. Fertilizers shall be uniform in composition...
3. Lime materials shall be ground limestone...
C. Seedbed Preparation
1. Temporary Seeding
a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5"...

- D. Mulch Specifications
1. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension...
2. WCFM materials shall contain no elements or compounds at concentrations that will be phytotoxic...
3. WCFM must conform to the following physical requirements...
E. Mowing Seeded Areas - Mulch shall be applied to all seeded areas where one species of grass is desired...
1. If grading is completed outside of the seeding season...
2. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre...
3. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,000 lbs. per acre...
F. Seeding
1. Minimum soil conditions required for permanent vegetative establishment...
2. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade...
3. Apply soil amendments as per soil test or as included on the plans...
4. Mix soil amendments into the top 3 - 5" of topsoil by disking or other suitable means...

Section II - Temporary Seeding

Table with columns: SEED MIXTURE (HARDINESS ZONE), NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-10-10), LIME RATE. Includes rows for Annual Ryegrass, Winter Ryegrass, and Straw Mulch.

Section III - Permanent Seeding

Table with columns: Seed Mixture No. 3 (Hardiness Zone 7A), % Species, Application Rate (lb./ac.), Seeding Dates, Seeding Depths, Fertilizer Rate (10-20-20), Lime Rate. Includes rows for Penfine Ryegrass and Kentucky Bluegrass.

Section IV - Sod - To provide quick cover on disturbed areas (2:1 grade or flatter).

- A. General Specifications
1. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved...
2. Sod shall be machine cut at a uniform soil thickness of 3/4" plus or minus 1/16" at the time of cutting...
3. Standard size sections of sod shall be strong enough to support their own weight...
4. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival...
B. Sod Installation
1. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod...
2. The first row of sod shall be laid in a straight line with the rows thereafter placed parallel to and tightly wedged against each other...
3. Whichever sod shall be laid with the long edges parallel to the contour and with stepping joints...
4. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet...

- C. Sod Maintenance
1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week...
2. After the first week, sod watering is required as necessary to maintain adequate moisture content...
3. The first mowing of sod should not be attempted until the sod is firmly rooted...
D. Turfgrass Establishment
Areas where turfgrass may be desired include lawns, parks, playgrounds and commercial sites which will receive a medium to high level of maintenance...

Section V - Turfgrass Mixtures

- A. Turfgrass Mixtures
1. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive management...
2. Kentucky Bluegrass/Perennial Ryegrass - Full sun mixture - For use in full sun areas where rapid establishment is required...
3. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas...
4. Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in Bluegrass lawns...
B. Ideal times of seeding
Warm MI: March 15 - June 1, August 1 - October 1
Central MI: March 1 - May 15, August 15 - October 15
Southern MI: March 1 - May 15, August 15 - October 15

Section VI - Temporary Seeding

- A. Temporary Seeding
1. If soil moisture is deficient, supply new seedlings with adequate water for at least 7-10 days...
2. Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season...
3. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary...
4. Maintenance fertilizer rates for permanent seedings are shown in Table 24...

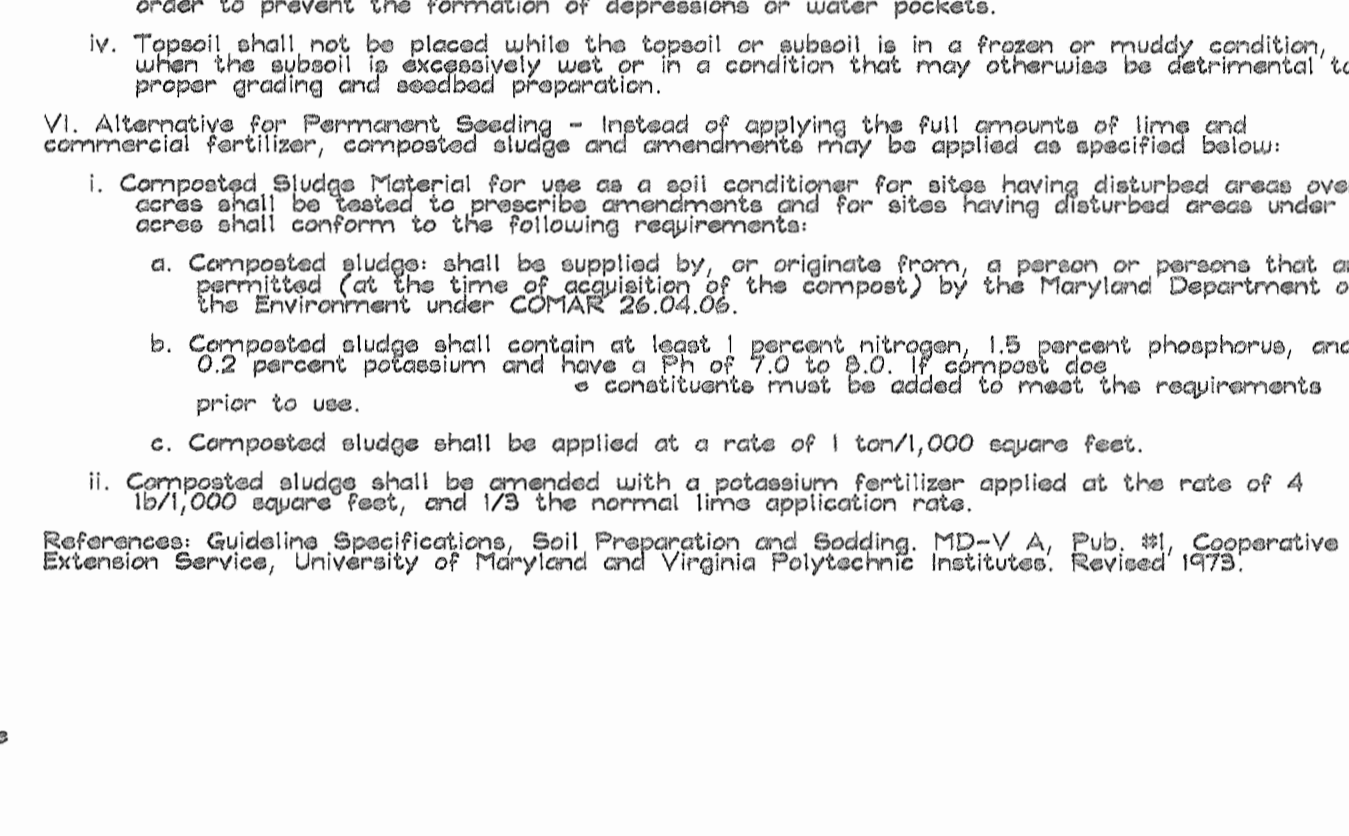
Section VII - Dust Control

- A. Dust Control
1. Definition - Controlling dust blowing and movement on construction sites and roads...
2. Purpose - To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety...
3. Conditions Where Practice Applies - This practice is applicable to areas subject to dust blowing and movement where on and off-site damage is likely without treatment...
4. Temporary Methods
a. Mulches - See standards for vegetative stabilization with mulches only...
b. Tilling - To roughen surface and bring clods to the surface...
c. Barriers - Solid board fences, chain link fences, straw bales, and similar materials can be used to control air currents...

21.0 STANDARDS & SPECIFICATIONS FOR TOPSOIL

- Definition - Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
Purpose - To provide a suitable soil medium for vegetative growth...
Conditions Where Practice Applies
1. This practice is limited to areas having 2:1 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth...
2. The soil is so acidic that treatment with limestone is not feasible...
3. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans...
Construction and Material Specifications
1. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications...
2. Topsoil Specifications - Soil to be used as topsoil must meet the following:
a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand, or other soil type...
b. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutcracker, poison ivy, thistle, or others as specified...
c. Topsoil shall be either highly acidic or composed of heavy clays, ground limestone shall be applied...
3. For sites having disturbed areas over 5 acres:
a. On soil meeting Topsoil specifications, obtain test results...
b. pH for topsoil shall be between 6.0 and 7.5...
c. Organic content of topsoil shall be not less than 1.5 percent by weight...
d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed...
4. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials...
5. Topsoil Application
a. When topsoiling, maintain needed erosion and sediment control practices...
b. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation...
c. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4"...
d. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition...
6. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
a. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments...
b. Composted sludge shall be supplied by or originate from a person or persons that are permitted...
c. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium...
d. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet...
e. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb./1,000 square feet...
7. Reference: Guideline Specifications, Soil Preparation and Sodding, MD-V A, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1975.

DETAIL OF INCREMENTAL STABILIZATION - FILL



- Incremental Stabilization of Embankments - Fill Slopes
1. Embankment shall be constructed in lifts as prescribed on the plans.
2. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner...
4. Construction sequence: Refer to Figure 4 (below).
a. Excavate and stabilize all temporary swales, sides ditches, or berms that will be used to divert runoff around the fill...
b. Place Phase 1 embankment, dress and stabilize.
c. Place Phase 2 embankment, dress and stabilize.
d. Place final phase embankment, dress and stabilize.
5. Note: once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil...

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Chief, Division of Land Development
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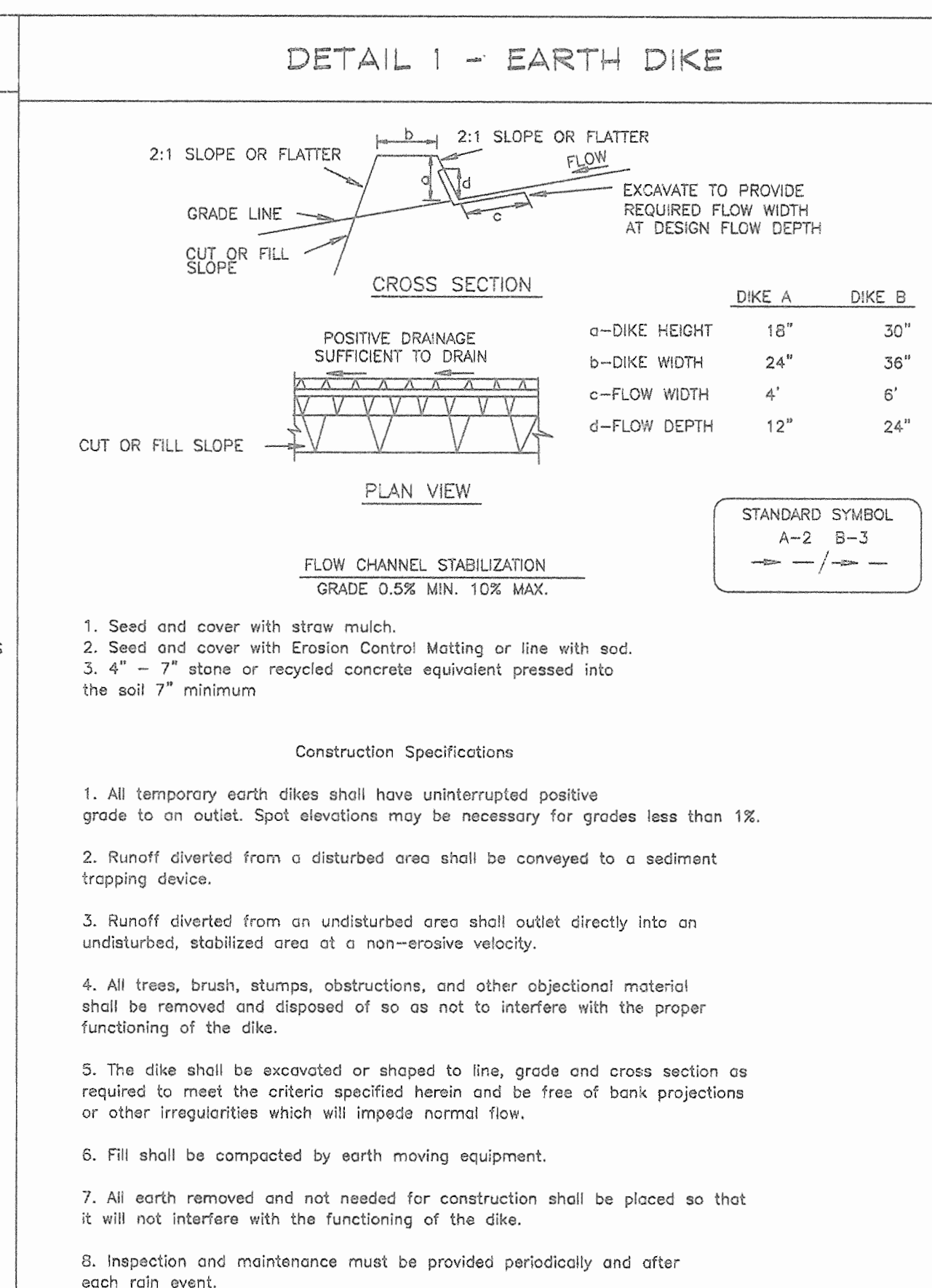
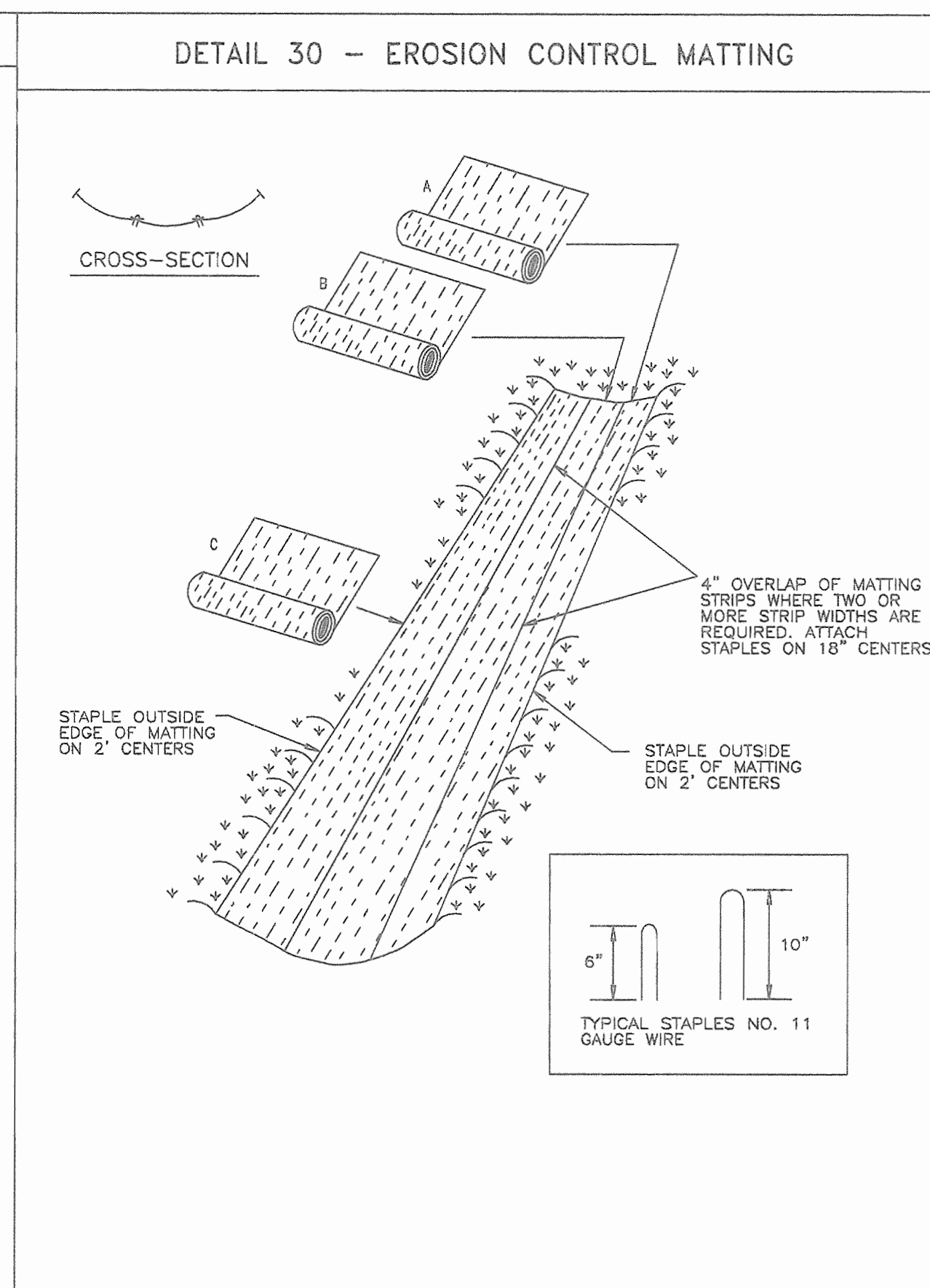
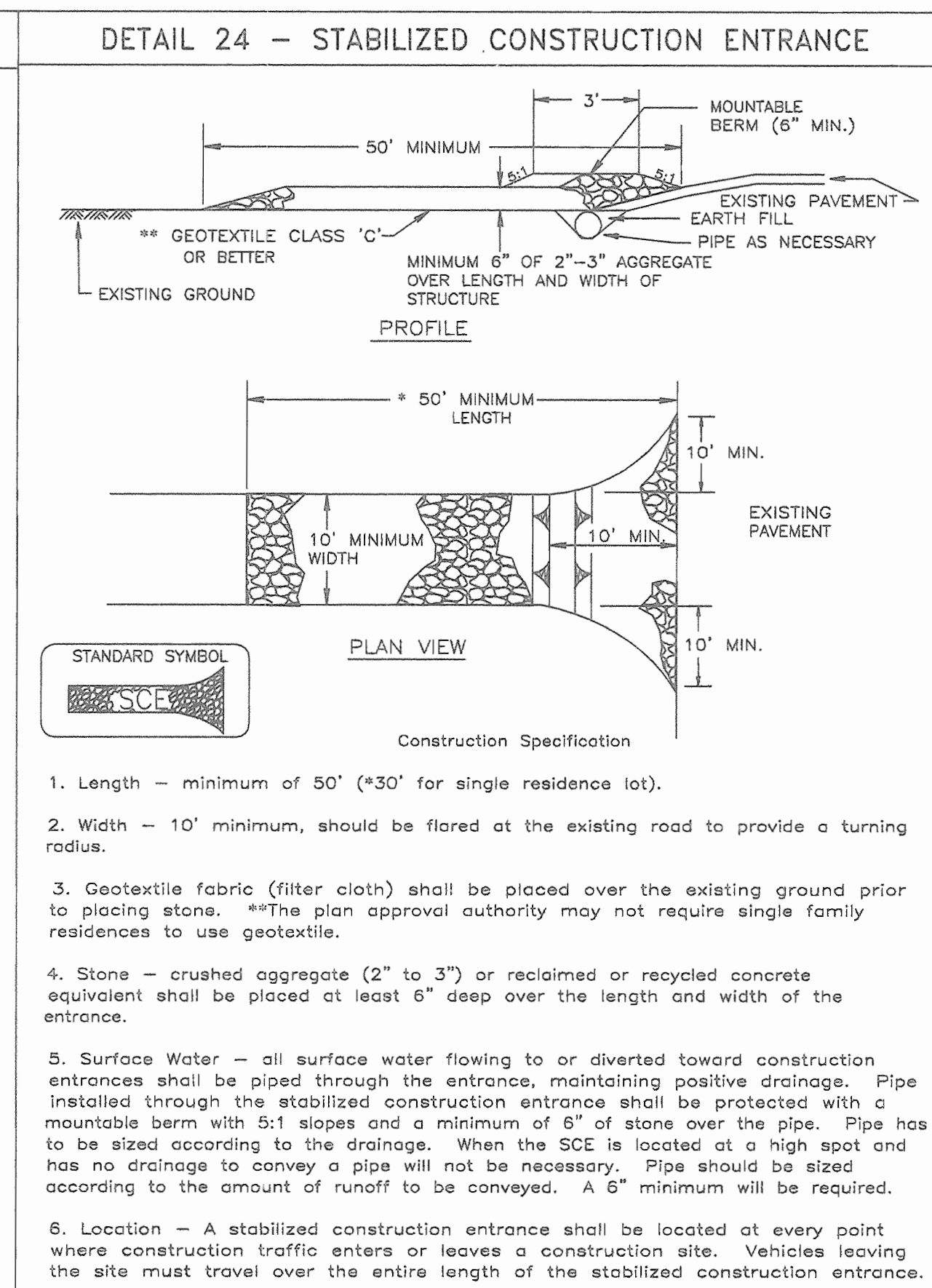
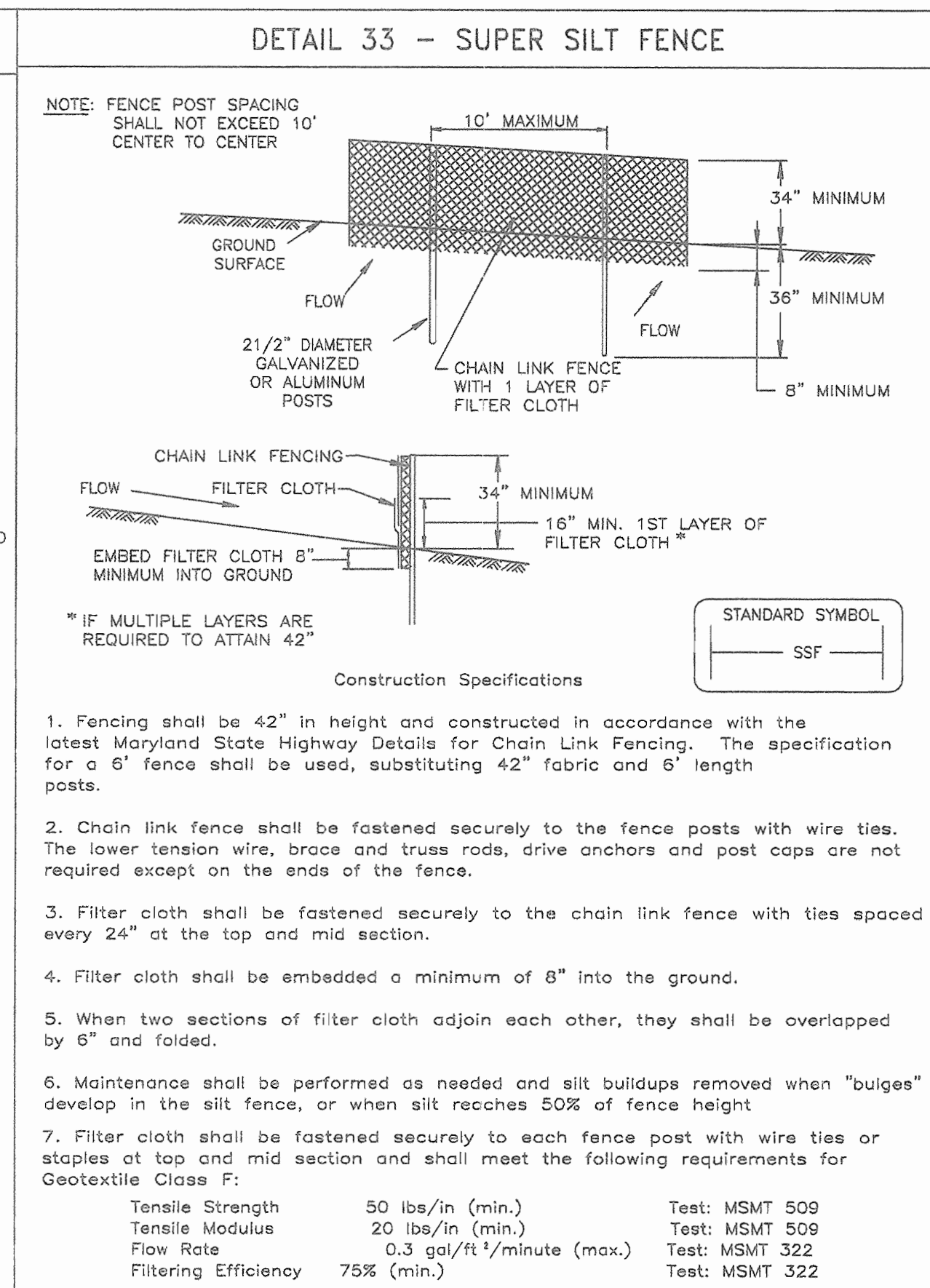
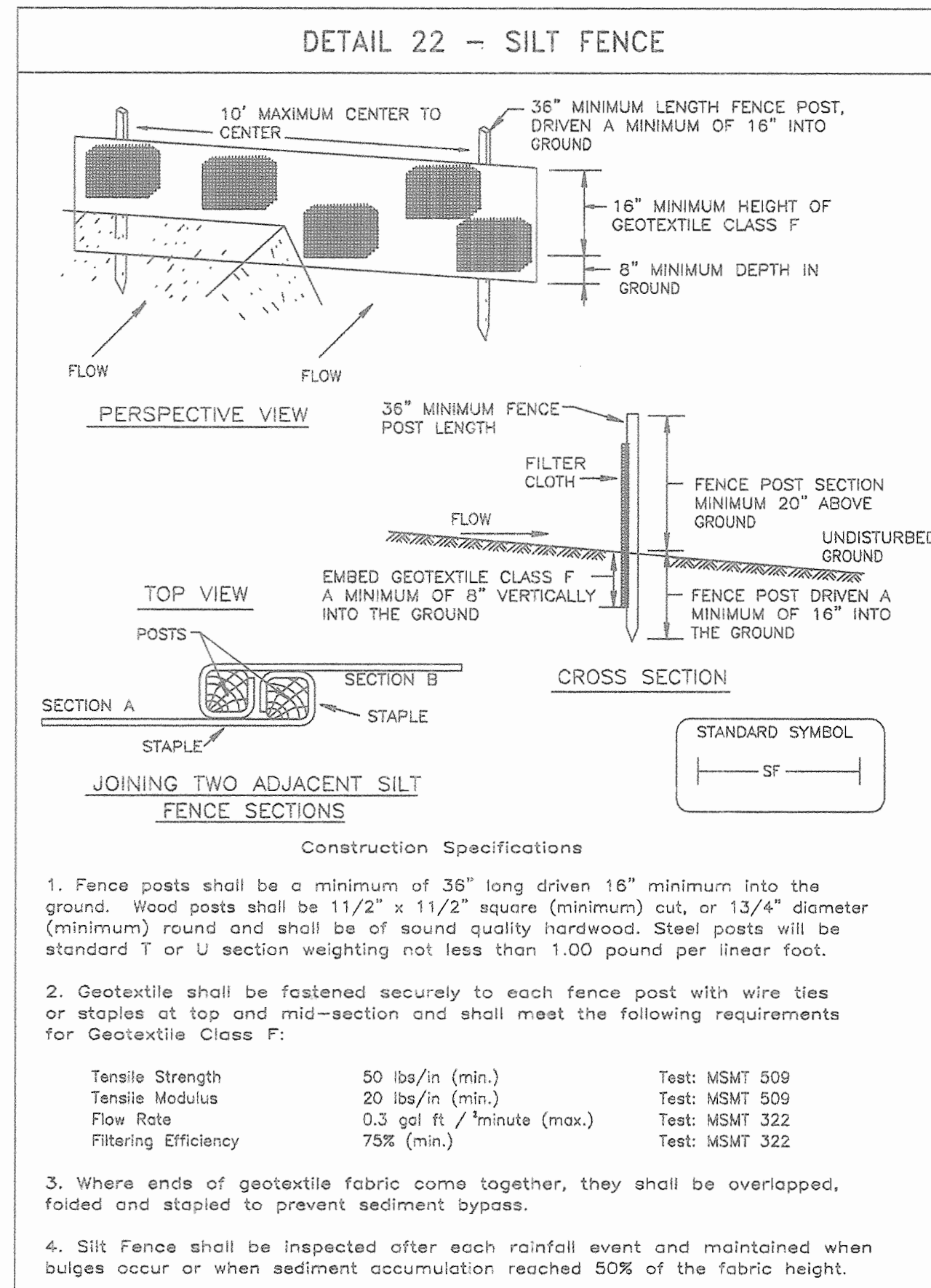
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STATE OF MARYLAND
Professional Engineer
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-28-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

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

### SILT FENCE

**Silt Fence Design Criteria**

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	80 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

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

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

### SUPER SILT FENCE

**Design Criteria**

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 35%	5:1 - 3:1	100 feet	1,000 feet
35 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-28-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### STABILIZED CONSTRUCTION ENTRANCE

**Construction Specification**

- Length - minimum of 50' (30' for single residence lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. \*\*The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### EROSION CONTROL MATTING

**Construction Specifications**

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

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

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

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**SEDIMENT & EROSION CONTROL DETAILS**

6TH ELECTION DISTRICT HOWARD COUNTY, MD

DATE: 2/8/06

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**APPROVED:** DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* Date: 2/7/06

Chief, Division of Land Development: *[Signature]* Date: 2/7/06

Director: *[Signature]* Date: 2/8/06

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: *[Signature]* Date: 2/22/06

These plans for small pond construction, soil erosion and sediment control meet the requirements of the HOWARD SOIL CONSERVATION DISTRICT.

Howard Soil Conservation District: *[Signature]* Date: 2/22/06

**DEVELOPER'S CERTIFICATE**

"I 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 (print name below signature): *[Signature]* Date: 2/8/06

**ENGINEER'S CERTIFICATE**

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. The plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

Signature of Engineer (print name below signature): *[Signature]* Date: 2/8/06

JEFFREY M. ZIELINSKI, P.E.

STATE OF MARYLAND PROFESSIONAL ENGINEER

*[Signature]*

JEFFREY M. ZIELINSKI, P.E. No. 29935

**SDP-05-111**



### DETAIL 23A - STANDARD INLET PROTECTION

**Construction Specifications**

- Excavate completely around the inlet to a depth of 18" below the notch elevation.
- Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
- Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
- Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
- Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
- If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
- The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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

### DETAIL 6 - GABION INFLOW PROTECTION

**Construction Specifications**

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE B-7-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL 25 - ROCK OUTLET PROTECTION I

**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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-8 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### ROCK OUTLET PROTECTION (I & III)

**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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-8A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### TREE PROTECTION FENCE

**SEQUENCE OF CONSTRUCTION**

- OBTAIN A GRADING PERMIT.
- NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-287-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-818-1870 AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY)
- CLEAR FOR AND INSTALL/CONSTRUCT SEDIMENT CONTROL DEVICES FOR PHASE 1 GRADING. FOR ALL CLEARING AND GRADING ACTIVITIES ON THIS SITE, DUST CONTROL SPECIFICATIONS MUST BE APPLIED. (2 DAYS)
- INSTALL SEDIMENT BASIN AND CONSTRUCT STORM DRAIN SYSTEM FROM 1-1 TO 5-2. (3 WEEKS)
- STABILIZE ALL DISTURBED SLOPES AND VERIFY WITH THE GRADING INSPECTOR THAT THE CONTROLS ARE FUNCTIONING AS DESIGNED.
- CLEAR FOR AND INSTALL/CONSTRUCT SEDIMENT CONTROL DEVICES FOR PHASE 2 GRADING. (3 DAYS)
- CLEAR AND GRUB ONLY FOR THE PORTIONS OF THE SITE WHICH ARE LOCATED BELOW THE NORTHERN AND SOUTHERN SHALES AS IDENTIFIED ON THE PLANS. (3 DAYS)
- WAIT FOR A 3-5 DAY CLEAR WEATHER FORECAST. BRING THE PORTIONS OF THE SITE WHICH ARE LOCATED DOWNGRADE OF THE NORTHERN SHALE (AREAS TO THE WEST OF THIS SHALE) AND THE SOUTHERN SHALE (AREAS TO THE SOUTH OF THIS SHALE) UP TO FINAL GRADE AND GRADE CUT BOTH SHALES. THE EXISTING NATURAL SHALE LOCATED TO THE SOUTHWEST OF THE SEDIMENT BASIN MUST BE FILLED USING THE INCREMENTAL FILL METHOD WITH CARE TAKEN TO ALWAYS PROVIDE POSITIVE DRAINAGE TO THE SEDIMENT BASIN. (5 DAYS)
- STABILIZE ALL DISTURBED SLOPES AND VERIFY WITH THE GRADING INSPECTOR THAT THE PERIMETER CONTROLS ARE FUNCTIONING AS DESIGNED.
- CLEAR AND GRUB REMAINDER OF SITE. (3 WEEKS)
- BEGIN FINAL GRADING OF THE SITE. (4 WEEKS)
- THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL DEVICES SHOWN ON THE PLAN. THE INSPECTION SHALL BE ON A DAILY BASIS AND AFTER EACH RAINFALL.
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED SITE.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-8A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL 18 - SEDIMENT BASIN BAFFLES

**Construction Specifications**

- Perforations in the draw-down device may not extend in to the wet storage.
- The total area of the perforations must be greater the 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 to prevent sagging and flotation. An acceptable preventative measure is to stack both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3" minimum into the ground then joining them to the device by wrapping with 1/2 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-18-28 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE

**Construction Specifications**

- Perforations in the draw-down device may not extend in to the wet storage.
- The total area of the perforations must be greater the 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 to prevent sagging and flotation. An acceptable preventative measure is to stack both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3" minimum into the ground then joining them to the device by wrapping with 1/2 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-10-30 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL 20A - REMOVABLE PUMPING STATION

**Construction Specifications**

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE D-12-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DETAIL 27 - ROCK OUTLET PROTECTION III

**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.

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

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

Chief, Development Engineering Division: *[Signature]* Date: 2/7/06

Chief, Division of Land Development: *[Signature]* Date: 2/7/06

Director: *[Signature]* Date: 2/7/06

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.

*[Signature]* Date: 2/23/06

U.S.D.A. - Natural Resources Conservation Service

These plans for small pond construction, soil erosion and sediment control meet the requirements of the HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* Date: 2/23/06

Howard Soil Conservation District

**DEVELOPER'S CERTIFICATE**

"I 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]* Date: 2/8/06

Signature of Developer (print name below signature): **JEFFREY M. ZIELINSKI, P.E.**

**ENGINEER'S CERTIFICATE**

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

*[Signature]* Date: 2/8/06

Signature of Engineer (print name below signature): **JEFFREY M. ZIELINSKI, P.E.**

2/8/06 DATE

6TH ELECTION DISTRICT BLK 2 HOWARD COUNTY, MD

**SEDIMENT & EROSION CONTROL DETAILS**

NO. DESCRIPTION OF CHANGES DRN. REV. DATE

TAX ACC. # 563066/563104 DES. BY: JMZ

ZONE / USE: P.O.R. DRN. BY: JMZ

DWG. SCALE: AS SHOWN CHK. BY: JMZ

DATE: 02/14/06

DDC JOB# 04139.1

10 of 16

SDP-05-111

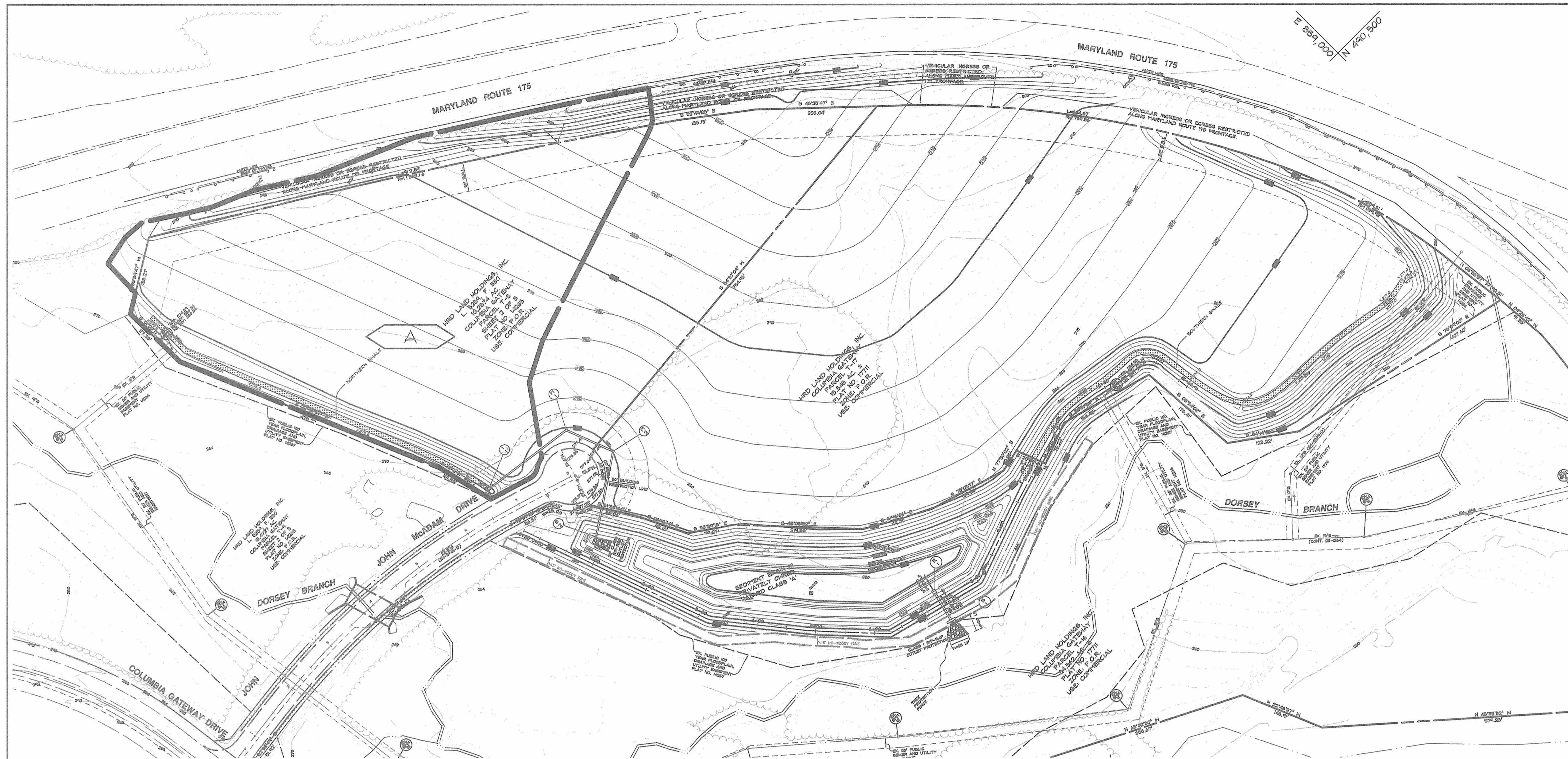
**DeMario Design Consultants, Inc.**

The Old Firehouse Phone: (410) 388-0580  
 96 East Main Street, Suite 200 Fax: (410) 388-0564  
 Westminster, MD 21157 eMail: ddc@demariodesign.us

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD 21044-3466  
 410-992-0284

SITE ADDRESS:  
 8200 & 8201 JOHN MCADAM DRIVE  
 COLUMBIA, MD 21046





DRAWING LEGEND	
	EXISTING MINOR CONTOUR (2' INTERVAL)
	EXISTING MAJOR CONTOUR (10' INTERVAL)
	ADJACENT PROPERTY LINE
	EXISTING PROPERTY BOUNDARY
	EX. ROAD / EDGE OF PAVING
	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
	EX. OVERHEAD ELECTRIC & UTILITY POLES
	PROPOSED MINOR CONTOUR (2' INTERVAL)
	PROPOSED MAJOR CONTOUR (10' INTERVAL)
	EX. BUILDING
	PROPOSED BUILDING EXPANSION
	PROPOSED SPOT ELEVATION & FLOW ARROW
	EXISTING TREELINE
	LIMIT OF DISTURBANCE
	PROPOSED SILT FENCE
	PROPOSED SUPER SILT FENCE
	PROPOSED EARTH DIKE
	15.00% - 24.9% SLOPES
	25.00% AND GREATER SLOPES
	EROSION CONTROL MATTING

DRAINAGE AREA MAP PARCELS T-7 & T-8

SCALE: 1"=100'

STRUCTURE SCHEDULE						
NO.	TYPE	INV. IN	INV. OUT	RIM	REMARKS	LOCATION
I-1	8" INLET	N/A	265.00	269.50	HO. CO. STD. SD-4.21	N 490995.2431 / E 857460.5074
M-1	STD. MANHOLE	265.90	265.80	279.75	HO. CO. STD. SD-G.12	N 490973.2806 / E 857623.9160
M-2	STD. MANHOLE	265.20	263.10	280.00	HO. CO. STD. SD-G.12	N 490891.7204 / E 857654.3778
S-2	HDP END SECTION	262.00	N/A	265.00		N 490808.9326 / E 857531.1383

\* MODIFY STANDARD INLET TO HAVE A MINIMUM OF 18" COVER AND A WIDTH OF 4'.

PHASE	INLET #	ZONING (Z)	SUBAREA (B)	AREA (ac) (A)	"C" FACTOR (C)	% IMPERVIOUS (P)
	I-1	POR	A	7.92	0.96	99

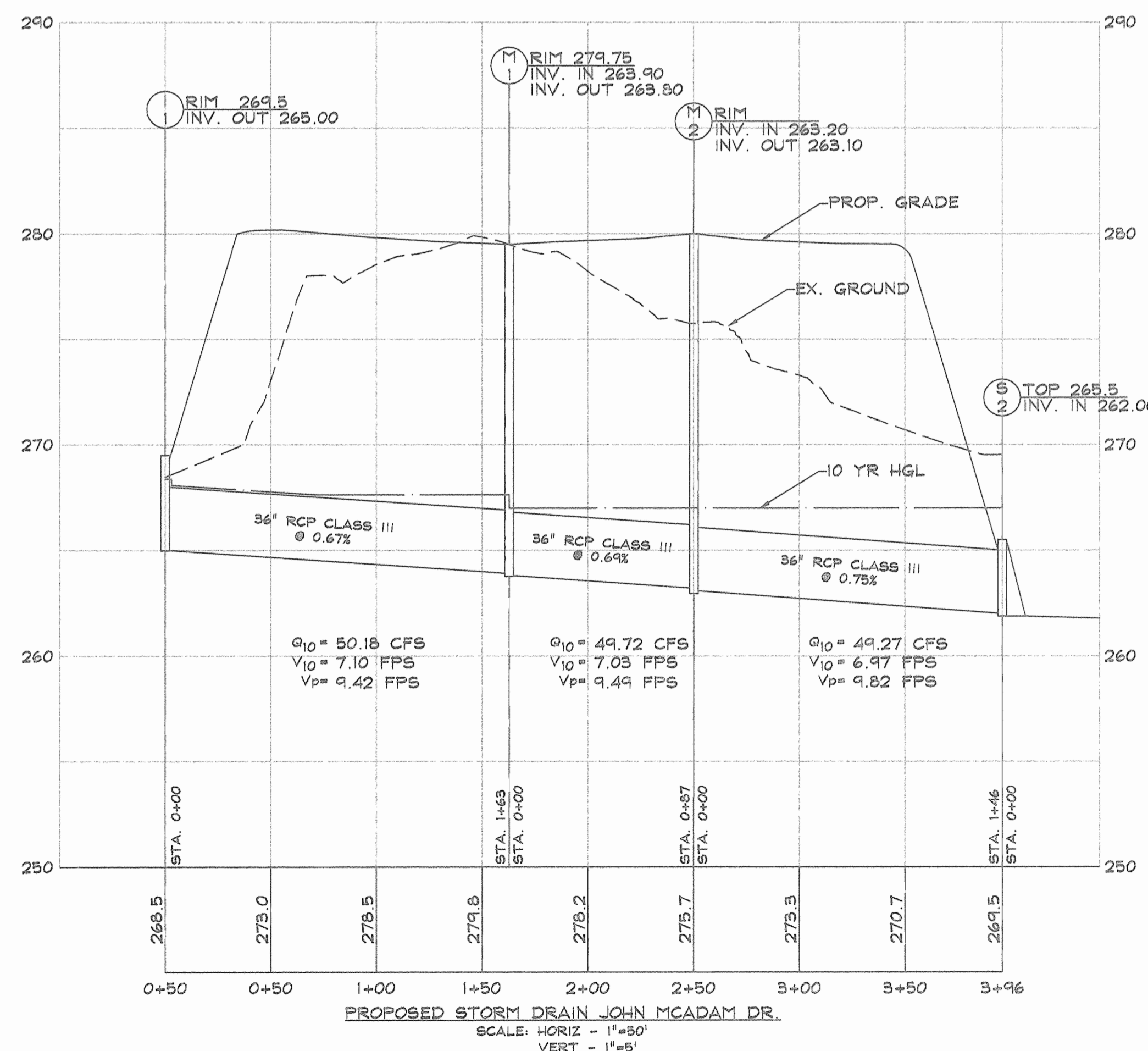
PIPE SCHEDULE		
SIZE (IN.)	CATEGORY	LINEAR (FT.)
36	RCP CLASS III	396

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* Date: 3/7/06

Chief, Division of Land Development: *[Signature]* Date: 3/7/06

Director: *[Signature]* Date: 3/8/06



**DeMario Design Consultants, Inc.**

The Old Firehouse Phone: (410) 386-0580  
 65 East Main Street, Suite 200 Fax: (410) 386-0584  
 Westminster, MD 21157 eMail: ddc@demariodesign.com

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD 21044-3455  
 410-892-6284

SITE ADDRESS:  
 8200 & 8201 JOHN MCADAM DRIVE  
 COLUMBIA, MD 21046

COLUMBIA GATEWAY PARCELS T-7 & T-8 & T-16  
**STORMDRAIN DRAINAGE AREA MAP & PROFILES**

T.M.A.S. BLK 2  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

2/8/06  
 DATE

*[Professional Seal]*  
 JEFFREY M. ZIELINSKI, P.E. No. 29935

REVISIONS		
NO.	DESCRIPTION OF CHANGES	DRN. REV. DATE

NO. DESCRIPTION OF CHANGES DRN. REV. DATE

TAX ACC. #: 563066/563104 DES. BY: JMZ

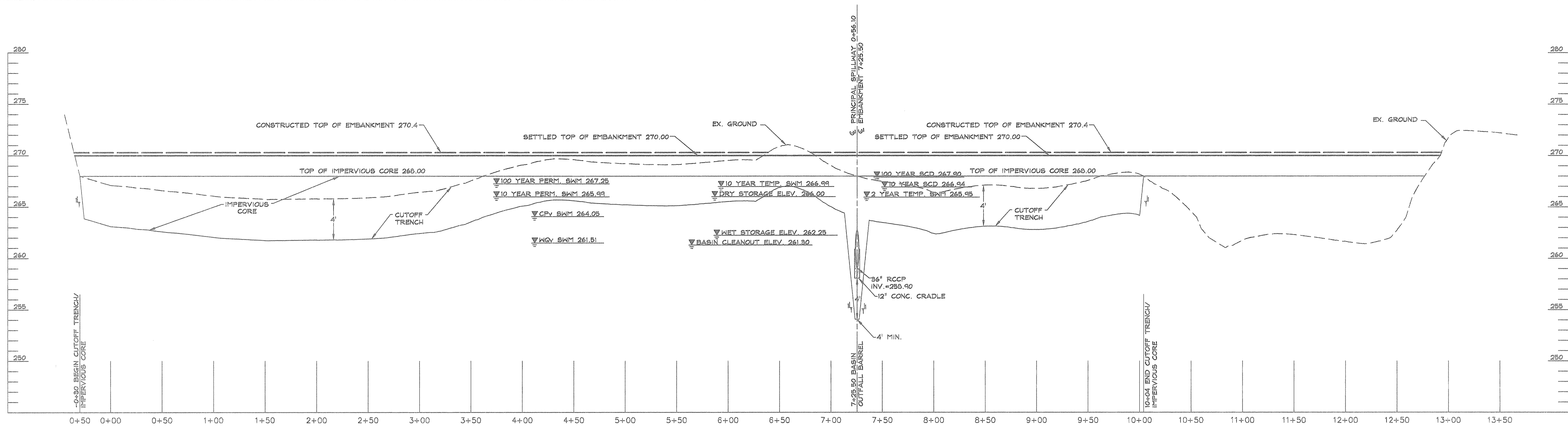
ZONE / USE: P.O.R. DRN. BY: JMZ/TPM

DWG. SCALE: AS SHOWN CHK. BY: JMZ

DATE: 02/14/06

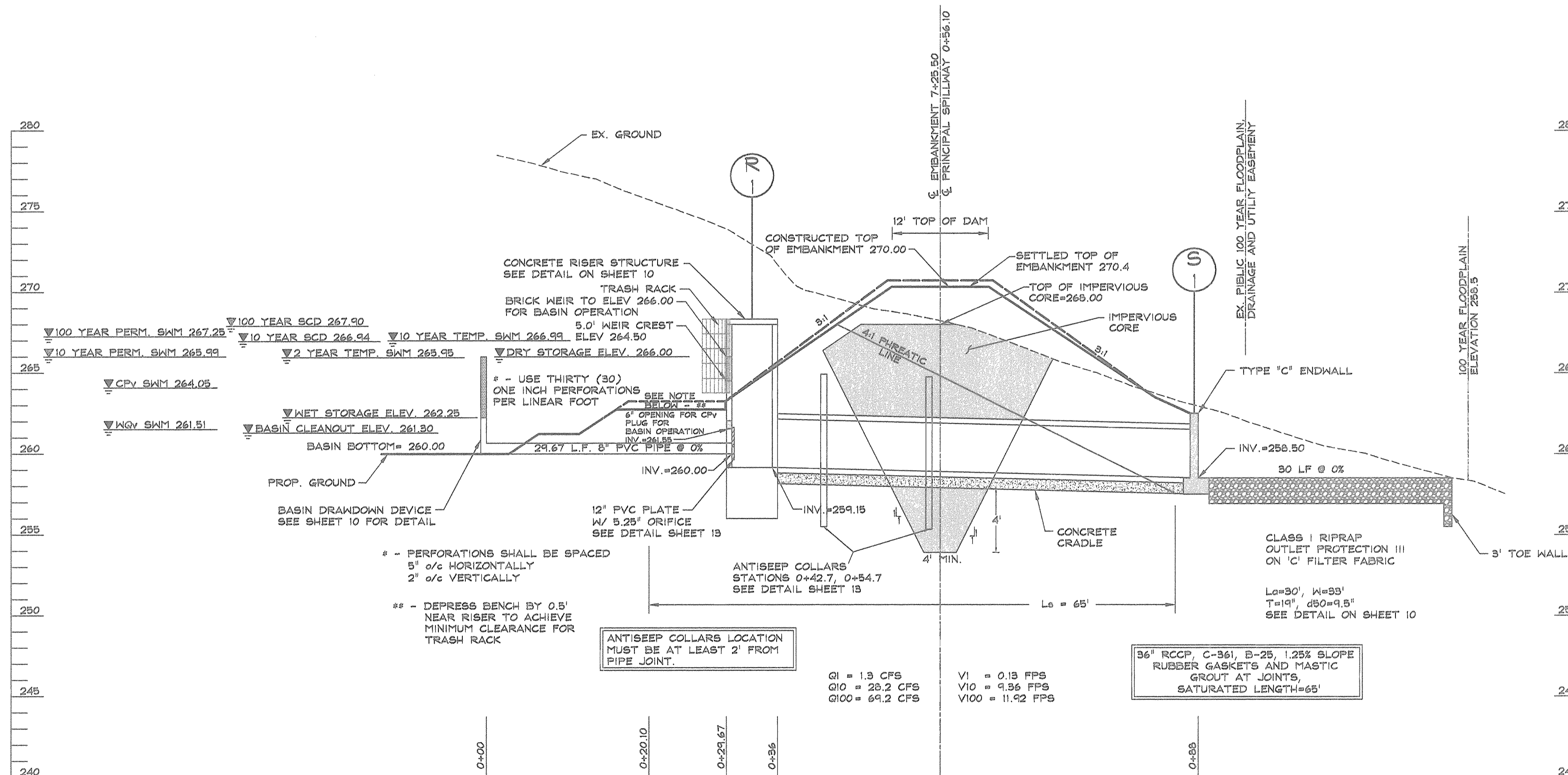
DDC JOB#: 04139.1





PROFILE ALONG CENTERLINE OF EMBANKMENT

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



PROFILE ALONG PRINCIPLE SPILLWAY

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

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66 East Main Street, Suite 200 Fax: (410) 388-0564  
Westminster, MD 21157 eMail: ddc@demariodesign.us

OWNER / DEVELOPER:  
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10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MD 21044-3456  
410-982-6284  
SITE ADDRESS:  
8200 & 8201 JOHN MCADAM DRIVE  
COLUMBIA, MD 21046

COLUMBIA GATEWAY  
PARCELS T-17 & T-8 & T-16  
**STORMWATER  
MANAGEMENT**  
NOTES AND DETAILS  
T.M. 4-3 B.L.K. 2  
6TH ELECTION DISTRICT HOWARD COUNTY, MD

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
Chief, Development Engineering Division *[Signature]* Date: 3/7/06  
Chief, Division of Land Development *[Signature]* Date: 3/7/06  
Director *[Signature]* Date: 3/8/06

2/8/06  
DATE

JEFFREY M. ZIELINSKI, P.E. No. 29935

NO.	DESCRIPTION OF CHANGES	DRN	REV.	DATE







**SEDIMENT CONTROL GENERAL NOTES**

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-318-1055).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPE AND ALL SLOPES STEEPER THAN 3:1.
  - FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREA MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SODS (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:
 

TOTAL AREA OF SITE	= 32.08 acres
AREA DISTURBED	= 32.08 acres
AREA TO BE ROOFED OR PAVED	= 0.00 acres
AREA TO BE VEGETATIVELY STABILIZED	= 32.08 acres
TOTAL CUT	= 121,000 cu yd
TOTAL FILL	= 104,000 cu yd
WASTE/BORROW AREA	= 17,000 cu yd

(LOCATION TO BE DETERMINED BY CONTRACTOR. LOCATION POINT MUST HAVE OPEN GRADING PERMIT.)
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY**

**STORMWATER MANAGEMENT FACILITY ROUTINE MAINTENANCE**

- FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF FUNCTIONING PROPERLY.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
- DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

**NON-ROUTINE MAINTENANCE**

- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- STRUCTURE SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

**OPERATION, MAINTENANCE AND INSPECTION**

INSPECTION OF THE POND(S) SHOWN HERON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, NRCS STANDARDS AND SPECIFICATIONS FOR PONDS (MD-B78). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**CONSTRUCTION SPECIFICATIONS**

These specifications are appropriate to all ponds within the scope of the 2000 Standard for practice MD-378. All references to ASTM as used in AASHTO specifications apply to the most recent version.

**Site Preparation**

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

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level 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 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, CL, or CI, 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 track tread of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, rubber tired or vibrator roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

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

**Cut Off Trench** - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 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 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 2000 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, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the 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 that specified for the core of the embankment or other embankment materials.

**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-301.
- 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 and 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.

**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 appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

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

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO 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.

- 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.
- Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be constructed 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 type 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 lugger type band with 0-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugated depth. 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 on a neoprene bead.

- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soil, 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.

**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-301.
- 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 and 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.

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 appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

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

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO 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.

**Plastic Pipe** - The following criteria shall apply for plastic pipe:

- Materials - PVC pipe shall be PVC-D-120 or PVC-D-120 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 requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
- 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 soil, 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 Disphragms** - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

**Concrete**

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 5.

**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 protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the fill flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water pumps 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, spill 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 Planning (MD-342) or as shown on the accompanying drawings.

**Erosion and Sediment Control**

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division *[Signature]* Date: 2/7/06

Chief, Division of Land Development *[Signature]* Date: 2/9/06

Director *[Signature]* Date: 2/8/06

Blank space for additional notes or signatures.

2/8/06  
DATE

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
JEFFREY M. ZIELINSKI, P.E.  
No. 29935

JEFFREY M. ZIELINSKI, P.E. No. 29935  
SDP-05-111

**COLUMBIA GATEWAY PARCELS T-17 & T-8 & T-16**

**STORMWATER MANAGEMENT NOTES AND DETAILS**

6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
TAX ACC. #	563086/563104	DES. BY:	JMZ	
ZONE / USE:	P.O.R.	DRN. BY:	JMZ	
DWG. SCALE:	AS SHOWN	CHK. BY:	JMZ	
DATE:	02/14/06			
DDC JOB#:	04139.1			







WATER QUALITY PLANING PLAN \*\*

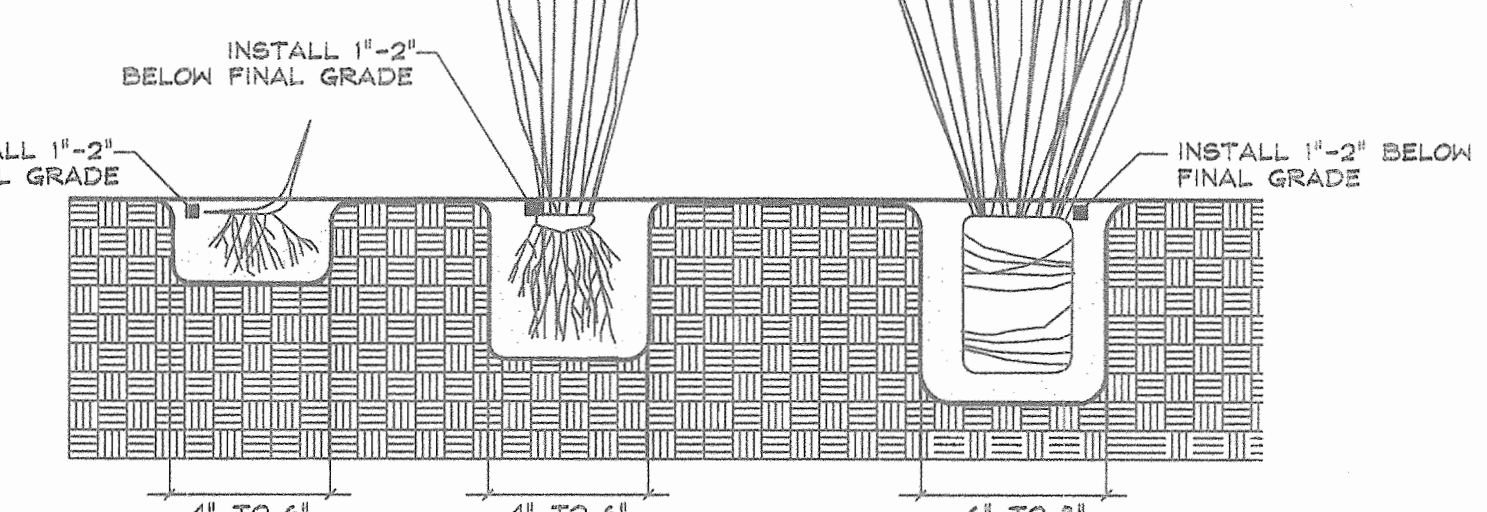
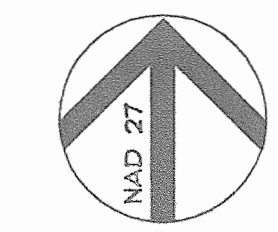
ZONE "A" (35,472 +/- s.f.)

SPECIES	SIZE	SPACING	QUANTITY	REMARKS
SCIRPUS TABERNAEMONTANI	QUART CONTAINER #	72"	190	OBL
IRIS PSEUDACORIS	QUART CONTAINER #	72"	190	OBL
LOBELIA CARDINALIS	QUART CONTAINER #	72"	190	FACH
IRIS VERSICOLOR	QUART CONTAINER #	72"	190	OBL
PANICUM VIRGATUM	QUART CONTAINER #	72"	190	FAC
SAURURUS CERNUUS	QUART CONTAINER #	72"	190	OBL
TOTALS			1140	

ZONE "B" (19,976 +/- s.f.)

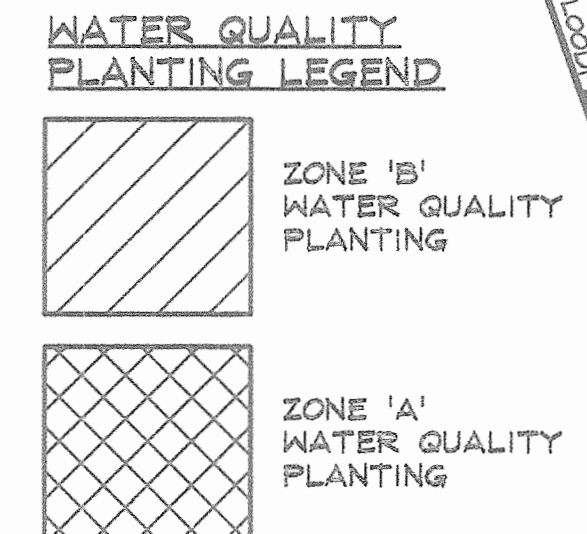
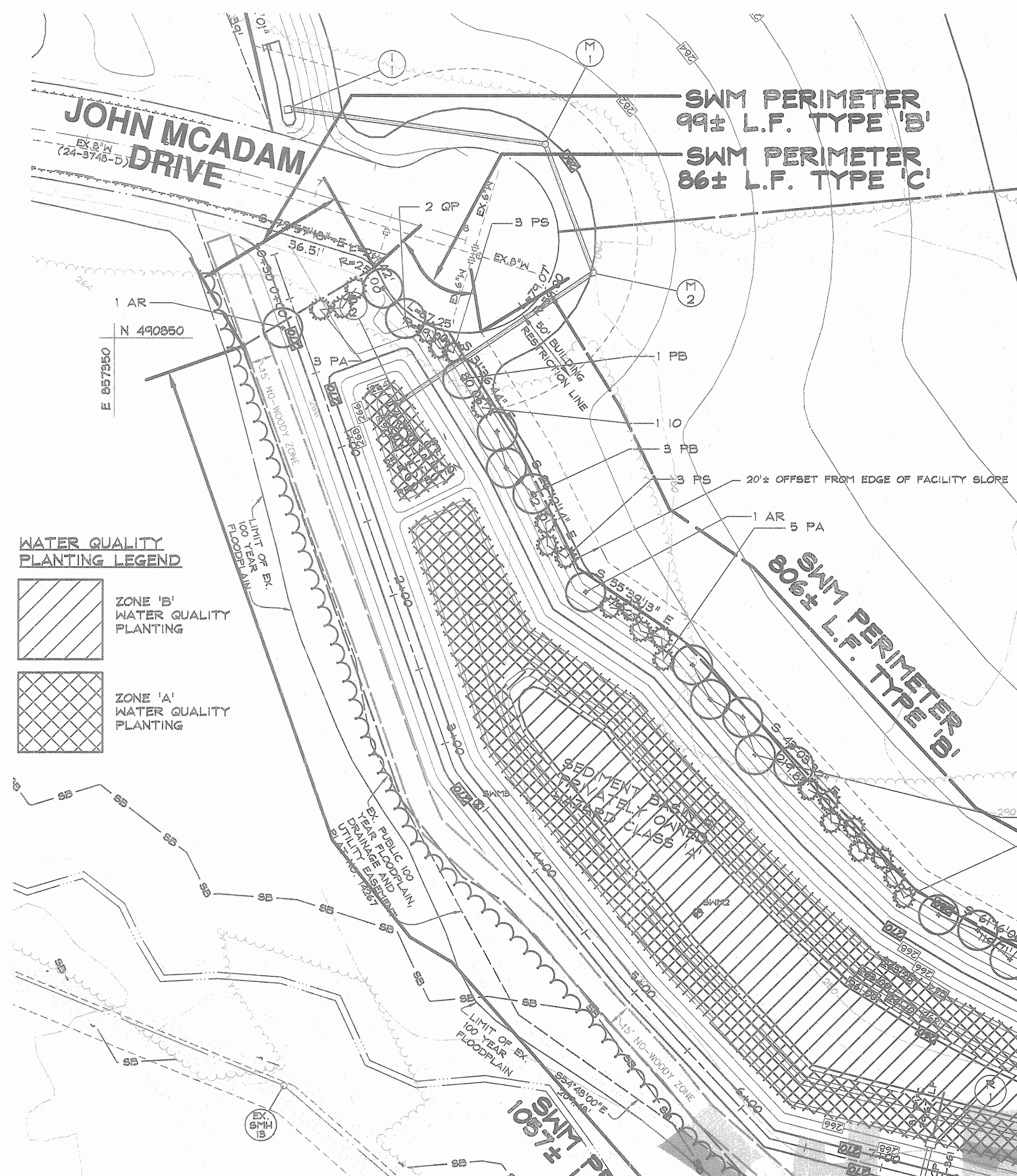
SPECIES	SIZE	SPACING	QUANTITY	REMARKS
SAGITTARIA LATIFOLIA	QUART CONTAINER #	72"	920	OBL
PELTANDRA VIRGINICA	QUART CONTAINER #	72"	920	OBL
TOTALS			640	

\* DORMANT RHIZOMES OF SCIRPUS, IRIS AND SAURURUS, DORMANT TUBERS OF SAGITTARIA, AND 1ST YEAR BULBS OF PELTANDRA MAY BE SUBSTITUTED IF PLANTINGS ARE TO BE INSTALLED DURING THE DORMANT SEASON.  
 \*\* ALTERNATE SPECIES AND INSTALL IN RANDOM PATTERN, DISTRIBUTING EACH SPECIES ACROSS THE HYDROLOGIC GRADIENT OF EACH PLANTING ZONE. SINGLE SPECIES MASSINGS ARE TO BE AVOIDED.  
 PARCEL T-17  
 15.348 AC. ±  
 PLAT NO. 17711  
 ZONE: P.O.R.  
 USE: COMMERCIAL



1 QUANT OSMOCOTE FERTILIZER, 8-8 MONTH RELEASE, 18-6-12 ANALYSIS, IN HOLE AT TIME OF PLANTING.  
 1 QUANT OSMOCOTE FERTILIZER, 9-4 MONTH RELEASE, 18-6-12 ANALYSIS, IN HOLE AT TIME OF PLANTING.  
 1 QUANT OSMOCOTE FERTILIZER, 8-8 MONTH RELEASE, 18-6-12 ANALYSIS, IN HOLE AT TIME OF PLANTING.  
 1 QUANT OSMOCOTE FERTILIZER, 8-8 MONTH RELEASE, 18-6-12 ANALYSIS, IN HOLE AT TIME OF PLANTING.  
 DORMANT RHIZOME INSTALL ONLY FROM OCTOBER THROUGH MARCH  
 GROWING BAREROOT INSTALL ONLY FROM APRIL THROUGH MAY  
 CONTAINER GROWN MAY BE INSTALLED YEAR-ROUND DORMANT CONTAINER THROUGH MARCH GROWING CONTAINER - APRIL THROUGH SEPTEMBER

HERBACEOUS PLANTING N.T.S.



PLANT LIST

QTY	SYM	BOTANICAL NAME/ COMMON NAME	SIZE	REMARKS
<b>LARGE TREES</b>				
5	AR	ACER RUBRUM 'RED SUNSET'	2 1/2" - 3" CAL.	B & B
		RED SUNSET RED MAPLE	12' - 14' HT.	
5	PB	PLATANUS ACERIFOLIA 'BLOODGOOD'	2 1/2" - 3" CAL.	B & B
		BLOODGOOD PLANETREE	12' - 14' HT.	
11	QP	QUERCUS PALUSTRIS	2 1/2" - 3" CAL.	B & B
		PIN OAK	12' - 14' HT.	
<b>EVERGREEN TREES</b>				
2	IO	ILEX OPACA	6' - 8' HT.	B & B
		AMERICAN HOLLY		
19	PA	PICEA ABIES	6' - 8' HT.	B & B
		NORWAY SPRUCE		
14	PS	PINUS STROBUS	6' - 8' HT.	B & B
		EASTERN WHITE PINE		

NOTE: SEE LANDSCAPE NOTES & DETAILS SHEET FOR WATER QUALITY PLANT LIST AND PLANTING DETAILS, ETC.  
 This landscape plan has been prepared in accordance with section 16.124 of the Ho.Co. Code and the New Town alternative compliance provisions of Chapter VI of the Ho.Co. Landscape Manual.  
 \*Landscape surety in the amount of \$10,050.00 has been posted as a part of the Developer's Agreement.\*

LINEAR FEET OF PERIMETER	2048 L.F.
NUMBER OF PLANTS REQUIRED	
SHADE TREES	20
EVERGREEN TREES	27
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	1057 L.F. @ 100% CREDIT
CREDIT FOR BERM (DESCRIBE BELOW IF NEEDED)	N/A
NUMBER OF PLANTS PROVIDED	
SHADE TREES	21
EVERGREEN TREES	29
OTHER TREES (? - SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: [Signature] Date: 3/7/06

Chief, Division of Land Development: [Signature] Date: 3/7/06

Director: [Signature] Date: 3/7/06

**DeMario Design Consultants, Inc.**

The Old Firehouse  
 66 East Main Street, Suite 200  
 Westminster, MD 21157  
 Phone: (410) 388-0590  
 Fax: (410) 388-0564  
 eMail: cdc@demariodesign.us

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD 21044-3456  
 410-992-6284

SITE ADDRESS:  
 8200 & 8201 JOHN MCADAM DRIVE  
 COLUMBIA, MD 21046

COLUMBIA GATEWAY PARCELS T-17 & T-8 & T-16  
**SWM FACILITY LANDSCAPE PLAN**

TM 43 BLK 2  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

REVISIONS

2-08-2006  
 DATE

LANDSCAPE ARCHITECT NO. 3222

SDP-05-111

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
	TAX ACC. #: 563065/563104	DES. BY: AJS		
	ZONE / USE: P.O.R.	DRN. BY: AJS		
	DWG. SCALE: AS SHOWN	CHK. BY: AJS		
	DATE: 02/14/06			
	DDC JOB#: 04139.1			