FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

CARLEE MANOR

LOTS 1 THRU 26 AND NON-BUILDABLE PARCEL 'A'
ZONED R-20
TAX MAP NO. 16 PARCEL NO. 123

2ND ELECTION DISTRICT * HOWARD COUNTY, MD.

OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
(410) 857-3430

DEVELOPER
C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
(410) 750-1200

GENERAL NOTES:

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications.
2. The contractor shall notify the Department of Public Works/Bureau of Engineering Construction Inspection Division at (410) 313-1880 at least (5) working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
5. Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual; Volume III (1993) and as modified by "Guidelines for Street Lights in Residential Developments (June 1993)."
   NOTE: A minimum spacing of 20' shall be maintained between any street light and any tree.
6. The existing topography is taken from field run survey with two foot contour intervals prepared by CLSI, Inc., dated December 1999.
7. The coordinates shown hereon are based upon the Howard County Geodetic Control, which is based upon the Maryland State Plane Coordinate System. Howard County Monument Nos.161A and 161B were used for this project.
8. Water is public, Contract No. 24-3847-D and the drainage area is Little Patuxent.
9. Sewer is public, Contract No. 24-3847-D and the drainage area is LPW QMC.
10. The stormwater management facility will be an extended detention pond to be owned and maintained by the H.O.A.
11. Existing utilities are based on Howard County contract drawings, Nos.24-1541-D
12. There is no floodplain on this site.
13. The wetlands delineation study for this project was prepared by CLSI, Inc., dated October 30, 1998 and was approved on May 25, 2000.
14. The traffic study for this project was prepared by Lee Cunningham and Associates, Inc., dated January, 1999 and was approved on Febuary 6, 2001
15. Project background information:
   a. Zoning: R-20
   b. Gross Area of Tract: 13.31 Ac
   c. Net Area of Tract: 13.31 Ac
   d. Area of Proposed Lots/Parcels: 7.59 Ac
   e. Area of Proposed R/W: 1.29 AC
   f. Number of Proposed Lots: 22 Buildable Lots, 3 Open Spaces, 1 SWM & Parcel A
   g. Open Space Required: 3.96 Ac
      Open Space Provided: 4.41 Ac
   h. Preliminary/Equivalency Sketch Plan #SP - 00-06
16. This plan assumes that stormwater management for adjacent properties draining to this site will be provided on adjacent properties at the time of development. This plan provides for conveyance only of offsite stormwater flows.
17. This plan is not subject to the Zoning Regulations, as ammended by Council Bill 50-2001.
18. The developer will be required to construct the 4' wide pathway within the open space lot 24 and continue the construction through the adjacent open space lot 163 to connect to the existing pathway.
   Fee simple transfer of lot 24 to Howard County will be provided
19. The developer will be responsible for the construction to connect the new pathway to the existing pathway within open space lot 163.
20. The developer must enter into a Right-of Entry agreement for the construction of the pathway within open space lot 163.
21. The Landscape Surety is $24000.00
22. See note this sheet for Forest Conservation Obligation
23. 95% compaction in fill areas required per AASHTO T180.

HOWARD COUNTY SURVEY CONTROL

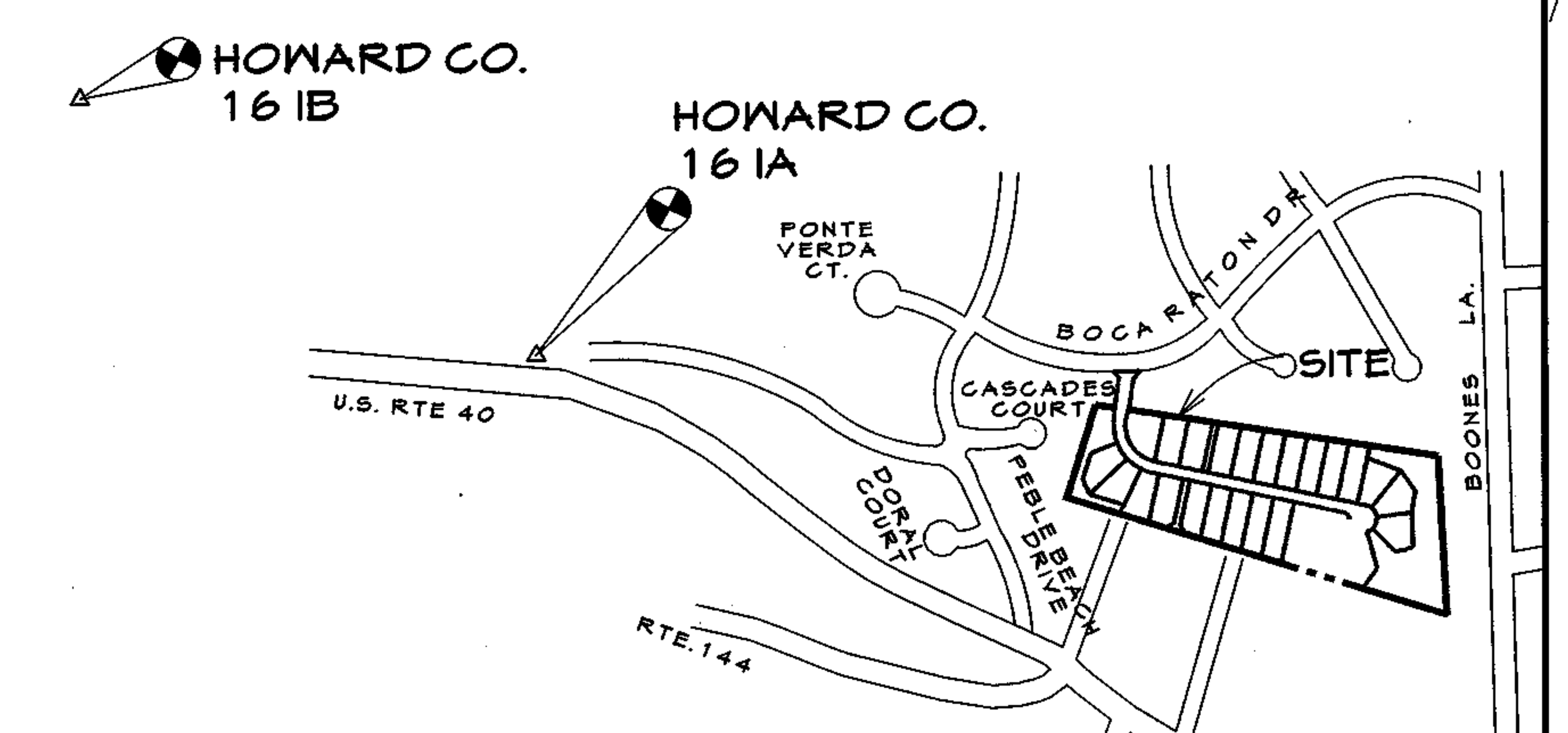
16 IA- ELEV. 463.67'
HOWARD COUNTY MONUMENT @ SURFACE APPROXIMATELY 11' SOUTH OF EDGE OF WESTBOUND LANE (WBL) IN MEDIAN OPPOSITE EXISTING RESIDENCE ON NORTH SIDE OF W.B.L. APPROXIMATELY 135' WEST OF EXISTING "CEMETERY LAND" SIGN ON NORTH EDGE OF E.B.L.

16 IB- ELEV. 470.58'
HOWARD COUNTY MONUMENT @ SURFACE APPROXIMATELY 11.5' SOUTH OF EDGE OF WESTBOUND LANE (WBL) IN MEDIAN OPPOSITE EXISTING GUARDRAIL ON NORTH SIDE OF W.B.L. APPROXIMATELY 0.8 mi EAST OF MARRIOTTSVILLE ROAD.

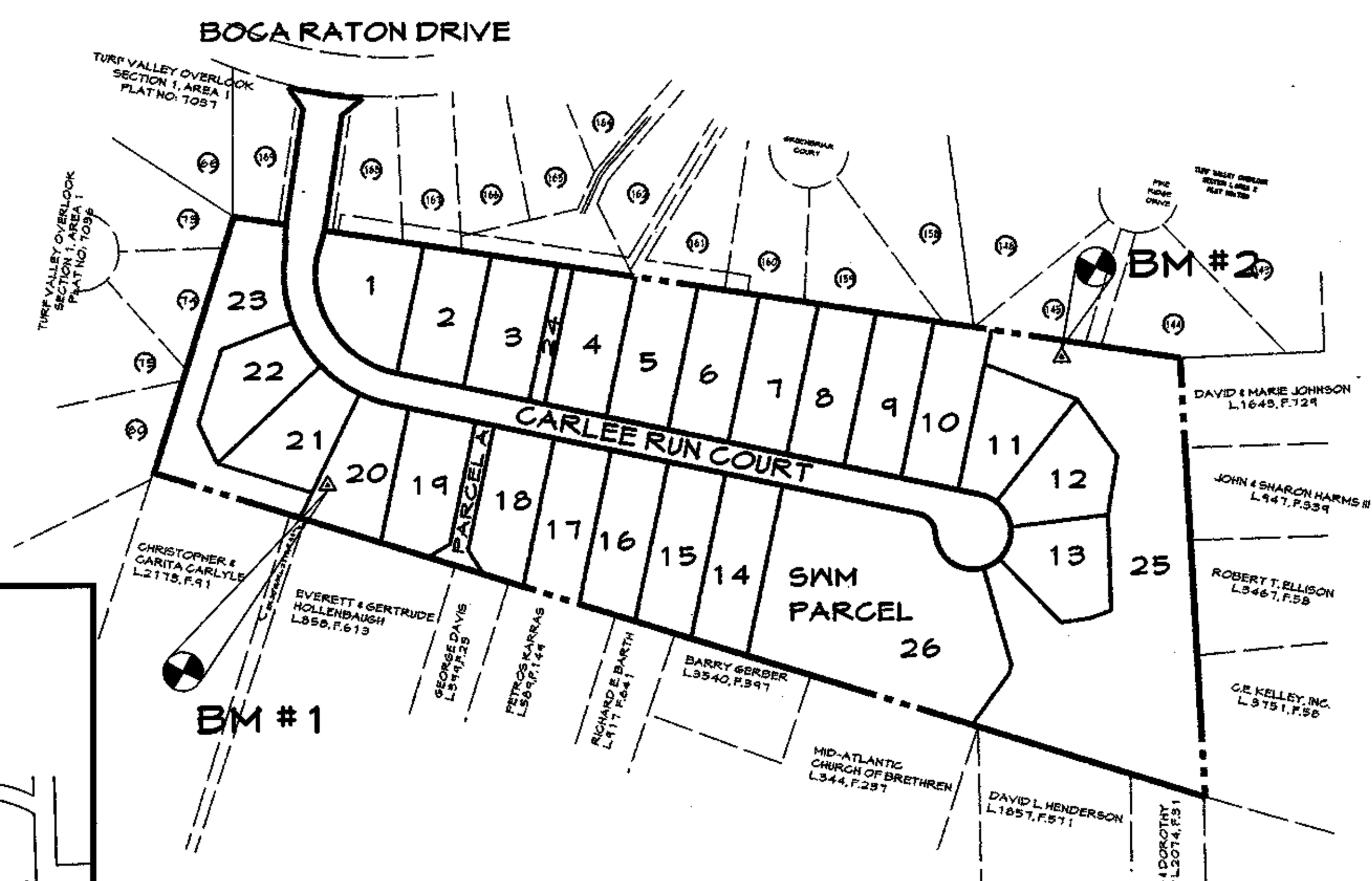
BENCHMARKS:

B.M.#1 - REBAR & CAP #6
N 589049.7820, E 134843.2.45
EL. = 488.21

B.M.#2 - REBAR & CAP #8
N 589211.5754, E 1349364.4132
EL. = 452.54



BENCHMARK LOCATION
SCALE: 1"= 600'



LOCATION PLAN
SCALE: 1"= 200'

FOREST CONSERVATION NOTE

THE FOREST CONSERVATION REQUIREMENT FOR THIS PROJECT WILL REQUIRE 2.00 ACRES OF NEW FOREST PLANTINGS (AFFORESTATION). THIS REQUIREMENT WILL BE PROVIDED ON-SITE AS SHOWN ON THE FOREST CONSERVATION PLAN (SHEETS 21 & 22). SURETY WILL BE PROVIDED TO HOWARD COUNTY IN THE FORM OF AN APPROPRIATE BOND AS PART OF THE PUBLIC WORKS AGREEMENT,IN THE AMOUNT OF $0.50 PER SQUARE FOOT FOR A TOTAL OF $43560.00.

CLSI
Carroll Land Services Incorporated
*Engineers * Surveyors*
Land Development Consultants
*Landscape Architects*Environmental Specialists*
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

STREET LIGHT SCHEDULE

DWG. NO.	STREET NAME	STATION	OFFSET	FIXTURE/POLETYPE	COMMENTS
2 OF 22	CARLEE RUN COURT	0+20	25'RT	100 WATT HPS VAPOR PREMIER COLONIAL POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	
2 OF 22	CARLEE RUN COURT	2+50	15'RT		
2 OF 22	CARLEE RUN COURT	4+23	15'RT		
3 OF 22	CARLEE RUN COURT	7+45	15'RT		
3 OF 22	CARLEE RUN COURT	L.P. 2+75	3' LT		

LIST OF DRAWINGS

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 2-25-03
CHIEF, BUREAU OF HIGHWAYS HS — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[signature] 3/4/03
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE
[signature] 2/28/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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CARLEE MANOR

LOTS 1 THRU 26 AND NON-BUILDABLE PARCEL 'A'
ZONED: R-20
TAX MAP No. 16, PARCEL No. 123

2ND ELECTION DISTRICT * HOWARD COUNTY, MD.

STATE OF MARYLAND — ALFRED L. HANSARD — NO. 23446 — REGISTERED PROFESSIONAL ENGINEER
ALFRED L. HANSARD
PROFESSIONAL ENGINEER REG. No. 23446

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410-750-1200

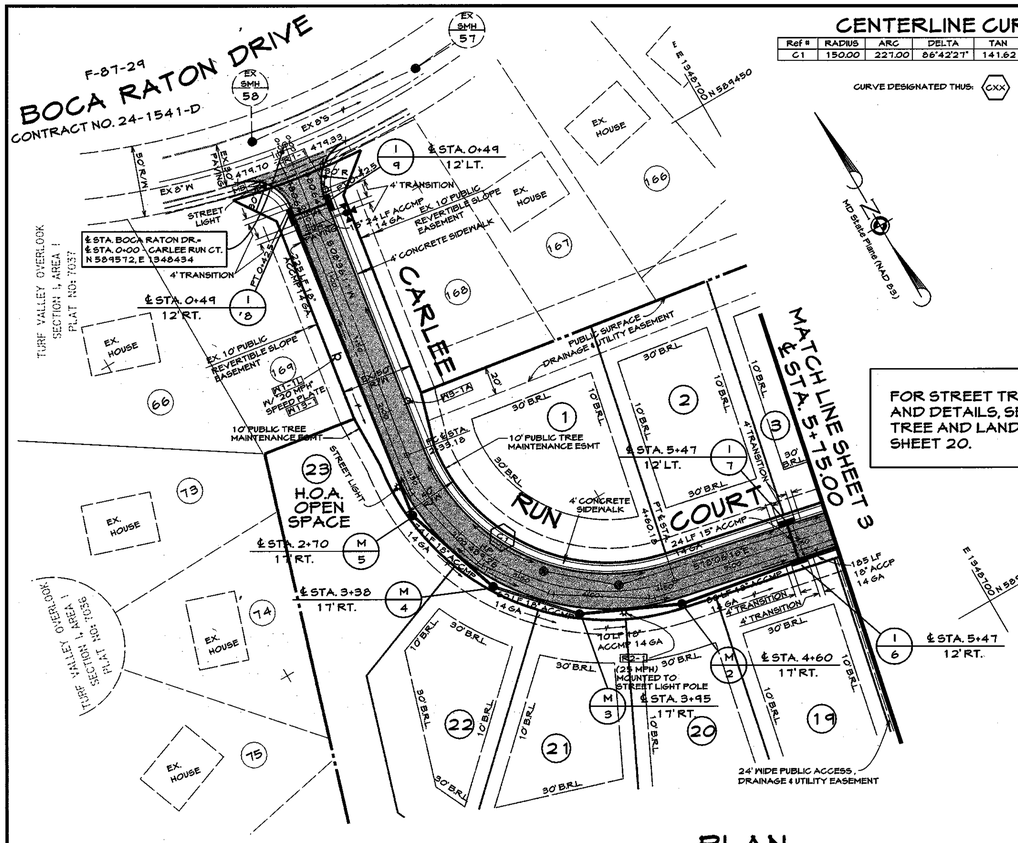
DATE	REVISIONS	
		DATE: JAN, 2003
		FILE NO.: F--02-91
		JOB NO.: 97230A
		SHEET: 1 OF 24

F-02-91

F-87-29

BOCA RATON DRIVE

CONTRACT NO. 24-1541-D



CENTERLINE CURVE DATA

Ref #	RADIUS	ARC	DELTA	TAN	CHORD BEARING	CHORD LENGTH
C1	150.00	227.00	86°42'27"	141.62	S 34°45'02" E	205.95

CURVE DESIGNATED THUS: (CXX)

FOR STREET TREE LAYOUT AND DETAILS, SEE THE STREET TREE AND LANDSCAPE PLAN, SHEET 20.

NOTE:
PROVIDE A 4' TRANSITION FROM INLET TO MODIFIED CURB AND GUTTER ON EITHER SIDE OF INLET PER STANDARD DETAIL R3.02 DMV IV. SEE DETAIL THIS SHEET

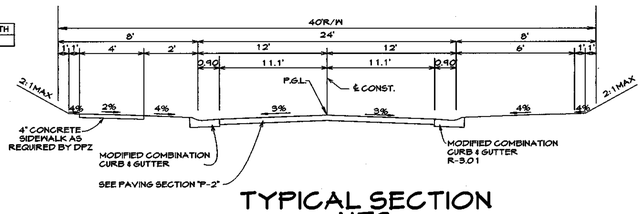
NOTE: UTILITY BOXES MAY NOT BE LOCATED WITHIN THE OPEN SPACE ACCESS STRIP.

PLAN

SCALE: 1"= 50'

LEGEND

- STREET LIGHTS
- STREET SIGN
- R1-1D STREET SIGN TYPE



TYPICAL SECTION
NTS

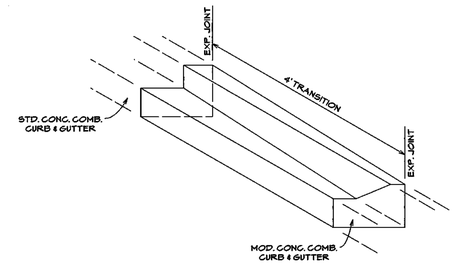
CARLEE RUN COURT
STA. 0+42.50 TO STA. 11+44.40

PUBLIC ACCESS STREET
DESIGN SPEED - 25 MPH

GRANULAR BASE ALTERNATE

FULL DEPTH BIT. CON. ALTERNATE

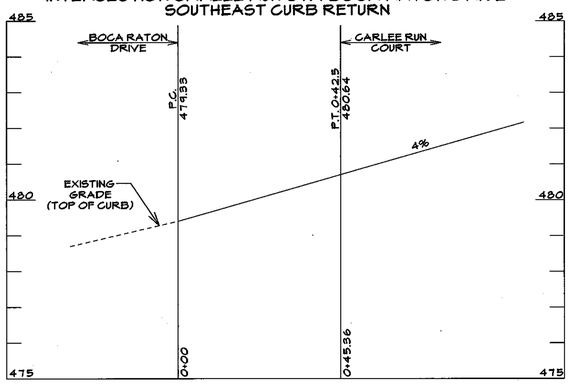
PAVING SECTION P-2



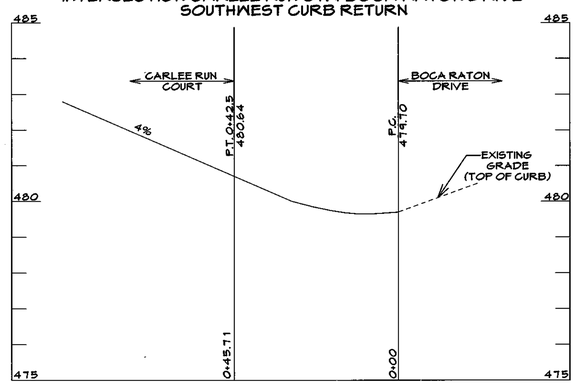
CONCRETE CURB AND GUTTER TRANSITION

(PER STANDARD DETAIL R3-02 DMV IV)
NOT TO SCALE

INTERSECTION CARLEE RUN CT. & BOCA RATON DRIVE SOUTHEAST CURB RETURN

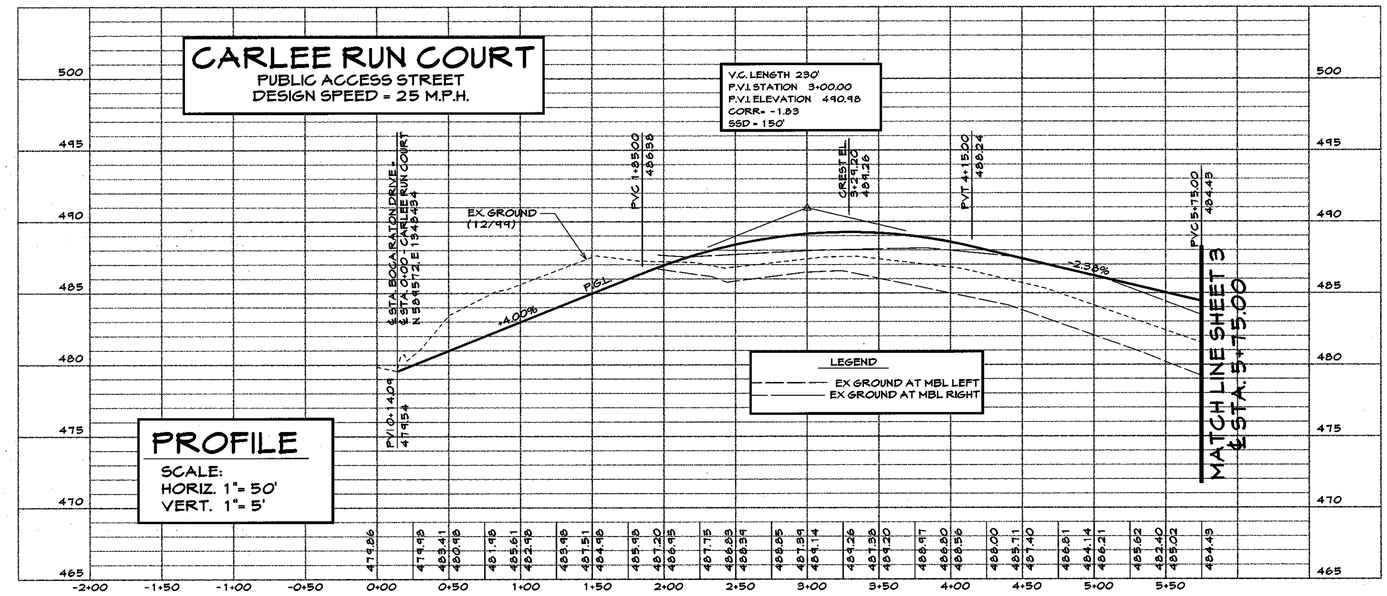


INTERSECTION CARLEE RUN CT. & BOCA RATON DRIVE SOUTHWEST CURB RETURN



FILLET DETAILS

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



PROFILE

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

OWNER

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APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/20/03

ROAD PLAN & PROFILE
CARLEE RUN COURT
& STA. 0+00.00 TO STA. 5+75
# CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 129
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSEL — PROFESSIONAL ENGINEER
Alfred L. Hansell
Professional Engineer Registration No. 23446

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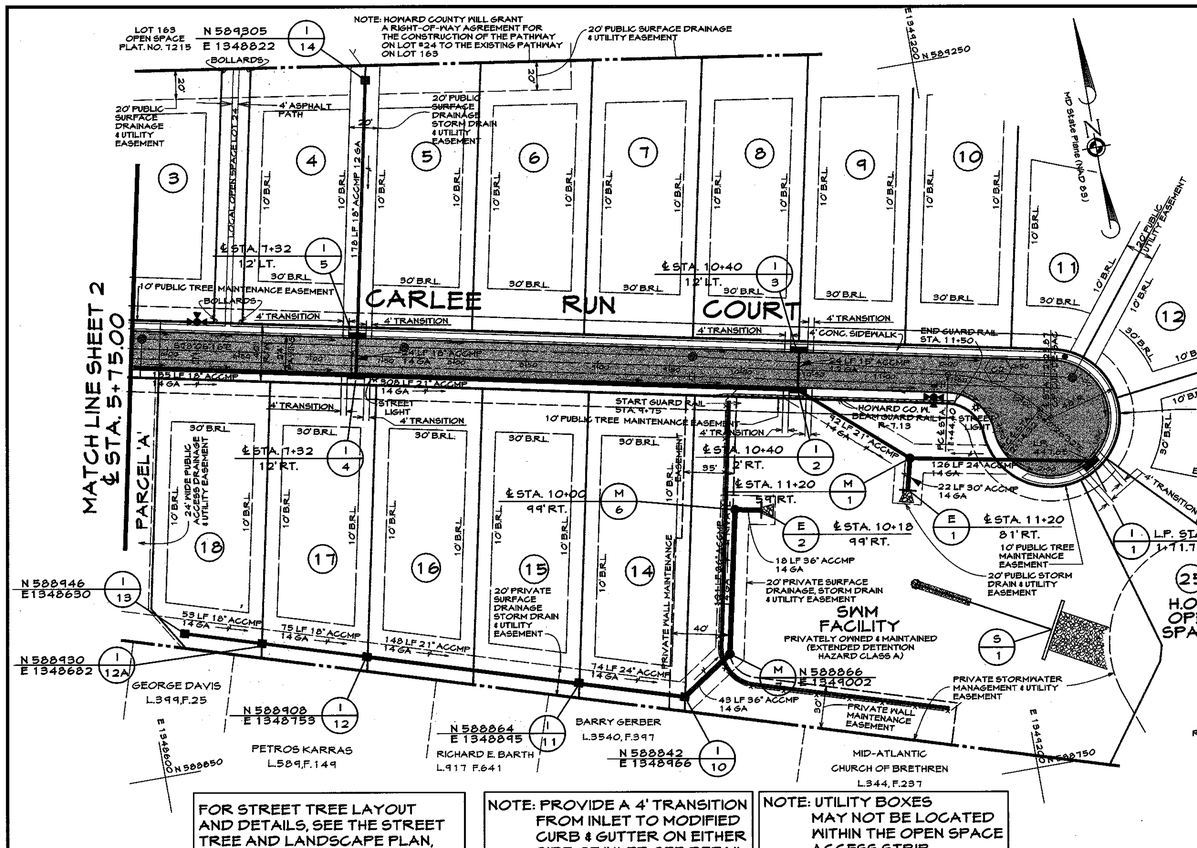
Date	Revisions	
		Drawn By: BM
		Designed By: AJD/LGD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 20 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\rsdplans\02carlee1.dgn



CENTERLINE CURVE DATA

Ref #	RADIUS	ARC	DELTA	TAN	CHORD BEARING	CHORD LENGTH
C2	106.37	69.92	37°39'44"	36.28	S 59°16'24"E	68.67'

CURVE DESIGNATED THUS: (CXX)

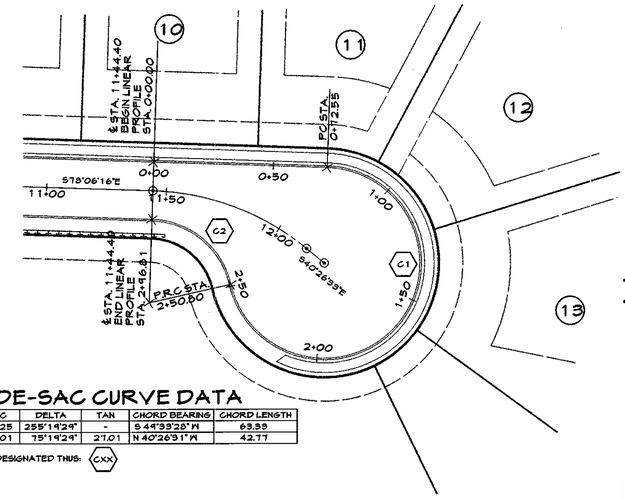
PLAN

SCALE: 1"= 50'

LEGEND

- STREET LIGHTS
- STREET SIGN
- RT-1Q STREET SIGN TYPE

NOTE: UTILITY BOXES MAY NOT BE LOCATED WITHIN THE OPEN SPACE ACCESS STRIP.



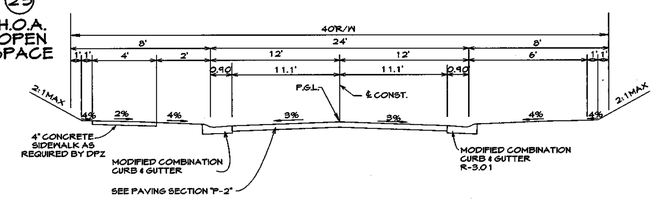
CUL-DE-SAC CURVE DATA

Ref #	RADIUS	ARC	DELTA	TAN	CHORD BEARING	CHORD LENGTH
C1	40.00	118.25	255°14'29"	-	S 44°35'20" W	63.33
C2	95.00	46.01	75°14'29"	27.01	N 40°26'51" W	42.77

CURVE DESIGNATED THUS: (CXX)

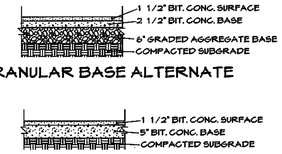
CARLEE RUN COURT CUL-DE-SAC DETAIL

SCALE: 1"= 30'



TYPICAL SECTION NTS

CARLEE RUN COURT STA. 0+42.50 TO STA. 11+44.40



GRANULAR BASE ALTERNATE

FULL DEPTH BIT. CON. ALTERNATE

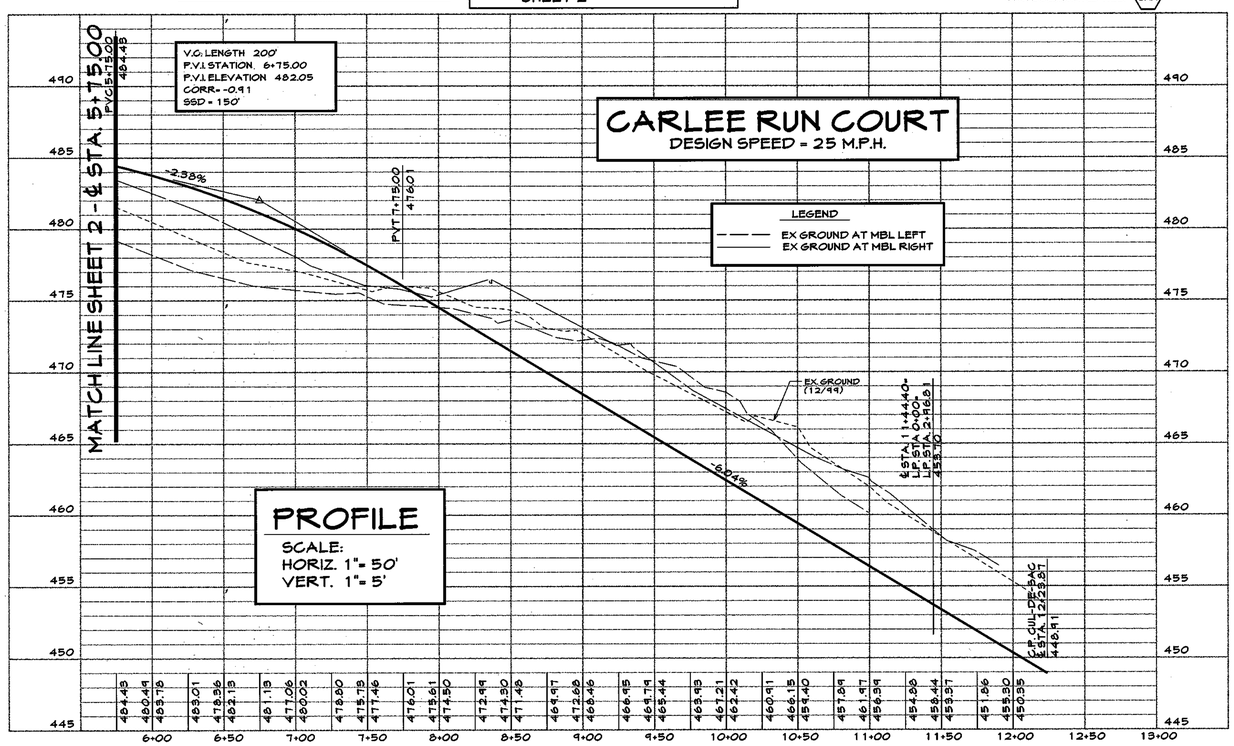
PAVING SECTION P-2

FOR STREET TREE LAYOUT AND DETAILS, SEE THE STREET TREE AND LANDSCAPE PLAN, SHEET 20.

NOTE: PROVIDE A 4' TRANSITION FROM INLET TO MODIFIED CURB & GUTTER ON EITHER SIDE OF INLET. SEE DETAIL SHEET 2

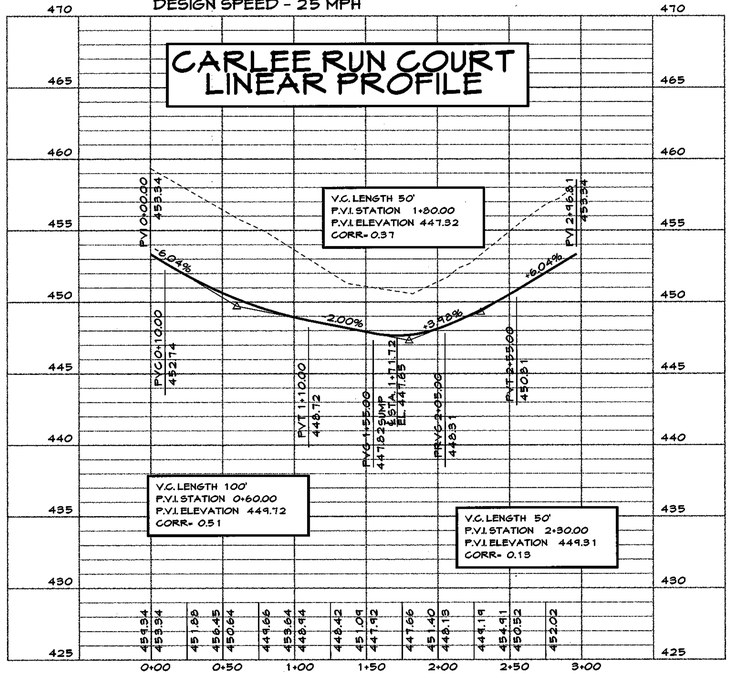
NOTE: UTILITY BOXES MAY NOT BE LOCATED WITHIN THE OPEN SPACE ACCESS STRIP

CURVE DESIGNATED THUS: (CXX)



CARLEE RUN COURT LINEAR PROFILE

PUBLIC ACCESS STREET
DESIGN SPEED - 25 MPH



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APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

ROAD PLAN & PROFILE CARLEE RUN COURT

℄ STA. 5+75.00 TO STA. 12+23.87

CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 123

2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HENNARD — PROFESSIONAL ENGINEER

Alfred L. Hennard
Professional Engineer Registration No. 23446

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Landscape Architects • Environmental Specialists
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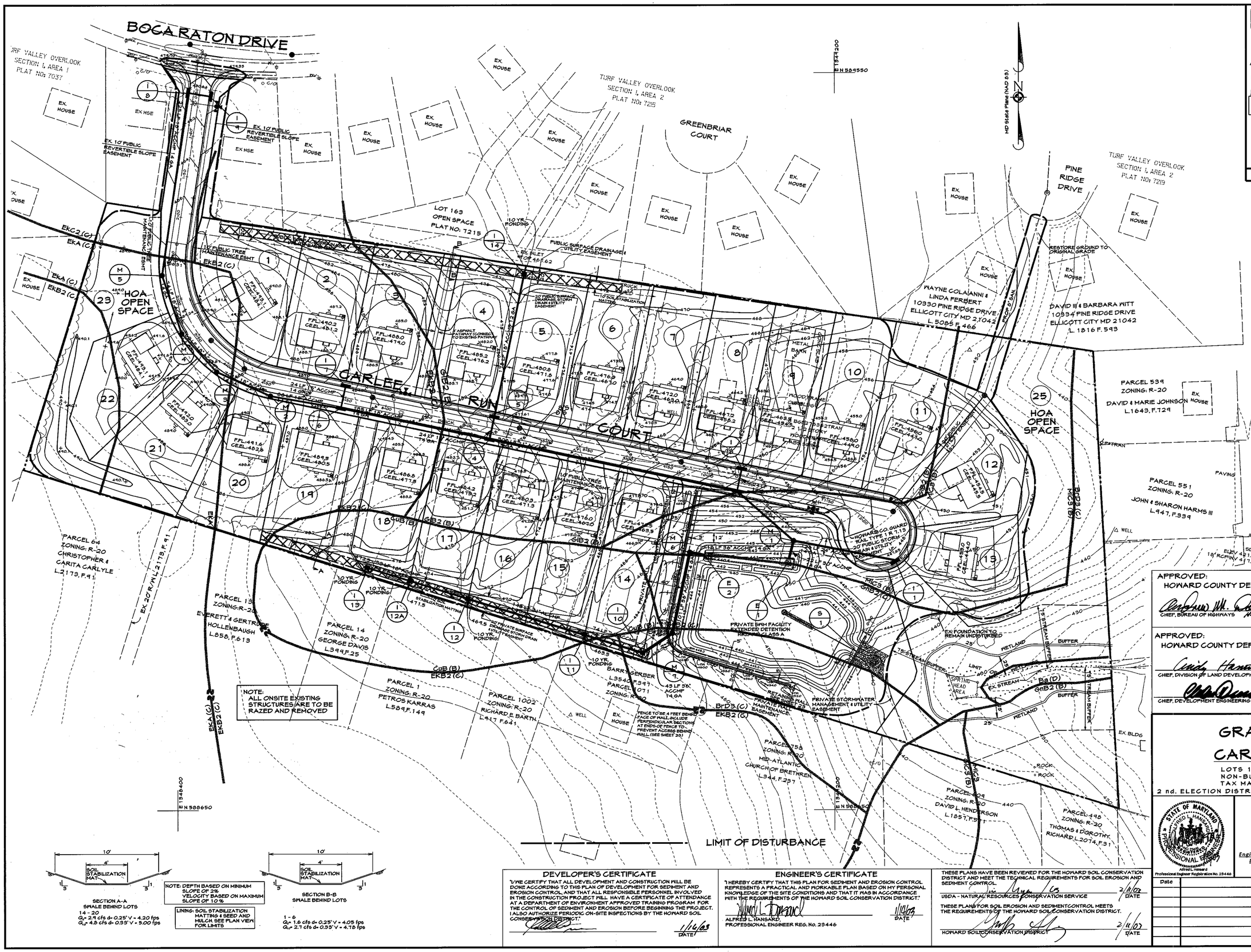
Date	Revisions	
		Drawn By: BM pct
		Designed By: AJD/LGD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 5 OF 24

County File No. F-02-91

CAD Drawing File Name: a:\97230\dgn\const\roadplans\(3)carlee.dgn



NOTE: ALL ONSITE EXISTING STRUCTURES ARE TO BE RAZED AND REMOVED

LIMIT OF DISTURBANCE

VICINITY MAP Scale: 1"=2000'

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c/o WILIAM J. GERING
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SECTION A-A
SWALE BEHIND LOTS
14 - 20
Q_2= 2.9 cfs d= 0.25' V = 4.20 fps
Q_{10}= 4.8 cfs d= 0.33' V = 5.00 fps

NOTE: DEPTH BASED ON MINIMUM SLOPE OF 2%
VELOCITY BASED ON MAXIMUM SLOPE OF 10 %

LINING: SOIL STABILIZATION MATTING & SEED AND MULCH. SEE PLAN VIEW FOR LIMITS

SECTION B-B
SWALE BEHIND LOTS
1 - 6
Q_2= 1.6 cfs d= 0.25' V = 4.05 fps
Q_{10}= 2.7 cfs d= 0.33' V = 4.78 fps

DEVELOPER'S CERTIFICATE

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

1/16/03
DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Alfred L. Hansard
1/14/03
ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 23446
DATE

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

2/11/03
USDA - NATURAL RESOURCES CONSERVATION SERVICE
DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENTCONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

2/11/03
HOWARD SOIL CONSERVATION DISTRICT
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Donelle
CHIEF, BUREAU OF HIGHWAYS HS
2-25-03
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT HB
3/4/03
DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
2/20/03
DATE

GRADING PLAN
CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 16, PARCEL 123
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Alfred L. Hansard
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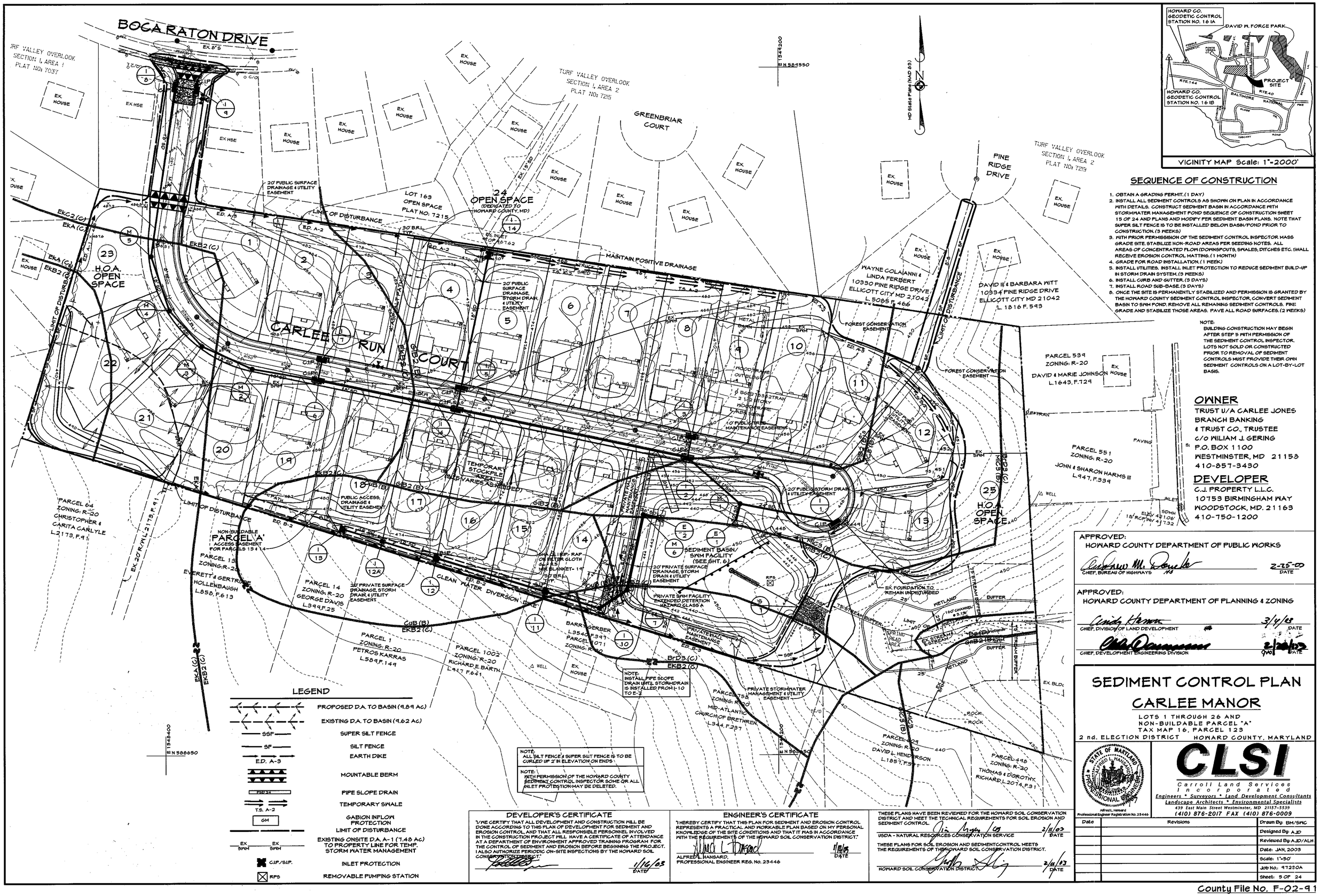
		Designed By: AJD/AR
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 4 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\r&sdplans\(04)grade.dgn



VICINITY MAP Scale: 1"=2000'

SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT. (1 DAY)
2. INSTALL ALL SEDIMENT CONTROLS AS SHOWN ON PLAN IN ACCORDANCE WITH DETAILS. CONSTRUCT SEDIMENT BASIN IN ACCORDANCE WITH STORMWATER MANAGEMENT POND SEQUENCE OF CONSTRUCTION SHEET 15 OF 24 AND PLANS AND MODIFY PER SEDIMENT BASIN PLANS. NOTE THAT SUPER SILT FENCE IS TO BE INSTALLED BELOW BASIN/POND PRIOR TO CONSTRUCTION. (3 WEEKS)
3. WITH PRIOR PERMISSISION OF THE SEDIMENT CONTROL INSPECTOR MASS GRADE SITE. STABILIZE NON-ROAD AREAS PER SEEDING NOTES. ALL AREAS OF CONCENTRATED FLOW (DOWNSPOUTS, SWALES, DITCHES ETC. SHALL RECEIVE EROSION CONTROL MATTING. (1 MONTH)
4. GRADE FOR ROAD INSTALLATION. (1 WEEK)
5. INSTALL UTILITIES. INSTALL INLET PROTECTION TO REDUCE SEDIMENT BUILD-UP IN STORM DRAIN SYSTEM. (3 WEEKS)
6. INSTALL CURB AND GUTTER. (3 DAYS)
7. INSTALL ROAD SUB-BASE. (3 DAYS)
8. ONCE THE SITE IS PERMANENTLY STABILIZED AND PERMISSION IS GRANTED BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASIN TO SWM POND. REMOVE ALL REMAINING SEDIMENT CONTROLS. FINE GRADE AND STABILIZE THOSE AREAS. PAVE ALL ROAD SURFACES. (2 WEEKS)

NOTE:
BUILDING CONSTRUCTION MAY BEGIN AFTER STEP 5 WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR. LOTS NOT SOLD OR CONSTRUCTED PRIOR TO REMOVAL OF SEDIMENT CONTROLS MUST PROVIDE THEIR OWN SEDIMENT CONTROLS ON A LOT-BY-LOT BASIS.

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
C/O WILIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

LEGEND

	PROPOSED D.A. TO BASIN (9.89 Ac)
	EXISTING D.A. TO BASIN (9.62 Ac)
SSF	SUPER SILT FENCE
SF	SILT FENCE
E.D. A-3	EARTH DIKE
	MOUNTABLE BERM
PSD 24	PIPE SLOPE DRAIN
T.S. A-2	TEMPORARY SWALE
GM	GABION INFLOW PROTECTION
	LIMIT OF DISTURBANCE
EX SWM	EXISTING ONSITE D.A. A-1 (7.48 Ac) TO PROPERTY LINE FOR TEMP. STORM WATER MANAGEMENT
C.I.P./S.I.P.	INLET PROTECTION
☒ RPS	REMOVABLE PUMPING STATION

NOTE:
ALL SILT FENCE & SUPER SILT FENCE IS TO BE CURLED UP 2' IN ELEVATION ON ENDS

NOTE:
WITH PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR SOME OR ALL INLET PROTECTION MAY BE DELETED.

DEVELOPER'S CERTIFICATE

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

1/16/03
DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Alfred L. Hansard
ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 23446
1/14/03
DATE

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

Jim Myers / CG
USDA - NATURAL RESOURCES CONSERVATION SERVICE
2/11/03
DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENTCONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT
2/11/03
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Donelle HS
CHIEF, BUREAU OF HIGHWAYS
2-25-03
DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hamm HS
CHIEF, DIVISION OF LAND DEVELOPMENT
3/4/03
DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
2/20/03 CWO
DATE

SEDIMENT CONTROL PLAN

CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 16, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

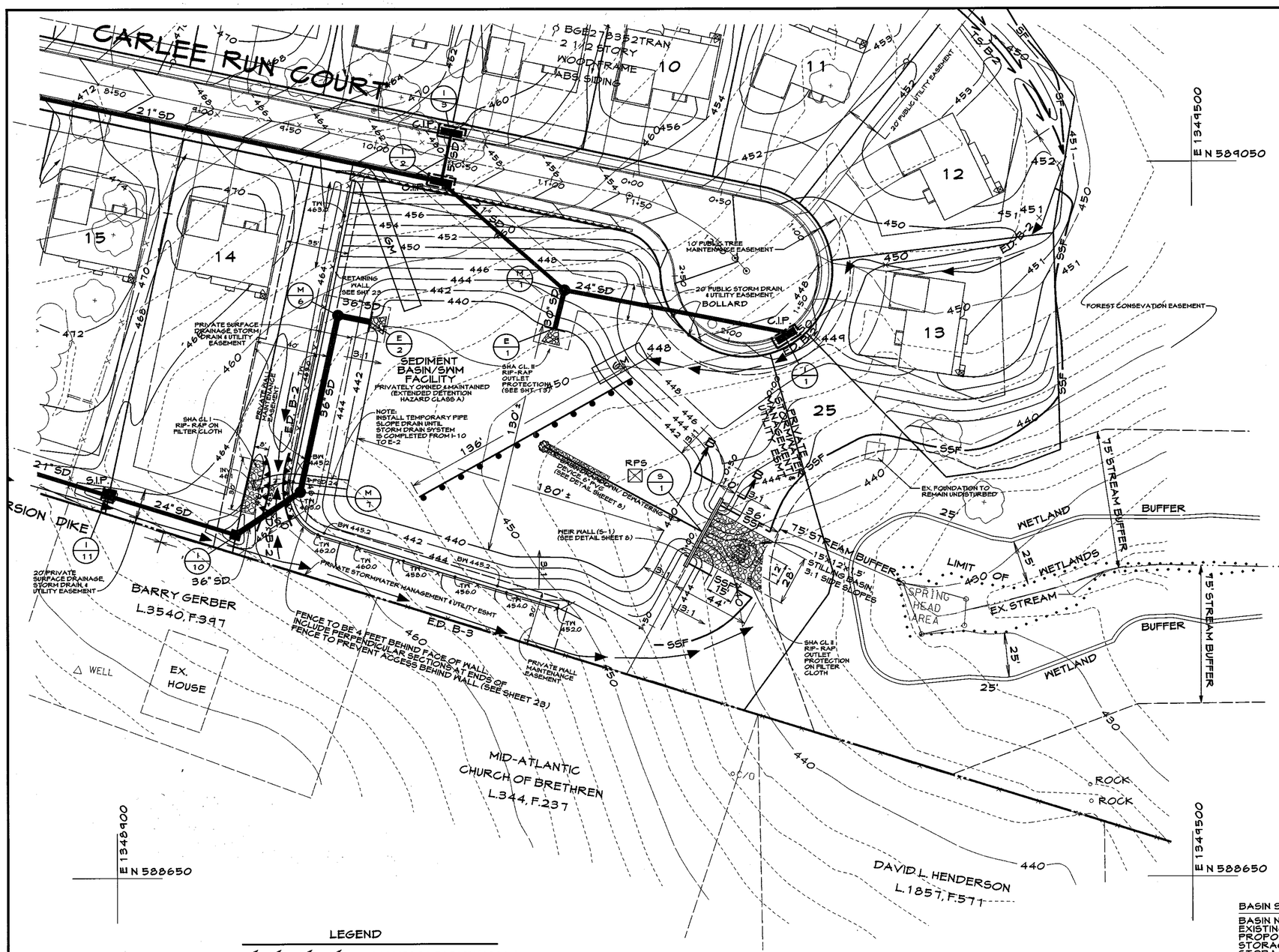
NO. 23446
Alfred L. Hansard
Professional Engineer Registration No. 23446

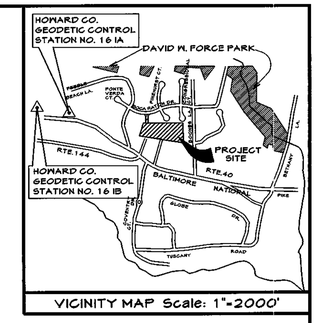
CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: BM/SWC
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 5 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dan\const\r&sdplans\(05)SCPLAN.DGN





VICINITY MAP Scale: 1"=2000'

EMBANKMENT CENTERLINE DATA

Ref #	Bearing	Distance
L1	S 28°36'48" W	180.50

LEGEND

- PROPOSED D.A. TO BASIN (9.89 Ac)
- EXISTING D.A. TO BASIN (7.48 Ac)
- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- E.D. A-3 — EARTH DIKE
- MOUNTABLE BERM
- PSD 24 — PIPE SLOPE DRAIN
- T.S. A-2 — TEMPORARY SWALE
- GM — GABION INFLOW PROTECTION
- LIMIT OF DISTURBANCE
- EX SWM / EX SWM — EXISTING ONSITE D.A. A-1 (7.48 Ac) TO PROPERTY LINE FOR TEMP. STORM MATER MANAGEMENT
- C.I.P./S.I.P. — INLET PROTECTION
- RPS — REMOVABLE PUMPING STATION

NOTE:
CONTRACTOR TO REFER TO STORMWATER MANAGEMENT CONSTRUCTION DRAWINGS FOR SEQUENCE OF CONSTRUCTION FOR SWM POND/SEDIMENT BASIN

BASIN SCHEDULE:

BASIN NUMBER : ONE
EXISTING DRAINAGE AREA : 7.48 ACRES
PROPOSED DRAINAGE AREA : 9.89 ACRES
STORAGE REQUIRED : 35,604 FT³
STORAGE PROVIDED : 62,852 FT³
EMBANKMENT ELEVATION : 445.0
WEIR CREST : (1 ST STAGE: 442.25)
OUTLET ELEVATION : 438.0
CLEANOUT ELEVATION : 439.8
BOTTOM ELEVATION : 440.0
BOTTOM DIMENSION : 180' x 130'
Q_2 EXIST/Q_2 PROP : 3.9 cfs/ 2.7 cfs

OWNER

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410-857-3430

DEVELOPER

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10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/25/03

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

DATE 1/16/03

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 29446

DATE 1/16/03

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/4/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/4/03

SEDIMENT BASIN AND TEMPORARY STORMWATER MANAGEMENT PLAN

CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSARD — PROFESSIONAL ENGINEER
Professional Engineer Registration No. 29446

CLSI
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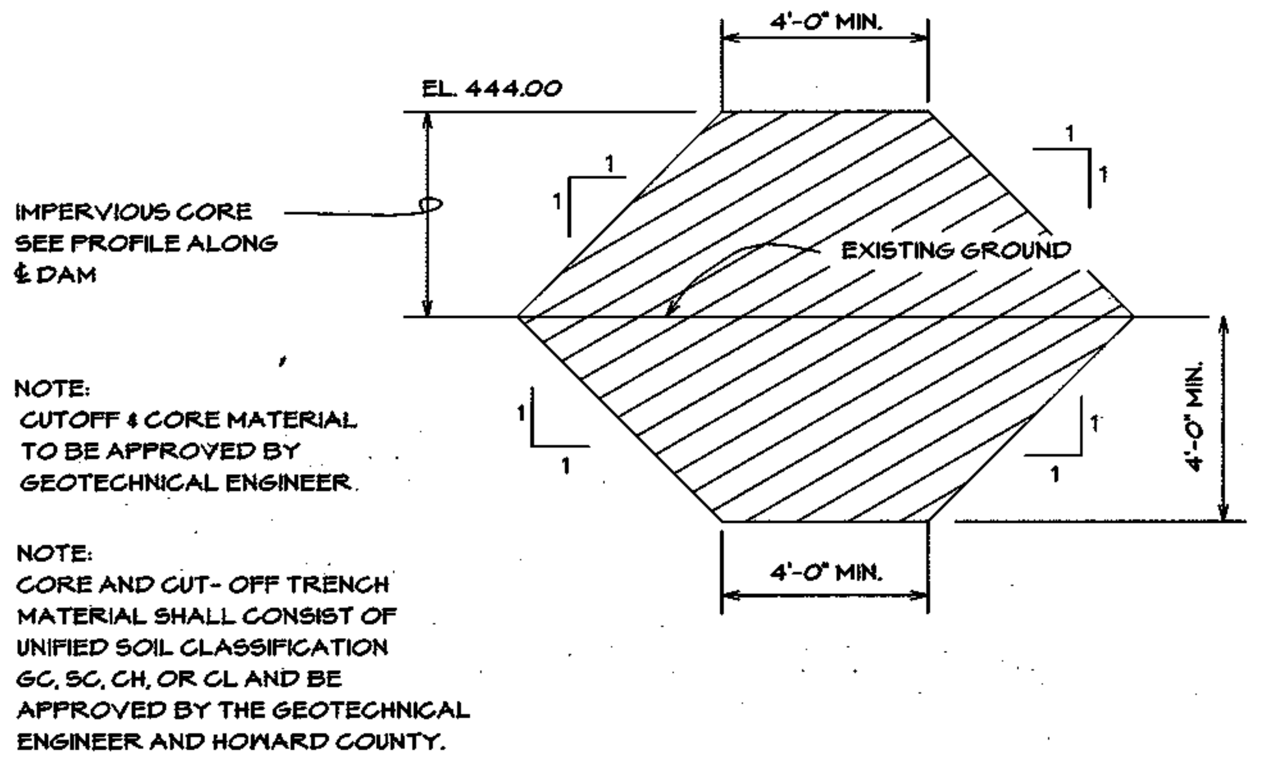
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

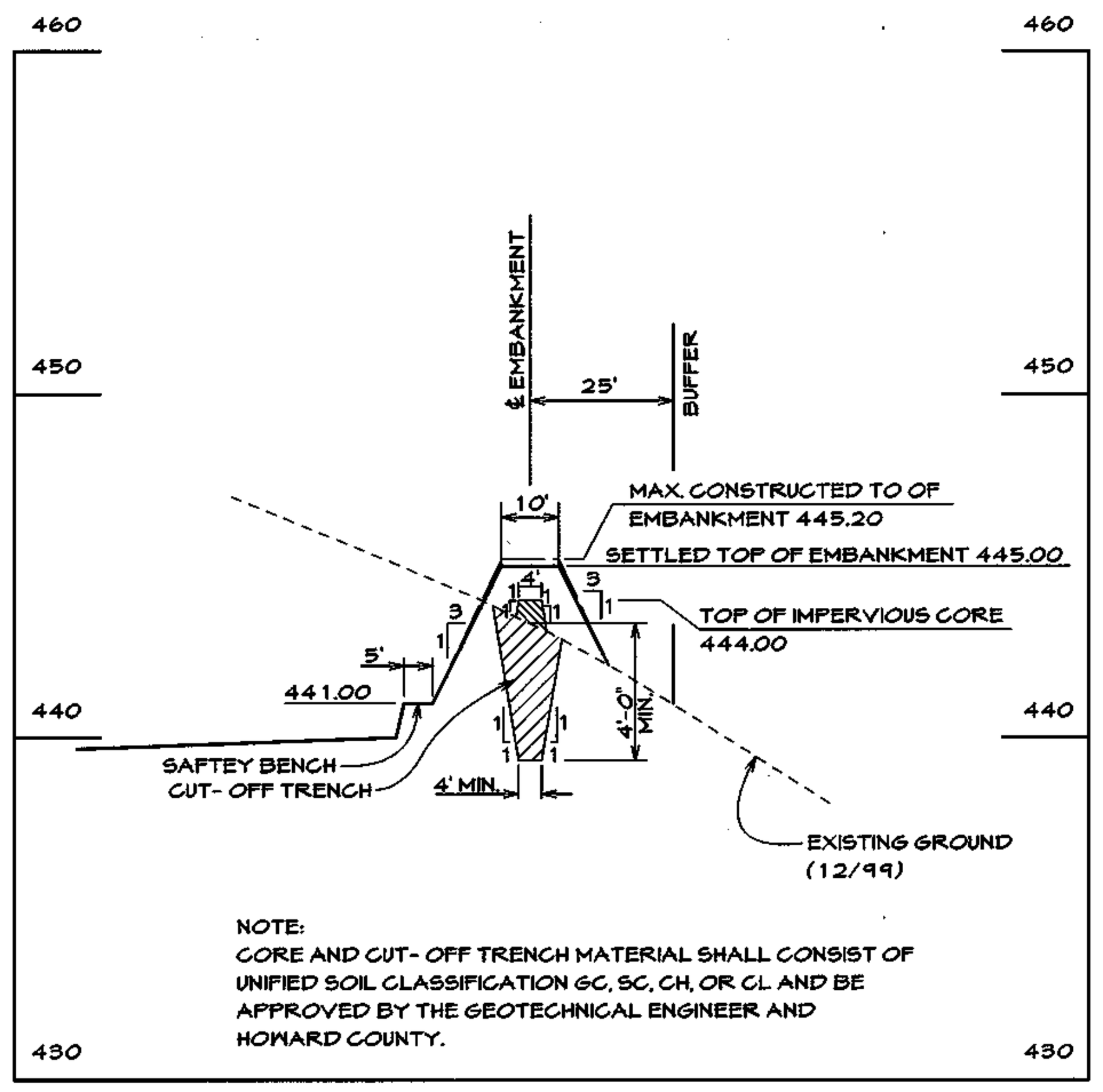
Date	Revisions	
		Drawn By: BM/SMC
		Designed By: AJD/LSD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: 1"=50'
		Job No: 97230A
		Sheet: 6 OF 24

County File No. F-02-91



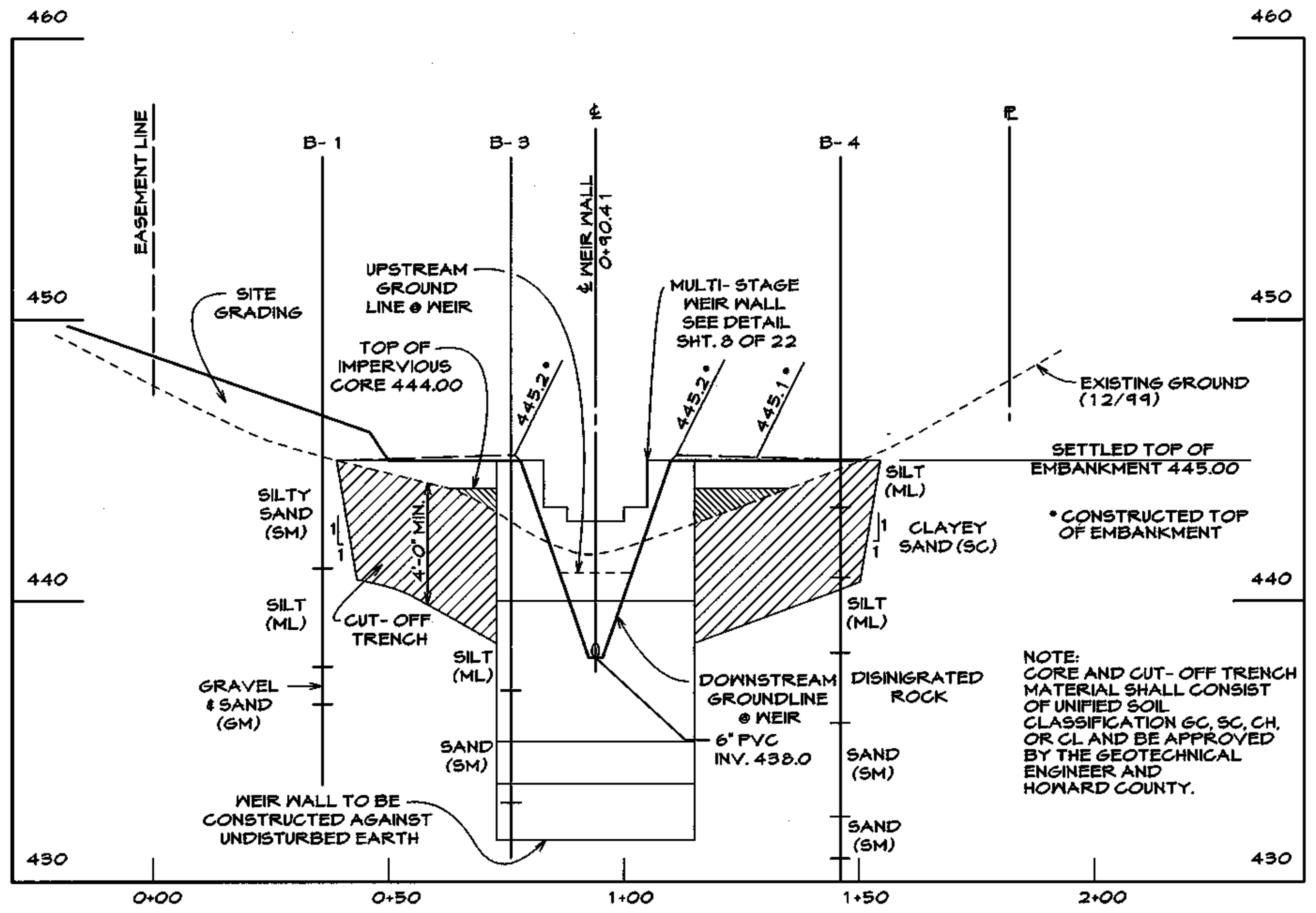
CUT-OFF TRENCH

NOT TO SCALE



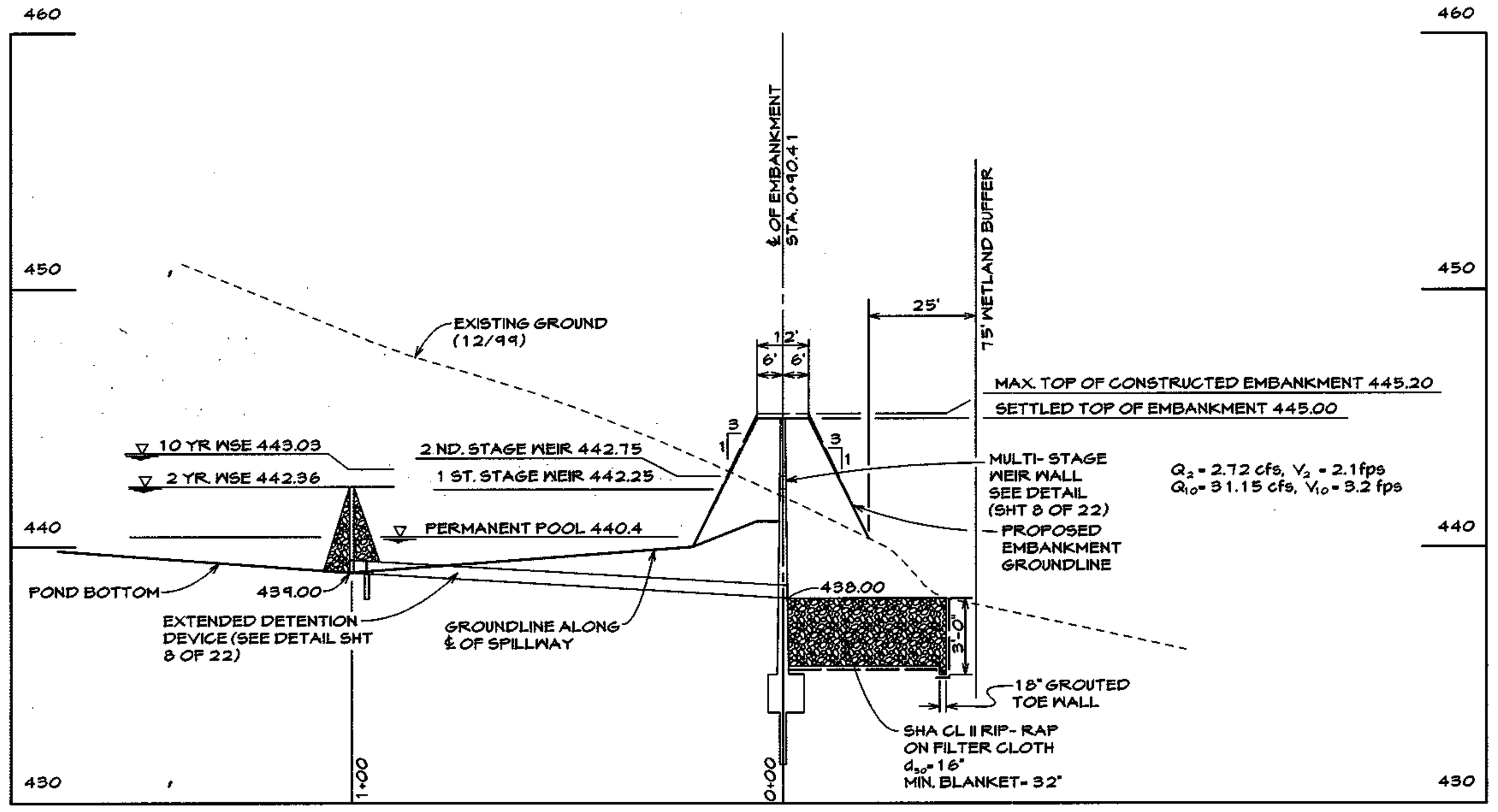
TYPICAL EMBANKMENT SECTION
SECTION 'B-B'

SCALE: HORIZ.: 1"= 30'
VERT.: 1"= 5'



PROFILE ALONG CENTERLINE
OF EMBANKMENT

SCALE: HORIZ.: 1"= 30'
VERT.: 1"= 5'



PROFILE ALONG ℄ OF WEIR WALL SPILLWAY

SCALE: HORIZ.: 1"= 30'
VERT.: 1"= 5'

OWNER

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WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-25-03 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 3/4/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/28/03 DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTSS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AN APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE AND OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

1/16/03 DATE

ENGINEER'S CERTIFICATE

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ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 23446 — 1/16/03 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/11/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/11/03 DATE

SEDIMENT BASIN AND TEMPORARY STORMWATER MANAGEMENT PROFILES AND NOTES

CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSARD — REGISTERED PROFESSIONAL ENGINEER
Alfred L. Hansard
Professional Engineer Registration No. 23446

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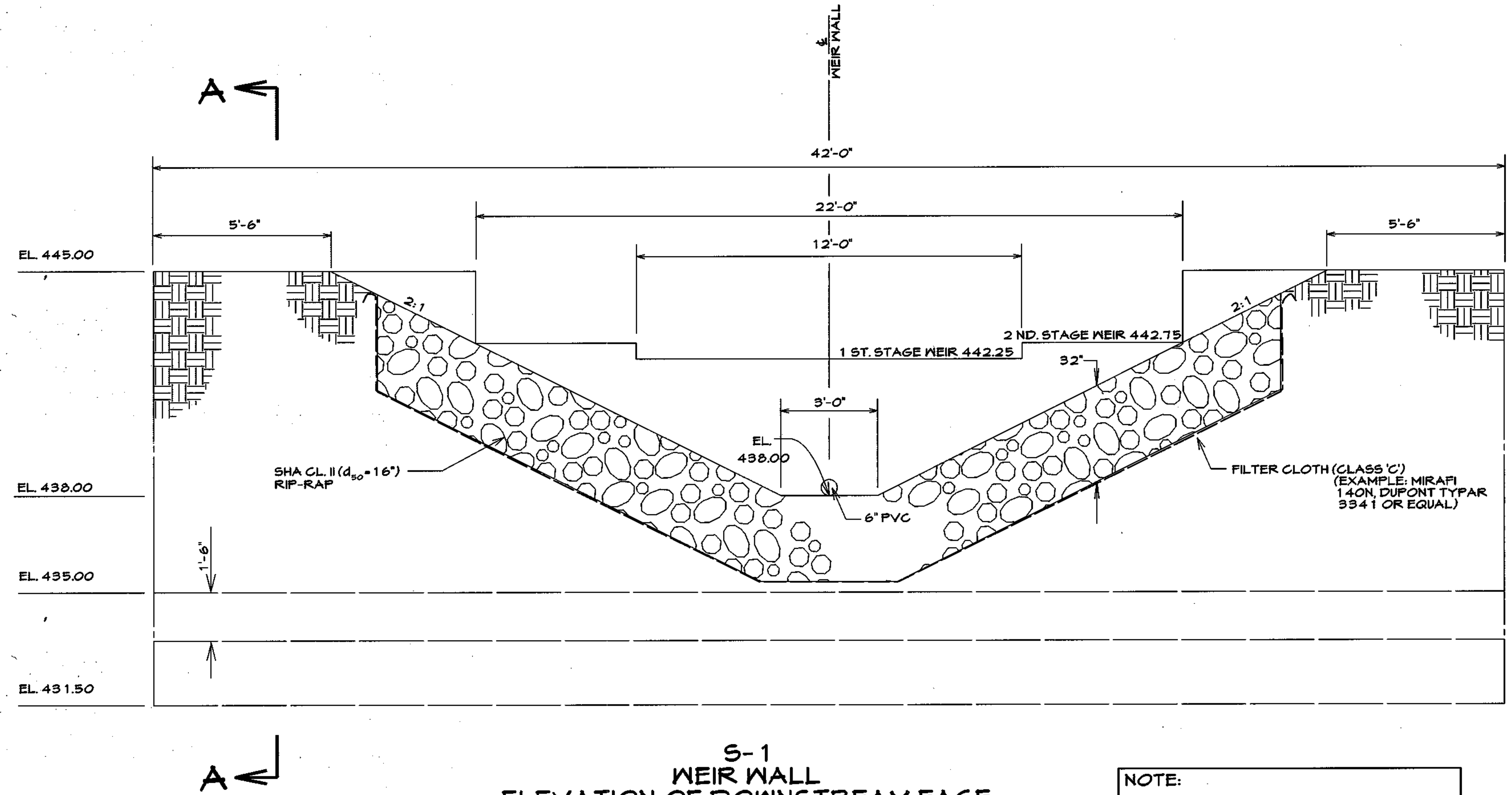
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: JW
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: As Shown
		Job No.: 97230A
		Sheet: 7 OF 24

County File No. F-02-91

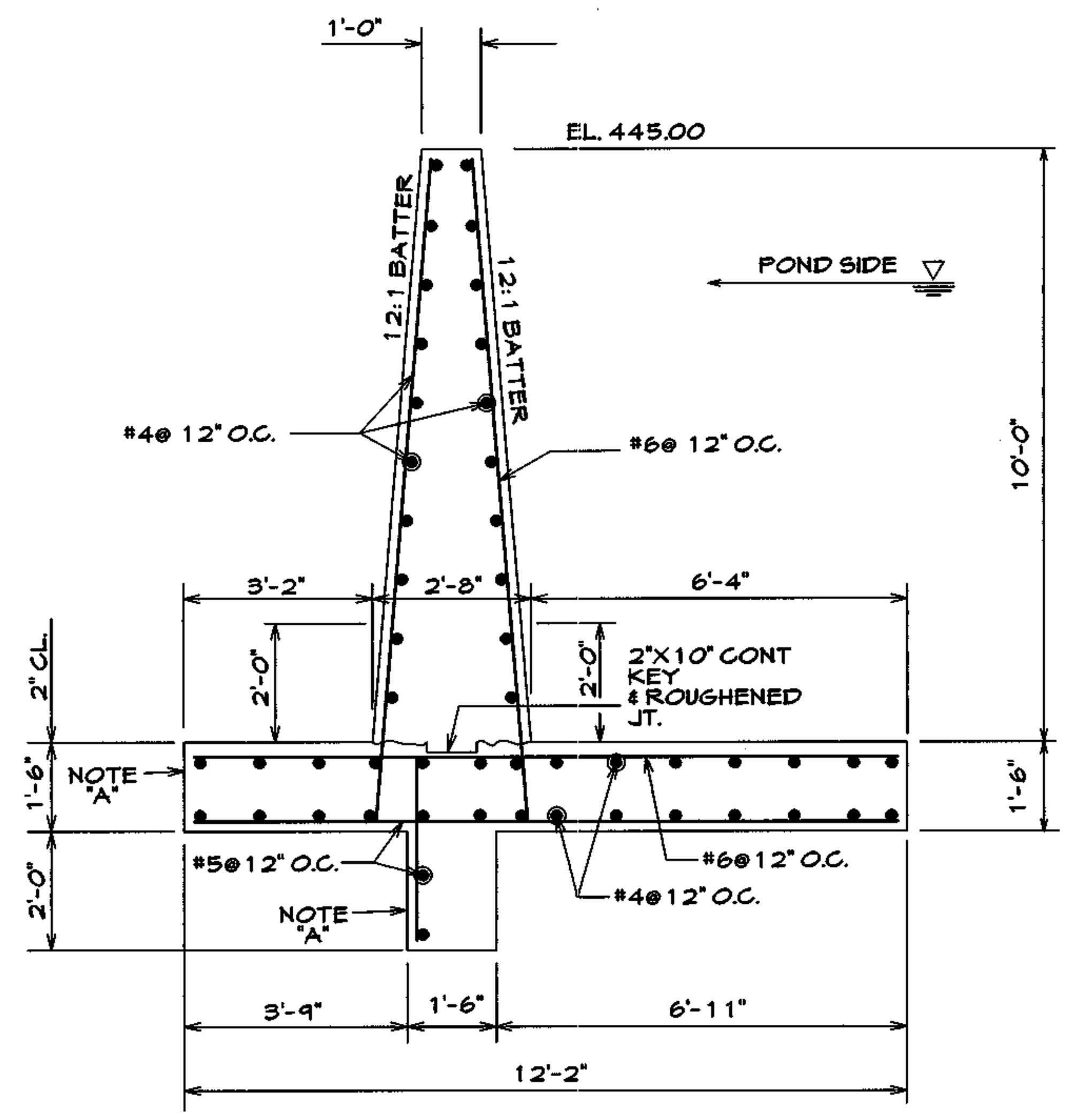
CAD Drawing File Name: g:\97230\dgn\const\resdplans\07\scbasinpro.dgn



S-1
WEIR WALL
ELEVATION OF DOWNSTREAM FACE
SCALE: 3/8" = 1'-0"

NOTE:
ALL EXPOSED WEIR WALL EDGES ARE TO BE CHAMFERED A MINIMUM OF 1" X 1".

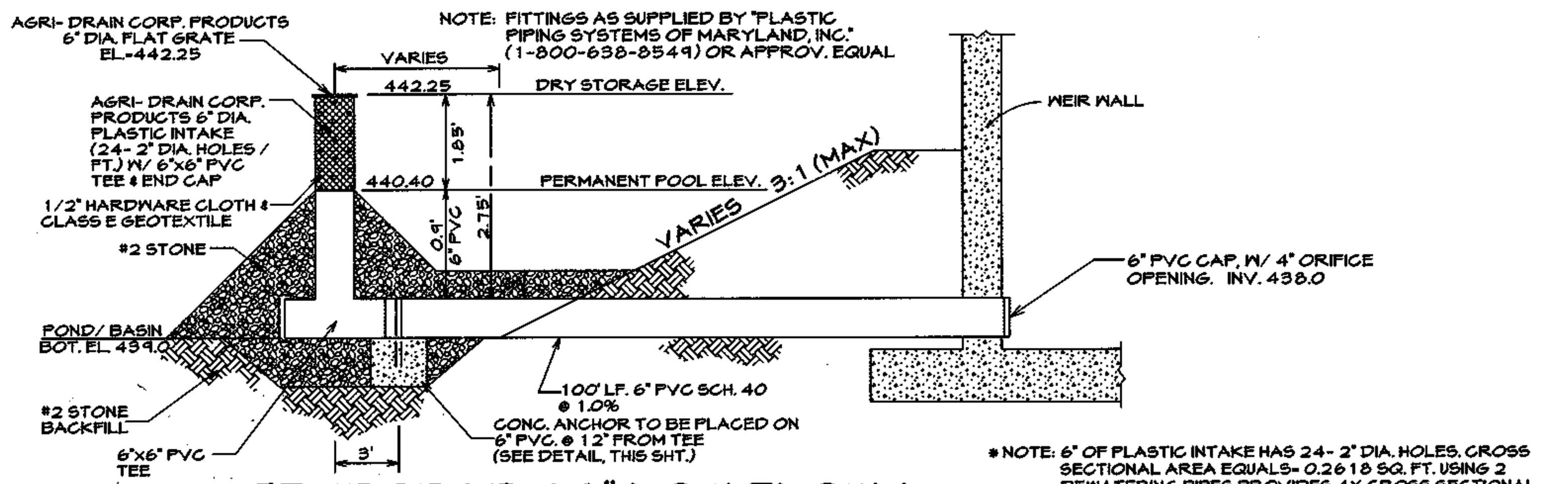
NOTE:
THE WEIR WALL IS TO BE CAST AGAINST UNDISTURBED EARTH.



NOTE "A"
PLACE CONCRETE AGAINST UNDISTURBED EARTH

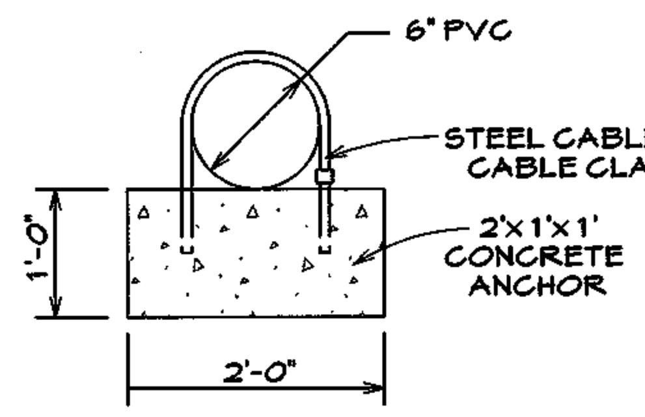
NOTE:
2000 psf BEARING TO BE VERIFIED BY A GEOTECHNICAL ENGINEER

WEIR WALL
SECTION A-A
SCALE: 3/8" = 1'-0"



* NOTE: 6" OF PLASTIC INTAKE HAS 24- 2" DIA. HOLES. CROSS SECTIONAL AREA EQUALS- 0.2618 SQ. FT. USING 2 DEWATERING PIPES PROVIDES 4X CROSS SECTIONAL AREA OF 4" DIA. ORIFICE. REFER TO BASIN DRAWDOWN SCHEMATIC ON DETAIL SHEET 9

TEMPORARY 6" LOW FLOW/
DEWATERING DEVICE DETAIL
NOT TO SCALE



CONCRETE ANCHOR DETAIL
NOT TO SCALE

STRUCTURAL DESIGN BY
HILLIS- CARNES ENGINEERING ASSOCIATES INC.
P.O. BOX 647
NEW MARKET, MARYLAND 21774
(301)- 631- 3950

OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
C/O WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER
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410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-25-03 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 3/4/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/28/03 DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — DATE

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1/16/03 DATE

ENGINEER'S CERTIFICATE

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ALFRED L. HANSARD, PROFESSIONAL ENGINEER REG. No. 23446 — 1/17/03 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/4/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/4/03 DATE

SEDIMENT BASIN AND TEMPORARY STORMWATER MANAGEMENT DETAILS

CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Alfred L. Hansard
Professional Engineer Registration No. 23446

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		Drawn By: JW
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		Scale: As Shown
		Job No.: 97230A
		Sheet: 8 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\sedplans\(08)scbasindet.dgn

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site	13.31 Acres
Area Disturbed	11.30 Acres
Area to be roofed or paved	2.54 Acres
Area to be vegetatively stabilized	8.76 Acres
Total Cut	42,800 Cu Yds.
Total Fill	42,800 Cu Yds.

Offsite waste/borrow area location will be to a site with an approved sediment control plan and an approved and open grading permit.
8. Any sediment control practice, which is disturbed by grading activity for placement of utilities, must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.

Rev. 9/99

Topsoil Notes
Construction and Material Specifications
I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger that 1 ¼" in diameter.
ii. Topsoil must be free of plants or plant parts such as bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.
iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
III. For sites having disturbed areas under 5 acres:
i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
IV. For sites having disturbed areas over 5 acres:
i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
Page 2
Topsoil Notes
a) pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
b) Organic content of topsoil shall be not less than 1.5 percent by weight.
c) Topsoil having soluble salt content greater than 500 parts per million shall not be used.
d) No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
V. Topsoil Application
i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.
ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation.
iii. Topsoil shall be uniformly distributed in a 4"-8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil.
iv. preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
Page 3
Topsoil Notes
v. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.
VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
a) Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
b) Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
c) Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
ii. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

STABILIZATION SPECIFICATIONS

TEMPORARY SEEDING NOTES

Scope: Planting short term (no more then 1 year) vegetation to temporarily stabilize any areas where soil disturbance has occurred, until the area can be permanently stabilized with vegetative or non-vegetative practices.

Standards: The following notes shall conform to the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" Published jointly by the Maryland Department of Environment - Water Management Administration, the National Resource Conservation Service, and the State Soil Conservation Committee.

1. The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See G-20 Sec. 1-C.
2. Fertilizer shall consist of a mixture of 10-10-10 and be applied at a rate of 600 lb per acre (15 lb per 1000 sq. ft.) and will meet the requirements in G-20 Sec. 1-B.
3. Lime shall be applied at a rate of 2 tons per acre (100 lb per 1000 sq. ft.) and shall meet the requirements in G-20 Sec. 1-B.
4. Seed tags shall be made available to the inspector to verify the type and rate of seed used. The seed must meet the requirements in G-20 Sec. 1-C.
5. Mulching will be applied immediately after seeding and will need to meet the requirements in G-20 Sec. 1-F, G and H.
6. Seeding mixtures shall be selected from or will be equal to those on Table 26.
7. The following is one option, approved equals may be used.

Temporary Seeding Summary

Seed Mixture Hardiness Zone 6B/7A (G-20 Figure 5)

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
N/A	Kentucky-31	80	3/1 to 11/15	1"
	Annual Rye	20	3/1 to 11/15	1/4" - 1/2"

PERMANENT SEEDING NOTES

Scope: Planting permanent, long lived vegetative cover on graded and/or cleared areas and areas that have been in temporary vegetation for more then 1 year.

Standards: The following notes shall conform to the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" Published jointly by the Maryland Department of Environment - Water Manager Administration, the National Resource Conservation Service, and the State Soil Conservation Committee.

1. The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See G-20 Sec. 1-C.
2. For sites over 5 ac. soil tests will be performed to determine the exact mixture and application rates for both lime and fertilizer. Soils tests will be prepared by the University of Maryland or a recognized commercial laboratory. If the existing soil does not meet the minimum conditions as stated in G-20 Sec. 1-C-ii, then topsoil will need to be obtained that meets these conditions and applied so as to meet the requirements in G-21.
3. For sites of 5 ac. or less of disturbance, the following fertilizer and lime rates shall apply. Fertilizer shall consist of a mixture of 10-20-20 and be applied at the following rates: N-90 lb per acre (2 lb per 1000 sq. ft.) P205-175 lb per acre (4 lb per 1000 sq. ft.) K20-175 lb per acre (4 lb per 1000 sq. ft.). Fertilizer shall meet the requirements in G-20 Sec. 1-B.
4. Lime shall be applied at a rate of 2 tons per acre (100 lb per 1000 sq. ft.) and shall meet the requirements in G-20 Sec. 1-B.
5. Seed tags shall be made available to the inspector to verify the type and rate of seed used. The seed must meet the requirements in G-20 Sec. 1-C.
6. Mulching will be applied immediately after seeding and will need to meet the requirements in G-20 Sec. 1-F, G & H.
7. Refer to G-20 Sec. 1-E for Methods of Seeding specifications.
8. Refer to G-20 Sec. 4 for Sod specifications.
9. Refer to G-20 Sec. 5 for Turfgrass Establishment specifications.
10. Seeding mixtures shall be selected from or will be equal to those on Table 25.
11. The following is one option, approved equals may be used.

Permanent Seeding Summary

N 10 P205 10 K20 10
Lime application rate - 2 tons/acre (100 lbs./1000 sq. ft.)
Seed Mixture Hardiness Zone 6B/7A (G-20 Figure 5)

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
N/A	Triple Fine Fescue	160	3/1 to 10/30	1"-2"
	Perennial Rye	40	3/1 to 10/30	1"-2"

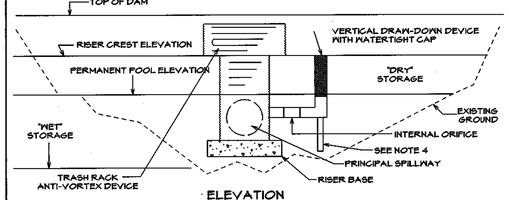
Tracking note:
On areas where the slope is 3:1 or steeper and the height is 5' or greater, contractor shall track the slope using cleated dozer prior to placing asphalt binder. Dozer shall run up-and-down so that cleat marks are horizontal. Where tracking is required, it shall be done from existing grade level to finished grade level within the limits established by the 5' height criteria.

UTILITY CONSTRUCTION NOTES
1. Place all excavated material on the high side of the trench.
2. Only do as much work as can be done in one day so backfilling, final grading, and permanent stabilization can occur.
3. Any sediment control measures disturbed by the utility construction will be repaired the same day.

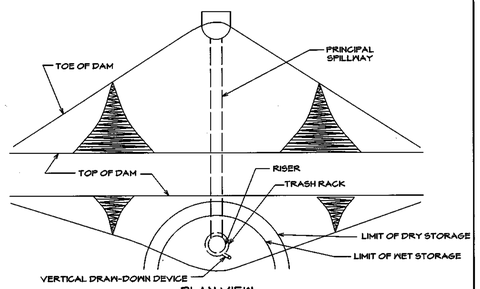
STOCKPILE/TOPSOIL NOTES
1. Stockpiling will not be allowed on any impervious area.
2. All stockpiles left at the end of the day will need to be temporarily stabilized until they are again disturbed, unless they are within existing perimeter sediment controls.
3. All stockpile areas shall be confined within perimeter controls. In the event that stockpile areas must be located outside disturbed areas, the location shall be as directed by the inspector in the field.

NOTE:
ALL SEDIMENT CONTROL MEASURES SHOWN HEREON ARE TEMPORARY UNLESS OTHERWISE NOTED.

BASIN DRAWDOWN
SCHEMATION VERTICAL DRAW-DOWN DEVICE



ELEVATION

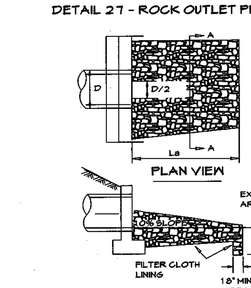


PLAN VIEW

CONSTRUCTION SPECIFICATIONS

1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. 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.
4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE OR 2" BY 2" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GUAGE MINIMUM WIRE.

DETAIL 27 - ROCK OUTLET PROTECTION III



SECTION A-A

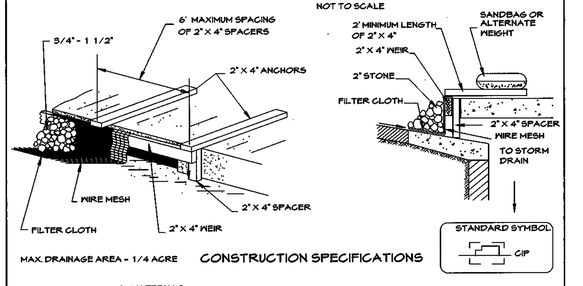
NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

CONSTRUCTION SPECIFICATIONS

1. 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.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. 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 PEICES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.
4. 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.
5. 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.

DETAIL 23C - CURB INLET PROTECTION DETAIL

NOT TO SCALE



MAX. DRAINAGE AREA - 1/4 ACRE

CONSTRUCTION SPECIFICATIONS

A. MATERIALS
1. WOODEN FRAME IS TO BE CONSTRUCTED OF 2" X 4" CONSTRUCTION GRADE LUMBER.
2. MIRE MESH MUST BE OF SUFFICIENT STRENGTH TO SUPPORT FILTER FABRIC AND STONE FOR CURB INLETS WITH WATER FULLY IMPOUNDED AGAINST IT.
3. FILTER CLOTH MUST BE OF A TYPE APPROVED FOR THIS PURPOSE; RESISTANT TO ULTRAVIOLET LIGHT WITH AN EQUIVALENT OPENING SIZE 40 - 80 SIEVE, TO ALLOW SUFFICIENT PASSAGE OF WATER AND REMOVAL OF SEDIMENT.
4. WASHED STONE ¾" TO 1½" IN SIZE IS TO BE USED.

B. PROCEDURE
CURB INLET PROTECTION
1. ATTACH A CONTINUOUS PIECE OF MIRE MESH (30" MIN. WIDTH BY THROAT LENGTH, PLUS 2') TO THE 2" X 4" WEIR (MEASURING THROAT LENGTH, PLUS 2') AS SHOWN ON THE STANDARD DRAWING.
2. PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS E THE SAME DIMENSIONS AS THE MIRE MESH OVER THE MIRE MESH AND SECURELY ATTACH IT TO THE 2" X 4" WEIR.
3. SECURELY NAIL THE 2" X 4" WEIR TO 4" LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAX. 4' APART.
4. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2' LENGTHS OF 2" X 4" TO THE TOP OF THE WEIR AT SPACER LOCATIONS). THESE 2" X 4" ANCHORS SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
5. THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM 1' BEYOND BOTH ENDS OF THE THROAT OPENING.
6. FORM THE 1/2" X 1/2" MIRE MESH AND THE GEOTEXTILE FABRIC TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 3/4" X 1 1/2" STONE OVER THE MIRE MESH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
7. THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
8. ASSURE THAT STORM FLOW DOES NOT BYPASS THE INLET BY INSTALLING A TEMPORARY EARTH OR ASPHALT DIKE TO DIRECT THE FLOW TO THE INLET.

DETAIL 20A - REMOVABLE PUMPING STATION

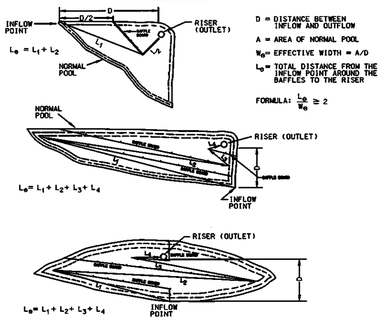
ELEVATION (CUT AWAY)

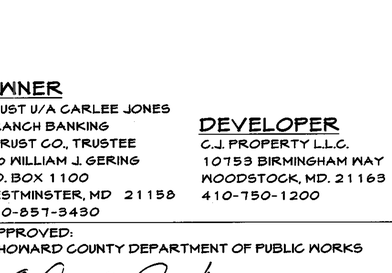
CONSTRUCTION SPECIFICATIONS

1. THE OUTER PIPE SHOULD BE 48" DIA. OR SMALL, IN ANY CASE, BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH ½" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
2. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
3. 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 ½" X 6" SLITS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH ½" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS E.
4. THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

DETAIL 18 - SEDIMENT BASIN BAFFLES

PLAN VIEWS





BAFFLE DETAIL

OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER
C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

SEDIMENT CONTROL NOTES & DETAILS

CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 16, PARCEL 123
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DEVELOPER'S CERTIFICATE

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

1/16/03 DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ALFRED L. HANSARD
PROFESSIONAL ENGINEER REG. No. 25446
1/14/03 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/4/03 DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — 2/4/03 DATE

STATE OF MARYLAND — ALFRED L. HANSARD — PROFESSIONAL ENGINEER
Professional Engineer Registration No. 25446

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: BM /SMC
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: N/A
		Job No.: 97230A
		Sheet: 9 OF 24

County File No. F-02-91

CAD Drawing File Name: d:\97230\dgn\const\97sdplans\09SCD.DGN

TEMPORARY SWALE

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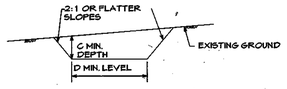
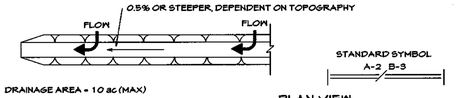


CROSS SECTION

	SWALE A	SWALE B
C	1' MIN	1' MIN
D	4' MIN	6' MIN

OUTLET AS REQUIRED



STANDARD SYMBOL A-2 B-3

DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

PLAN VIEW

FLOW CHANNEL STABILIZATION

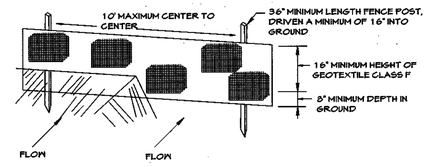
GRADE 0.5% MIN. 10% MAX.

1. SEED AND COVER WITH STRAW MULCH.
2. SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD.
3. 4"-7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO SOIL IN A MINIMUM 7" LAYER.

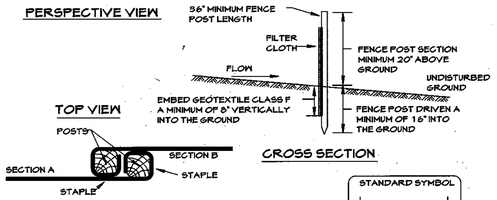
CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL, IF NECESSARY, SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

DETAIL 22 - SILT FENCE



PERSPECTIVE VIEW



TOP VIEW

CROSS SECTION

STANDARD SYMBOL — SF

JOINING TWO ADJACENT SILT FENCE SECTIONS

Construction Specifications

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1½" X 1½" SQUARE (MINIMUM) CUT, OR 1¾" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHTING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL/FT²/MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

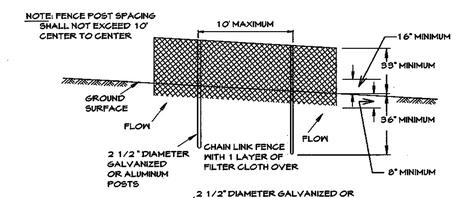
3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

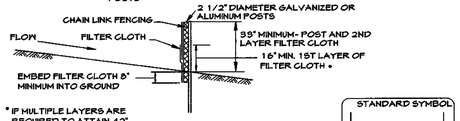
Silt Fence Design Criteria

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

NOTE: IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM, SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

DETAIL 33 - SUPER SILT FENCE





* IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42"

STANDARD SYMBOL — SSF

CONSTRUCTION SPECIFICATIONS

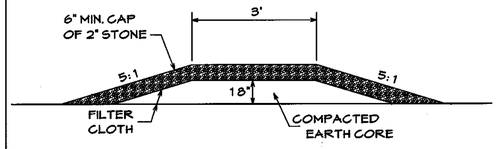
FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.

1. THE POLES DO NOT NEED TO SET IN CONCRETE
2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT
7. FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL/FT²/MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

DESIGN CRITERIA

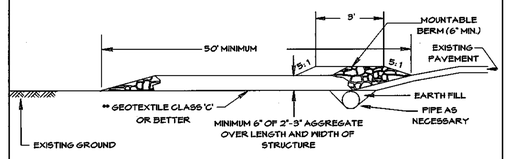
SLOPE	SLOPE STEEPNESS	SLOPE LENGTH (MAXIMUM)	SILT FENCE LENGTH (MAXIMUM)
0 - 10%	0 - 10:1	UNLIMITED	UNLIMITED
10 - 20%	10:1 - 5:1	200 FEET	1,500 FEET
20 - 33%	5:1 - 3:1	100 FEET	1,000 FEET
33 - 50%	3:1 - 2:1	100 FEET	500 FEET
50% +	2:1 +	50 FEET	250 FEET



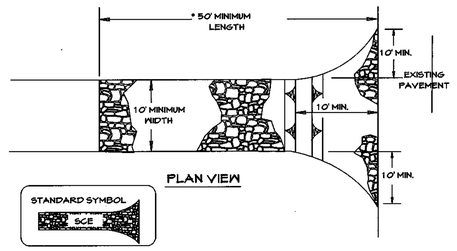
MOUNTABLE BERM DETAIL

NOT TO SCALE

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



PROFILE

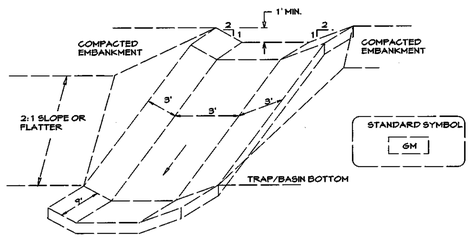


PLAN VIEW

STANDARD SYMBOL — SCE

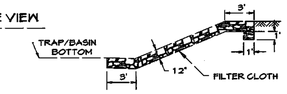
1. LENGTH - MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
2. WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
4. STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
5. SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
6. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

DETAIL 6 - GABION INFLOW PROTECTION



STANDARD SYMBOL — GM

PERSPECTIVE VIEW

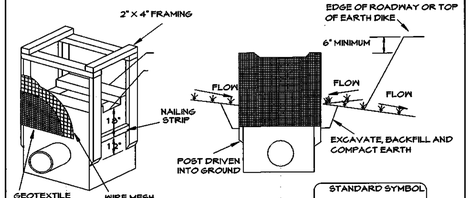


PROFILE ALONG CENTERLINE

CONSTRUCTION SPECIFICATIONS

1. GABION INFLOW PROTECTION SHALL BE CONSTRUCTED OF 9"x 3'x 9" GABION BASKETS FORMING A TRAPEZOIDAL CROSS SECTION 1' DEEP, WITH 2:1 SIDE SLOPES, AND A 3' BOTTOM WIDTH.
2. GEOTEXTILE CLASS C SHALL BE INSTALLED UNDER ALL GABION BASKETS.
3. THE STONE USED TO FILL THE GABION BASKETS SHALL BE 4" - 7".
4. GABIONS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. GABION INFLOW PROTECTION SHALL BE USED WHERE CONCENTRATED FLOW IS PRESENT ON SLOPES STEEPER THAN 4:1.

DETAIL 23A - STANDARD INLET PROTECTION



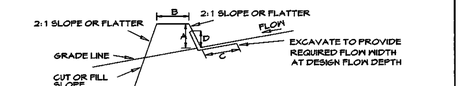
STANDARD SYMBOL — SIP

MAX. DRAINAGE AREA = ½ ACRE

Construction Specifications

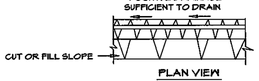
1. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18" BELOW THE NOTCH ELEVATION.
2. DRIVE THE 2" X 4" CONSTRUCTION GRADE LUMBER POSTS 1' INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2" X 4" FRAME USING THE 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.
3. 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.
4. STRETCH THE GEOTEXTILE CLASS E TIGHTLY OVER THE WIRE MESH WITH THE GEOTEXTILE EXTENDING FROM THE TOP OF THE FRAME TO 16" 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.
5. 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.
6. 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.
7. THE STRUCTURE MUST BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND THE GEOTEXTILE REPLACED WHEN IT BECOMES CLOGGED.

DETAIL 1 - EARTH DIKE



CROSS SECTION

	DIKE A	DIKE B
A-DIKE HEIGHT	18"	30"
B-DIKE WIDTH	24"	36"
C-FLOW WIDTH	4'	6'
D-FLOW DEPTH	12"	24"



PLAN VIEW

STANDARD SYMBOL A-2 B-3

FLOW CHANNEL STABILIZATION

GRADE 0.5% MIN. 10% MAX.

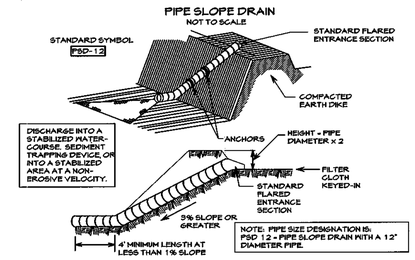
1. SEED AND COVER WITH STRAW MULCH.
2. SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD.
3. 4" - 7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 7" MINIMUM

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
5. THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

PIPE SLOPE DRAIN

NOT TO SCALE



NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

TABLE 6-DESIGN CRITERIA FOR PIPE SLOPE DRAIN

SIZE	PIPE/TUBING DIAMETER (D) IN.	MAXIMUM DRAINAGE AREA (ACRES)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-(2)24	24	9.0

CONSTRUCTION SPECIFICATIONS

1. THE PIPE SLOPE DRAIN (PSD) SHALL HAVE A SLOPE OF 3 PERCENTOR STEEPER.
2. THE TOP OF THE EARTH DIKE OVER THE INLET PIPE SHALL BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED AT THE INVERT OF THE PIPE.
3. FLEXIBLE TUBING IS PERFORATED, NONWEB, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS SHALL BE WATERTIGHT.
4. A FLARED END SECTION SHALL BE ATTACHED TO THE INLET END OF PIPE WITH A WATERTIGHT CONNECTION. FILTER CLOTH SHALL BE PLACED UNDER THE INLET OF THE PIPE SLOPE DRAIN AND SHALL EXTEND OUT 8' FROM THE INLET. THE FILTER CLOTH SHALL BE "KEYED IN" ON ALL SIDES.
5. THE PIPE SLOPE DRAIN SHALL BE SECURELY ANCHORED TO THESLOPE BY STAKING AT THE GROMMETS PROVIDED. SPACING FOR ANCHORS SHALL BE AS PROVIDED BY MANUFACTURER'S SPECIFICATION. IN NO CASE SHALL LESS THAN TWO (2) ANCHORS BE PROVIDED, EQUALLY SPACED ALONG THE LENGTH OF PIPE. THESE DETAILS SHOULD BE PROVIDED BY PIPE SUPPLIERS.
6. THE SOIL AROUND AND UNDER THE PIPE AND END SECTION SHALL BE HAND TAMPED IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
7. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
8. WHENEVER POSSIBLE WHERE A PSD DRAINS AN UNSTABILIZED AREA, IT SHALL OUTLET INTO A SEDIMENT TRAP OR BASIN. IF THIS IS NOT POSSIBLE THEN THE SLOPE DRAIN WILL DISCHARGE INTO A STABLE CONVEYENCE THAT LEADS TO A SEDIMENT TRAP OR BASIN. WHEN DISCHARGING INTO A TRAP OR BASIN THE PSD SHALL DISCHARGE AT THE SAME ELEVATION AS THE WET POOL ELEVATION. THE DISCHARGE FROM THE PSD MUST BE AS FAR AWAY FROM THE SEDIMENT CONTROL OUTLET AS POSSIBLE.
9. WHEN THE DRAINAGE AREA IS STABILIZED, THE PSD SHALL DISCHARGE ONTO A STABILIZED AREA AT A NON-EROSIVE VELOCITY.
10. INSPECTION AND ANY REQUIRED MAINTENANCE SHALL BE PERFORMED PERIODICALLY AND AFTER EACH RAIN EVENT.
11. THE INLET MUST BE KEPT OPEN AT ALL TIMES.

NOTE:
ALL SEDIMENT CONTROL MEASURES SHOWN HEREON ARE TEMPORARY UNLESS OTHERWISE NOTED.

DEVELOPER'S CERTIFICATE

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

1/16/03 DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ALFRED L. HANSARD, PROFESSIONAL ENGINEER REG. No. 25446

1/16/03 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/14/03 DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENTCONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING & TRUST CO., TRUSTEE
C/O WILIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-25-03 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/4/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/26/03 DATE

SEDIMENT CONTROL NOTES & DETAILS

CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"
TAX MAP 16, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

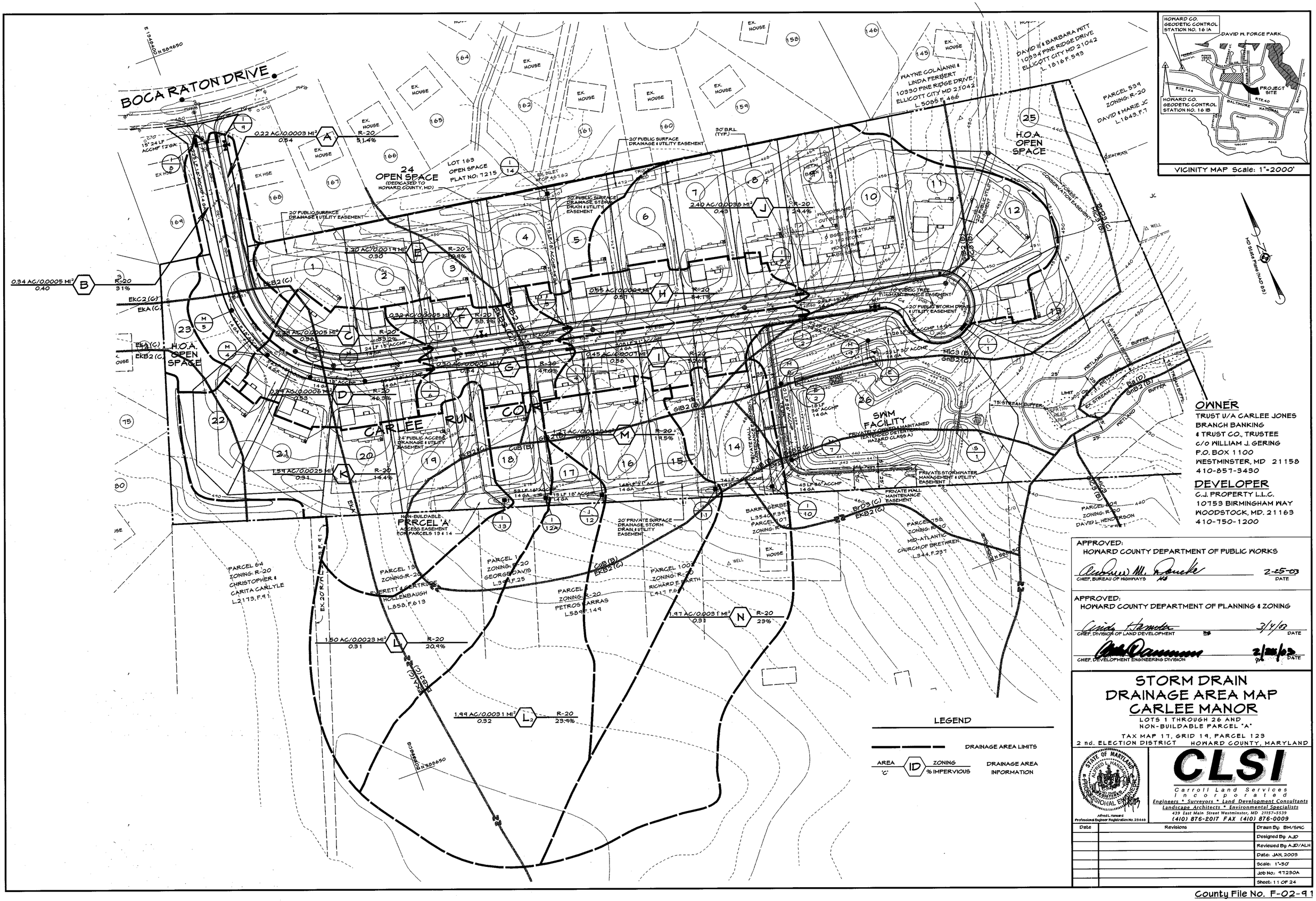
STATE OF MARYLAND — ALFRED L. HANSARD — No. 25446 — PROFESSIONAL ENGINEER
Professional Engineer Registration No. 25446

CLSI
Carroll Land Services incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: BH
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: N/A
		Job No.: 97230A
		Sheet: 10 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\rtedplans\10\SCD1.DGN



OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING & TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

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WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

STORM DRAIN DRAINAGE AREA MAP CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL 'A'

TAX MAP 17, GRID 19, PARCEL 123

2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSARD — No. 23446 — PROFESSIONAL ENGINEER

Alfred L. Hansard
Professional Engineer Registration No. 23446

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439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: BM/SNC
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 11 OF 24

County File No. F-02-91

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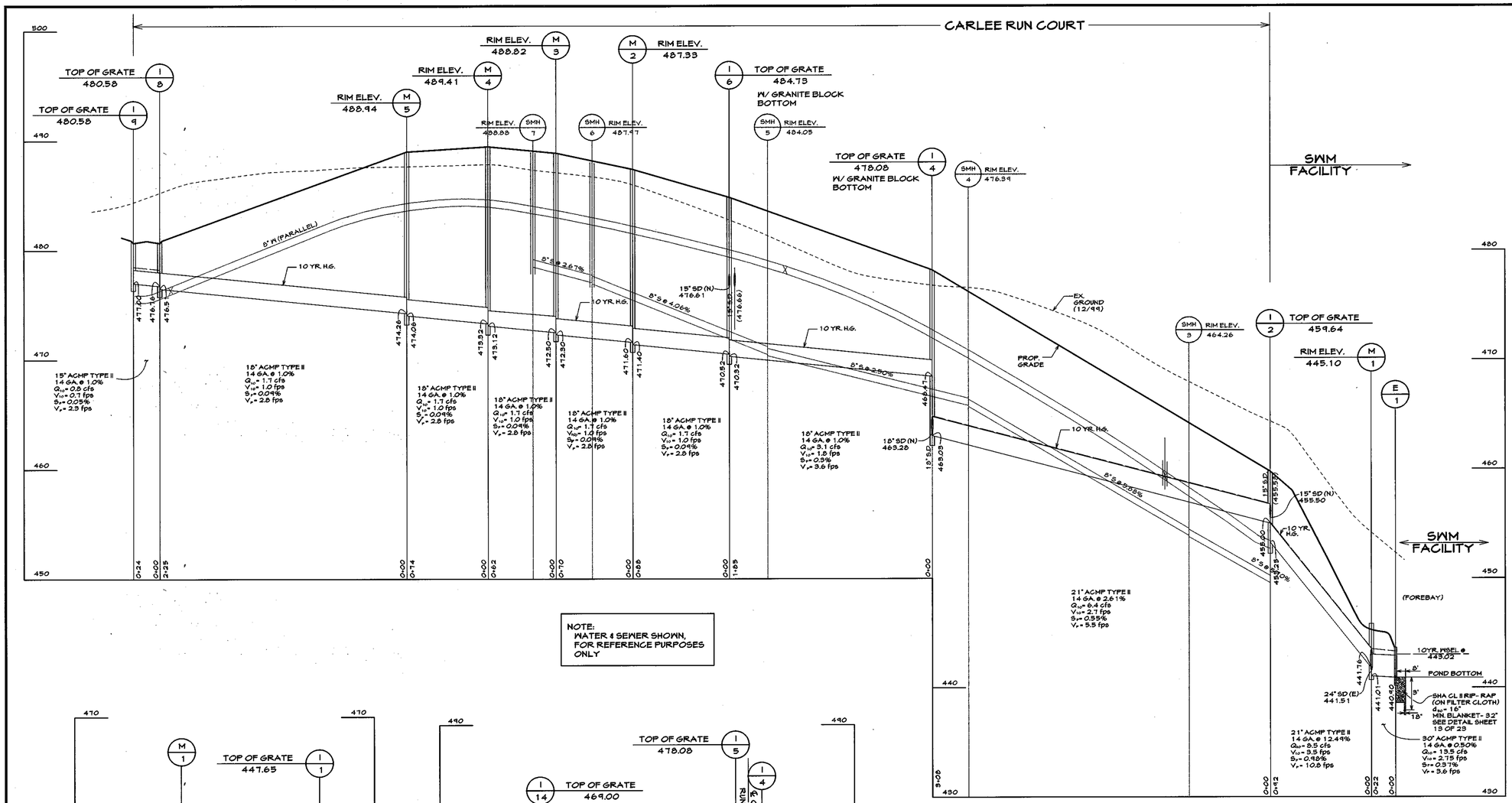

NOTE: S_f = FRICTION SLOPE
V_P = PARTIAL FLOW VELOCITY FOR Q_{10}

NOTE:
WATER & SEWER SHOWN, FOR REFERENCE PURPOSES ONLY

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
C/O WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

PROFILE

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

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/24/03

STORM DRAIN PROFILES CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 123
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HENARD — No. 25446 — PROFESSIONAL ENGINEER

Alfred L. Henard
Professional Engineer Registration No. 25446

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Date	Revisions	
		Drawn By: JM
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: As Shown
		Job No.: 97230A
		Sheet: 12 OF 24

County File No. F-02-91

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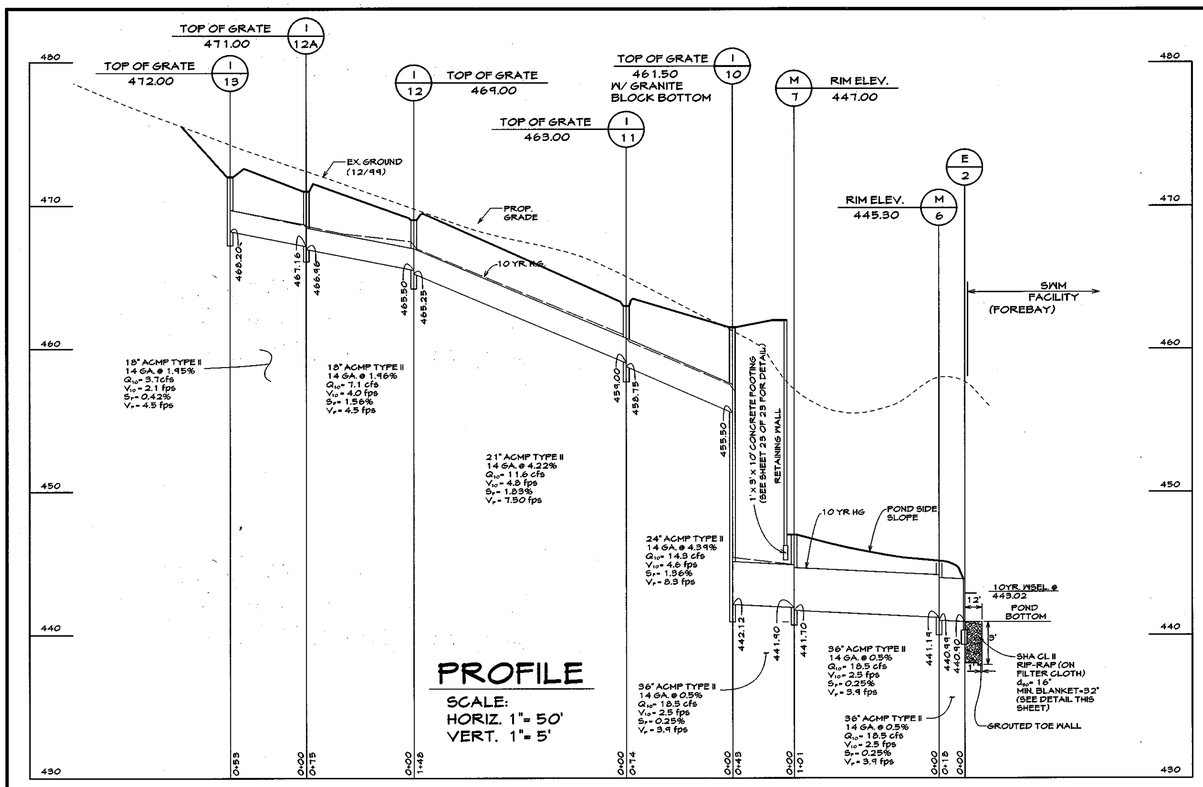
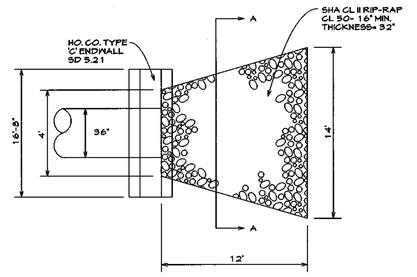
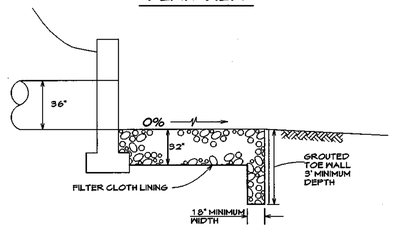


PROFILE

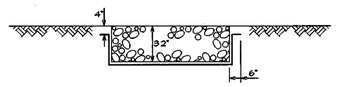
SCALE:
HORIZ. 1"= 50'
VERT. 1"= 5'



PLAN VIEW



ELEVATION



SECTION A-A

ENDWALL ROCK OUTLET PROTECTION @ E-2

NOT TO SCALE

STORM STRUCTURE SCHEDULE

STRUCT. NO.	TYPE	INVERT IN ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	TOP ELEV.	STA.	OFFSET	REMARKS
I-1	'A-10'/ SD 4.02	-	-	448.00	447.65	LP 1+71.73	ON LP	
I-2	COG- 15/ SHA MD- 374.62	455.50	455.00	453.25	459.64	10+40	12' RT	15'
I-3	COG- 15/ SHA MD- 374.62	-	-	455.90	459.64	10+40	12' LT	15'
I-4	'A-10'/ SD 4.02	468.47	463.28	463.03	478.08	7+32	12' RT	W/ GRANITE BLOCK BOTTOM
I-5	'A-10'/ SD 4.02	-	463.72	463.52	478.08	7+32	12' LT	
I-6	'A-10'/ SD 4.02	476.61	470.52	470.32	484.73	5+47	12' RT	W/ GRANITE BLOCK BOTTOM
I-7	'A-10'/ SD 4.02	-	-	476.85	484.73	5+47	12' LT	
I-8	'A-10'/ SD 4.02	-	476.76	476.51	480.58	0+49	12' RT	
I-9	'A-10'/ SD 4.02	-	-	477.00	480.58	0+49	12' LT	
I-10	'D'/ SD 4.11	-	445.50	442.12	461.50	-	-	N 588842 E 1348966 W/ GRANITE BLOCK BOTTOM
I-11	'D'/ SD 4.11	-	459.00	458.75	463.00	-	-	N 588864 E 1348895
I-12	'D'/ SD 4.11	-	465.50	465.25	469.00	-	-	N 588908 E 1348753
I-13	'D'/ SD 4.11	-	-	468.20	472.00	-	-	N 588946 E 1348630
I-14	'D'/ SD 4.11	-	-	465.50	469.00	-	-	N 589305 E 1348822
M-1	60" MH/ G 5.13	441.76	441.51	441.01	445.10	11+20	59' RT	
M-2	48" MH/ G 5.12	-	471.60	471.40	487.33	4+60	17' RT	
M-3	48" MH/ G 5.12	-	472.50	472.30	488.82	3+95	17' RT	
M-4	48" MH/ G 5.12	-	473.32	473.12	489.41	3+38	17' RT	
M-5	48" MH/ G 5.12	-	474.26	474.06	488.94	2+70	17' RT	
M-6	60" MH/ G 5.13	-	441.19	440.99	445.30	10+00	99' RT	
M-7	60" MH/ G 5.13	-	441.90	441.70	447.00	-	-	N 588866 E 1349002
E-1	30" 'C' ENDWALL SD 5.21	-	-	440.90	-	11+20	81' RT	
E-2	27" 'D' ENDWALL SD 5.21	-	-	440.90	-	10+18	99' RT	
S-1	SWM WEIR WALL	-	-	438.00	442.25	0+90.41	@BL	SEE SHEET 17
I-12A	'D'/SD 4.11	-	467.16	466.96	471.0	-	-	N 588930 E 1348682

• ELEVATIONS FOR 'A' AND COG INLETS ARE FLOWLINE ELEVATION AT THE CENTER OF THE INLET.

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
15"	ACMP TYPE II 14 GA.	72'
18"	"	1034'
21"	"	548'
24"	"	200'
30"	"	22'
36"	"	162'

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

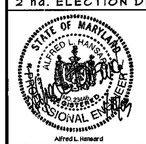
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

STORM DRAIN PROFILES CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"

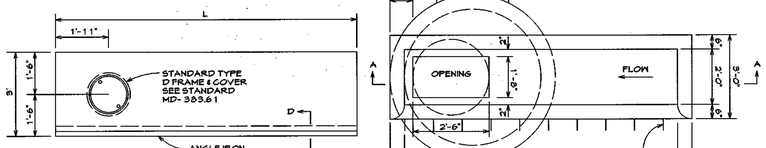
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND



Alfred L. Henard
Professional Engineer Registration No. 29446

CLSI
Carroll Land Services incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: JN
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: As Shown
		Job No: 97230A
		Sheet: 13 OF 24



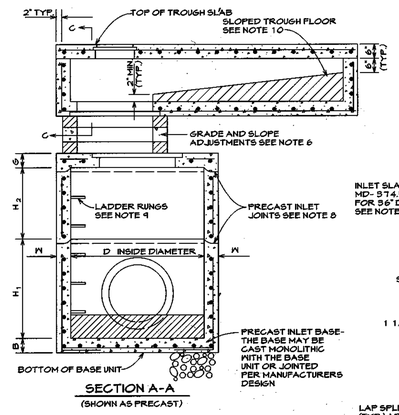
PRECAST CONCRETE TROUGH SLAB
(6" THICK)

PLAN
(SHOWN WITHOUT TROUGH SLAB)

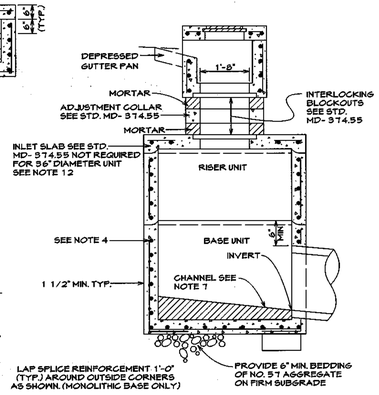
PIPE SIZE MIN. TO MAX	CIRCULAR BASE AND RISER UNIT DIMENSIONS H, BASE	H, RISER	W, MIN.	B	D	INLET SLAB D	R- REIN. SQ. IN. PER FOOT
12"	5' TO 4'	1' TO 4'	4'	6"	36"	NOTE 12	.09
15"- 24"	5' TO 5'	1' TO 5'	5'	6"	48"	8"	.12
27"- 36"	5' TO 6'	1' TO 6'	6'	6"	60"	8"	.15
42" & 48"	5' TO 7'	1' TO 7'	7'	6"	72"	8"	.18
54" & 60"	5' TO 8'	1' TO 8'	8'	8"	84"	8"	.21
66" & 72"	5' TO 8'	1' TO 8'	9'	8"	96"	8"	.24
78" & 84"	5' TO 8'	1' TO 8'	10'	8"	108"	8"	.27

INLET TYPE	T	L
COG-5	5'-0"	6'-0"
COG-10	10'-0"	11'-0"
COG-15	15'-0"	16'-0"
COG-20	20'-0"	21'-0"

FOR SECTIONS C-C AND D-D SEE STD. MD-374.55



SECTION A-A
(SHOWN AS PRECAST)



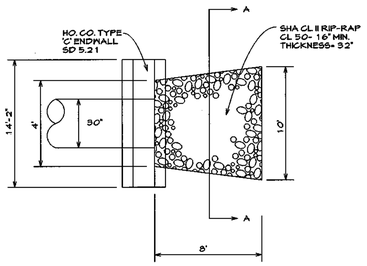
SECTION B-B
(SHOWN AS PRECAST)

NOTES:
1. THIS STANDARD TO BE USED WITH TYPE A COMBINATION CURB AND GUTTER ONLY.
2. CURB OPENING SHALL NOT ENCROACH ON CROSSWALK AREAS.
3. CONCRETE SHALL BE MIX. NO. 6 (4500 PSI) FOR PRECAST UNITS AND CONCRETE MIX NO. 3 (3500 PSI) FOR CAST IN PLACE UNITS.
4. INLET MAY BE PRECAST OR CAST IN PLACE. REINFORCEMENT SHALL BE EITHER WELDED WIRE FABRIC OR REINFORCING BARS AND SHALL CONFORM TO THE AREAS GIVEN UNDER 'R' IN THE CHART ON THIS SHEET.
5. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123. SEE STDS. MD-374.55 & 374.64.
6. GRADE AND SLOPE ADJUSTMENTS SHALL BE COMPLETED IN THE FIELD USING PRECAST ADJUSTMENT COLLAR AND MORTAR.
7. A CONCRETE OR BRICK CHANNEL WHICH SLOPES AT LEAST 2 IN./FT. TOWARD OUTLET SHALL BE PROVIDED IN THE FIELD.
8. PRECAST INLET JOINTS- THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING THE MANUFACTURERS RECOMMENDED ASTM OR AASHTO APPROVED SEALENT.
9. LADDER RUNGS SHALL BE PLACED IN VERTICAL ALIGNMENT AT 1'- 3" C/C. RUNGS SHALL BE IN ACCORDANCE WITH STANDARDS MD- 383.91 OR MD- 383.92. RUNGS ARE INCIDENTAL TO THE COST OF THE INLET.
10. SLOPED TROUGH FLOOR TO BE CONSTRUCTED IN THE FIELD USING BRICK OR CONCRETE AND USED ONLY WHEN ROAD GRADE IS 1.5% OR LESS. WHEN SLOPED TROUGH FLOOR IS USED, ROUGHEN PRECAST TROUGH FLOOR.
11. MINIMUM DEPTH PAYMENT PER EACH SHALL BE 5'-0" MEASURED FROM THE BOTTOM OF THE BASE UNIT TO THE TOP OF THE TROUGH SLAB. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 5'-0" INCLUDING ALL APPURTENANCES.
12. INLET SLAB NOT REQUIRED FOR 36" DIAMETER INLET. TROUGH SITS DIRECTLY ON TOP OF THE CIRCULAR UNIT. MORTAR AREA BETWEEN THE OUTSIDE WALLS OF THE TROUGH AND THE UNIT WALL.
13. SEE STD. MD-374.64 FOR ALTERNATE PRECAST COG TROUGHS AND STD. MD-374.65 FOR DEPRESSED GUTTER PAN DETAILS.
14. BASE UNIT WALLS MAY TAPER PER MANUFACTURER'S DESIGN.

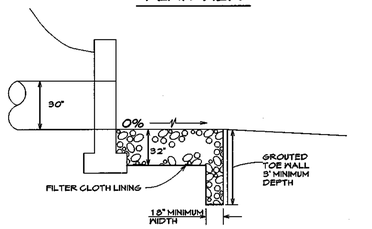
STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES PRECAST OR CAST IN PLACE CIRCULAR COG INLETS (I-2 & I-3)

5', 10', 15' & 20' (SHA MD-374.62)

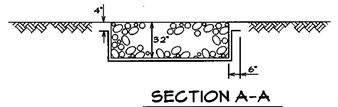
NOT TO SCALE



PLAN VIEW



ELEVATION



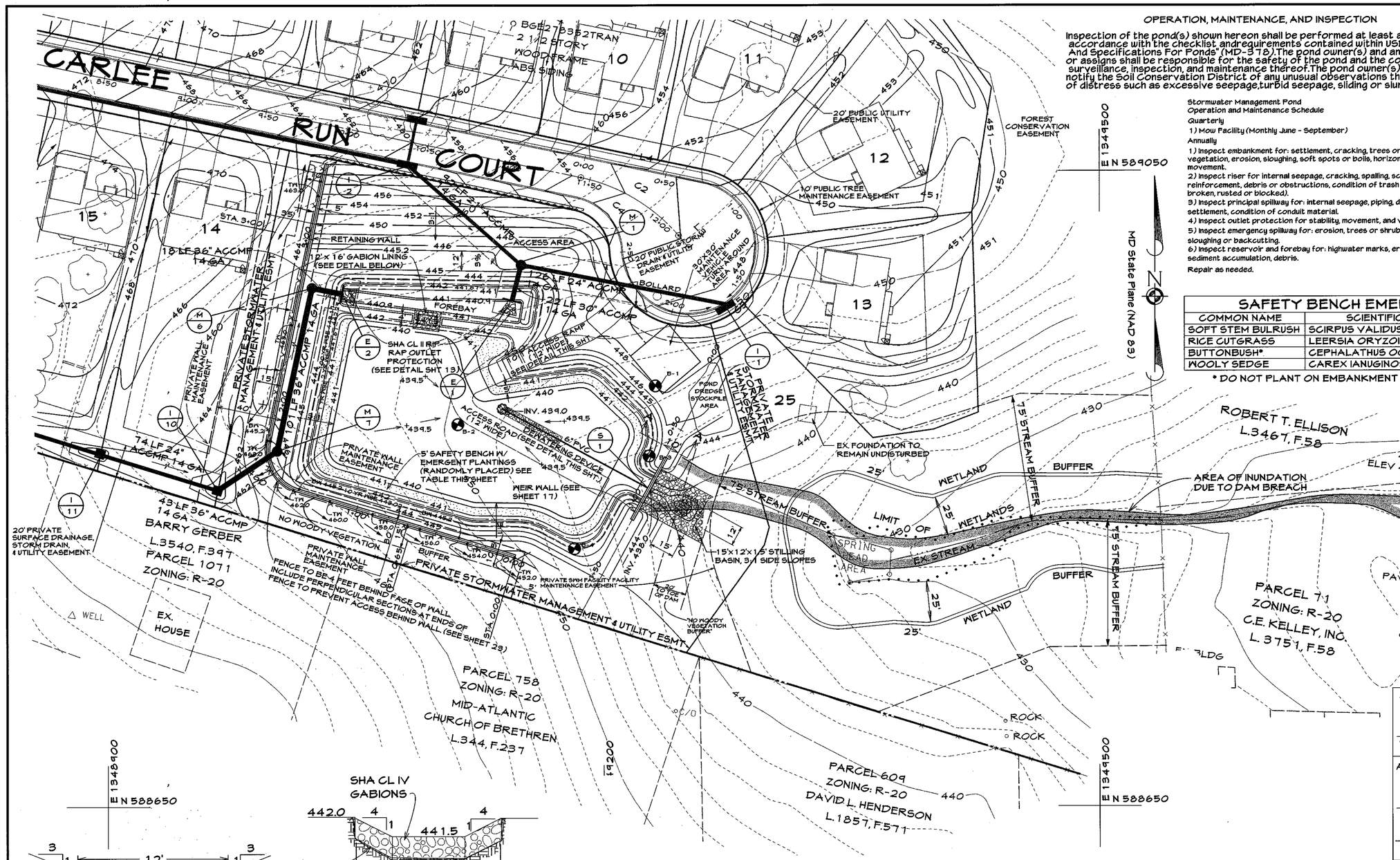
SECTION A-A

ENDWALL ROCK OUTLET PROTECTION @ E-1

NOT TO SCALE

County File No. F-02-91

CAD Drawing File Name: a:\97230\dgn\const\rtsdplans\(13)edpro.dgn



OPERATION, MAINTENANCE, AND INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist andrequirements contained within USDA, SCS "Standards And Specifications For Ponds" (MD-378).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

Stormwater Management Pond
Operation and Maintenance Schedule

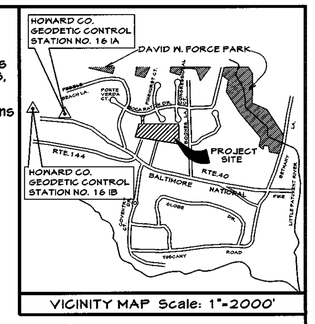
Quarterly

1) Mow Facility (Monthly June - September)

Annually

1) Inspect embankment for: settlement, cracking, trees or other woody vegetation, erosion, sloughing, soft spots or boils, horizontal movement.
2) Inspect riser for internal seepage, cracking, spalling, scaling, exposed reinforcement, debris or obstructions, condition of trash racks (bent, broken, rusted or blocked).
3) Inspect principal spillway for: internal seepage, piping, differential settlement, condition of conduit material.
4) Inspect outlet protection for stability, movement, and vegetation.
5) Inspect emergency spillway for: erosion, trees or shrubs in channel, sloughing or backcutting.
6) Inspect reservoir and forebay for: highwater marks, erosion, sloughing, sediment accumulation, debris.

Repair as needed.



SAFETY BENCH EMERGENT PLANTING SCHEDULE

COMMON NAME	SCIENTIFIC NAME	NUMBER	SPACING
SOFT STEM BULRUSH	SCIRPUS VALIDUS	25	4' O/C
RICE CUTGRASS	LEERSIA ORYZOIDES	25	3' O/C
BUTTONBUSH*	CEPHALATHUS OCCIDENTALIS	5	ALONG WEST & SOUTH SIDE
WOOLY SEDGE	CAREX LANUGINOSA	25	4' O/C

* DO NOT PLANT ON EMBANKMENT

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

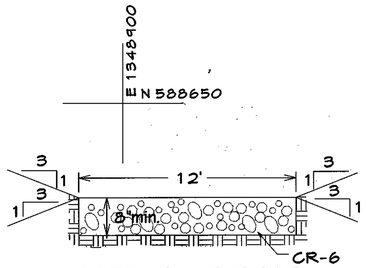
APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

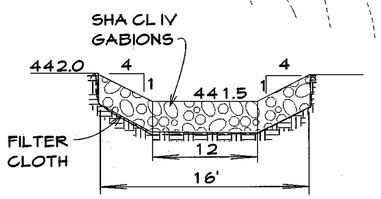
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/24/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/26/03



ACCESS RAMP/ROAD TYPICAL SECTION

N.T.S.



FOREBAY OVERFLOW WEIR TYPICAL SECTION

N.T.S.

EMBANKMENT CENTERLINE DATA

Ref #	Bearing	Distance
L1	S 28°36'48" W	180.50

EMBANKMENT COORDINATES

0+00	N 588922	E 1349271
1+80.50	N 588764	E 1349184

SEE SHEET 15 FOR GEOTECHNICAL ENGINEER RECOMMENDATIONS

NOTE:
THIS FACILITY IS OWNED AND MAINTAINED BY HOME OWNERS ASSOCIATION

STRUCTURE NOTES

STRUCTURE TYPE: DRY/EXTENDED DETENTION EXCAVATED/EMBANKMENT POND
STRUCTURE CLASS: 'A' (THIS FACILITY IS EXEMPT FROM MD- 378. EXEMPTION NO. 1 EMBANKMENT LESS THAN 4.0' (445- 441.8= 3.2')
HYDROLOGIC CRITERIA: 2 AND 10 YR PEAK MANAGEMENT WITH 24 HR EXTENDED DETENTION OF THE 1 YR STORM REQUIRED AND PROVIDED.
DRAINAGE AREA: 19.04 ACRES
EFFECTIVE HEIGHT: 1.2'
STORAGE HEIGHT PRODUCT: 1.6
1 ST STAGE WEIR: 2, 10 & 100 YR STORMS
2 ND STAGE WEIR: 10 & 100 YR STORMS
MAXIMUM HEIGHT OF FILL: 3.2'

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

DATE 1/16/03

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 25446 — DATE 1/16/03

POND TYPE: EXTENDED DETENTION HAZARD CLASS : A
THIS FACILITY IS EXEMPT FROM MD- 378
STRUCTURE HYDRAULIC PERFORMANCE SUMMARY

STORM	EXISTING Q @ BOONES LANE	DEVELOPED Q @ BOONES LANE	Q IN	ALLOWABLE RELEASE Q	Q OUT	WATER SURFACE	STORAGE (AC-FT)
1 YR	NA	NA	12.75 cfs	NA	0.32 cfs	441.67	0.77 AC-FT
2 YR	14.36 cfs	2.45 cfs	22.76 cfs	12.13	1.08 cfs	442.29	1.08 AC-FT
10 YR	38.44 cfs	31.35 cfs	54.16 cfs	32.77	30.43 cfs	443.02	1.49 AC-FT
25 YR	45.48 cfs	44.94 cfs	63.13 cfs	NA	43.69 cfs	443.17	1.57 AC-FT
100 YR	NA	NA	92.73 cfs	NA	81.75 cfs	443.50	1.82 AC-FT
10 YR (UTL)	NA	NA	66.56 cfs	NA	54.67 cfs	443.30	1.65 AC-FT
100 YR (UTL)	NA	NA	110.65 cfs	NA	95.21 cfs	443.70	1.89 AC-FT

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/4/03

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/4/03

STORMWATER MANAGEMENT PLAN
CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

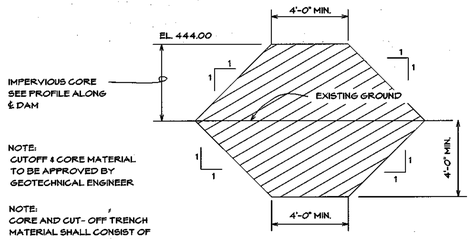
STATE OF MARYLAND — ALFRED L. HANSARD — No. 25446 — PROFESSIONAL ENGINEER
Professional Engineer Registration No. 25446

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: JJH
		Designed By: ALD
		Reviewed By: ALD/ALH
		Date: JAN. 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 14 OF 24

County File No. F-02-91

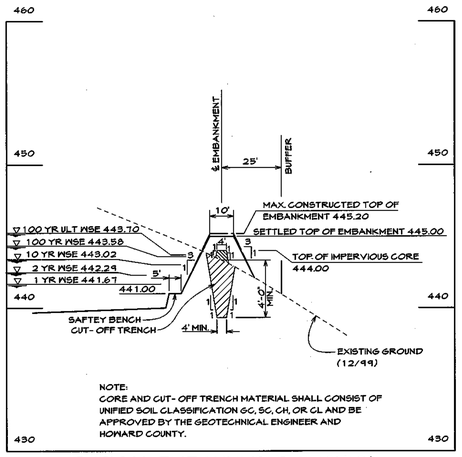
CAD Drawing File Name: g:\97230\dgn\const\rtsdplans\114\SWMPLAN.DGN



NOTE:
CUTOFF & CORE MATERIAL TO BE APPROVED BY GEOTECHNICAL ENGINEER

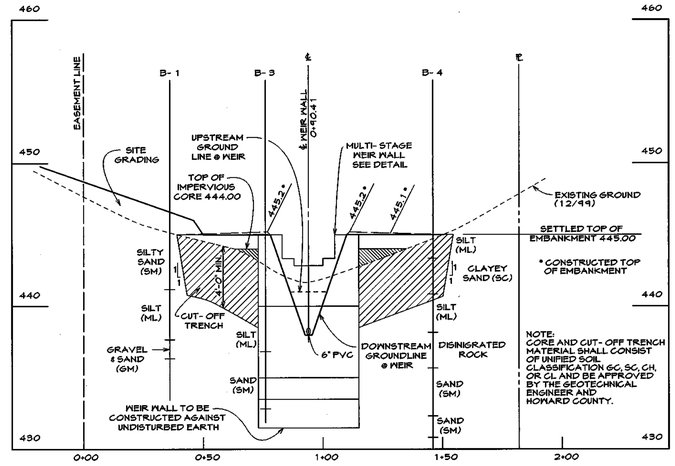
NOTE:
CORE AND CUT- OFF TRENCH MATERIAL SHALL CONSIST OF UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND BE APPROVED BY THE GEOTECHNICAL ENGINEER AND HOWARD COUNTY.

CUT-OFF TRENCH
NOT TO SCALE



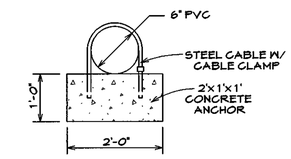
NOTE:
CORE AND CUT- OFF TRENCH MATERIAL SHALL CONSIST OF UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND BE APPROVED BY THE GEOTECHNICAL ENGINEER AND HOWARD COUNTY.

TYPICAL EMBANKMENT SECTION SECTION 'A-A'
SCALE: HORIZ. : 1"= 30'
VERT. : 1"= 5'

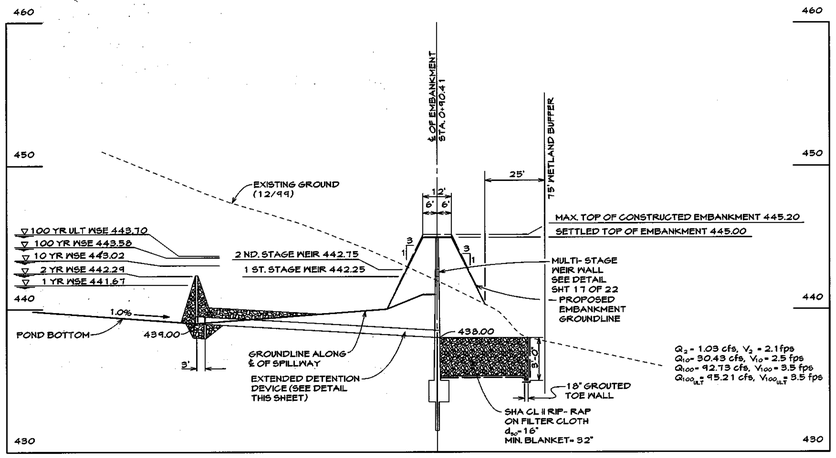


NOTE:
CORE AND CUT- OFF TRENCH MATERIAL SHALL CONSIST OF UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND BE APPROVED BY THE GEOTECHNICAL ENGINEER AND HOWARD COUNTY.

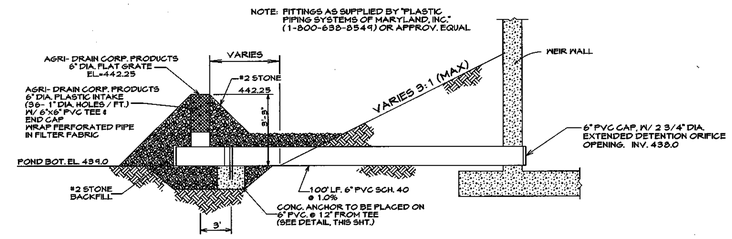
PROFILE ALONG CENTERLINE OF EMBANKMENT
SCALE: HORIZ. : 1"= 30'
VERT. : 1"= 5'



CONCRETE ANCHOR DETAIL
NOT TO SCALE



PROFILE ALONG ℄ OF WEIR WALL SPILLWAY
SCALE: HORIZ. : 1"= 30'
VERT. : 1"= 5'



6" EXTENDED DETENTION DEVICE DETAIL
NOT TO SCALE

Stormwater Management
Sequence of Construction

1. Pond to be constructed in accordance with overall sequence of construction. (See Sediment Control Plans)
2. Install super silt fence below area of pond construction. (1 day)
3. Clear and grub pond area. Refer to sediment basin plans since facility will be larger while functioning as a sediment basin. (4 days)
4. Begin construction of cut-off trench (2 days)
5. Construct weir wall and appurtenances. Verify inverts and elevations adjust as necessary. Refer to sediment basin plans. For modifications necessary for sediment basin (i.e. 4" low flow orifice and basin dewatering device). (10 days)
6. Complete cut-off trench and dam core (3 days)
7. Begin mass grading of pond/basin area. Construct remainder of embankment, and retaining wall. Construct storm drain from I- 10 to E-2. (1 week)
8. Fine grade pond/basin area. Conduct partial as-built of facility to insure proper volume and elevations. Adjust as needed. Apply temporary stabilization to pond area while serves as a sediment basin. Install removable pumping station per sediment control/basin plans. (2 days)
9. Develop remainder of site per general sequence on sediment control plans.
10. Convert facility from sediment basin to stormwater management pond.
    Dewater basin. Remove sediment from basin and distribute on site or remove to a site with an approved sediment control plan.
    Fine grade pond area and embankment.
    Construct forebay. Remove sediment basin temporary modifications.
    Install 2 3/4" low flow cap and permanent extended detention device. conduct final as-built survey to insure proper elevations and sufficient volume. Adjust as necessary. Apply permanent stabilization to pond area. (2 weeks)
11. Submit final as-built drawings to Howard County.

Stormwater Management Pond
Operation and Maintenance Schedule

Quarterly

1) Mow Facility (Monthly June - September)

Annually

1) Inspect embankment for: settlement, cracking, trees or other woody vegetation, erosion, sloughing, soft spots or boils, horizontal movement.
2) Inspect weir wall for internal seepage, cracking, spalling, scaling, exposed reinforcement, debris or obstructions.
3) Inspect outlet protection for stability, movement, and vegetation.
4) Inspect reservoir and forebay for: highwater marks, erosion, sloughing, sediment accumulation, debris.
4) Inspect dewatering device for blockage and condition of conduit material

Repair as needed.

SEOTECHNICAL ENGINEER
EVALUATIONS AND RECOMMENDATIONS

Based on the shallow depth to rock and groundwater, infiltration is not recommended at this site. The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded scraper or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a scraper, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer and hand auger. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitably firm soil, and then grades re-established by backfilling with suitable soil.

Some groundwater may be encountered within core trench excavations and some degree of dewatering will be required. Core trench dimensions should be the minimum required by MD 378 and extended up to the ten-year water level in the embankment.

A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut off trench. In accordance with Maryland Soil Conservation Specification 378 soils considered suitable for the center of embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Although some soils meeting these classifications were encountered in the borings, it is our professional opinion that an off site source will be required to obtain the required quantity of material.

SWM POND

Non plastic sandy Silt (ML) or Silty Sand (SM) materials encountered soils may be used for the embankment shell. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications. The silty sand soil materials, which will be encountered at the emergency spillway location, do pose a risk for erosion. A geotextile erosion control fabric should be provided prior to the placement of any rip rap or armament. The erosion control fabric should be installed per manufacturers recommendations.

CONCRETE RISER AND STRUCTURE CONSTRUCTION

Based on the foundation construction for the riser, principal spillway, endwalls, and other structures below the top two feet of the existing grades, we recommend that the concrete riser structure foundation be designed for a maximum net allowable bearing pressure of 2000 lbs. per square foot (psf). Water should not be allowed to pond or collect within the foundation excavations, as this can cause a reduction in the bearing capacity of the soils. A geotechnical engineer or his representative should observe foundation excavations and conduct dynamic cone penetrometer testing (DCP) of the bearing surfaces to depths of three feet. Settlements of the embankment are not anticipated to exceed 1 inch.

OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
C/O WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER
C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-25-03 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 3/4/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/28/03 DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTSS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AN APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE AND OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

1/16/03 DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 23446 — 1/16/03 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/4/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/4/03 DATE

STORMWATER MANAGEMENT PROFILES AND NOTES
CARLEE MANOR
LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSARD — No. 23446 — PROFESSIONAL ENGINEER
Alfred L. Hansard
Professional Engineer Registration No. 23446

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0097

Date	Revisions	
		Drawn By: JPK
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: As Shown
		Job No.: 97230A
		Sheet: 15 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\rtsdplans\15\swmpro.dgn

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

Project Name Carlee Jones
Location Howard County
Job Number 22799A
Boring Number B-1 Page 1 of 1

Datum MSL
Surf. Elev. 449.00
Date Started 11/17/99
SAMPLER Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia. –
Boring Method HSA
Foreman M. Shanaberger
Inspector J. Cooper
Completed 11/17/99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
449.0	SURFACE		0.0					
	Topsoil = 3" Reddish brown, moist, loose, silty SAND ,trace mica and rock fragments (SM)			I	3, 4, 4	1	16"	
446.5		2.5	2.5					
	Light brown, moist, med dense, silty SAND trace mica and rock fragments (SM)			D	3, 5, 9	2	14"	
			5.0	D	5,5, 7	3	15"	
441.5		7.5	7.5					
	Dark brown, moist, medium dense, SILT with sand trace mica,and rock fragments (ML)			D	7, 6, 7	4	15"	
			10.0					
438.0		11.0		D	3, 4, 39	5	14"	
436.5	Gray, silty Gravel with sand (GM) decomposing rock	12.5			50/0.5"	6	0"	
	Bottom of hole @ 12.5 ft		15.0 17.5 20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

Groundwater Readings	Time	Date	Depth	Cave-In
Encountered	---	11/17/99	dry	---
At Completion		11/17/99	dry	–
After Auger Removal		11/17/99	dry	10.0
Backfilled		11/18/99	dry	8.5

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS

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

Project Name Carlee Jones
Location Howard County
Job Number 22799A
Boring Number B-2 Page 1 of 1

Datum MSL
Surf. Elev. 449.00
Date Started 11/17/99
SAMPLER Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia. –
Boring Method HSA
Foreman M. Shanaberger
Inspector J. Cooper
Completed 11/17/99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
449.0	SURFACE		0.0					
	Topsoil = 5" Brown, moist, medium dense, silty SAND, trace rock fragments (SM)			I	3, 5, 7	1	16"	
446.5		2.5	2.5					
	Brown, moist, stiff, sandy Lean Clay, trace mica (SC)			I	3, 3, 6	2	16"	
			5.0					
	Brown, moist, stiff, silty SAND, trace rock fragments (SM)				3, 6, 9	3	0"	
441.5		7.5	7.5					
	White, moist, loose, SILT, trace sand and rock fragments (ML)			I	3, 4, 5	4	18"	
439.0		10.0	10.0					
				I	7, 8, 9	5	11"	
	Light brown, moist, medium dense, silty SAND and rock fragments (SM)		12.5 15.0					
433.0		16.0						
432.0	Light brown, wet, medium dense, silty SAND and rock fragments (SM)	17.0		I	4, 7, 8	6	14"	
	Bottom of hole @ 17.0 ft		17.5 20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

Groundwater Readings	Time	Date	Depth	Cave-In
Encountered	—	11/17/99	16.9	--
At Completion		11/17/99	16.9	–
After Auger Removal		11/17/99	16.0	16.5
Backfilled		11/18/99	11.0	13.0

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS

GENERAL

UNLESS OTHERWISE NOTED, ALL MATERIALS AND CONSTRUCTION PRACTICES SHALL CONFORM TO THE FOLLOWING:

1. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS "STANDARDS SPECIFICATIONS AND DETAILS FOR CONSTRUCTION OCTOBER ,1990 AND AS SUBSEQUENTLY AMENDED
2. NATURAL RESOURCE CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS POND CODE 378, JANUARY, 2000.
3. MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION, OCTOBER, 1993, STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.
4. "STORMWATER MANAGEMENT POND DESIGN MANUAL" PUBLISHED BY THE MARYLAND ASSOCIATION OF SOIL CONSERVATION DISTRICTS, JUNE 1975 AND ANY ADDENDA THERETO. THESE STANDARDS SHALL APPLY TO PERMANENT STORMWATER MANAGEMENT PONDS AND TO TEMPORARY SEDIMENT BASINS.

WHERE STORM WATER MANAGEMENT PONDS ARE BEING USED AS SEDIMENT BASINS DURING CONSTRUCTION CONTRACTORS ATTENTION IS DIRECTED TO THOSE METHODS WHICH ARE TEMPORARY AND TO THE CLEAN - OUT ELEVATION. IF AND WHEN SEDIMENT ACCUMULATES IN THE POND OR BASIN UP TO THE CLEAN - OUT LEVEL IT SHALL BE REMOVED AND THE POND SHAPED TO PLANNED DIMENSIONS. REMOVED SEDIMENT SHALL BE PLACED IN NON CRITICAL AREAS AND SPREAD OUT. THIS SEDIMENT MUST BE PLACED IN AN AREA WHICH IS PROTECTED BY SEDIMENT CONTROL DEVICES. CONTRACTORS ATTENTION IS DIRECTED TO THE " SEQUENCE OF CONSTRUCTION " AND " POND CONVERSION NOTES " WHICH SPECIFY PROCEDURES FOR CONVERTING THE SEDIMENT BASIN TO A PERMANENT STORM WATER MANAGEMENT POND.

THE EMBANKMENT AND EMERGENCY SPILLWAY AREAS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF THEIR GRADING - SEE " METHOD OF SOIL STABILIZATION ".

SPECIFICATIONS

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

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. 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, CH, OR CL AND MUST HAVE AT LEAST30%. PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

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

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE YET NOT 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 TO BE DETERMINED BY AASHTO METHOD T-99.(STANDARD PROCTOR)

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

EMBANKMENT CORE

THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM pH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, 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.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE- ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE.

1. MATERIALS- (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. THE PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-2465 & M-246 WITH WTAERTIGHT 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 WARRENT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS- (ALUMINUM PIPE)- THIS PIPE AND ITS 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 WARRENT FOR INCREASED DURIBILITY, 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 HTE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH THE USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS- ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE- ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMONDATE 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" CLOSED CELL NEOPRENE GASKET, PREPUNCHED TO THE FLANGE BOLT CIRCLE, AND SANDWICHED BETWEEN ADJACENT FLANGES; A 12 INCH STANDARD LAP TYPE BAND WITH 12 INCH WIDE BY 3/8 INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12 INCH WIDE HUGGER TYPE BAND WITH O- RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION 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 CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING- THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM DESIGNATION C-361 & SHALL HAVE CIRCULAR CONFINED O- RING GASKETS

2. BEDDING - ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING 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.

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

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE- THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS- PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.
2. JOINTS AND CONNECTIONS TO ANTI- SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.
3. BEDDING- THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

DRAINAGE DIAPHRAMS- WHEN A DRAINAGE DIAPHRAMIS USED, A REGISTERED PROFFESSIONAL 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. 3

REINFORCEMENT

REINFORCEMENT SHALL MEET THE MINIMUM REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 610 (REINFORCEMENT FOR CONCRETE STRUCTURES) ; SECTION 911 (REINFORCING STEEL- GRADE 60) , WIRE ROPE AND WIRE FABRIC, AND SECTION 914.02 (STEEL FOR MISCELLANEOUS USE) . ALL REINFORCING BARS SHALL BE EPOXY COATED.

ROCK RIPRAP

SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 311. GEOTEXTILE FABRIC 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.

WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF 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 TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

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

EROSION AND SEDIMENT CONTROL

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

STABILIZATION SPECIFICATIONS

TEMPORARY SEEDING NOTES

Scope: Planting short term (no more then 1 year) vegetation to temporarily stabilize any areas where soil disturbance has occurred, until the area can be permanently stabilized with vegetative or non-vegetative practices.

Standards: The following notes shall conform to the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" Published jointly by the Maryland Department of Environment - Water Management Administration, the National Resource Conservation Service, and the State Soil Conservation Committee.

1. The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See G-20 Sec. 1-C.
2. Fertilizer shall consist of a mixture of 10-10-10 and be applied at a rate of 600 lb per acre (15 lb per 1000 sq. ft.) and will meet the requirements in G-20 Sec. 1-B.
3. Lime shall be applied at a rate of 2 tons per acre (100 lb per 1000 sq. ft.) and shall meet the requirements in G-20 Sec. 1-B.
4. Seed tags shall be made available to the inspector to verify the type and rate of seed used. The seed must meet the requirements in G-20 Sec. 1-C.
5. Mulching will be applied immediately after seeding and will need to meet the requirements in G-20 Sec. 1-F, G and H.
6. Seeding mixtures shall be selected from or will be equal to those on Table 26.
7. The following is one option, approved equals may be used.

Temporary Seeding Summary

Seed Mixture Hardiness Zone 6B (G-20 Figure 5)

No. Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths
RYE PLUS FOXTAIL MILLET	150	3/1 to 11/15	1"

PERMANENT SEEDING NOTES

Scope: Planting permanent, long lived vegetative cover on graded and/or cleared areas and areas that have been in temporary vegetation for more then 1 year.

Standards: The following notes shall conform to the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" Published jointly by the Maryland Department of Environment - Water Manager Administration, the National Resource Conservation Service, and the State Soil Conservation Committee.

1. The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See G-20 Sec. 1-C.
2. For sites over 5 ac. soil tests will be performed to determine the exact mixture and application rates for both lime and fertilizer. Soils tests will be prepared by the University of Maryland or a recognized commercial laboratory. If the existing soil does not meet the minimum conditions as stated in G-20 Sec. 1-C-II, then topsoil will need to be obtained that meets these conditions and applied so as to meet the requirements in G-21.
3. For sites of 5 ac. or less of disturbance, the following fertilizer and lime rates shall apply.
4. Fertilizer shall consist of a mixture of 10-20-20 and be applied at the following rates: N=90 lb per acre (2 lb per 1000 sq. ft.) P205=175 lb per acre (4 lb per 1000 sq. ft.) K20=175 lb per acre (4 lb per 1000 sq. ft.). Fertilizer shall meet the requirements in G-20 Sec. 1-B.
5. Lime shall be applied at a rate of 2 tons per acre (100 lb per 1000 sq. ft.) and shall meet the requirements in G-20 Sec. 1-B.
6. Seed tags shall be made available to the inspector to verify the type and rate of seed used. The seed must meet the requirements in G-20 Sec. 1-c.
7. Mulching will be applied immediately after seeding and will need to meet the requirements in G-20 Sec. 1-F,G & H.
8. Refer to G-20 Sec. 1-E for Methods of Seeding specifications.
9. Refer to G-20 Sec. 4 for Sod specifications.
10. Refer to G-20 Sec. 5 for Turfgrass Establishment specifications.
11. Seeding mixtures shall be selected from or will be equal to those on Table 25.
12. The following is one option, approved equals may be used.

SPECIES	APPLICATION RATE (lb/AC.)	SEEDING DATES
TALL FESCUE (85%)	125	3/1 - 5/15 OR 8/15 - 10/15
PERENNIAL RYEGRASS (10%)	15	3/1 - 5/15 OR 8/15 - 10/15
KENTUCKY BLUEGRASS (5%)	10	3/1 - 5/15 OR 8/15 - 10/15

Tracking note:

On areas where the slope is 3:1 or steeper and the height is 8' or greater, contractor shall track the slope using cleated dozer prior to placing asphalt binder. Dozer shall run up-and-down so that cleat marks are horizontal. Where tracking is required, it shall be done from existing grade level to finished grade level within the limits established by the 8' height criteria.

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

Project Name Carlee Jones
Location Howard County
Job Number 22799A
Boring Number B-3 Page 1 of 1

Datum MSL
Surf Elev 443.50
Date Started 11/17/99
SAMPLER Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia. --
Boring Method HSA
Foreman M. Shanaberger
Inspector J. Cooper
Completed 11/17/99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
443.5	SURFACE		0.0					
	Topsoil = 10"			I	4, 4, 4	1	14"	
	Brown, moist, loose, SILT with sand, trace rock fragments (ML)		2.5	I	2, 3, 3	2	15"	
438.5		5.0	5.0					
	Brown, moist, medium dense, SILT with sand and rock fragments (ML)			D	11, 11, 13	3	13"	
436.0		7.5	7.5					
	Light brown, moist, medium dense, silty SAND with rock fragments and mica (SM)			D	12, 8, 9	4	15"	
			10.0	I	7, 8, 9	5	13"	
432.0		11.5						
	Bottom of hole @ 11.5 ft		12.5 15.0 17.5 20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

Groundwater Readings	Time	Date	Depth	Cave-In
Encountered	—	11/17/99	dry	--
At Completion		11/17/99	dry	--
After Auger Removal		11/17/99	dry	9.5
Backfilled		11/18/99	dry	8.0

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS

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

Project Name Carlee Jones
Location Howard County
Job Number 22799A
Boring Number B-4 Page 1 of 1

Datum MSL
Surf. Elev. 446.2
Date Started 11/17/99
SAMPLER Hammer Wt. 140 Lbs.
Hammer Drop 30 Inches
Pipe Size 2.0 Inches OD
Hole Diameter 6"
Rock Core Dia. --
Boring Method HSA
Foreman M. Shanaberger
Inspector J. Cooper
Completed 11/17/99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
446.2	SURFACE		0.0					
	Topsoil = 7" Brown, moist, loose, SILT with sand, trace rock fragments (ML)			I	2, 3, 4	1	14"	
443.7		2.5	2.5					
	Reddish brown, moist, med dense, clayey SAND and rock fragments (SC)			I	8, 6, 9	2	13"	
441.2		5.0	5.0					
	Brown, very moist, loose, SILT with sand and mica, trace rock fragments (ML)			I	3, 5, 5	3	14"	
438.7		7.5	7.5					
	Brown, moist, Disintegrated Rock			ID	12, 50, 18	4	10"	
436.2		10.0	10.0					
	Dark brown, very moist, dense, silty SAND with mica and rock fragments (SM)		12.5	ID	3, 16, 25	5	14"	
432.7		13.5						
431.2	Dark brown, wet, dense, silty SAND with mica and rock fragments (SM)	15.0		D	48, 50/3"	6	9"	
	Bottom of hole @ 15.0 ft		17.5 20.0					

SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED.
PT-PRESSED SHELBY TUBE
CA-CONTINUOUS FLIGHT AUGER
RC-ROCK CORE

SAMPLE CONDITIONS
D-DISINTEGRATED
I-INTACT
U-UNDISTURBED
L-LOST

BORING METHOD
HSA-HOLLOW STEM AUGERS
CFA-CONT. FLIGHT AUGERS
DC-DRIVING CASING
MD-MUD DRILLING

Groundwater Readings	Time	Date	Depth	Cave-In
Encountered	—	11/17/99	12.5	–
At Completion		11/17/99	9.5	–
After Auger Removal		11/17/99	9.5	11.0
Backfilled		11/18/99	8.0	9.5

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30";COUNT MADE AT 6" INTERVALS

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING &
TRUST CO., TRUSTEE
C/O WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS HS 2-25-03 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT HB 3/4/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 3/28/03 DATE

STORMWATER MANAGEMENT PROFILES AND NOTES

CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Alfred L. Hansard
Professional Engineer Registration No. 23446

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: JW
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: As Shown
		Job No.: 97230A
		Sheet: 16 OF 24

County File No. F-02-91

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTSS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AN APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE AND OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

1/16/03
DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

Alfred L. Hansard
ALFRED L. HANSARD,
PROFESSIONAL ENGINEER REG. No. 23446
1/14/03
DATE

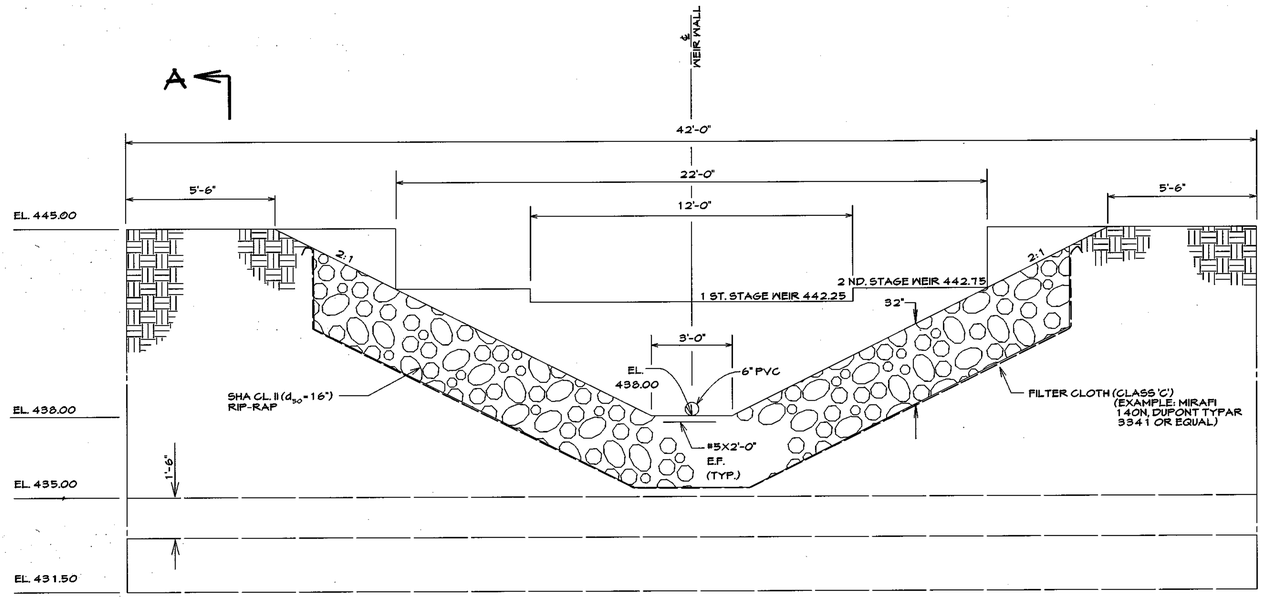
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL

USDA - NATURAL RESOURCES CONSERVATION SERVICE 2/11/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 2/11/03 DATE

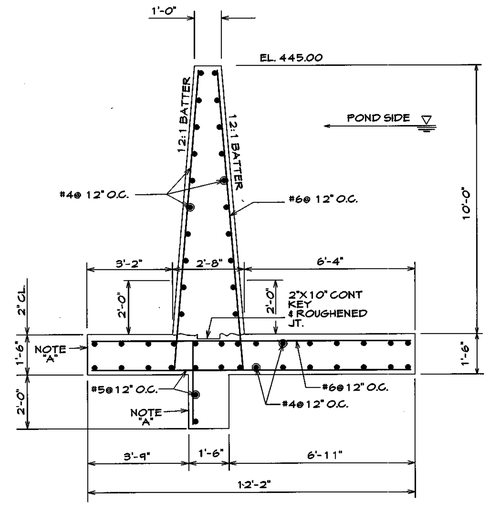
CAD Drawing File Name: g:\97230\dan\constr\esdplans\(16)SWMPRO.DGN



NOTE:
THE WEIR WALL IS TO BE CAST AGAINST UNDISTURBED EARTH.

S-1
WEIR WALL
ELEVATION OF DOWNSTREAM FACE
SCALE: 3/8" = 1'-0"

NOTE:
ALL EXPOSED WEIR WALL EDGES ARE TO BE CHAMFERED A MINIMUM OF 1" X 1".



NOTE "A"
PLACE CONCRETE AGAINST UNDISTURBED EARTH

NOTE:
2000 psf BEARING TO BE VERIFIED BY A GEOTECHNICAL ENGINEER

WEIR WALL
SECTION A-A
SCALE: 3/8" = 1'-0"

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

STORMWATER MANAGEMENT DETAILS
CARLEE MANOR
LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSARD — PROFESSIONAL ENGINEER — Professional Engineer Registration No. 25446

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		Drawn By: JM
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: As Shown
		Job No.: 97250A
		Sheet: 17 OF 24

STATE OF MARYLAND — HOWARD COUNTY — ALFRED L. HANSARD — 25446 — PROFESSIONAL ENGINEER

STRUCTURAL DESIGN BY
HILLIS- CARNES ENGINEERING ASSOCIATES INC.
P.O. BOX 647
NEW MARKET, MARYLAND 21774
(301)- 631- 3960

OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
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AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER, NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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1/16/03 DATE

ENGINEER'S CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

ALFRED L. HANSARD, PROFESSIONAL ENGINEER REG. No. 25446 — 1/16/03 DATE

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

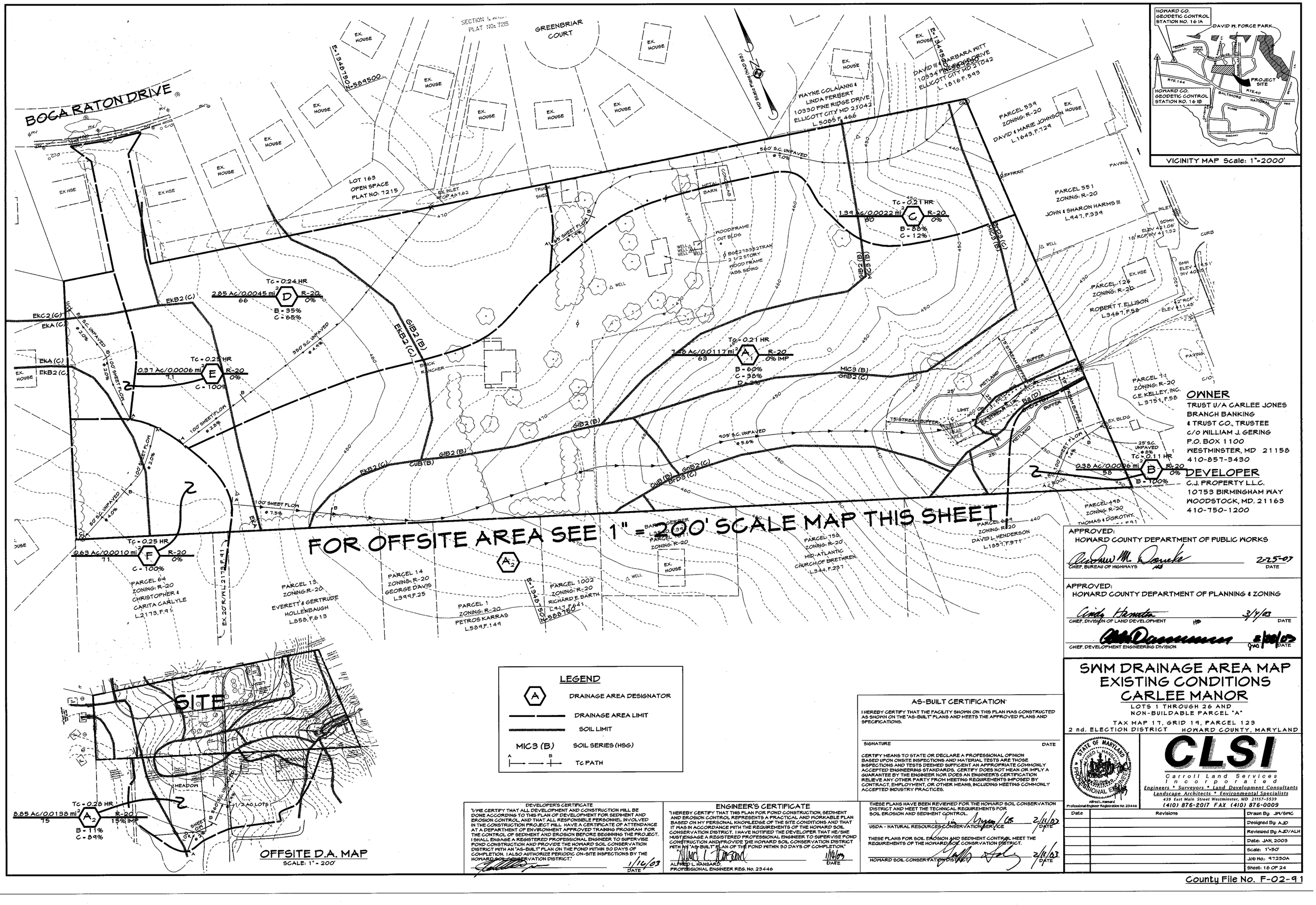
USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/4/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/4/03 DATE

County File No. F-02-91

CAD Drawing File Name: d:\97250\dgn\const*sdplans\(17)SWMDET.DGN



OWNER

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410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2/25/03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

LEGEND

- A — DRAINAGE AREA DESIGNATOR
- DRAINAGE AREA LIMIT
- SOIL LIMIT
- MIC3 (B) — SOIL SERIES (HSG)
- A — B — Tc PATH

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AN APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

1/16/03 DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

ALFRED L. HANSARD, PROFESSIONAL ENGINEER REG. No. 23446 — 1/16/03 DATE

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE — 2/11/03 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/11/03 DATE

SWM DRAINAGE AREA MAP EXISTING CONDITIONS CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ALFRED L. HANSARD — No. 23446 — PROFESSIONAL ENGINEER
Alfred L. Hansard
Professional Engineer Registration No. 23446

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: JM/SMC
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 18 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\rtsdplans\18\EXSWMDAM.DGN

VICINITY MAP Scale: 1"=2000'

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

'OFFSITE D.A. MAP
SCALE: 1" = 200'

LEGEND

(A) DRAINAGE AREA DESIGNATOR

DRAINAGE AREA LIMIT

SOIL LIMIT

MIC3 (B) SOIL SERIES (HSG)

A B Tc PATH

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Danelke HS 2-25-03
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hamilton HB 3/4/03
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

2/28/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

SWM DRAINAGE AREA MAP PROPOSED CONDITIONS CARLEE MANOR

LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 ON THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

1/14/03
DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS 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."

Alfred L. Hansard 1/14/03
ALFRED L. HANSARD, DATE
PROFESSIONAL ENGINEER REG. No. 23446

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

Jim Myers / CB 2/11/03
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

2/11/03
HOWARD SOIL CONSERVATION DISTRICT DATE

Alfred L. Hansard
Professional Engineer Registration No. 23446

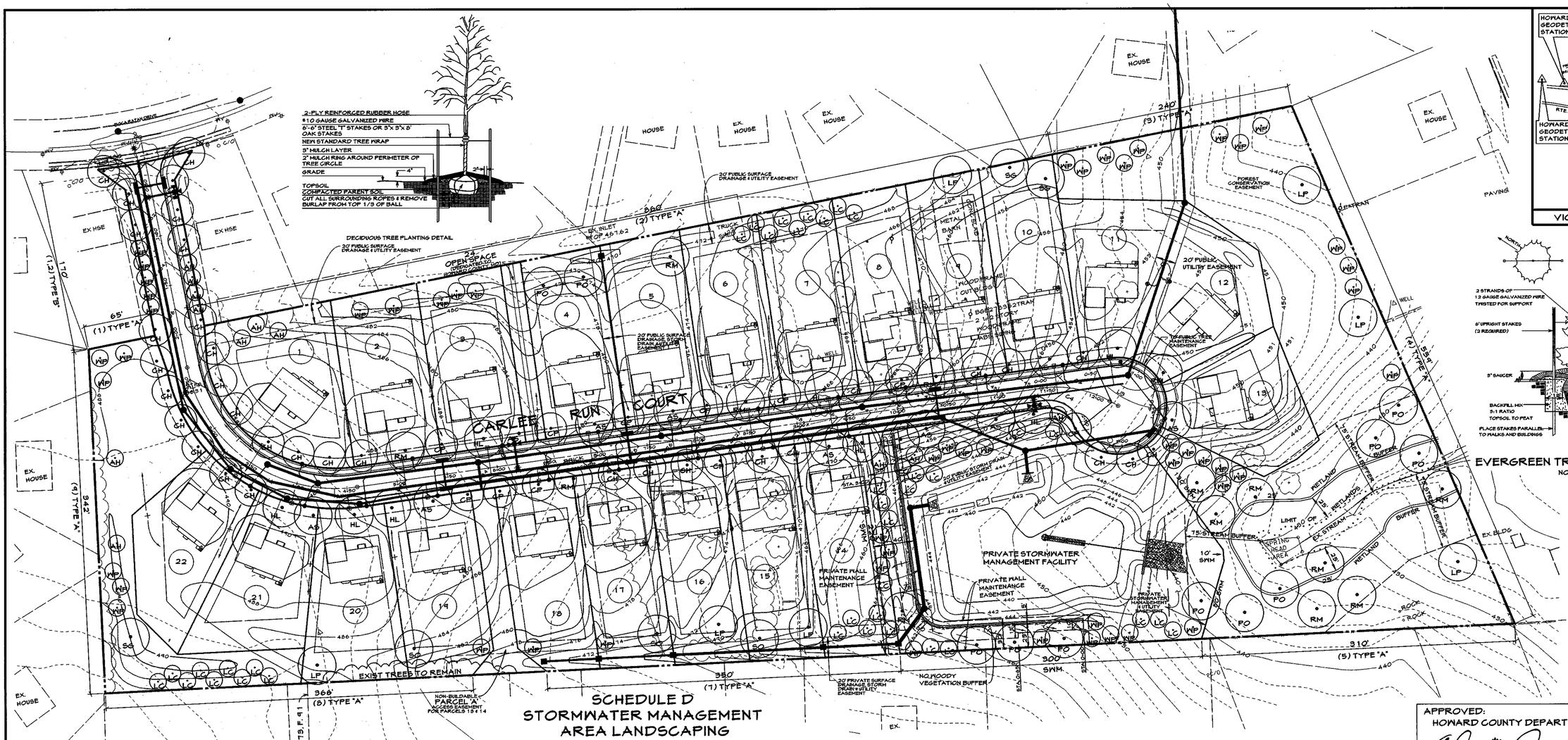
CLSI

Carroll Land Services
Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	Drawn By: JW/SWC
		Designed By: AJD
		Reviewed By: AJD/ALH
		Date: JAN, 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 19 OF 24

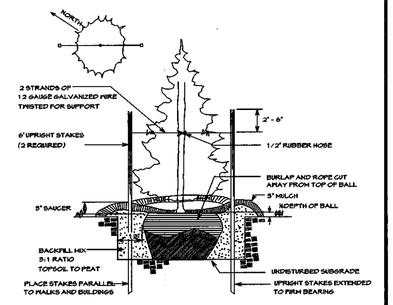
County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\resdplans\(19)DEVELSWMDAM.DGN



VICINITY MAP Scale: 1"=2000'

DECIDUOUS TREE PLANTING DETAIL



EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

OWNER
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER
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SCHEDULE A
PERIMETER LANDSCAPE EDGE

Category	Adjacent to Perimeter Properties	Perimeter Number:								LANDSCAPE	TYPE "B"	1	2
Landscape Type	TYPE "A"	1	2	3	4	5	7	8	9	LINEAR FEET OF PERIMETER	340	170	170
Linear Feet of Perimeter	3092	65'	860'	240'	559'	310'	350'	366'	342'	CREDIT FOR EXISTING VEGETATION (YES, NO LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO
Credit for Existing Vegetation (Yes, No Linear Feet) (Describe below if needed)	NO	NO	NO	NO	NO	NO	NO	NO	NO	CREDIT FOR WALL, FENCE OR BERM (YES,NO LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO
Credit for Wall, Fence or Berm (Yes, No Linear Feet) (Describe below if needed)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NUMBER OF PLANTS REQUIRED: Shade Tree 1:50 LF	6.8	3.4	3.4
Number of Plants Required Shade Trees 1:60L.F. Evergreen Trees 0 Shrubs 0	52	1.1	14.3	4.0	9.3	5.2	5.8	6.1	5.7	Evergreen 1:40 LF	8.6	4.3	4.3
			NO							Shrub 0	-	-	-
Number of Plants Provided	Shade Trees: 25	0	6	0	7	5	4	2	1	NUMBER OF PLANTS PROVIDED (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	Shade Tree 7	4	3
(Describe plant substitution credits below if needed)	Evergreen Trees: 54*	2	17	8	4	0	7	10	6		Evergreen 9	4	5

* 54 EVERGREEN TREES WERE SUBSTITUDED FOR 27 SHADE TREES; 2:1 SUBSTITUTION.

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

Linear Feet of Edge	845
Number of Trees Required Shade Trees 1:50 L.F.= Evergreen Trees 1:40L.F.=	17 22
Credit for Existing Vegetation (No, Yes and %)	NO
Credit for Other Landscaping (No, Yes and %)	NO
Number of Trees Provided Shade Trees Evergreen Trees Other Trees(2:1 substitution)	8 * 40

*18 EVERGREEN TREES WERE SUBSTITUDED FOR 9 SHADE TREES

PLANTING SCHEDULE

SYMBOL	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	SPACING	COMMENTS
Large Deciduous Trees						
AS	10	ASH	Fraxinus americana 'Autumn Purple'	2.5" CAL.	30'-40' o.c.	B&B
RM	13	RED MAPLE	Acer rubrum 'October Glory'	2.5" CAL.	30'-40' o.c.	B&B
HL	9	HONEYLOCUST	Gleditsia triacanthos 'Shademaster'	2.5" CAL.	30'-40' o.c.	B&B
SG	3	SWEETGUM	Liquidambar styraciflua	2.5" CAL.		B&B
LP	7	LONDON PLANE	Platanus x acerifolia 'Bloodgood'	2.5" CAL.		B&B
PO	11	PIN OAK	Quercus palustris	2.5" CAL.		B&B
SO	3	SAWTOOTH OAK	Quercus acutissima	2.5" CAL.		B&B
Medium Deciduous Trees						
CH	34	FLOWERING CHERRY	Prunus sargentii	2" CAL.	30'-40' o.c.	B&B
CP	11	CHANTICLEER PEAR	Pyrus calleryana 'Chanticleer'	2" CAL.	30'-40' o.c.	B&B
Evergreen Trees						
LC	37	LEYLAND CYPRESS	Cupressocyparis leylandii	5'-6'	10'-15' o.c.	Cont.
WP	49	WHITE PINE	Pinus strobus	6'-8'	15'-20' o.c.	B&B
AH	12	AMERICAN HOLLY	Ilex opaca	5'-6'	10'-15' o.c.	B&B

Street Trees

1 per 40 L.F. street frontage
2450 L.F. divided by 40 = 61.25 required
62.0 proposed

The street trees will be planted in 10 ft. wide tree maintenance easement.

SURETY NOTE:
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY BASED ON "REQUIRED PLANTINGS" (69 SHADE TREES @ $300.00 EA. AND 22 EVERGREENS @ $150.00 EA.) HAS BEEN FOR THE REQUIRED 204 LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $24,000.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-25-03 DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 3/4/03 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/28/03 DATE

STREET TREE AND LANDSCAPE PLAN
CARLEE MANOR
LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"

TAX MAP 17, GRID 19, PARCEL 123
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — RICHARD S. RYAN — LANDSCAPE ARCHITECT
Registered Landscape Architect No. 330 MD

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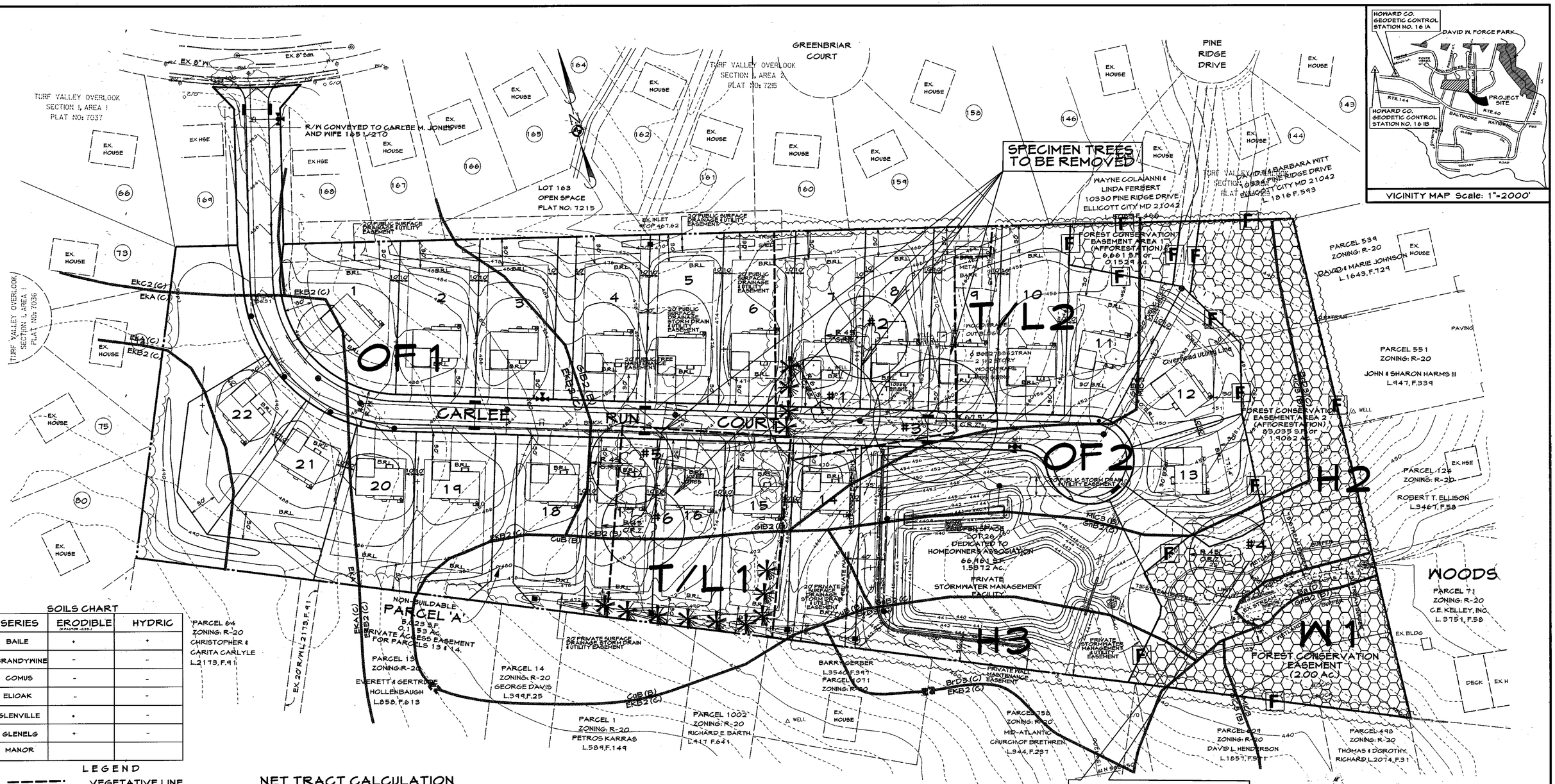
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: SMG
		Designed By: MLM
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale: 1"=50'
		Job No.: 97230A
		Sheet: 20 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dan\const\fisdplans\(20)LANDDGN



SOILS CHART

SERIES	ERODIBLE (K FACTOR >0.35)	HYDRIC
BAILE	+	+
BRANDYWINE	-	-
COMUS	-	-
ELIOAK	-	-
GLENVILLE	+	-
GLENELG	+	-
MANOR		

LEGEND

- VEGETATIVE LINE
- EXISTING CONTOURS
- FENCE
- EkB2 EXISTING SOILS
- EXISTING BOUNDARY
- TREE LINE
- STREAM BUFFER
- (8) PROPOSED LOT NUMBERS
- T/L TREE/LAWN AREA
- OF OPEN FIELD OR PASTURE
- W WETLANDS
- H HEDGEROW

NET TRACT CALCULATION

TOTAL AREA: 13.3 ACRES+/- FLOODPLAIN: 0.0 ACRES
NET TRACT AREA: 13.3 ACRES +/-

F.S.D. Written Narrative

A Forest Stand Delineation was performed in October, 1998 by CLSI, Inc. No forest communities exist on site. Environmental features of concern on site include a springhead, stream with partially eroded banks and nontidal wetlands located in the southeastern corner of the property. Slopes greater than 15% do not exist on site. 6 trees 30" or greater were located and are noted on plan. The site consist of 2 existing residential dwellings and outbuildings surrounded by Tree/Lawn areas in the center of the property. The western portion of the property consists of a mowed Open Field while the eastern portion is fenced in Open Field/pasture and Wetland where livestock is contained. The priority planting area on site is the riparian area in the southeast corner that will be contiguous to the existing forest on the the adjoining property.

FOREST STAND ANALYSIS TABLE

APPLICANT: PROJECT NAME: SUBMISSION NO.

KEY	A. TYPE OF COMMUNITY	B. AREA	C. SOIL INFORMATION 1. Soil Types	2. Typical forest cover for soil type	3. Woodland Suitability Index	D. EXISTING VEGETATION	E. STAND CHARACTERISTICS 1. Size (Plan)	2. Age	3. General Conditions	F. FOREST AREA IN SENSITIVE ENVIRONMENTS	G. HABITAT VALUE
H1	Hedgerow	N/A	Glenelg,Manor	Oak, Mixed Upland Hdwds	ErB2 - 90 HcG3 - 45	Mixed Upland Hardwoods	Non-Applicable				OPEN FAIR - GOOD
H2	Hedgerow	N/A	Brandywine	Oak, Mixed Hdwds	BrD3 - 41						
H3	Hedgerow	N/A	Glenelg,Manor	Oak, Mixed Upland Hdwds	ErB2 - 90 HcG3 - 45						
OF1	Open Field	5.3	Comus Elioak Glenelg	Oak, hickory Oak, Mixed Hdwds Oak, Mixed Upland Hdwds	CoB - 4 ElA, ElB2 - 90 GlB2 - 90	Grass Field					OPEN GOOD
OF2	Open Pasture	5.7	Glenelg Glenville Manor Brandywine	Oak, Mixed Upland Hdwds Other Tolerant Hdwds Oak, Mixed Upland Hdwds Oak, Mixed Hdwds	ErB2 - 90 GlB2 - 72 HcG3 - 45 BrD3 - 41	Grass Pasture					OPEN FAIR - GOOD
T/L1	Tree/Lawn Area	0.9	Glenelg (Disturbed)	Oak, Mixed Upland Hdwds	ErB2 - 90	Tree/Lawn Area Mixed native hardwoods & evergreens					OPEN GOOD
T/L2	Tree/Lawn Area	1.1	Glenelg (Disturbed)	Oak, Mixed Upland Hdwds	ErB2 - 90	Tree/Lawn Area Mixed native hardwoods & evergreens					OPEN GOOD
W1	Wetlands	0.3	Baile Glenville	Red Maple, Sweetgum & Other Tolerant Hdwds	Ba - 1 GlB2 - 12	Hydrophytic Herbaceous Vegetation					WETLAND GOOD

NOTE: NO FOREST EXIST ON-SITE.

TREES 30" AND GREATER

T#	D.B.H.	Common/Scientific Name	Condition	Retention
1	41"	Silver Maple/Acer saccharinum	Good	No
2	30"	White Ash/Fraxinus americana	Fair	No
3	45"	Black Locust/Robinia Psuedo-Acacia	Poor	No
4	30"	Red Maple/Acer rubrum	Poor	Yes
5	30"	White Ash/Fraxinus americana	Good	No
6	30"	Sugar Maple/Acer saccharum	Poor	No

OWNER

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& TRUST CO., TRUSTEE
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APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/26/03

FINAL FOREST CONSERVATION PLAN

CARLEE MANOR

LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Leonard H. Hindel
Registered Professional Forester No. 192

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		Job No.: 97230A
		Sheet: 21 OF 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dan\const\forestry\(01)forcplan.dgn

FOREST CONSERVATION WORKSHEET

Basic Site DATA

Gross Site Area	13.31 Acres
Area within 100 Yr. Flood Plain	0
Area within Agricult. Pres. Par.	0
Net Tract Area	13.31 Acres
Land Use Category	HDR (High Density Res.)

Information for Calculations
A. Total Net Tract Area: 13.31 Acres
B. Reforestation Threshold: 20% 2.66 Acres
C. Afforestation Minimum: 15% 2.00 Acres
D. Existing Forested Area: 0 Acres
E. Forest area to be cleared 0 Acres
F. Forest area to be retained 0 Acres

Afforestation required: 2.00 Acre

RETENTION AREAS AND PRIORITY RATINGS

No Forest on site

REFORESTATION: 0 ACRES

There are six specimen trees on site, five of these trees will be removed due to grading.

SPECIMEN TREES WITHIN DISTURBANCE AREAS

NO.	COMMON NAME\SCIENTIFIC NAME	DBH	CONDITION	REMOVE
1	Silver Maple\Acer Saccharinum	41"	Good	Yes
2	White Ash\Fraxinus americana	30"	Fair	Yes
3	Locust\Robinia Pseudo-Acacia	45"	Poor	Yes
4	Red Maple\Acer rubrum	30"	Poor	No
5	White Ash\Fraxinus americana	30"	Good	Yes
6	Sugar Maple\Acer saccharum	30"	Poor	Yes

FOREST CONSERVATION PLAN NARRATIVE

When applying the Forest Stand Delineation to this project, No forest exists on site, environmental features of concern are a springhead, stream and nontidal wetlands. All specimen trees with the exception of Specimen tree No.4, will be removed, due to grading.

FOREST PROTECTION PLAN

The specimen tree (#4) is within the afforestation area, this area will be protected from impacting grading to the north and grading of SWM Pond to the west of the stream buffer area. The initial limit of disturbance (L.O.D.) for construction will be marked by the contractor, 15' from the L.O.D. shown on the Forest Conservation Map. The forest buffer line is shown on plan. For specimen tree# 4, the Soil Compaction Zone or CRZ(Critical Root Zone) is 45'. Once the C.R.Z. is established, the L.O.D. will be re-adjusted to conform with the field flagging. At this time the contractor will install the following protection devices (see detail).

The temporary forest protection device, will be well anchored, two-three strand smooth wire fence along with Afforestation Signs posted every 100 feet and two specimen tree signs. This fence will be installed once the C.R.Z. has been established and the L.O.D. located, as mentioned previously. This protection device will be installed prior to any construction activity. Grading will occur near areas designated for retention, making it even more important that the protection device be easily seen. The fence stakes will be installed 2' into the ground just outside the C.R.Z. Signs are not to be put on trees!!!

No construction equipment, machinery, vehicle, materials or excessive pedestrian traffic will be allowed in the afforestation area. Therefore, no openings through the fence will be allowed. Entrance to the area will be allowed for planting and inspection purposes only. This protective tree device will remain in place and will be maintained throughout the life of the construction project. To help reduce the possibility of disturbance within an identified afforestation protection area, a pre-construction meeting will take place after the boundaries of the L.O.D. have been staked and flagged and the forest protection devices have been installed. The employees of the construction crew will be informed of the importance of the trees slated for retention. Each foreman shall read "Every Builder Should Know", (detail on this plan sheet). During the pre-construction meeting the temporary parking location, stockpile area, staging and fueling area will be shown to all personnel.
NOTE: Wash-Out Area is designated in driveways, or will be taken off site. Cement spills are a main cause of soil pH change.

WHAT EVERY BUILDER SHOULD KNOW
The Wisconsin Arborist/September-October 1990

* The roots are the most important part of a tree.
* Tree roots must have oxygen, in order to function. Covering roots with soil, paving, or water can deprive roots of vital oxygen supplies.
* The main absorbing roots of trees are in the top 6-12 inches of soil. The myth of "deep rooted trees" is just that a myth.
* Even side transport roots form the short "tap roots" of an oak slant upward to get oxygen and rain water. The majority of roots grow upward toward the surface, not downward.
* The absorbing roots of trees are mostly in a large, shallow disc that is 2-4 times the area covered by the crown, in other words, tree roots extend far beyond the branches!
* Grading dirt over the absorbing roots of trees anywhere under their branches (and often beyond) suffocates the absorbing roots and kills all or most of the crown in 1-3 years.
* Grading soil away from the root zone of trees removes their absorbing rots and does great in jury to the crown within 1-3 years. It kills the nearly invisible hair roots.
* If you can see roots of a tree which you have cut, you have already done considerable damage to the tree.
* Compaction of soil under trees (especially by bulldozers working in an area, and by repeated parking of vehicles, by construction people) is almost as deadly to trees as covering their roots with soil. The compaction deprives the roots of oxygen.
* Building a "Tree Well" (e.g. a stone wall) around the trunk of a tree, while covering the surrounding area with soil is a fool's project. It does no good at all.
* Trenching to install utilities severs tree roots. Remember, it is the roots of a tree, not its top, which are most important.
* Changing grades so that temporary or permanent ponding of water occurs usually results in suffocation of all roots in the pond due to lack of oxygen, and the tree dies.
* Wounding oak trunks and branches any time from early spring to late summer in areas where oak wilt disease exists, usually results in oak wilt infecting the tree. Damaging any tree trunk is detrimental to the health of the tree as it allows entry of disease and insect infestations.
* Bulldozers and "Bobcats" easily create tree wounds.

FOREST CONSERVATION NOTES

1. Plan prepared by MAR-LEN FORESTRY 275 Barnhart Rd Westminster, MD 21158. 410-857-2322
2. Concrete wash-off is designated on plan or shall be taken off site.
3. Afforestation Area will be posted with "Reforestation Project" Signs every 100 feet and this area will be placed in a Forest Conservation Easement in perpetuity.
4. Specimen tree No.1,2,3,5, and 6 will be removed due to grading

FOREST PROTECTION MEASURES

1. All retention areas and isolated specimen trees shall be protected by highly visible, well anchored temporary protection devices as shown.
2. All protection devices shall be in place prior to any grading or land clearing.
3. All protection devices shall remain in place until all construction has ceased in immediate area.
4. Devices shall be maintained throughout construction.
5. Attachment of signs or any other object, to trees is prohibited.
6. No equipment, machinery, vehicles, materials or excessive pedestrian traffic shall be allowed within protected areas.
7. Pre Construction meeting: After the boundaries have been staked and flagged and before any disturbance, the developer, contractor or project manager and local inspector shall attend. Temporary parking, stockpile, staging and fueling area will be shown to all personnel.
8. Any changes made to the Forest Conservation Plan due to On-Site conditions shall be made in consultation with a representative of the Department of Planning and Zoning (410) 313-2350.
9. No burial of discarded materials will occur on-site within the conservation area.
10. No open burning within 100 feet of a wooded area.
11. All temporary Forest Protection structures will be removed after construction.
12. Field edge determination will be performed along forested areas affected by construction.

Afforestation Plan

Afforestation required: 2.00

Afforestation on-site: 2.00 Acres

Planting site overview
The planting will enhance the stream buffer and buffer the nontidal wetlands. The site is currently dominated by forbs and grasses with a sparse population of woody shrubs. The dominant soils consist of Brandywine loam (BrD3) and Glenville silt loam (GnB2), both soils are well drained and moderately deep to bedrock, these soils have a slight rating when it comes to mortality for seedlings. Within the planting site is a small section of Baile silt loam (Ba), confined to the nontidal wetlands.

Planting material will conform to the current issue of "The American Standards for Nursery Stock", published by the "American Association of Nurserymen".
The planting stock will be bare root seedlings on a 8 X 8 spacing, random distribution of stock

Planting Area (2.00 acres)
This area will require 1380 trees.

QUANTITY	SPECIE	SPACING
276	BLACK OAK/QUERCUS VELUNTINA	8 X 8
276	BLACK GUM/NYSSA SYLVATICA	8 X 8
276	RED MAPLE/ACER RUBRUM	8 X 8
276	WHITE DOGWOOD/CORNUS FLORIDA	8 X 8
276	REDBUD/CERCIS CANADENSIS	8 X 8

SITE PREP:
Mow entire area prior to planting if needed.
Prepare holes, dibble bar, hand or machine planting and backfill with native soil, water and mulch trees using 2-4 inches to cover in and around the one foot square. The mulch will help retain moisture and reduce weed competition.
PLANTING SCHEDULE:
Spring is the optimal time to plant, March-April.
CLEAN UP:
All debris created from the afforestation activities shall be removed from the site within seven days of completion of planting.
PROTECTION DEVICES:
The Planting site or afforestation area shall be protected with appropriate signs and fencing.

POST-CONSTRUCTION PHASE
The following measures shall be taken when appropriate:
1.Corrective measures if damages were incurred due to negligence:
a. Stress reduction
b. Removal of dead or dying trees: this may be done only if trees pose an immediate safety hazard.
2.Removal of temporary structures: the following minimum standards shall be observed during the removal of temporary structures.
a. No burial of discarded materials will occur on-site within the conservation area.
b. No open burning within 100 feet of a wooded area.
c. All temporary forest protection structures will be removed after construction.
d. Follow procedures in Maintenance and Management agreement.

GENERAL GUIDANCE FOR MAINTENANCE OF PLANTED AREAS

a. Watering: A watering plan should only be implemented to compensate for deficient rainfall patterns. Trees can die from too much water as well as too little. Newly planted trees may need water as much as once a week for the entire first growing season. The next two years, in contrast, may require watering only a few times a year (once a month during July and August). After that, trees should only need water in severe droughts. Bare root transplants, if sufficiently watered during planting, may not need water for almost 2-4 weeks after growth begins. Balled and burlap material may require more frequent watering.

Soil and Watering: Soil texture influences the downward flow of water. Soils with more clay tend to retain more water and can be watered less often; soils with more sand drain more quickly and need to be watered more often. For examples of on-site evaluation recommendations. If the soil was well prepared before planting, there should be few drainage problems. Restricted downward penetration indicates the soil may have been compacted during construction and not aerated before planting, or there may be a clay hardpan.

How to Water: The best way to water is deeply and slowly using a regular hose, a soaker hose, or drip irrigation. For larger trees, start by watering the root ball thoroughly. The watered area shall be enlarged to include the whole root zone as the tree becomes more established. Mulching around the base of newly transplanted trees prevents roots from drying too quickly while providing air movement to the roots.

b. Fertilizing: Fertilizing is the chemical modification of soils to correct for a specific nutrient deficiency. These deficiencies are most effectively identified in a laboratory soils analysis. Nothing should be added to the soil without first testing to determine any nutrient needs.

What Nutrients to Apply: Trees depend on three major nutrients, nitrogen, phosphorous and potassium and a host of other minor ones (or micro-nutrients) such as calcium, magnesium and iron. In most soils, most of the micro-nutrients are available in abundance. Of the major nutrients, nitrogen is usually the limiting one.

When to Fertilize: Even when soils are deficient in nitrogen, fertilizing within the first growing season after planting is not recommended. Too much nitrogen may cause a spurt of canopy growth which the roots cannot support. It is therefore, best to wait until after the end of the first growing season, either in the late fall or early spring.

What Type of Fertilizer: Organic fertilizers are preferred to synthetic fertilizers. Bone meal or seaweed based products are available commercially. Organic fertilizers have a slow-release effect that can supply nutrients to the plant as needed while minimizing the risk of excessive nutrients entering the forest system and water supply.

c. Control of Competing Vegetation: Unfortunately, good sites for reforestation and afforestation are generally good sites for unwanted vegetation as well. Unwanted vegetation growing near newly planted trees can take over the site. The need to control this problem depends on the ability of the plant material to withstand the intrusion. Smaller trees may need more care, although some seedlings survive with the overgrowth and will shade it out as the trees grow. As a preventative measure, consider the potential for growth of invasive species.

Mulch is one of the best weed deterrents. Spread a 2-4 inch layer of mulch over the root area of a newly planted tree avoiding direct contact with the trunk, a prime spot for fungal growth. Mulch also helps maintain the soil moisture level and may provide a buffer for any equipment that may be used to maintain the area.

d. Protection: Pests, Disease and Mechanical Injury.
Integrated pest management (IM) is one of the most effective and safest approaches for maintaining a healthy forest. IM basics include proper specie selection for the site, good pruning, mulching and fertilizing practices, regular monitoring, and proper timing of necessary sprays. Good cultural practices will minimize the amount of spraying. Professional IM programs have reduced pesticide use by 40%. Some aspects of a full IM program include:

1) Elimination of some low vegetation before planting to help control the rodent population which thrives in brushy environment.

2) Use of tree shelters to protect the trunks of seedlings or whips from animal damage. The shelters act as mini-greenhouses to speed growth. These trees need more water than those planted without tree shelters.

3) Mulching around the trees to minimize trunk damage from mowers. Mounds provide an entryway for pests.

4) Pruning dead and disease branches to prevent establishment or spreading of disease.

INSPECTION CHECKLIST
____Pest or disease infestations
____Inhibited or stunted growth
____Binding or restriction due to stakes or ties
____Broken, dead, or diseased branches
____Wilted, curled, or distorted leaves or dried out buds
____Leaf color abnormalities (spots, yellowing, or brown margins); early leaf drop
____Cracks in bark from sunburn
____Sucker growth at the base or on side of the tree's trunk
____Holes or substances oozing from the trunk
____Dead or dying trees nearby, which may infect surrounding vegetation
____Severe erosion, sunken holes in the root-ball area, or an inadequate watering basin that threatens the young tree's water supply
____Flooding or poor drainage
____Surface roots beginning to grow
____Algae or mosses around tree base, indicating excess watering
____A layer of soot or particulate matter from air pollution
____Invasive plant growth threatening viability of planting
____Improper use or intrusions into forest conservation areas
____Missing or damaged protective measures (fences, signs, etc.)
____Unauthorized clearing or other removal of forest vegetation

PLANTING INSPECTION FORM

SITE NAME: _____
INSPECTED BY: _____

IS REINFORCEMENT PLANTING NEEDED?_____% SURVIVAL___%
CAUSE OF MORTALITY:_____
_____
_____
_____
_____
_____COMMENTS:_____
_____
_____

MAINTENANCE SCHEDULE and Management agreement-Post Construction
1.Plant material will be planted in rows 8 feet apart and have a spacing of feet, as specified.

2.The intent is to plant 1380 trees- 75% survival= 1035 plants, at the end of Two growing seasons.
3. Plant material source: KIR-MAR TREE COMPANY
3490 Kirby Country Dr.
Taneytown, Md 21787
410-876-8733
4. Contact Person for site visit: Catonsville Builders
4025 Chevrolet Drive
Ellicott City, MD 21042

Maintenance and Management Agreement
A. For a period of two growing seasons, from the time of planting, landowner/developer will ensure 75% survival rate of total number of trees planted (1035). Within that period any trees dying or in a severely weakened condition will be replaced in the first available planting window.

B. Watering and fertilizing will be performed on an as needed basis and be carried out by the contractor/developer to insure survival of at least 75%.

C. Control of competing vegetation will be carried out at least twice annually, during this 24 month or two growing seasons, maintenance agreement.

D. Pest, disease and mechanical injury will be addressed in the following manner. Mulching the trees will help protect the trees from mechanical damage as it provides some guidance to the person mowing. Pest and disease inspections will be performed annually throughout the maintenance agreement.

INSPECTIONS: Certification Of Completion

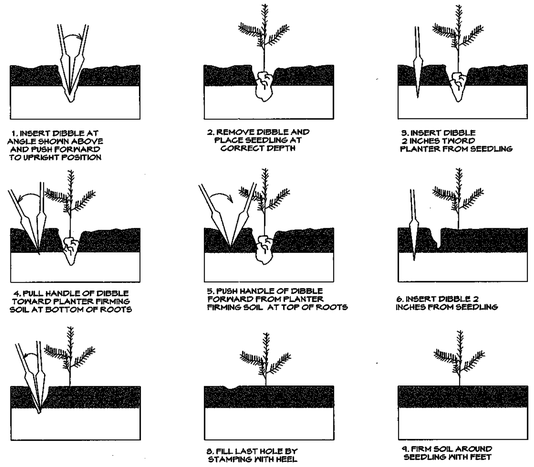
A. Within one month of the completed planting, a qualified professional, designated by the developer, will perform an initial inspection, inspecting the status of all forest retention, reforestation and afforestation areas, to certify that the planting is completed and all forest protection measures have been installed as required by the Forest Conservation Plan.*Planting must occur before June 30th to be credited toward the current growing season. A certification document will be sent to Department of Planning and Zoning. Upon review of the certification document for completeness and accuracy the Department will notify the developer of the beginning of the Post-Construction Management period.

B. At the end of the first growing season, the qualified professional will make another inspection to check survival rate, if the planting survival rate is below 90% , landowner/developer will re-enforce the planting to a minimum of 90% of planting (996 trees), at the beginning of second growing season.
C. Planting inspections will be carried out for the entire two growing seasons, during each growing season and continue until the final inspection, upon which time a 75% survival rate will be insured. If at the end of the second growing season, survival rate drops below 75%, such material as needed to guarantee a 75% survival rate by the end of the third season, shall be installed.

D. The occupants of a new development, must avoid activities that destroy or degrade protected forest resources, a plan must be shown to all new owners, exhibiting the afforestation area, so they are aware of the protected area, along with a description of permitted and prohibited activities within the area.
E. Final Inspection and Release of Obligation
At the end of the post-construction management and protection period, the designated responsible party shall convey to the Department of Planning and Zoning certification that all forest conservation areas have remained intact or have been restored to the appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures required by the plan are in place. Upon review of the final certification document, the county will notify the developer of release of surety and all future obligations. The developer's last official responsibility will be to transmit a copy of this notification to the owner(s) of the property(ies). Such transmittal will serve as official notice to owners of their assumption of full responsibility for all future forest conservation obligations.

BARE ROOT PLANTING TECHNIQUES

PLANTING WITH DIBBLE BAR



FOREST RETENTION AREA
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991
PLACED APPROXIMATELY EVERY 100 FT.

SPECIMEN TREE
DO NOT REMOVE
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991
TWO PER TREE

Forest Conservation Area
REFORESTATION PROJECT
Trees for Your Future
PLACED APPROXIMATELY EVERY 100 FT.

REFORESTATION AND AFFORESTATION AREA PROTECTION SIGN DETAILS

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/28/03

FINAL FOREST CONSERVATION PLAN NOTES

CARLEE MANOR
LOTS 1 THROUGH 26 AND NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
ELECTION DISTRICT HOWARD COUNTY, MARYLAND

LEONARD N. WAMSLEY
MD REG. PROFESSIONAL FORESTER NO. 192

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

Date	Revisions	
		Drawn By: LGD/SMG
		Designed By: GE
		Reviewed By: GE
		Date: JAN, 2003
		Scale: AS SHOWN
		Job No: 97230A
		Sheet: 22 OF 24

OWNER

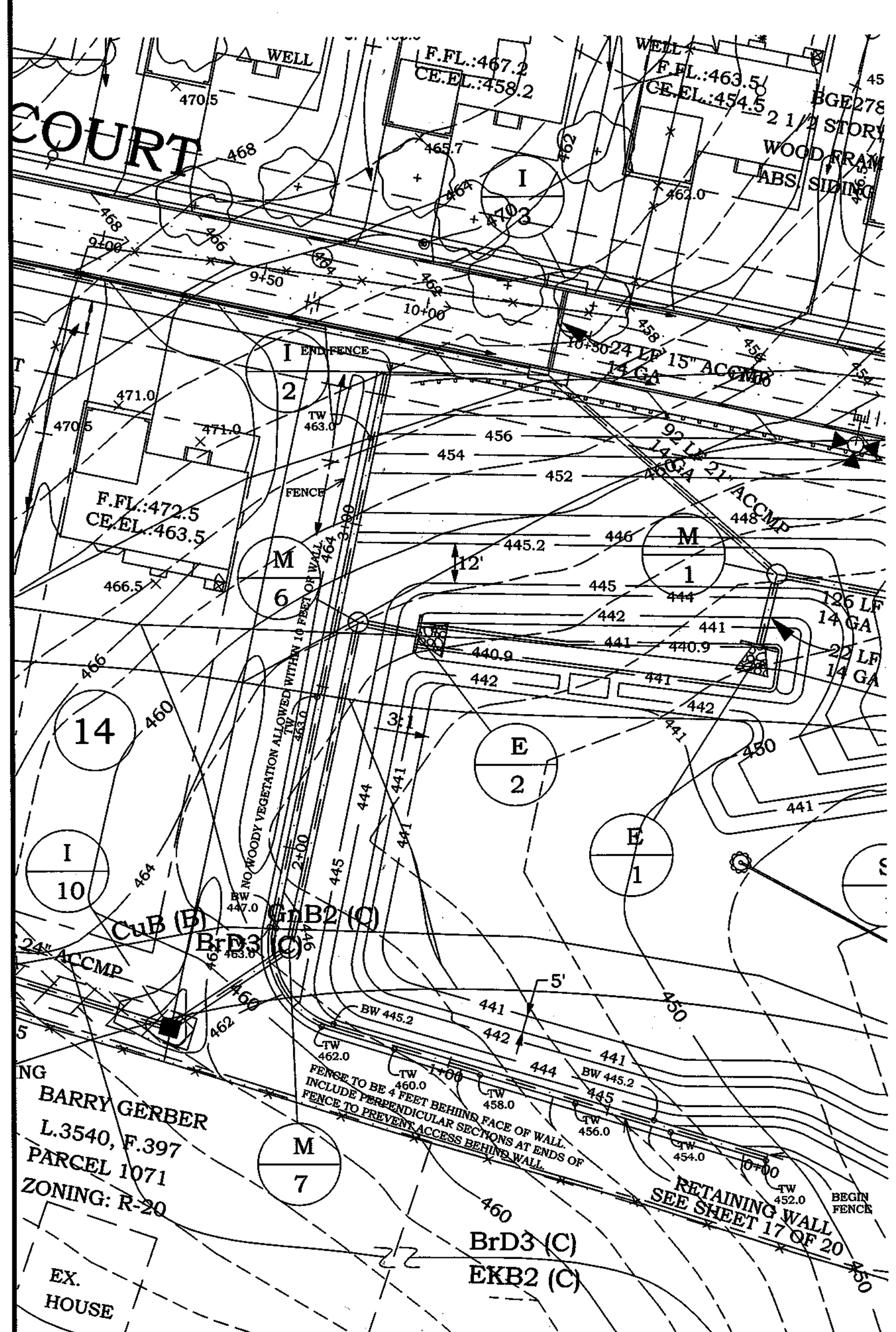
TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
c/o WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

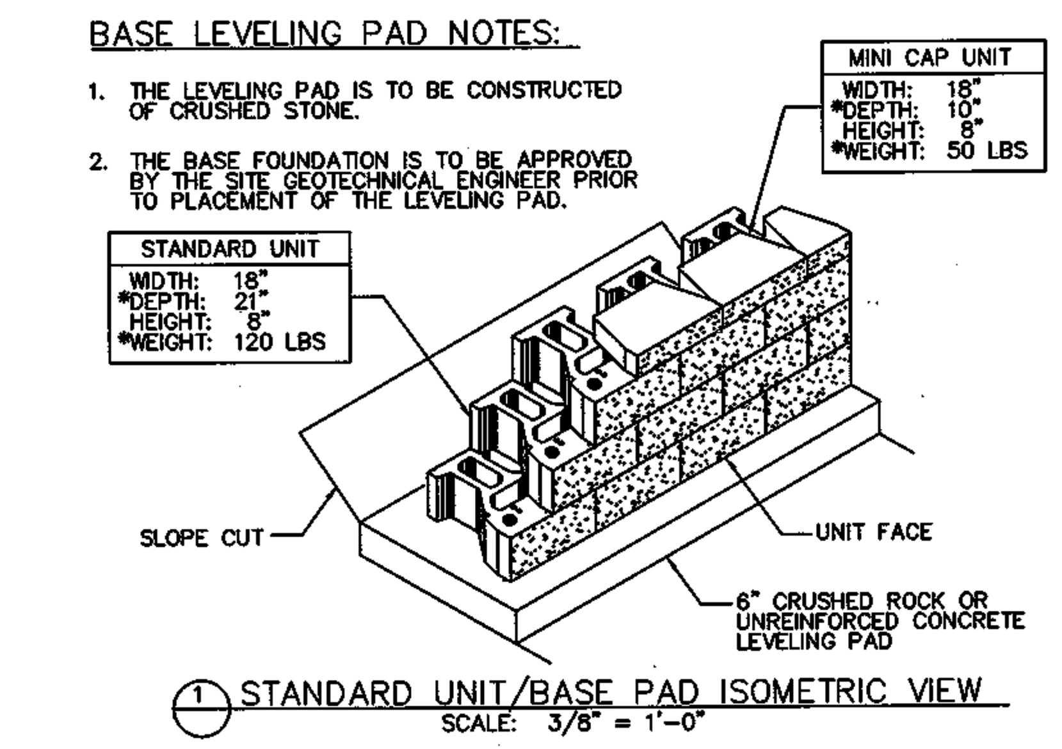
C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

County File No. F-02-91

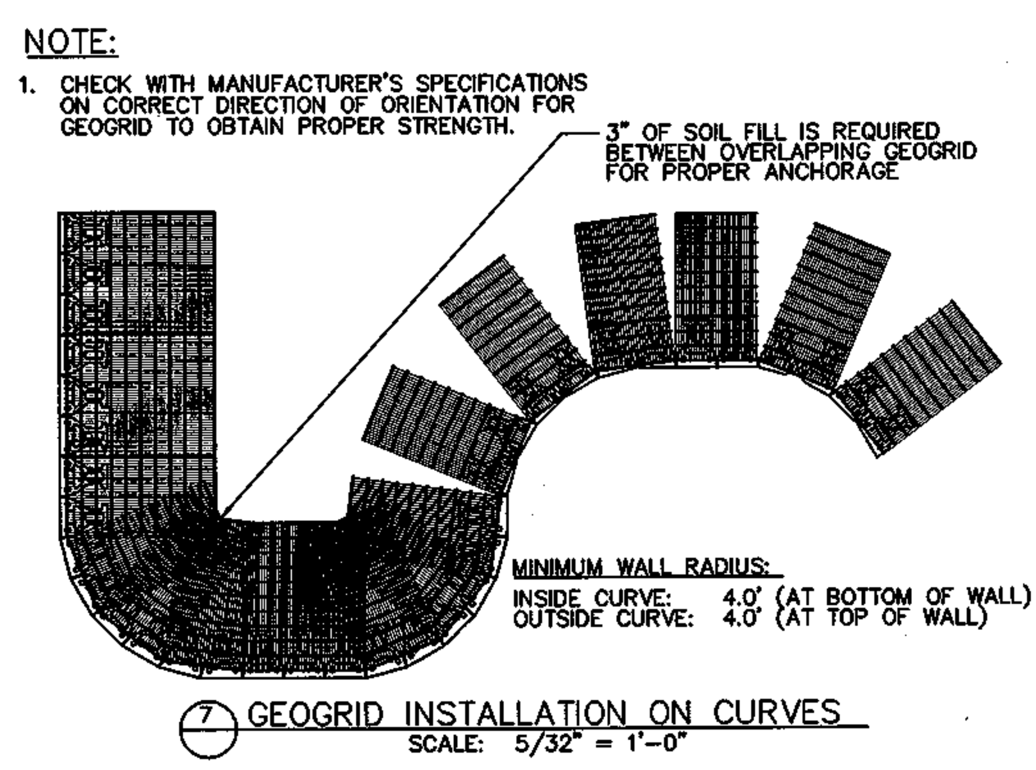
CAD Drawing File Name: g:\97230\dan\const\forestry\02\forconotes1.dgn



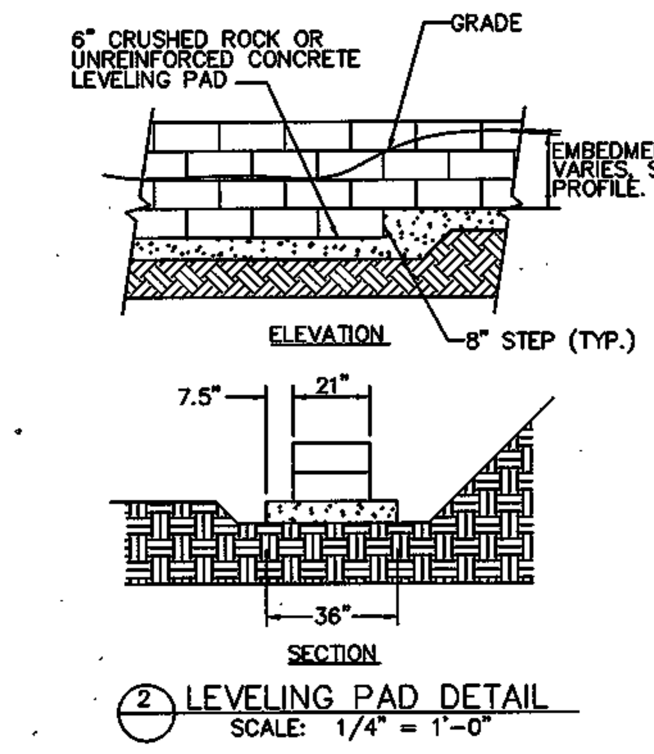
PLAN VIEW
SCALE: 1" = 30'



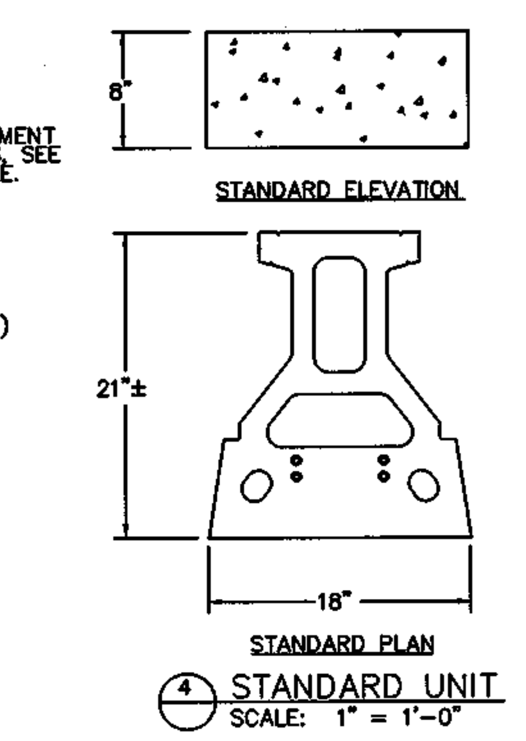
1 STANDARD UNIT/BASE PAD ISOMETRIC VIEW
SCALE: 3/8" = 1'-0"



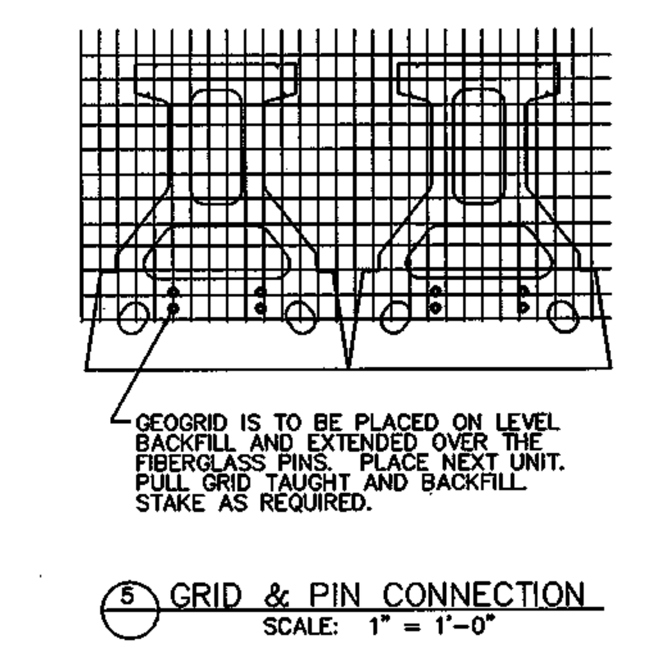
7 GEOGRID INSTALLATION ON CURVES
SCALE: 5/32" = 1'-0"



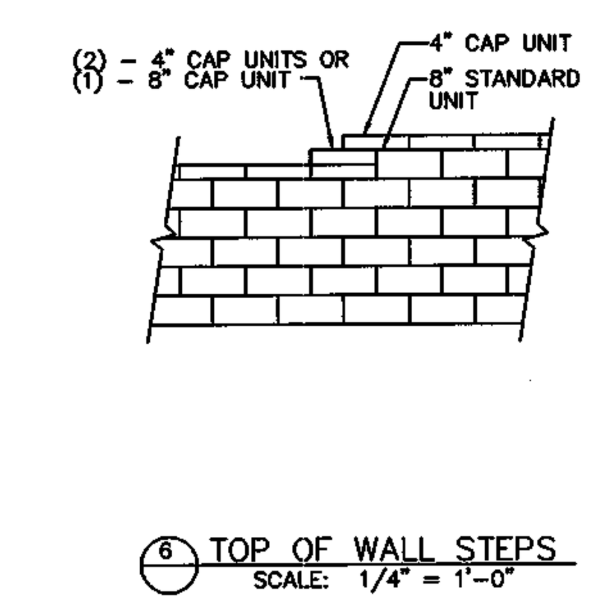
2 LEVELING PAD DETAIL
SCALE: 1/4" = 1'-0"



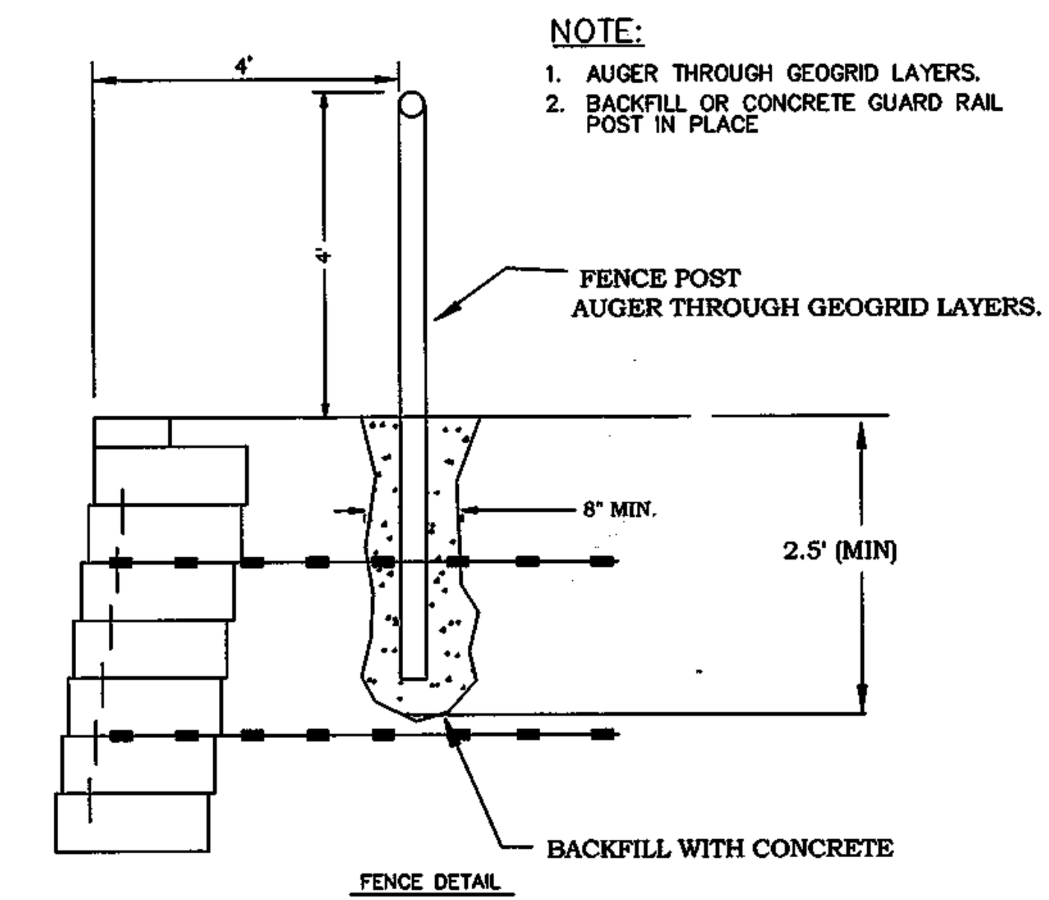
4 STANDARD UNIT
SCALE: 1" = 1'-0"



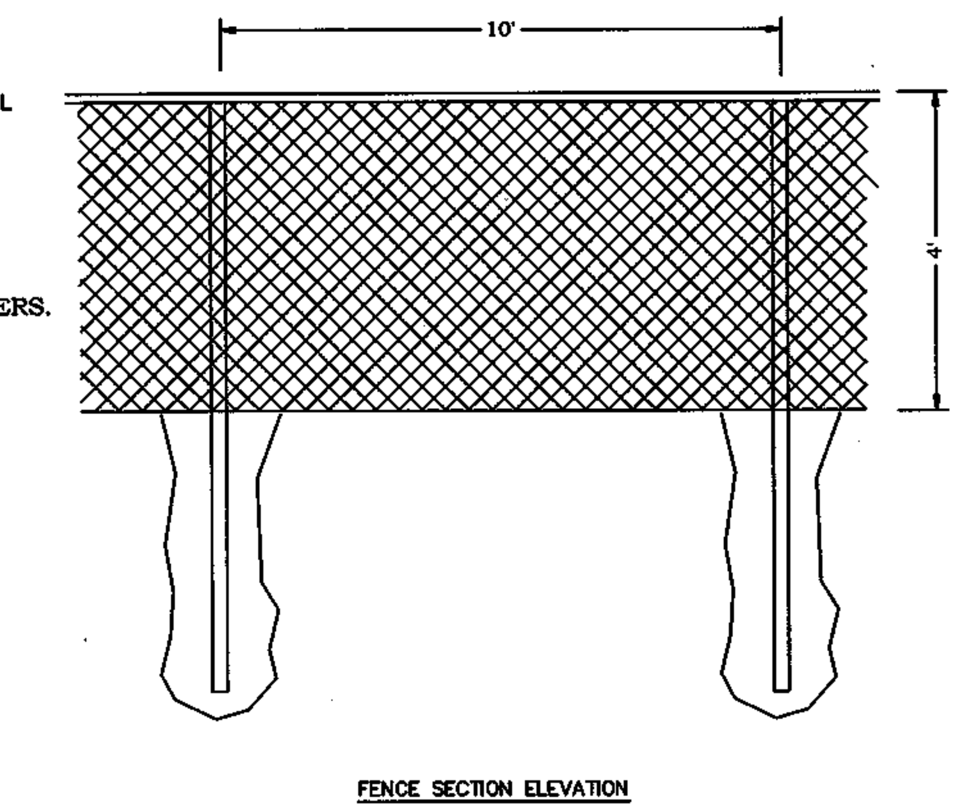
5 GRID & PIN CONNECTION
SCALE: 1" = 1'-0"



6 TOP OF WALL STEPS
SCALE: 1/4" = 1'-0"



FENCE DETAIL



FENCE SECTION ELEVATION

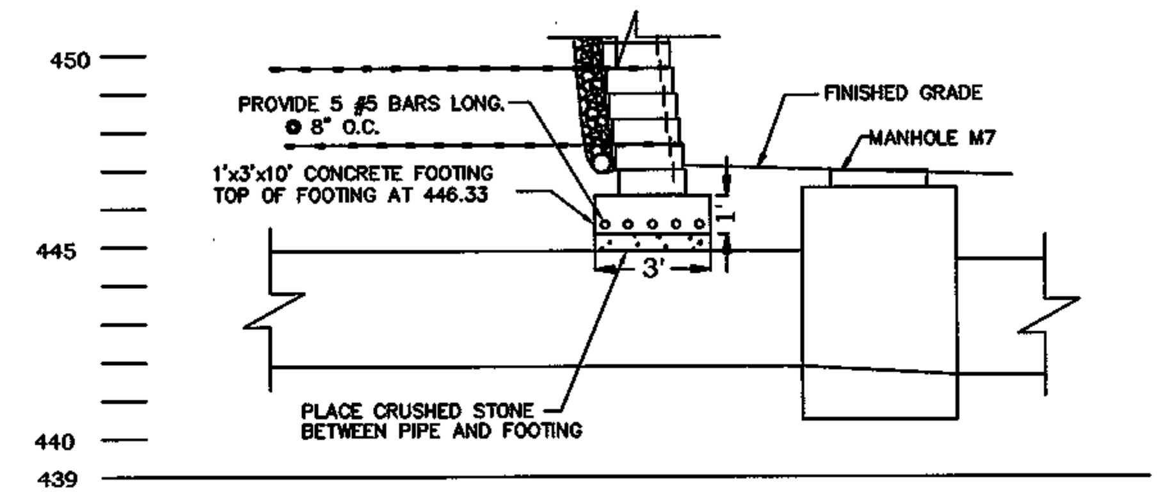
KNUCKLE TO KNUCKLE BOTH TOP AND BOTTOM

9 GAGE WIRE WITH 0.09 CORE, BLACK VINYL COATED
2" MAX. OPENING

2" O.D. LINE POSTS, BLACK VINYL COATED
0.89" THICK WALLS, 1.83 LBS/LF

2.5" O.D. TERMINAL POSTS, BLACK VINYL COATED
0.103" THICK WALLS

1-5/8" TOP PIPE, BLACK VINYL COATED
0.097" THICK WALLS, 1.59 LBS/LF



CONCRETE COLLAR DETAIL AT RETAINING WALL

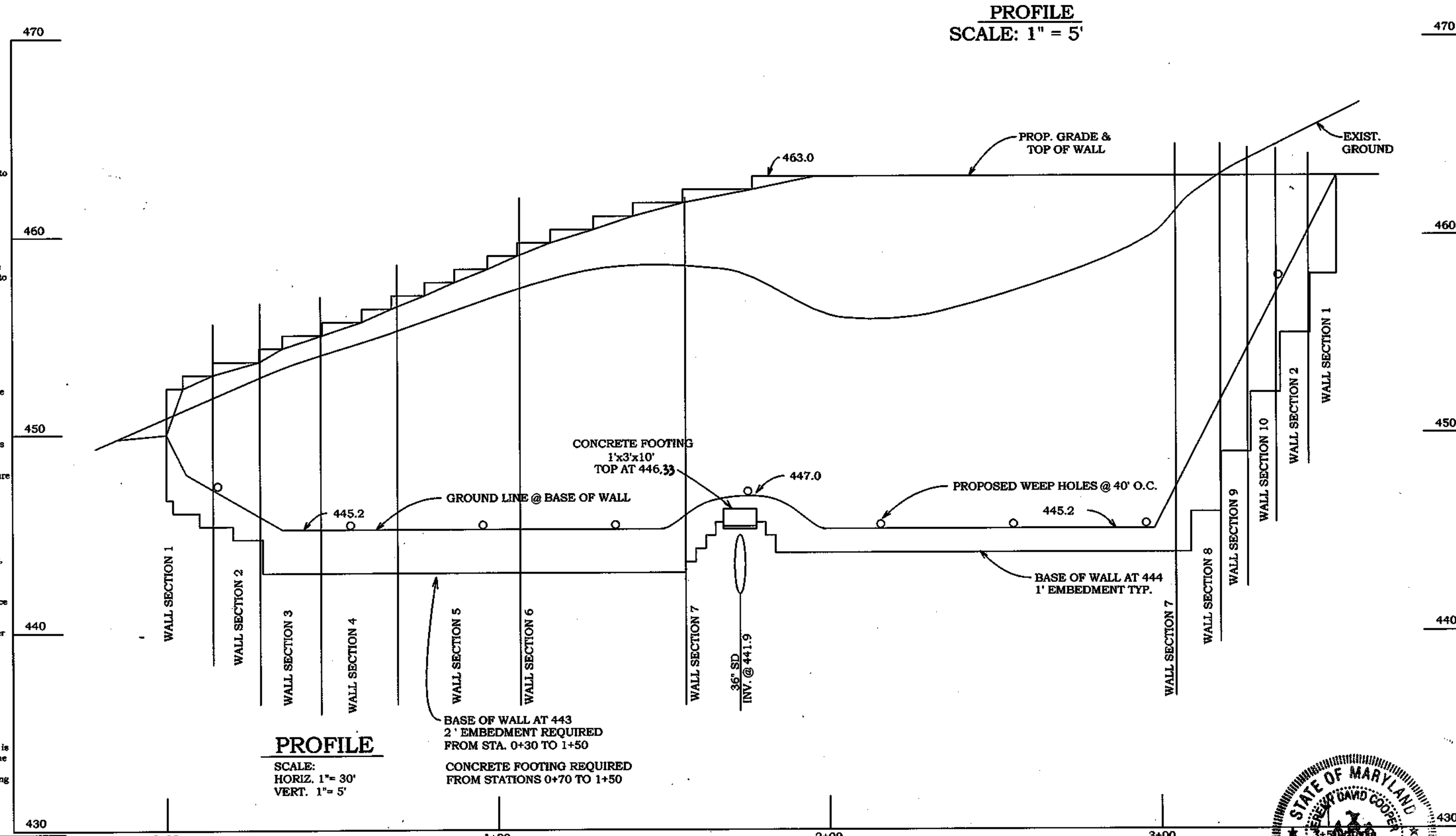
OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
C/O WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

PROFILE
SCALE: 1" = 5'



PROFILE
SCALE:
HORIZ. 1"= 30'
VERT. 1"= 5'

STORMWATER MANAGEMENT POND RETAINING WALL

Specifications

KEYSTONE Concrete Modular Retaining Wall

Part 1: General

1.01 Description
A. Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.
B. Work includes preparing foundation soils , furnishing and installing leveling pad, unit fill and backfill to the lines and grades shown on the construction drawings.
C. Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.

1.02 Related work
A. Section 02200 - Earthwork.
B. Section 02246 - Geogrid soil reinforcing.

1.03 Reference standards
A. ASTM C-90 Load Bearing Concrete Masonry Units.
B. ASTM C-140 Sampling and Testing Concrete Masonry Units.
C. ASTM D-448 Sizes of Aggregate for Road and Bridge Construction.
D. ASTM D-698 Laboratory Compaction Characteristics using Standard Effort.

1.04 Delivery, storage and handling
A. Contractor shall check the materials upon delivery to assure the proper materials have been received.
B. Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may affix themselves) from coming in contact with the materials.
C. Contractor shall protect the materials from damage. Damaged materials shall not be incorporated into the retaining wall structure.

1.05 Submittals
A. Samples of all materials used in the work of this section.
B. Manufactures specifications (latest edition) for proposed materials, methods of installation and list of materials proposed for use.
C. Design information establishing the stability of the proposed structure(s).

1.06 Quality assurance
A. Owner will be responsible for soil testing and inspection quality control during earthwork operations.

Part 2: Products

2.01 Definitions
A. Modular Concrete Units - a KEYSTONE STANDARD modular facing unit, machine made from Portland cement, water and mineral aggregates.
B. Structural Geogrid - a structural geogrid formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock or earth and function primarily as reinforcement.
C. Unit Fill - drainage aggregate which is placed within and immediately behind the modular concrete units.
D. Reinforced Backfill - Compacted soil which is within the reinforced soil volume as shown on the plans.

2.02 Concrete units
A. Modular wall units shall be KEYSTONE STANDARD Retaining Wall Units as manufactured in accordance with ASTM C-90 and ASTM C-140.
B. Concrete wall units shall have a minimum 28-day compressive strength of 3,000 psi. Standard weight concrete shall have a maximum moisture absorption of 8%.
C. Dimensional tolerances shall be in accordance with ASTM C-90 except those measured to the split face which varies. Standard and Compact units shall have a minimum of one Square foot face area each. Mini units shall have a minimum one half square foot area each.
D. Keystone modular units shall provide an in-place weight of 114 pcf. including the unit fill which is contained within the nominal dimension of the unit.
E. Units shall have angled sides capable of concave and convex alignment curves with a minimum radius of 3.5 feet (where applicable, for straight walls, use non-angled straight side cap units.

2.03 Fiberglass connecting pins
A. Connecting pins shall be 1/2" in diameter thermoset isopthalicpolyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.

2.04 KEYSTONE KAPSEAL construction adhesive
A. Material shall confirm to ASTM 2339 and be supplied by the KEYSTONE unit supplier.

2.05 Base leveling and pad material
A. Material shall consist of compacted crushed stone or unreinfoced concrete as shown on the construction drawings. "Pea gravel" shall not be used.

2.06 Unit fill
A. Fill for units shall be free draining crushed stone or gravel, 1/2" to 3/4", with no more than 5% passing the No. 50 sieve and conforming to ASTM D-448. Gradation of the fill shall be approved by the Engineer. "Pea gravel" shall not be used.

2.07 Backfill
A. Material may be site excavated soils when approved by the Engineer or otherwise specified in the construction drawings. Unsuitable soils for backfill (high plastic clays or organic material) shall not be used in the backfill or in the reinforced soil mass.
B. Where borrow or imported fill is required, the contractor shall submit samples and material specifications to the Engineer for approval.

Part 3: Execution

3.01 Excavation
A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb embankment and foundation materials beyond lines shown.

3.02 Foundation soil preparation
A. Foundation soils shall be excavated as required for leveling pad dimensions shown on the construction drawings or as directed by the Engineer.
B. Foundation soil shall be approved by the Engineer to confirm that the actual foundation soils meet or exceed assumed design conditions.
C. Unsuitable soils shall be removed and replaced with acceptable material.
D. Over excavated areas shall be backfilled with approved compacted backfill material.

3.03 Base leveling pad
A. Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 6".
B. Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be 95% of Standard Proctor Density as determined in accordance with ASTM D-698. For crushed rock, material shall be densely compacted as determined by visual observation.
C. Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.
D. Contractor may use a reduced depth of gravel or crushed stone in conjunction with a concrete topping. Concrete shall be unreinforced and a minimum of 3" thick.

3.04 Unit installation
A. The first course of modular concrete units shall be carefully placed on the base leveling pad.
B. Ensure that all units are in complete contact with base and properly seated.
C. Units are placed side by side for full length wall alignment. Alignment may be done by means of a string line or offset from a base line.
D. Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure all voids are completely filled.
E. Sweep excess material from top of units and install next course. Ensure that each course is completely unit filled, Backfilled and compacted prior to proceeding to next course.
F. Place each subsequent course ensuring that pins protrude into adjoining course a minimum of 1". Two pins are required per unit. Pull each unit forward, away from the fill zone, locking against the pins in the previous course and backfill as the course is completed. Repeat the procedure to extent of wall height.
G. Follow wall erection and unit fill closely with any other bakfilling required. Compaction of all soils shall be to 95% of Standard Proctor Density as determined in accordance with ASTM D-698. The top 8" of the structure fill shall be a low permeability soil to minimize surface water run off from directly entering the unit fill or reinforced soil zone.
H. As appropriate where the wall changes elevation, units can be stepped with grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.

3.05 Cap installation
A. Place KEYSTONE Cap units over projecting pins from units below. Pull forward to setback position. Backfill and compact to finished grade with low permeability soil.
B. As required, provide permanent mechanical connection to wall units with KEYSTONE Kapseal construction adhesive. Apply adhesive to top surface of unit below and place cap unit into position.

3.06 Geogrid installation
A. follow requirements of Section 02246, Geogrid soil reinforcement.

Geogrid Soil Reinforcement

Part 1: General

1.01 Description
A. Work includes furnishing and installing geogrid reinforcement and backfill to the lines and grades designated on the construction drawings. beyond lines shown.
B. Work included furnishing and installing all related materials required for construction of the geogrid reinforced soil retaining wall as shown on the construction drawings.

1.02 Related work
A. Section 02276: KEYSTONE Concrete Modular Retaining Wall.

1.03 Reference standards
A. See specific geogrid manufacturer's reference standard.

1:04 Delivery, storage and handling
A. Contractor shall check the geogrid upon delivery to assure the proper material has been received.
B. Geogrids shall be stored at temperatures above -20 degrees Farenheit.
C. Contractor shall prevent excessive mud, wet cement, epoxy and similar materials (which may affix themselves) from coming in contact with the geogrid material.
D. Rolled geogrid material may be laid flat or stood on end for storage.

1.05 Submittals
A. Samples of all materials use in the work of this section.
B. Manufacturer's specifications (latest edition) for proposed materials, method of installation and list of materials proposed for use.

1.06 Quality assurance
A. Contractor will be responsible for soil testing and quality control during earthwork operations.

Part 2: Products

2.01 Definitions
A. Geogrid products high-density polyethylene or polypropylene expanded sheet or polyester woven fiber materials, specifically fabricated for use as soil reinforcement.
B. Structural Geogrid - a structural geogrid formed by a regular network of integrally connected tensile elements with aperatures of sufficient size to allow interlocking with surrounding soils, rock or earth and function primarily as reinforcement.
C. Modular Concrete Units - a KEYSTONE segmental concrete facing unit, machine made from Portland cement, water and mineral aggregate.
D. Unit Fill - drainage aggregate which is placed within and immediately behind the modular concrete units.
E. Reinforced backfill - Compacted soil which is within the reinforced soil mass as shown on the plans.

2.02 Geogrid
A. Geogrid shall be the type shown on the construction drawings having the property requirements described within the manufacturers specifications and required by the design.

2.03 Acceptable manufacturers
A. A manufacturers product shall be approved by the Engineer.

Part 3: Execution

3.01 Excavation
A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb embankment and foundation materials beyond the lines shown.

3.02 Foundation soil preparation
A. Foundation soils shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Engineer.
B. Foundation soil shall be approved by the Engineer to confirm that the actual foundation soil conditions meet or exceed assumed design conditions. Unsuitable soil shall be removed and replaced with acceptable material compacted to 95% standard Proctor Density as defined by ASTM D-698.
C. Over excavated areas shall be backfilled with approved compacted backfill materials.
D. Foundation soil shall be proof rolled prior to geogrid placement.

3.02 Wall erection
A. Wall erection shall be in accordance with Section 02276: KEYSTONE Concrete Modular Retaining Wall.

3.03 Geogrid installation
A. Geogrid shall be laid at the proper elevations and oriented as shown on the construction drawings or as directed by the Engineer.
B. Correct orientation (roll direction) or the geogrid shall be verified by the contractor.
C. The geogrid soil reinforcement shall be connected to the modular wall units by placing the geogrid over the fiberglass pins and laying the grid back to the fill side.
D. The geogrid shall be pulled taut (50lbs/ft +/-) to eliminate loose folds and pretension the reinforcement. Stake or secure back edge of geogrid prior to and during backfill and compaction.
E. Follow manufacturer's guidelines relative to overlap requirements of uniaxial and biaxial geogrids.

3.04 Fill placement
A. Soils to be used as backfill soils must be approved by the geotechnical engineer and meet the following assumed soil parameters: Internal friction Angle of 28 Degrees or greater, Unit Weight of 120 PCF or greater, and a Unified Soils Classification of ML, SM, SW, SP, GM, GW, or GP.
B. Backfill shall be placed in 8" loose lifts and compacted to 95% of Standard Proctor density as determined in accordance with ASTM D-698. The in-place moisture content shall not exceed optimum moisture content by more than 2% as determined in accordance with ASTM D-698 and be no lower than 2% below optimum moisture content.
C. Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack or loss of pretension of the geogrid.
D. Only hand operated compaction equipment shall be allowed within 3' of the back of the modular concrete wall units.
E. Backfill shall be placed from the wall back towards the embankment to ensure that the geogrid remains taut.
F. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6" is required prior to the operation of tracked equipment over the geogrid. Turning of tracked equipment should be kept to a minimum to prevent tracks from displacing fill and damaging the geogrid.
G. Rubber tired equipment may pass over geogrid reinforcement at low speeds (less than 10 mph). Avoid sudden braking and sharp turning.

The required bearing pressure beneath the footing of the wall shall be verified in the field by a Geotechnical Professional. Suitability of the fill material shall be confirmed by a Geotechnical Professional.
All retaining walls shall be constructed under the supervision of a Registered Professional Engineer.

WALL DESIGN PROVIDED BY
HILLIS-CARNES ASSOCIATES
OF FREDERICK, INC.

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/4/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/20/03

RETAINING WALL DETAILS

CARLEE MANOR

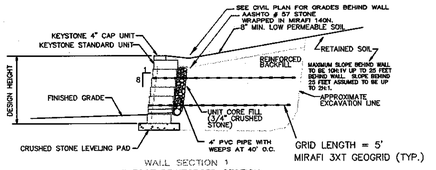
LOTS 1 THROUGH 26 AND
NON-BUILDABLE PARCEL "A"
TAX MAP 17, GRID 19, PARCEL 123
2 nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

CLSI
Carroll Land Services Incorporated
Engineers * Surveyors * Land Development Consultants
Landscape Architects * Environmental Specialists
439 East Main Street Westminster, MD 21157-5539
(410) 876-2017 FAX (410) 876-0009

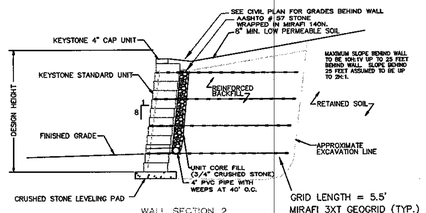
Date	Revisions	
		Drawn By: BM
		Designed By: AJD/LGD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale:
		Job No.: 97230A
		Sheet: 23 of 24

County File No. F-02-91

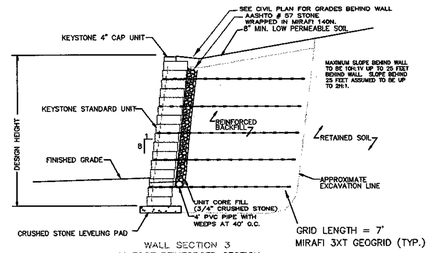
CAD Drawing File Name: g:\97230\dgn\const\rtsdplans\



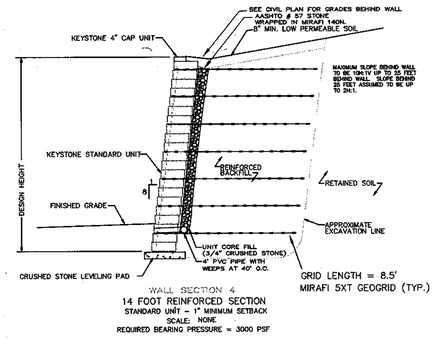
WALL SECTION 1
5 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3000 PSF



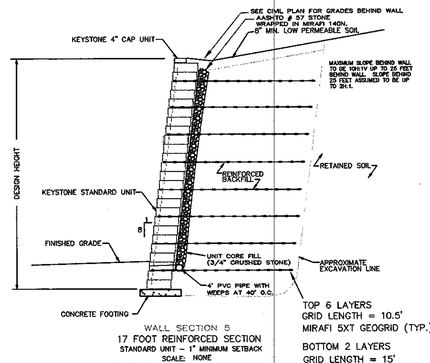
WALL SECTION 2
8 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3000 PSF



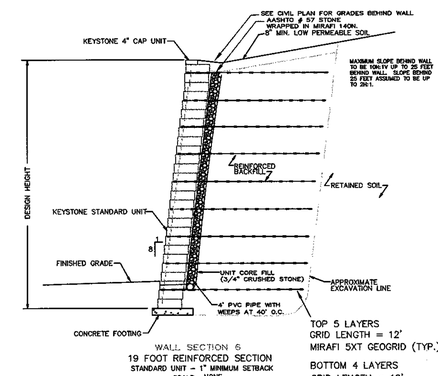
WALL SECTION 3
11 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3000 PSF



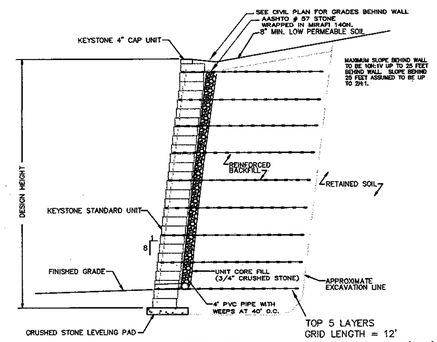
WALL SECTION 4
14 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3000 PSF



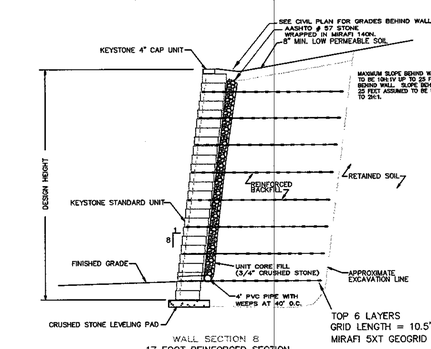
WALL SECTION 5
17 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3500 PSF



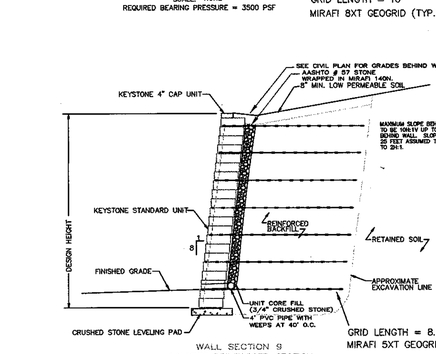
WALL SECTION 6
19 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3500 PSF



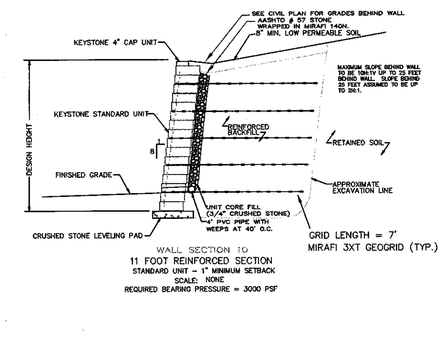
WALL SECTION 7
19 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3500 PSF



WALL SECTION 8
17 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3500 PSF



WALL SECTION 9
14 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3000 PSF



WALL SECTION 10
11 FOOT REINFORCED SECTION
STANDARD UNIT – 1" MINIMUM SETBACK
SCALE: NONE
REQUIRED BEARING PRESSURE = 3000 PSF

OWNER

TRUST U/A CARLEE JONES
BRANCH BANKING
& TRUST CO., TRUSTEE
C/O WILLIAM J. GERING
P.O. BOX 1100
WESTMINSTER, MD 21158
410-857-3430

DEVELOPER

C.J. PROPERTY L.L.C.
10753 BIRMINGHAM WAY
WOODSTOCK, MD. 21163
410-750-1200

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-25-03

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STATE OF MARYLAND — JEREMY DAVID DOOLEY — 23108 — PROFESSIONAL ENGINEER

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OF FREDERICK, INC.

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		Drawn By: BM
		Designed By: AJD/LSD
		Reviewed By: AJD/ALH
		Date: JAN. 2003
		Scale:
		Job No: 97230A
		Sheet: 24 of 24

County File No. F-02-91

CAD Drawing File Name: g:\97230\dgn\const\rrsdplans\