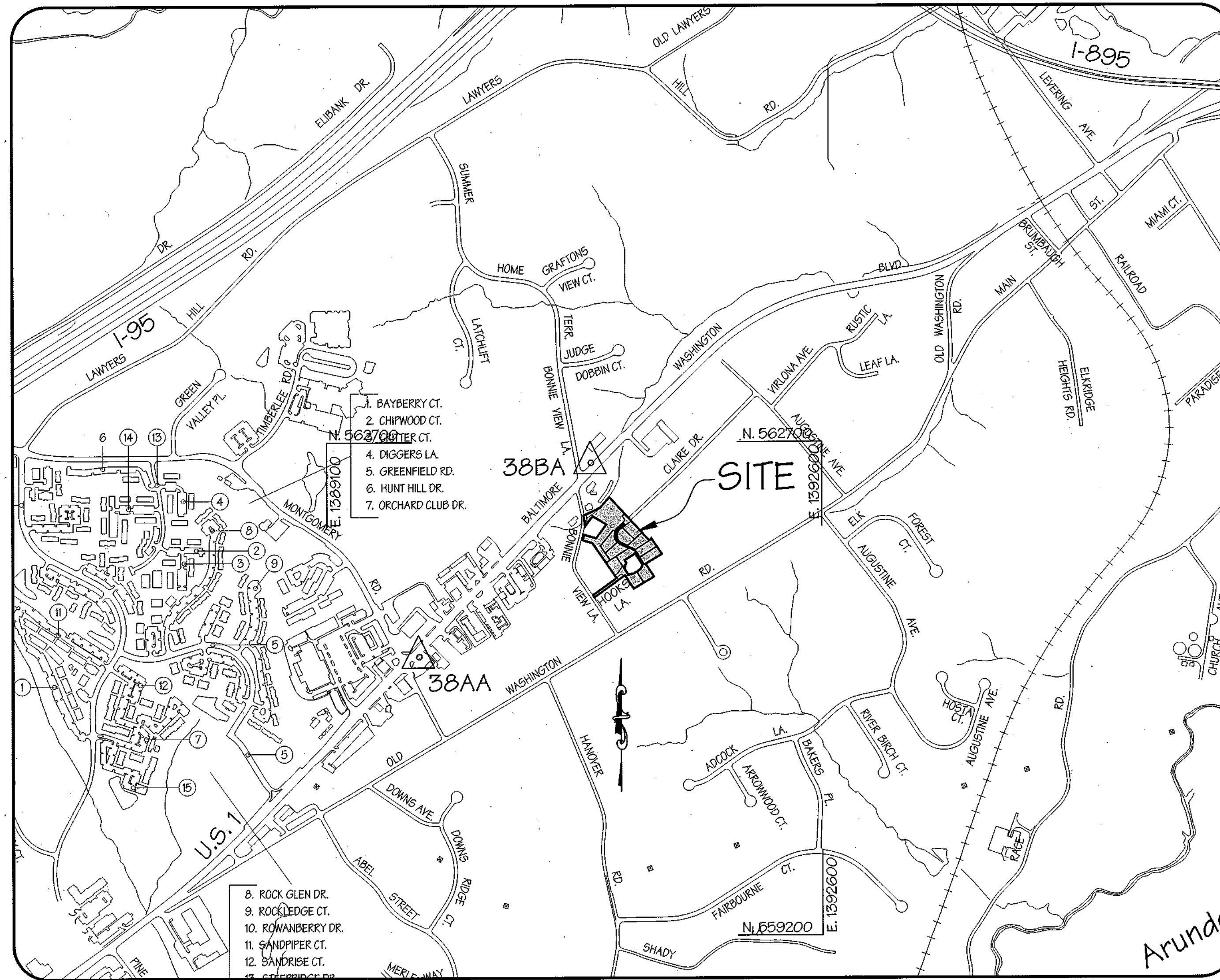


SHEET INDEX	
Sheet Number	Description
1	Cover Sheet
2	Plan and Profile - Hooks Lane & Claire Drive Extensions
3	Road Details
4	Storm Drain & Stormwater Management & Temp. Culvert
5	Drainage Area Map
6	Grading and Sediment & Erosion Control Plan
7	Grading and Sediment & Erosion Control Plan - Details
8	Landscape & Forest Conservation Planting Plan
9	Landscape & Forest Conservation Planting Plan - Details
10	Offsite Reforestation Plan
11	Offsite Reforestation Calculations and Details



LOCATION MAP

Scale: 1" = 600'

# ROAD & STORM DRAIN CONSTRUCTION PLANS

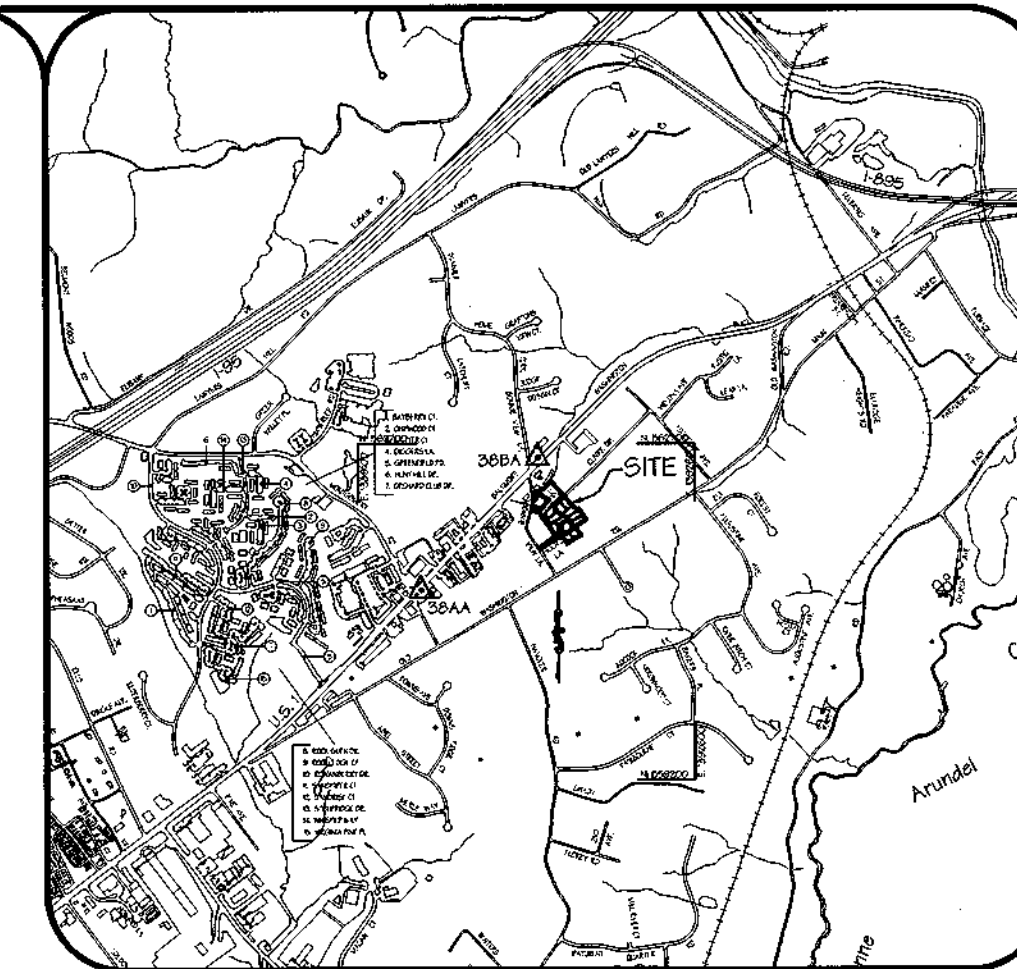
# BONNIE RIDGE

1st Election District - Howard County, Maryland

## BENCHMARKS

Howard County Monument # 38 AA  
Elevation: 220.778  
Standard stamped brass or aluminum disc on Concrete Monument; 0.2' Below Surface  
Located E. corner of intersection of Baltimore Washington Blvd. and Montgomery Rd. 5' from BGE pole #334790

Howard County Monument # 38 BA  
Elevation: 166.944  
Standard stamped brass or aluminum disc on Concrete Monument; 0.2' Below Surface  
Located 9.5' from the Southbound curbline of Baltimore Washington Blvd. (Rte 1) 100' North of Bonnie View Lane



VICINITY MAP

GENERAL NOTES Scale: 1" = 2000'

- All aspects of the project are in conformance with the latest standards and specifications of Howard County Design Manual Vol. IV and MSHA standards & specifications unless waivers have been approved.
  - The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection at (410) 313-1880 at least five (5) working days prior to the start of work.
  - The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work.
  - Project Background:
    - Location: Elridge, Maryland
    - Tax Map/Parcel: Map 38 / 881
    - Zoning: R-12 (Residential: Single) per 10/18/93 Comprehensive Zoning Plan.
    - Election District: 1st
    - Previous Submittals: S99-11, P01-11, F02-31, WF-03-49, F04-011
  - Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
  - Any damage caused by the contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the contractor's expense.
  - The existing utilities shown hereon are located from field surveys and construction drawings of record. The approximate location of existing utilities are shown for the contractor's information and convenience. The contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service.
  - The topography shown hereon is field run by LDE, Inc. August, 2000.
  - Horizontal and vertical datum are related to the Maryland State Plane Coordinate System (NAD83) as projected from Howard County control stations No. 38 A9 and No. 38 BA. 38 A9 has since been replaced by 38AA.
  - The property shown hereon is based on a field run boundary survey performed by LDE, Inc. dated January 1999.
  - The proposed Water and Sewer systems to be extensions of public water contracts #W105 & #14-0343-D and sewer contract #14-0343-D. The property is located within the Metropolitan District. The Developer's Agreement number for public water & sewer extensions is 14-4008-D.
  - There are no wetlands beyond the banks of the stream channel per the Wetlands and Forest Stand Delineation by Wildman Environment Services dated September 2002. A noise study (by Wildman E.S.) has been updated from the 1998 approved study.
  - All hydraulic data is for the 10-year storm unless otherwise noted. For Structure Schedule See Sheet 3.
  - See sheet 7 for general construction sequence.
  - 95% compaction in all fill areas shall be determined by AASHTO T-180.
  - There are no existing contiguous slopes 25% or greater which are greater than 20,000 square feet within the boundaries of the site.
  - A Slight Distance waiver was approved on July 21, 1999. A Transportation Report by Cunningham Assoc. updates the study approved in 1999.
  - Stormwater management for this development is provided in accordance with Design Manual Waiver approved on February 27, 2001, utilizing the 2000 Maryland Stormwater Design Manual Volumes I & II. A Sand Filter Pond will be utilized for water quality management, and to store the One Year Peak Volume. Sand Filter Facility & Forebay shall be owned and maintained by the Homeowners Association.
  - Due to the use of Roof Top Disconnection Credit on this site, measured impervious areas were used. Any additional development or revisions to this site beyond a resubdivision of Lot 2 will require stormwater management to be re-analyzed for compliance.
  - The drive and Private Access Place shall be improved to current standards within a 24' wide Private Access Easement.
  - The Access and Maintenance Agreements for the private access place easement shall be recorded immediately upon recordation of the plat.
  - There are no burial grounds, cemeteries, or historic structures located on this site.
  - This plan is subject to Waiver Petition WF-03-49, of Dec. 17, 2002 which waives the Howard County Subdivision and Land Development Regulations, to waive Section 16.144(a) to not be required to submit a sketch plan or a preliminary equivalent sketch plan for a major subdivision and Section 16.121(e)(1) to permit the required open space lot public road frontage of 40 feet to be reduced by approximately 23 feet on Hooks Lane and 3 feet on Claire Drive for proposed Open Space Lot 10.
- Subject to the following conditions:
- The new final plan shall be submitted to the DPZ within four months from the date of this letter (by April 17, 2003).
  - The specimen trees on proposed Open Space Lot 10 shall be preserved and protected by a tree protection fence during the development/construction of this project. Tree protection device(s)/practices shall be indicated on all plans related to this subdivision.
  - The easement and maintenance agreement for the proposed private access place shall permit all future residents of all residential lots in this subdivision to use the private access easement to access the two proposed open space lots.
  - Compliance with DEP comments of 12/5/02.
  - The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code and Forest Conservation Act. The Forest Conservation obligation for this subdivision is 1.53 acres of reforestation. Offsite reforestation of 1.64 acres has been provided since the site cannot provide sufficient width or land area. The Chase Farm on Roxbury Road (Lot 5, Tax Map 27, Grids 3, 4, 8, 9, Parcel 191, F-04-011, P.N. 16138) will provide this requirement through Environmental Banc and Exchange, LLC. No clearing, grading or construction is permitted within the Forest Conservation Easement; however, Forest Management Practices as defined in the Deed of Forest Conservation Easement are allowed.
  - The floodplain study for this project was prepared by LDE, Inc. and was approved with the Preliminary Plan on 5/9/01.
  - No removal of vegetative cover, clearing disturbance, grading and/or construction is permitted within the shown 25' wetland buffer, 75' stream buffer, and/or 100 year floodplain.
  - Prior to the issuance of any building permits for this subdivision, the applicant must first obtain an Airport Zoning Permit from the Maryland Aviation Administration.
  - Capitol Project #D-1082 installs storm drain pipe within Bonnie View Lane and discharges within Open Space Lot 11.

By	Date	No.	Description

REVISIONS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Cindy Hermita*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 12/15/03

*MAJ*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 12/16/03

APPROVED: DEPARTMENT OF PUBLIC WORKS

*William R. White Jr.*  
CHIEF, Bureau of Highways  
DATE: 12-18-03

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

*[Signature]*  
NATURAL RESOURCE CONSERVATION SERVICE  
DATE: 12/16/03

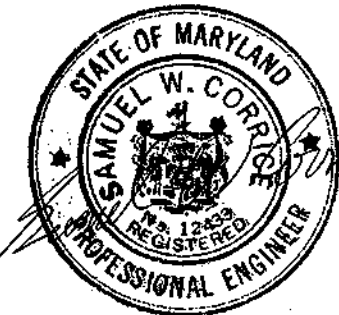
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT  
DATE: 12/16/03

ENGINEER'S CERTIFICATE

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

*Samuel W. Corise*  
SIGNATURE OF ENGINEER  
DATE: 11-25-03



DEVELOPER'S CERTIFICATE

I HAVE CERTIFIED THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY.

*Samuel W. Corise*  
SIGNATURE OF DEVELOPER  
DATE: 11-25-03

LDE, INC.  
9250 Rumsey Road, Suite 106, Columbia, MD. 21045  
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	S.W.C.	Cover Sheet	SCALE	As Shown
DRAWN	J.D.R.	<b>BONNIE RIDGE</b>	DRAWING	1 of 11
CHECKED	S.W.C.	Lots 1 Thru 11	JOB NO.	98-076.2
DATE	1/2003	DEVELOPER	FILE NO.	

Tax Map 38 - Block 3 - Parcel 881  
1st Election District - Howard County, Maryland  
Previous Submittals: S99-11, P01-11, F02-31, WF-03-49, F-04-011

NEWBURN DEVELOPMENT GROUP  
5670 Stenters Place Suite 201  
Columbia, Maryland 21044  
(410) 997-3815, (301) 596-3877

File Path: Projects\F03\bonnie\_ridge\highways.dwg, Cover Sheet: 11/25/2003 4:03:28 PM

- NOTES:
1. For street tree locations, see sheet 8.
  2. All street trees and/or street signs shall be located 5 feet minimum from proposed drainage and utility structures.
  3. For storm drain profiles refer to sheet 4.
  4. All future driveway crossings within the Public R/W shall be approved at the time of Building Permit.
  5. Driveway culverts shall be per Howard County Standard R 6.06.

CENTERLINE CURVE DATA					
Name & Station	Radius	Delta	Length	Tangent	Chord Bearing & Dist.
Claire Drive - 12+68.05 - 13+96.27	65'	113°01'31"	128.22'	98.25'	S 08°-46'-29" E - 108.42'
Claire Drive - 14+97.26 - 15+25.72	50'	32°36'-14"	28.45'	14.62'	S 48°-59'-07" E - 28.07'
Hooks Lane - 2+19.59 - 2+51.66	200'	9°11'-18"	32.07'	16.07'	S 49°-18'-19" E - 32.04'

**Claire Drive**

Station	Northing	Easting
L.O.S. 11+64	N562154.83	E1391240.33
P.C. 12+68.05	N562084.85	E139163.32
P.T. 13+96.27	N561977.70	E139179.86
P.C. 14+97.26	N561935.48	E139127.60
P.T. 15+25.72	N561917.06	E1391292.78
L.O.S. 16+12.15	N561844.31	E1391339.46

**Hooks Lane**

Station	Northing	Easting
L.O.S. 11+80	N561706.08	E139115.65
P.C. 2+19.59	N561729.39	E139151.65
P.T. 2+51.66	N561570.28	E139175.94
L.O.S. 3+02.29	N561786.27	E1391215.56

APPROVED: Department of Planning & Zoning

*Chris H. Miller 12/14/03*  
Chief, Division of Land Development

*William Z. Mada 12/16/03*  
Chief, Development Engineering Division

APPROVED: Department of Public Works

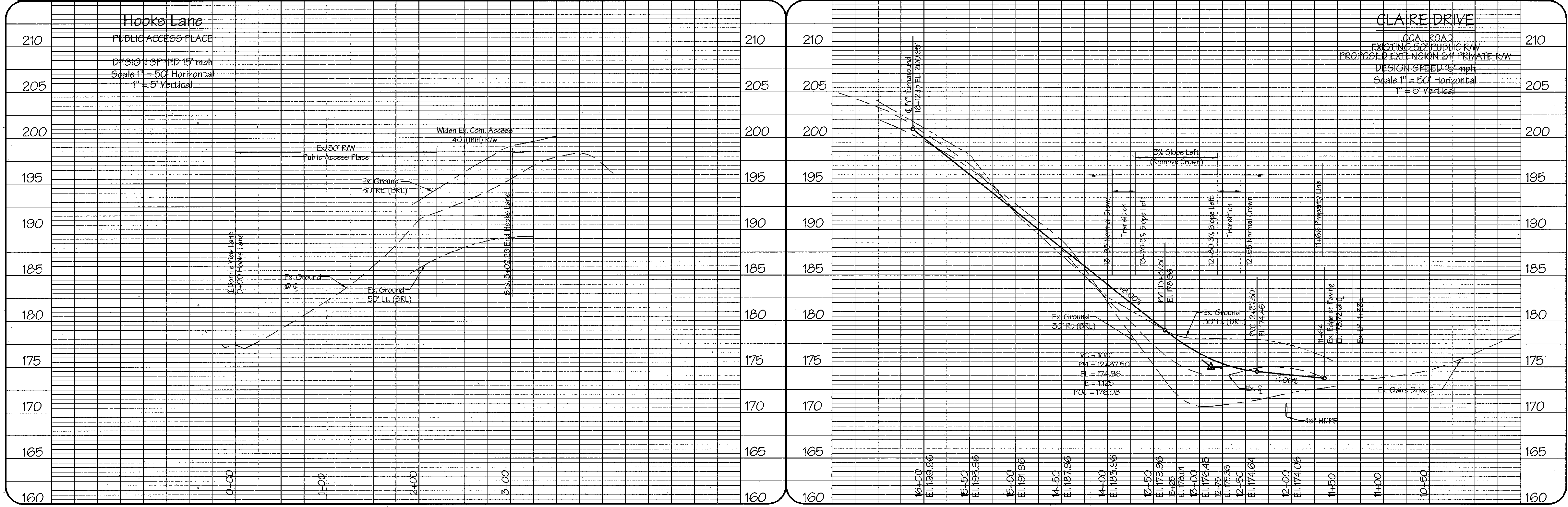
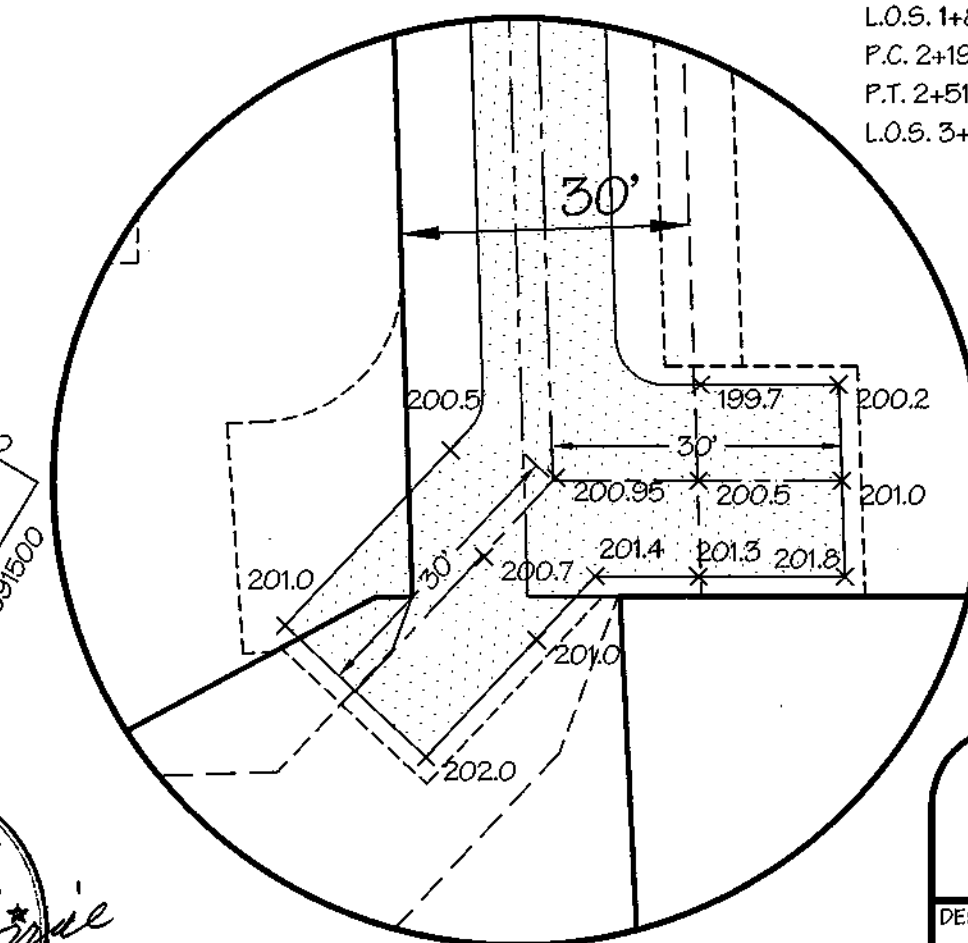
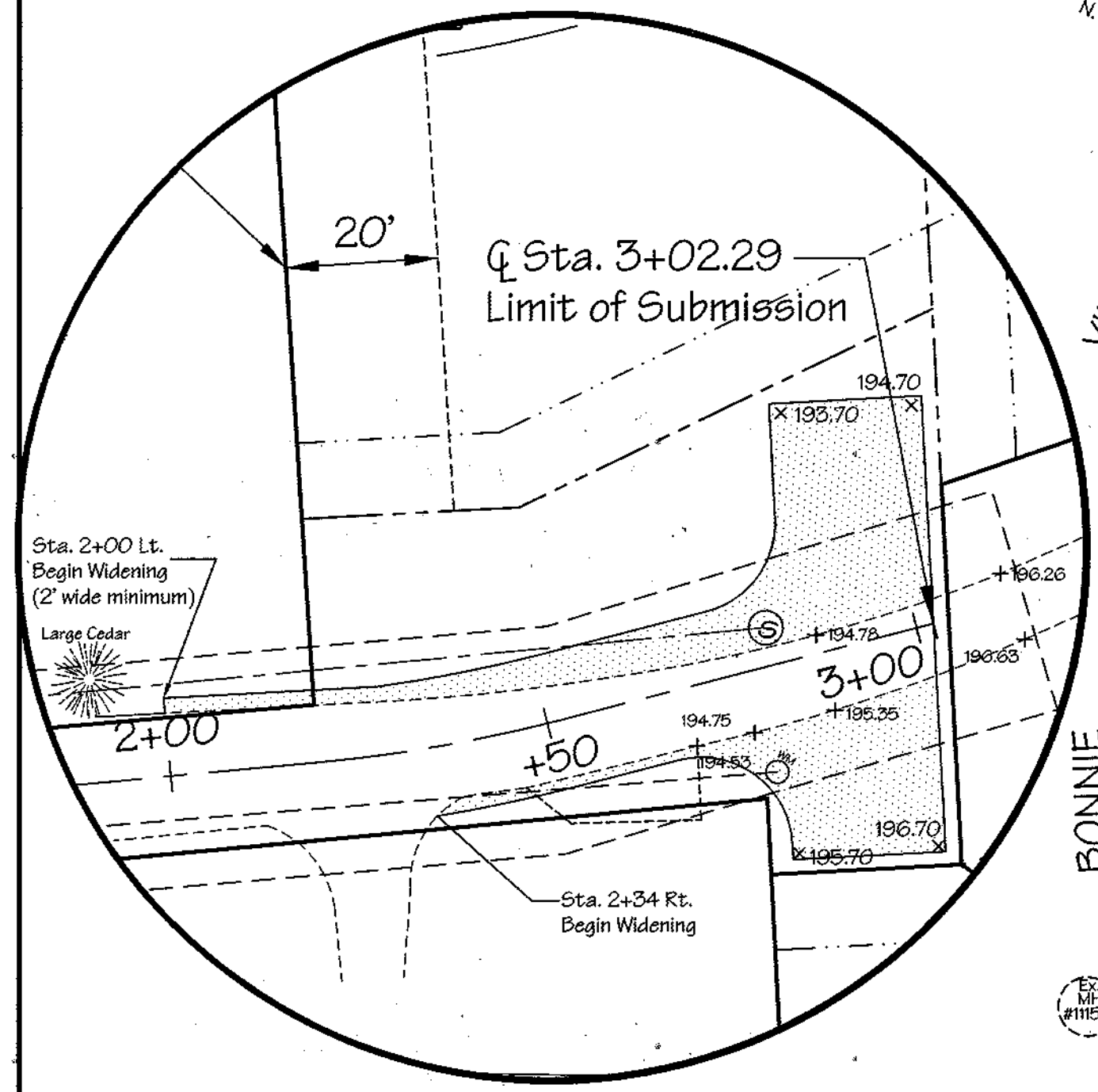
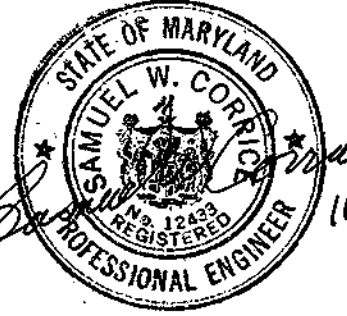
*William Z. Mada 12-10-03*  
Chief, Bureau of Highways

PAVING LEGEND:

P-2 Paving Section (Howard County)	
Existing Paving	
Existing Curb & Gutter	
Standard Combination Curb & Gutter	

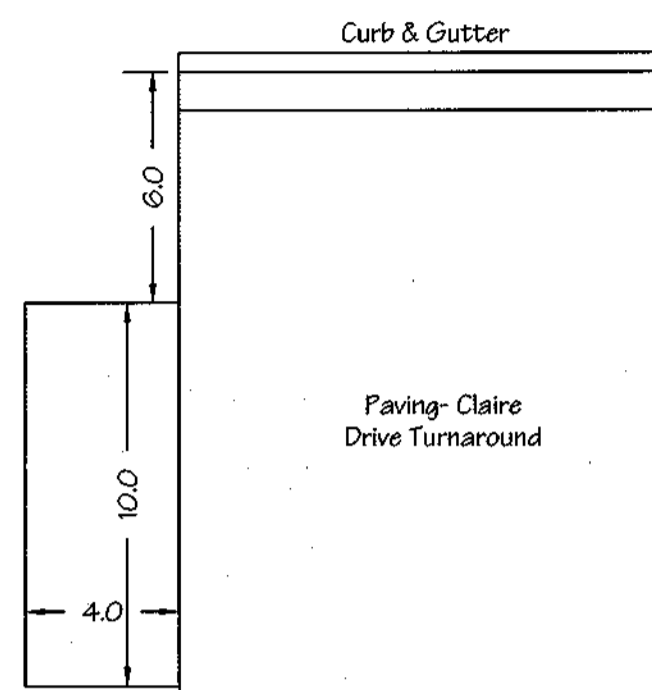
**LDE, INC.**  
9250 Rumsay Road, Suite 106, Columbia, MD, 21045  
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	S.W.C.	Road Construction Plans Extensions of Hooks Lane and Claire Drive <b>BONNIE RIDGE</b> Lots 1 Thru 11	SCALE	1"=50'
DRAWN	J.D.R.		DRAWING	2 of 11
CHECKED	S.W.C.	Tax Map 38 - Block 3 - Parcels 130 and 881 1st Election District - Howard County, Maryland	JOB NO.	98-076.2
DATE	1/2003	DEVELOPER	NEWBURN DEVELOPMENT GROUP 5570 Starnett Place Suite 201 Columbia, Maryland 21044 (410) 997-3815, (301) 596-3877	FILE NO.



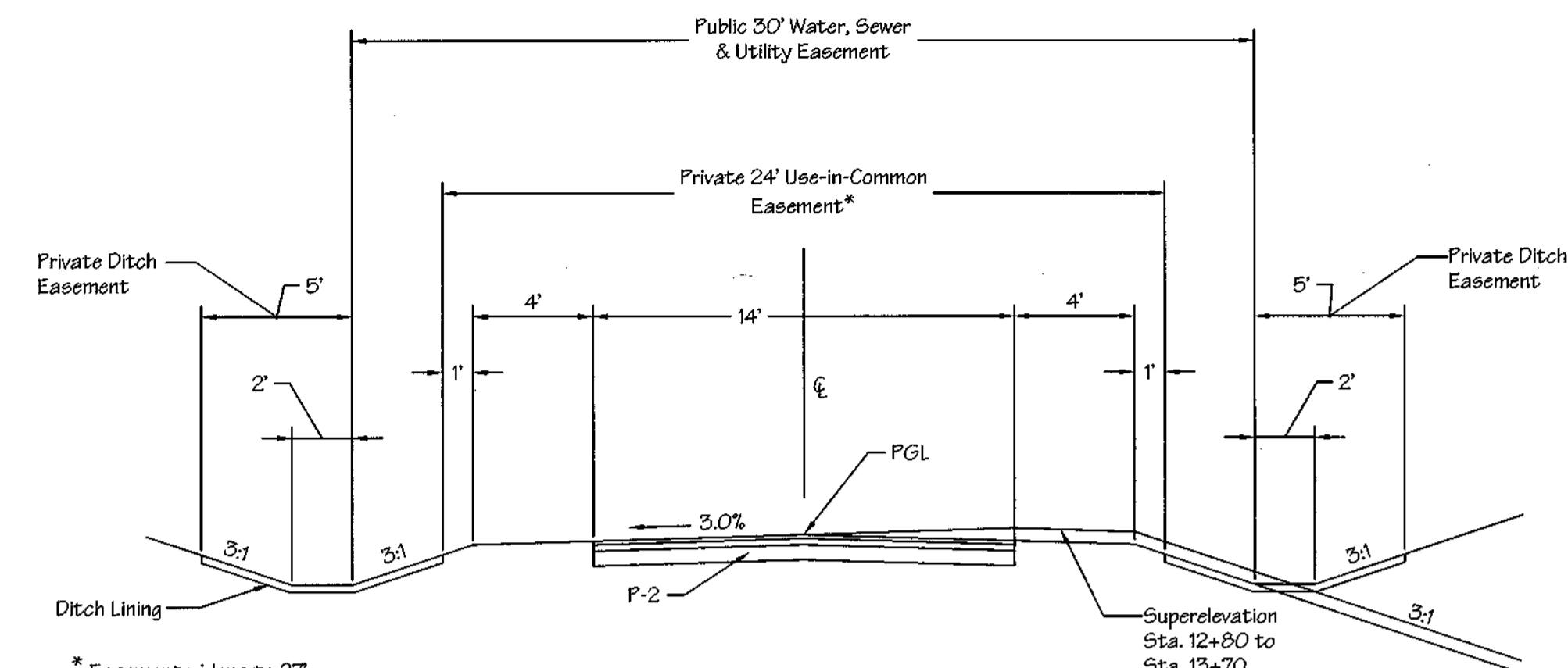
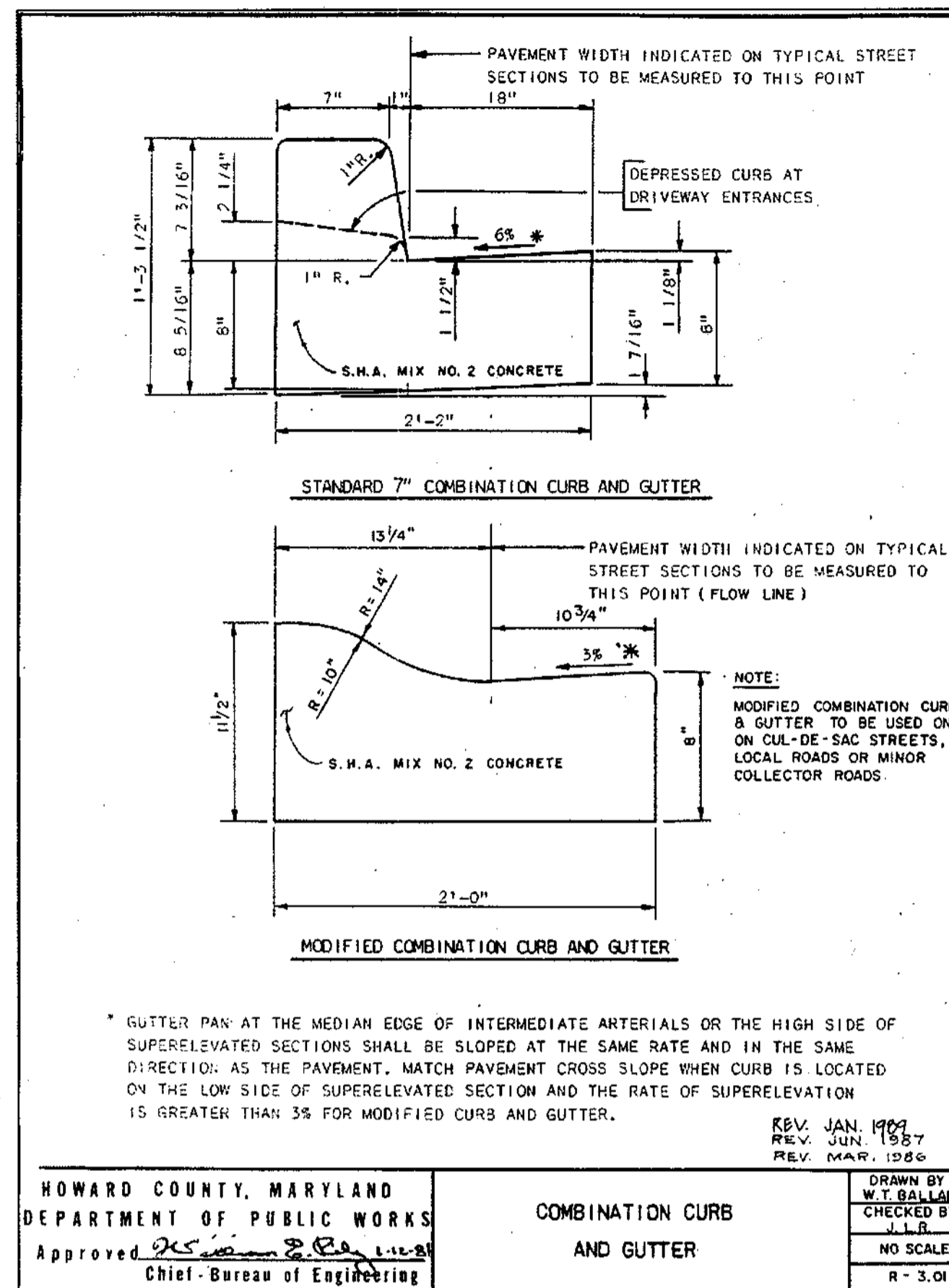
STRUCTURE SCHEDULE							
Struc. No.	Type	Inv. In	Inv. Out	M/H Top or Top Slab Elev.	Detail	Location	Remarks
ES-1	End Section	171.00	-	-	-	Claire Dr. Sta. 12+06.32Rt.	HDPE
ES-2	End Section	-	167.50	-	-	Claire Dr. Sta. 12+06.16Lt.	HDPE
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

PAVEMENT MATERIALS		
Road and Street Classification	Full Depth Bituminous Concrete Alternate	Granular Base Alternates
Residential Zones Local, Cul-de-sac Streets, Alleys and Private Roads serving Individual Lots.	1 1/2" Bituminous Concrete Surface 5" Bituminous Concrete Base	1 1/2" Bituminous Concrete Surface 2 1/2" Bituminous Concrete Base 6" Graded Aggregate Base (GAB)
P-2 Travelways Apartments and Commercial-Industrial Zones With No More than Ten Heavy Trucks Per Day.		



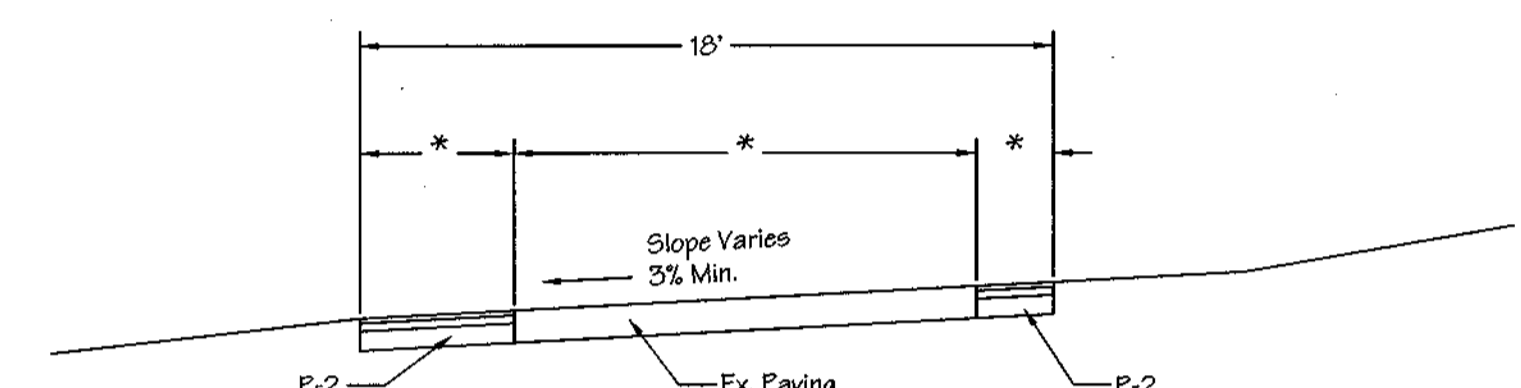
- Notes:
- Concrete Mix #2
  - Place expansion joint at center of 10' slabs.
  - Expansion joint material to be 1/2" pre formed bituminous expansion material to be kept 1/4" below surface of pad.
  - Concrete to be 4" minimum depth placed on compacted sub base.

Concrete Trash Pad Detail



\* Easement widens to 27' in front of Lots 3 & 4 with right edge of easement contiguous with the 30' Public Water, Sewer, and Utility Easement

Claire Drive Private Access Place 12+06 to 12+55 13+95 to 16+12.15



\* Dimension Varies See Plan (Sheet 2)

Hooks Lane Widening Sta 2+00± to Sta 2+80±

Road Name	Station to Station	Class	R/W	Design Speed	Paving Section
Claire Drive	11+64 - 12+06	Local	Varies	15 M.P.H.	P-2
Claire Drive	12+06 - 16+12.15	Private	Varies	15 M.P.H.	P-2
Hooks Lane	0+00 - 3+02.29	Local	Varies	15 M.P.H.	P-2

By	Date	No.	Description
REVISIONS			

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Craig Hanata* 12/14/03  
CHIEF, DIVISION OF LAND DEVELOPMENT

*William J. Whelan* 12-10-03  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF PUBLIC WORKS

*William J. Whelan* 12-10-03  
CHIEF, Bureau of Highways

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

*[Signature]* DATE

NATURAL RESOURCE CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* DATE

HOWARD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATE

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

*[Signature]* 11-25-03  
SIGNATURE OF ENGINEER DATE

DEVELOPER'S CERTIFICATE

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

*[Signature]* 11-25-03  
SIGNATURE OF DEVELOPER DATE

STATE OF MARYLAND

PROFESSIONAL ENGINEER

*[Signature]* 11-25-03

LDE, INC.  
9250 Rumsey Road, Suite 106, Columbia, MD. 21045  
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.W.C. ROAD DETAILS: BONNIE RIDGE SCALE: As Shown

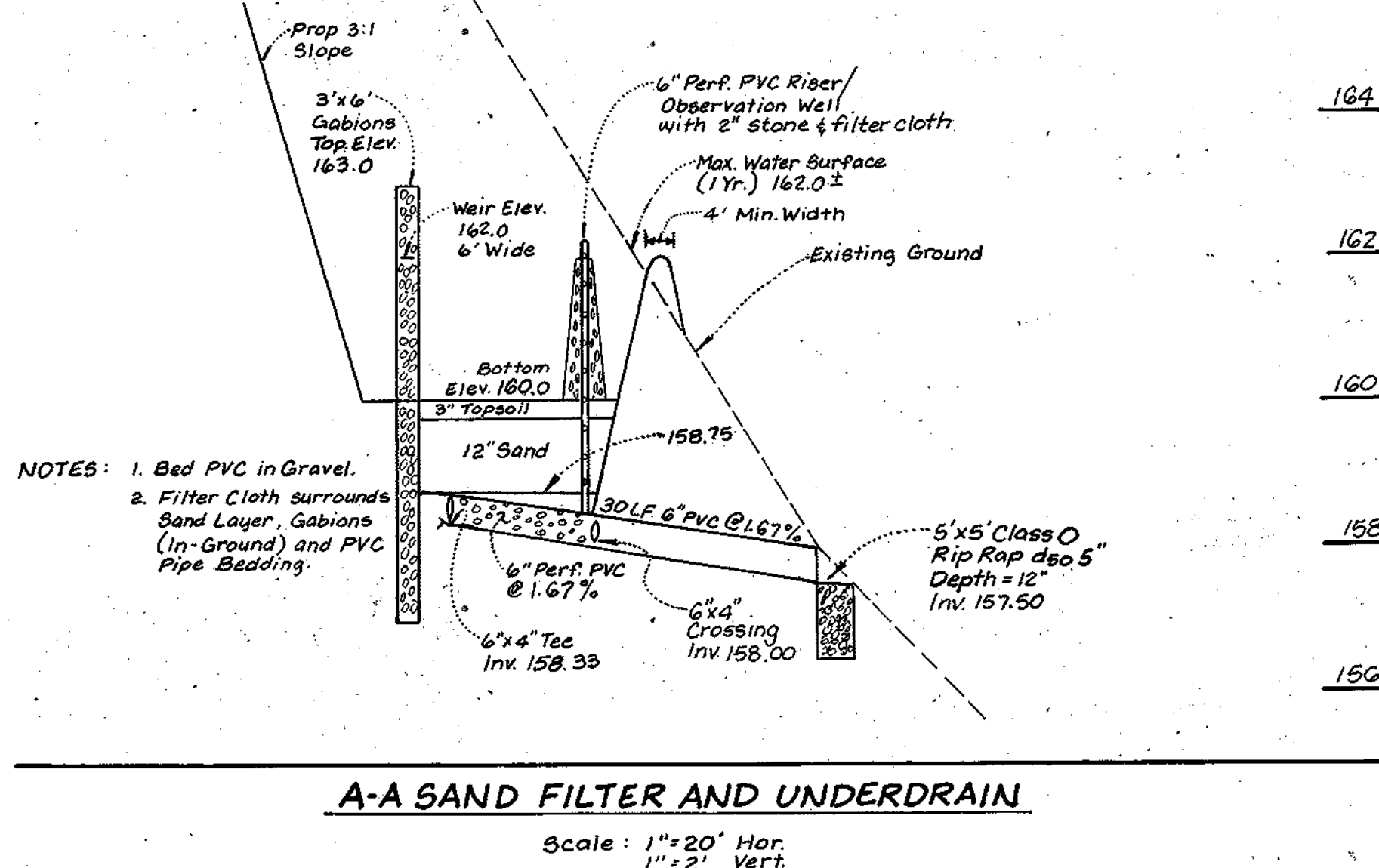
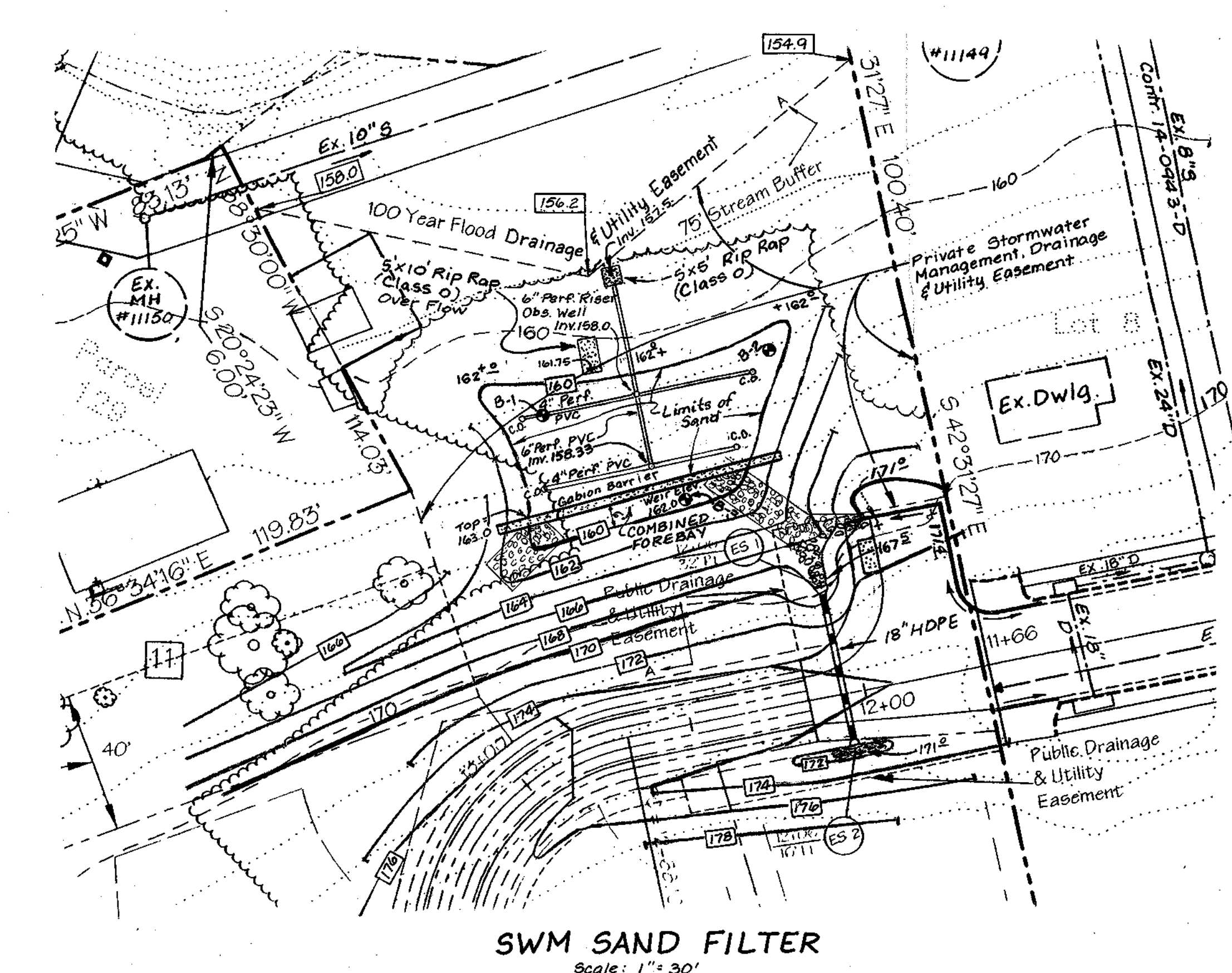
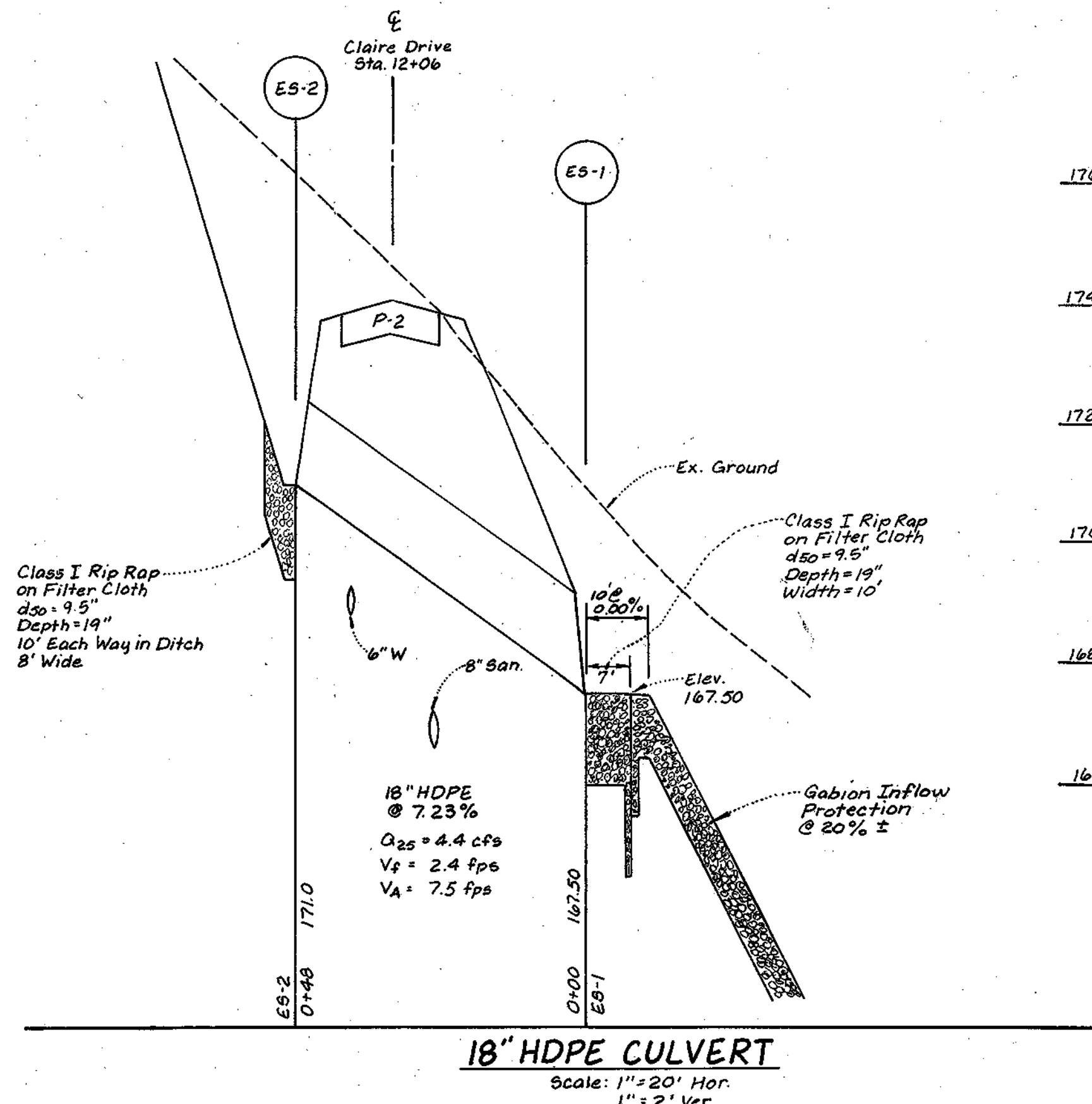
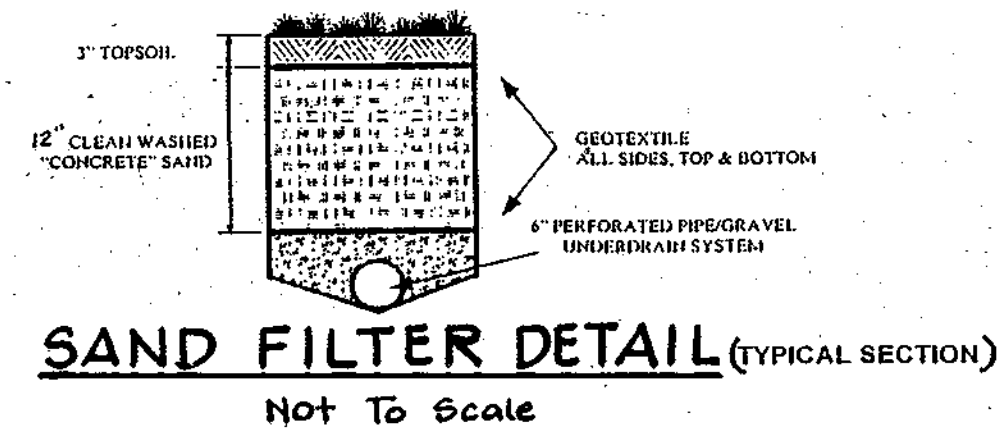
DRAWN: J.D.R. LOTS 1 THRU 11 DRAWING: 3 of 11

CHECKED: S.W.C. TAX MAP 38 - BLOCK 3 - PARCEL 881 JOB NO.: 98-076.2  
1st Election District - Howard County, Maryland

DATE: 1/2003 DEVELOPER: NEWBURN DEVELOPMENT GROUP FILE NO.:  
5670 Sterrett Place Suite 201  
Columbia, Maryland 21044  
(410) 937-3615, (301) 596-3677

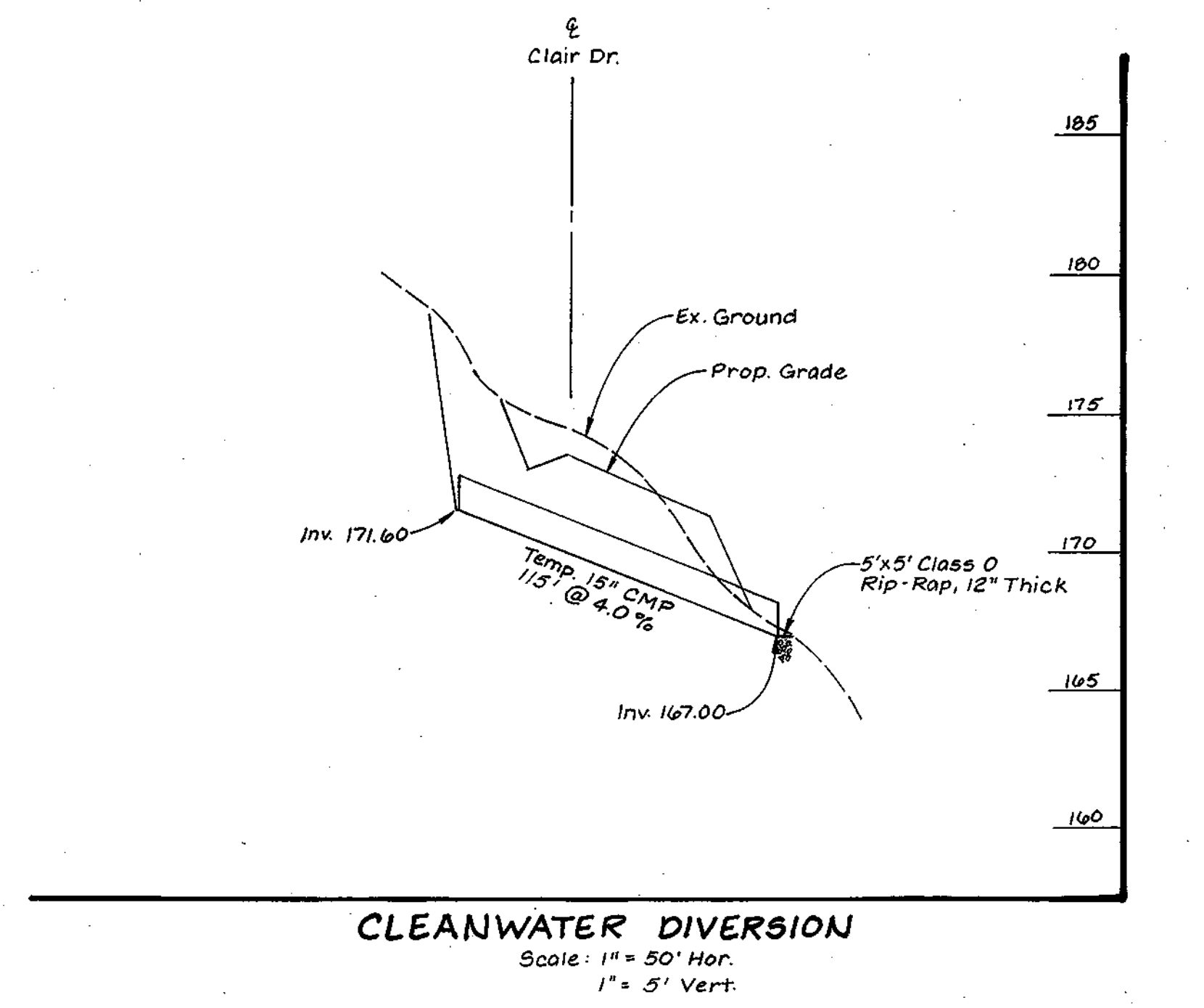
Table B.3.1 Material Specifications for Sand Filters

Material	Specification/Test Method	Size	Notes
sand	clean AASHTO-M-6 or ASTM-C-33 concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	
geotextile fabric (if required)	ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4632 (Tensile Strength - 300 lb.)	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
underdrain piping	F 758, Type PS 28 or AASHTO-M-278	4" - 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS

- The stormwater wetland facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.
- The top and side slopes of the embankment shall be mowed a minimum of once per year, when vegetation reaches 18" in height or as needed.
- Filters that have a grass cover shall be mowed a minimum of three (3) times per growing season to maintain a maximum grass height of less than 12 inches.
- Debris and litter shall be removed during regular mowing operations and as needed.
- Visible signs of erosion in the facility shall be repaired as soon as it is noticed.
- Remove silt when it exceeds four (4) inches deep in the forebay.
- When water ponds on the surface of the filter bed for more than 24 hours, the top few inches of discolored material shall be replaced with fresh material. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.
- A log book shall be maintained to determine the rate at which the facility drains.
- The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.



By	Date	No.	Description
REVISIONS			

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Cecilia Hamstra*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
12/20/03  
*Colin Drummond*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
12/16/03

APPROVED: DEPARTMENT OF PUBLIC WORKS

*William J. ...*  
CHIEF, BUREAU OF HIGHWAYS  
12-10-03

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

NATURAL RESOURCE CONSERVATION SERVICE  
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

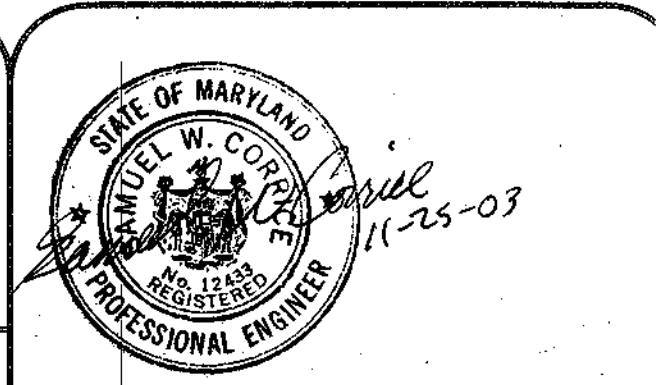
HOWARD SOIL CONSERVATION DISTRICT  
DATE

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

*Edward W. Conice*  
SIGNATURE OF ENGINEER  
11-25-03  
DATE

DEVELOPER'S CERTIFICATE  
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS MAY BE DETERMINED NECESSARY.

*Lawyers Hill, L.L.P.*  
*James C. ...*  
SIGNATURE OF DEVELOPER  
11-25-03  
DATE



LDE, INC.  
9250 Rumsay Road, Suite 106, Columbia, MD, 21045  
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.W.C.  
DRAWN: J.D.R.  
CHECKED: S.W.C.  
DATE: 1/2003

Stormwater & Stormwater Management  
**BONNIE RIDGE**  
Lots 1 Thru 13  
Tax Map 36 - Block 3 - Parcel 881  
1st Election District - Howard County, Maryland  
Previous Submittals: 599-31, F01-11, F02-31, WP-03-49, F03-31

SCALE: As Shown  
DRAWING: 4 of 11  
JOB NO.: 98-076.2  
FILE NO.: F03-109

**LEGEND**

- 172 Ex. Ground
- 172 Prop. Grade
- Ex. Paving
- Prop. Paving
- Ex. Tree Line
- Ex. Trees To Remain
- Ex. Storm Drain
- Prop. Storm Drain
- Lot Number Delineation
- Prop. Dwelling w/ Front Orientation
- Specimen Tree
- Disconnected Rooftops
- Drainage Divide (Overall)
- To Path
- DESIGN POINT: Ex. Zoning % Impervious
- Drainage Divide (Culvert)
- Soil Type Divide

**SOILS LEGEND**

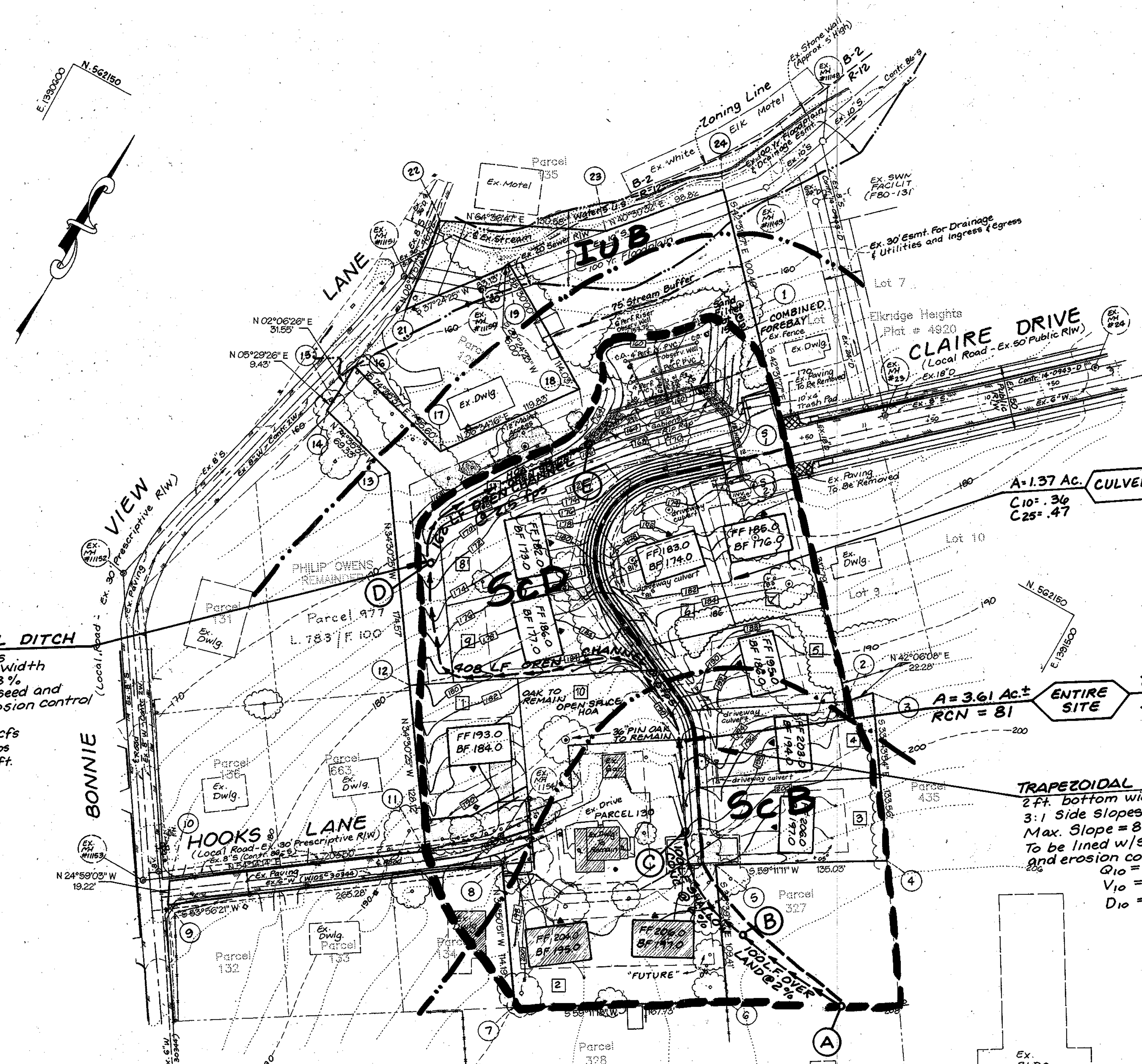
Symbol	Name	Slope/Characteristics
ScB	Sandy & Clayey	gently sloping
ScD	Sandy & Clayey	moderately sloping
IuB	Iuka Loam	1 to 5% slopes

**TRAPEZOIDAL DITCH**

3:1 Side Slopes  
 2 ft. Bottom Width  
 Max. Slope = 8%  
 To be lined w/ seed and mulch and erosion control matting.  
 $Q_{10} = 4.08 \text{ cfs}$   
 $V_{10} = 5.4 \text{ fps}$   
 $D_{10} = 0.50 \text{ ft.}$

**TRAPEZOIDAL DITCH**

2 ft. bottom width  
 3:1 side slopes  
 Max. Slope = 8%  
 To be lined w/ seed and mulch and erosion control matting  
 $Q_{10} = 2.90 \text{ cfs}$   
 $V_{10} = 4.5 \text{ fps}$   
 $D_{10} = 0.24 \text{ ft.}$



**RCN - ROOFTOP DISCONNECT CREDIT:**

45 Ft. TO 59 Ft. Average  
 Measured Impervious - 30%

Total Area Imp. Area Disc. Roofs %Credit =  
 3.61 Ac. +/- 1.08 Ac. +/- 4500 SF 60

Road Area Net Area Net % Imp.  
 0.06 Ac. +/- 1.02 Ac. +/- 28

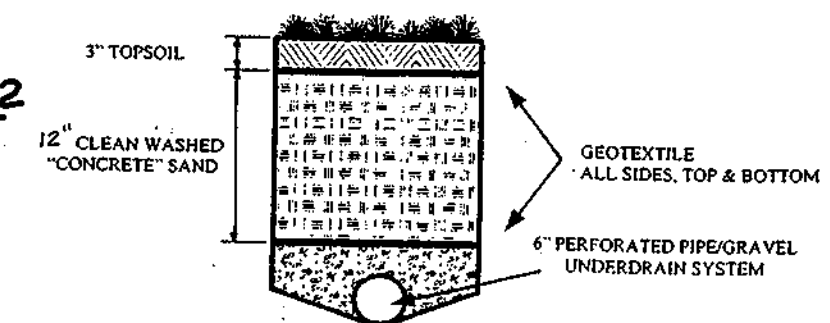
**REQUIREMENTS AND DESIGN:**

Re<sub>v</sub> - Recharge - Met in grass channels adjacent to Claire Drive Common Access and the channel west and north of Lots 10 and 11.

WQ<sub>v</sub> - Water Quality - Met in "Oversize" Surface Sand Filter (see below). Filter bed to be 12 inches thick.

Cp<sub>v</sub> - Channel Protection Storage Volume - Due to the small drainage area and environmental site constraints the Surface Sand Filter shall provide the Cp<sub>v</sub> above the Water Quality Filter Media per table 4.3 of the MDE Stormwater Manual. Facility is sized to store the one year storm with overflow (larger storms) spilling toward the nearby floodplain in a non-erosive manner.

Additional management of the 10 and 100 Year Storms (Q<sub>p</sub> & Q<sub>r</sub>) is not required, as site is not within the watersheds stated in the Howard County Bulletin dated February 13, 2000.



**SAND FILTER DETAIL (TYPICAL SECTION)**  
 Not To Scale

**To Path**

A-B 100' @ 2% = 0.238 Hr.  
 B-C 100' @ 6% = 0.007 Hr.  
 C-D 408' @ 5 fps = 0.023 Hr.  
 D-E 162' @ 2.5 fps = 0.018 Hr.  
 Total = 0.29 Hr.

**NOTE:** Lot 2 is shown with 2 houses in the event of future resubdivision of this area. Stormwater computations include drainage from the "potential" additional impervious area.

By	Date	No.	Description

**REVISIONS**

LDE, INC.  
 9250 Rumsey Road, Suite 106, Columbia, MD. 21045  
 (410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED:	DRAINAGE AREA MAP	SCALE:
SWC	<b>BONNIE RIDGE</b>	1" = 50'
DRAWN:	LOTS 1 THRU 13	DRAWING:
KBW	Tax Map 38 Block 3	5 of 11
STB	Parcel 881	LDE JOB NO.
CHECKED:	1st Election District Howard County, MD	98-076.2
BDB	Previous Submittals: S99-11, P01-11, F02-31, WP-03-49	FILE NO.
SWC	F04-011	F03-109
DATE:	Owner: LAWYERS HILL, LLLP	
1/2003	5570 Sterrett Place Suite 201	
	Columbia, Maryland 21044	
	(410) 997-3815, (301) 596-3877	

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

NATURAL RESOURCE CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT

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

*Samuel W. Corice* 11-25-03  
 SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY.

*James L. ...* 11-25-03  
 SIGNATURE OF DEVELOPER DATE



APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Sandy ...* 12/31/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*William F. ...* 12/10/03  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MWJ DATE

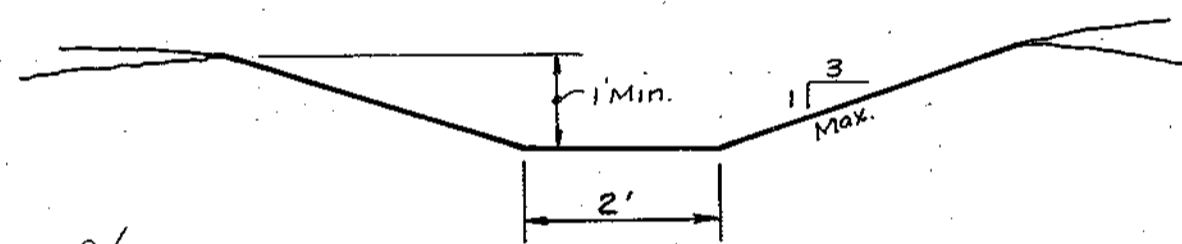
APPROVED: DEPARTMENT OF PUBLIC WORKS

*William F. ...* 12-10-03  
 Chief, Bureau of Highways DATE

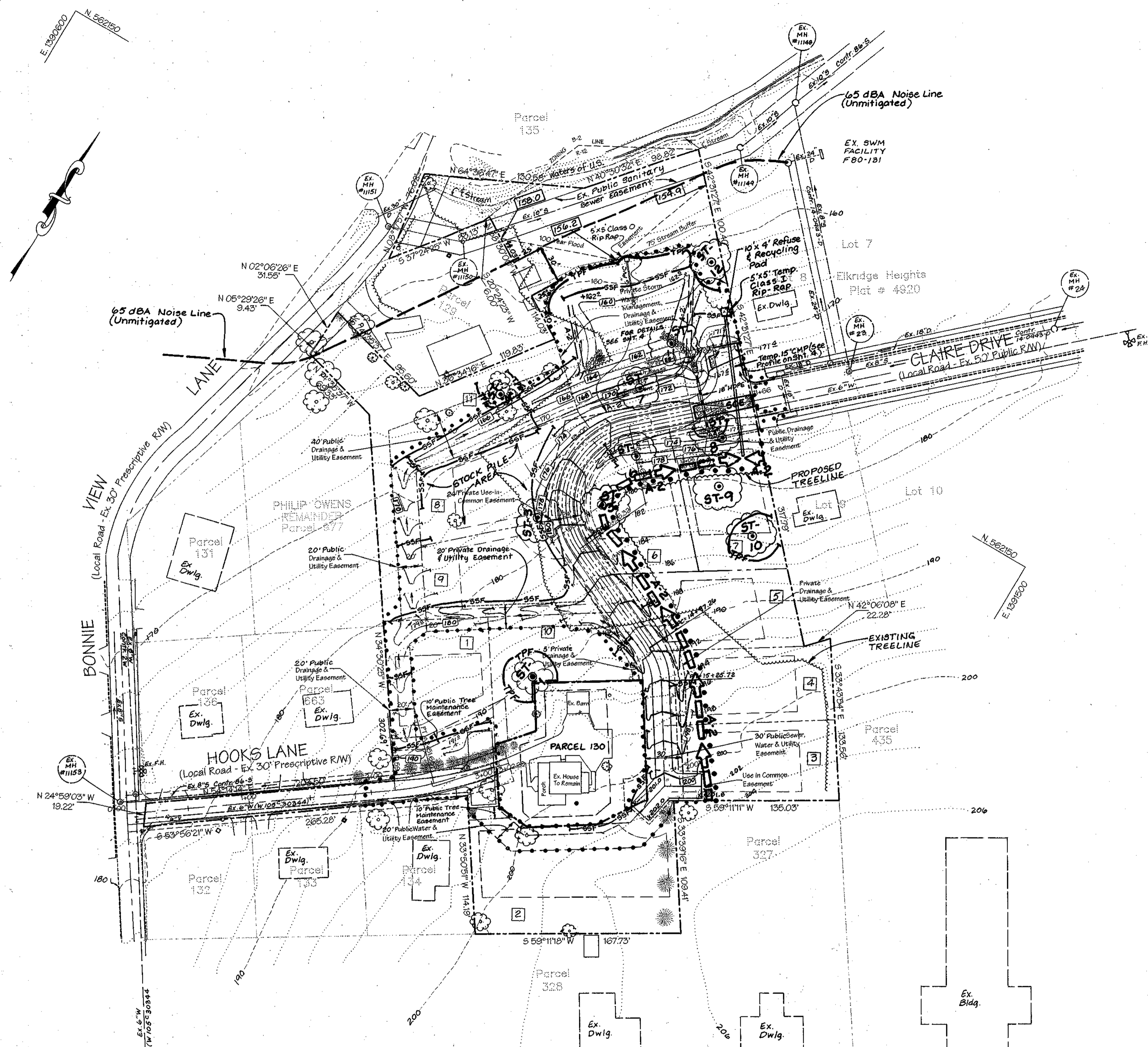
**LEGEND**

- ..... LIMIT OF DISTURBANCE
- SSF--- SUPER SILT FENCE
- A-2--- TEMPORARY SWALE
- SC6 STABILIZED CONSTRUCTION ENTRANCE
- A-2--- EARTH DIKE
- TPF--- TREE PROTECTION FENCE

**TYPICAL DITCH**  
N.T.S.



NOTE: Erosion Control Matting to be Placed on all ditch bottoms and side slopes.



By	Date	No.	Description
REVISIONS			

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Cindy Hamstra* 12/14/03  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mike DeMunn* 12/16/03  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

*William F. ...* 12-20-03  
Chief, Bureau of Highways DATE

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

*Jim Meyer* 12/14/03  
NATURAL RESOURCE CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John P. ...* 12/14/03  
HOWARD SOIL CONSERVATION DISTRICT DATE

**ENGINEER'S CERTIFICATE**

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

*Samuel W. Corrie* 11-25-03  
SIGNATURE OF ENGINEER DATE



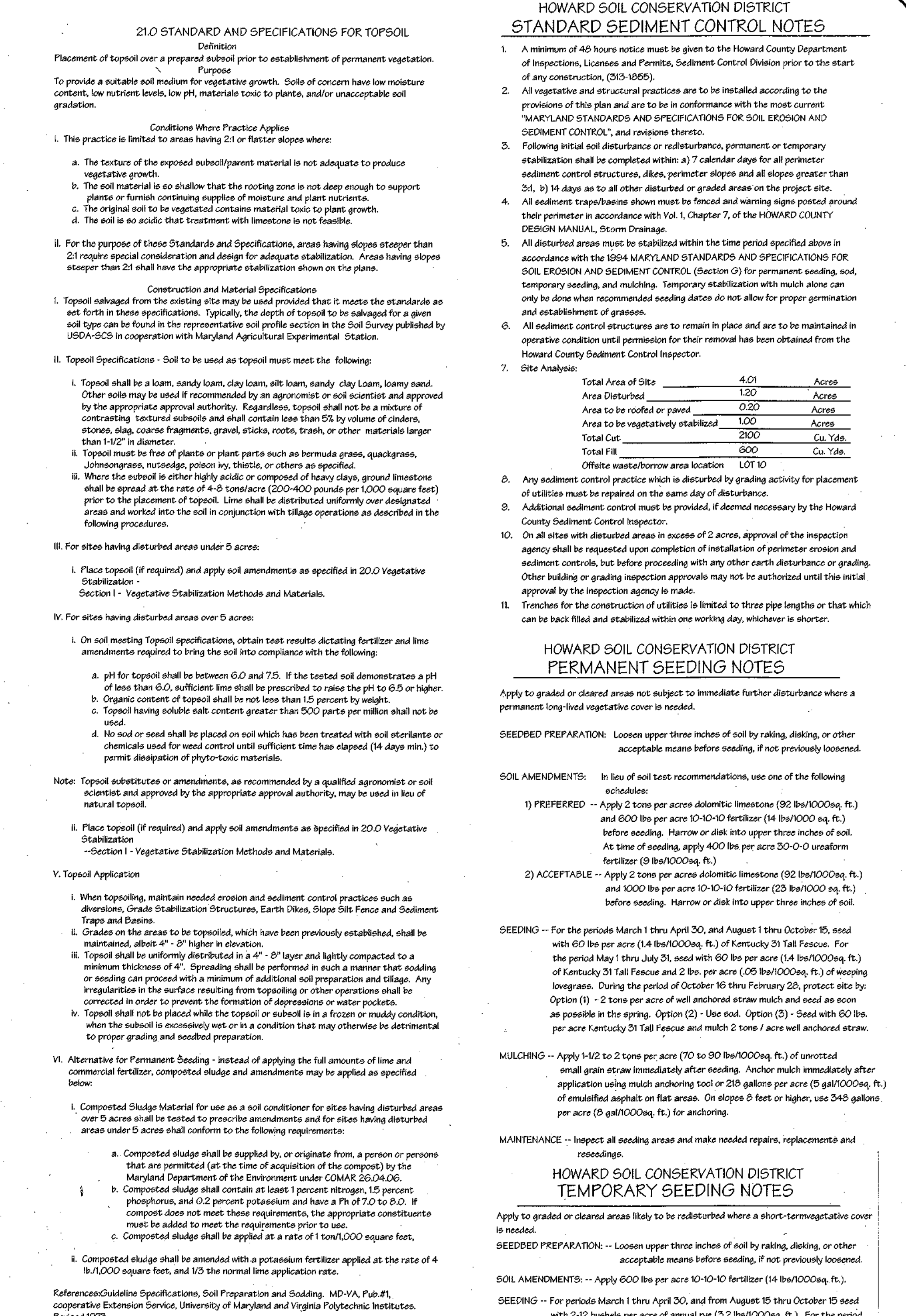
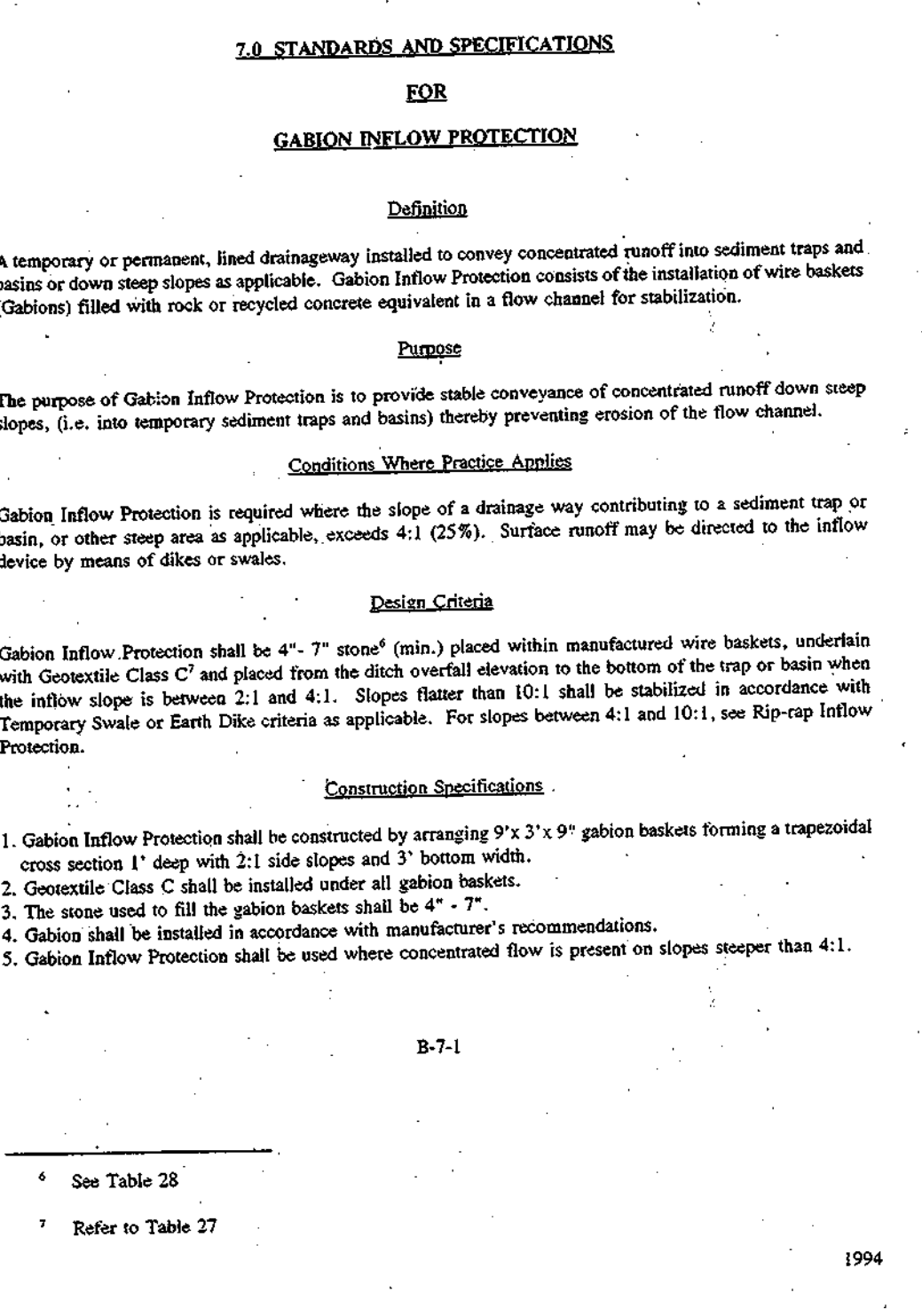
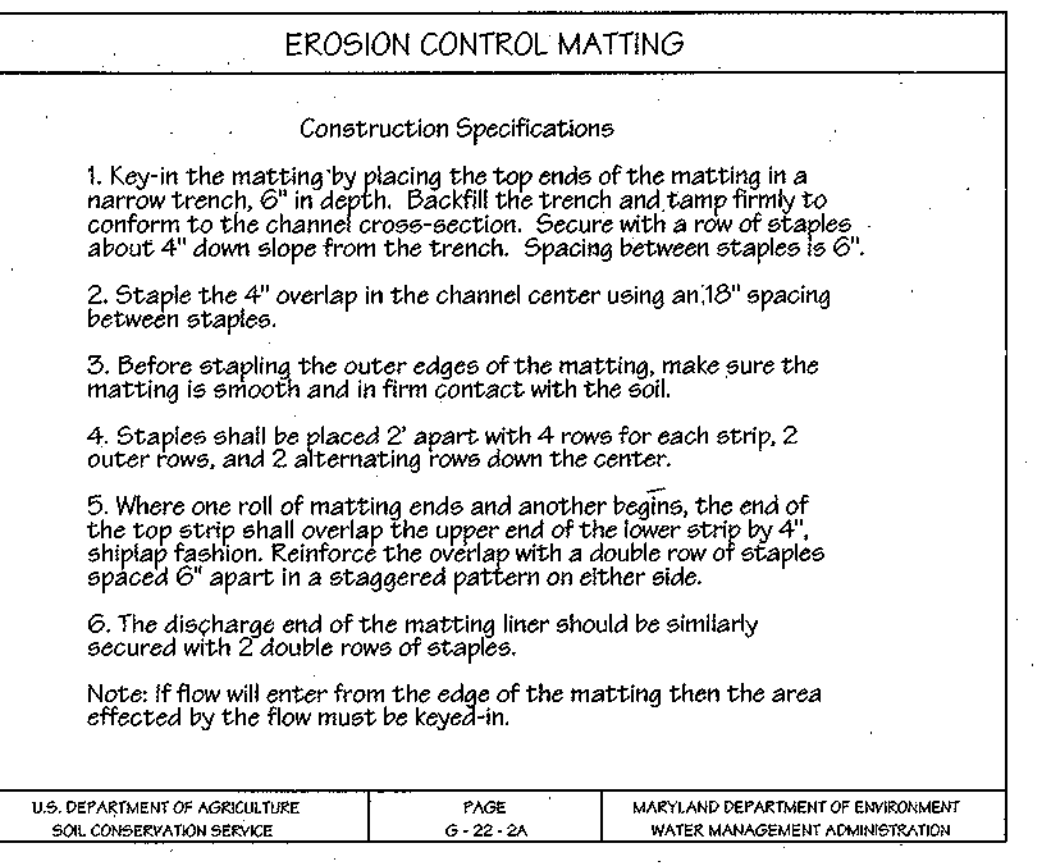
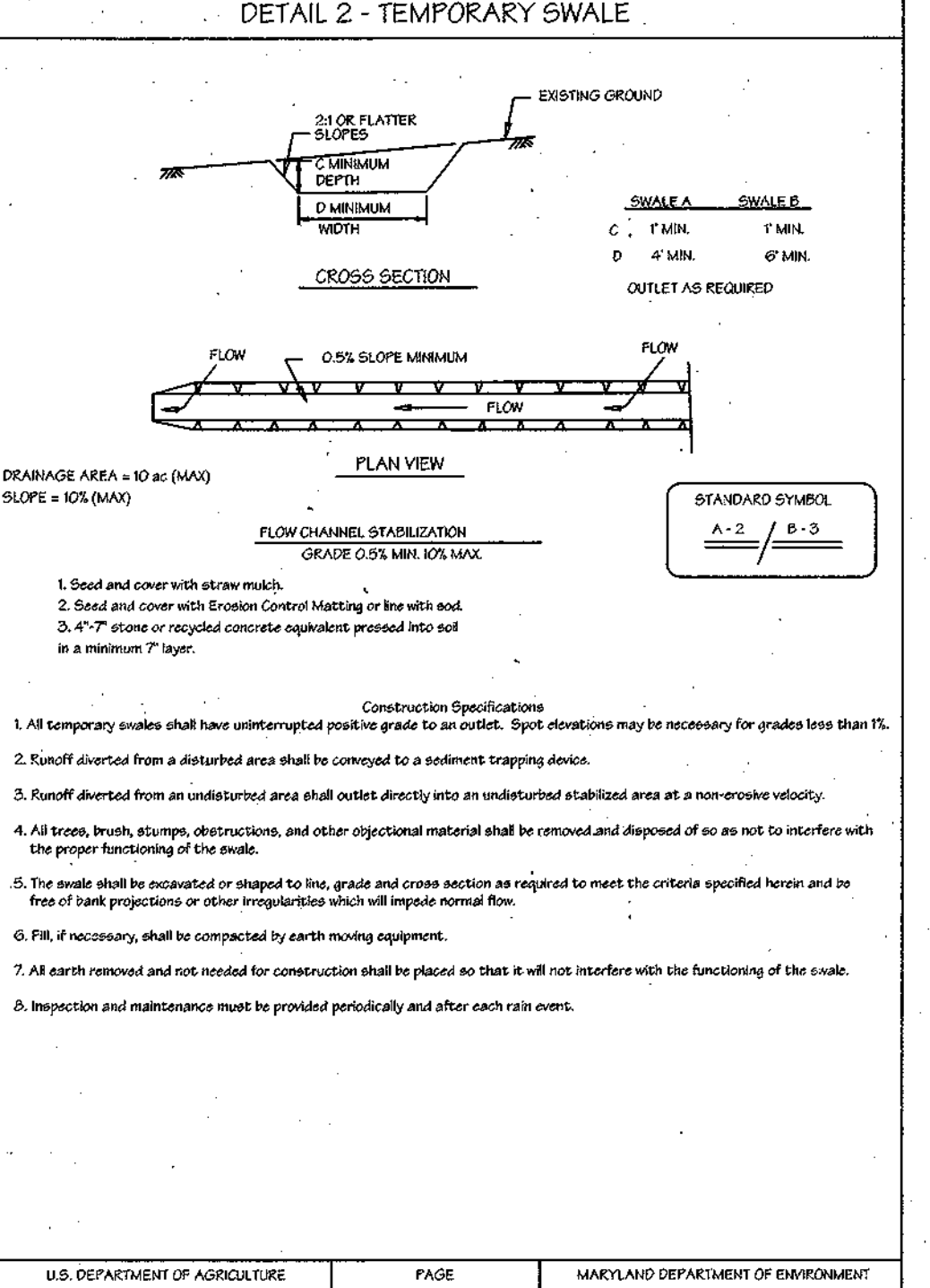
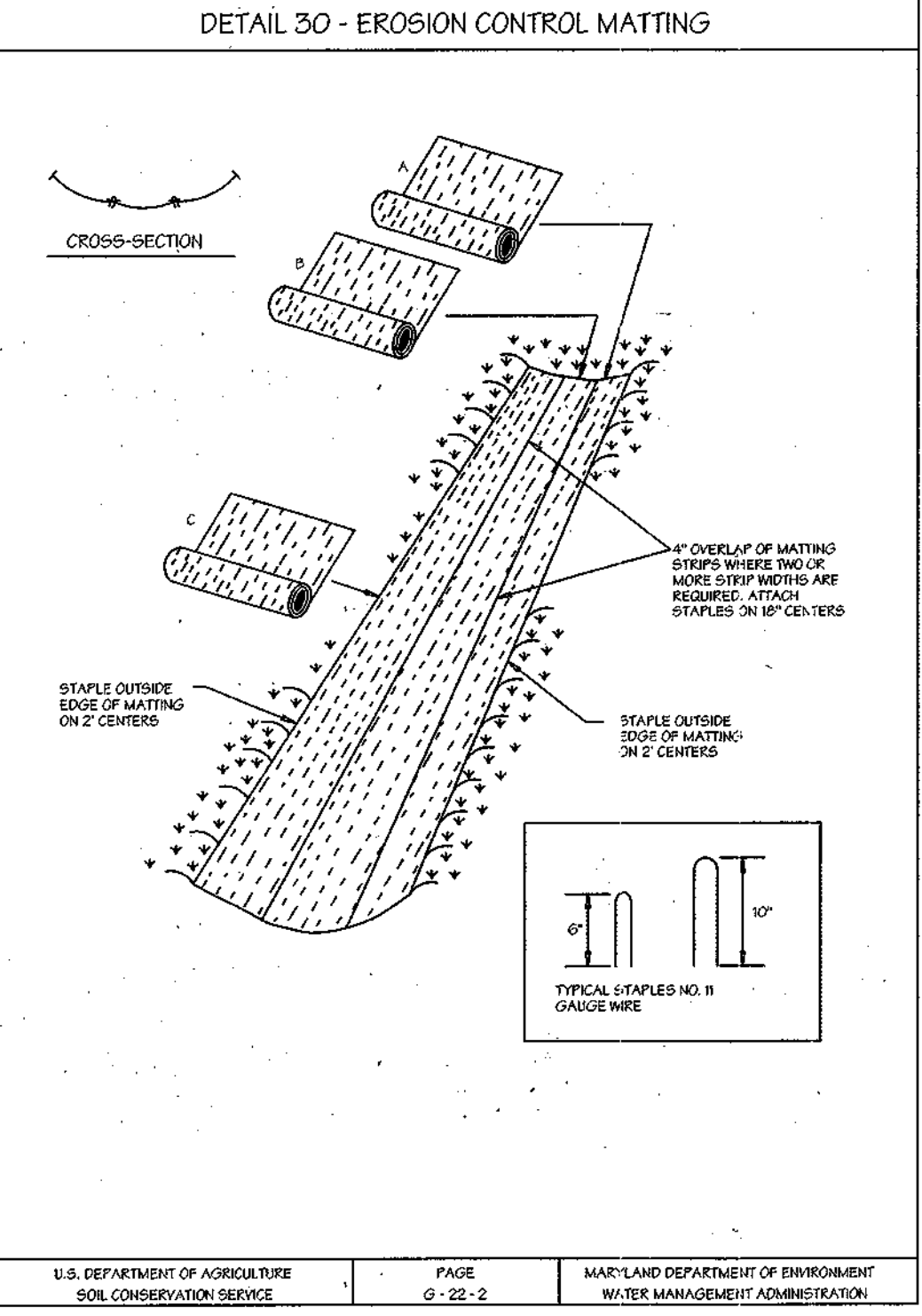
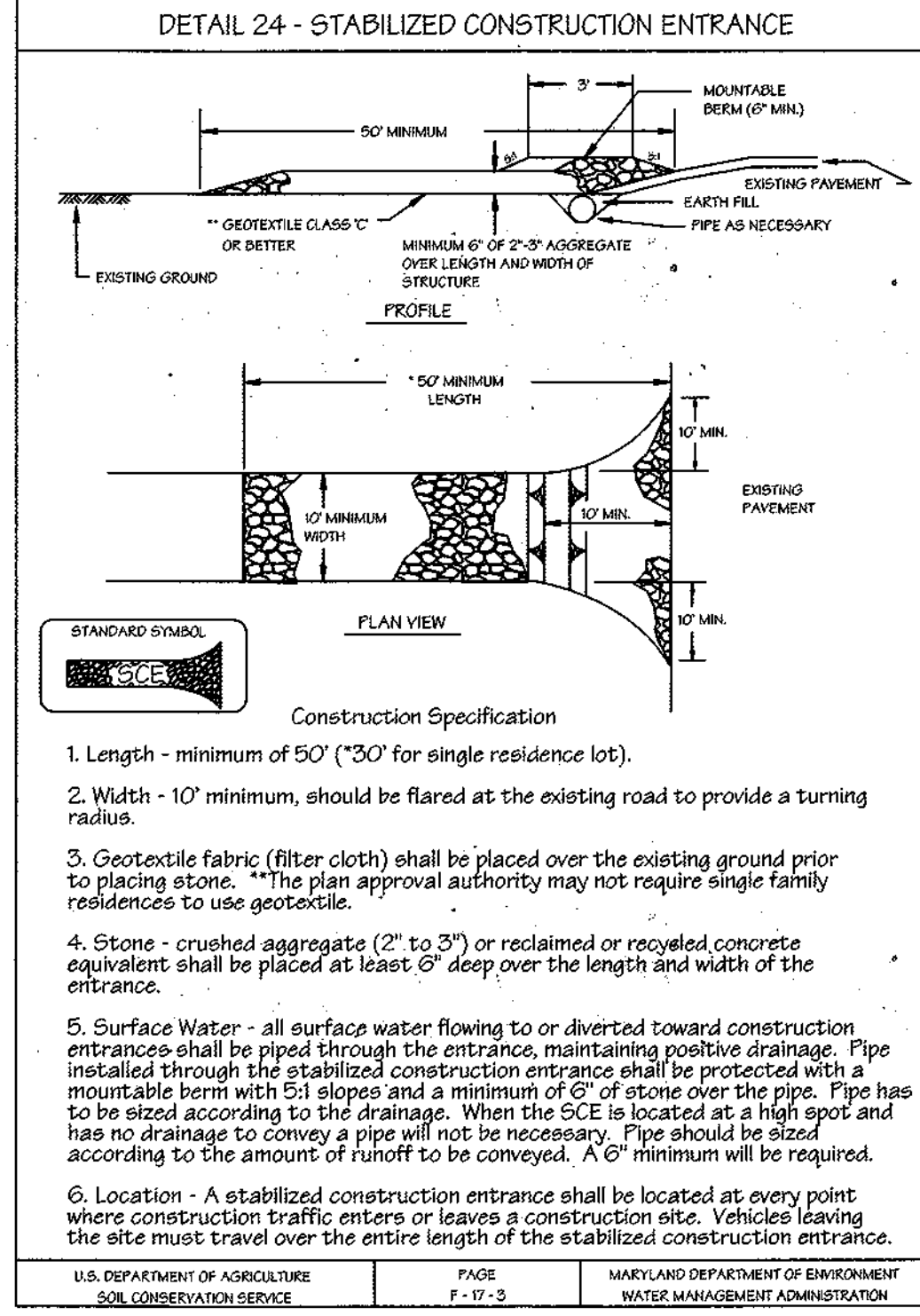
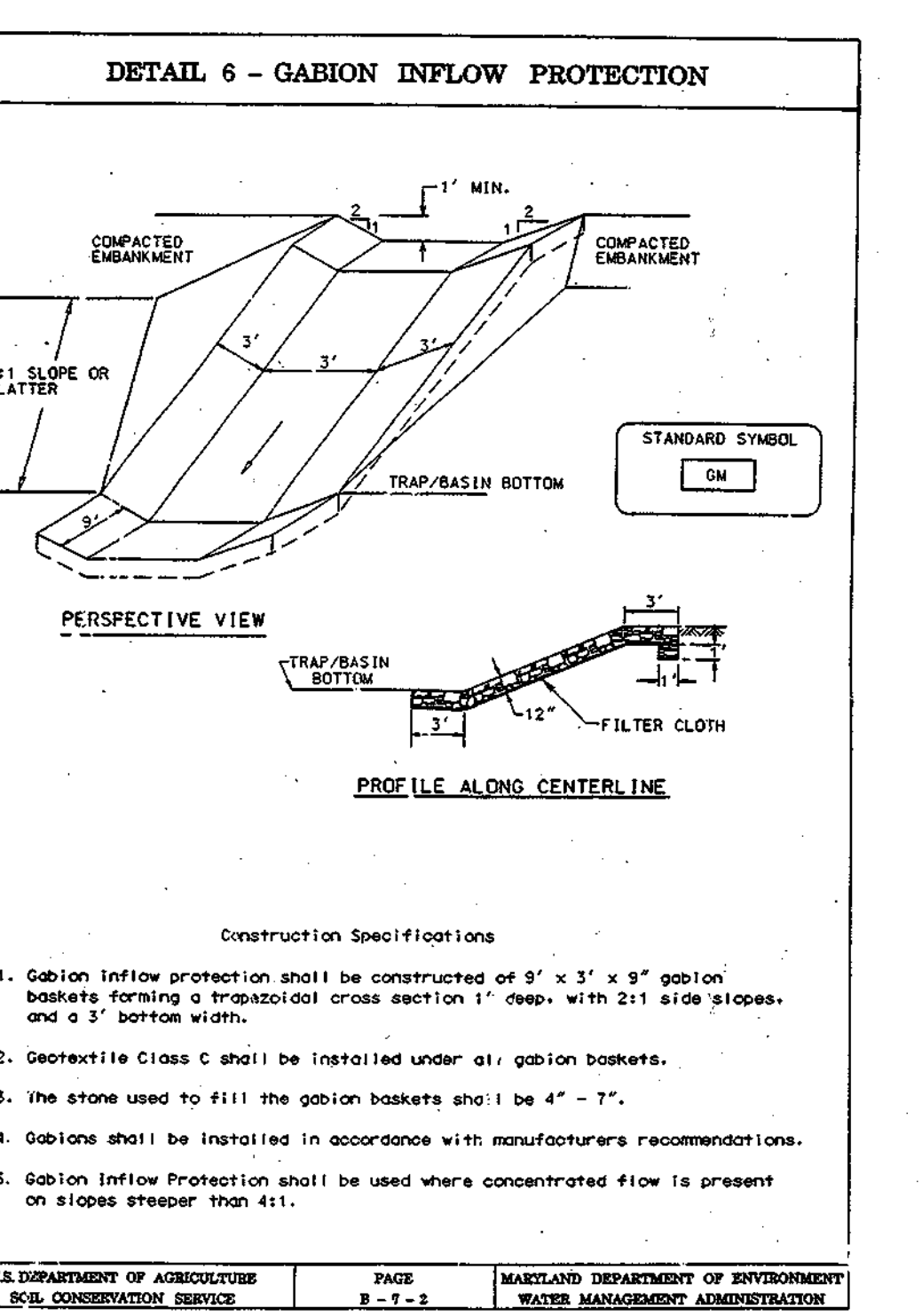
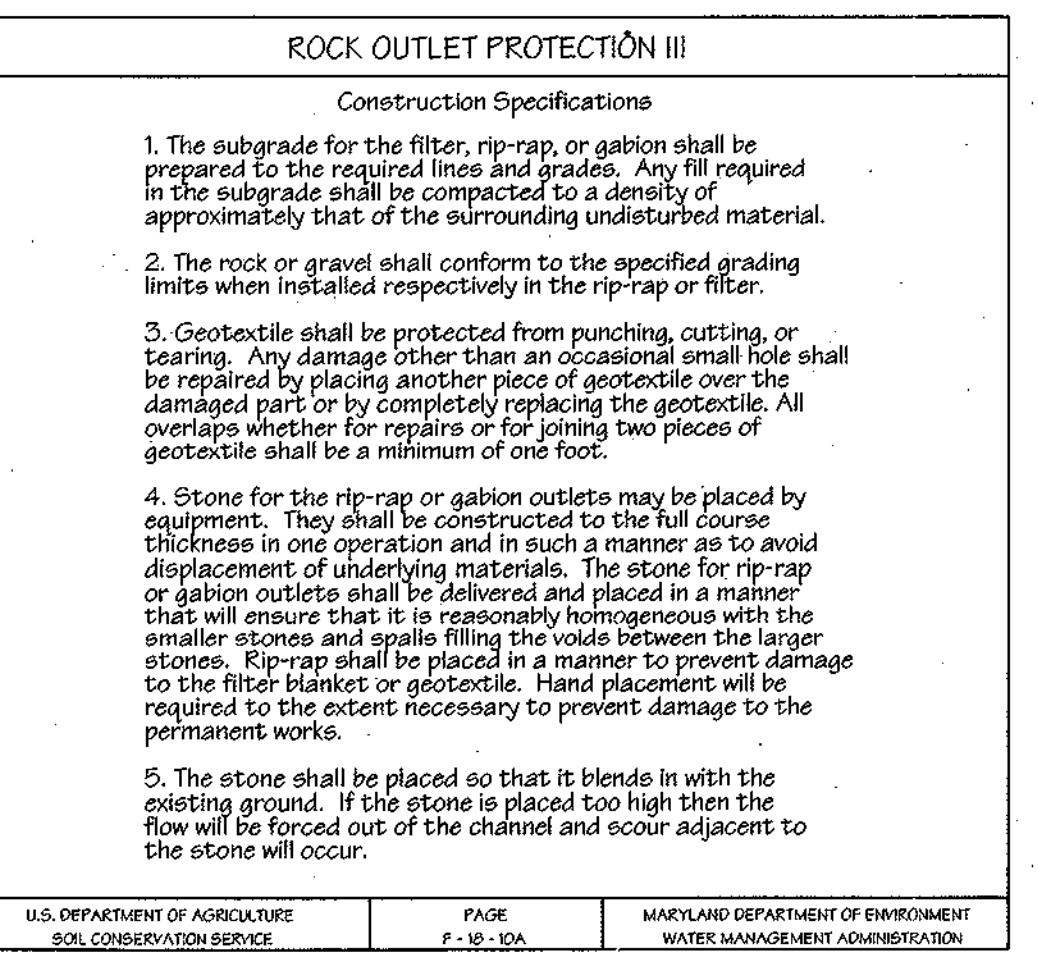
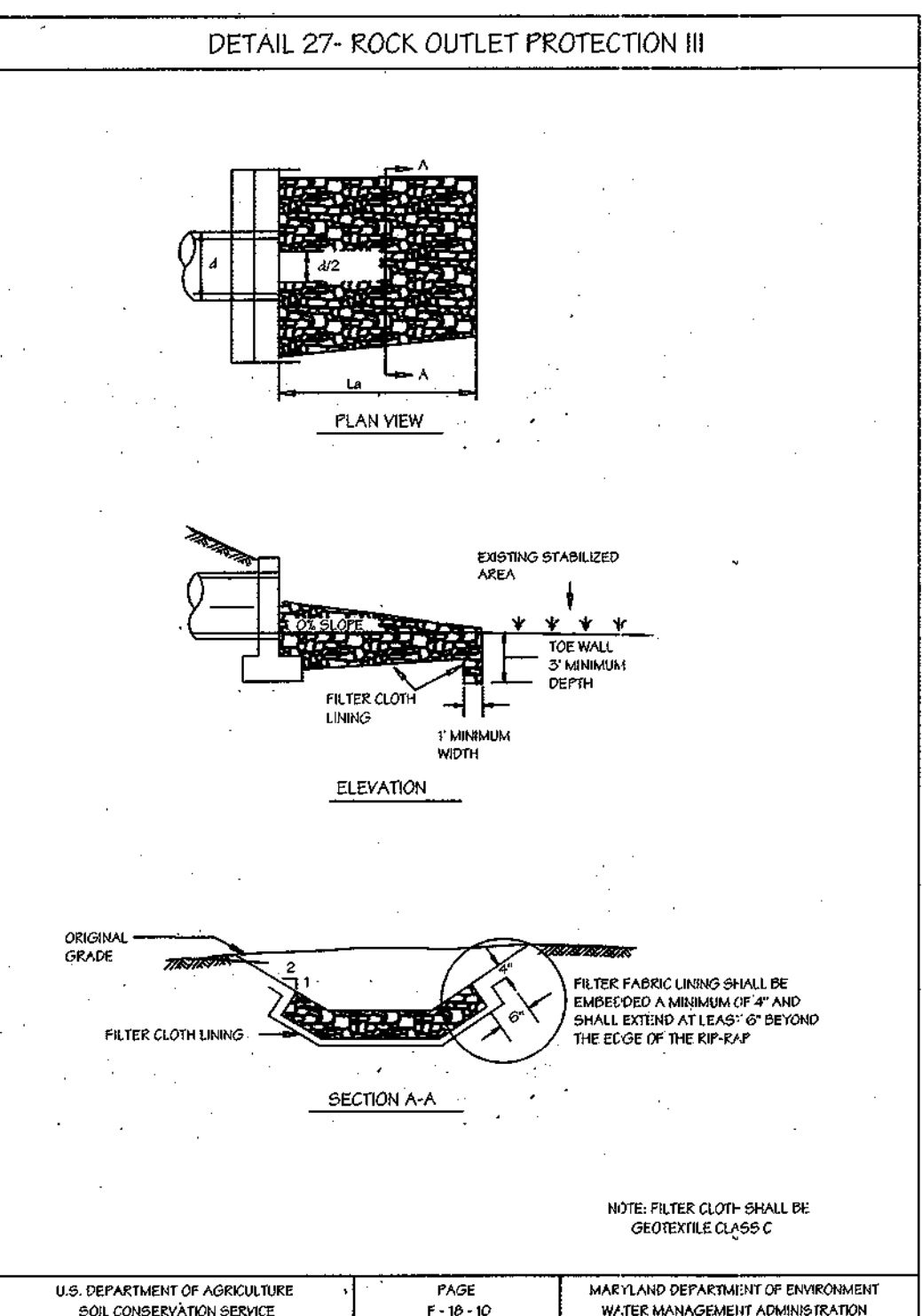
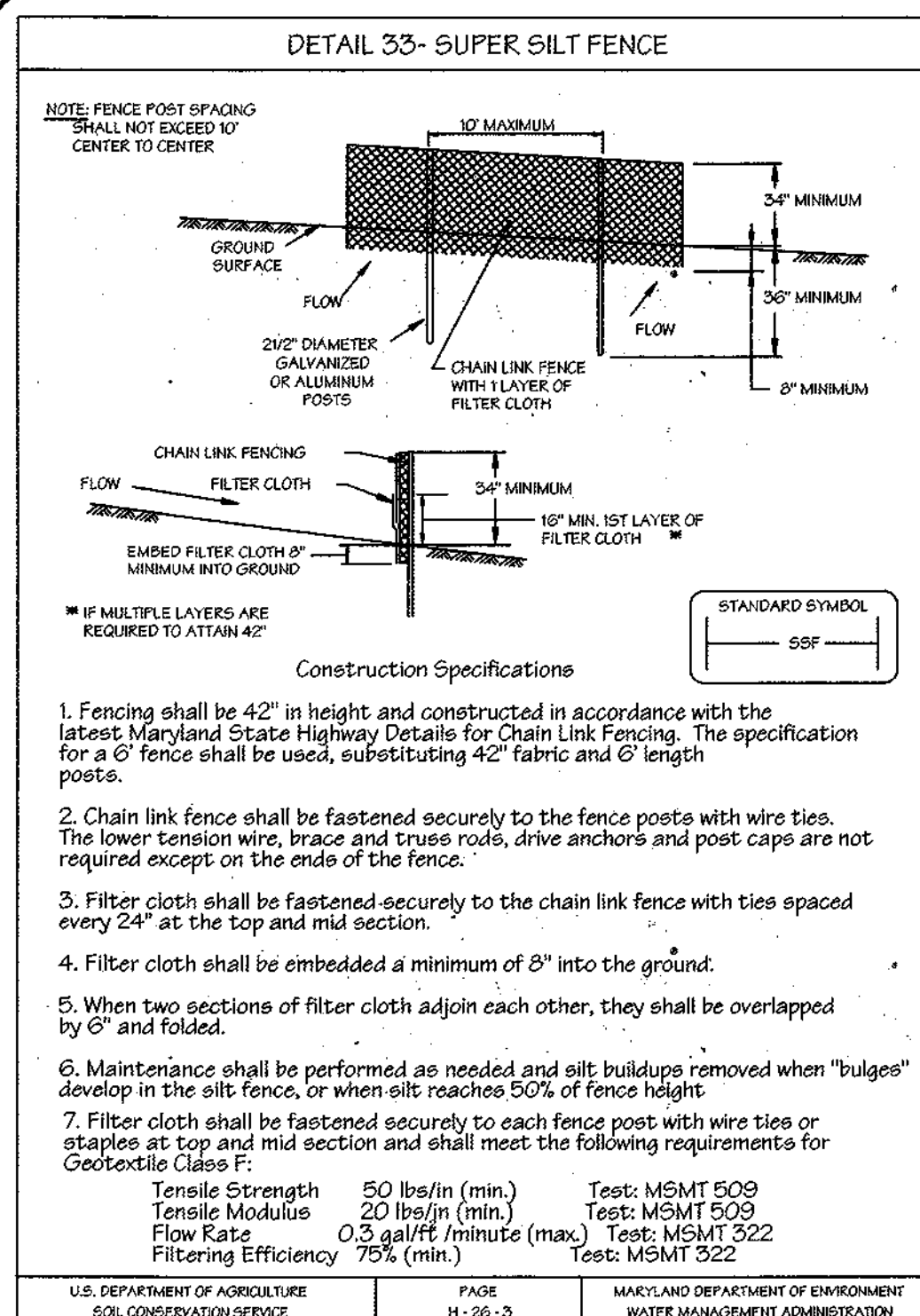
**DEVELOPER'S CERTIFICATE**

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY.

*James L. ...* 11-25-03  
SIGNATURE OF DEVELOPER DATE

**LDE Inc.**  
Engineers, Surveyors, Planners  
9230 Rumsey Road, Suite 106 Columbia, Maryland - 21045  
(410)715-1070 - (301)596-3424 - FAX (410)715-9540

DESIGNED SWC	<b>BONNIE RIDGE</b> Lots 1 Thru 13 Tax Map 38 - Block 3 - Parcel 881 1st Election District - Howard County, Maryland Previous Submittals: 899-11, F01-11, F02-31, WF-03-44, F04-011	SCALE 1"=50'
DRAWN JLM		DRAWING 6 of 11
CHECKED SWC		JOB NO. 98-076.2
DATE 1/2003		FILE NO. F03-109



By	Date	No.	Description
REVISIONS			

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Cynthia Hanada* 12/10/03  
CHIEF, DIVISION OF LAND DEVELOPMENT

*John R. White* 12/10/03  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF PUBLIC WORKS

*William J. ...* 12-10-03  
Chief, Bureau of Highways

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

*Jim Meyer* 12/14/03  
TERRITORIAL RESOURCE CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

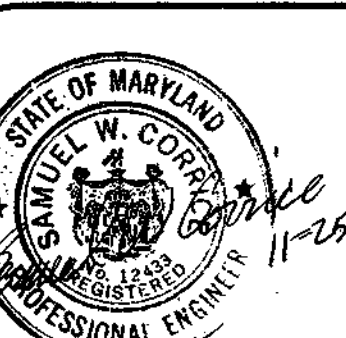
*John R. White* 12/14/03  
HOWARD SOIL CONSERVATION DISTRICT

ENGINEER'S CERTIFICATE

*Samuel W. ...* 11-25-03  
SIGNATURE OF ENGINEER

DEVELOPER'S CERTIFICATE

*James Newman* 11-25-03  
SIGNATURE OF DEVELOPER



### Construction Sequence

- Obtain grading permit - One day.
- Clear as necessary to install stabilized construction entrance - Two days.
- Stakeout limits of disturbance - Two days.
- Install Tree Protection Fence as shown - Two days.
- Install Super Silt Fence (SSF) as shown - Three days.
- Install Temporary Swales as shown and immediately stabilize with permanent seeding mixture and straw mulch - Two days.
- Obtain permission from sediment control inspector to proceed with construction operations - One day.
- The contractor shall inspect and provide necessary maintenance on the sediment and erosion controls shown herein on a daily basis - One day.
- Begin grading and installation of 18" HDPE and rock outlet - Ten days.
- Stabilize swales and ditches immediately after grading - Two days.
- Install utilities - Three weeks.
- Install gravel base for widening and turnaround on Hooks Lane and for extension of Claire Drive - Four days.
- Install paving on Item 12 areas - Two days.
- Stabilize areas adjacent to paving - One day.
- Excavate Sand Filter Pond to bottom of sand. Direct all stormwater away from excavation until the pond construction has been completed - Five days.
- Install Gabions for combined Forebay. Install rock channel protection leading to Forebay. Install sand bottom for pond. Install topsoil on sand. Stabilize all affected areas - Ten days.
- With inspectors permission, redirect stormwater to Forebay - One day.
- Regrade and stabilize areas affected by temporary swales - Two days.
- Stabilize stockpile area - One day.
- With inspectors permission remove remaining sediment controls and stabilize the affected areas - Two days.

**LDE, INC.**  
9250 Rumson Road, Suite 106, Columbia, MD, 21045  
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	S.W.C.	SCALE	No Scale
DRAWN	J.D.R.	DRAWING	7 of 11
CHECKED	S.W.C.	JOB NO.	98-076.2
DATE	1/2003	DEVELOPER	NEWBURN DEVELOPMENT GROUP 5670 Starnett Place Suite 201 Columbia, Maryland 21044 (410) 987-3315, (301) 596-3677

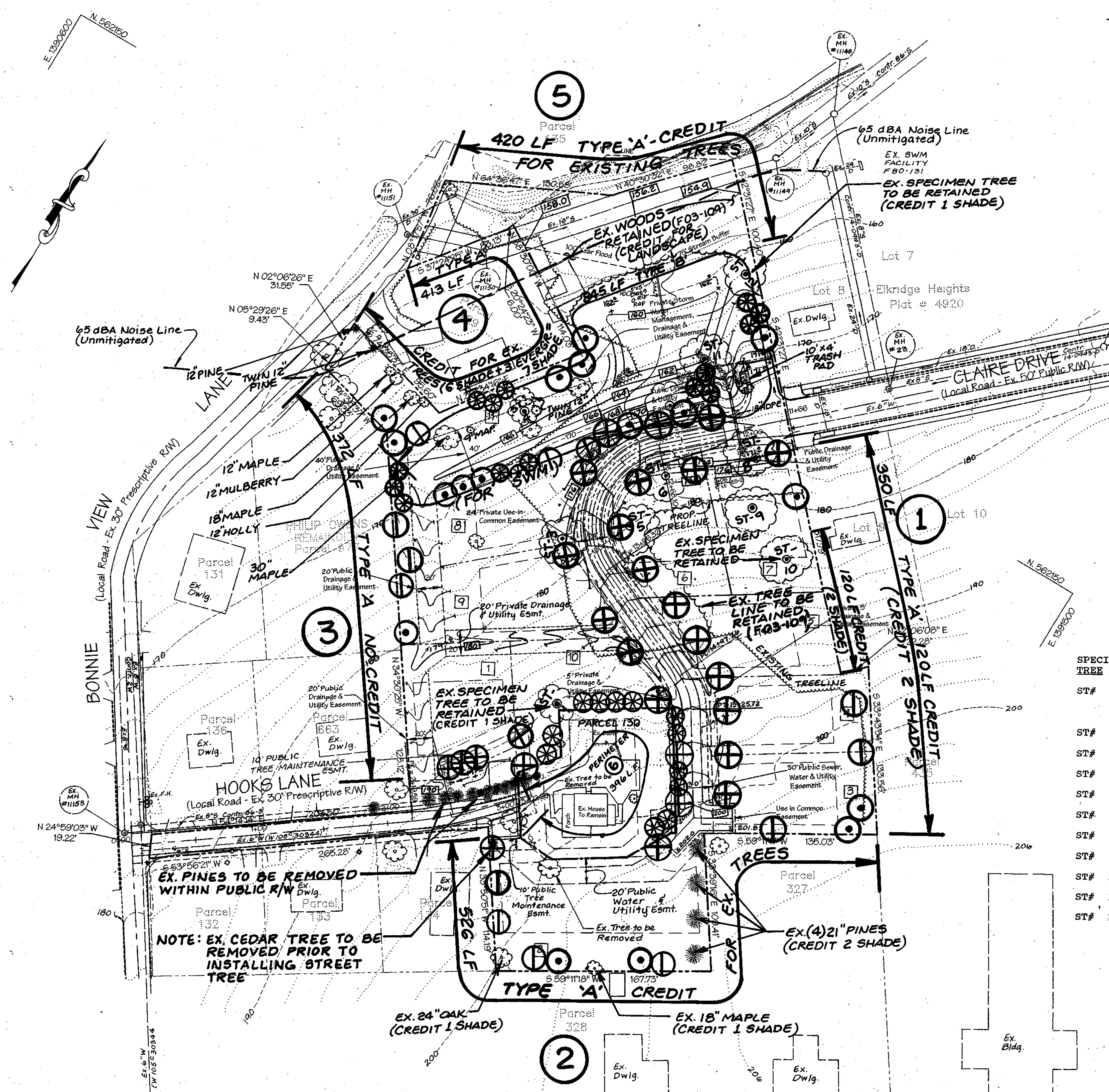
Tax Map 33 - Block 3 - Parcel #81  
1st Election District - Howard County, Maryland

Previous Submittals: 593-11, F01-11, F02-31, WP-03-44

FILE NO. F03-109

**LANDSCAPE LEGEND/ STREET TREES**

SYMBOL	NO.	NAME	SIZE	REMARKS
⊕	20	FRAXINUS PENNSYLVANICA MARSHALL'S SEEDLESS GREEN ASH	2 1/2"-3" CAL	B4B
<b>LANDSCAPE LEGEND/PERIMETER PLANTINGS</b>				
⊙	13	FRAXINUS AMERICANA "AUTUMN PURPLE" WHITE ASH	2 1/2"-3" CAL.	B4B
⊙	17	TILIA CORDATA "GREENSPIRE" LITTLELEAF LINDEN	2 1/2"-3" CAL.	B4B
⊙	27	PINUS STROBUS WHITE PINE	6'-8' HT.	B4B
⊙	8	TAXUS MEDIA 'DENSIFORMIS' DENSIFORMIS YEW	2 1/2"-3" HT	CONTAINER MALE CULTIVAR ONLY



SPECIMEN TREE CHART					
SPECIMEN TREE ID#	Dbh	SPECIES	CONDITION	RETAIN OR REMOVE	REASON FOR REMOVAL
ST# 1	44"	Quercus palustris Pin Oak	Very Good	Retain	
ST# 3	31"	Quercus alba White Oak	Very Good	Remove	House Site
ST# 4	36"	Quercus rubra Red Oak	Very Good	Retain	Evaluate Root Prune
ST# 5	32"	Quercus alba White Oak	Very Good	Remove	House Site
ST# 6	42"	Quercus rubra Red Oak	Very Good	Remove	House Site
ST# 7	31"	Quercus coccinea Scarlet Oak	Very Good	Remove	Road Grading
ST# 8	30"	Quercus alba White Oak	Very Good	Remove	House Site
ST# 9	31"	Quercus velutina Black Oak	Very Poor (Broken Top)	Remove	House Site
ST# 10	33"	Quercus alba White Oak	Very Good	Retain	
ST# 11	32"	Quercus rubra Red Oak	Very Good	Remove	SWM
ST# 12	32"	Quercus velutina Black Oak	Good	Retain	

PREPARED BY WILDMAN ENVIRONMENTAL SERVICES  
SEPT. 2002

**NOTE:** This plan has been prepared in accordance with the provisions Section 16.124 of the Ho. Co. Code and the Ho. Co. Landscape Manual. Financial surety for the required landscaping has been posted as a part of the DPW Developer's Agreement in the amount of \$18,990.00.

By	Date	No.	Description
REVISIONS			

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Carole Handley* 12/17/03  
 CHIEF, DIVISION OF LAND DEVELOPMENT

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.  
*[Signature]*  
 NATIONAL RESOURCE CONSERVATION SERVICE

**ENGINEER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Samuel W. Corice* 11-25-03  
 SIGNATURE OF ENGINEER DATE

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY.  
*Anna L. Plunkin* 11-25-03  
 SIGNATURE OF DEVELOPER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*William J. White Jr.* 12-10-03  
 CHIEF, BUREAU OF HIGHWAYS

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 HOWARD SOIL CONSERVATION DISTRICT

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 Samuel W. Corice  
 11-25-03

FOREST CONSERVATION PLAN  
**Professional Certification**  
*Steven D. Heiss*  
 Steven D. Heiss 11/26/03  
 Qualified Professional, MDPCA

**LDE Inc.**  
 Engineers, Surveyors, Planners  
 9250 Ramsey Road, Suite 106 Columbia, Maryland - 21045  
 (410)715-1070 - (301)556-3424 - FAX(410)715-9340

DESIGNED: SWC  
 DRAWN: JLM  
 CHECKED: SWC  
 DATE: 1/20/03

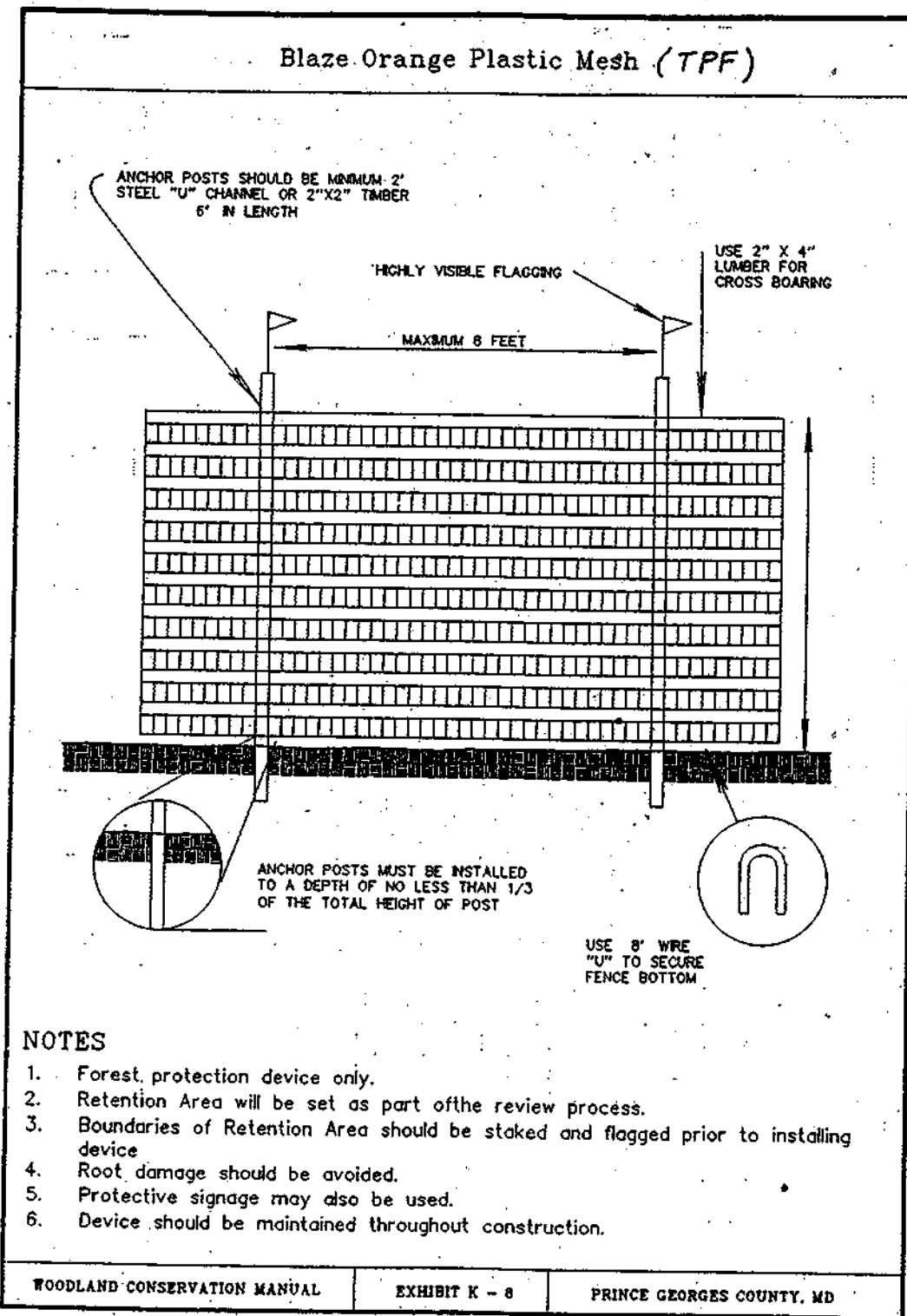
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 DRAWING: 8 of 11  
 JOB NO.: 98-076.2  
 FILE NO.: F03-109

Landscaping and Forest Conservation Plan  
**BONNIE RIDGE**  
 Lots 1 Thru 13  
 Tax Map 38 - Block 3 - Parcel #81  
 1st Election District - Howard County, Maryland  
 Previous Submittals: 889-11, F01-11, F02-31, WP-03-44, F04-01  
 DEVELOPER: NEWBURN DEVELOPMENT GROUP  
 5670 Stearns Place Suite 201  
 Columbia, Maryland 21044  
 (410)987-3915, (301)596-3877



**GENERAL NOTES**

- This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and Landscape Manual.
- Financial Surety for the required landscaping will be posted as part of the Department of Public Works Developer's Agreement.



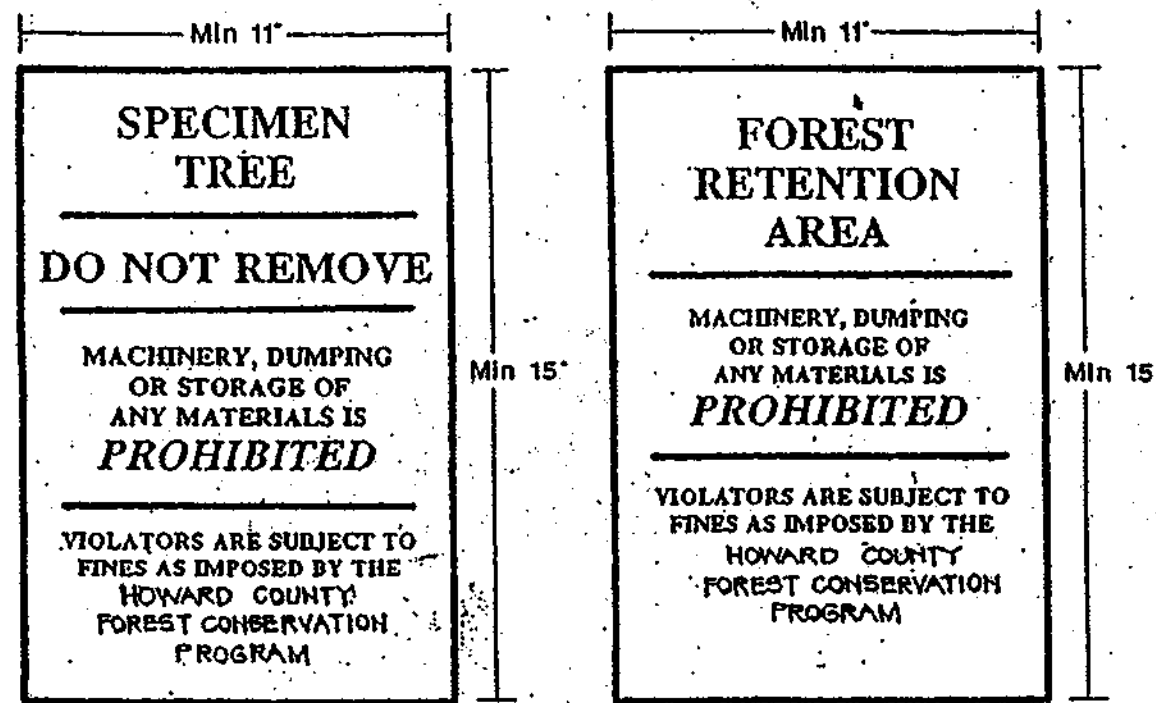
- NOTES**
- Forest protection device only.
  - Retention Area will be set as part of the review process.
  - Boundaries of Retention Area should be staked and flagged prior to installing device.
  - Root damage should be avoided.
  - Protective signage may also be used.
  - Device should be maintained throughout construction.

WOODLAND CONSERVATION MANUAL EXHIBIT K - 6 PRINCE GEORGES COUNTY, MD

NOTE: (TPF) = Tree Protection Fence

**FOREST CONSERVATION EASEMENT STANDARD NOTES:**

The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code, Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation Easement; however, forest management practices as defined in the Deed of Forest Conservation Easement are allowed.



Signage

**SCHEDULE A PERIMETER LANDSCAPE EDGE**

Cell Body	Adjacent to Roadways	Adjacent to Perimeter Properties
Landscape Type	---	A
Linear Feet of Roadway Frontage/Perimeter	---	2477 LF
Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed)	---	YES / 225 LF*
Credit for Wall, Fence or Berm (Yes, No, Linear Feet) (Describe below if needed)	---	NO
Number of Plants Required		
Shade Trees	---	21
Evergreen Trees	---	---
Shrubs	---	---
Number of Plants Provided		
Shade Trees	---	18
Evergreen Trees (2:1)	---	12 (0)
Other Trees (2:1 substitution) Shrubs (10:1 substitution) (Describe plant substitution credits below if needed)	---	---

Comments \*SEE LANDSCAPE PERIMETER SUMMARY

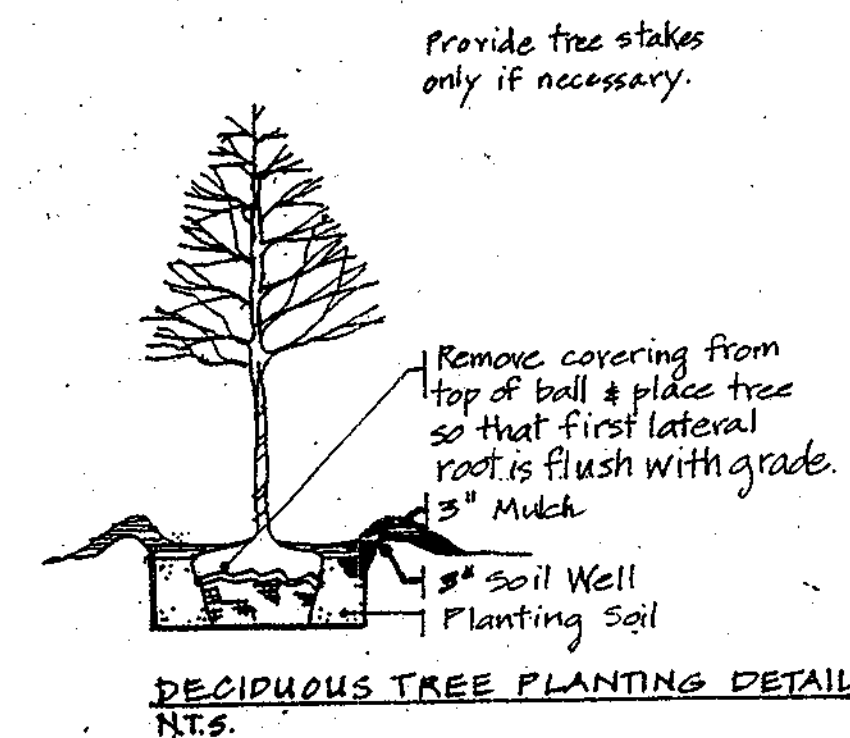
(0) Perimeter @ 12 Evergreens Provided for 6 Shade Required

Note: Complex projects may require expansion of the schedule to accommodate multiple land uses on-site or on adjacent properties.

**SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING**

Linear Feet of Perimeter	845 LF
Number of Trees Required	
Shade Trees	17
Evergreen Trees	21
Credit for Existing Vegetation (No, Yes and %)	YES 250 LF* (30%)
Credit for Other Landscaping (No, Yes and %)	---
Number of Trees Provided	
Shade Trees	12
Evergreen Trees	15
Other Trees (2:1 substitution)	---

\*SEE LANDSCAPE PERIMETER SUMMARY



DECIDUOUS TREE PLANTING DETAIL N.T.S.

**APPENDIX E FOREST CONSERVATION WORKSHEET**

	ACRES (110 acres)
<b>I. BASIC SITE DATA</b>	
Gross Site Area	3.71
Area Within 100 Year Floodplain	0.21
Area Within Agricultural Use or Preservation Parcel (if Applicable)	0
Net Tract Area	3.50
Land Use Category (R-RLD, R-RMD, R-S, C/VO, I)	RDE
<b>II. INFORMATION FOR CALCULATIONS</b>	
A. Net Tract Area	3.50
B. Reforestation Threshold (20 % x A)	0.70
C. Afforestation Minimum (15 % x A)	0.525
D. Existing Forest on Net Tract Area/Excludes Floodplain	1.23
E. Forest Areas to Be Cleared	1.23
F. Forest Areas to Be Retained	0
<b>III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION</b>	
<b>1. REFORESTATION</b>	
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest areas is proposed, reforestation requirements may apply.	
GO TO SECTION IV	
If existing forests exceed the afforestation minimum (if D equals or is more than C) and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.	
<b>2. AFFORESTATION</b>	
If existing forest area are less than the afforestation minimum (if D is less than C), afforestation requirements apply.	
<b>IV. REFORESTATION CALCULATIONS</b>	
A. Net Tract Area	3.50
B. Reforestation Threshold (20 % x A)	0.70
C. Existing Forest on Net Tract Area	1.23
D. Forest Areas to Be Cleared	1.23
E. Forest Areas to Be Retained	0
F. Forest Areas Cleared Above Reforestation Threshold (D - F, if F equals or is greater than B, Alternate 1) (D - B, if F is less than B, Alternate 2)	0.70
G. Forest Areas Cleared Below Reforestation Threshold (B - F, if applicable)	0
H. Forest Areas Retained Above Reforestation Threshold (F - B, Retention Credit, if applicable)	0
<b>SELECT THE ALTERNATIVE THAT APPLIES:</b>	
<b>1. CLEARING ABOVE THE THRESHOLD ONLY</b>	
If forest areas to be retained equal or are greater than the reforestation threshold (if F equals or is greater than B), the following calculations apply:	
Reforestation for clearing above threshold G x 1/4	N/A
Credit for forest areas retained above threshold Retention Credit	N/A
Total Reforestation required (G x 1/4) - 1	N/A
If the total reforestation requirement is equal to or less than 0, no reforestation is required.	
<b>2. CLEARING BELOW THE THRESHOLD</b>	
If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:	
Reforestation for clearing above threshold G x 1/4 0.53 x 1/4	0.13
Reforestation for clearing below threshold H x 2 0.70 x 2	1.40
Total Reforestation required (G x 1/4) + (H x 2)	1.53 (66,647.50)
Since clearing occurs below the threshold, no forest retention credit is possible.	

Since the project cannot provide sufficient width (95' or more) and sufficient land area (10,000 SF min) the Developer requests use of an approved Forest Conservation Bank for the Reforestation obligation. The Developer has paid EBX (Environmental Bank Exchange) for plantings on Chase Farm.

**FOREST PROTECTION PROCEDURES - PRECONSTRUCTION PHASE**

Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas (As They May Apply)

- The edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of disturbance shown in the approved Final Construction Plans prior to the start of construction activity. All areas within protective fences are to be considered "off limits" to any construction activities. The protective fencing shall be installed at the outside edge of forested areas and specimen trees to be retained and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows:

Isolated Specimen Trees - 1.5 feet of protective radius per inch of DBH

Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever ever is greater.

- Construction activities expressly prohibited within the preservation areas are:

- Placing or stockpiling backfill or top soil in protected areas.
- Falling trees into protected area
- Driving construction equipment into or through protected areas
- Burning in or in close proximity to protected areas
- Stacking or storing supplies of any kind
- Concrete wash-off areas
- Conducting trenching operations
- Grading beyond the limits of disturbance
- Parking vehicles or construction equipment
- Removal of root mat or topsoil
- Siting and construction of:
  - Utility lines.
  - Access roads
  - Impervious surfaces
  - Stormwater management devices
  - Staging areas

- Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" or "Specimen Tree" (see Figures "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from de-watering operations, off-site run-off, spillage, and drainage or solutions containing materials hazardous to tree roots.

- The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, sub-contractors, or licensees.

- Foot traffic shall be kept to a minimum in the protective areas.

- All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.

- The general contractor shall designate a "wash out" area on-site for concrete trucks which will not drain toward a protected area.

- A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

**FOREST PROTECTION PROCEDURES - CONSTRUCTION PHASE**

Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate.

The following shall be monitored:

- Soil compaction
- Root injury - prune and monitor; consider crown reduction
- Limb injury - prune and monitor
- Flooded conditions - drain and monitor; correct problem
- Drought conditions - water and monitor; correct problem
- Other stress signs - determine reason, correct and monitor

**FOREST PROTECTION PROCEDURES - POST CONSTRUCTION PHASE**

The following measures shall be taken:

- Corrective measures if damages were incurred due to negligence:
  - Stress reduction
  - Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard
- Removal of temporary structures:
  - No burial of discarded materials will occur on-site within the conservation area.
  - No open burning within 200 feet of a wooded area.
  - All temporary forest protection structures will be removed after construction.
  - Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.
  - Aerate compacted soil.
  - Replant disturbed sites with trees, shrubs and/or herbaceous plants.
  - Retain signs for retention areas or specimen trees.
  - A County official shall inspect the entire site.

**LANDSCAPE PERIMETER SUMMARY**

EDGE NO.	LENGTH	TYPE	CREDIT	PLANTS REQUIRED
1	350 LF	A	120 LF (2 Shade)	6 Shade
2	526 LF	A	Ex. Trees (2 Shade/4 Evergreen)	9 Shade
3	372 LF	A	---	6 Shade
4	413 LF	A	Ex. Trees (6 Shade/3 Evergreen)	7 Shade
5	420 LF	A	420 LF (7 Shade)	7 Shade
6	306 LF	A	60 LF (1 Shade)	7 Shade
Subtotal:	2477 LF			42 Shade
SWM	845 LF	B	Ex. Trees (5 Shade)	17 Shade
Subtotal:	845 LF			21 Evergreen

Note: Landscape planting is required around the trash pad located at the Claire Drive turnaround.

**STREET TREE PLANTING SUMMARY**

Location/Street Name	Linear Length	Plants Required
Claire Drive	456 LF	22 Shade
Hooks Lane	185 LF	6 Shade

**NOTE:** This plan has been prepared in accordance with the provisions Section 16.124 of the Ho.Co. Code and the Ho.Co. Landscape Manual. Financial surety for the required landscaping has been posted as a part of the DPW Developers Agreement in the amount of \$18,990.00.

Developer:  
NEWBURN DEVELOPMENT GROUP  
5570 Sterrett Place Suite 201  
Columbia, Maryland 21044  
(410) 997-3815, (301) 596-3877

**LDE, INC.**

9250 Rumsey Road, Suite 106, Columbia, MD. 21045  
(410) 715-1070 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED:	LANDSCAPE & FOREST CONSERVATION PLAN NOTES/DETAILS	SCALE:
SWC	<b>BONNIE RIDGE</b>	As Shown
DRAWN:	LOTS 1 THRU 13	DRAWING:
KBW	Tax Map 38 Block 3	9 of 11
CHECKED:	Parcels 130 and 881	LDE JOB No.
BDB	1st Election District Howard County, MD	98-076.2
DATE:	Previous Submittals: 5-29-11, P01-011, F02-01, W-03-11, F-04-11	FILE No.
1/2003	Owner: LAWYERS HILL, LLLP	F03-
	5570 Sterrett Place Suite 201	
	Columbia, Maryland 21044	
	(410) 997-3815, (301) 596-3877	

**Professional Certification**

Steven D. Heiss  
11/26/03  
Qualified Professional, MDFCA

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 12/24/03  
Chief, Division of Land Development

APPROVED: DEPARTMENT OF PUBLIC WORKS

William F. Mahan Jr. 12-10-03  
Chief, Bureau of Highways

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

NATURAL RESOURCE CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT

**ENGINEER'S CERTIFICATE**

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

Signature: Samuel W. Corie 11-25-03  
Professional Engineer

**DEVELOPER'S CERTIFICATE**

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OF THEIR AUTHORIZED AGENTS AS ARE DEEMED NECESSARY.

Signature: James L. Newburn 11-25-03  
Developer

STATE OF MARYLAND

WILLIAM CORIE  
PROFESSIONAL ENGINEER

11-25-03

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

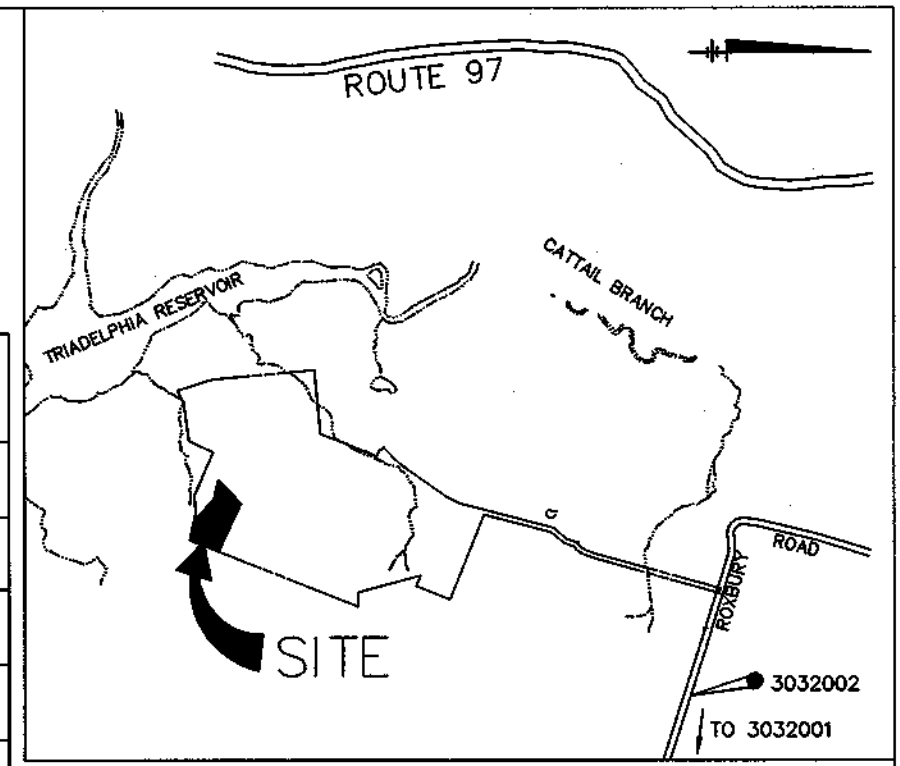
*Charles A. Sharp*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 12/16/03  
 DATE

LINE	LENGTH	BEARING
L21	102.08	N78°46'14"W
L22	29.12	S73°36'18"W
L23	279.14	S40°47'16"W
L24	84.56	S65°38'23"E
L25	120.95	S65°23'05"E
L26	84.73	S66°42'49"E
L29	281.66	N21°37'49"E
L30	76.51	N57°33'00"W

LOT 5 COORDINATE CHART		
No.	NORTH	EAST
807	514913.7553	789473.8340
808	515263.9021	789615.8707
809	512430.9439	787438.5004
813	515621.0877	788735.3417
814	516344.6730	788870.7272
815	516477.6469	788982.9795
816	516580.8003	789020.8242
817	516594.1280	789032.3069
818	516668.0892	789096.2538
819	516787.3320	789139.2958
820	518092.3765	789500.0272
821	518075.8294	789547.3283
822	516767.0228	789185.5570
823	516650.9576	789143.2273
824	516559.3925	789071.3386
825	516452.1388	789026.8799
826	516321.1277	788916.2846

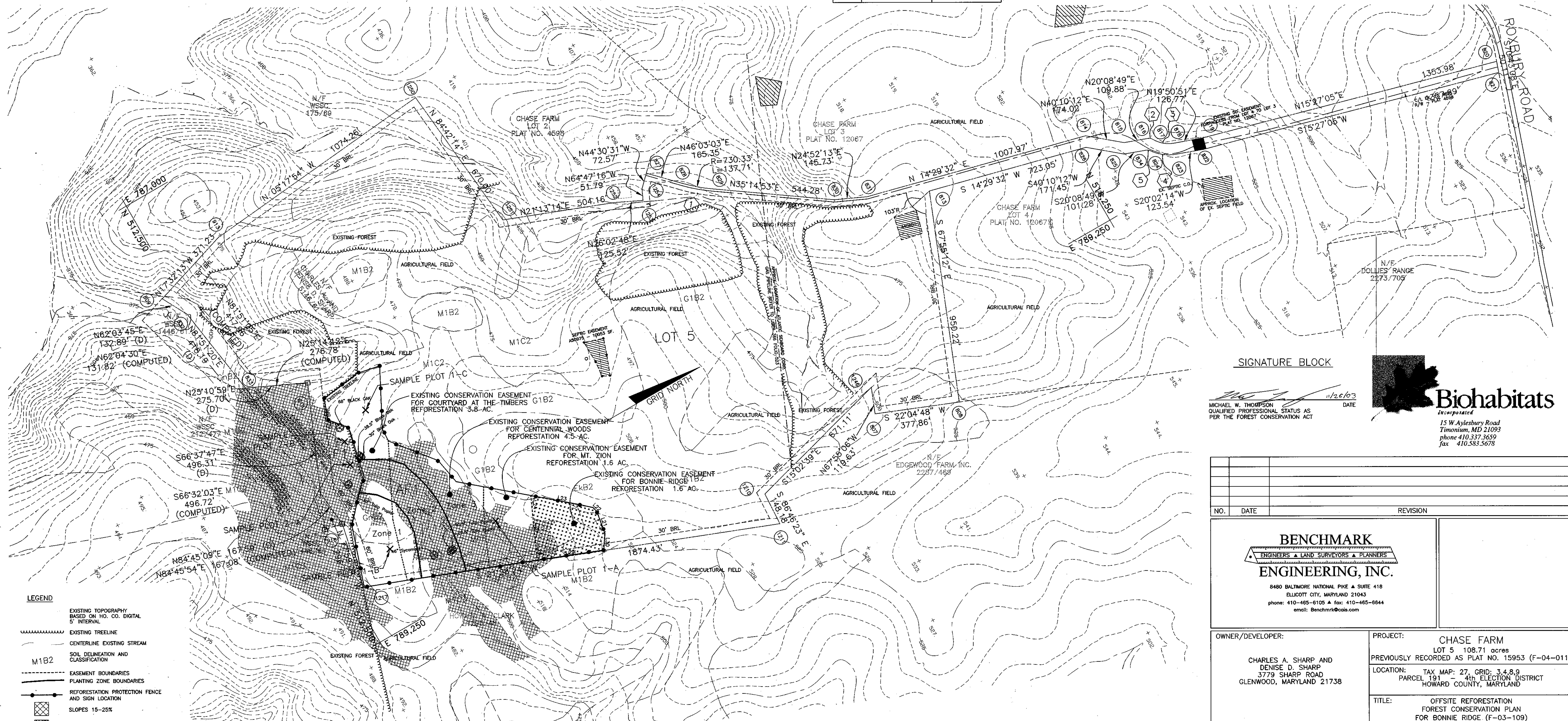
No.	NORTH	EAST
827	514565.8573	788041.4700
828	514687.7457	788153.5050
829	514792.0696	788243.0781
830	515236.5609	788557.1923
831	515368.7795	788618.4831
832	512492.6776	787554.9730
833	512551.9514	787968.9409
834	516547.2203	789061.7632
913	512784.9196	787326.6418
915	512802.2829	788086.7243
917	512539.9086	788691.1310
919	512517.0202	787952.2661
1210	514310.6229	789537.1755
1211	514302.2814	789685.1245
1217	512557.9643	788998.9553
1246	514958.7272	789362.9795
1250	513854.5875	787227.4454
1251	513916.4291	787894.5853
1252	514386.4036	788077.0715
1253	514499.1753	788132.1880
1254	514521.2365	788085.3318

Reforestation Area	Plat Recording #	Plat File #	Plan ID #	Area
Centennial Woods	15953	F-03-168	F-02-171	4.50 acres
Courtyard at the Timbers	15607	F-03-24	SDP-02-55	3.81 acres
Mt. Zion Church	15890	F-03-149	SDP-02-154	1.60 acres
Bonnie Ridge	16138	F-04-011	F-03-109	1.64 acres
Total Reforestation Area				11.55 acres
Reforestation Area Used				11.55 acres
Reforestation Area Remaining				0.0 acres



VICINITY MAP  
 SCALE: 1" = 200'

SOIL CHART			
SOIL SERIES	Series Abbr.	% SLOPES	K Value >.35
Glenville silt loam	GnB2	3-8%	Yes
Manor very stony loam	MnD	3-25%	Yes
Manor loam	M1B2	3-8%	Yes
Manor loam	M1C2	8-15%	Yes
Manor loam	M1C3	8-15%	Yes
Manor loam	M1D2	15-25%	Yes
Eliok Silt Loam	EKB2	3-8%	N/A



PLAN VIEW  
 SCALE: 1" = 200'

SIGNATURE BLOCK

MICHAEL W. THOMPSON  
 QUALIFIED PROFESSIONAL STATUS AS  
 PER THE FOREST CONSERVATION ACT  
 12/16/03  
 DATE

**Biohabitats**  
 Incorporated  
 15 W. Aylesbury Road  
 Timonium, MD 21093  
 phone 410.337.3659  
 fax 410.583.5678

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE A SUITE 418  
 ELICOTT CITY, MARYLAND 21043  
 phone: 410-465-6105 • fax: 410-465-6844  
 email: Benchmark@cois.com

OWNER/DEVELOPER:  CHARLES A. SHARP AND DENISE D. SHARP 3779 SHARP ROAD GLENWOOD, MARYLAND 21738	PROJECT: CHASE FARM LOT 5 108.71 acres PREVIOUSLY RECORDED AS PLAT NO. 15953 (F-04-011) LOCATION: TAX MAP: 27, GRID: 3, 4, 8, 9 PARCEL 191, 4th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: OFFSITE REFORESTATION FOREST CONSERVATION PLAN FOR BONNIE RIDGE (F-03-109)	DATE: OCTOBER 22, 2003 PROJECT NO. 1528
DESIGN: MWT DRAFT: MWT CHECK: MWT	SCALE: AS SHOWN SHEET 10 OF 11

Bonnie Ridge Off-Site Reforestation										Overall Size (acres): 1.64			Zone 1	Zone 2	Zone 3
Overall Spacing (feet off center)	Quantity per acre	Zone 1		Zone 2		Zone 3		Total Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Size	Spacing Type	Individual Spacing (ft.)	
		Frequency (%)	Species Quantity	Frequency (%)	Species Quantity	Frequency (%)	Species Quantity								
11' X 11'	350	25	0	20	0	25	144	144	Acer rubrum	Red maple	CON	Whips w/o shelters	Random	34	
11' X 11'	10	0	0	20	0	10	57	57	Sassafras	Sassafras	CON	Whips w/o shelters	Random	54	
11' X 11'	25	0	0	30	0	35	201	201	Prunus serotina	Black Cherry	CON	Whips w/o shelters	Random	34	
11' X 11'	10	0	0	10	0	10	57	57	Quercus velutina	Black Oak	CON	Whips w/o shelters	Random	54	
11' X 11'	10	0	0	0	0	0	0	0	Liriodendron tulipifera	Tulip Poplar	CON	Whips w/o shelters	Random	54	
11' X 11'	10	0	0	0	0	10	57	57	Ilex opaca	American Holly	CON	Whips w/o shelters	Random	54	
11' X 11'	10	0	0	0	0	0	0	0	Platanus occidentalis	Sycamore	CON	Whips w/o shelters	Random	54	
11' X 11'	0	0	0	0	0	10	57	57	Nyssa sylvatica	Black Gum	CON	Whips w/o shelters	Random	54	
11' X 11'	0	0	0	10	0	0	0	0	Cornus florida	Flowering Dogwood	CON	Whips w/o shelters	Random	54	
11' X 11'	0	0	0	0	0	0	0	0	Fagus grandifolia	Beech	CON	Whips w/o shelters	Random	54	
		100	0	100	0	100	573	573	= Total						

\*Quantities are intended to supplement existing vegetation. Actual numbers and sizes to be determined following initial Multiflora Rosa control efforts.

BONNIE RIDGE FOREST CONSERVATION CALCULATIONS

I. BASIC SITE DATA	
Gross Site Area	3.71
Area Within 100 Year Flood Plain	0.21
Area Within Agricultural Use or Preservation Parcel	0.00
Net Tract Area	3.50
Land Use Category (R-RDL, R-RMD, R-S, C/I/O, I)	HDR
II. INFORMATION FOR CALCULATIONS	
A. Net Tract Area	3.50
B. Reforestation Threshold (20% x A)	0.70
C. Afforestation Minimum (15% x A)	0.52
D. Existing Forest on Net Tract Area/Excludes Floodplain	1.23
E. Forest Areas to Be Cleared	1.23
F. Forest Areas to Be Retained	0.00

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. REFORESTATION  
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C) and clearing of forest areas is proposed, reforestation requirements may apply.  
GO TO SECTION IV

If existing forests exceed the afforestation minimum (if D equals or is more than C) and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.

2. AFFORESTATION  
If existing forest areas are less than the afforestation minimum (if D is less than C), afforestation requirements apply.

IV. REFORESTATION CALCULATIONS

A. Net Tract Area	3.50
B. Reforestation Threshold (20% x A)	0.70
C. Existing Forest on Net Tract Area	1.23
D. Forest Areas to Be Cleared	1.23
E. Forest Areas to Be Retained	0.00
F. Forest Areas Cleared Above Reforestation Threshold (D-F, if F equals or is greater than B, Alternate 1) (D-B, if F is less than B, Alternate 2)	0.52
G. Forest Areas Cleared Below Reforestation Threshold (B-F, if applicable)	0.70
H. Forest Areas Retained Above Reforestation Threshold (F-B, Retention Credit, if applicable)	0.00

SELECT THE ALTERNATE THAT APPLIES:

1. CLEARING ABOVE THE THRESHOLD ONLY  
If forest areas to be retained equal or are greater than the reforestation threshold (if F equals or is greater than B), the following calculations apply:

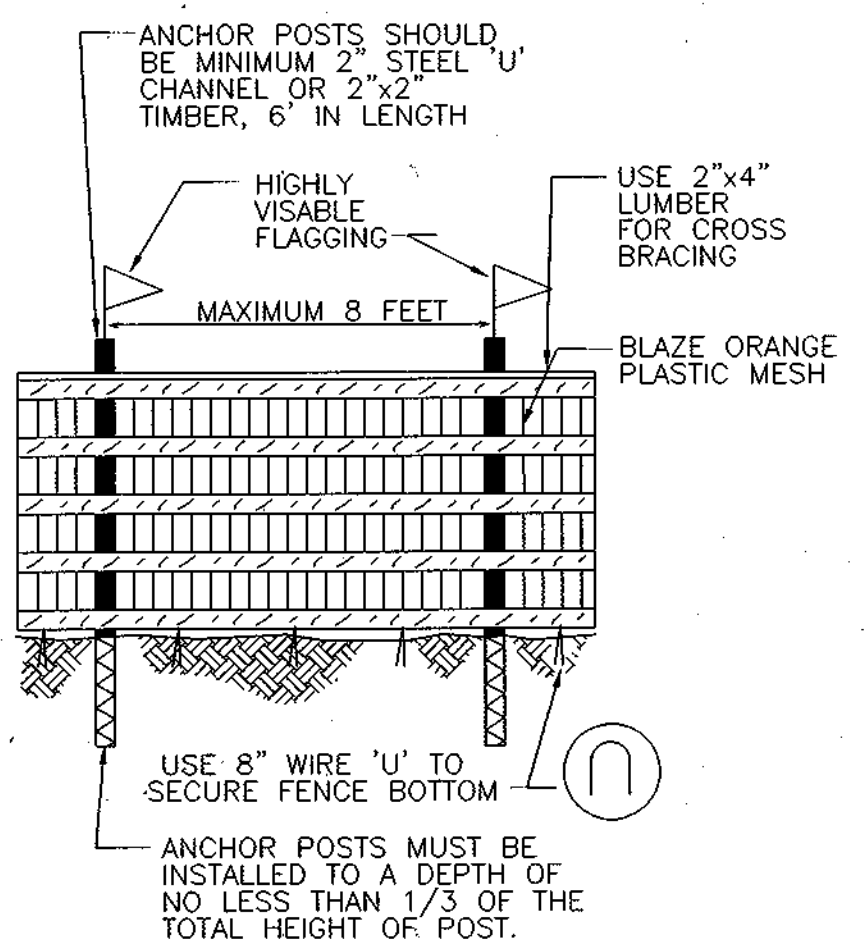
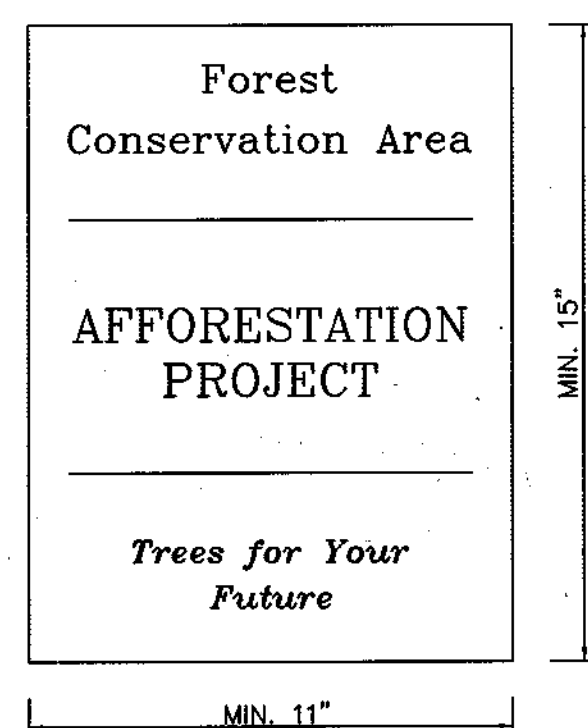
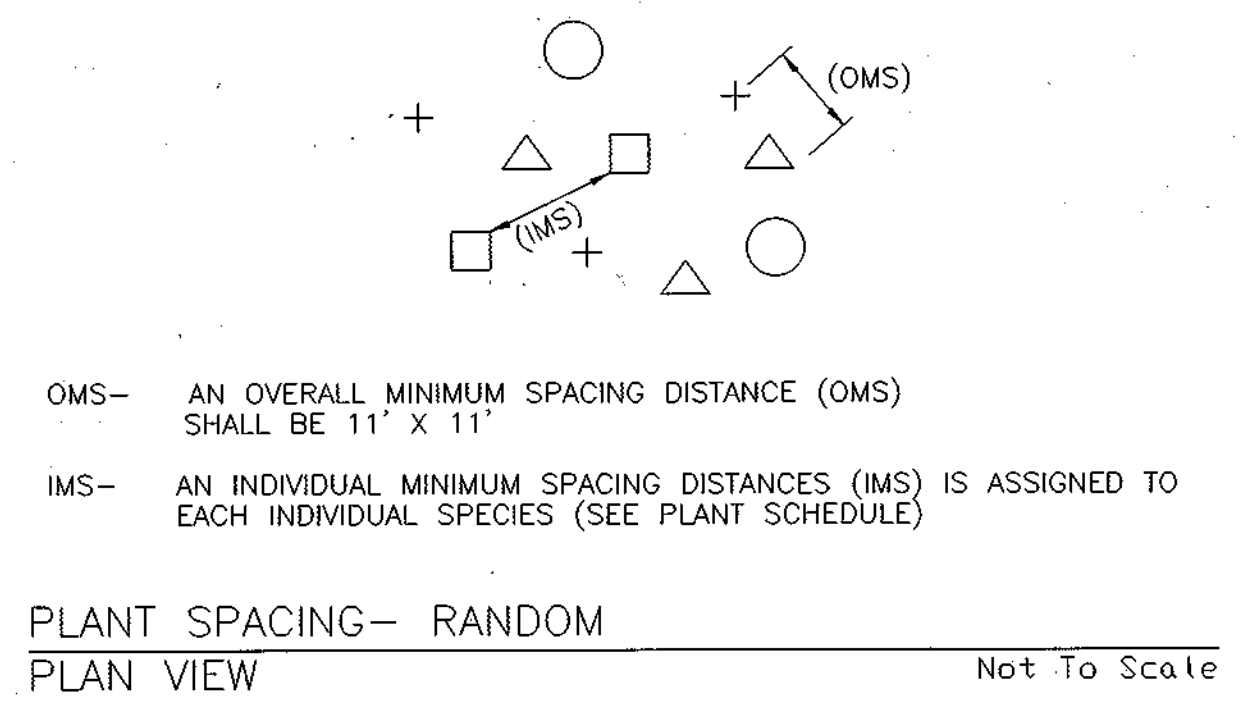
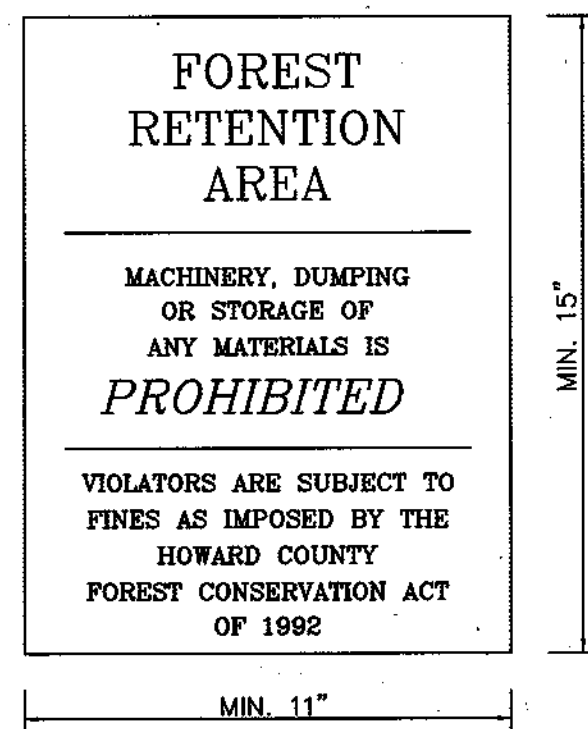
Reforestation for clearing above threshold (Gx4)	N/A
Credit for forest areas retained above threshold (I-Retention Credit)	N/A
Total Reforestation required (Gx4) - I	

If the total reforestation requirement is equal to or less than 0, no reforestation is required. N/A

2. CLEARING BELOW THE THRESHOLD  
If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:

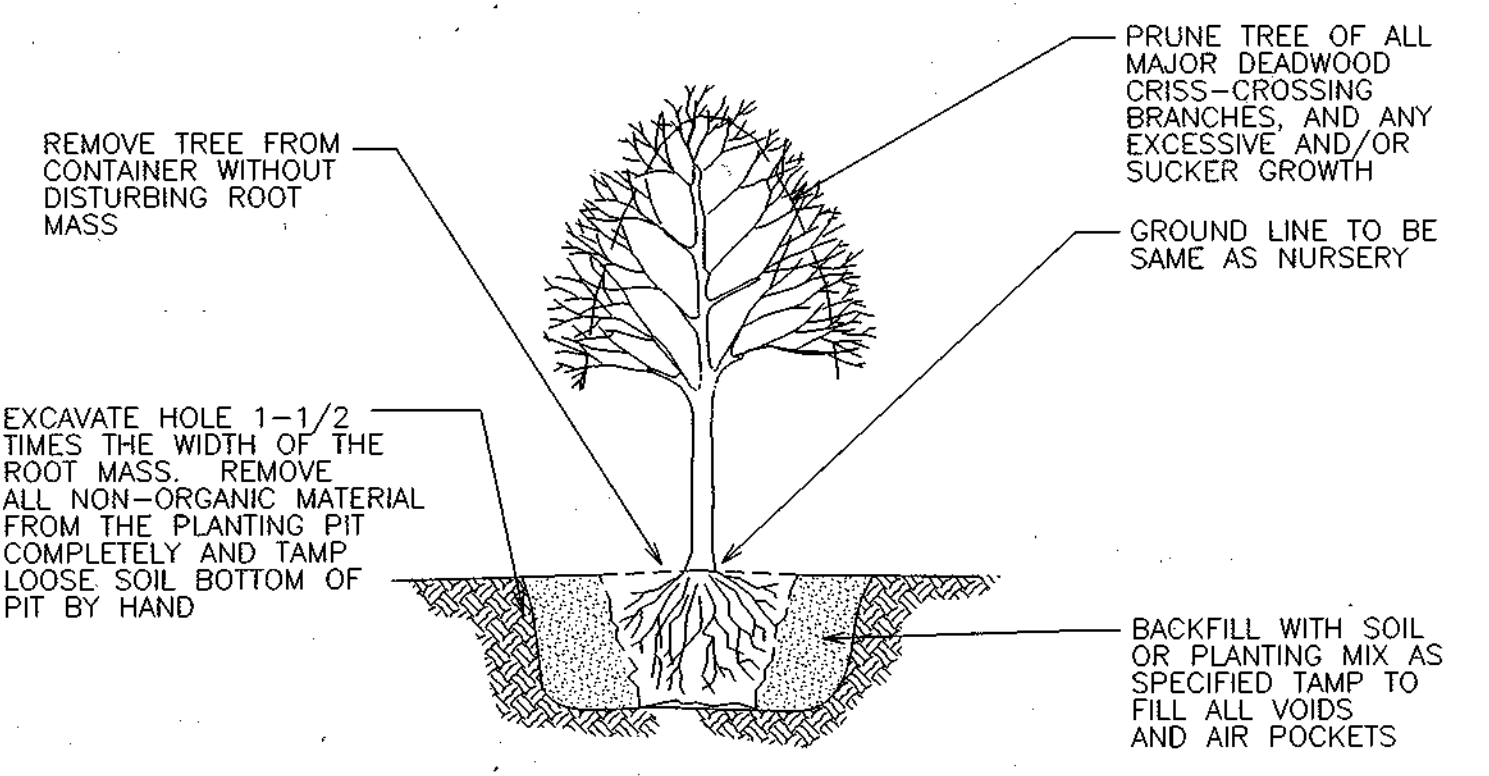
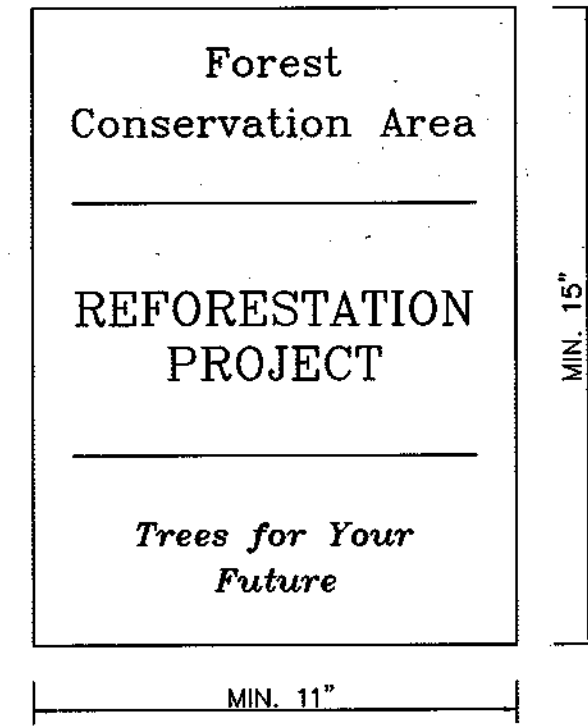
Reforestation for clearing above threshold (Gx4)	0.13
Reforestation for clearing below threshold (Hx2)	1.40
Total Reforestation Required (Gx4) + (Hx2)	1.53
	66,647 SF

- PLANTING NOTES:
- Prior to planting the site will be treated for the removal of Multiflora Rose. Selective mowing will be utilized to preserve existing whips and seedlings naturally regenerating in the reforestation area. Upon the completion of mowing operations, selective treatment with glyphosphate will be conducted to ensure control of the existing Multiflora Rose.
  - Planting stock should be container grown whips without tubes.
  - Only composted mulch may be used.
  - Plant material should be planted an average of 11ft. on center.
  - Site improvements including structures, and driveways, etc., are not located within the reforestation area.
  - Environmentally sensitive areas within the reforestation area consist solely of steep slopes.
  - Care should be taken to avoid damage to existing trees and saplings during planting activities.
  - Due to site constraints at the Bonnie Ridge site, off-site reforestation is being provided at the Chase Farm property.
  - A post construction protection and management program is required to ensure a high probability of survival, necessary for release of surety.
  - Post construction protection will be for a minimum of 2 growing seasons.
  - The survival rate for reforestation areas shall be 75% of the total number of trees per acre planted under the approved plan.
  - The reforestation areas created by an approved plan must be permanently protected and recorded as non-developable conservation easements.
  - The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code and Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation Easement; however, Forest Management Practices as defined in the Deed of Forest Conservation Easement are allowed.
  - Developer reserves unto itself, its successors and assigns all easements shown on this plan for water, sewer, storm drainage, other public utilities and forest conservation (designated as "Forest Conservation Area"), located in, on, over, and through lots/parcels, any conveyances of the aforesaid lots/parcels shall be subject to the easements herein reserved, whether or not expressly stated in the deed(s) conveying said lot(s)/parcels. Developer shall execute and deliver deeds for the easements herein reserved to Howard County with a metas and bounds description of forest conservation area. Upon completion of the public utilities and their acceptance by Howard County, and in the case of the forest conservation easement(s), upon completion of the developer's obligations under the forest conservation installation and maintenance agreement executed by the developer and the County, and the release of the developer's surety posted with said agreement. The County shall accept the easements and record the deed(s) of easement in the Land Records of Howard County.
  - This plan complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation by providing the necessary reforestation requirements and protective devices off-site at the Chase Farm Property.
  - This plan complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation. No retention credit can be achieved on-site. Proposed forest clearing generates a reforestation requirement of 1.53 acres to be satisfied off-site within the existing Forest Conservation Easement on Chase Farm, Lot 5, F-04-011, P.N. 16138. The developer has provided 1.64 acres of reforestation at the Chase Farm site. Surety in the amount of \$35,719.20 (1.64 acres X \$50 per sq.ft.) shall be provided with the DPW, Developer's Agreement.
  - Selective tree retention was performed during multiflora rose removal and treatment to retain the numerous saplings and trees that existed throughout the Chase Farm site. Supplemental planting was performed at a rate of 350 whips/acre to achieve the required planting densities. The trees that were retained on site vary in size from 1/2 inch caliper saplings to specimen size sycamore and tulip poplars. Supplemental planting along with selective tree retention was carried out so that the ultimate density of the reforestation area will exceed the guidelines set forth in the Howard County Forest Conservation Manual.



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

TREE PROTECTION BLAZE ORANGE PLASTIC FENCE Not To Scale



TREE PLANTING - CONTAINER GROWN Not To Scale

SIGNATURE BLOCK

MICHAEL W. THOMPSON  
 11/26/03 DATE  
 QUALIFIED PROFESSIONAL STATUS AS PER THE FOREST CONSERVATION ACT  
 15 W. Aylesbury Road  
 Timonium, MD 21093  
 phone 410.337.3659  
 fax 410.583.5678

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 phone: 410-465-6105 • fax: 410-465-6644  
 email: Benchmark@ccis.com

OWNER/DEVELOPER: CHARLES A. SHARP AND DENISE D. SHARP 3779 SHARP ROAD GLENWOOD, MARYLAND 21738	PROJECT: CHASE FARM LOT 5 108.71 acres PREVIOUSLY RECORDED AS PLAT NO. 15953 (F-04-011) LOCATION: TAX MAP: 27, GRID: 3,4,8,9 PARCEL 191 - 4th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: OFFSITE REFORESTATION FOREST CONSERVATION PLAN FOR BONNIE RIDGE (F-03-109)	DATE: OCTOBER 22, 2003 PROJECT NO. 1528
DESIGN: MWT DRAFT: MWT CHECK: MWT	SCALE: N/A SHEET 11 OF 11

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Cindy Aronson 10/2/03  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 [Signature] 12/16/03  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION P143 DATE