

Plan
1"=50'

Note: For Legend see sheet 1

CURVE DATA									
STREET NAME	P.C. STA.	P.R.C. STA.	P.T. STA.	RADIUS	ARC	TANGENT	CHORD	BEARING	DELTA
ELIAS HOME DRIVE	0+48.00	1+96.64	—	175.00	148.64	79.13	144.21	S 38°33'23" E	48°39'51"
ELIAS HOME DRIVE	—	1+96.64	2+98.26	175.00	101.63	52.29	100.20	S 30°51'38" E	33°16'21"
ELIAS HOME DRIVE	3+94.17	6+14.85	—	175.00	220.68	127.74	206.35	S 11°22'14" E	72°15'9"
ELIAS HOME DRIVE	—	6+14.85	7+17.57	75.00	102.72	61.24	94.88	S 14°28'46" E	78°28'12"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Davelos 2/22/00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cinda Hamilton 3/9/00
 Chief, Division of Land Development Date

William 3/1/00
 Chief, Development Engineering Division MK Date



GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

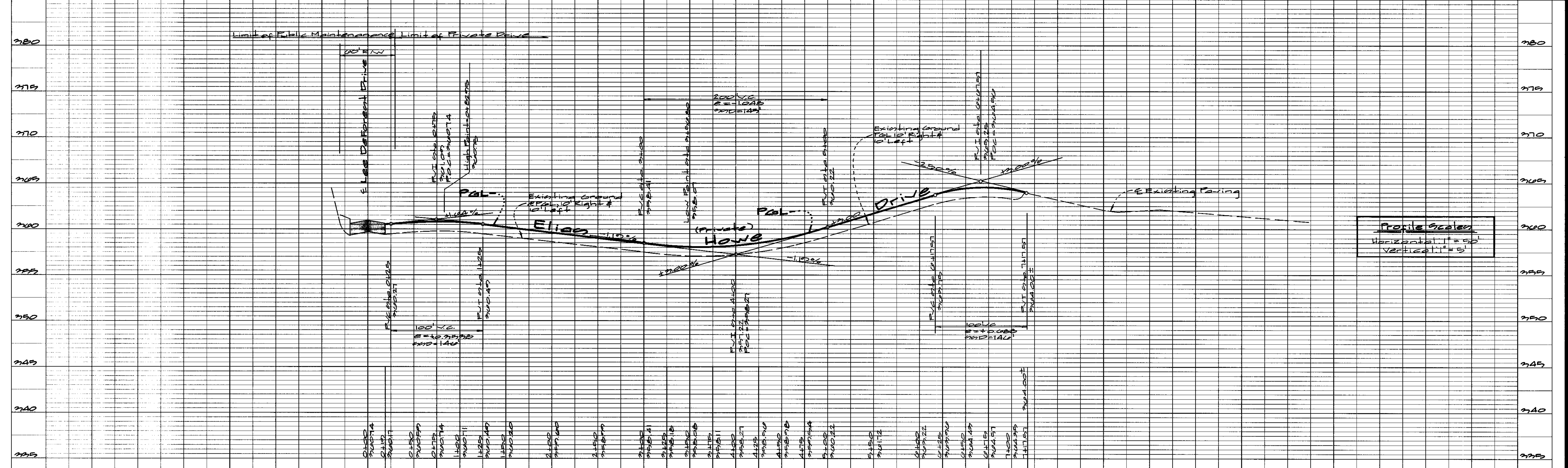
ROAD CONSTRUCTION PLANS
COLUMBIA GATEWAY
ELIAS HOWE DRIVE (Private)
 STATION 0+00.00 TO STATION 7+17.57

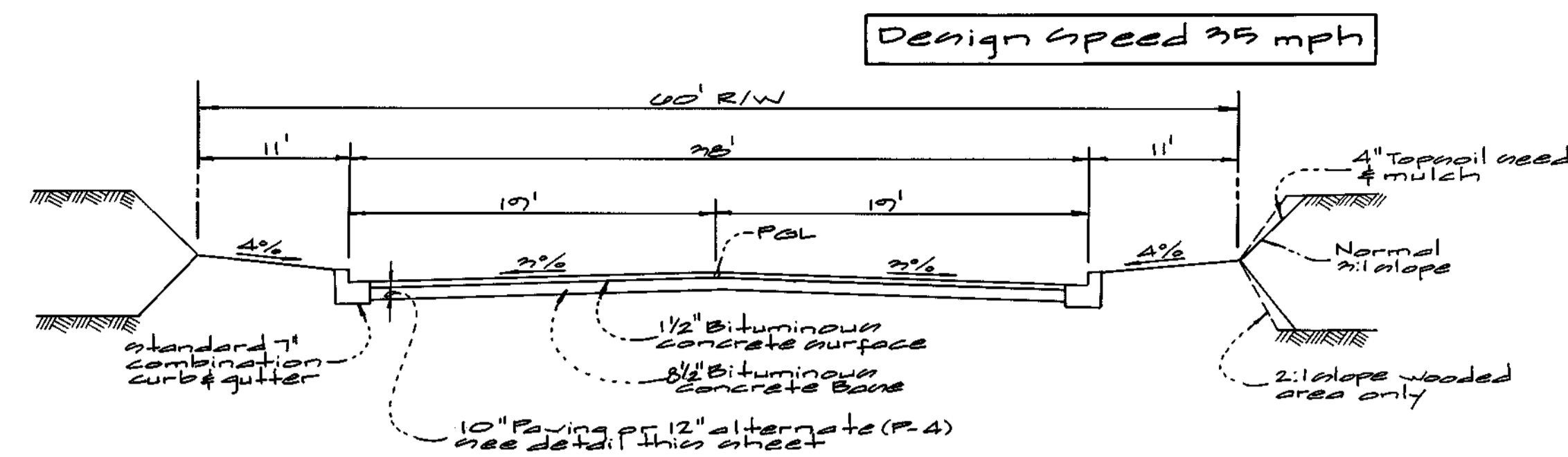
ELECTION DISTRICT No. 6
 HOWARD COUNTY, MARYLAND

PREPARED FOR:
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATENT PARKWAY
 COLUMBIA, MD 21044
 ATTN: MR. AL EDWARDS
 PH: 410-992-6027

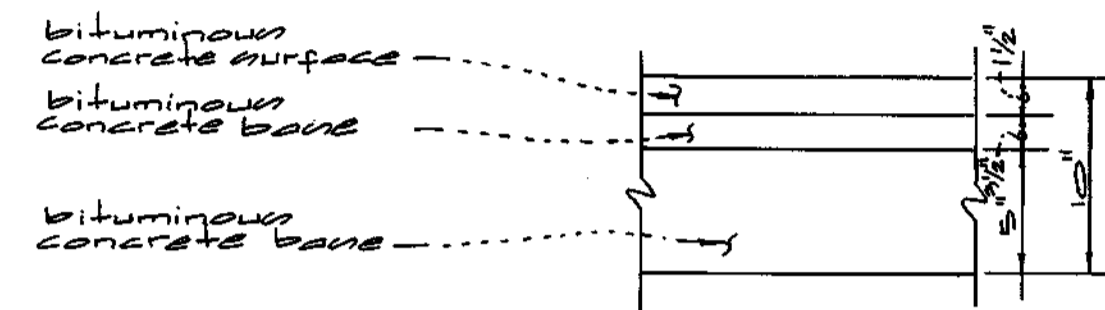
DESIGNED: MJT
 DRAWN: JMG/CAD
 CHECKED: MJT
 DATE: January 2, 2000

SCALE: 1"=50'
 DRAWING: 3 OF 18
 ZONING: NT
 JOB No.: 91055

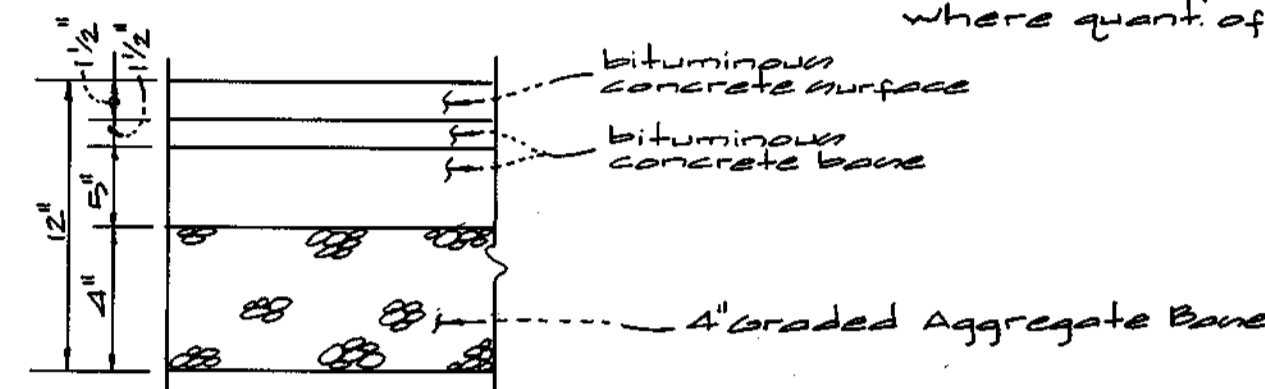




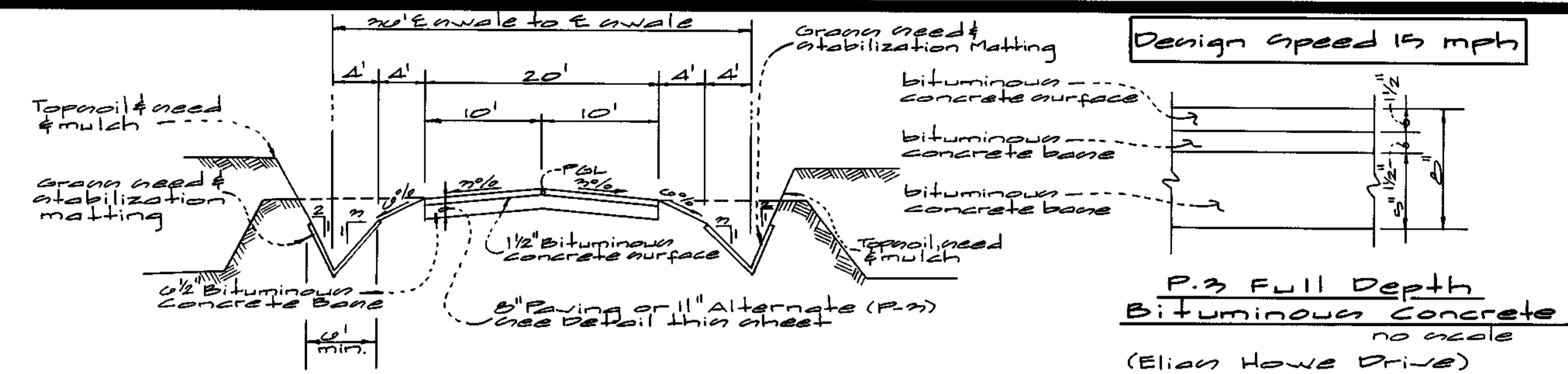
Typical section - Lee DeForest Drive
station 0+27.5 to station 8+33.999
no scale



P.4 Full Depth Bituminous Concrete
no scale
(Lee DeForest Drive)

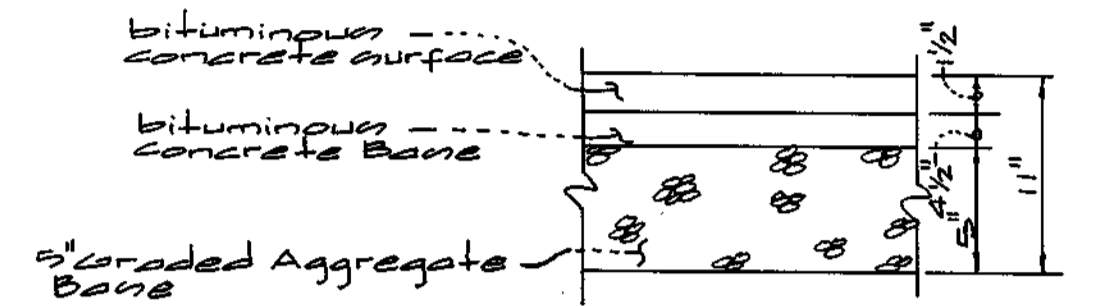


P.4 Granular Base (Alternate)
no scale
(Lee DeForest Drive)

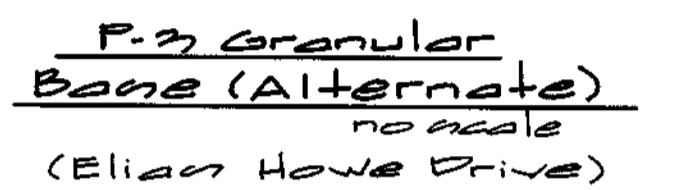


Typical section - Elian Howe Drive (Private)
station 0+90 to station 7+1757

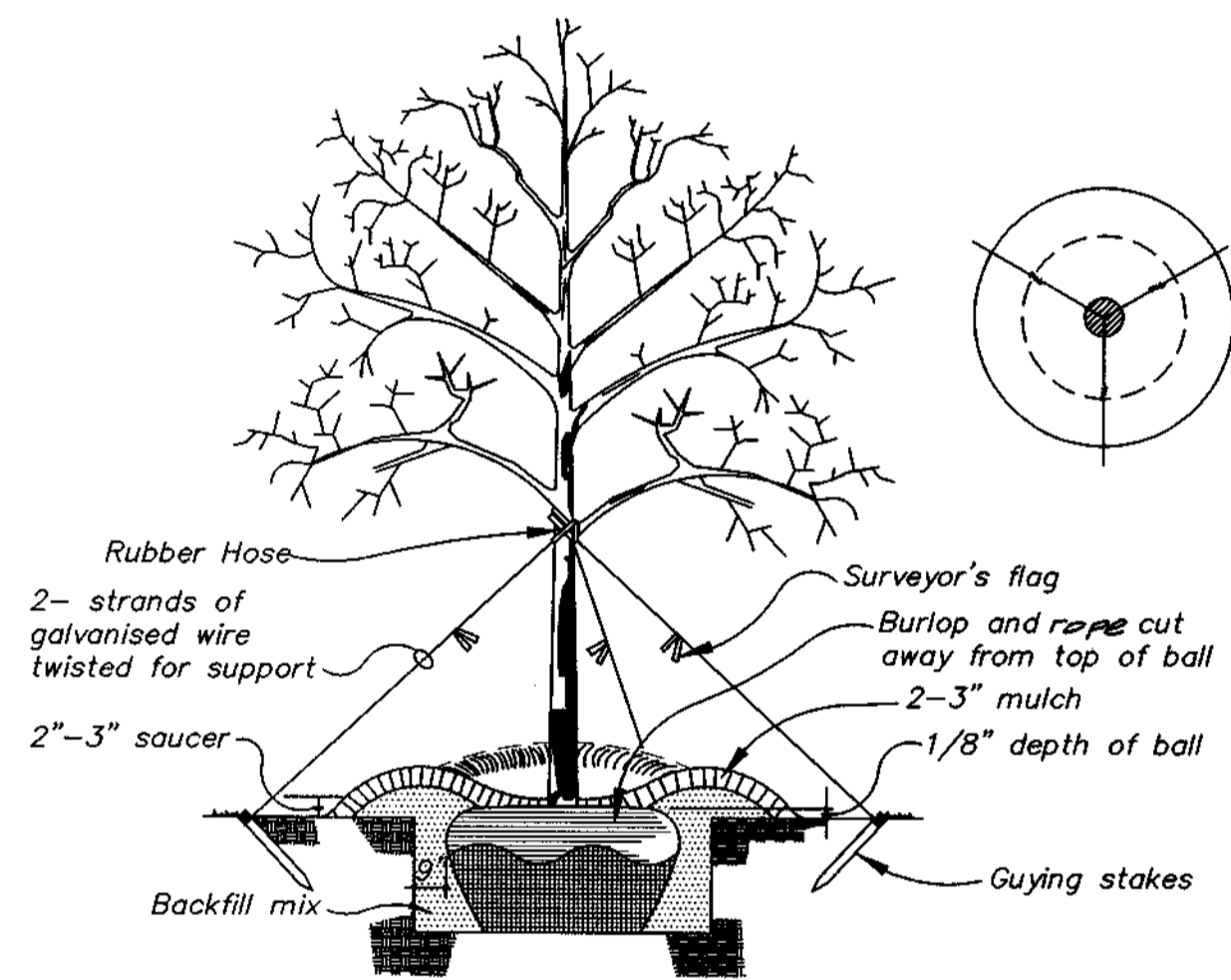
Note: Ditch cross section no scale
slope may be flattened to provide a owale at or near the crest of a vertical curve where quant. of flow is small.



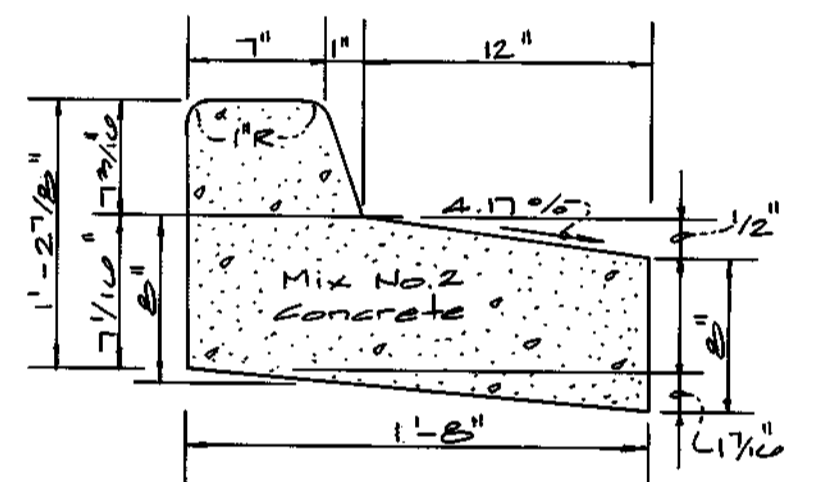
P.3 Full Depth Bituminous Concrete
no scale
(Elian Howe Drive)



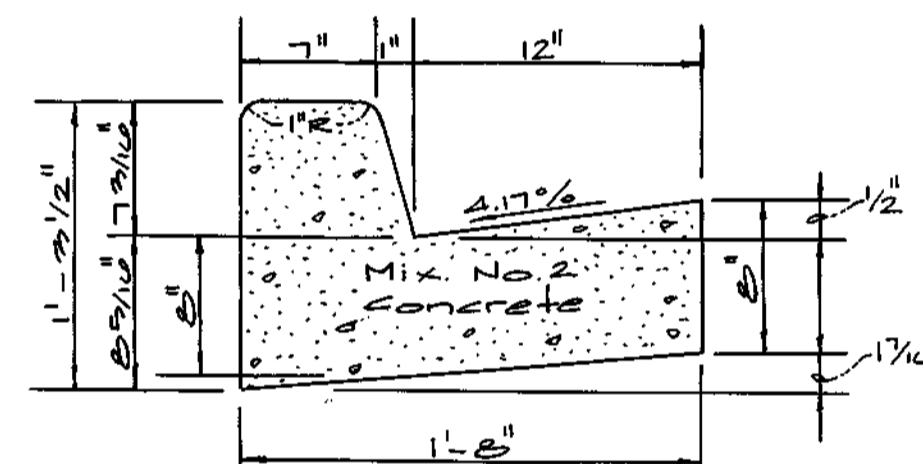
P.3 Granular Base (Alternate)
no scale
(Elian Howe Drive)



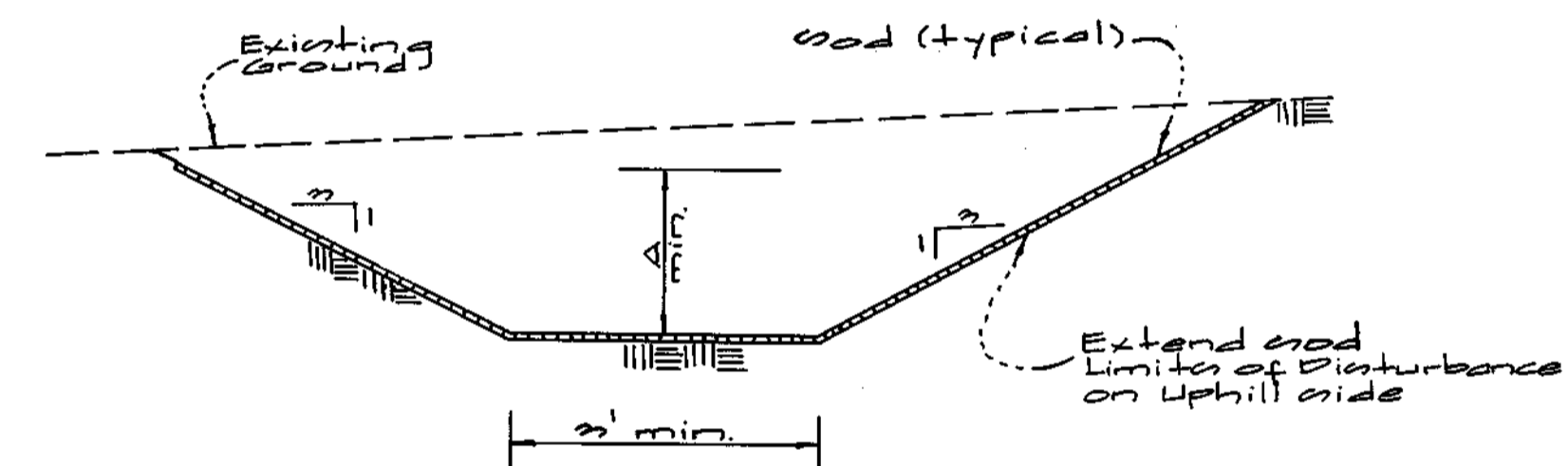
Typical Tree Guying Detail
N.T.S.



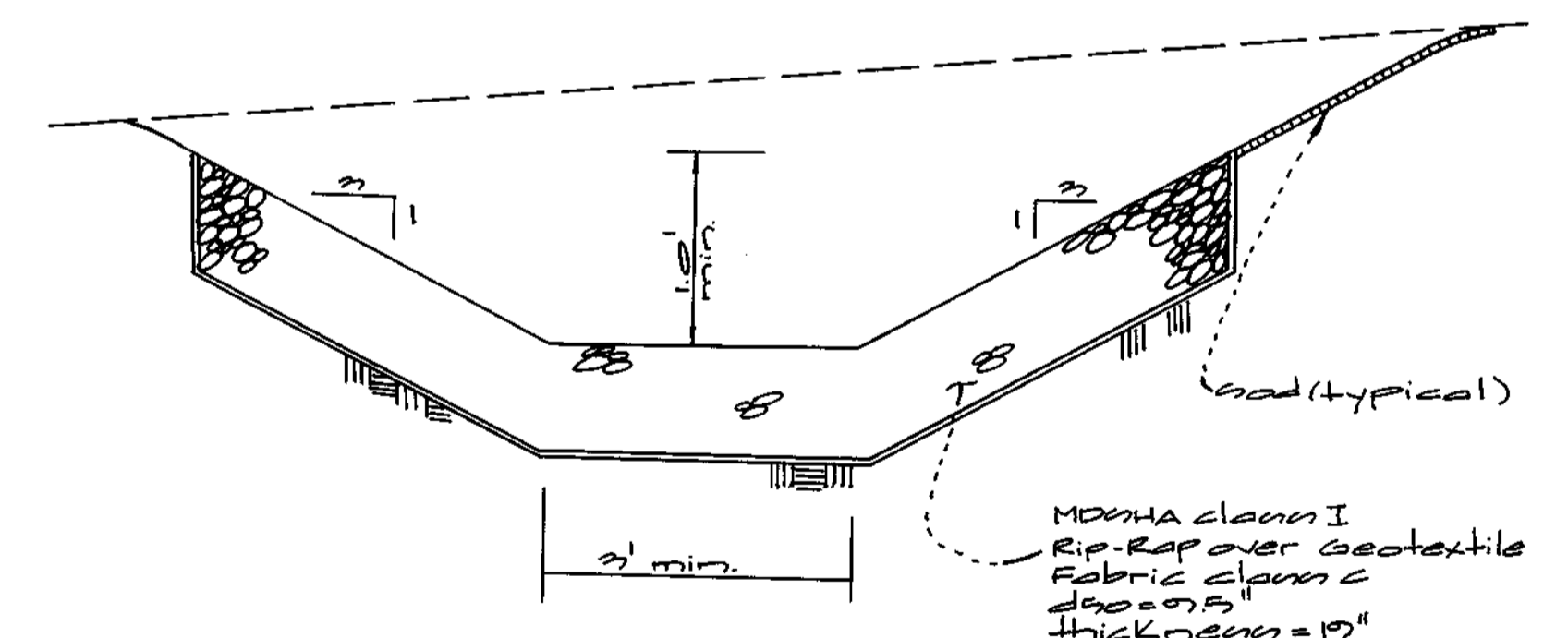
Reverse T\"/>



Standard T\"/>



Typical section Parcel U-2 Diversion A & B
A=1.0' For Diversion A
A=1.5' For Diversion B
N.T.S.



Typical section Parcel U-2 Diversion C
N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Stephen M. Daniels 2-22-00
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Carole Hamilton 3/7/00
Chief, Division of Land Development Date

Michael Cummings 3/1/00
Chief, Development Engineering Division MK Date



GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20886
TEL: 301-421-4024 BALE: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

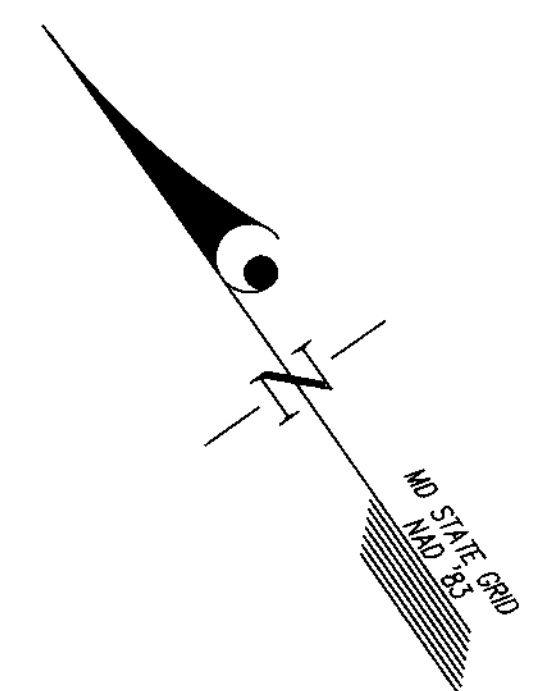
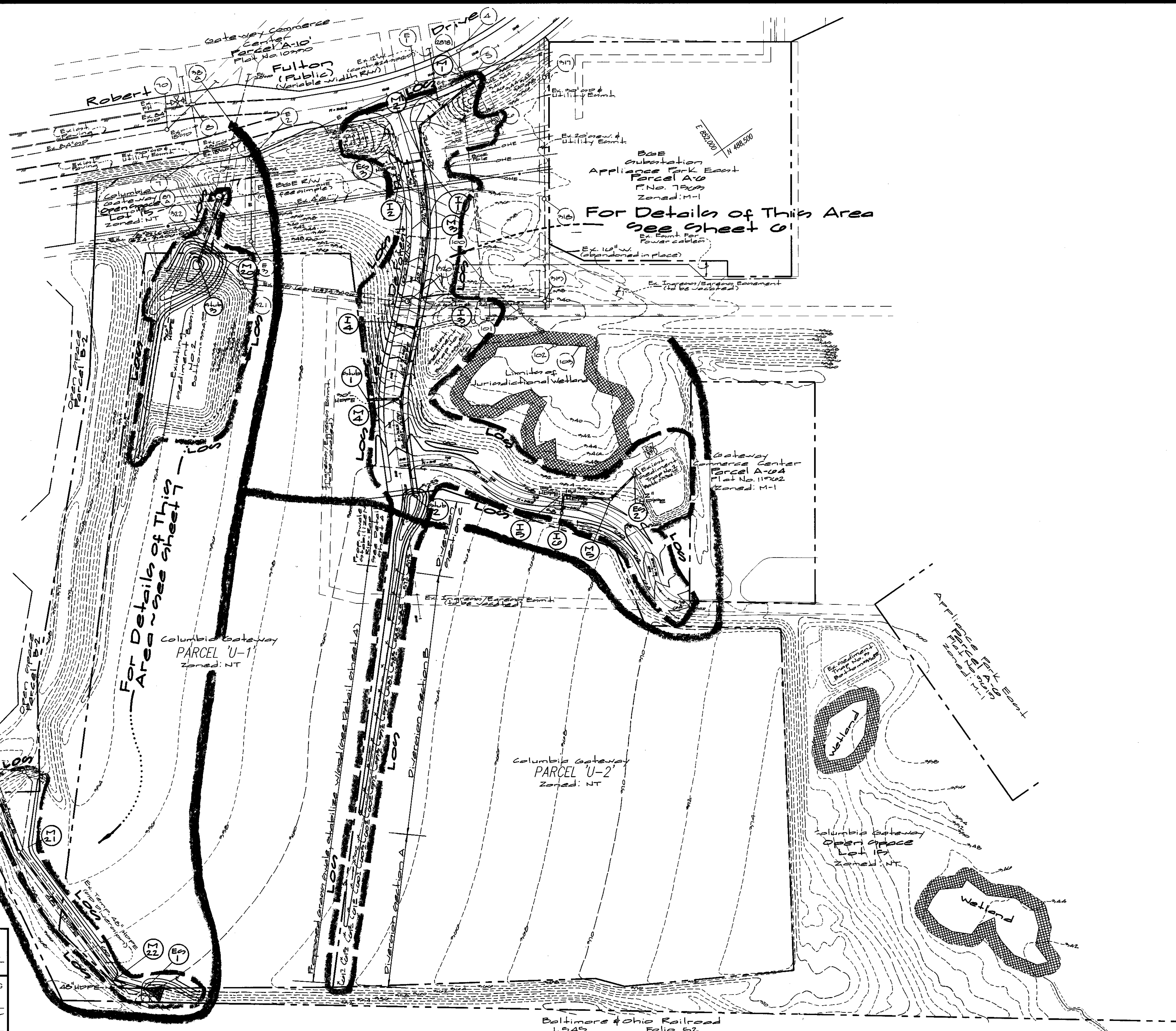
PREPARED FOR:
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
10275 LITTLE PATENT PARKWAY
COLUMBIA, MD. 21044
(410) 992-6027
ATTN: MR. AL EDWARDS

TYPICAL DETAILS
COLUMBIA GATEWAY
PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
PLAT NO.

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NEW TOWN & M-1	91055
DATE	TAX MAP - GRID	SHEET
January, 2000	43-7 42-11 & 12	4 OF 18

ELECTION DISTRICT No. 6

HOWARD COUNTY, MARYLAND



Snowden Ridge
Section 2 Area 2
Zoned: RA-15

For Details of This Area
see sheet 7

For Details of This Area
see sheet 0

Columbia Gateway
PARCEL 'U-1'
Zoned: NT

Columbia Gateway
PARCEL 'U-2'
Zoned: NT

Columbia Gateway
Open Space
Lot 15
Zoned: NT



EQU subdivision
Parcel A
Plat Book 23 Plat No. 13
Zoned: M-1

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Arthur M. Doucette 2-22-00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 3/9/00
 Chief, Division of Land Development Date

Charles J. ... 3/1/00
 Chief, Development Engineering Division MK Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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 BURTONSVILLE, MARYLAND 20886
 TEL: 301-421-4024 BALT: 410-989-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD 21044
 PH: 410-992-8027
 ATTN: MR. AL EDWARDS

Grading Plan Overview
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT No.

SCALE	ZONING	G. L. W. FILE No.
1" = 100'	NT & M-1	91055
DATE	TAX MAP - GRID	SHEET
January 2000	43 / 7 & 42 / 11 & 12	5 of 18

HOWARD COUNTY, MARYLAND

Match Line see pht. For Continuation

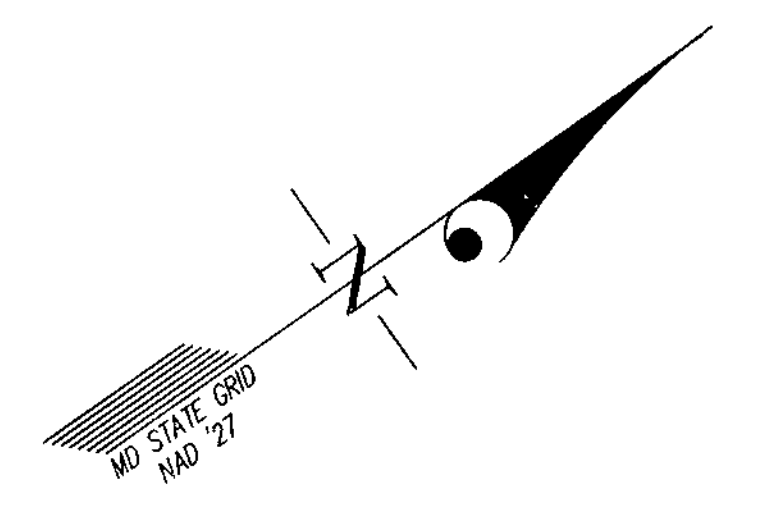
Columbia Gateway
PARCEL 'U-1'
Zoned: NT

Columbia Gateway
PARCEL 'U-2'
Zoned: NT

Columbia Gateway
OPEN SPACE LOT 15
Zoned: NT

The Columbia Association Inc.
Gateway Commerce Center
Parcel A-04
Plot No. 119002
Zoned: M-1

B&E
Substation
Appliance Park East
Parcel A-0
Plot No. 7500



N 480,000
E 850,750

N 487,200
E 851,250

N 488,500
E 852,000



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 2-22-00
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chris Santoro 3/9/00
Chief, Division of Land Development Date

M. D. Cummings 3/1/00
Chief, Development Engineering Division MK Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3869 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

NO.	DATE	REVISION	BY	APPR.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044
PH: 410-992-6027
ATTN: MR. AL EDWARDS

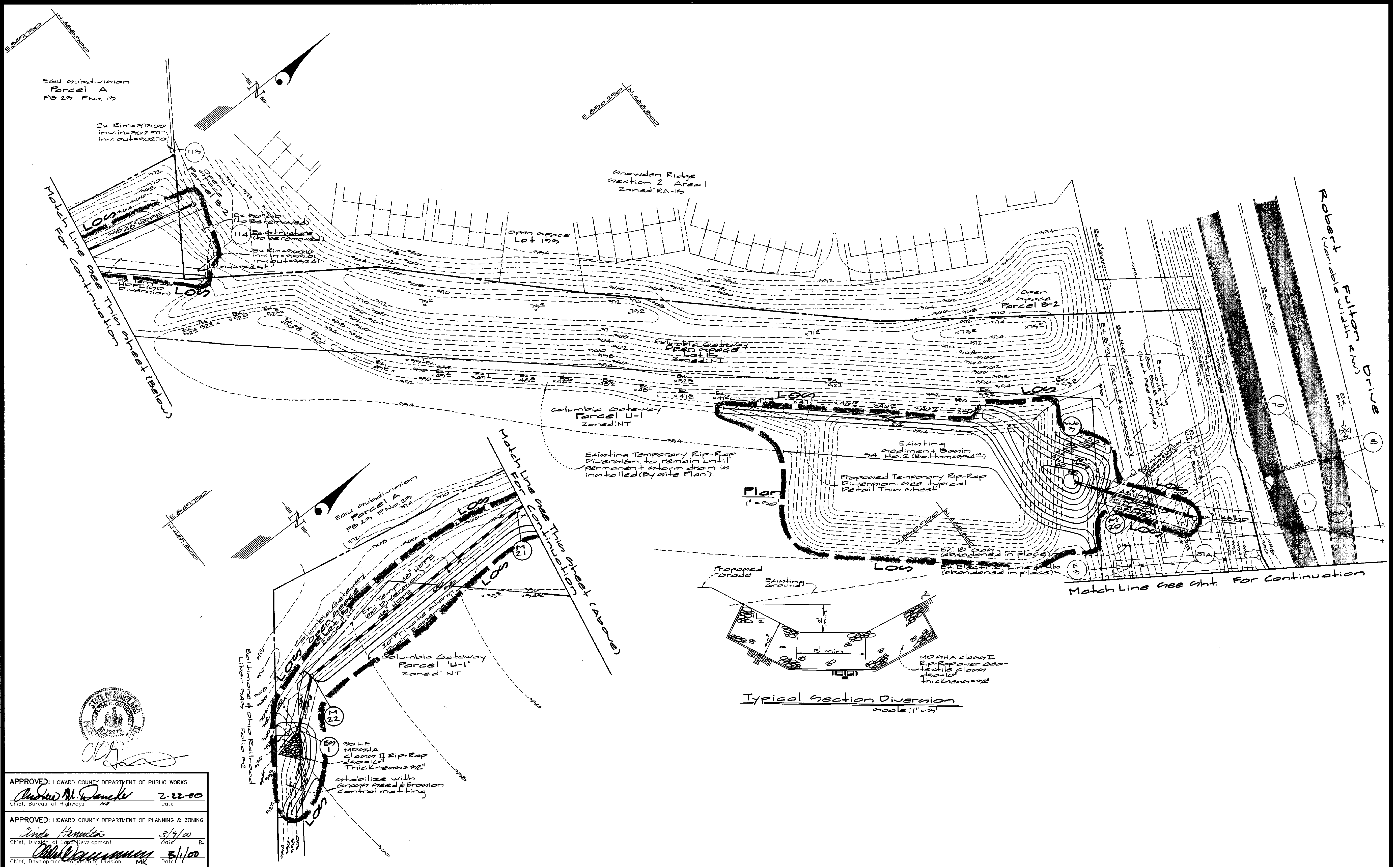
GRADING PLAN
COLUMBIA GATEWAY
PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
PLAT No.

ELECTION DISTRICT No. 6

SCALE 1" = 50'	ZONING NT & M-1	G. L. W. FILE No. 91055
DATE January, 2000	TAX MAP - GRID 43 / 7 & 42 / 11 & 12	SHEET 00 of 18

HOWARD COUNTY, MARYLAND

F-00-74



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Danek 2-22-00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cinda Hamilton 3/9/00
 Chief, Division of Land Development Date

Chad D. ... 3/1/00
 Chief, Development Engineering Division MK Date

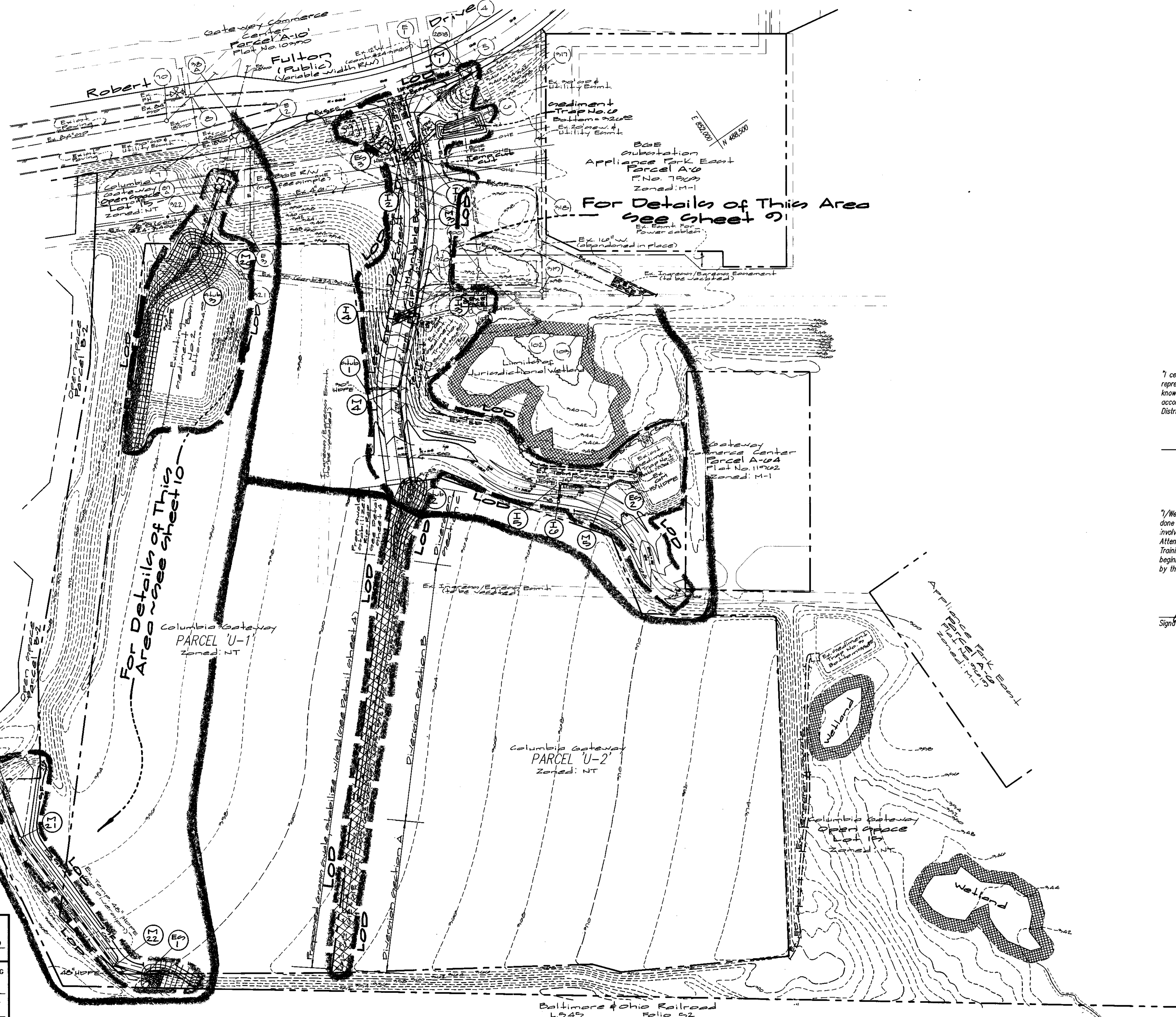
GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3009 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/WA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD. 21044
 (410) 992-6027
 ATTN: MR. AL EDWARDS

Grading & Storm Drain Plan - Barn
COLUMBIA GATEWAY
 PARCEL U-1, U-2 AND OPEN SPACE LOT 15
 PLAT NO.
 ELECTRON DISTRICT No. 6
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN	ZONING NEW TOWN & M-1	G. L. W. FILE No. 91055
DATE January 2000	TAX MAP - GRID 43-7 42-11 & 12	SHEET 7 OF 18



ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

CKG 11-11-99
Date

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/we certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland 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 HSCD."

Alfred E. Edle 11-11-95
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Cheryl Smith 2/10/00
Natural Resources Conservation Service Date

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

Myra Shy 2/10/00
Howard S.C.D. Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Davelos 2-22-00
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 3/9/00
Chief, Division of Land Development Date

Michael J. ... 3/1/00
Chief, Development Engineering Division Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

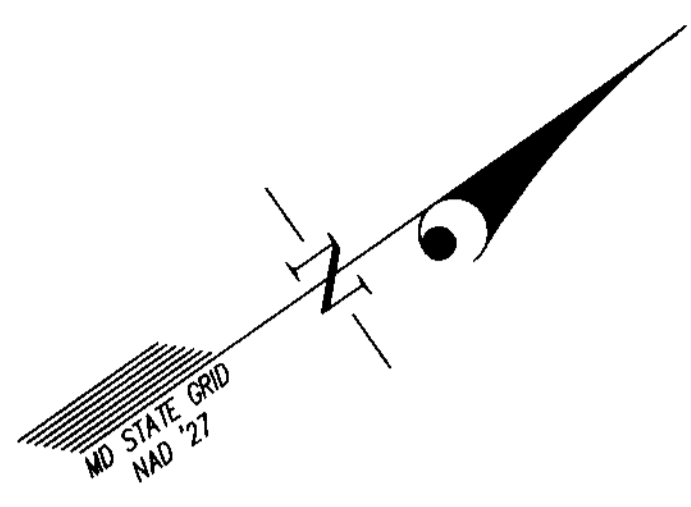
DATE	REVISION	BY	APP'R.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044
PH: 410-992-8027
ATTN: MR. AL EDWARDS

Sediment Control Plan Overview
COLUMBIA GATEWAY
PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
PLAT No.

SCALE 1" = 100'	ZONING NT & M-1	G. L. W. FILE No. 91055
DATE January, 2000	TAX MAP - GRID 43/7 & 42/11 & 12	SHEET 8 of 18

- Legend**
- Ex. Drainage Divide
 - Prop. Drainage Divide
 - Gilt Fence
 - Ex. Gilt Fence
 - Ex. Earth Dike
 - Ex. Temp. Swale
 - CIP: curb Inlet Protection
 - SIP: Sump Inlet Protection
 - Ex. stabilized Construction Entrance
 - Limit of Disturbance
 - 900: Rip-Rap
 - Erosion Control Matting



N 428.000
E 890.750

ENGINEER'S CERTIFICATE
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

CKG
11-11-99
Date

DEVELOPER'S/BUILDER'S CERTIFICATE
I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland 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 HSCD.

Robert J. Edrle
11-11-99
Date
Signature of Developer/Builder

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.
Cheryl Sims
Natural Resources Conservation Service
Date

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.
Cheryl Sims
Date



Columbia Gateway
PARCEL 'U-2'
Zoned: NT

Sediment Trap No. 0
Type of Sediment Trap: Stone Outlet
Pre-Development Drainage Area: 2.0 Ac.
Post-Development Drainage Area: 1.0 Ac.
Storage Required - Wet Volume: 2.0 Ac. x 18000 c.f./Ac. = 36000 c.f.
Storage Required - Dry Volume: 2.0 Ac. x 18000 c.f./Ac. = 36000 c.f.
Bottom Elevation: 322.0
Outlet Elevation: 322.2
Limit of Storage Elevation: 321.2
Side Slopes: 2:1
Top of Embankment Elevation: 322.2
Outlet Length: 8 ft.
Surface Area @ Bottom: 870 sq. ft.
Surface Area @ Outlet: 1084 sq. ft.
Surface Area @ Limit of Storage: 2,150 sq. ft.
Storage Volumes Provided:
Wet storage: $(870 + 1084 / 2) (2) = 4,000$ c.f.
Dry storage: $(1084 + 2,150 / 2) (2) = 9,334$ c.f.

Existing Sediment Trap No. 1
Type of Sediment Trap: Stone Outlet
Pre-Development Drainage Area: 4.20 Ac.
Post-Development Drainage Area: 1.8 Ac.
Storage Required - Wet Volume: 4.20 Ac. x 18000 c.f./Ac. = 75600 c.f.
Storage Required - Dry Volume: 1.8 Ac. x 18000 c.f./Ac. = 32400 c.f.
Bottom Elevation: 325.80
Outlet Elevation: 325.80
Limit of Storage Elevation: 324.80
Side Slopes: 2:1
Top of Embankment Elevation: 321.80
Outlet Length: 10.8 ft.
Surface Area @ Bottom: 4,300 sq. ft.
Surface Area @ Outlet: 6,108 sq. ft.
Surface Area @ Limit of Storage: 7,715 sq. ft.
Storage Volumes Provided:
Wet storage: $(4,300 + 6,108 / 2) (2) = 10,408$ c.f.
Dry storage: $(6,108 + 7,715 / 2) (2) = 14,023$ c.f.

Existing Sediment Trap No. 2
Type of Sediment Trap: Stone Outlet
Pre-Development Drainage Area: 3.40 Ac.
Post-Development Drainage Area: 2.40 Ac.
Storage Required - Wet Volume: 3.40 Ac. x 18000 c.f./Ac. = 61200 c.f.
Storage Required - Dry Volume: 2.40 Ac. x 18000 c.f./Ac. = 43200 c.f.
Bottom Elevation: 324.70
Outlet Elevation: 324.70
Limit of Storage Elevation: 323.70
Side Slopes: 2:1
Top of Embankment Elevation: 321.70
Outlet Length: 12.0 ft.
Surface Area @ Bottom: 3,300 sq. ft.
Surface Area @ Outlet: 4,440 sq. ft.
Surface Area @ Limit of Storage: 10,410 sq. ft.
Storage Volumes Provided:
Wet storage: $(3,300 + 4,440 / 2) (2) = 7,800$ c.f.
Dry storage: $(4,440 + 10,410 / 2) (2) = 17,820$ c.f.

To sediment Trap No. 2
see sediment control overview plan

The Columbia Association Inc.
Gateway Commerce Center
Parcel A-04
Plot No. 11902
Zoned: M-1

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Doweck
Chief, Bureau of Highways
Date: 2-22-00

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton
Chief, Division of Land Development
Date: 3/9/00

Cheryl Sims
Chief, Development Engineering Division
Date: 3/1/00

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3800 NATIONAL DRIVE - SUITE 250 - BURTNSVILLE OFFICE PARK
BURTNSVILLE, MARYLAND 20896
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-889-2524 FAX: 301-421-4106

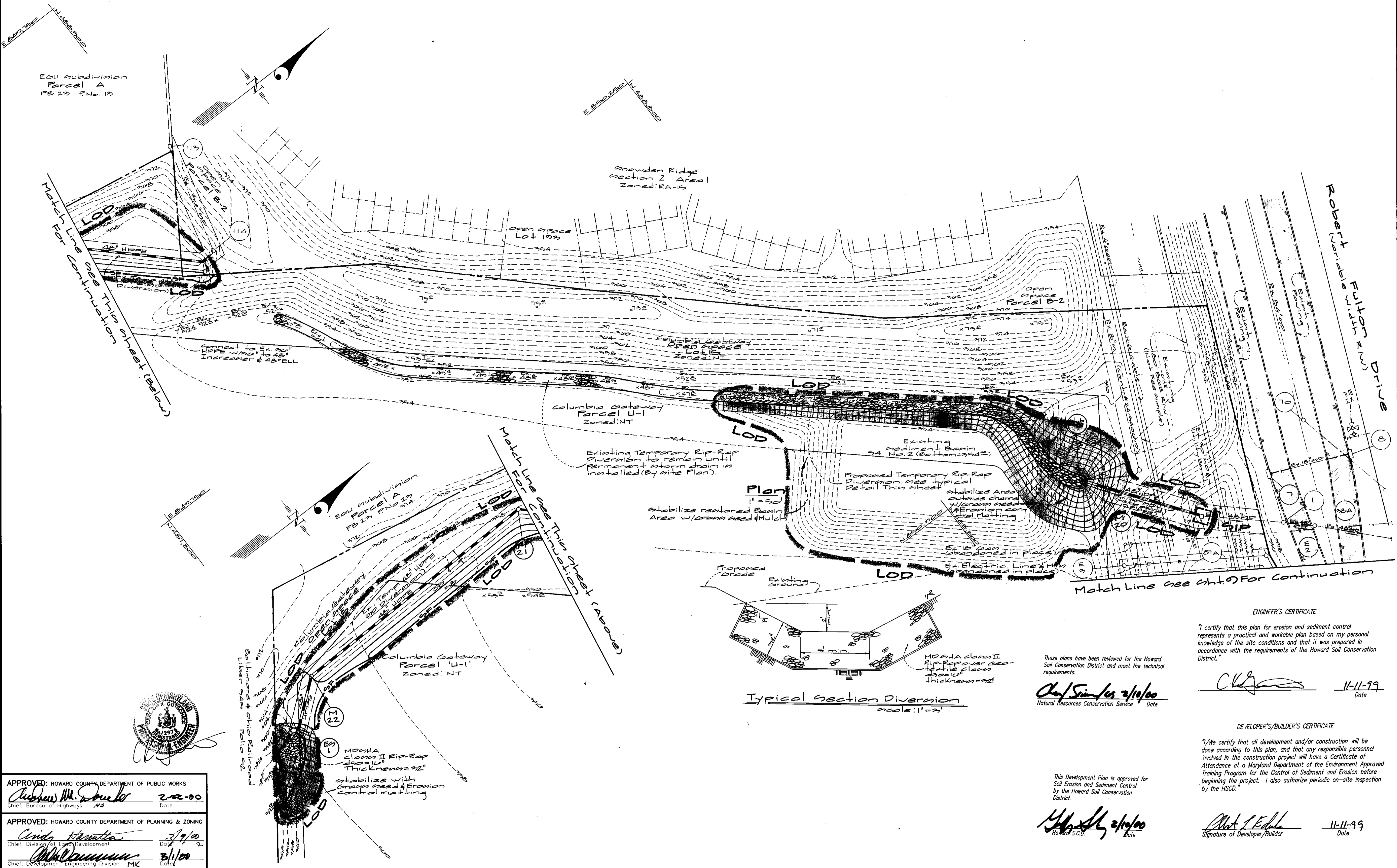
DATE	REVISION	BY	APP'R.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATENT PARKWAY
COLUMBIA, MD 21044
PH: 410-992-6027
ATTN: MR. AL EDWARDS

Sediment Control Plan - Road
COLUMBIA GATEWAY
PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
PLAT No.

ELECTION DISTRICT No. 6

SCALE 1" = 50'	ZONING NT & M-1	G. L. W. FILE No. 91055
DATE January, 2000	TAX MAP - GRID 43 / 7 & 42 / 11 & 12	SHEET 9 of 18



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Dumele 2/22/00
 Chief, Bureau of Highways HS Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hammett 3/9/00
 Chief, Division of Land Development Date

Michael Williams 3/1/00
 Chief, Development Engineering Division MK Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD. 21044
 (410) 992-6027
 ATTN: MR. AL EDWARDS

Sediment Control Plan ~ Barn
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT NO.
 ELECTION DISTRICT No. 6
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NEW TOWN & M-1	91055
DATE	TAX MAP - GRID	SHEET
January 2000	43-7 42-11 & 12	10 OF 18

ENGINEER'S CERTIFICATE
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.
Cheryl S. Sipes 2/10/00
 Natural Resources Conservation Service Date

Cheryl S. Sipes 11-11-99
 Date

DEVELOPER'S/BUILDER'S CERTIFICATE
 "I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland 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 HSCD."

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.
Michael Williams 2/10/00
 Date

Michael Williams 11-11-99
 Signature of Developer/Builder Date

DETAIL 1 - EARTH DIKE

CROSS SECTION

2:1 SLOPE OR FLATTER
EXCAVATE TO PROVIDE REQUIRED FLOW WIDTH AT DESIGN FLOW DEPTH

PLAN VIEW

POSITIVE DRAINAGE SUFFICIENT TO DRAIN
CUT OR FILL SLOPE

CONSTRUCTION SPECIFICATIONS

- Seed and cover with straw mulch.
- Seed and cover with Erosion Control Matting or the like with sod.
- 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE A-11-6, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

DETAIL 2 - TEMPORARY SWALE

CROSS SECTION

2:1 OR FLATTER
EXISTING GROUND

PLAN VIEW

FLOW CHANNEL STABILIZATION GRADE 0.5% MIN. 10% MAX.

CONSTRUCTION SPECIFICATIONS

- Seed and cover with straw mulch.
- Seed and cover with Erosion Control Matting or the like with sod.
- 4" - 7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

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

DETAIL 8 - PIPE OUTLET SEDIMENT TRAP - ST I

PERSPECTIVE VIEW

EMBANKMENT SECTION THROUGH RISER

CONSTRUCTION SPECIFICATIONS

- The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat.
- The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material.
- The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area.
- Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (500CF/AC).

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE C-9-7, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

PIPE OUTLET SEDIMENT TRAP - ST I

6. Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.

8. All cut and fill slopes shall be 2:1 or flatter.

9. All pipe connections shall be watertight.

10. Above the wet storage elevation, the riser shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal corner.

11. The riser shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class C. The filter cloth shall extend 6" above the highest silt and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.

12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.

13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2" of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.

14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 5". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2" of stone, gravel or tamped earth on the plate.

15. Anti-seep collars shall be constructed in accordance with plans (ref. scale 16 and details 13 and 14).

16. Concentric trash rack and anti-vortex device design details are on Detail 16.

17. Refer to Section D for dewatering requirements of sediment traps.

18. Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.

19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE C-9-7A, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

PERSPECTIVE VIEW

TOP VIEW

CROSS SECTION

CONSTRUCTION SPECIFICATIONS

- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum cut, or 1 3/4" diameter (minimum round and shall be of sound quality hardwood). Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot.
- 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:
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when buttes occur or when sediment accumulation reached 50% of the fabric height.

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

SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum)	
	Slope Length	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.

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

DETAIL 6 - GABION INFLOW PROTECTION

PERSPECTIVE VIEW

PROFILE ALONG CENTERLINE

CONSTRUCTION SPECIFICATIONS

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

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

DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II

SECTION B-B

PERSPECTIVE VIEW

SECTION A-A

CONSTRUCTION SPECIFICATIONS

- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
- All cut and fill slopes shall be 2:1 or flatter.
- The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1" thick layer of 3/4" to 1 1/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE C-9-10, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

STONE OUTLET SEDIMENT TRAP - ST II

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

8. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

9. Refer to section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE C-9-10A, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

DETAIL 10A - STONE / RIP-RAP OUTLET SEDIMENT TRAP - ST IV

SECTION B-B

PERSPECTIVE VIEW

SECTION A-A

CONSTRUCTION SPECIFICATIONS

- The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at centerline of embankment.
- All cut and fill slopes shall be 2:1 or flatter.
- Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.
- Storage area provided shall be figured by computing the volume measured from top of excavation. (For storage requirements see Table 2).
- Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.
- 4" - 7" stone shall be used to construct the weir and 4" - 12" or Class I rip-rap shall be used to construct the outlet channel.
- Outlet - An outlet shall include a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge point shall be provided as necessary.
- Outlet channel must have positive drainage from the trap.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 of the wet storage depth of the trap (500 CF/AC). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
- The structure shall be inspected periodically after each rain and repaired as needed.
- Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
- The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE C-9-16, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

STONE RIP-RAP OUTLET SEDIMENT TRAP - ST IV

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

8. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

9. Refer to section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE C-9-16A, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

PROFILE

PLAN VIEW

CONSTRUCTION SPECIFICATION

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

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE F-12-3, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE

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.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and bruis rods, drive anchors and post caps are not required except on the ends of the fence.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
- Filter cloth shall be embedded a minimum of 8" into the ground.
- When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
- No maintenance shall be performed as needed and silt buildup removed when "buttes" develop in the silt fence, or when silt reaches 50% of fence height.
- 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:
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, PAGE H-26-3, MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Davelos 2/22/00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chris Hamilton 2/19/00
 Chief, Division of Land Development Date

Chris Dammann 2/11/00
 Chief, Development Engineering Division MK Date

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Chris Dammann 11-11-99
 Date

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

John H. G. 2/10/00
 Howard S.C.D. Date

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/we certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland 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 HSCD."

Ant. P. Edale 11-11-99
 Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Chris Dammann 2/10/00
 Natural Resources Conservation Service Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONVILLE OFFICE PARK
 BURTONVILLE, MARYLAND, 20866
 TEL: 301-421-4024 FAX: 301-999-2524

PREPARED FOR:
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD 21044
 PH: 410-992-6027
 ATTN: MR. AL EDWARDS

SEDIMENT CONTROL DETAILS
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT No.

SCALE: AS SHOWN
 ZONING: NT & M-1
 G. L. W. FILE No.: 91055

DATE: January 2000
 TAX MAP - GRID: 43/7 & 42/11 & 12
 SHEET: 11 of 18

HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT No. 6
 F-00-74

SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (410) 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 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes and 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings, sod, temporary seeding and mulching (Sec. C). 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	: 120.12 Acres
Area Disturbed	: 8.2 Acres
Area to be roofed or paved	: 1.0 Acres
Area to be vegetatively stabilized	: 7.2 Acres
Total Cut	: 5,500 Cu. Yds.
Total Fill	: 5,500 Cu. Yds.
Off-site waste/borrow area location:	N/A
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 DPW 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 3 pipe lengths or that which shall be backfilled and stabilized within one working day, whichever is shorter.



STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

PURPOSE

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

CONDITIONS WHERE PRACTICE APPLIES

- i. This practice is limited to areas having 2:1 or flatter slopes where:
 - a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - c. The original soil to be vegetated contains material toxic to plant growth.
 - d. The soil is so acidic that treatment with limestone is not feasible.
- ii. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

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 respective soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
 - a. 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 than 1 1/2" in diameter.
 - ii. Topsoil must be free of plant parts such as Bermuda grass, quackgrass, Johnsongrass, 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.
- ii. 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.
- iii. 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:
 - 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 greater than 500 parts per mill shall not be used.
 - d. No sod or seed shall be placed on soil which has been with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of photo-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 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

- i. When topsoiling, maintain needed erosion and sediment control practices such as diversion, 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 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.
- iv. Topsoil shall not be placed while the topsoil or subsoil is 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.
- v. 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.

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square feet) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseeding.

TEMPORARY SEEDING NOTES

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

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).

Seeding: For periods March 1 thru April 30 and from August 15 thru October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs./1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted, weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

- 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.
 - iv. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 4lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VA Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

Dust Control

Definition

Controlling dust blowing and movement on construction sites and roads.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies

This practice is applicable to areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

Temporary Methods

1. Mulches - See standards for vegetative stabilization with mulches only; mulch should be crimped or tacked to prevent blowing.
2. Vegetative Cover - See standards for temporary vegetative cover.
3. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.
4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed at no time should the site be irrigated to the point that runoff begins to flow.
5. Barriers - Solid board fences, silt fences, snow fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angle to prevailing currents at intervals at about ten times their height are effective in controlling soil blowing.
6. Calcium Chloride - Apply at rates that will keep surface moist. May need treatment.

Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.
2. Topsoiling - Covering with less erosive soil material. See standards for top soil.
3. Stone - Cover surface with crushed stone or gravel.

References

1. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.
2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA_ARS.

Sequence of Construction

1. Obtain Grading Permit and arrange pre-construction meeting with Sediment Control Inspector (1 day).
 2. Inspect existing sediment controls and make necessary repairs and clean out the traps and basins of sediment as necessary (1 day).
 3. Install and stabilize sediment trap number 6. Install inflow protection for sediment trap as required. Install silt fence and super silt fence (2 weeks);
 4. Fine grade area (1 week);
 5. Install storm drain as indicated on sheets 2 and 3 and associated Inlet protection as indicated on the plans. Temporarily divert storm drain section M-5 to ES-2 into sediment trap number 2 (3 weeks);
- Install the permanent storm drain at the eastern corner of the site. If the area has been previously stabilized, install only as much storm drain as can be backfilled and stabilized in one day placing the excavated material on the uphill side of the trench. Remove the temporary storm drain diversion when the permanent facilities are installed and permission is granted by the Sediment Control Inspector (1 week).
6. Install curb and gutter and base pave. Install temporary mountable berms and ensure temporary curb opening are present where applicable (1 month);
 7. Install street trees and stabilize remaining areas (1 week);
 8. Construct temporary diversion along the northeast property line of Parcel U-2 and stabilize immediately as indicated (1 day);
 9. When areas draining to the sediment controls have been stabilized and permission is granted by the Sediment Control Inspector, remove and backfill sediment traps and the sediment basin. Remove earth dikes, temporary swales, and silt fence and super silt fence. Remove temporary mountable berms and install remaining portions of curb and gutter. Install remaining storm drain and temporary diversion (at sediment basin number 2 and at sediment trap number 2). Stabilized remaining areas (2 weeks).
 10. Surface pave roadways (1 week).

NOTE: Rip rap diversion along the base of the berm at the northeast property line of Parcel U-1 and the diversion along the northeast property line of Parcel U-2 are to remain in place until permanent facilities and their sediment controls are approved.

ENGINEER'S CERTIFICATE

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

[Signature] 11-11-99
Date

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and/or construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland 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 HSCD."

[Signature] 11-11-99
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

[Signature] 11/11/99
Natural Resources Conservation Service Date

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

[Signature] 11/11/99
Howard S.C.D. Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 2-22-00
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 3/9/00
Chief, Division of Land Development Date
[Signature] 3/1/00
Chief, Development Engineering Division MK Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONVILLE OFFICE PARK
BURTONVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUENT PARKWAY
COLUMBIA, MD 21044
PH: 410-992-6027
ATTN: MR. AL EDWARDS

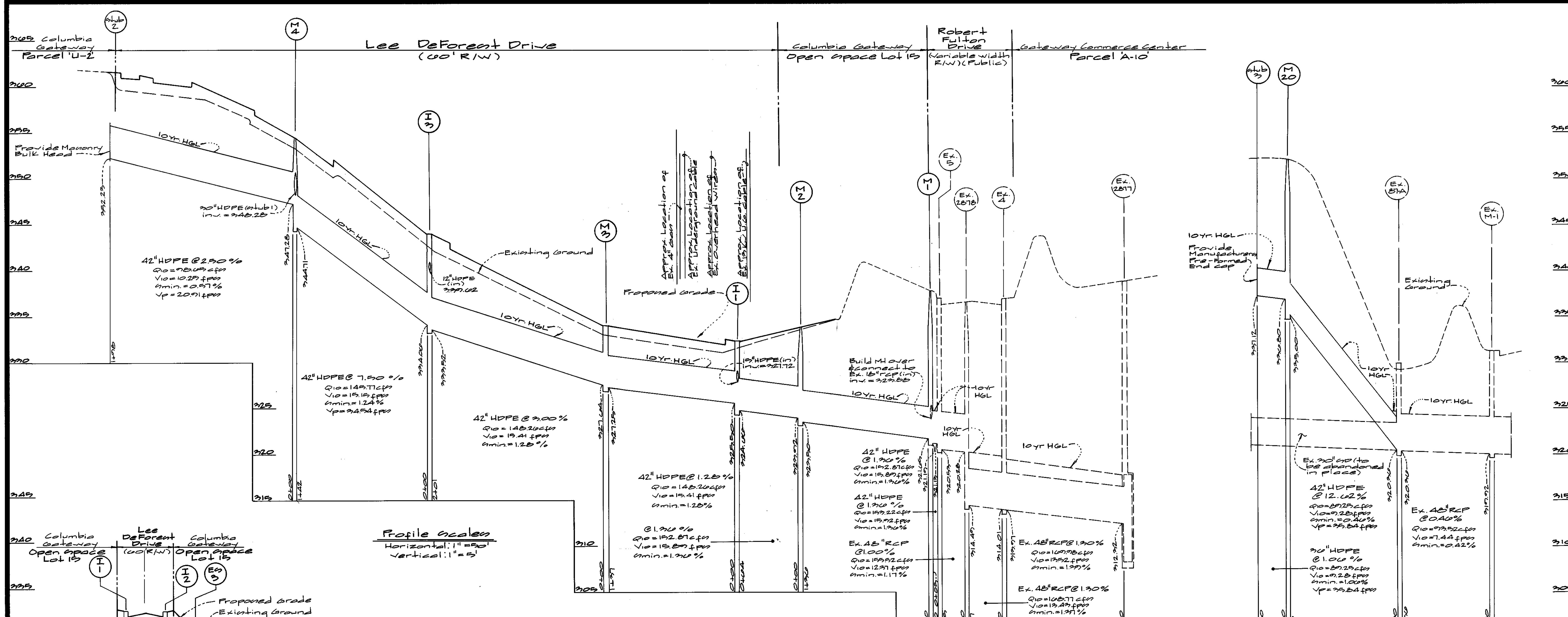
SEDIMENT CONTROL DETAILS & NOTES
COLUMBIA GATEWAY
PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
PLAT No.

SCALE AS SHOWN	ZONING NT & M-1	G. L. W. FILE No. 91055
DATE January, 2000	TAX MAP - GRID 43 / 7 & 42 / 11 & 12	SHEET 13 of 18

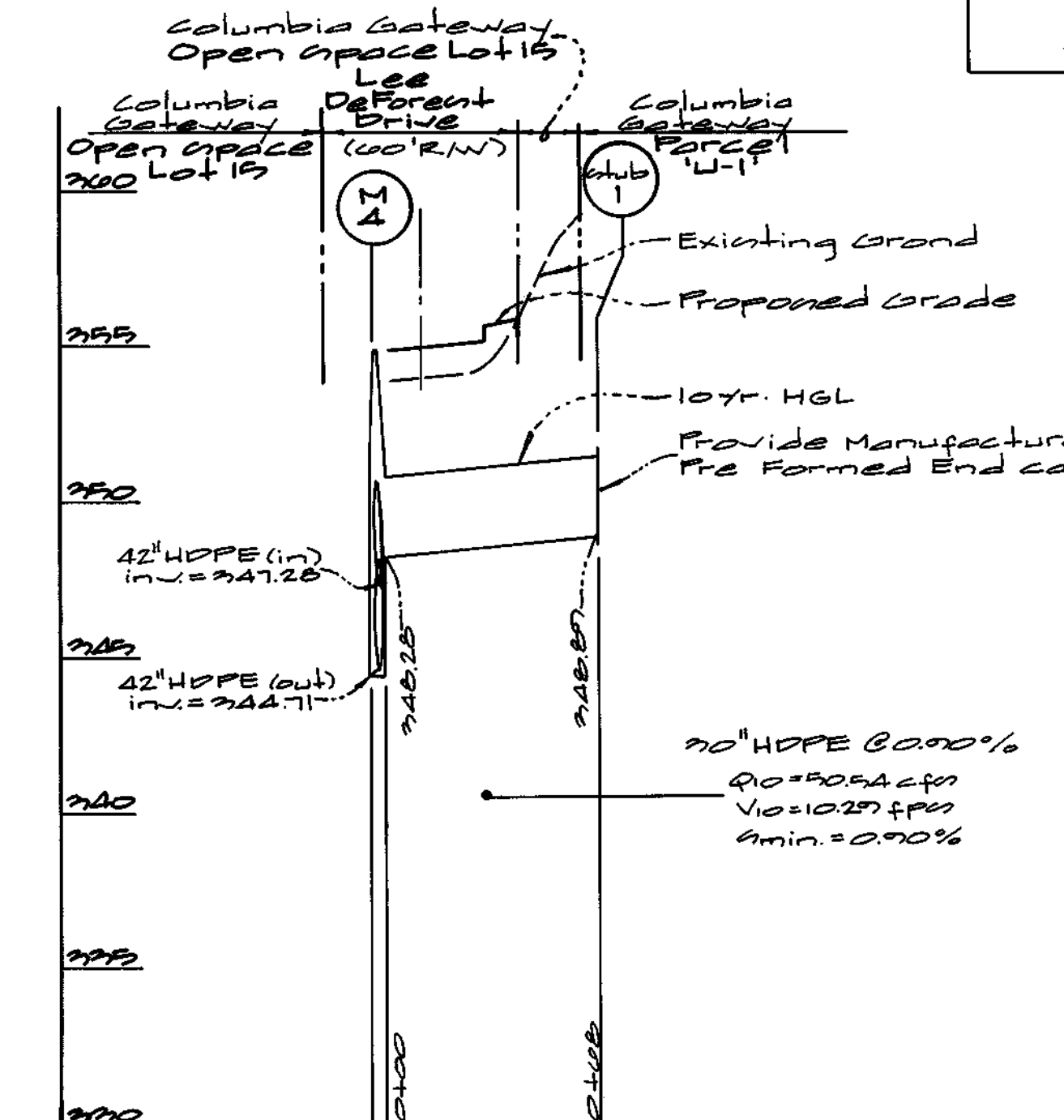
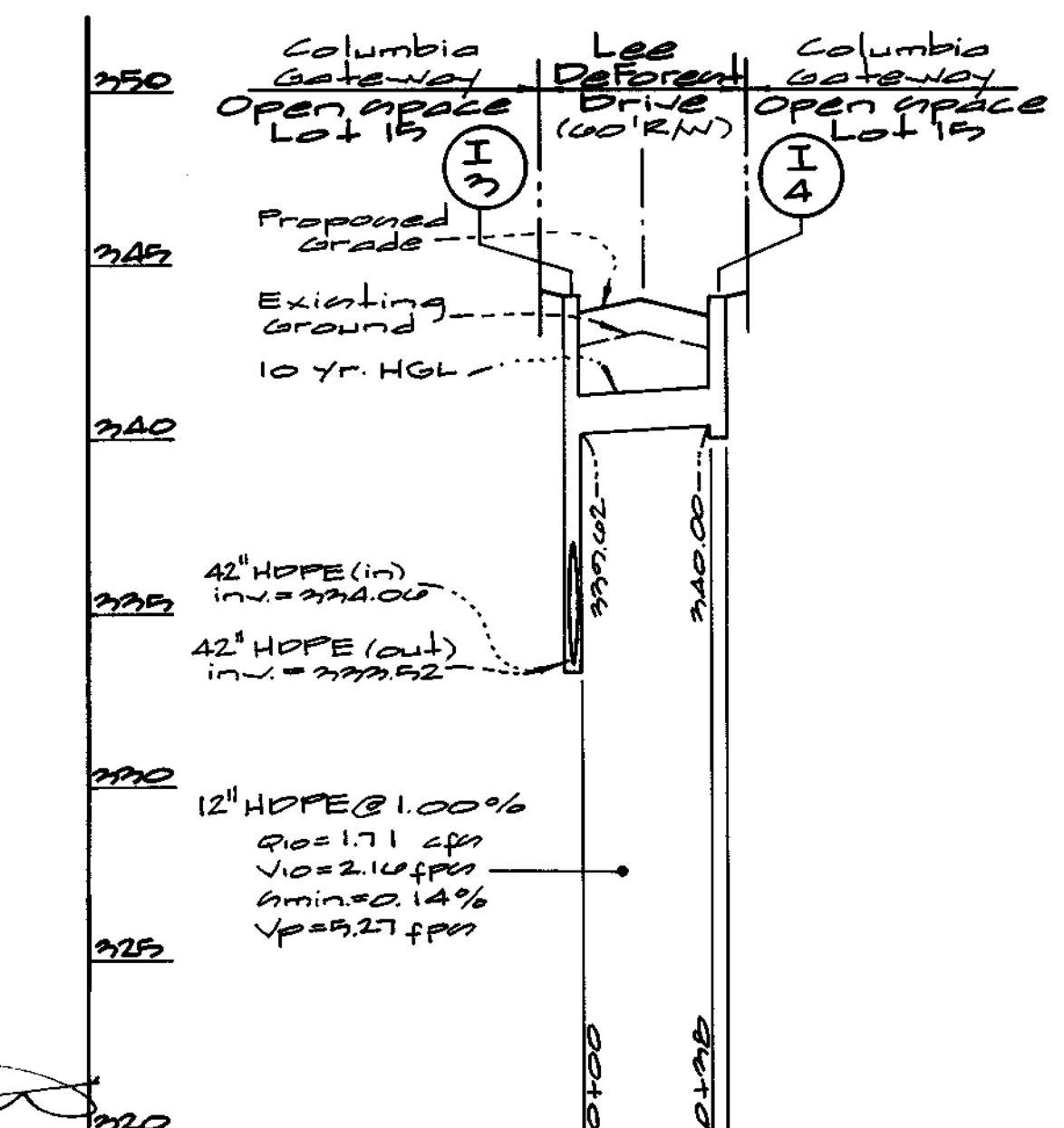
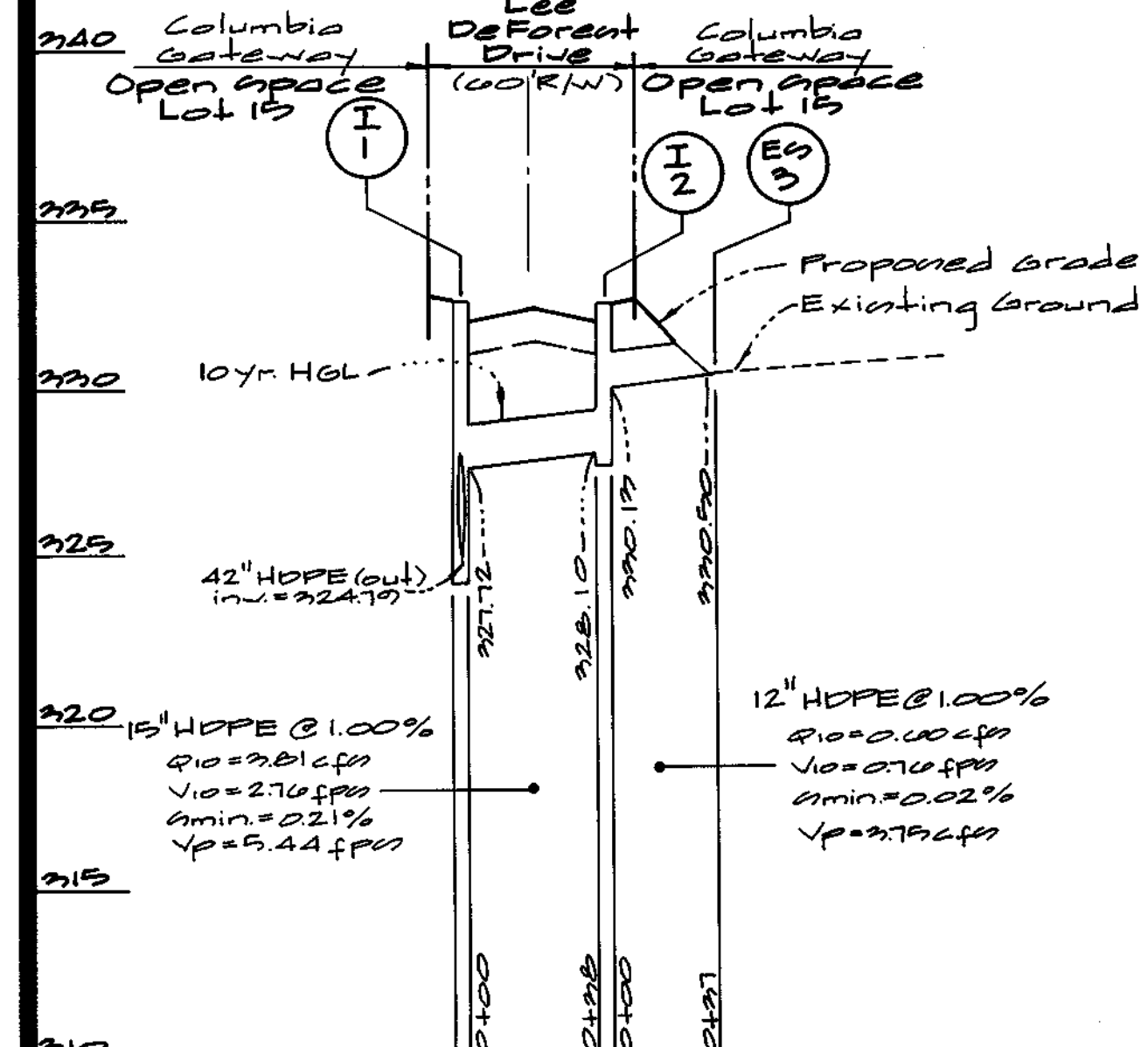
DESIGN	DATE	REVISION	BY	APPR.
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ELECTION DISTRICT No. 6

HOWARD COUNTY, MARYLAND



Profile scales
 Horizontal: 1" = 50'
 Vertical: 1" = 5'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard M. Daniels 2-22-00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 3/7/00
 Chief, Division of Land Development Date

David Summers 3/1/00
 Chief, Development Engineering Division MK Date



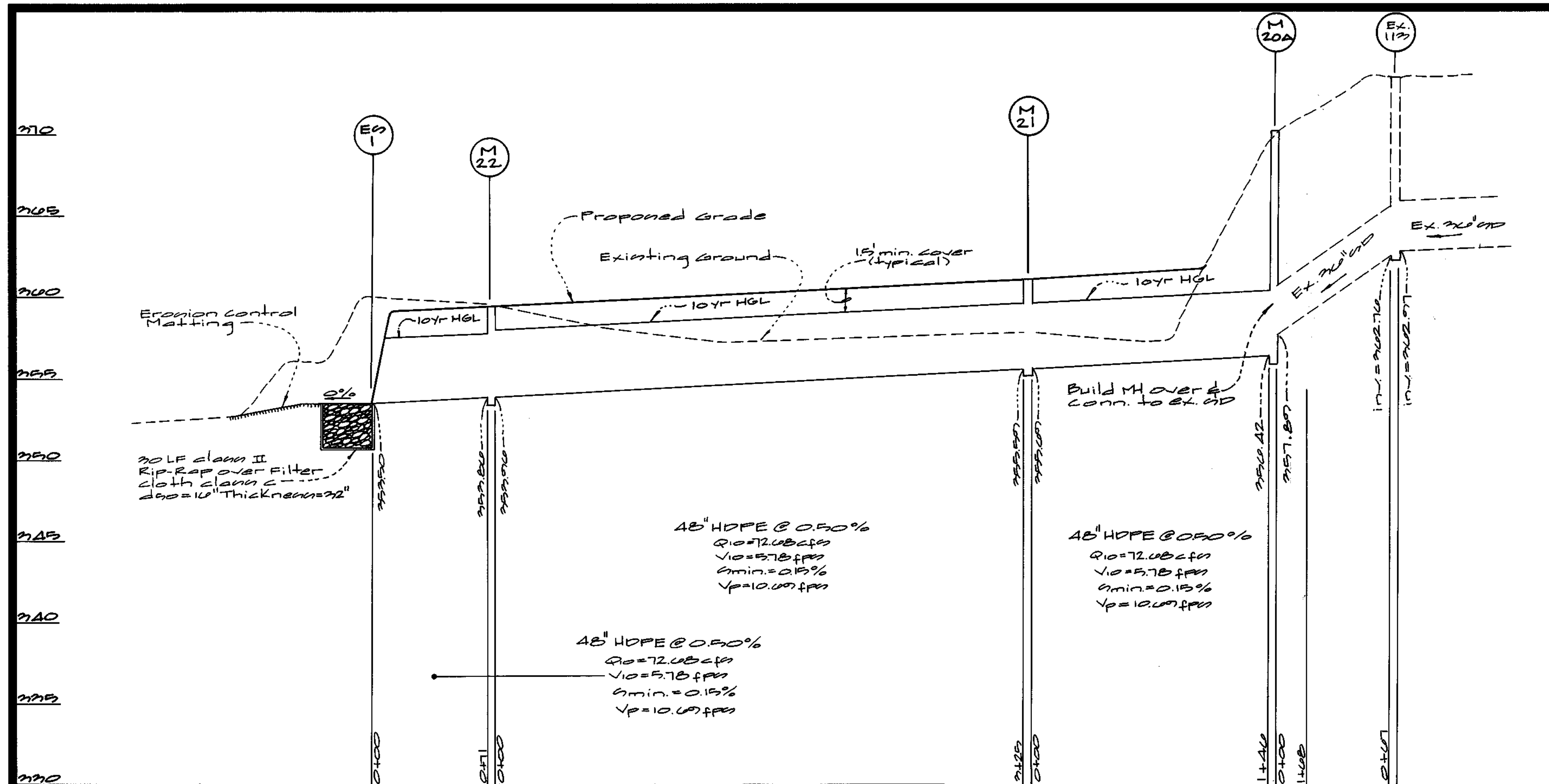
GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONTOWN OFFICE PARK
 BURTONTOWN, MARYLAND 20866
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD 21044
 PH: 410-992-6027
 ATTN: MR. AL EDWARDS

Storm Drain Profiles
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT NO.

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	91055
DATE	TAX MAP - GRID	SHEET
January, 2000	43 / 7 & 42 / 11 & 12	14 OF 18

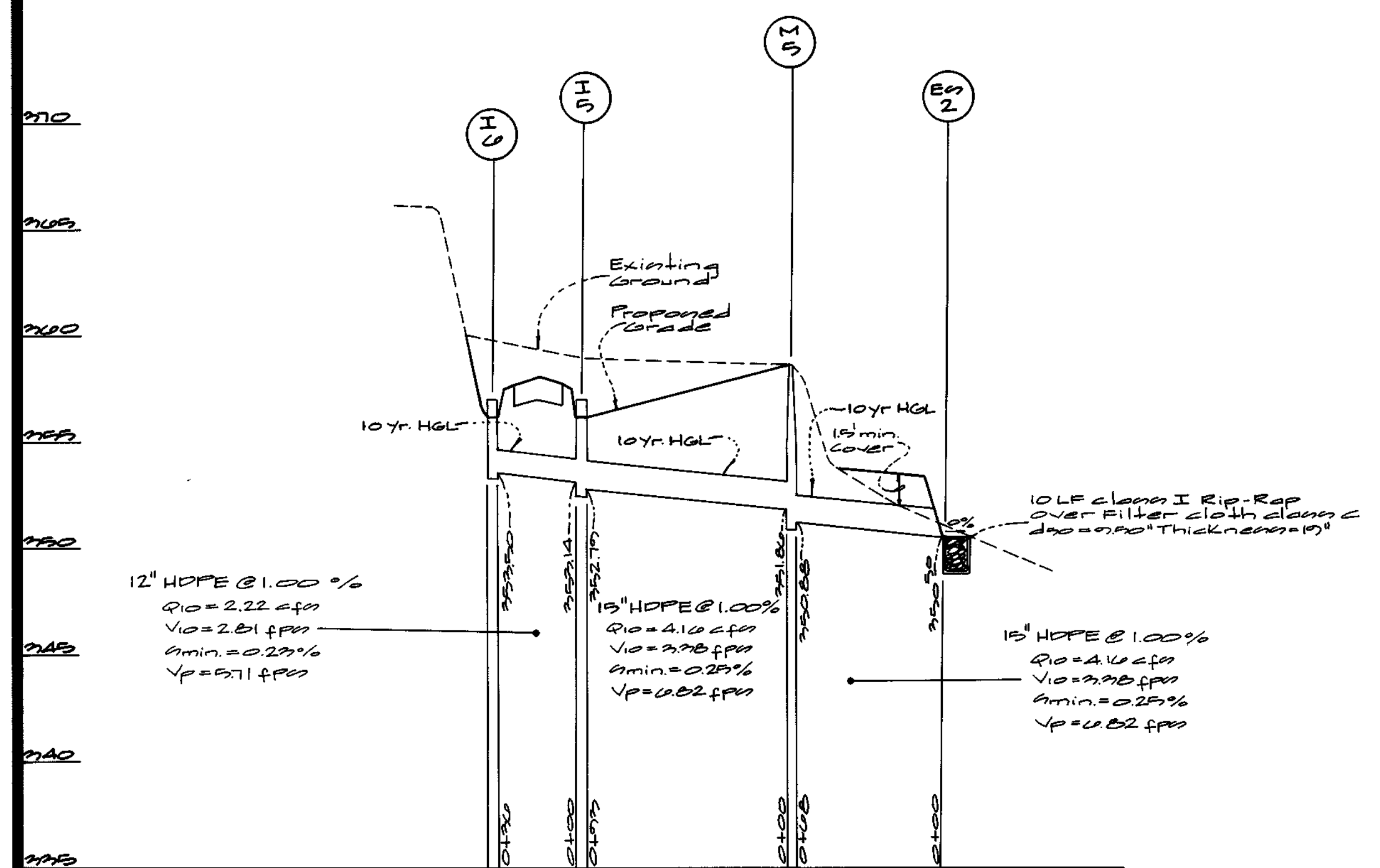


Structure Schedule

No.	Type	Width (inside)	Top Elevation		Invert Elevation		St'd Detail	Locations	Remarks
			Upper	Lower	Upper	Lower			
I-1	A-10 Inlet	5'-0"	332.41	323.50	324.70	324.02	See Plan	Est. 1400.05 Left 10'	
I-2		2'-0"	332.41	330.13	325.10		See Plan	Est. 1400.05 Right 10'	
I-3		5'-0"	343.76	344.45	334.00	333.52	See Plan	Est. 4+85 Left 10'	
I-4		2'-0"	343.76	344.45	—	340.00	See Plan	Est. 4+85 Right 10'	
I-5	Type D Inlet	2'-7"	337.04	333.14	332.70	327.40	See Plan	Est. 3+50.00 Left 10'	
I-6	Type D Inlet	2'-7"	337.04	—	333.50	327.40	See Plan	Est. 3+50.00 Right 10'	
M-1	Manhole	6' Dia.	327.50	321.05	321.15	MD 324.05	See Plan	See Plan	Dog House
M-2		6' Dia.	322.50	323.02	323.50	MD 324.05	See Plan	Est. 2+80 Left 10'	
M-3		5' Dia.	324.12	327.04	327.25	GS.11 & GS.13	See Plan	Est. 2+80 Left 15'	
M-4		5' Dia.	324.57	347.28	344.71	GS.11 & GS.13	See Plan	Est. 0+41 Left 15'	
M-5		4' Dia.	325.50	331.80	330.80	GS.11 & GS.13	See Plan	Est. 4+45 Left 32'	
M-20		5' Dia.	322.00	326.80	323.00	GS.11 & GS.13	See Plan	See Plan	Shallow Manhole
M-21		6' Dia.	320.00	333.50	333.00	MD 324.05	See Plan	See Plan	Shallow Manhole
M-22		6' Dia.	321.70	329.80	333.00	MD 324.05	See Plan	See Plan	Shallow Manhole
ES-1	HOPE Endsect	—	—	—	—	—	See Plan	See Plan	
ES-2	HOPE Endsect	—	—	—	—	—	See Plan	See Plan	
ES-3	HOPE Endsect	—	—	—	—	—	See Plan	Est. 1+21 Right 10'	
M20A	Manhole	6' Dia.	320.00	327.80	334.42	MD 324.05	Site Plan	See Plan	Dog House

Pipe Schedule

size	type	quantity (l.f.)	Remarks
12"	HDPE	111	
15"	HDPE	100	
20"	HDPE	48	
24"	HDPE	20	
42"	HDPE	0.74	
48"	HDPE	5.47	

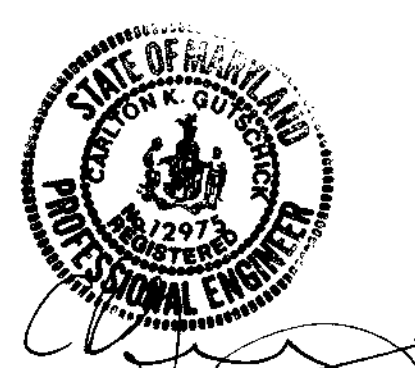


Profile scales
 Horizontal: 1" = 50'
 Vertical: 1" = 5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Christopher M. Jankowski 2-22-00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chris Jankowski 3/4/0
 Chief, Division of Land Development Date

Michael Jankowski 3/1/00
 Chief, Development Engineering Division MK Date



GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD 21044
 PH: 410-992-6027
 ATTN: MR. AL EDWARDS

Storm Drain Profiles & Schedules
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT NO.

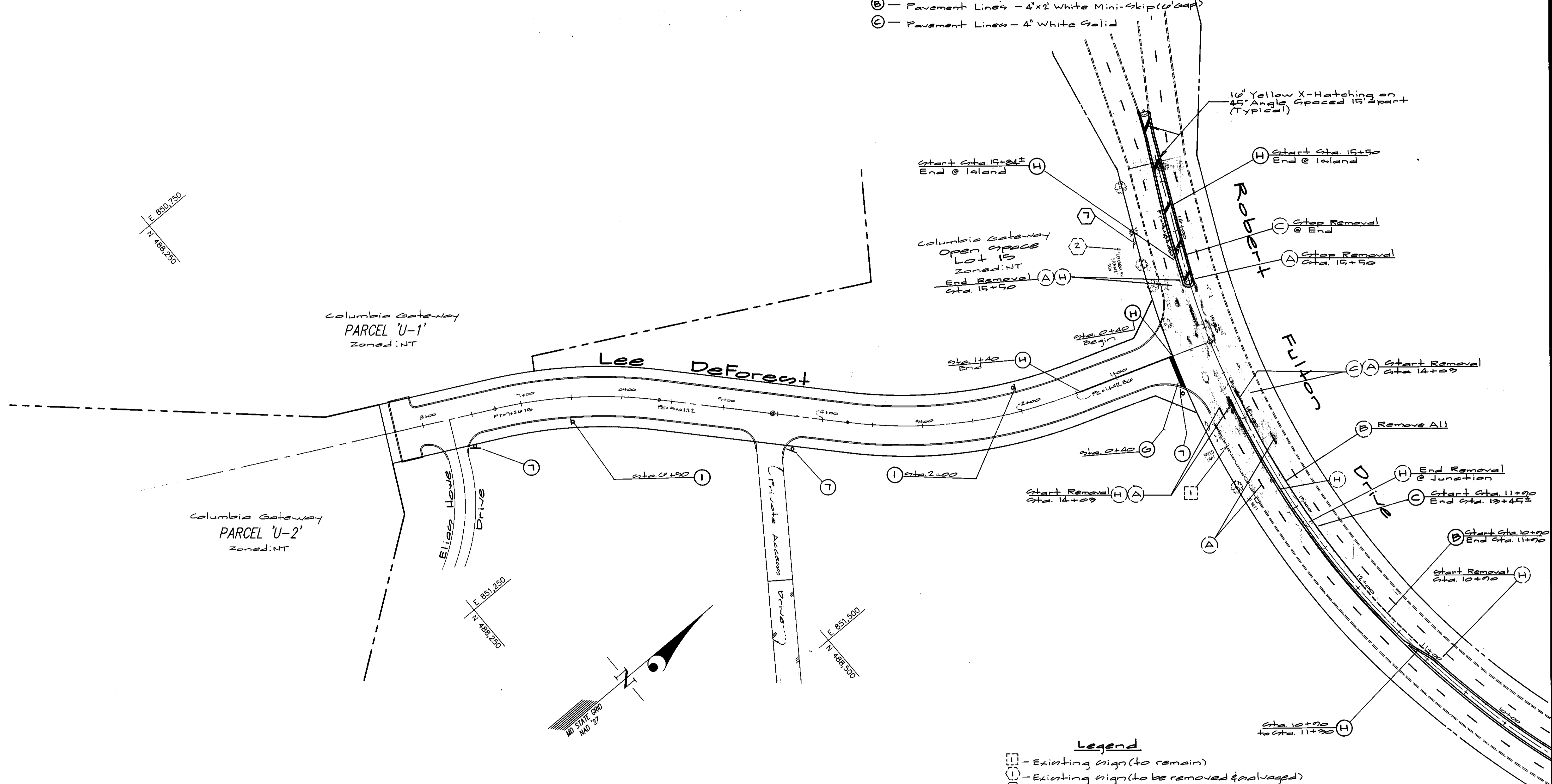
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	91055
DATE January, 2000	TAX MAP - GRID 43 / 7 & 42 / 11 & 12	SHEET 15 OF 18

PAVEMENT MARKING NOTES

ALL PAVEMENT MARKINGS TO BE APPLIED USING 'SETFAST' PREMIUM ALKYD TRAFFIC PAINT BY SHERWIN WILLIAMS OR APPROVED EQUAL.
 EXISTING PAVEMENT MARKINGS THAT ARE IN CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS FOR THIS CONTRACT WILL BE REMOVED BY THE CONTRACTOR BY GRINDING

Legend

- (A) - Pavement Lines - 4"x10" White Skip (30' cap)
- (G) - Pavement Lines - 24" White Transverse Stop Line
- (H) - Pavement Lines - 4" Double Yellow Solid
- (B) - Pavement Lines - 4"x2" White Mini-Skip (6' cap)
- (C) - Pavement Lines - 4" White Solid



- Legend**
- (□) - Existing sign (to remain)
 - (1) - Existing sign (to be removed & salvaged)
 - (2) - Existing sign (to be removed & reset at new location)
 - (3) - New sign as below

SIGNING NOTES

1. SIGN ERRECTED AT THE SIDE OF THE ROAD SHALL BE MOUNTED AT A HEIGHT OF AT LEAST 7 FEET MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVEMENT.
2. ALL SIGNS TO BE MOUNTED ON 4"x4"x12" WOLMANIZED, (PRESSURE TREATED), WOODEN POSTS.
3. SIGNS SHALL BE 42" TO 48" FROM EDGE OF SIGN TO CURB LINE. STOP SIGNS SHALL BE LOCATED 48" BACK FROM INTERSECTING STREET CURB LINE OR AS DIRECTED BY HOWARD COUNTY TRAFFIC DIVISION.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
T. J. Smith 2-22-00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chris Hamilton 3/9/0
 Chief, Division of Land Development Date
Michael R. ... 2/1/00
 Chief, Development Engineering Division MK Date



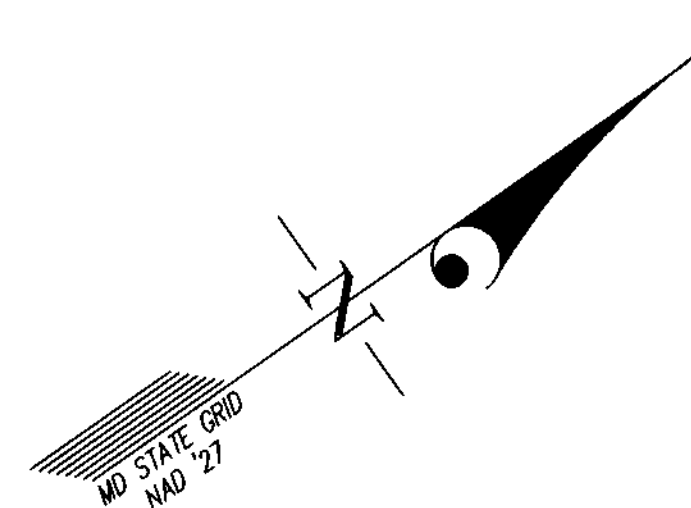
GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

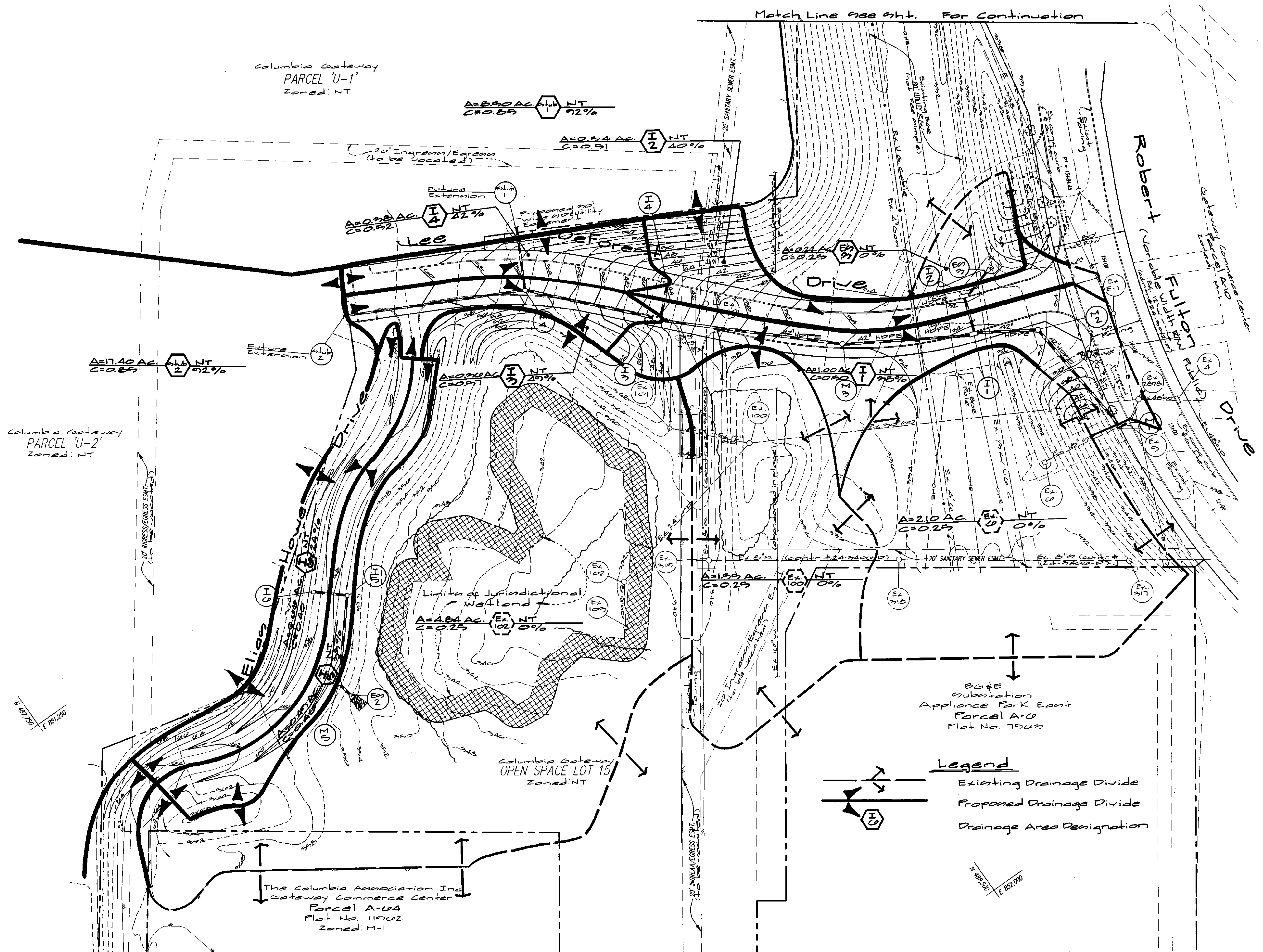
PREPARED FOR:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD. 21044
 (410) 992-6027
 ATTN: MR. AL EDWARDS

striping & signage Plan
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT NO.
 ELECTION DISTRICT No. 6
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	NEW TOWN & M-1	91055
DATE	TAX MAP - GRID	SHEET
January, 2000	43-7 42-11 & 12	10 OF 18



N 486,000 E 850,750



Legend
 ——— Existing Drainage Divide
 - - - Proposed Drainage Divide
 I 1 Drainage Area Designation

N 486,500 E 852,000

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 2/22/00
 Chief, Bureau of Highways HS Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cinda Hamstra 3/9/00
 Chief, Division of Land Development Date

Mike Damman 3/1/00
 Chief, Development Engineering Division MK Date

The Columbia Association Inc
 Gateway Commerce Center
 Parcel A-04
 Plat No. 11902
 Zoned: M-1

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 5909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
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DATE	REVISION	BY	APPR.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MD 21044
 PH: 410-992-6027
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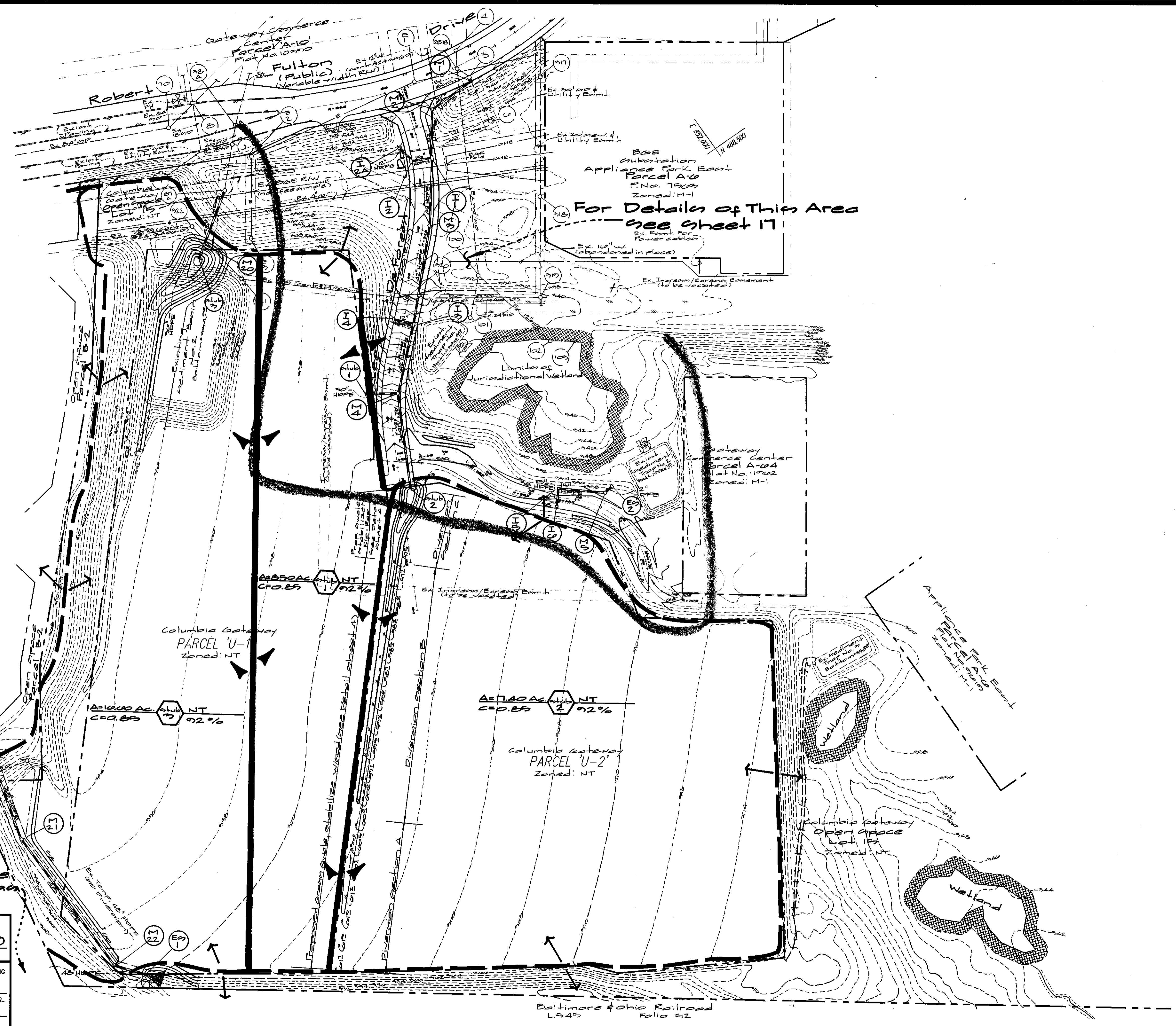
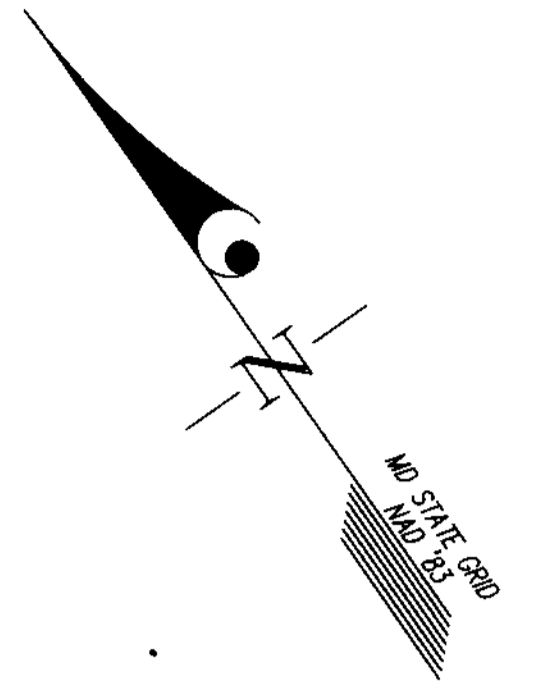
Drainage Area Map
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT No.

ELECTION DISTRICT No. 6

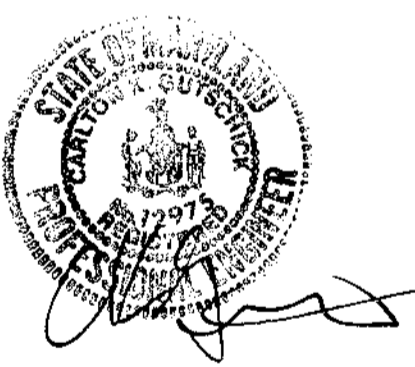
SCALE 1" = 50'	ZONING NT & M-1	G. L. W. FILE No. 91055
DATE January, 2000	TAX MAP - GRID 43 / 7 & 42 / 11 & 12	SHEET 17 of 18

HOWARD COUNTY, MARYLAND

F-00-74



Snowden Ridge
Section 2 Area 2
Zoned: RA-1B



EGU subdivision
Parcel A
Plat Book 23, Plat No. 13
Zoned: M-1

Note: For Offsite Drainage
Area Map-use compo

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Davelos 2/22/00
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chris Hamilton 3/9/00
 Chief, Division of Land Development Date

Mike Deane 3/1/00
 Chief, Development Engineering Division Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
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DATE	REVISION	BY	APPR.

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 10275 LITTLE PATUENT PARKWAY
 COLUMBIA, MD 21044
 PH: 410-992-6027
 ATTN: MR. AL EDWARDS

Drainage Area Map Overview
COLUMBIA GATEWAY
 PARCEL 'U-1', 'U-2' AND OPEN SPACE LOT 15
 PLAT No.

SCALE	ZONING	G. L. W. FILE No.
1" = 100'	NT & M-1	91055
DATE	TAX MAP - GRID	SHEET
January, 2000	43/7 & 42/11 & 12	18 of 18