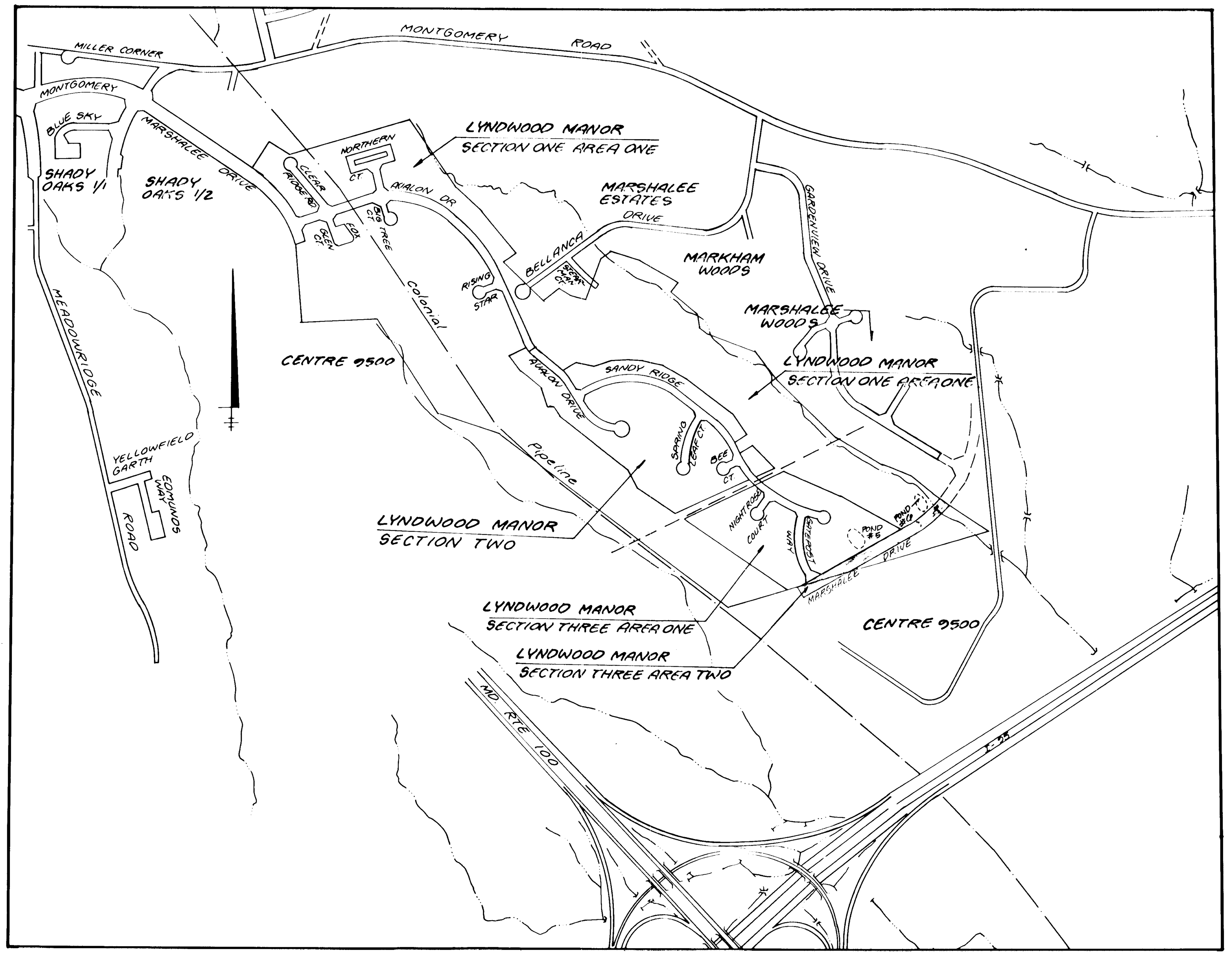
INDEX OF SHEETS



LOCATION MAP

Scale 1" = 600'

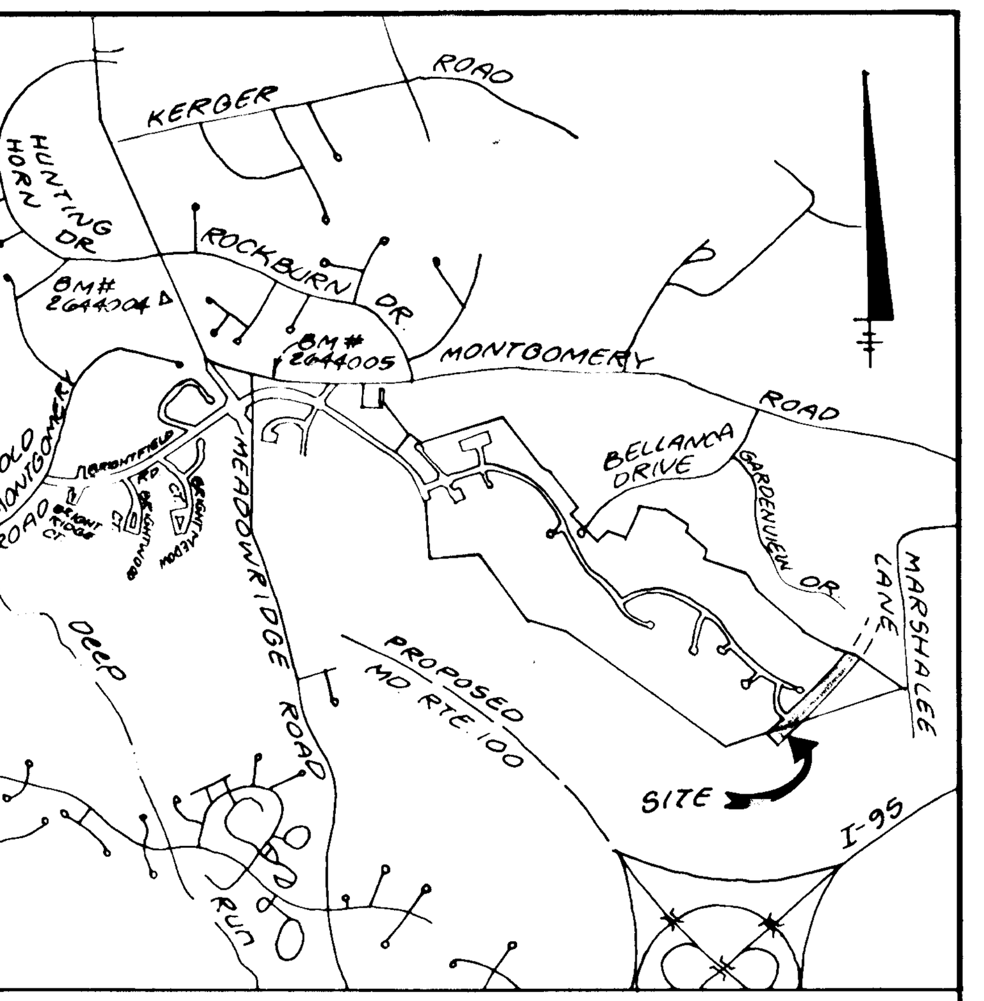
BENCHMARK

Ho Co Mon. # 2644004 El. 402.135
Ho. Co. Mon. # 2644005 El. 416.981

DESCRIPTION

Ho. Co. Mon. # 2644005 El. 416.981
Concrete Monument .2' Below Surface South Side Montgomery Road East Of Meadow Ridge Road.

Ho. Co. Mon # 2644004 El. 402.135
Concrete Monument .1' Below Surface SW Corner Of Intersection Rte 103 and Old Montgomery Road.



VICINITY MAP

Scale 1" = 2000'

NOTES

1. All construction shall be in accordance with the latest standards and specifications of Howard County, Volume IV.
2. The contractor shall notify the Department of Public Works/Bureau of Construction Inspection Division at (410) 313-1880 - at least twenty-four (24) hours prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work.
4. Project background.

Location:	Elkridge, Tax Map 37, Parcel 38, P/O 80, 529, 542, 640, 643
Zoning:	RSC (Residential: Single Cluster)
SB/BA Ref:	ZB/BA Ref. ZB 877 R&M, PB 284, RES 188
Election District:	1st
Section/Area:	Three/Two
Total Tract Area:	150.43 Ac. plus/minus
Section/Area:	2.1824 Ac. plus/minus
No. of Proposed Lots:	0
Previous Submittals:	WP91-33, F91-125, S93-02, P93-11, SDP93-75, SDP93-105, F94-27, F94-28, F94-29

5. 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.
6. Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume III (1993) and as modified by Guidelines for Street Lights in Residential Developments (June 1993).
7. Storm drain trenches within the public road right-of-way shall be backfilled and compacted in accordance with the Howard County Standard Specifications and Details, Design Manual Volume IV.
8. Any damage to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the contractors expense.
9. 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 contractors 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.
10. The topography shown hereon is compiled from photogrammetric aerial survey dated March 16, 1986 by Dewberry & Davis, supplemented with field run data prepared by Land Design Engineering, Inc., June 1992.
11. Horizontal and vertical datums are related to the Maryland State Plane Coordinate system as projected from Howard County Control Stations No. 2644004 and No. 2644005 (NAD 27).
12. Public water and public sewer are available to the site by means of extensions:
    Water: Contract No. 14-3373-D
    Sewer: Contract No. 14-3373-D
13. Permanent quantity management is by detention. Quality management is by extended detention. Pond #6 is to be a public facility
14. Wetlands delineation by Exploration Research, Inc dated 1992, approved by United Stated Army Corps of Engineers June, 1992
15. Noise study compiled by Land Design Engineering, Inc as part of P93-11 approval, December 31, 1991.
16. Floodplain analyzed by Land Design Engineering, Inc. December, 1992 based on field run data from 1992 and 1993 (P93-11).
17. Traffic study compiled by Lee Cunningham & Associates, Inc. dated November, 1992 as part of S93-02 approval, and F94-26.
18. Geotechnical reports compiled by Hillis Carnes for existing Pond #6 dated March 23, 1994. Additional borings dated June 1, 1994.
19. Waiver Petition WP93-29 for roads to exceed 1200' Section 16.113(c)(10) approved December 23, 1992. Waiver request WP93-86 to waive Section 16.115(b)(2) to provide 20' minimum frontage for lot areas under 40,000 square feet; waive Section 16.115B to front lots on a public or private road not exceeding 200' section 16.115C, that no more than two (2) pipestem lots may have adjoining driveways; Section 16.116C, grading adjacent to wetlands shall not be permitted, approved March 18, 1993.
20. All hydraulic data is for the 10-year storm unless otherwise noted.
21. All existing grades are from survey data March 16, 1986, or proposed grades shown on previous Final Plans.
22. 95% compaction in fill areas shall be determined by ASSHTO T-180.
23. Sidewalks and sidewalk ramps shall be designed in accordance with current ADA requirements.
24. 401 Permit # RP 91-00460-7, exp. Aug. 1, 1995
    404 Permit # 92-WQ-0313, exp. July 29, 1995
25. A Geotechnical Engineer must be present during the construction of the proposed culvert crossing at station 87+60± Marshalee Drive. See construction details on sheet 10.

ROAD & STORM DRAIN CONSTRUCTION PLANS

LYNDWOOD MANOR

SECTION THREE AREA TWO

1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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.

Bruce D. Burton 5/22/95
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.

3/21/94
Signature of Developer Date

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

U.S. Soil 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

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

Chief, Land Development Division 6/16/95 Date

Chief, Bureau of Engineering 6/16/95 Date

Chief, Bureau of Highways 6-6-95 Date

APPROVED: Department of Planning and Zoning

Chief, Division of Land Development and Research 6/22/95 Date

Bruce D. Burton 5/22/95

LAND DESIGN ENGINEERING, INC.
8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED	TITLE SHEET	SCALE
LDE	LYNDWOOD MANOR	AS SHOWN
DRAWN	SECTION THREE AREA TWO	DRAWING
WJ/GL/SD	P/O Marshalee Drive R/W, a resubdivision of Lyndwood Manor Section 1 Area 1 Lot 181 & Centre 9500 P/o Parcel R Tax Map 37 Part of Parcels 643, 38, 640	1 of 11
CHECKED	1st Election District Howard County, MD	JOB No.
RM	Previous Submittals ZB877 R&M, WP91-33, F91-125, SDP93-75, RES 188, S93-02, PB284, P93-11, SDP 93-105, F-94-27, F-94-26	92-176.7
DATE	Owner / Developer	FILE No.
12/94	100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	F94-96

F-94-96

1723

CENTERLINE CURVE DATA						
NAME AND STATION	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
Future Marshalee Drive 68+40.83 TO 75+18.29	950.00'	40°51'31"	677.46'	353.86'	663.20'	N79°32'21"E

CURB LEGEND

7" Std. Curb and Gutter
Std. Bituminous Curb

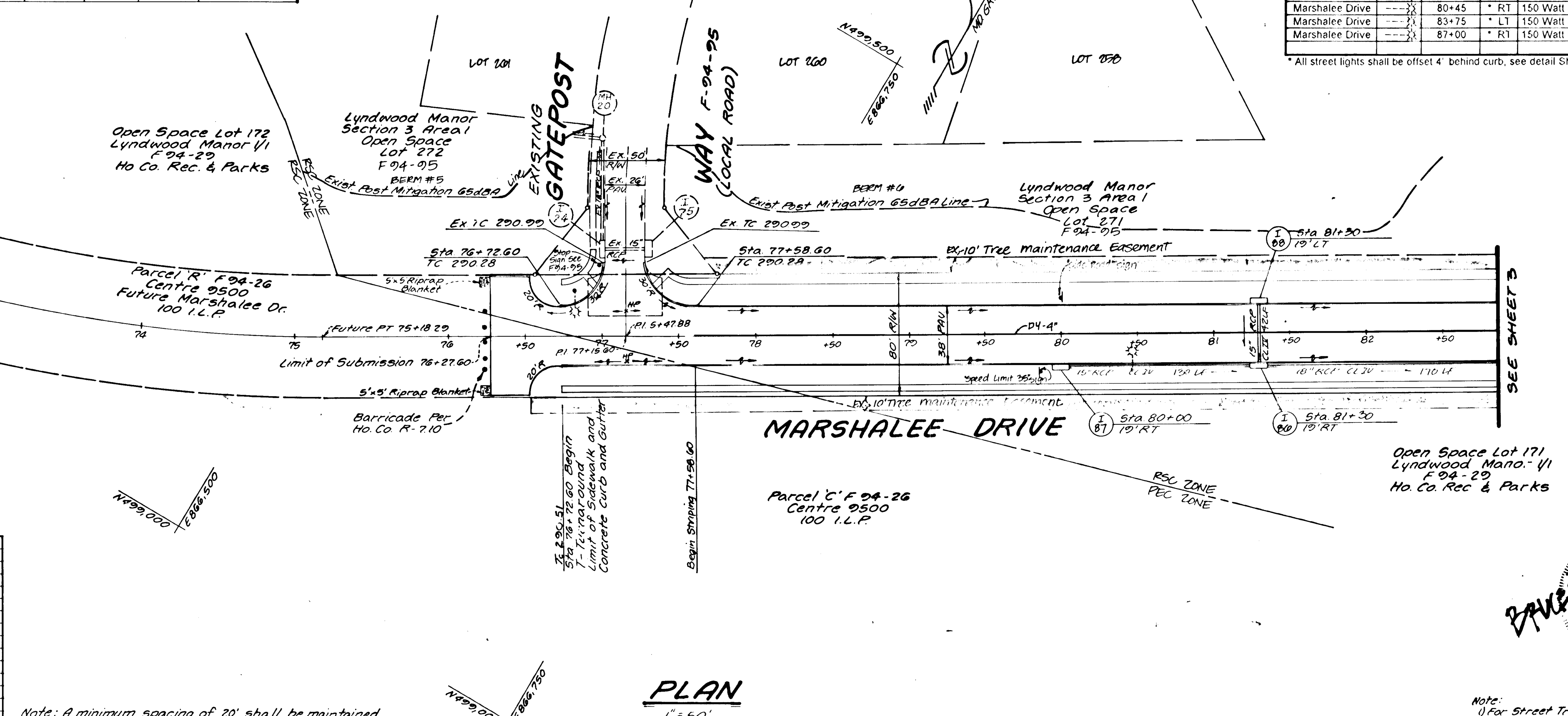
STRIPING LEGEND

D4A Double Yellow 4"

Street Light Legend

Street Name	Symbol	Centerline Station	Offset	Lamp Type	Post Type	Pole Type
Marshalee Drive	---☼	76+81	* LT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	80+45	* RT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	83+75	* LT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	87+00	* RT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole

* All street lights shall be offset 4' behind curb, see detail Sheet 4



PLAN

1" = 50'

Note: A minimum spacing of 20' shall be maintained between any street light and any tree.

SUPERELEVATION TABLE			
STATION	CL ELEVATION	TC RIGHT	TC LEFT
74+68.29	286.57	287.55	286.73
74+75	286.77	287.73	286.93
75+00	287.45	288.35	287.61
75+25	288.06	288.90	288.22
75+50	288.59	289.36	288.75
75+75	289.05	289.76	289.21
76+00	289.43	290.08	289.59
76+18.29	289.67	290.27	289.83
76+25	289.74	290.23	289.90
76+50	289.98	290.42	290.14
76+75	290.14	290.52	290.30
77+00	290.22	290.54	290.38
77+25	290.23	290.49	290.39
77+50	290.16	290.36	290.32
77+68.29	290.07	290.23	290.23

Note:
1) For Street Tree Locations, See Sheet 11
2) For Stormdrain Profiles and Structure sch. See Sheet 6
3) Stormdrain and ramps shall be designed in accordance with ADA requirements

BERM #5

Centerline Station Marshalee Drive	Centerline Offset	Top Elevation	Top Width
76+90	83' Left	292.0	2.0'
76+69	89' Left	299.0	2.0'
76+57	85' Left	303.0	2.0'
76+07	85' Left	303.0	2.0'
75+57	88' Left	299.0	2.0'
74+93	90' Left	298.0	2.0'

BERM #6

Centerline Station Marshalee Drive	Centerline Offset	Top Elevation	Top Width
82+15	62' Left	282.0	2.0'
81+15	61' Left	284.0	2.0'
80+27	86' Left	296.0	2.0'
79+82	85' Left	297.0	2.0'
78+77	81' Left	301.0	2.0'
78+00	78' Left	301.0	2.0'

APPROVED: Department of Planning and Zoning

[signature] 6/22/95
Chief, Division of Land Development and Research — Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

[signature] 6/16/95
Chief, Land Development Division — Date

[signature] 6/16/95
Chief, Bureau of Engineering — Date

[signature] 6-6-95
Chief, Bureau of Highways — Date

Bruce D. Burton 5/22/95

LAND DESIGN ENGINEERING, INC.

8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED TD	ROAD CONSTRUCTION PLANS MARSHALEE DRIVE	SCALE AS SHOWN
DRAWN WJ	LYNDWOOD MANOR SECTION THREE AREA TWO	DRAWING 2 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643, 38, 640 1st Election District Howard County, MD S 93-02, P 93-11 F-94-26, F-94-29	JOB NO 92-176.7
DATE 12-94	Owner / Developer 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia Maryland 21045 (410) 730-0810	FILE NO F94-96

PLAN — NOTE BOOK No. — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED — BY — DATE

PROFILE — NOTE BOOK No. — SURVEYED, PLOTTED, GRADES CHECKED, B.M.'s NOTED, STRUCTURE NOTATIONS CHECKED — BY — DATE

1708

HIGHWAY FEDERAL AID SHEET
PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
NATIONAL PRINTCRAFT
PRINTED IN U.S.A.

F-94-96

CENTERLINE CURVE DATA

NAME AND STATION	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
MARSHALEE DRIVE 85+99.03 TO 88+14.53	741.00'	16°39'46"	215.50'	108.52'	214.74'	N50°46'42"E
FUTURE MARSHALEE DR. 88+14.53 TO 93+69.03	741.00'	42°52'31"	554.50'	290.96'	541.65'	N21°00'33"E

LEGEND

----- Limit of Reinforced Slope

SUPERELEVATION TABLE			
STATION	CL ELEVATION	TC RIGHT	TC LEFT
83+49.03	266.35	266.51	266.51
83+50	266.28	266.44	266.44
83+75	264.57	264.79	264.73
84+00	262.95	263.23	263.11
84+25	261.41	261.74	261.57
84+50	259.96	260.36	260.12
84+75	258.59	259.04	258.75
84+99.03	257.36	257.96	257.52
85+00	257.31	257.91	257.47
85+25	256.11	256.78	256.27
85+50	254.99	255.72	255.15
85+75	253.97	254.76	254.13
86+00	253.02	253.88	253.18
86+25	252.16	253.08	252.32
86+49.03	251.42	252.40	251.58

APPROVED: Department of Planning and Zoning

Chief, Division of Land Development and Research — 6/22/95 Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

Chief, Land Development Division — 6/16/95 Date

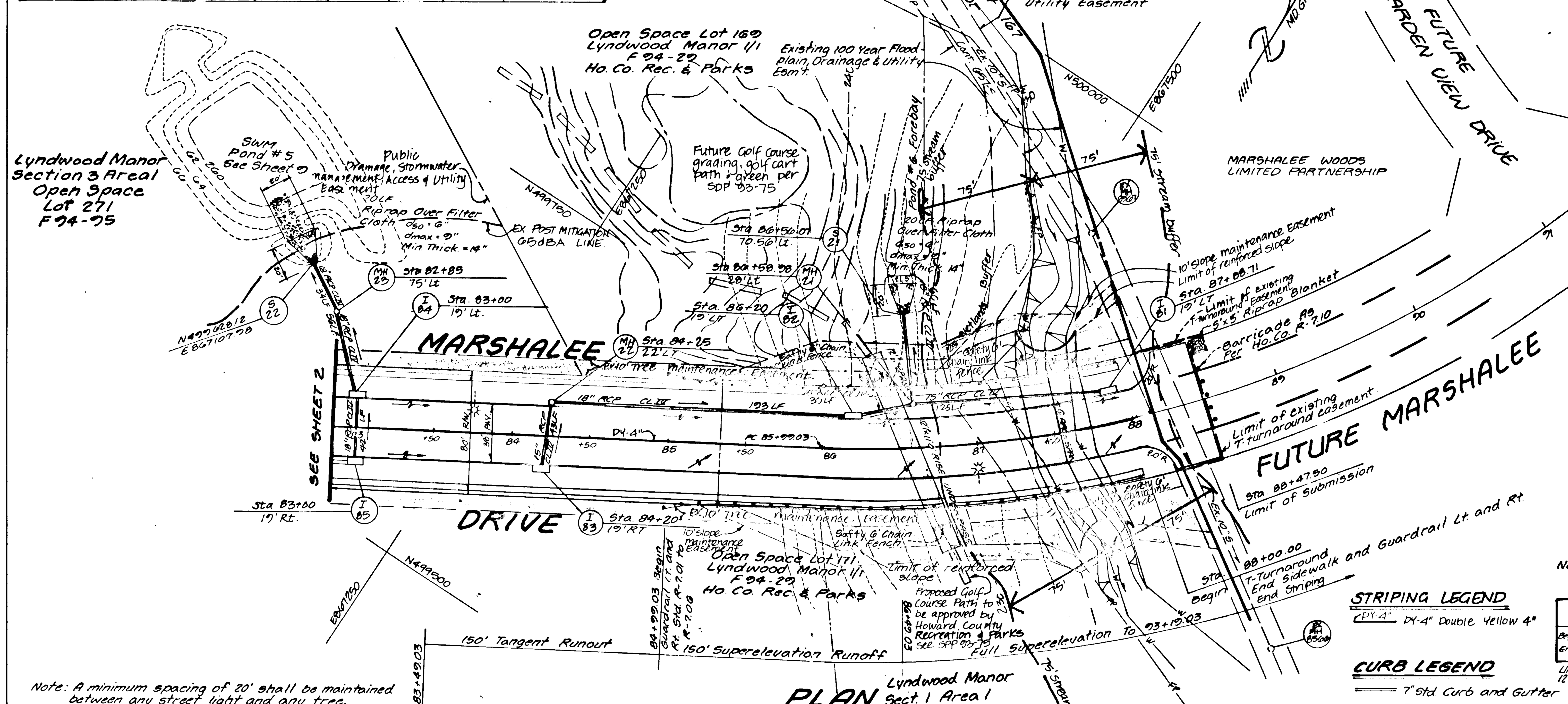
Chief, Bureau of Engineering — 6/16/95 Date

Chief, Bureau of Highways — 6-6-95 Date

Street Light Legend

Street Name	Symbol	Centerline Station	Offset	Lamp Type	Post Type	Pole Type
Marshalee Drive	---☼	76+81	* LT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	80+45	* RT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	83+75	* LT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	87+00	* RT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole

* All street lights shall be offset 4' behind curb, see detail Sheet 4



Lyndwood Manor Section 3 Area 1 Open Space Lot 271 F94-95
SWM Pond #5 See Sheet 9
Public Drainage, Stormwater Management Access & Utility Easements
Riprap Over Filter Cloth
Ex. Post Mitigation Gsaba Line
Open Space Lot 169 Lyndwood Manor 1/1 F 94-29 Ho. Co. Rec. & Parks
Existing 100 Year Flood-plain, Drainage & Utility Esmt.
Future Golf Course grading, golf cart path & green per SDP 95-75
Open Space Lot 167 Lyndwood Manor Sect. 1 Area 1 F-94-29
Ex. Public 20' Sewer & Utility Easement
MD GRID NORTH
FUTURE GARDEN VIEW DRIVE
MARSHALEE WOODS LIMITED PARTNERSHIP
MARSHALEE
DRIVE
FUTURE MARSHALEE DRIVE
SEE SHEET 2
Limit of existing T-Turnaround easement
Barricade as per Ho. Co. R-7.10
Sta 88+47.50 Limit of Submission
T-Turnaround End Sidewalk and Guardrail Lt and Rt
Open Space Lot 171 Lyndwood Manor 1/1 F 94-29 Ho. Co. Rec. & Parks
Safety 6' Chain Link Fence
Limit of reinforced slope
Proposed Golf Course Path to be approved by Howard County Recreation & Parks
150' Tangent Runout
150' Superelevation Runoff
Full Superelevation To 93+19.03
Lyndwood Manor Sect. 1 Area 1 F-94-29 Open Space Lot 170

Note: A minimum spacing of 20' shall be maintained between any street light and any tree.

PLAN
1" = 50'

STRIPING LEGEND

DY-4" Double Yellow 4"

12'1" X 11' UNDERPASS DATA	
Begin 1W, ℄	STATION 86+29.59 63.50' LT
End SE, ℄	STATION 86+77.78 63.00' RT

Underpass to be 12 gauge aluminum 12'-1" x 11'-0" Corrugated Aluminum Pipe Arch

CURB LEGEND

7" Std Curb and Gutter

Reverse 7" Curb and Gutter

Std Bituminous Curb

Note: The Culvert Construction Data can be found on sheet 10.

Note:
1) For Street Locations, See Sheet 11
2) For Storm Drain Profiles and Structure Schedules See Sheet 9.
3) Sidewalks and ramps shall be in accordance with ADA requirements.

LAND DESIGN ENGINEERING, INC.

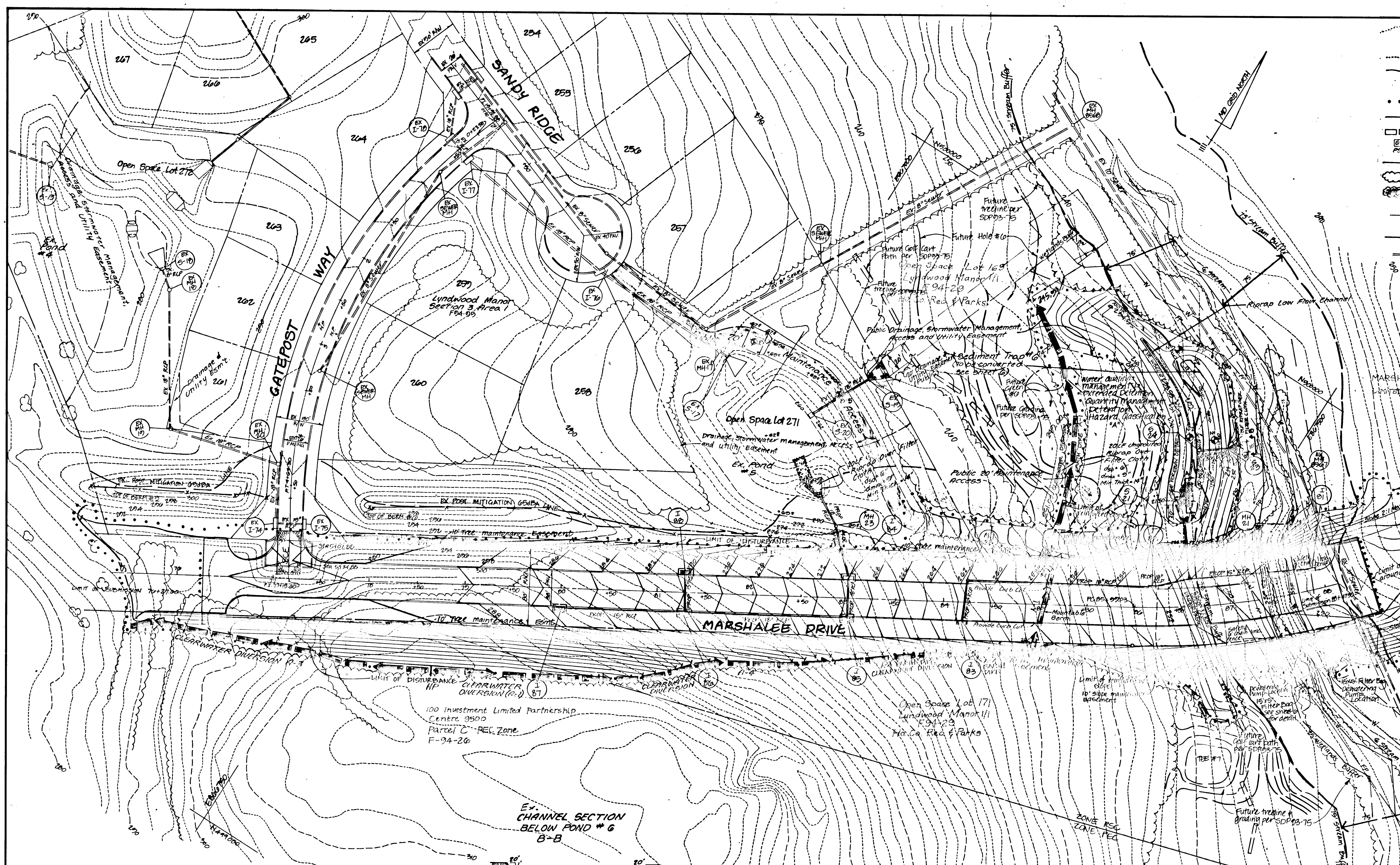
8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED TD	ROAD CONSTRUCTION PLANS MARSHALEE DRIVE	SCALE As Shown
DRAWN WJ	LYNDWOOD MANOR SECTION THREE AREA TWO	DRAWING 3 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643,38,640 1st Election District Howard County, MD S93-02, P93-11 F-94-26, F-94-29	JOB NO 92-1707
DATE 12-94	Owner / Developer 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia Maryland 21045 (410)730-0810	FILE NO. F94-96

PROFILE
MARSHALEE DRIVE
MINOR ARTERIAL DESIGN SPEED 40 MPH
1" = 50' HORIZ.
1" = 5' VERT.
EX. GROUND @ RT BRL
EX GROUND @ ℄
700.00'
VERTICAL CURVE DATA
PVI STA = 87+00
PVI ELEV = 241.78
LVC = 700.00'
H50 = 350'
e = +8.31'
FUTURE MARSHALEE DRIVE EXTENSION
EX GROUND @ LT BRL
EX GROUND @ ℄
PGL
270
265
260
255
250
245
240
SEE SHEET 2 FOR CONTINUATION
GOLF CART UNDERPASS
PROPERTY LINE
88+47.50 LIMIT OF SUBMISSION
SUMP
FUTURE PVT

F-94-96

1708



LEGEND

- ----342---- EXISTING CONTOUR (2' INTERVAL)
- ——342—— PROPOSED CONTOUR (2' INTERVAL)
- SCE STABILIZED CONSTRUCTION ENTRANCE
- • • • • • LIMIT OF DISTURBANCE
- ——SF—— SILT FENCE
- (A-1) EARTH DIKE
- GSS-3 PSO-18 PIPE SLOPE DRAIN (FLEXIBLE)
- ——W—— NON-TIDAL WETLANDS
- EXISTING WOODS TO BE REMOVED
- EXISTING WOODS TO REMAIN UNDISTURBED
- ——FP—— Limit of 100 Year Flood Plain
- ——SSF—— Super Silt Fence
- INLET PROTECTION

SUMMARY TABLE

Drainage Area = 1.67 Acres

SWM POND		2 YEAR	10 YEAR	100 YEAR
Allowable Release	(cfs)	0.50	8.40	1.80
Computed Inflow	(cfs)	2.80	6.10	10.10
Facility Discharge	(cfs)	0.20	2.90	7.30
Elevation at Discharge		233.55	234.09	234.55
Storage at Elevation	(AC\FT)	0.09	0.15	0.20

Note: 1. Crossing the stream with equipment is prohibited.
2. A Geotechnical Engineer must be present during the construction of the culvert crossing @ Sta. 87+60±.

Note: Reinforced slope to be stabilized immediately with crownvetch and temporary seed mixture. Refer to sheet 11 for crownvetch specifications.

TRAP SCHEDULE

Trap No.	Max D.A.	Stor. Req.d	Stor. Prov.	Stor. Elev.	Stor. Depth	Weir Length	Bottom Elev.	Cleanout Elev.	Crest Elev.	Top Elev.	Size
6	4.14	7452	8561	234.50	2.5	10	232.00	233.40	234.50	236	SEE PLAN

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. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.

Bruce D. Burton — 5/22/95
Signature of Engineer — Date

DEVELOPER'S CERTIFICATE

I/we certify that all development and 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 begining the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by Howard Soil Conservation District.

3/21/94
Signature of Developer — Date

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

Patricia Egle — 5/30/95
U.S. Soil Conservation Service — Date

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Robert W. Ziehm — 5/30/95
Howard Soil Conservation District — Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

6/16/95
Chief, Land Development Division — Date

6/16/95
Chief, Bureau of Engineering — Date

Andrew M. Dencker — 6-6-95
Chief, Bureau of Highways — Date

APPROVED: Department of Planning and Zoning

Gina Tiruminanyi — 6/22/95
Chief, Division of Land Development and Research — Date

Bruce D. Burton 5/22/95

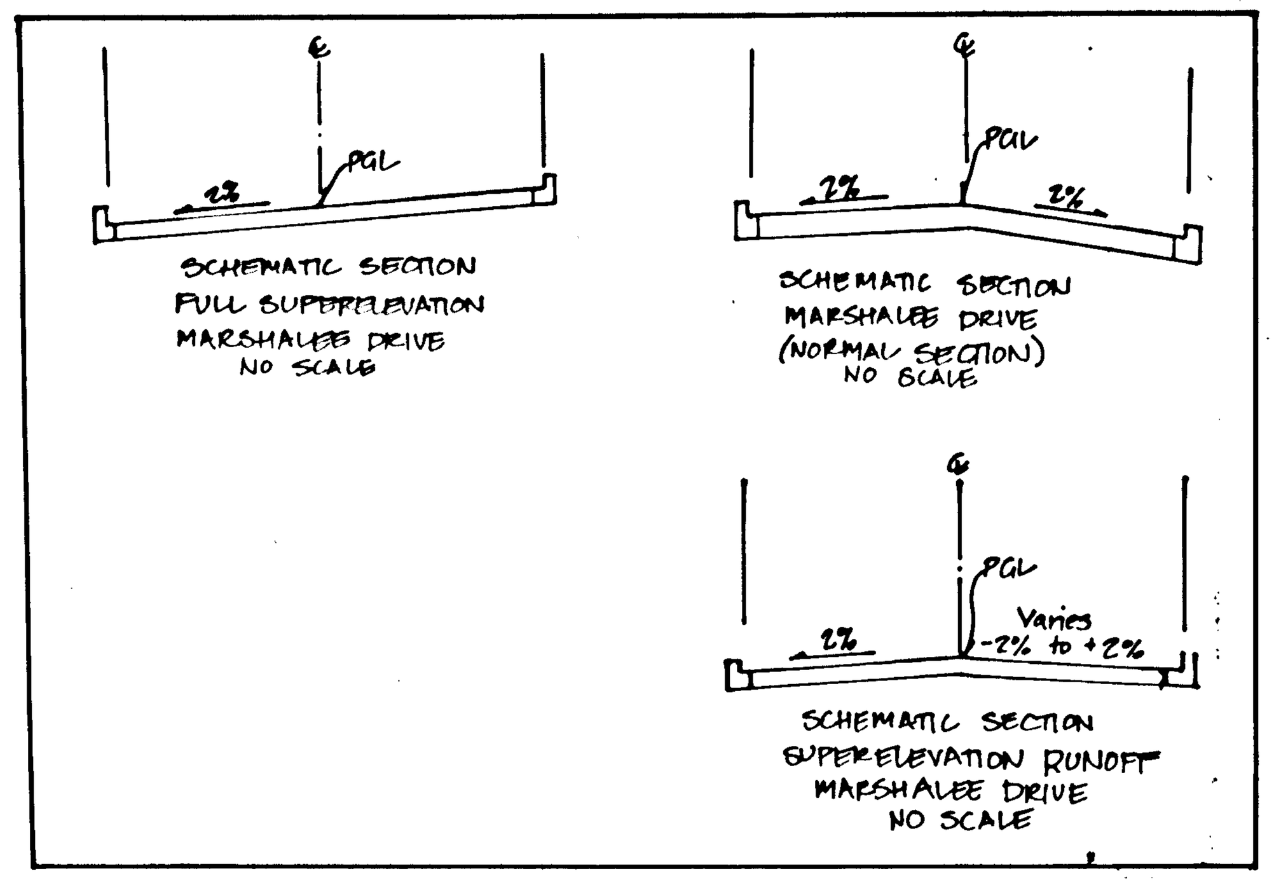
LAND DESIGN ENGINEERING, INC.

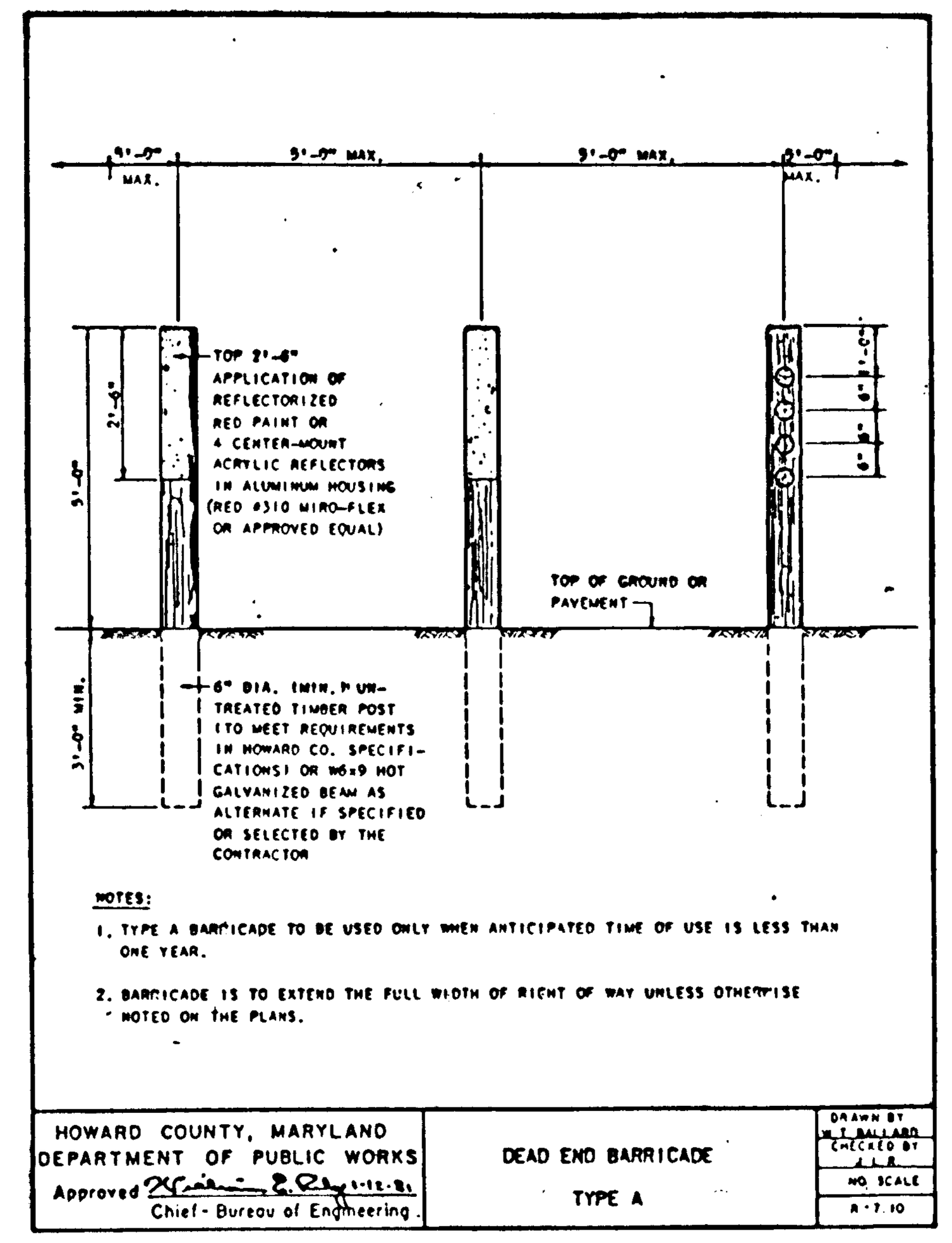
8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

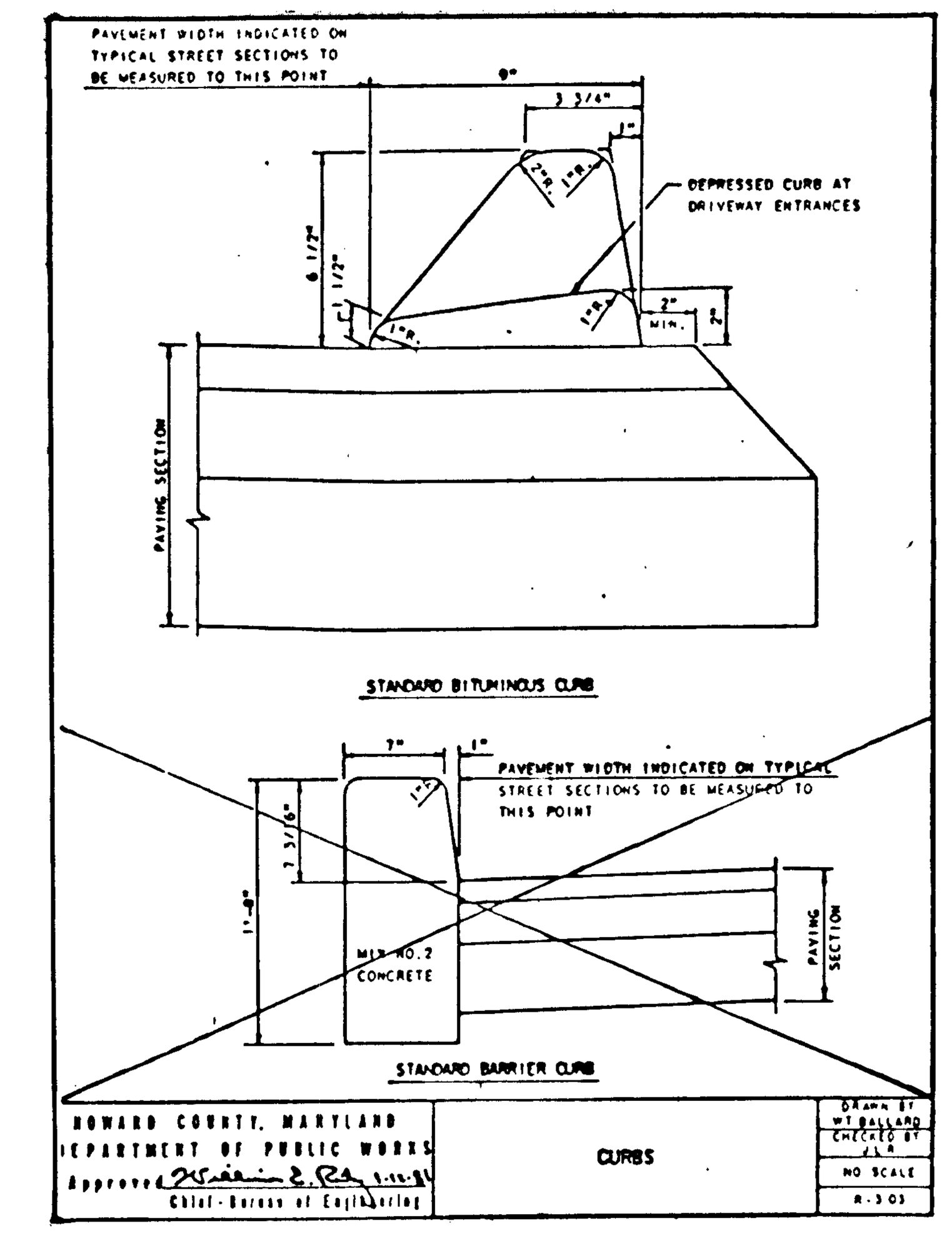
DESIGNED TD/ES	GRADING & SEDIMENT AND EROSION CONTROL PLAN	SCALE 1" = 50'
DRAWN GL	**LYNDWOOD MANOR** SECTION THREE AREA TWO	DRAWING 5 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643, 38, 640 1st Election District Howard County, MD.	JOB No. 92-176.7
DATE 12/94	Owner / Developer: 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	FILE No. F94-96

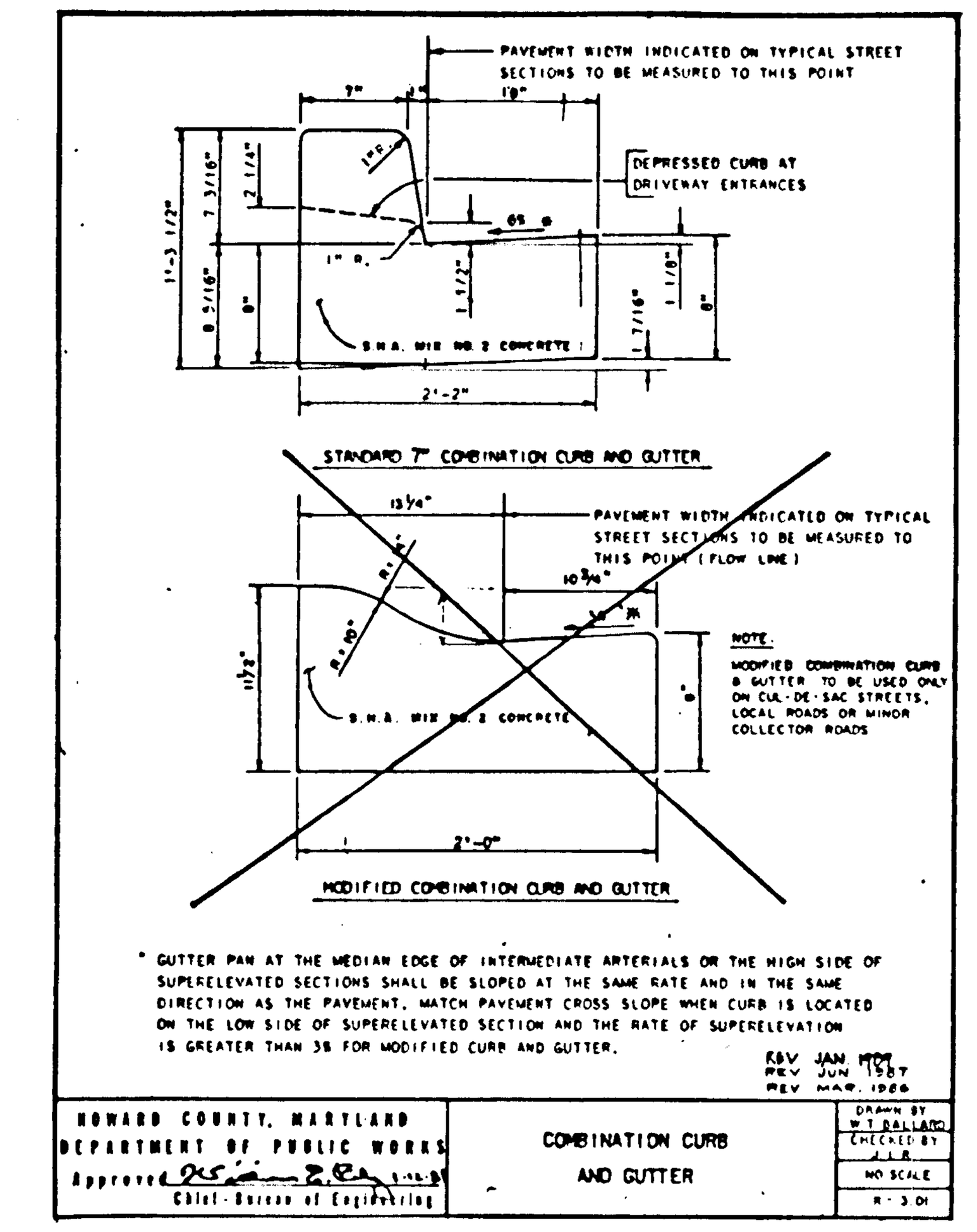
F-94-96

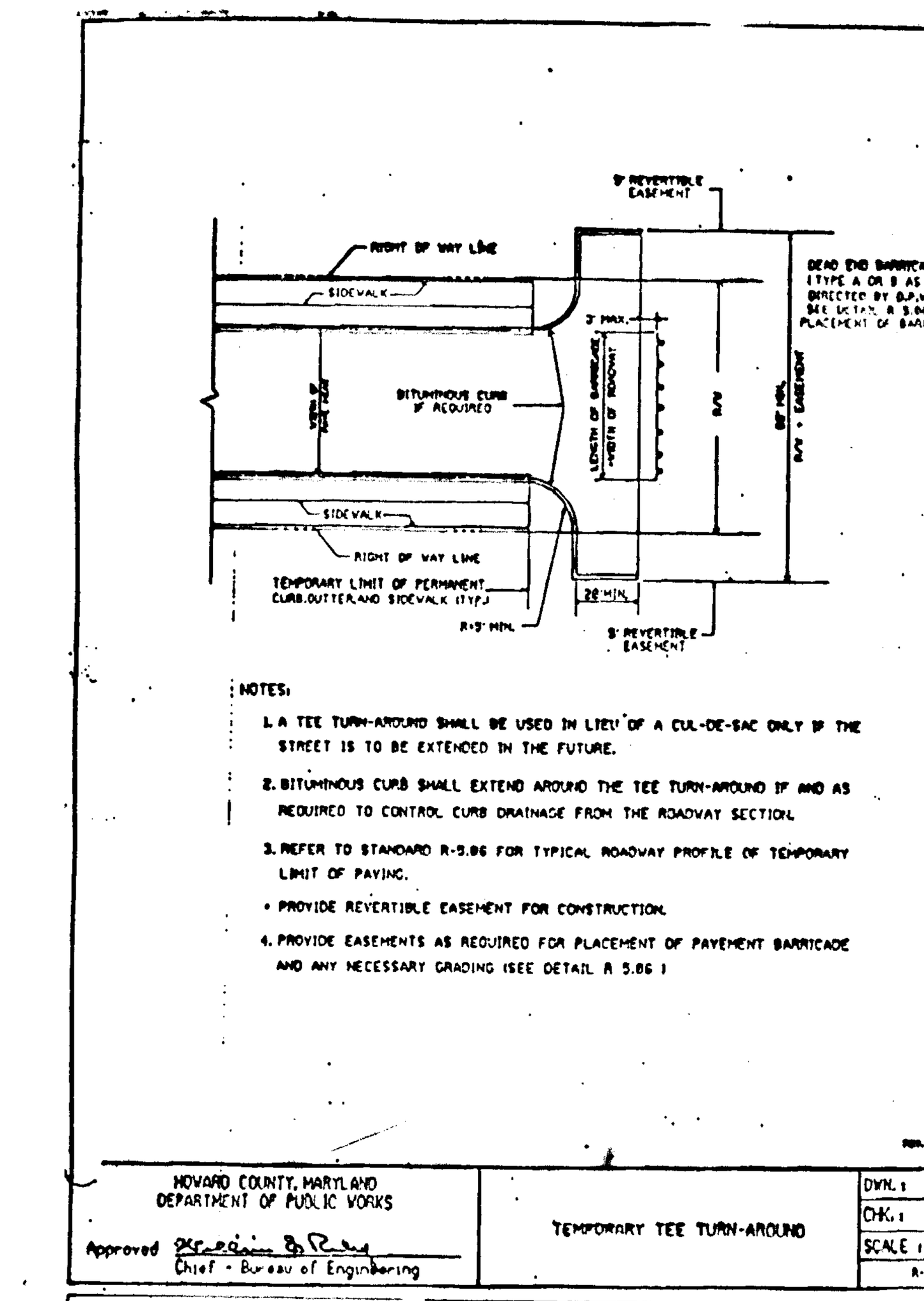
1708

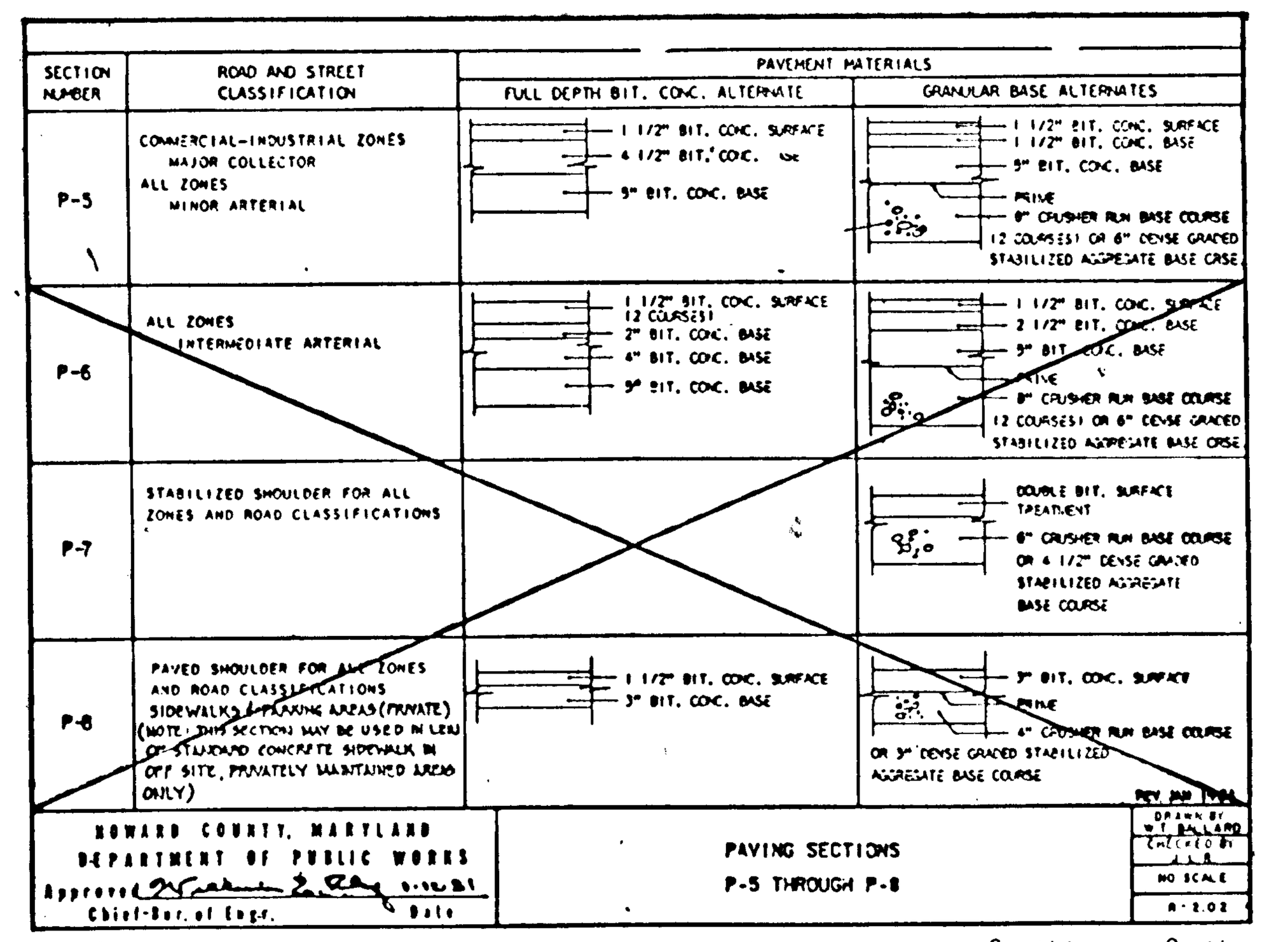




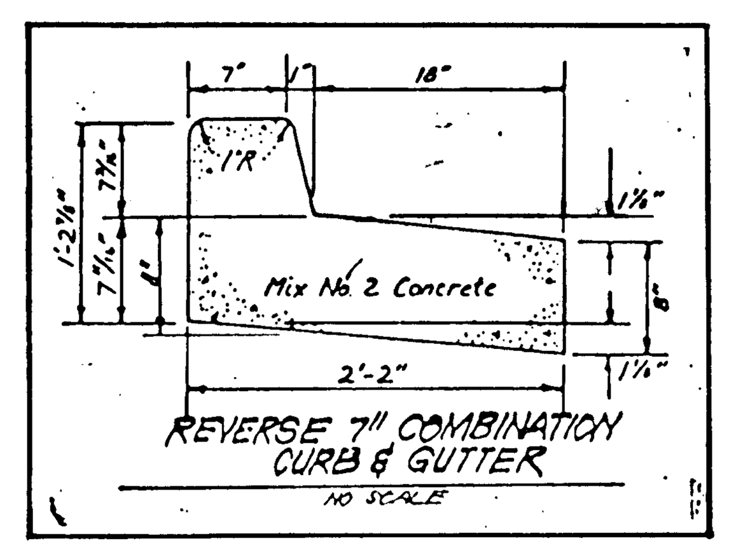








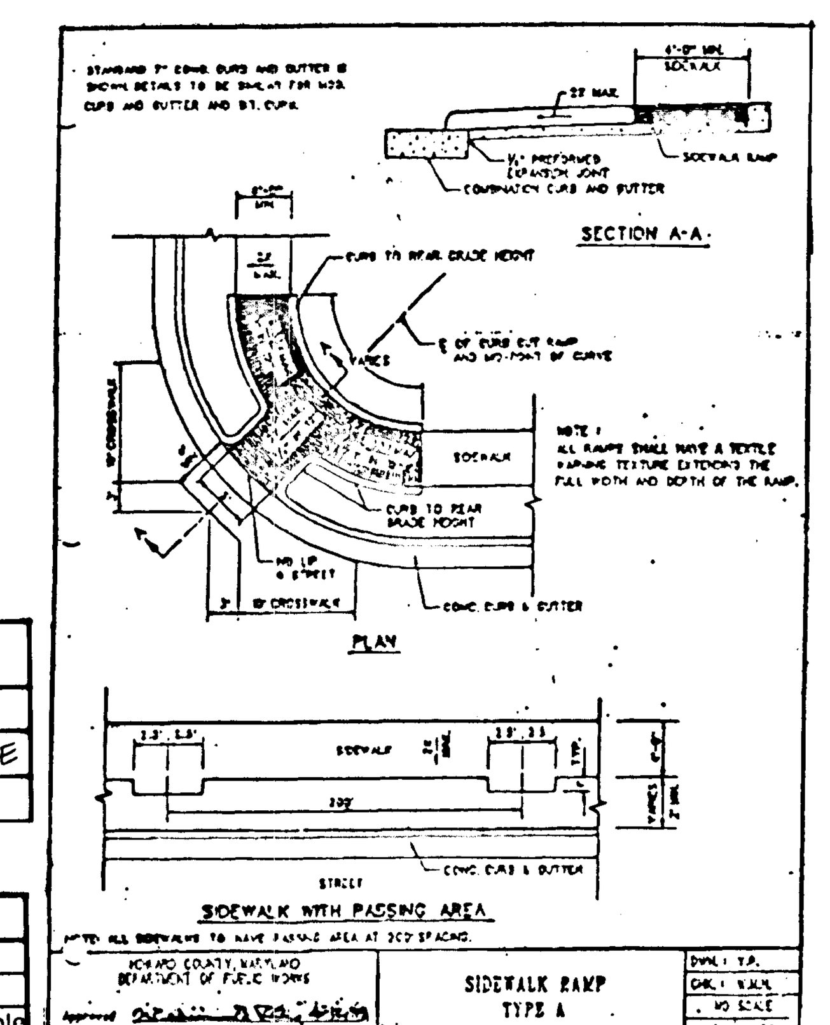
Note: Micaceous soils subgrades require the use of either of the aggregate base pavement sections as shown on the pavement section tables. Either the full depth bituminous concrete section or the aggregate base pavement sections can be used for all other subgrade soils.

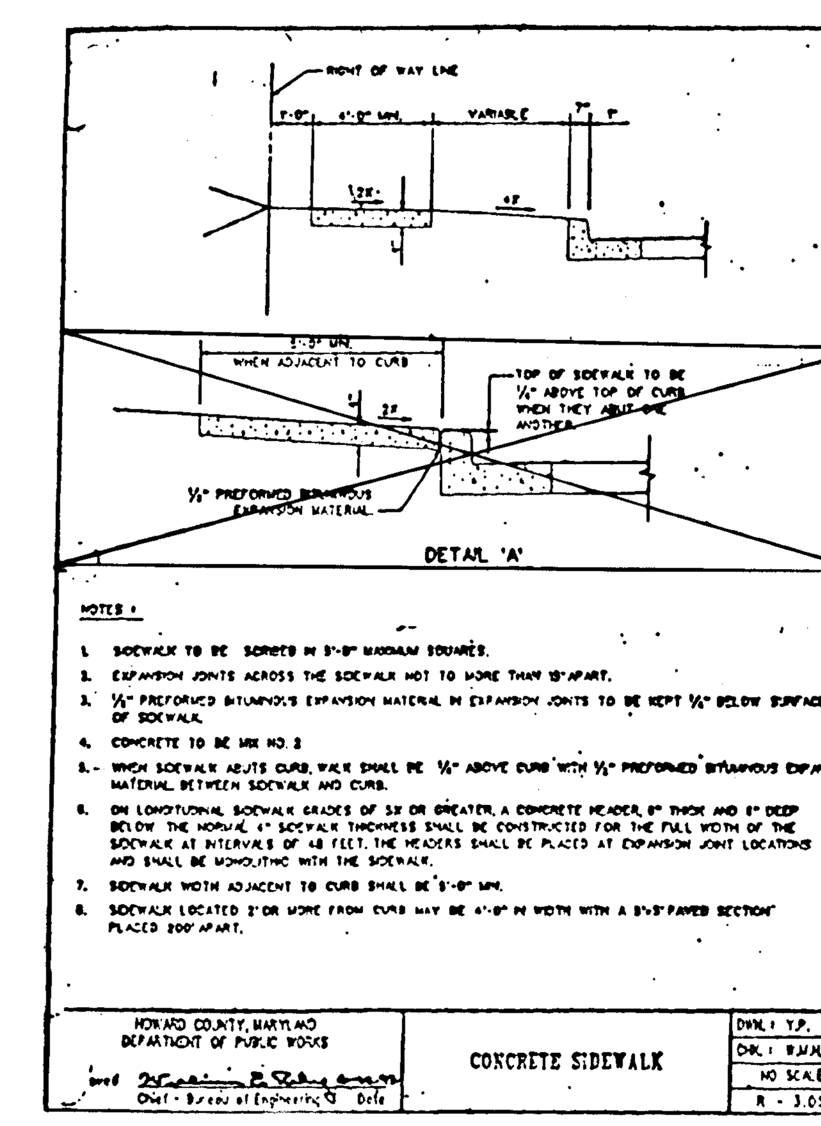


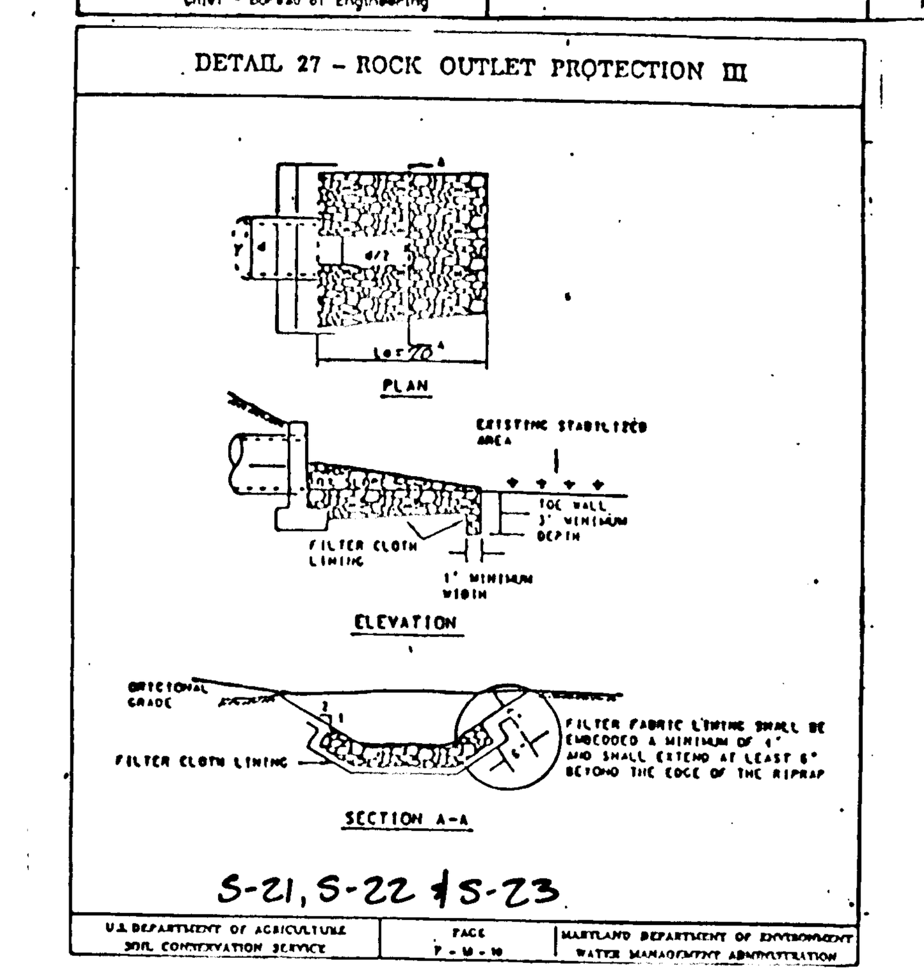
STREET SIGN LOCATION TABLE

ROAD NAME	SYMBOL	℄ STATION	OFFSET	TYPE
MARSHALEE DRIVE	⊣	79+35	23 RT	R2-1 "SPEED LIMIT 35" SIGN, 24"x30" RECTANGLE
MARSHALEE DRIVE	⊣	80+00	23' LT	W2-2 "SIDE ROAD" SIGN, 30"x30" DIAMOND

NOTE: STOP SIGN ON GATEPOST WAY & MARSHALEE DRIVE TO BE PROVIDED ON F94-95.

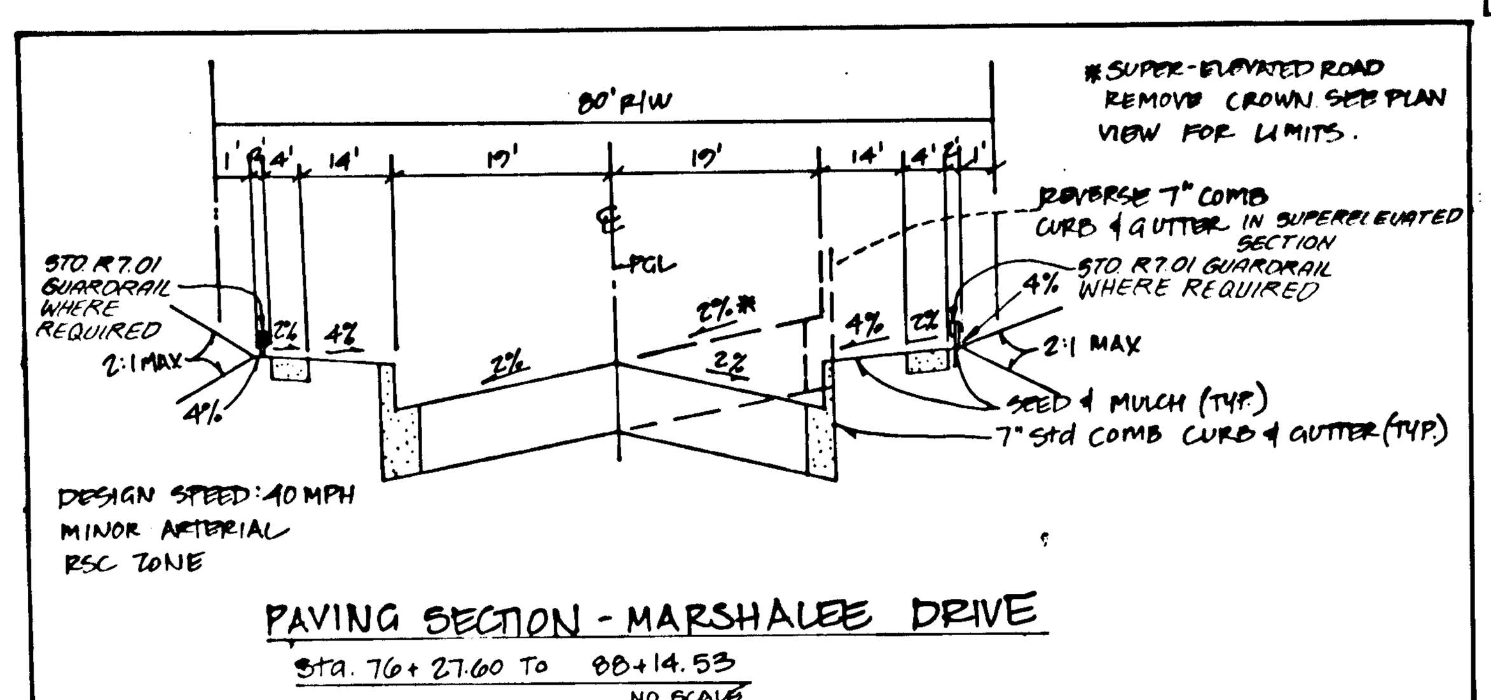






OPERATION, MAINTENANCE AND INSPECTION

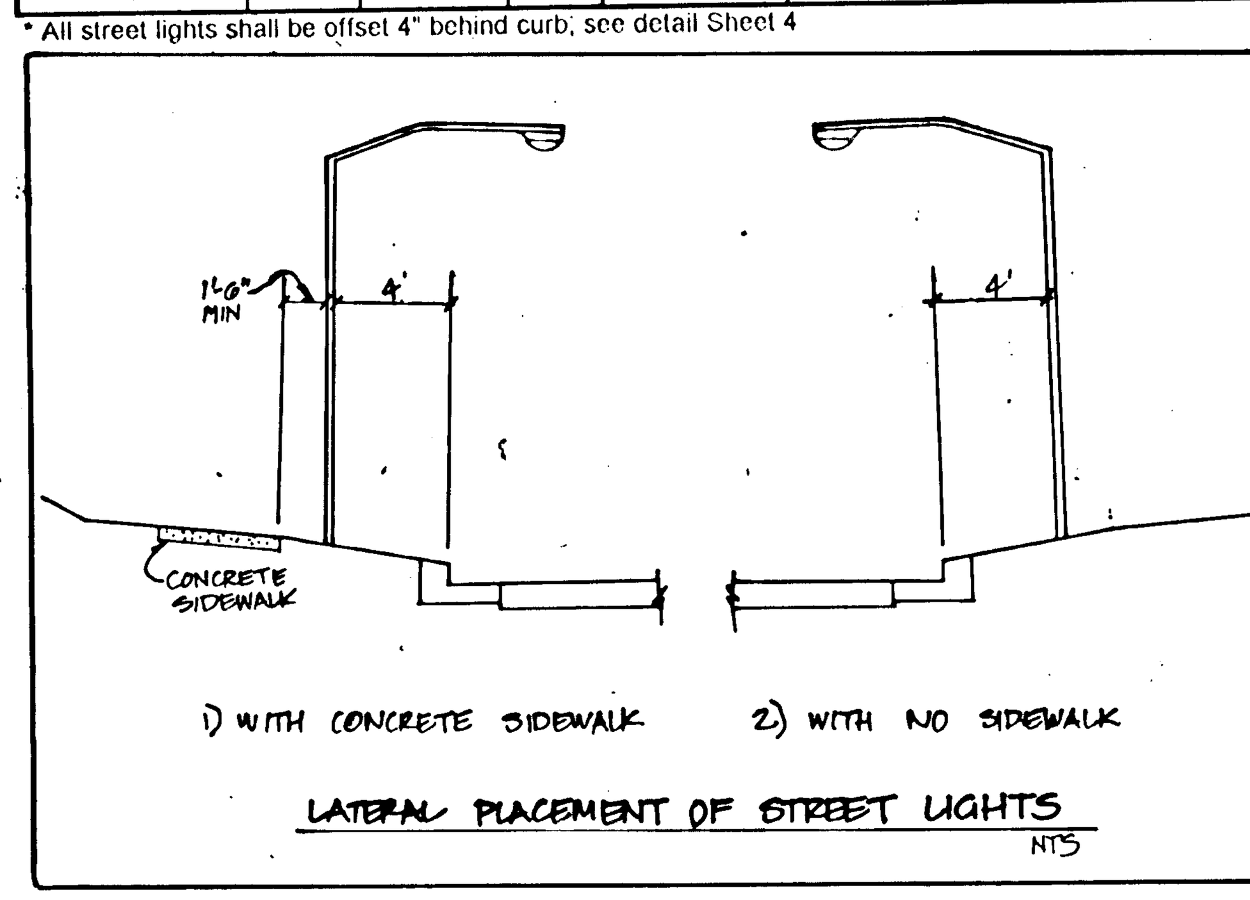
Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards And Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

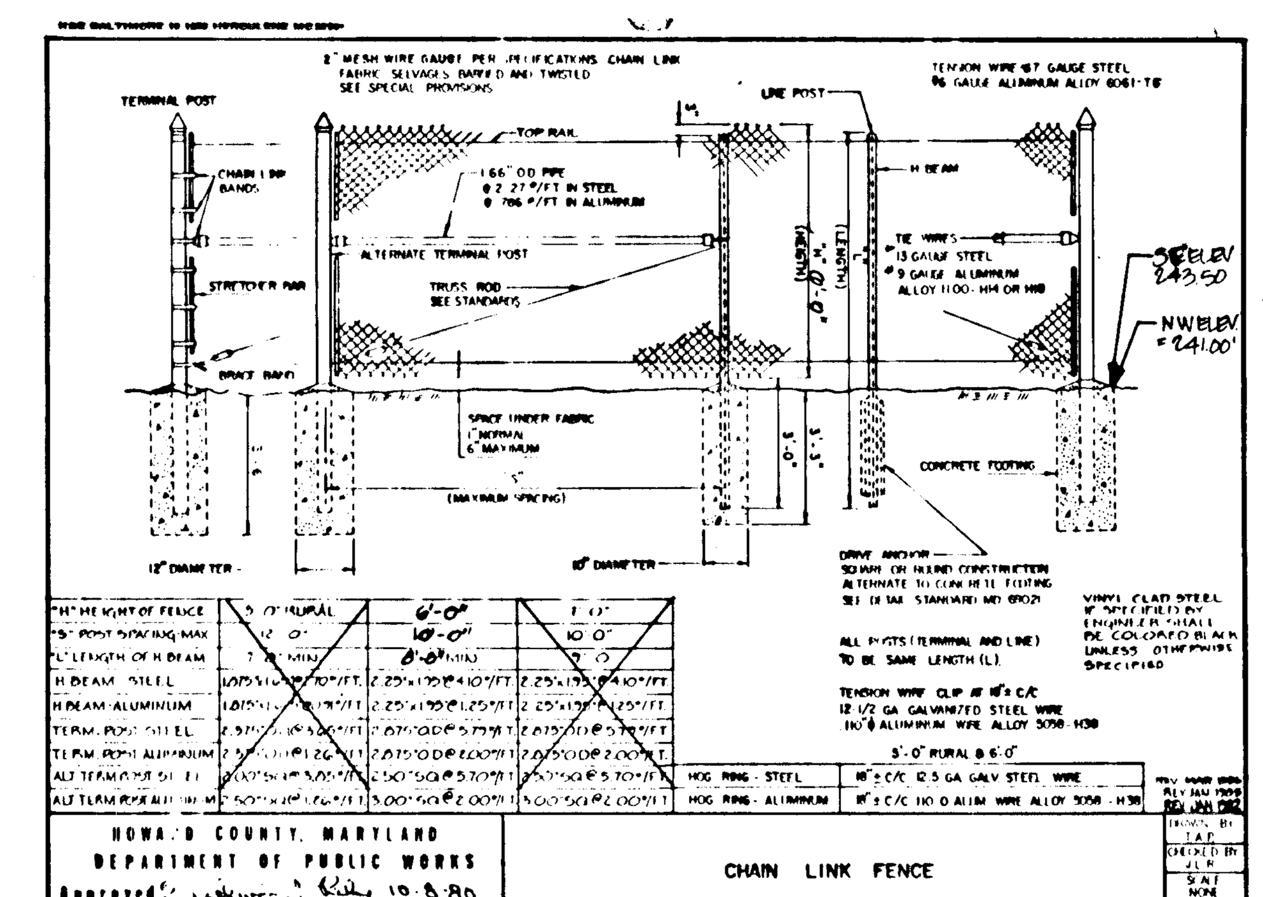

80' R/W
SUPER-ELEVATED ROAD
REMOVE CROWN SEE PLAN
VIEW FOR LIMITS.
REVERSE "7" COMB CURB & GUTTER IN SUPERELEVATED SECTION
STD R7.01 GUARDRAIL WHERE REQUIRED
2:1 MAX
SEED & MULCH (TYP)
7" Std COMB CURB & GUTTER (TYP.)
DESIGN SPEED: 40 MPH
MINOR ARTERIAL
RSC ZONE
PAVING SECTION - MARSHALEE DRIVE
STA. 76+27.60 TO 88+14.53
NO SCALE

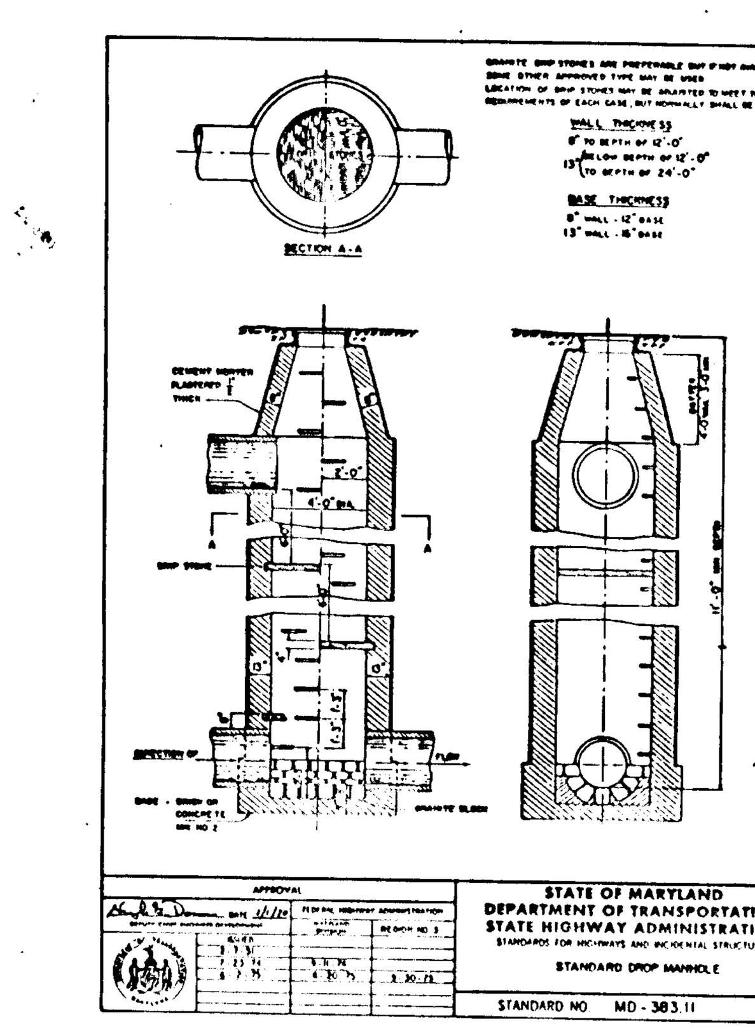
Street Light Legend

Street Name	Symbol	Centerline Station	Offset	Lamp Type	Post Type	Pole Type
Marshalee Drive	---☼	76+81	* LT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	80+45	* RT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	83+75	* LT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole
Marshalee Drive	---☼	87+00	* RT	150 Watt HPS	Pendant Fixture	30' Galvanized Steel Pole

* All street lights shall be offset 4" behind curb; see detail Sheet 4







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.

BRUCE D. BURTON 5/22/95
Signature of Engineer Date

DEVELOPER'S CERTIFICATE

I/we certify that all development and 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 Department of the Environment Approved Training Program for the Control of Sediment and Erosion before begining the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

3/21/94
Signature of Developer Date

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

5/30/95
U.S. Soil Conservation Service Date

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Robert W. Ziehm 5/30/95
Howard Soil Conservation District Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads.

6/16/95
Chief, Land Development Division Date

6/16/95
Chief, Bureau of Engineering Date

6-6-95
Chief, Bureau of Highways Date

APPROVED: Department of Planning and Zoning

6/22/95
Chief, Division of Land Development and Research. Date

BRUCE D. BURTON 5/22/95

LAND DESIGN ENGINEERING, INC.

8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED GL	ROAD DETAILS	SCALE AS SHOWN
DRAWN GL	LYNWOOD MANOR SECTION THREE AREA TWO	DRAWING 4 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643, 38, 640 1st Election District Howard County, MD	JOB No. 92-176.7
DATE 12/94	Owner / Developer 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	FILE No. F94-96

F-94-96

1708

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1) A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1855).

2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.

3) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.

4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.

5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

6) All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.

7) Site Analysis:

Total Area of Site	2.2	Acres
Area Disturbed	5.1	Acres
Area to be roofed or paved	1.25	Acres
Area to be vegetatively stabilized	3.85	Acres
Total Cut	25,000	Cu. Yds.
Total Fill	25,000	Cu. Yds.
Offsite waste/borrow area location		

8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

9) Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10) On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

11) Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.

REV 1/91

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

Apply to graded or cleared areas 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, disking or other acceptable means before seeding, if not previously loosened.

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

1) Preferred -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 38-0-0 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 of disk 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 seeding areas and make needed repairs, replacements and reseedings.

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, disking or other acceptable means before seeding, if not previously loosened.

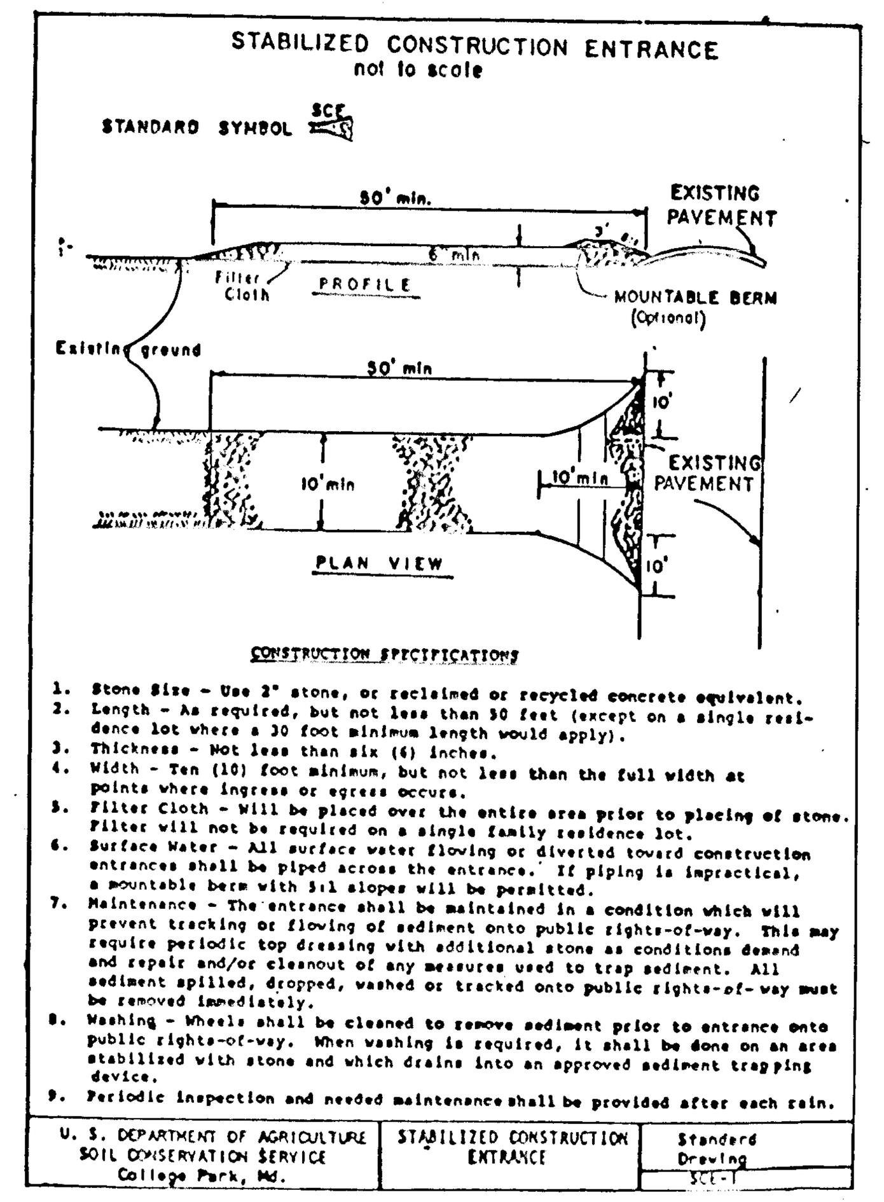
Soil Amendments: -- Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

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.

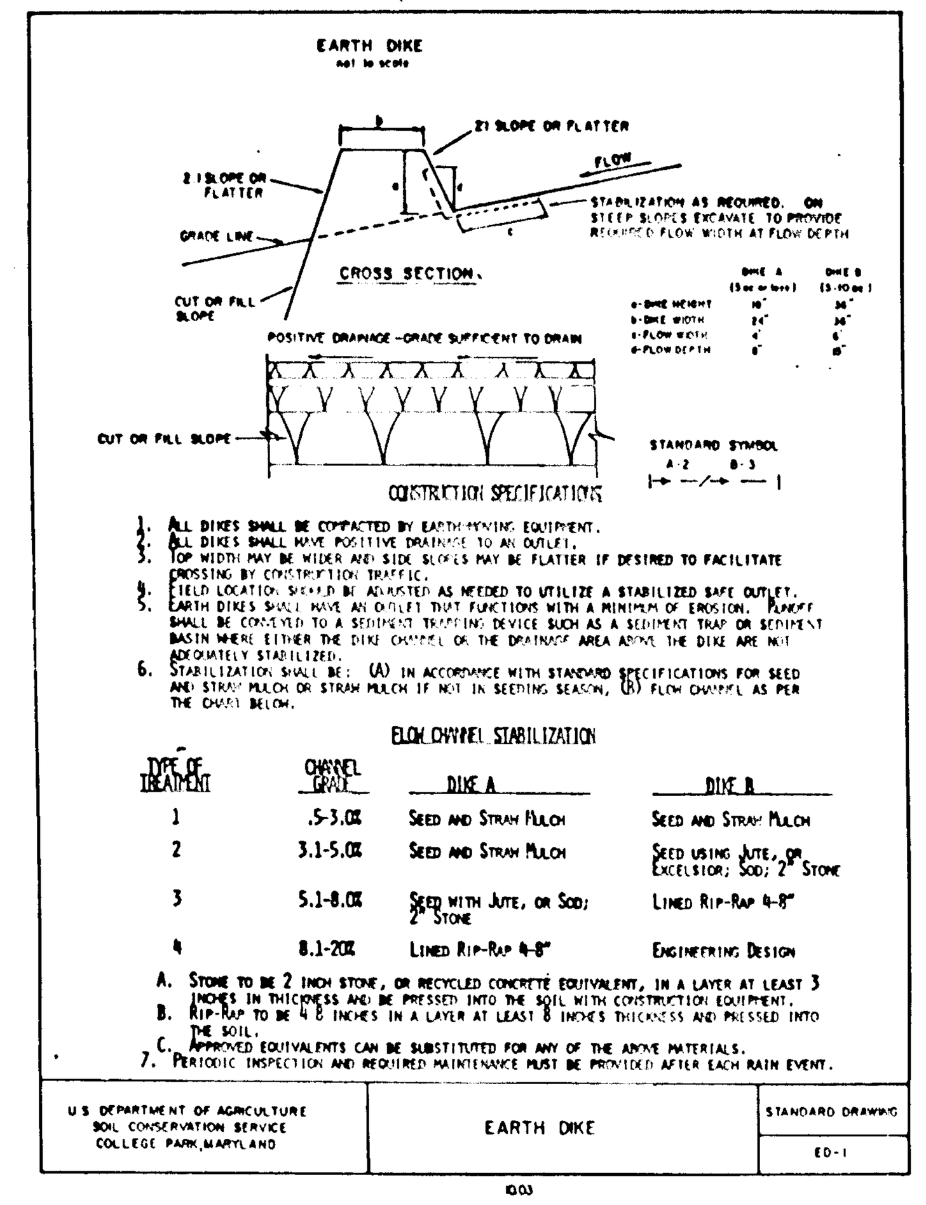
Mulching: -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft.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

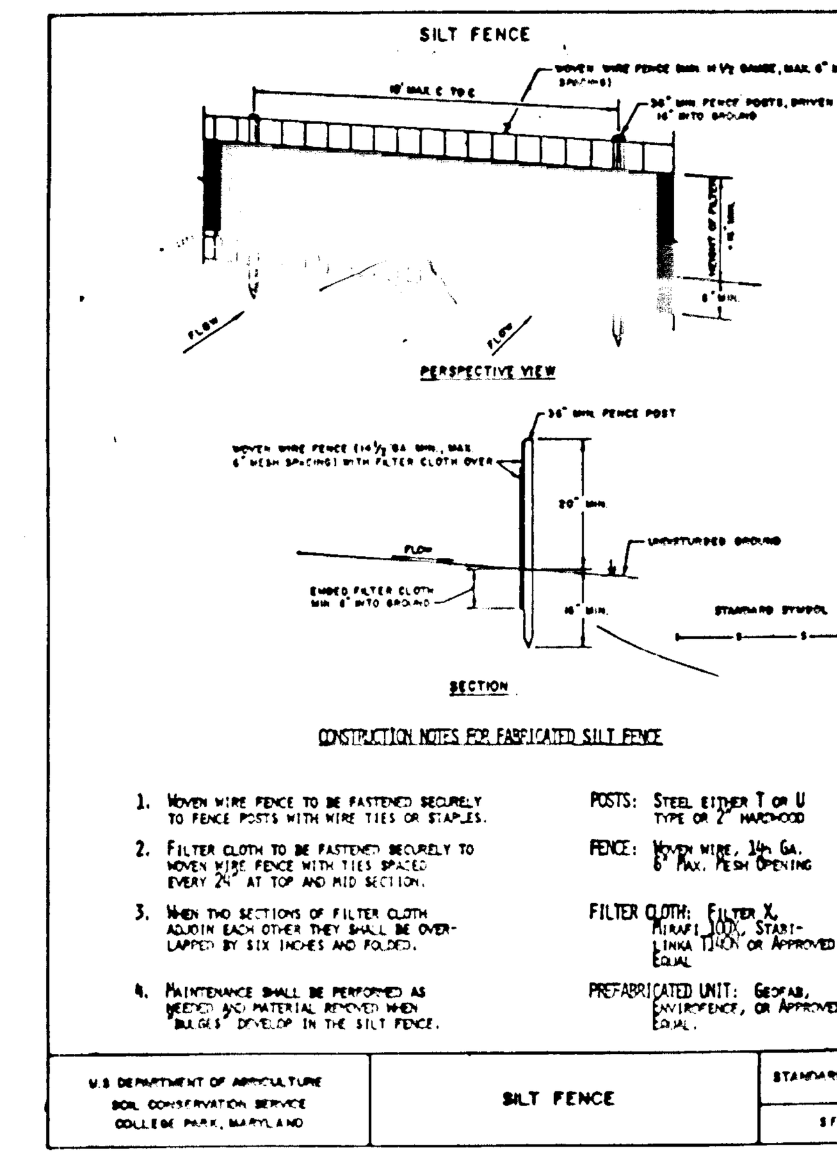
Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

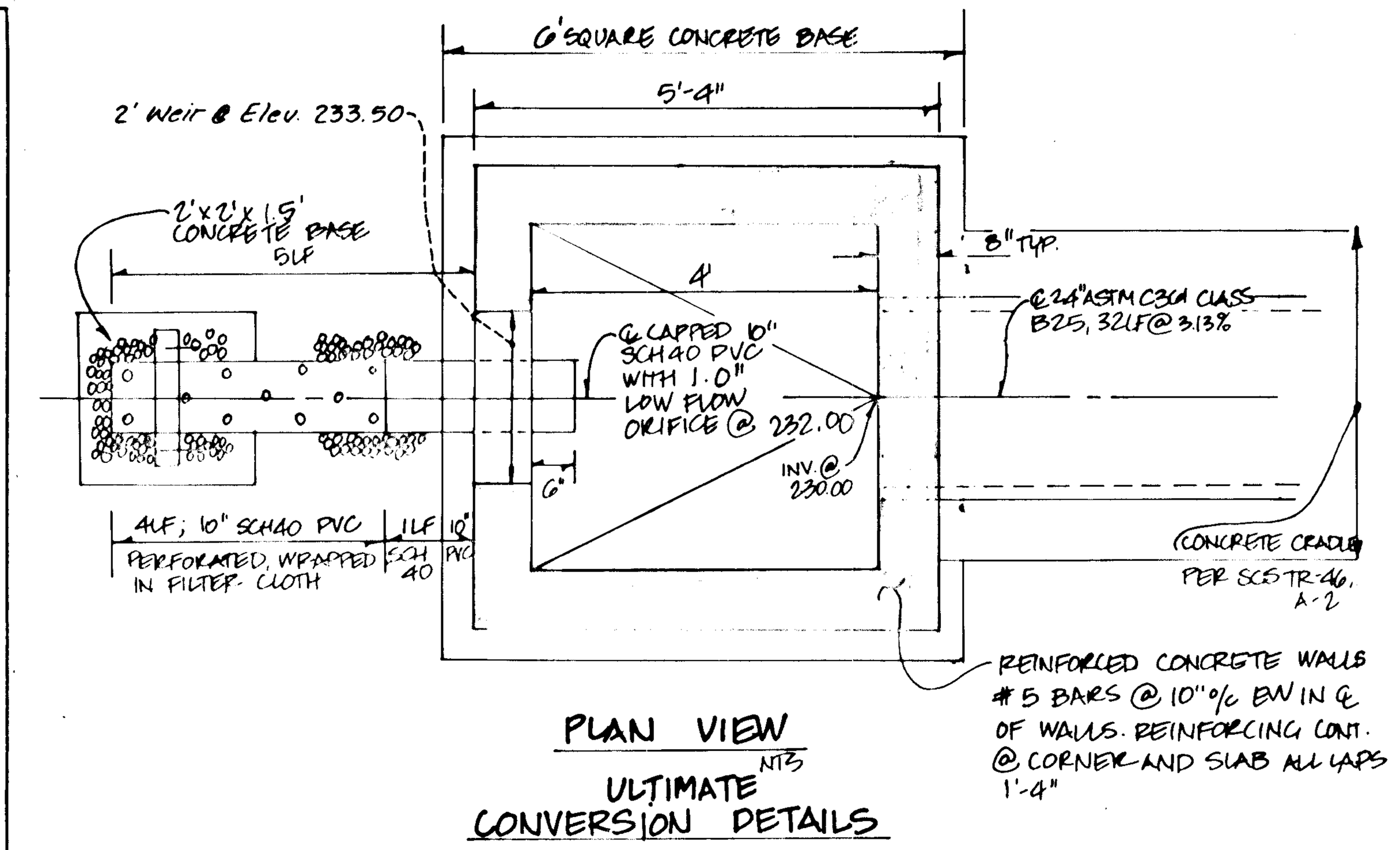
REV 1/91



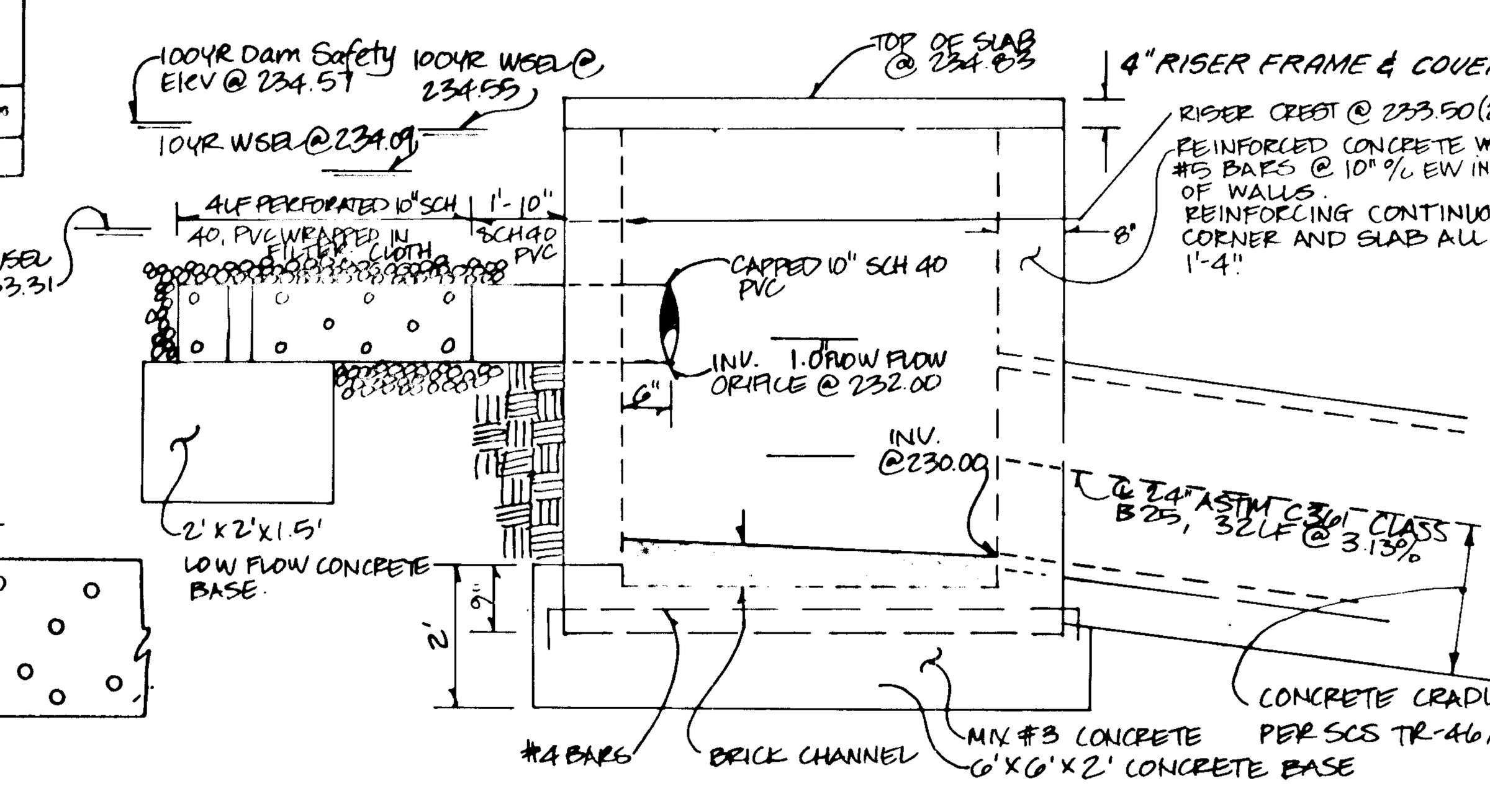
STABILIZED CONSTRUCTION ENTRANCE
not to scale
STANDARD SYMBOL
EXISTING PAVEMENT
PROFILE
MOUNTABLE BERM (Optional)
PLAN VIEW
CONSTRUCTION SPECIFICATIONS
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE College Park, Md.
STABILIZED CONSTRUCTION ENTRANCE





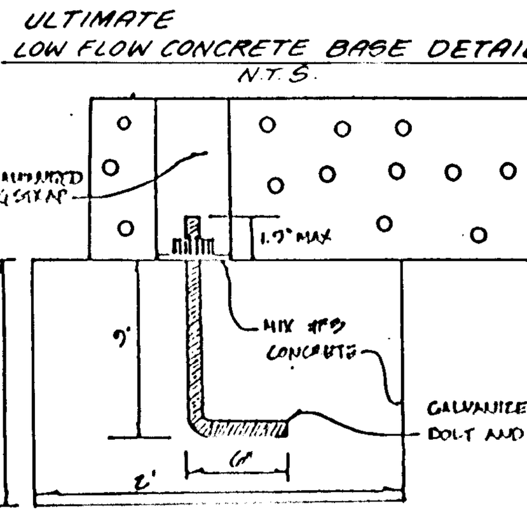


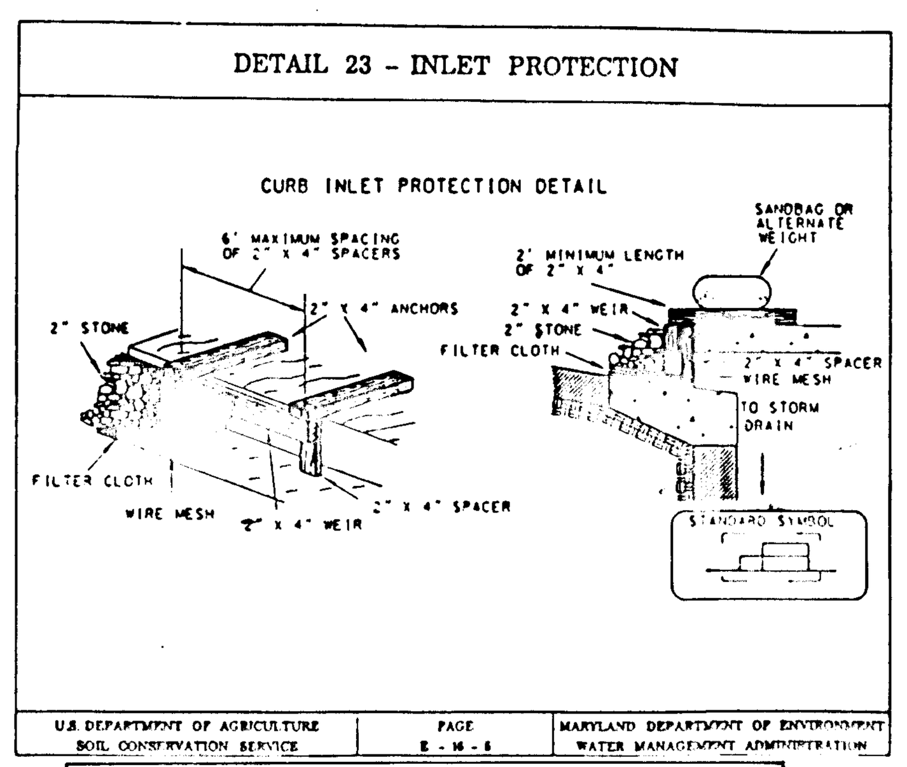
6' SQUARE CONCRETE BASE
2' Weir @ Elev. 233.50
5'-4"
2'x2'x1.5' CONCRETE BASE
4'
6" CAPPED 10" SCHAO PVC WITH 1.0" LOW FLOW ORIFICE @ 232.00
INV @ 230.00
2-24" ASTM C361 CLASS B25, 32LF @ 3.13%
4LF, 10" SCHAO PVC PERFORATED, WRAPPED IN FILTER CLOTH
CONCRETE CRADLE PER SCS TR-46, A-2
REINFORCED CONCRETE WALLS #5 BARS @ 10" o/c EW IN ℄ OF WALLS. REINFORCING CONT. @ CORNER AND SLAB ALL LAPS 1'-4"
PLAN VIEW
NTS
ULTIMATE CONVERSION DETAILS



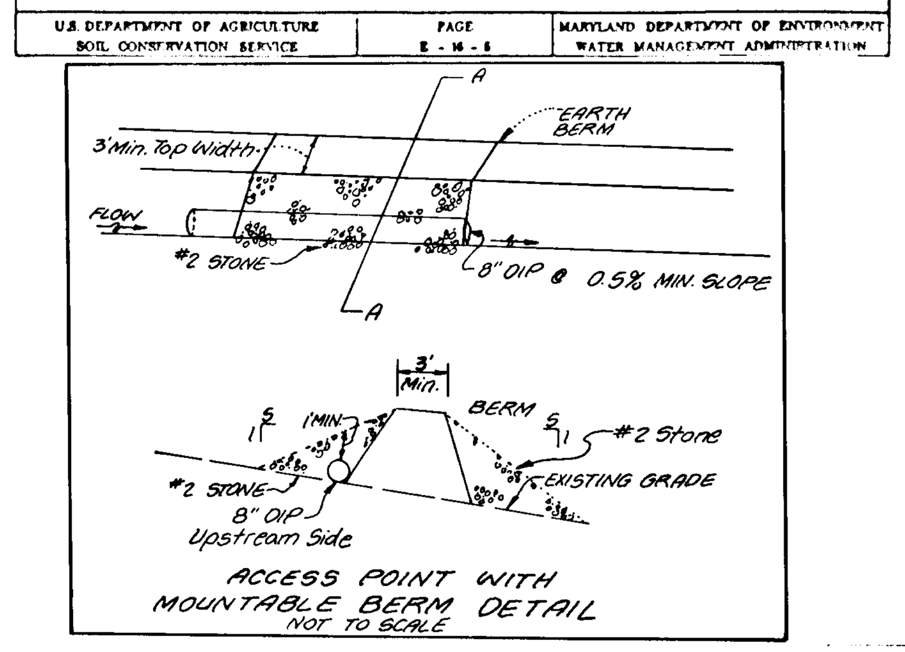
100YR Dam Safety Elev @ 234.57
100YR WSEL @ 234.55
10YR WSEL @ 234.01
TOP OF SLAB @ 234.63
4" RISER FRAME & COVER
RISER CREST @ 233.50 (2' Weir
REINFORCED CONCRETE WALLS #5 BARS @ 10" o/c EW IN ℄ OF WALLS. REINFORCING CONTINUOS CORNER AND SLAB ALL LAPS 1'-4"
4LF PERFORATED 10" SCH 40 PVC WRAPPED IN FILTER CLOTH
CAPPED 10" SCH 40 PVC
INV. 1.0" LOW FLOW ORIFICE @ 232.00
INV. @ 230.00
2YR WSEL @ 233.31
2'x2'x1.5' LOW FLOW CONCRETE BASE
2-24" ASTM C361 CLASS B25, 32LF @ 3.13%
CONCRETE CRADLE PER SCS TR-46, A-2
#4 BARS
BRICK CHANNEL
MIN #3 CONCRETE 6'x6'x2' CONCRETE BASE
PROFILE VIEW
NTS

NOTES: 1) RISER FRAME & COVER SHALL BE BOLTED TO RISER
2) ALL JOINTS MUST CONFORM TO ASTM C361 SPECIFICATIONS
3) FOR ULTIMATE LOW FLOW CONCRETE BASE DETAIL SEE SHEET 9.





DETAIL 23 - INLET PROTECTION
CURB INLET PROTECTION DETAIL
2" STONE
FILTER CLOTH
WIRE MESH
2" x 4" SPACER
STANDARD SYMBOL
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



GEO-GRID PLACEMENT TABLE

SLOPE HEIGHT CREST TO TOE	No OF PRIMARY GEO-GRID LAYERS	MAX. No OF INTER GEO-GRID LAYERS	PRIMARY GRID LNG.	PRIMARY GRID LAYER HEIGHT FROM TOE					
				1	2	3	4	5	6
0' TO 4'	0	2	—						
4' TO 8'	1	2	6'	2.0					
8' TO 12'	2	3	8'	2.0	6.7				
12' TO 16'	3	5	11'	2.0	6.0	10.7			
16' TO 20'	4	7	14'	2.0	5.3	9.3	14.7		
20' TO 24'	5	9	17'	2.0	4.7	8.7	13.4	18.7	
24' TO 28'	6	11	19'	2.0	4.7	8.0	12.0	16.7	22.0

1:1 SLOPE FACE SPECIFICATIONS

1. SLOPE FACE SHALL BE TRIMMED AND SURFACE COMPACTED WITH A GRADE-ALL BUCKET.
2. 4 INCH DEEP GEO-WEB SLOPE PROTECTION MANUFACTURED BY PRESTO SHALL BE SECURED TO THE ENTIRE 1:1 SLOPE FACE USING 16 INCH LONG HOOKED END #3 BAR ON 4 FOOT SPACING EACH WAY AND AT EACH CELL ALONG THE CREST OF THE SLOPE. BRASS HOG RINGS SHALL BE USED TO SECURE BUTTING GEOWEB SECTION CELLS.
3. QUALITY TOP SOIL SHALL BE USED TO COMPLETELY FILL THE GEOWEB CELLS FOR A COMPACTED DEPTH OF 4 INCHES.
4. EXCEL SUPER DUTY EROSION CONTROL BLANKET SHALL BE SECURED TO THE TOPSOIL FACE USING 8 INCH SOD PINS ON 4 FOOT SPACING.
5. THE 1:1 SLOPES SHALL BE HYDRO-SEEDED BEFORE AND AFTER PLACEMENT OF THE EROSION CONTROL BLANKET WITH A CROWN VETCH & TEMPORARY NURSE MIX.

GEOGRID INSTALLATION

1) The geogrid soil reinforcement shall be laid horizontally on compacted backfill in a direction perpendicular to the face of the slope. If the geogrid to use is a bi-oriented geogrid (square mesh) and the width of the geogrid layer is wider than the specified embedded length, then it is possible to lay the geogrid roll along the slope direction.

2) Geogrid shall be laid at the proper elevation as shown in the construction drawings or as directed by the engineer.

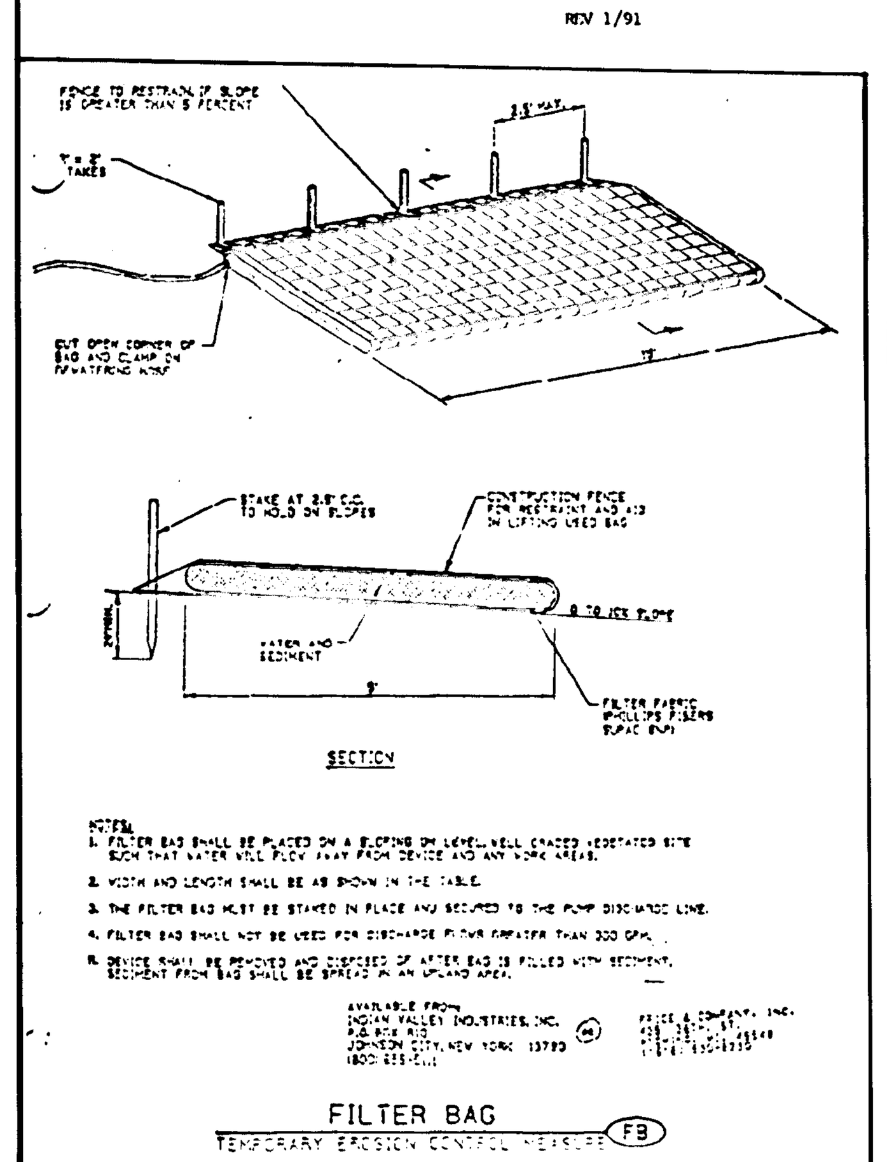
3) Correct orientation of the geogrid shall be verified by the contractor.

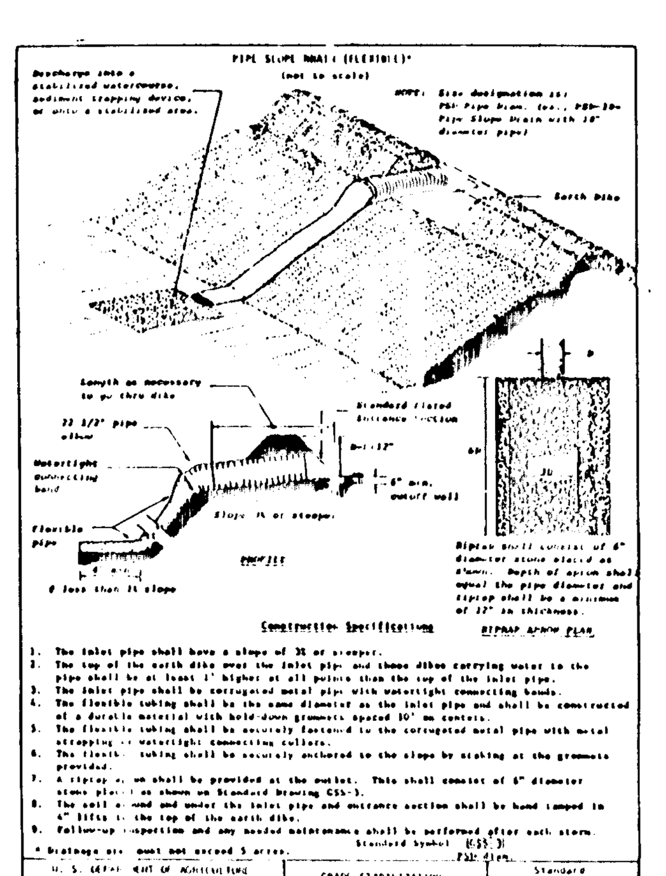
4) Geogrid may be secured in place using staples, pins or backfill, as required by project condition or as directed by the engineer.

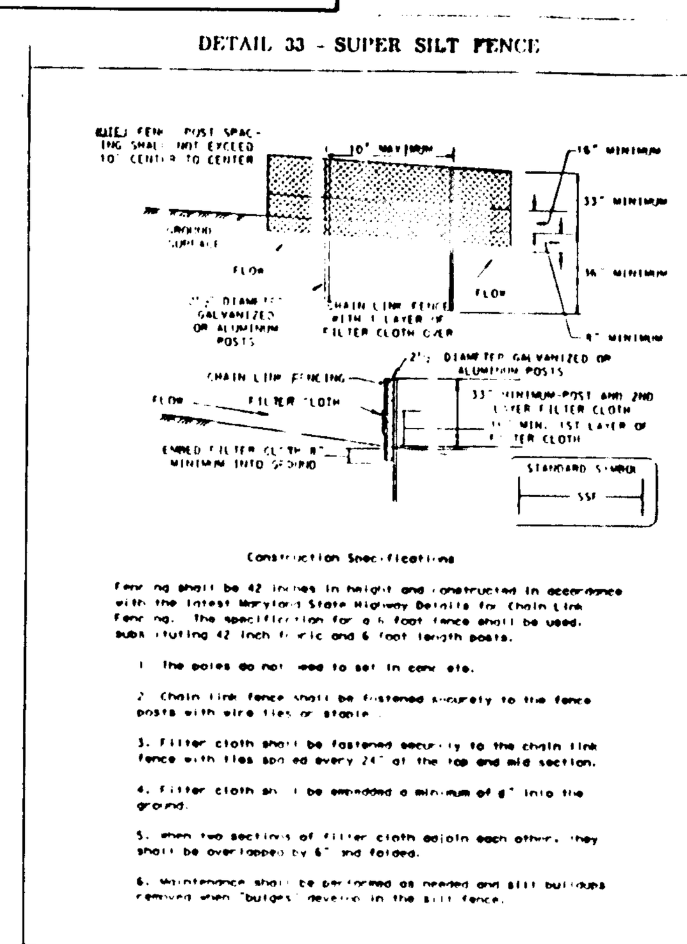
5) The mono-oriented geogrid layer shall be placed side by side without overlapping. However, when the wrap around technique is used, the geogrids on the face slope shall be overlapped 1". Mono-oriented geogrids shall be overlapped a minimum of 48" in the direction perpendicular to the reinforcement. A minimum of 4" fill soil shall be spread between two overlapped areas.

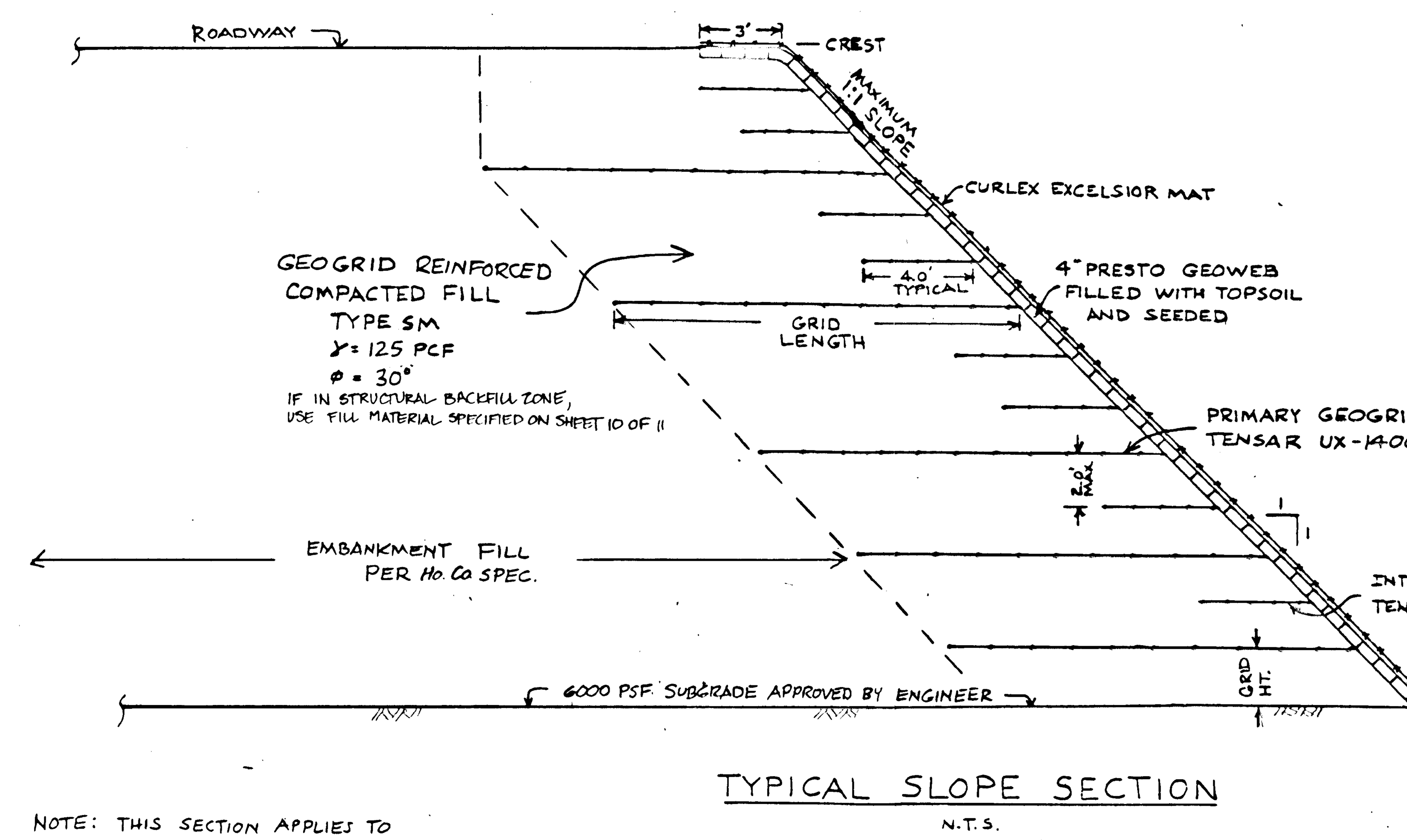
6) The bi-oriented geogrid shall be overlapped a minimum of 6" along the edge in the direction perpendicular to the slope face.

7) The fill material shall be placed in lift as directed by the engineer and compacted to 95% of standard proctor.









ROADWAY
3'
CREST
MAXIMUM 1:1 SLOPE
CURLEX EXCELSIOR MAT
GEOGRID REINFORCED COMPACTED FILL
TYPE SM
γ = 125 PCF
φ = 30°
IF IN STRUCTURAL BACKFILL ZONE, USE FILL MATERIAL SPECIFIED ON SHEET 10 OF 11
4.0' TYPICAL
GRID LENGTH
4" PRESTO GEOWEB FILLED WITH TOPSOIL AND SEEDED
PRIMARY GEOGRID TENSAR UX-1400-HT
2.0' MAX
EMBANKMENT FILL PER Ho. Co. SPEC.
INTERMEDIATE GEOGRID TENSAR UX-1000 SB
6000 PSF SUBGRADE APPROVED BY ENGINEER
GRID HT.
TOE

TYPICAL SLOPE SECTION

N.T.S.

NOTE: THIS SECTION APPLIES TO ALL SLOPES STEEPER THAN 2:1 AND/OR SHOWN AS REINFORCED SLOPE

Reinforced Slope Data

Station	Offset
85+46.50	40' LT
85+95.00	59' LT
86+80.00	55.5' LT
87+34.50	69.5' LT
87+76.00	63.5' LT
88+08.00	76' LT
85+46.50	40' RT
86+11.50	65' RT
86+71.00	63' RT
87+34.50	68' RT
87+53.00	80' RT
87+86.50	65.5' RT
88+28.50	83' RT

CONSTRUCTION SEQUENCE

1. Obtain Grading Permit 1 day
2. Install stabilized construction entrance. 1 day
3. Stakeout limits of disturbance. 3 days
4. Walk limits of disturbance with project forester and adjust limits as required. 1 day
5. Install silt fence and super silt fence at limit of disturbance where shown hereon or as directed by Sediment Control Inspector. 2 days
6. Excavate overbank areas as shown along stream bank, and stabilize immediately. Clear and grub for installation of superspan and reinforced slope. 2 days
7. Excavate superspan footers and a tie continuously into bedrock. Dewatering from the downstream end into filter bag. Any sediment removed from bag shall be placed upland within an acre of sediment control. Pour footers. Contractor may not cross stream with equipment. 3 days
8. Install superspan. Install S-21 to M-21 in coordination with construction of reinforced slope to maintain grid integrity. 3 weeks
9. Construct stormwater management pond #6 and diversion dikes upon permission of sediment control inspection. 7 days
10. Grade remaining site. 1 week
11. Install utilities. 3 weeks
12. Repair diversion dikes damaged by utility installation and stabilize with permanent seeding mixture and straw mulch. 1 day
13. The contractor shall inspect and provide necessary maintenance on the sediment and erosion control structures shown hereon after each rainfall and on a daily basis. 1 day
14. Install curb and gutter, paving. 2 weeks
15. Install sidewalks. 1 week
16. Complete any grading and stabilize disturbed areas with permanent seeding mixture and straw mulch. 2 days
17. After all upgrade areas from stormwater management facility #6 have been stabilized and permission has been given by the Sediment Control Inspector, flush the storm drain system into pond #6. Remove dewatering device and install low flow device and remove temporary brick work shown hereon as conversion details. 2 days
18. After permission has been given by Sediment Control Inspector, remove silt fence and stabilize disturbed areas with permanent seeding mixture and straw mulch. 2 days

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.

BRUCE D. BURTON 5/22/95
Signature of Engineer Date

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3/21/94
Signature of Developer Date

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5/30/95
U.S. Soil Conservation Service Date

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5/30/95
Howard Soil Conservation District Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

6/16/95
Chief, Land Development Division Date

6/16/95
Chief, Bureau of Engineering Date

6-6-95
Chief, Bureau of Highways Date

APPROVED: Department of Planning and Zoning

6/22/95
Chief, Division of Land Development and Research Date

3/23/94

LAND DESIGN ENGINEERING, INC.
8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED ES	GRADING & SEDIMENT AND EROSION CONTROL DETAIL	SCALE AS SHOWN
DRAWN GL/WJ	LYNDWOOD MANOR SECTION THREE AREA TWO	DRAWING 6 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643,38,640 1st Election District Howard County, MD	JOB No. 92-1767
DATE 12/94	Owner / Developer: 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	FILE No. F94-96

F-94-96

1708

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BRUCE D. BURTON — 5/22/95

Signature of Engineer — Date

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[signature] — 3/21/94

Signature of Developer — Date

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[signature] — 5/30/95

U.S. Soil Conservation Service — Date

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Robert W. Zielsen — 5/30/95

Howard Soil Conservation District — Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

[signature] — 6/16/95

Chief, Land Development Division — Date

[signature] — 6/16/95

Chief, Bureau of Engineering — Date

Andrew M. [signature] — 6-6-95

Chief, Bureau of Highways — Date

APPROVED: Department of Planning and Zoning

Gina [signature] — 6/22/95

Chief, Division of Land Development and Research — Date

BRUCE D. BURTON 5/22/95

LAND DESIGN ENGINEERING, INC.

8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

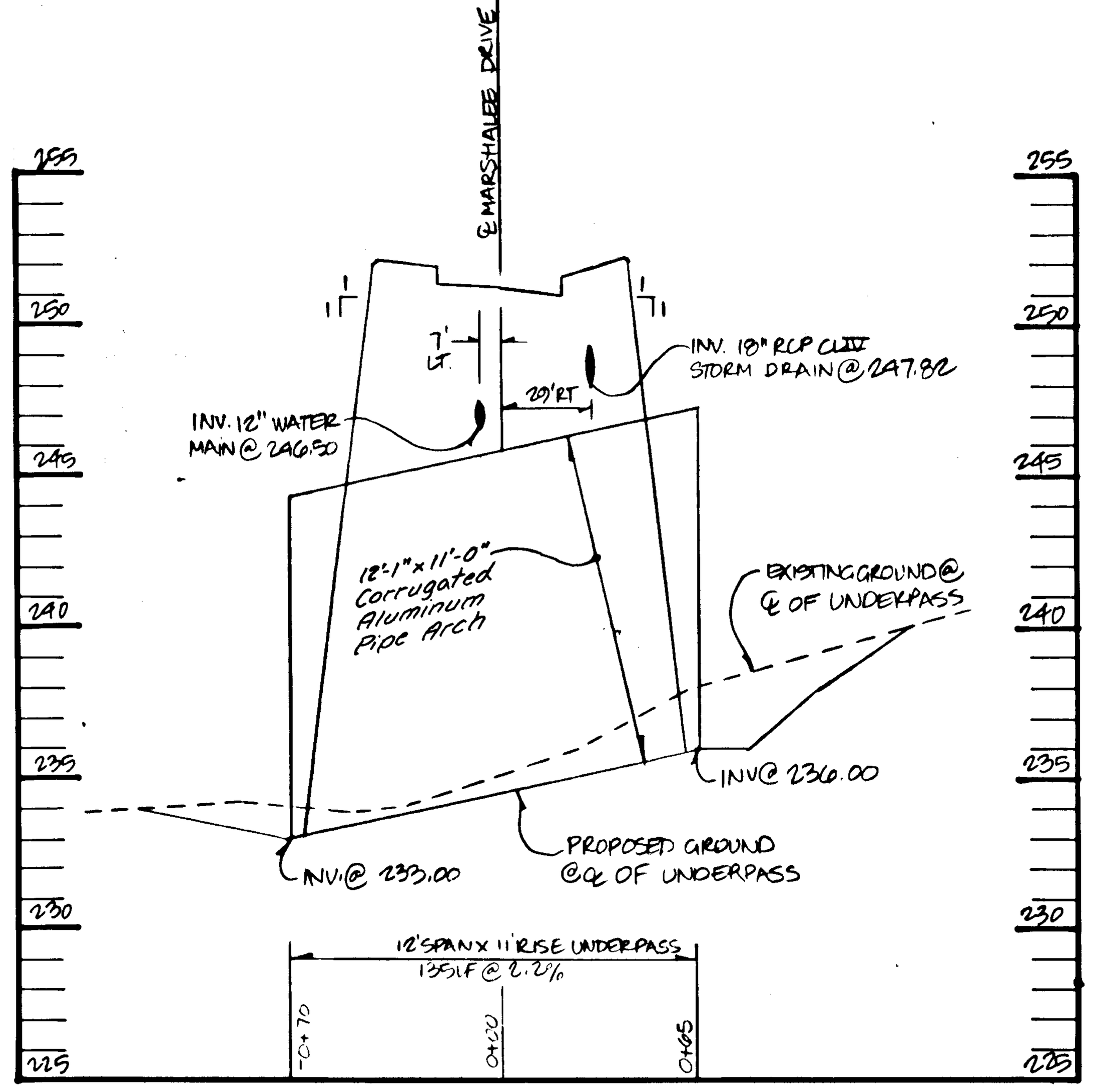
DESIGNED TD/ES	DRAINAGE AREA MAP	SCALE 1"=50'
DRAWN GL	LYNDWOOD MANOR SECTION THREE AREA TWO	DRAWING 7 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643, 38, 640 1st Election District Howard County, MD.	92-176.7
DATE 12'94	Owner / Developer 100 INVESTMENT LIMITED PARTNERSHIP 8835 Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	F94-96

F-94-96

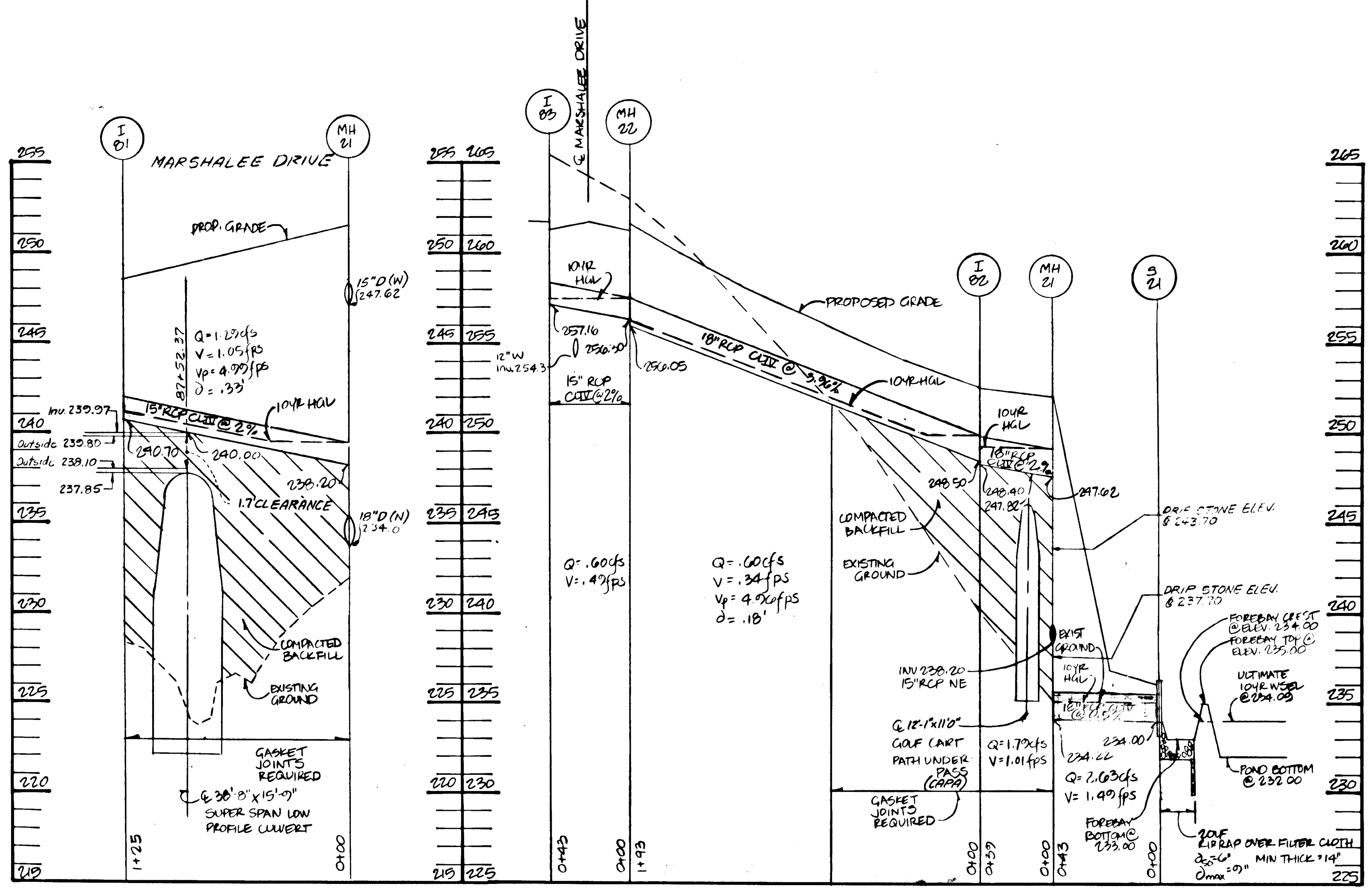
1703

NUMBER	TYPE	INV. IN	INV. OUT	UPPER	LOWER	REMARK	LOCATION
	STRUCTURE SCHEDULE						
I-81	A-10		240.70	248.85	248.79	SD 4.02	87+88.71, 19' LT. MARSHALEE DRIVE
I-82	A-10	248.50	248.40	252.67	252.31	SD 4.02	86-20, 19' LT. MARSHALEE DRIVE
I-83	A-10		257.16	262.21	261.54	SD 4.02	84+20, 19' RT. MARSHALEE DRIVE
I-84	A-10	265.[illegible]	265.5[illegible]	270.32	269.56	SD 4.02	83+00, 19' LT. MARSHALEE DRIVE
I-85	A-10	266.04	265.94	270.32	269.56	SD 4.02	83+00, 19' RT. MARSHALEE DRIVE
I-86	A-10	274.79	274.54	280.38	279.83	SD 4.02	81+30, 19' RT. MARSHALEE DRIVE
I-87	A-10		281.50	285.73	285.36	SD 4.02	80+00, 19' RT. MARSHALEE DRIVE
I-88	A-10	275.63	274.79	280.38	279.83	SD 4.02	81+30, 19' LT. MARSHALEE DRIVE
*MH-21	DROP MANHOLE	247.62	234.22	251.65		MD383.11	86+58.98, 28' LT. MARSHALEE DRIVE
MH-22	STD. MANHOLE	256.30	256.05	261.66		G 5.12	84+25, 22' LT. MARSHALEE DRIVE
MH-23	STD. MANHOLE	26[illegible]	[illegible]	271.00		G 5.12	82+85, 75' LT. MARSHALEE DRIVE
S-21	TYPE C ENDWALL	234.00	234.00	236.25		SD 5.21	86+56.07, 70.56' LT. MARSHALEE DRIVE
S-22	TYPE C ENDWALL	265.00	265.00	267.25		SD 5.21	N4996[illegible] E867[illegible]
S-23	TYPE C ENDWALL	229.00	229.00	230.75		SD 5.21	N499902.75, E867441.41
S-24	SEE SWM DETAIL	232.00	230.00	234.83		SHT.9	N499883.71, E867415.51

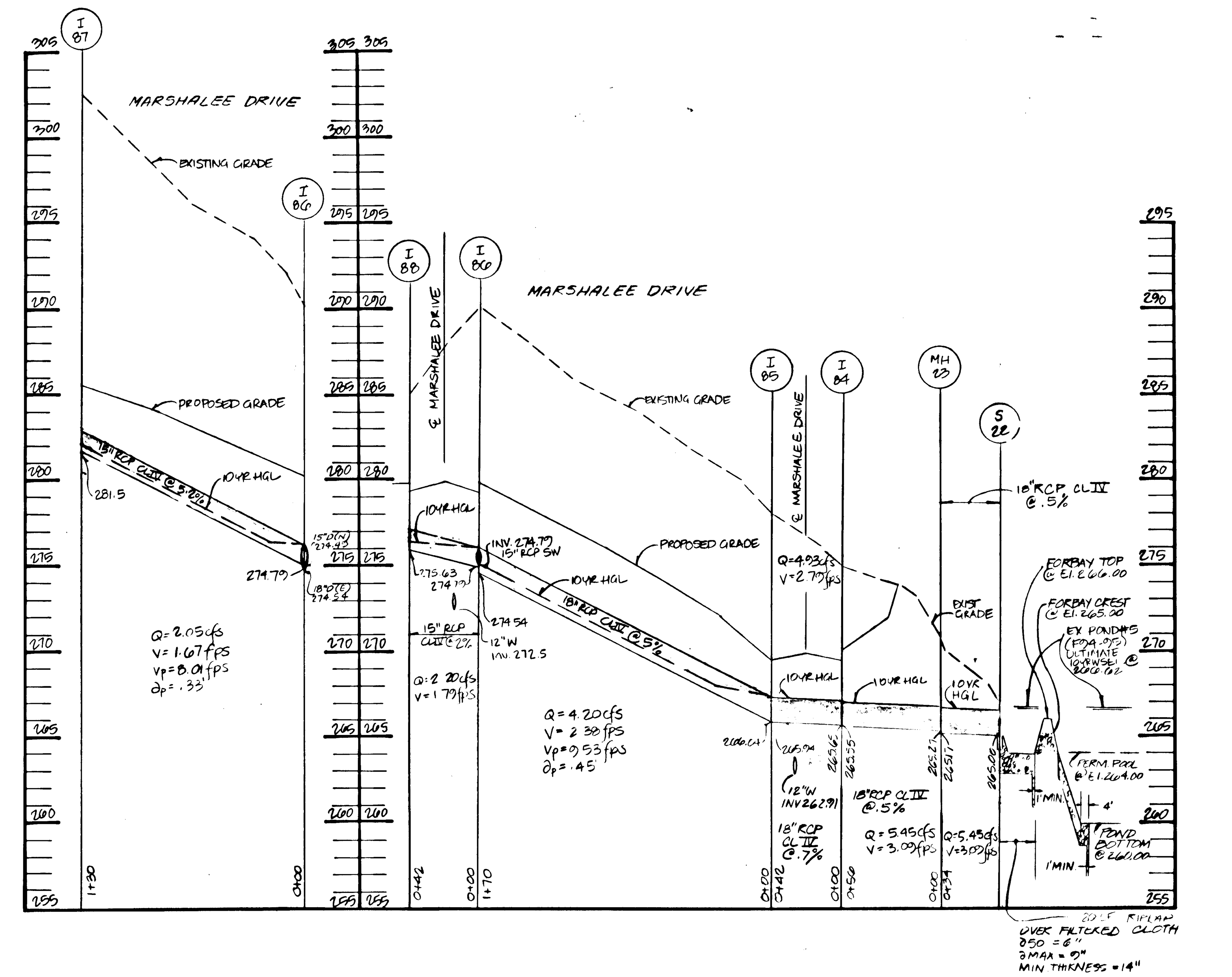
*See Detail on Sheet 4. (MD. 383-11)



PROFILE ALONG ℄ GOLF CART UNDERPASS SCALE: 1"=5' VERT. 1"=50' HORIZ.



Note: Provide a Minimum of 1' Cover Over Pipe Arch.



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 of Engineer 5/22/95 Date

DEVELOPER'S CERTIFICATE

I/we certify that all development and 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 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.

Signature of Developer 3/21/94 Date

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

U.S. Soil Conservation Service 5/30/95 Date

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Howard Soil Conservation District 5/30/95 Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

Chief, Land Development Division 6/16/95 Date

Chief, Bureau of Engineering 6/16/95 Date

Chief, Bureau of Highways 6-6-95 Date

APPROVED: Department of Planning and Zoning

Chief, Division of Land Development and Research 6/22/95 Date

LAND DESIGN ENGINEERING, INC.

8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED ES	STORM DRAIN PROFILES	SCALE 1"=5' VERT 1"=50' HORIZ.
DRAWN GL	LYNDWOOD MANOR SECTION THREE AREA TWO	DRAWING 8 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643, 38, 640 1st Election District Howard County, MD.	JOB NO. 92-1767
DATE 12/94	Owner/Developer 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	FILE NO. F94-96

F-94-96

1708

SPECIFICATIONS

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

Site Preparation

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

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

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

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

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

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

   Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

   Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

   All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular

Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 905.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct

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

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

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

Structure Backfill

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

Pipe Conduits

All pipes shall be circular in cross section.

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

neoprene gasket; and a 12" wide hugger type band with 0-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 24" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24".

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

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
5. Backfilling shall conform to "Structure Backfill."
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

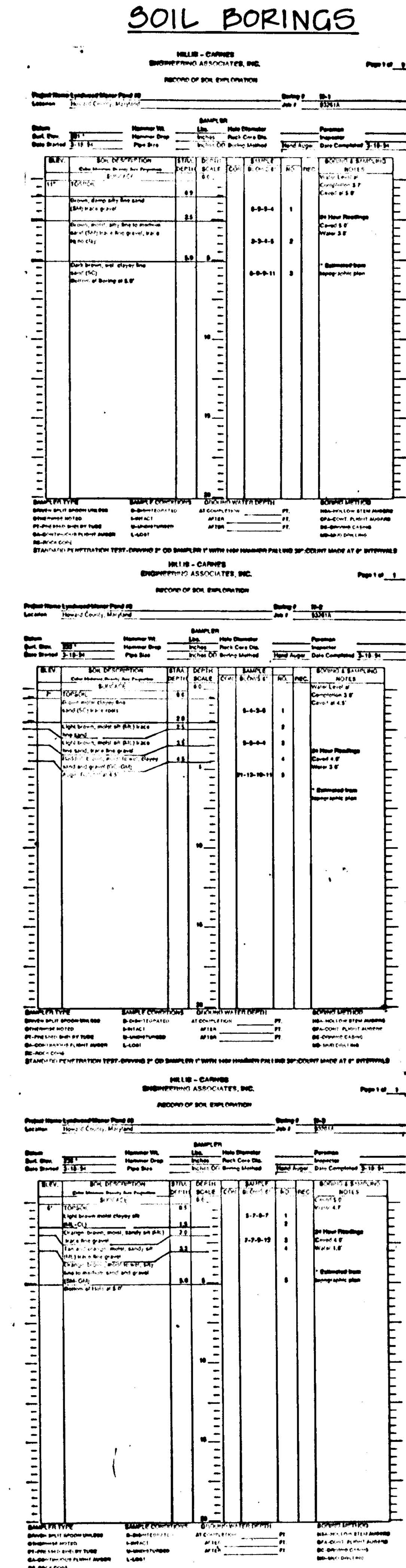
Stabilization

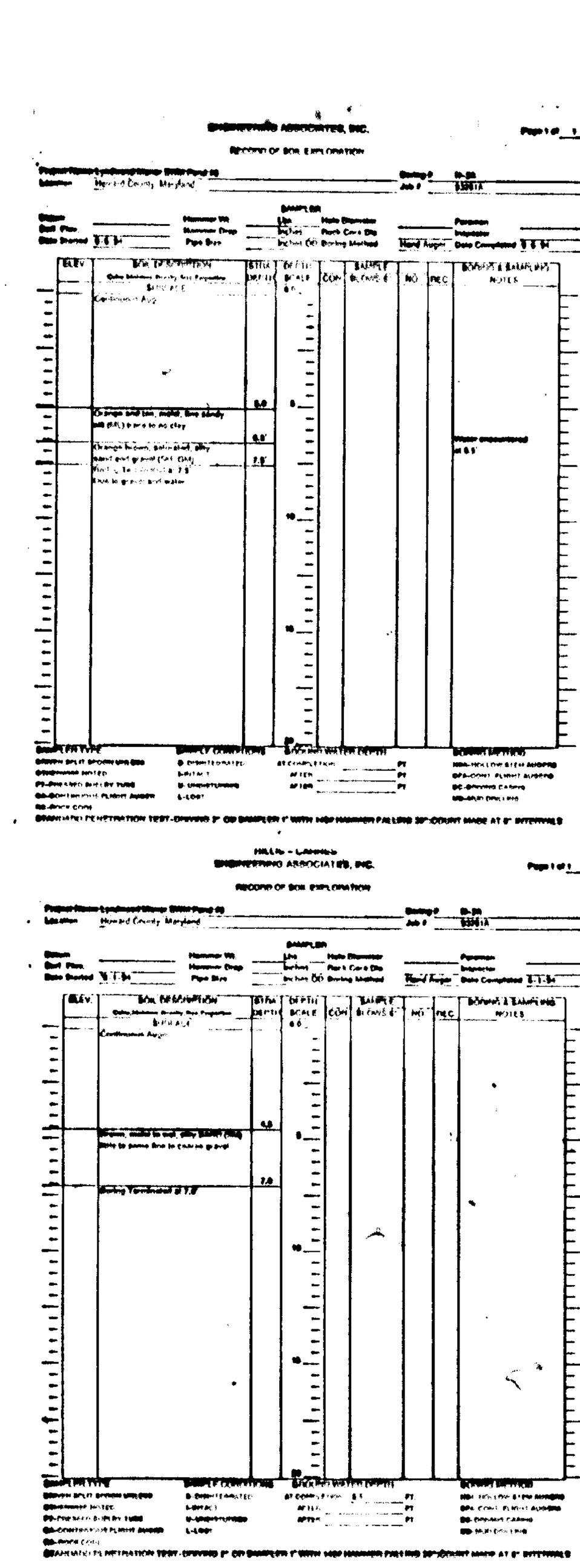
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards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

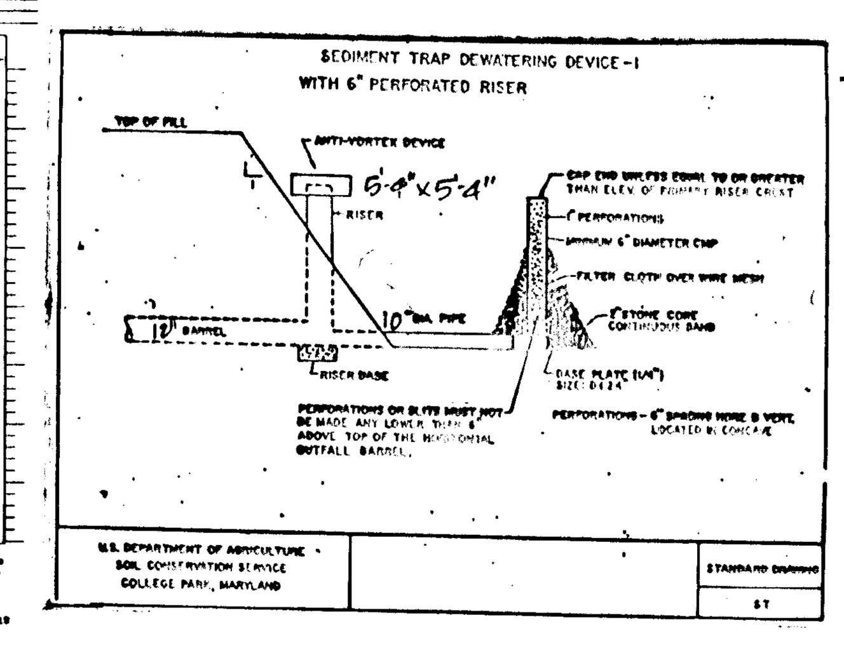
Erosion and Sediment Control

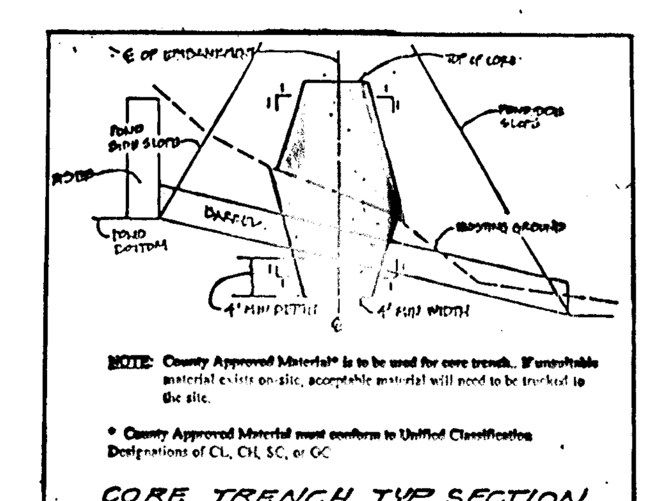
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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

SOIL BORINGS

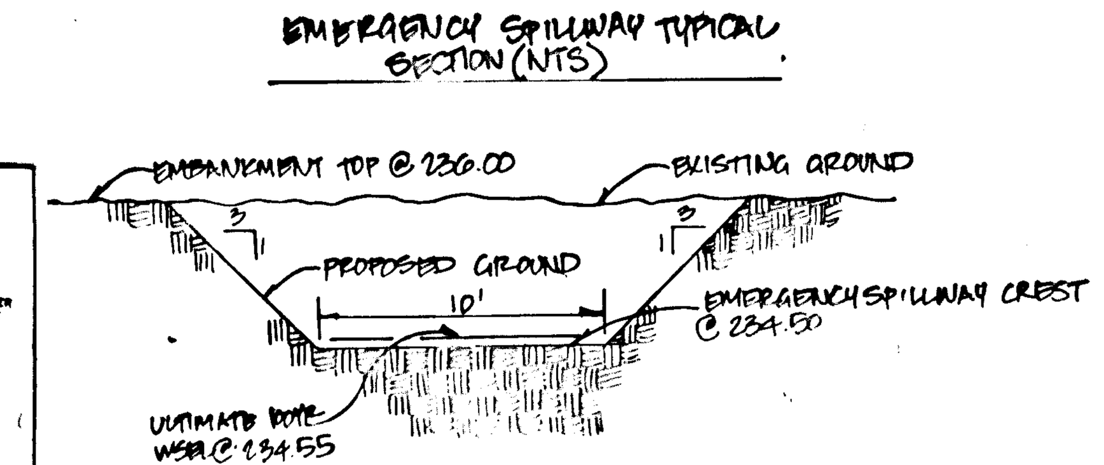


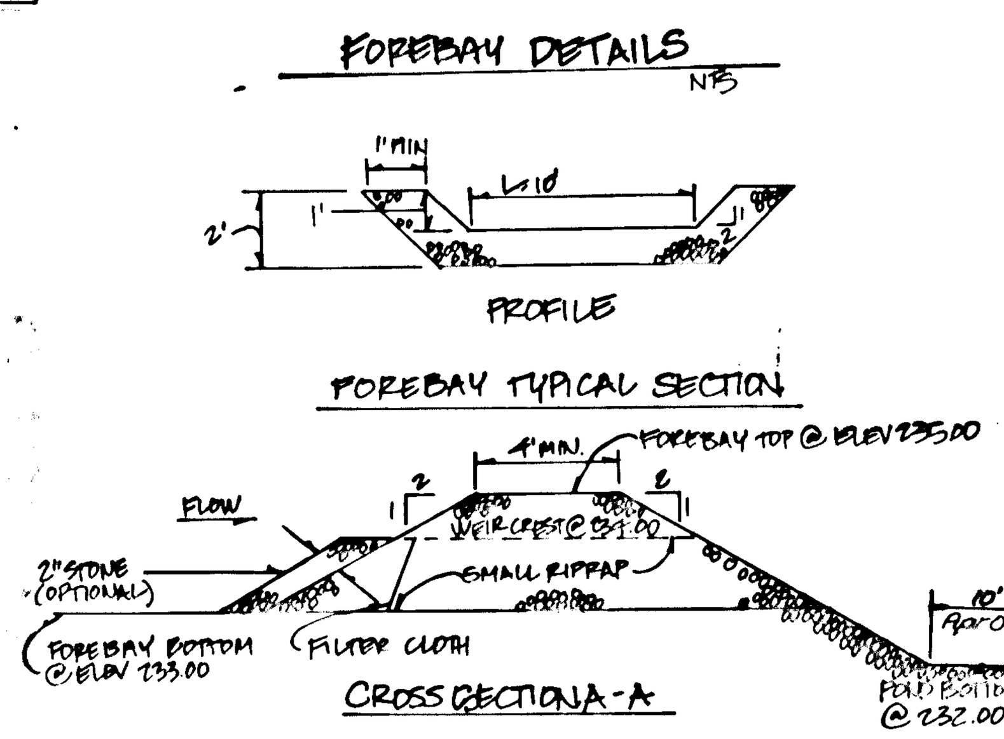






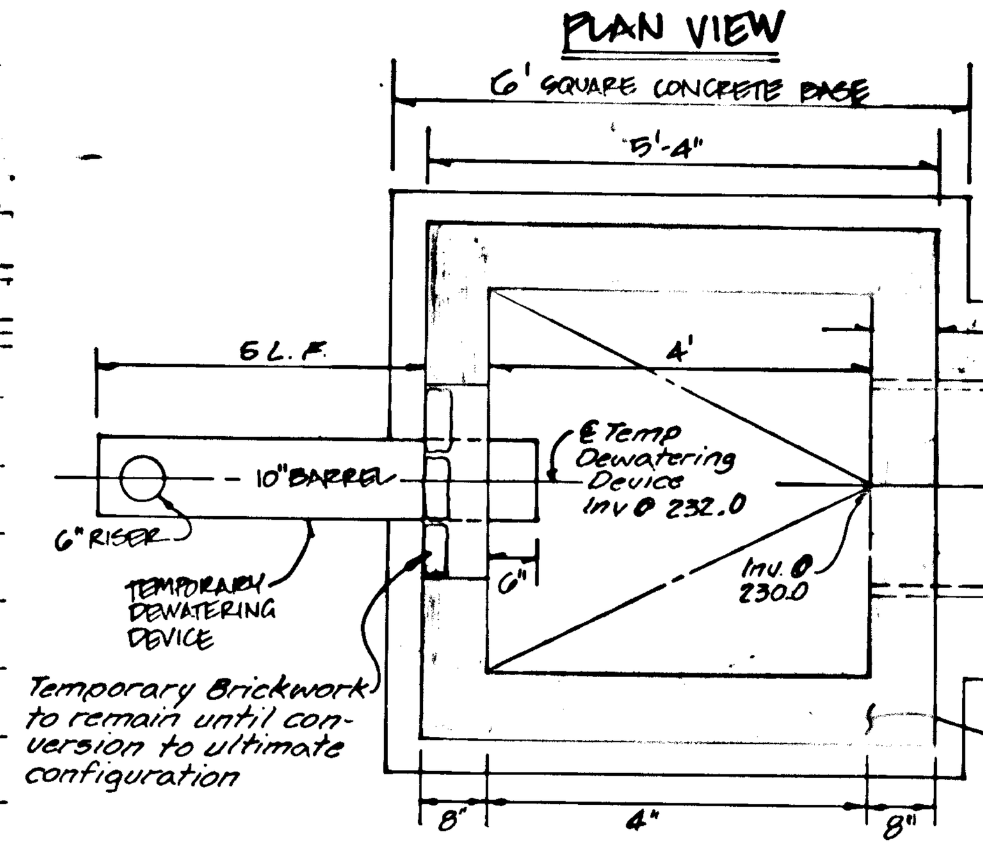
CORE TRENCH TYP SECTION



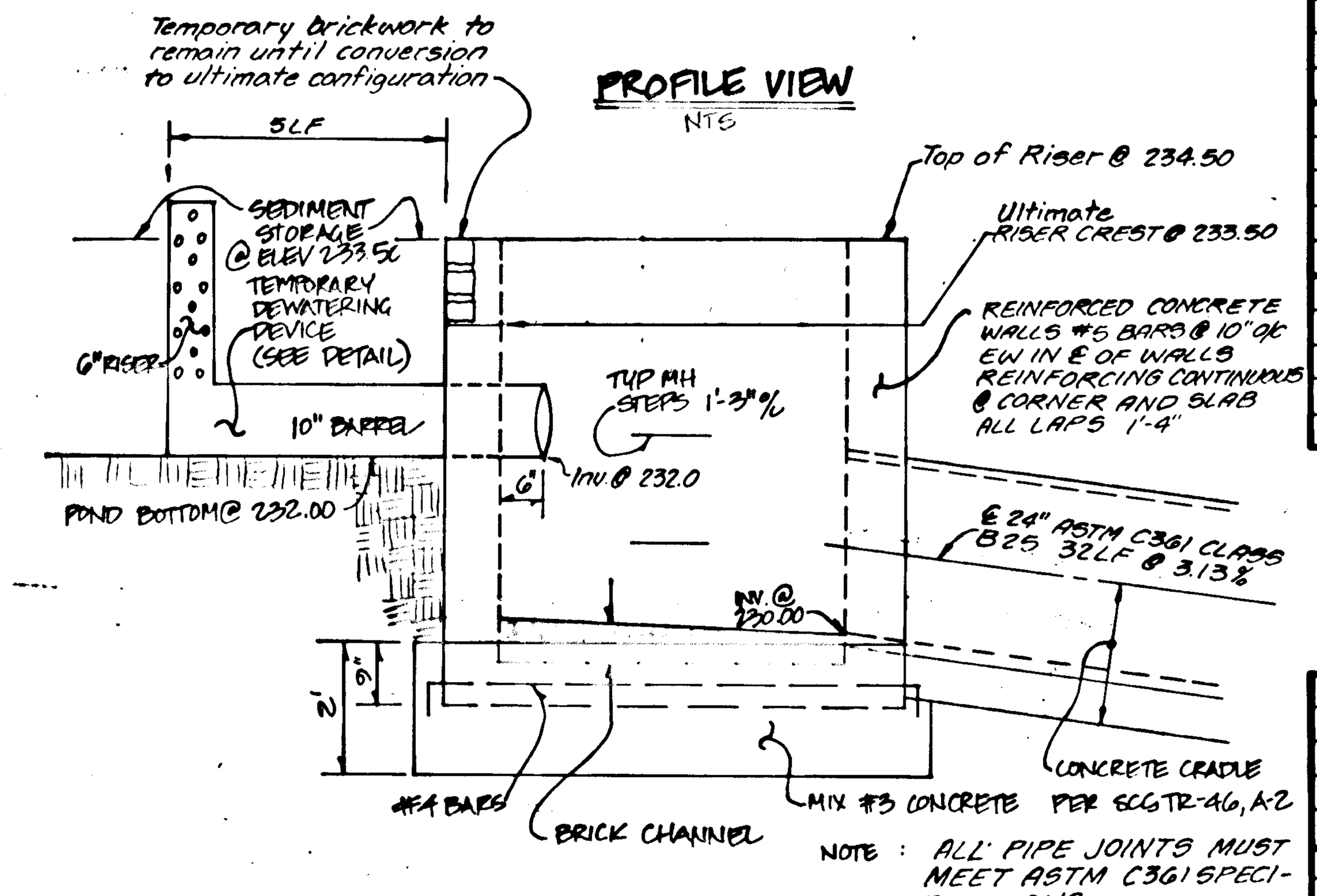


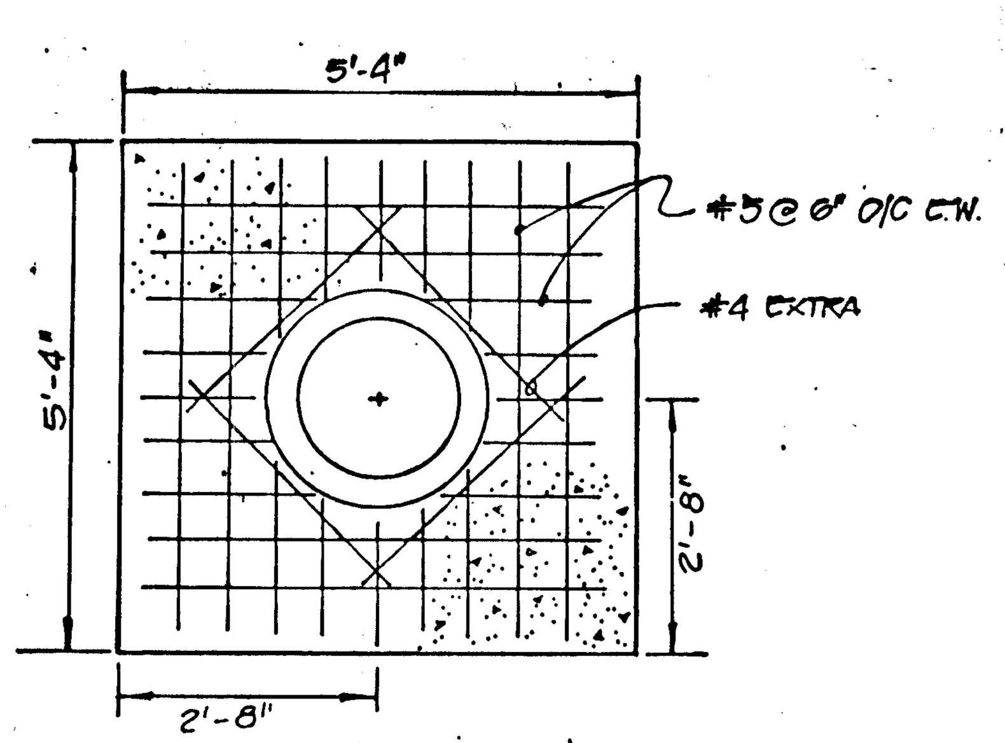
SEDIMENT BASIN RISER DETAILS

PLAN VIEW



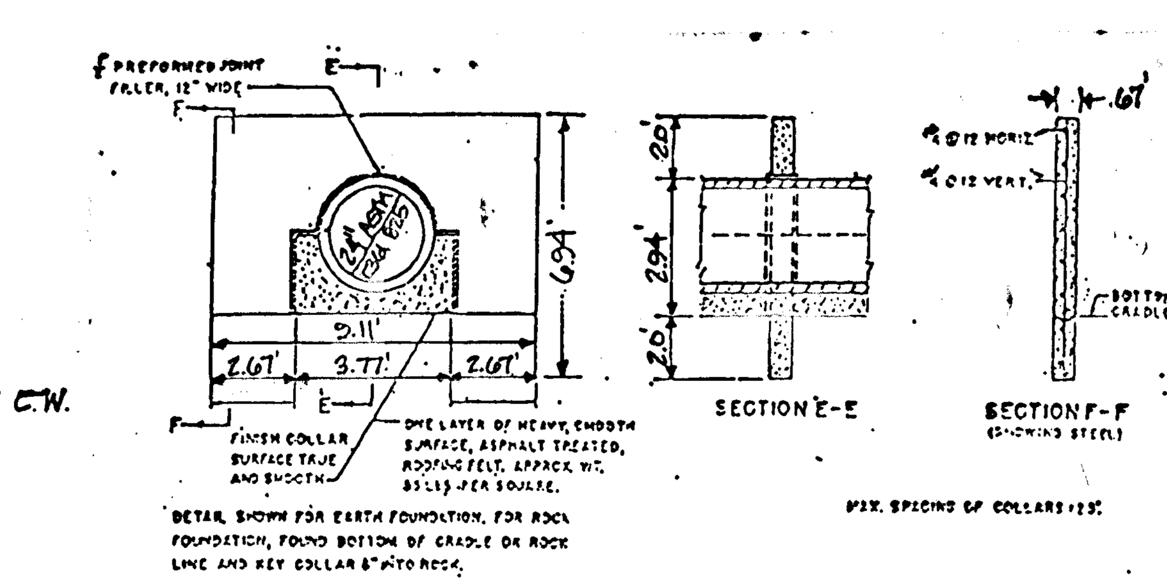
PROFILE VIEW





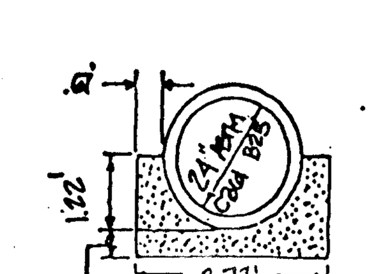
RISER FRAME & COVER DETAIL

N.T.S



TYPICAL SECTION THRU CULVERT, CRADLE AND ANTI-SEEP COLLAR

Not To Scale



SCS TR-46 A-2 CRADLE

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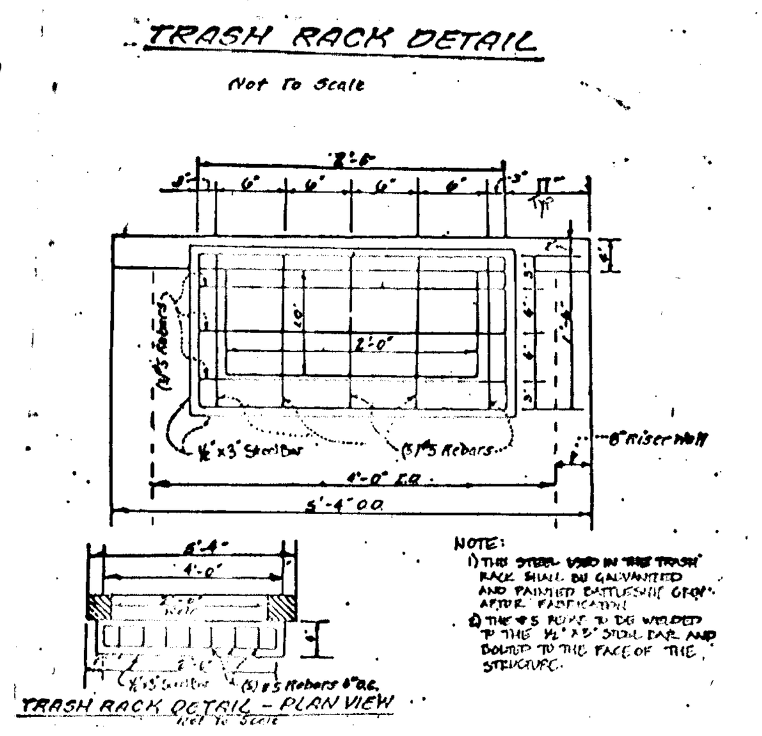
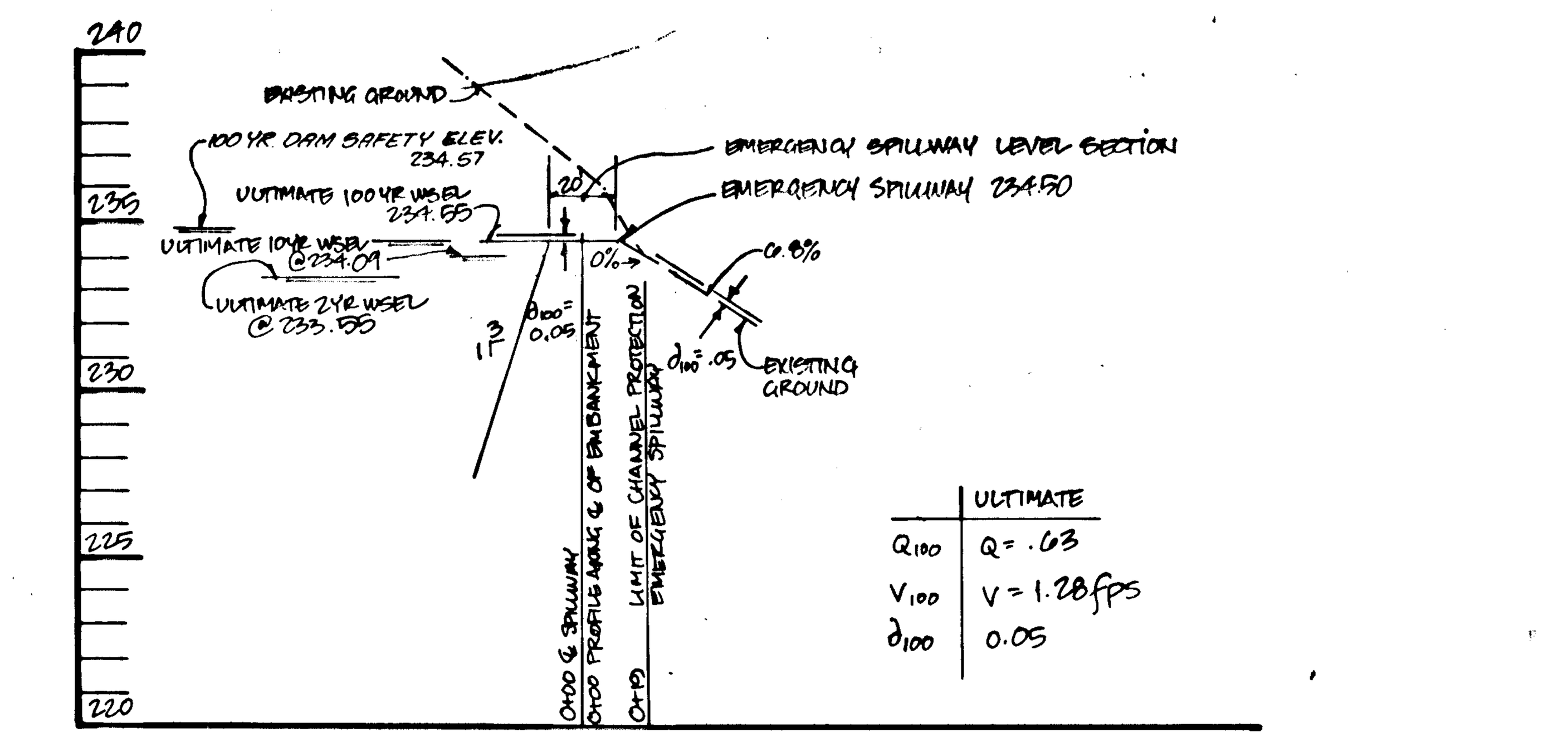


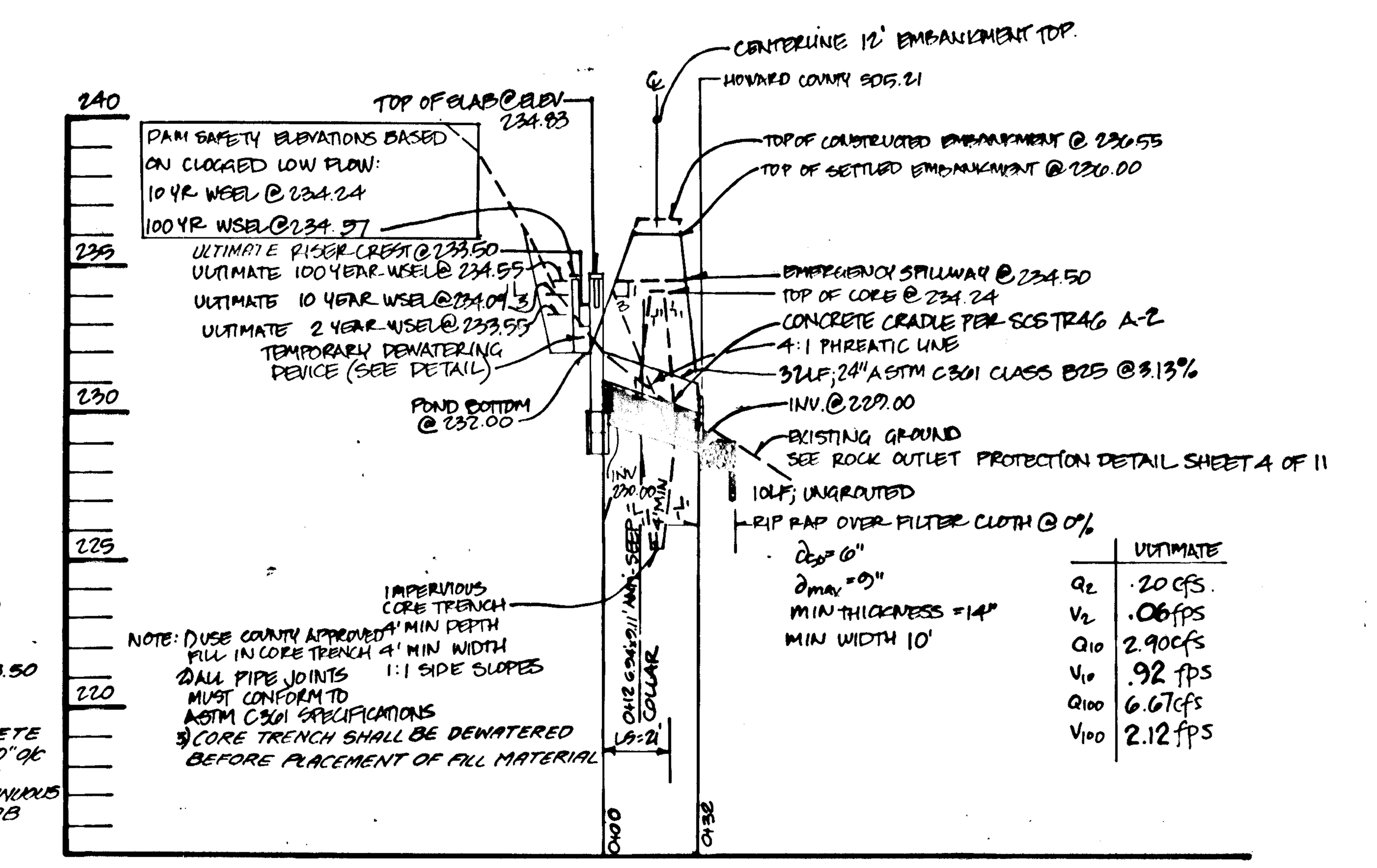
TRASH RACK DETAIL

Not To Scale

TRASH RACK DETAIL - PLAN VIEW

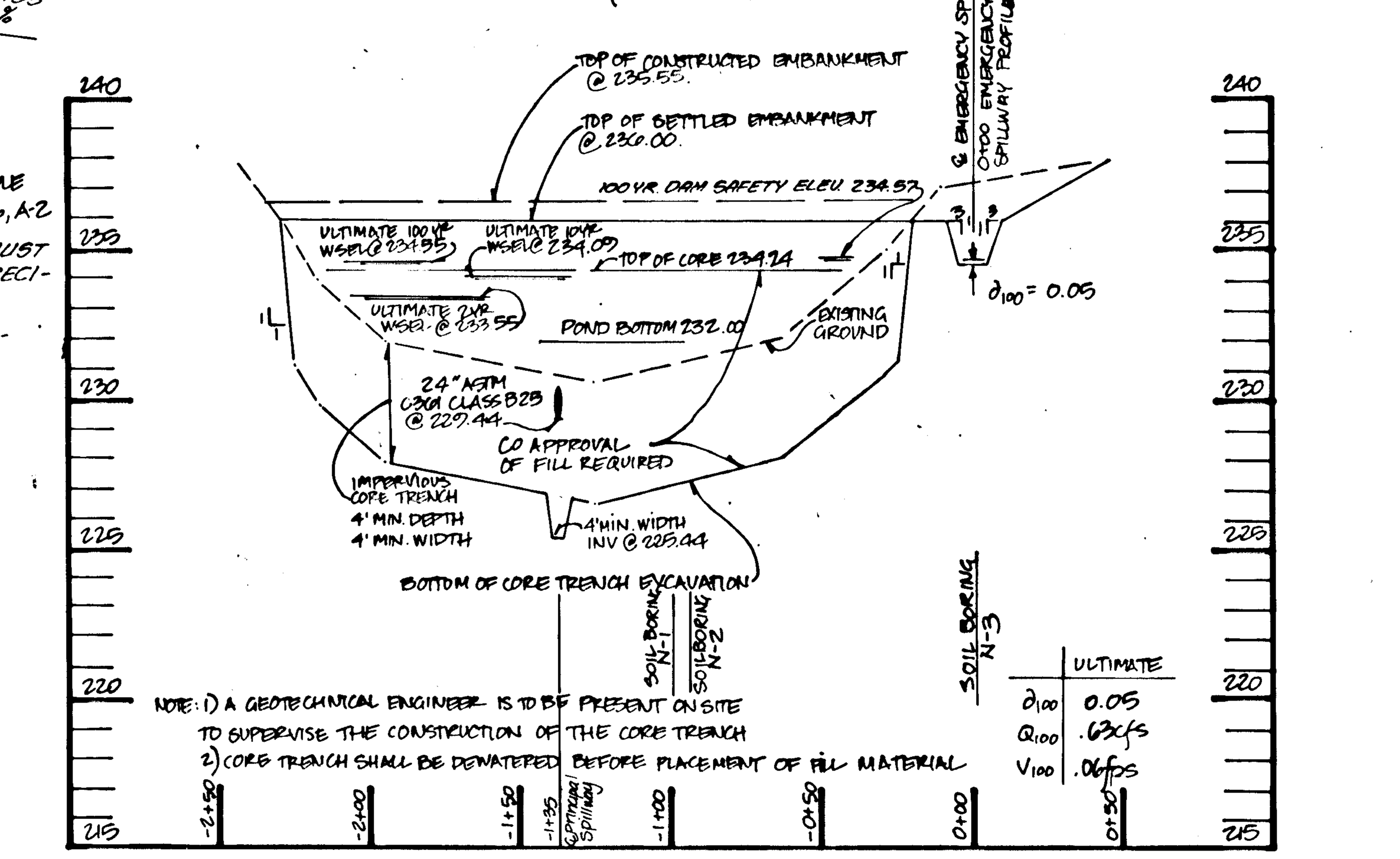


PROFILE ALONG PRINCIPAL EMERGENCY SPILLWAY (POND #6)



PROFILE ALONG ℄ OF BARREL (POND #6)

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



PROFILE ALONG ℄ OF EMBANKMENT (POND #6)

SCALE 1"=5' VERTICAL 1"=50' HORIZONTAL

ENGINEER'S CERTIFICATE

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

Bruce D. Burton — 5/22/95
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 shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by Howard Soil Conservation District.

[signature] — 3/21/94
Signature of Developer — Date

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

[signature] — 5/30/95
U.S. Soil Conservation Service — Date

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Robert W. Zielinski — 5/30/95
Howard Soil Conservation District — Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

[signature] — 6/16/95
Chief, Land Development Division — Date

[signature] — 6/16/95
Chief, Bureau of Engineering — Date

Andrew M. [signature] — 6-6-95
Chief, Bureau of Highways — Date

APPROVED: Department of Planning and Zoning

[signature] — 6/22/95
Chief, Division of Land Development and Research — Date

Bruce D. Burton 5/22/95

LAND DESIGN ENGINEERING, INC.

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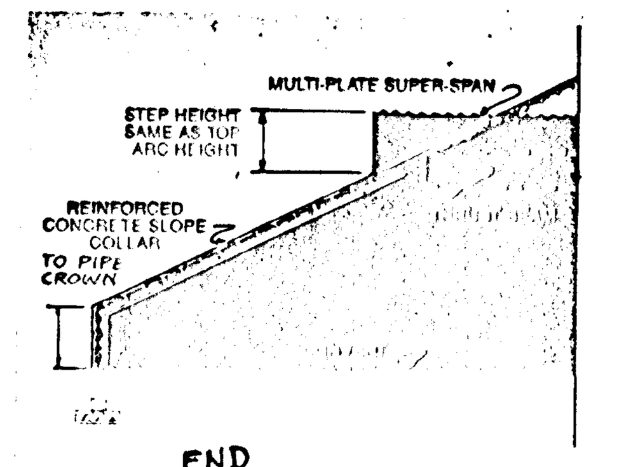
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

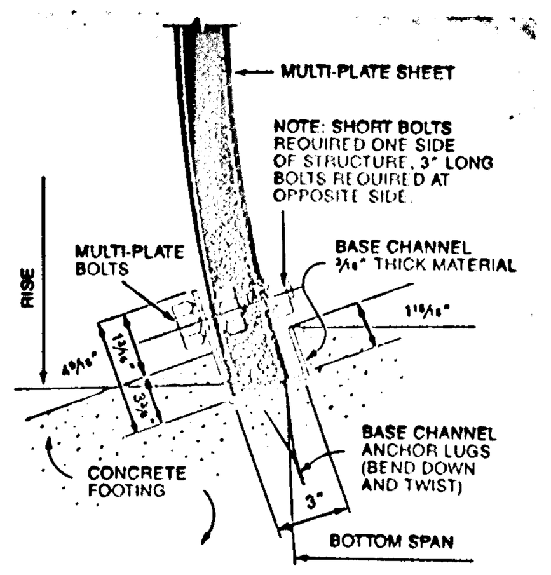
DESIGNED ES	STORMWATER MANAGEMENT DETAILS	SCALE AS SHOWN
DRAWN GL	LYNDWOOD MANOR SECTION THREE AREA TWO	DRAWING 9 of 11
CHECKED RM	Tax Map 37 Part of Parcels 643, 38, 640 1st Election District Howard County, MD.	JOB No. 92-176.7
DATE 12/94	Owner / Developer: 100 INVESTMENT LIMITED PARTNERSHIP 8835-P Columbia 100 Parkway Columbia, Maryland 21045 (410) 730-0810	FILE No. F94-96

F-94-96

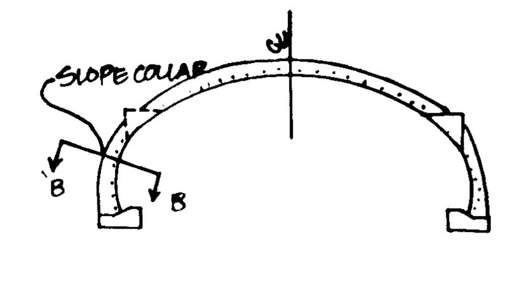
1708



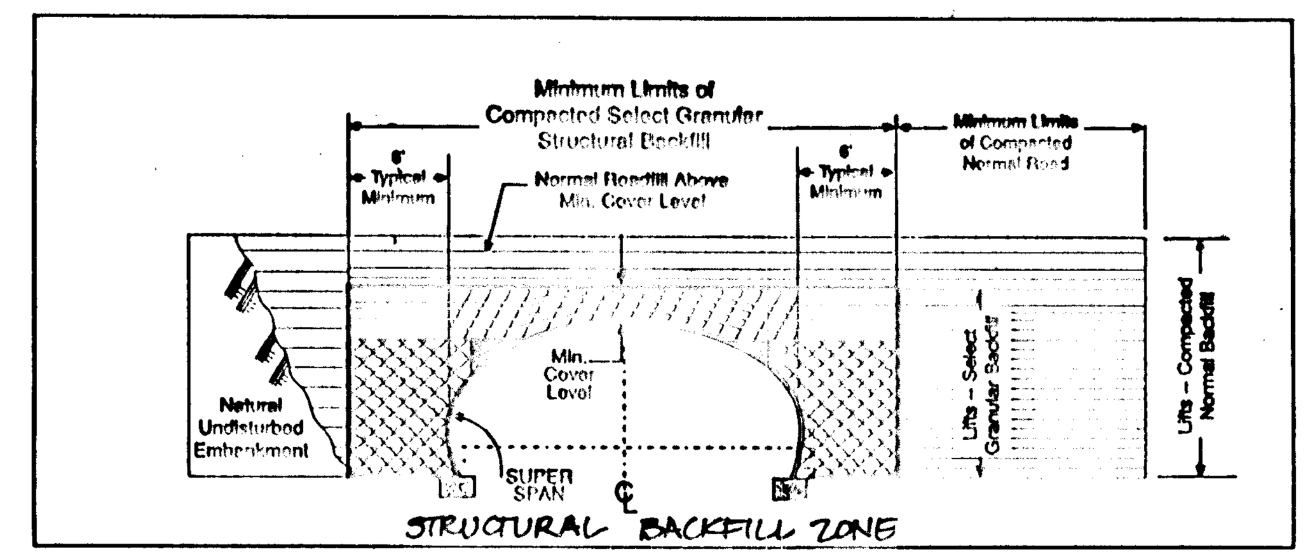
END SECTION DETAIL (NTS)



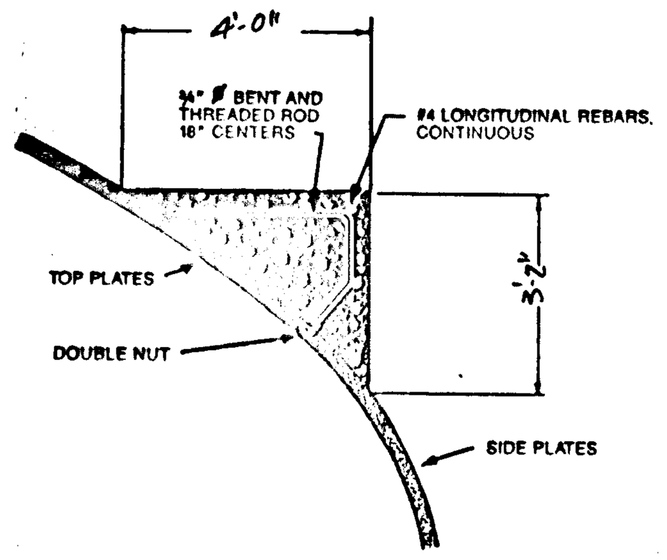
BASE CHANNEL DETAIL (NTS)



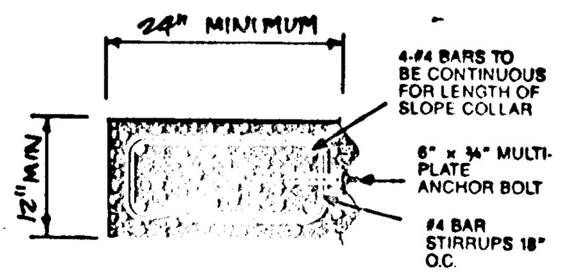
STRUCTURE END VIEW
NTS



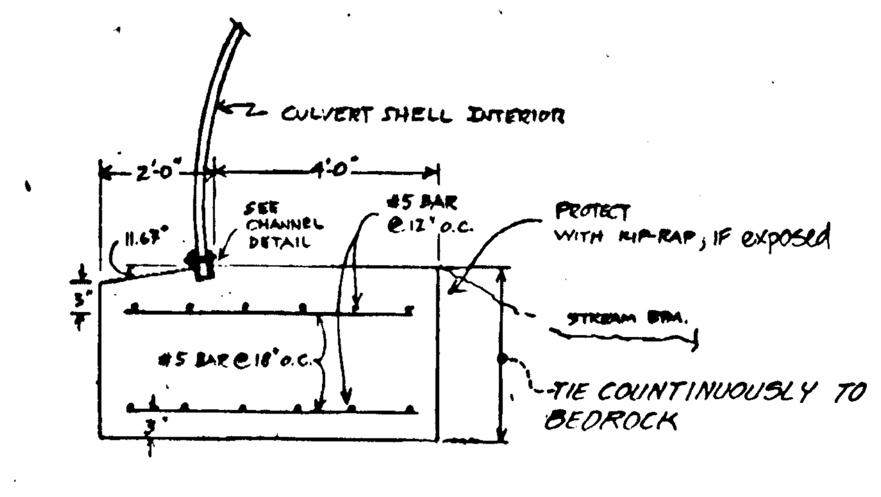
STRUCTURAL BACKFILL ZONE



THRUST BEAM (NTS)



SECTION B-B
TYPICAL SLOPE COLLAR (NTS)



FOOTING DETAIL
NTS

METAL ARCH SPAN DATA	
Begin NW; ℄ STATION 87+54.81	65.99' LT
End SE; ℄ STATION 87+70.22	73.38' RT
Span ℄ DATA NW TO SE	
S 34°51'14"E	22.00'
S 45°51'14"E	62.00'
S 59°51'14"E	58.00'

STRUCTURAL BACKFILL REQUIREMENTS

STRUCTURAL BACKFILL

MATERIAL

A granular type of material shall be used around and over the structure. This select structural backfill material shall conform to one of the following classifications of soil from AASHTO Specification M-145, as modified in the following table for A-1, A-2-4 . Maximum particle size shall not exceed 3 inches. For the A-2 materials, moisture content must be between -3% to +2% optimum as defined by AASHTO T-180. All soil classifications are limited in height of cover and structure shape applications as indicated in the structure suitability section below.

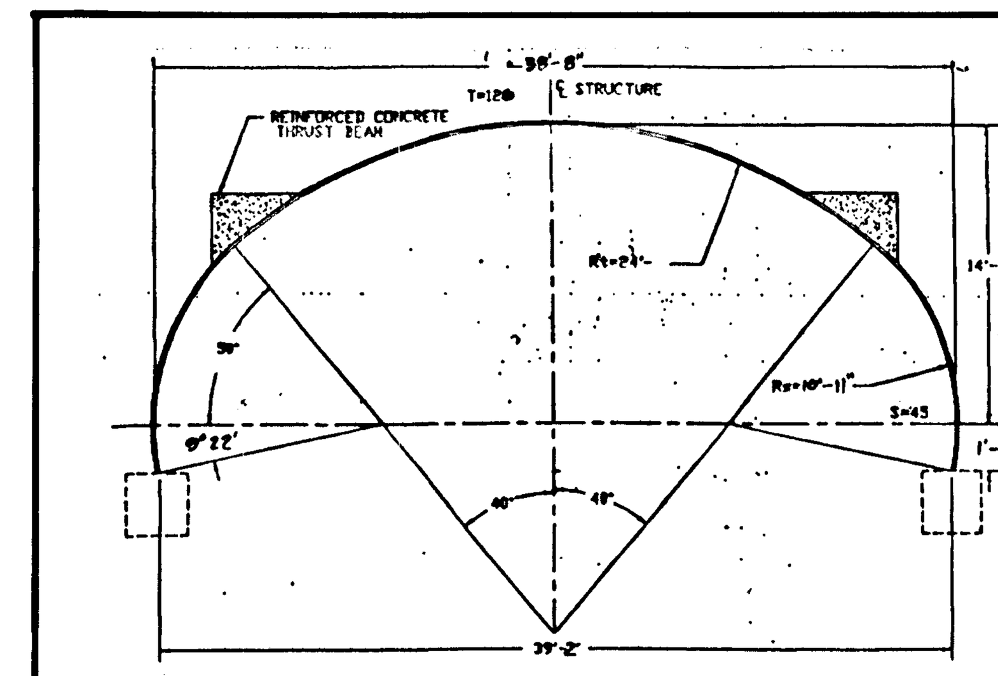
STRUCTURE SUITABILITY

- A-1-a material is recommended for all long span shapes, sizes and fill heights.
- A-1-b material is recommended for use with high profile arch and pear shape structures to a 12' maximum fill height.
- A-1-b material is recommended for use with elliptical and low profile arch structures to a 20' maximum fill height.
- A-2-4 materials are restricted to maximum heights of cover of 12'. These materials are not allowed for use with pear, pear arch and high profile arches with more than 30 pi in the side arc.

Other backfill materials which provide equivalent structural properties, long term, in the environmental conditions expected (saturation, freeze-thaw, etc.) may be used. Such materials shall be approved only after thorough investigation and testing by a Soils Engineer familiar with the requirements for structural backfill of long span structures.

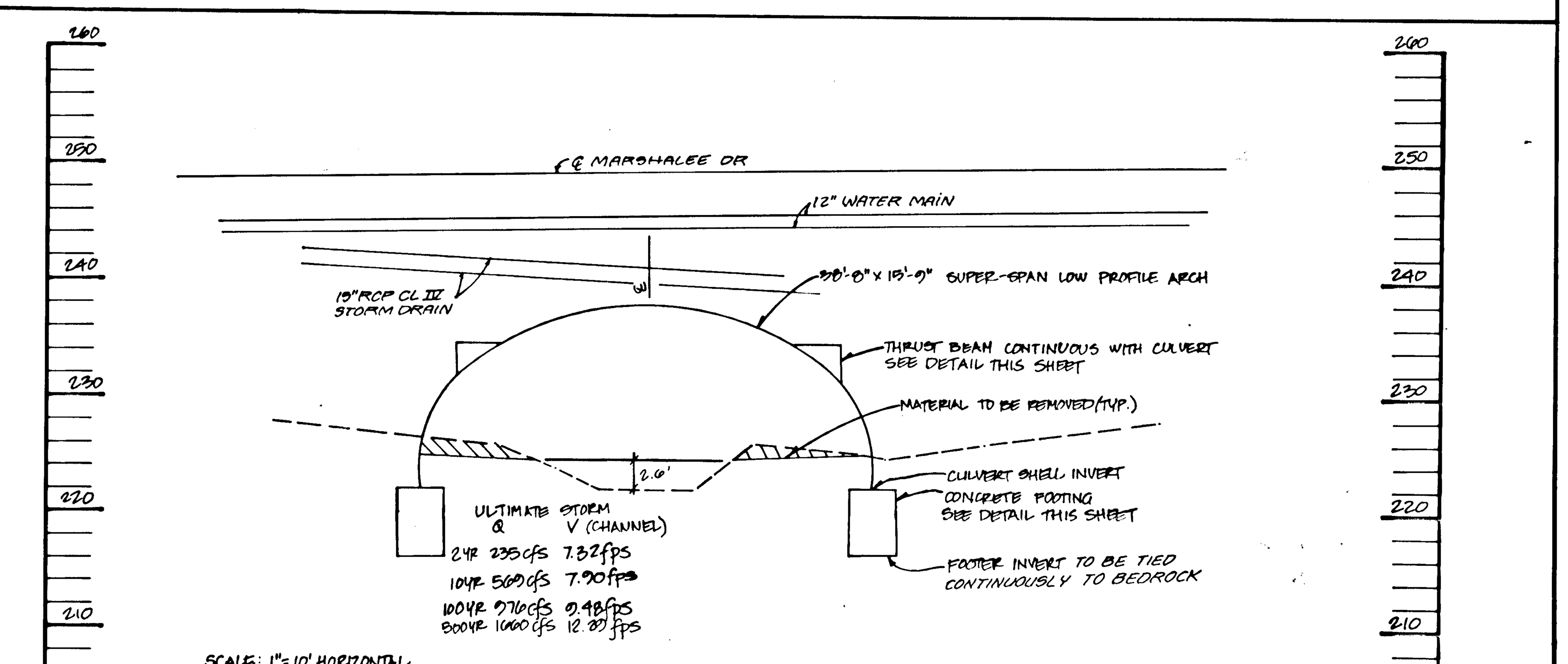
AASHTO M-145 - TABLE 2 (MODIFIED)

GROUP CLASSIFICATION	A-1		A-2(Modified)	
	A-1-a	A-1-b	A-2-4	
SIEVE ANALYSIS, PERCENT PASSING:				
NO.10 (2.00 mm)	50 MAX.	---	---	
NO. 40 (0.425 mm)	30 MAX.	50 MAX.	---	
NO. 100 (0.150 mm)	---	---	50 MAX.	
NO. 200 (0.075 mm)	15 MAX.	25 MAX.	20 MAX.	
CHARACTERISTICS OF FRACTION PASSING NO. 40 (0.425 mm)				
Liquid Limit	---		40 MAX.	
Plasticity Index	6 MAX.		10 MAX.	
USUAL TYPES OF SIGNIFICANT CONSTITUENT MATERIALS	STONE FRAGMENTS GRAVEL AND SAND		SILTY OR CLAYEY GRAVEL AND SAND	



TOP PLATES: 4 @ 21, 1 @ 24, 1 @ 18
SIDE PLATES: 2 @ 21
TOTAL PLATES: 8 @ 21, 1 @ 24, 1 @ 18
AREA = 490 SQ. FT.
ALL DIMENSIONS TO INSIDE OF CORRUGATION UNLESS OTHERWISE NOTED.

SPAN SECTION
NTS



SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

CHANNEL CROSS-SECTION & OVERBANK EXCAVATION DETAILS

SPECIFICATION LONG SPAN STEEL PLATE STRUCTURES

GENERAL DESCRIPTION

The long span structural steel plate structure, conforming to the dimensions shown on the plans and specifications, shall be installed at the location designated. The design and installation shall conform to AASHTO Standard Specifications for Highway Bridges, Division I, "Soil-Corrugated Metal Structure Interaction Systems", Section 12.7, "Long Span Structural Plate Structures", and Division II, Section 26, "Metal Culverts" and Division II, Section 8, "Concrete Structures".

MATERIALS

The galvanized structural steel plate shall have 6" x 2" corrugations and shall be of the gage as shown on the plans. The plates shall be manufactured in conformance with AASHTO Specification M 167. Bolts and nuts shall meet the provisions of ASTM A 449 and ASTM A 563, Grade C, respectively, and shall be galvanized in accordance with the requirements of ASTM A 153, Class C. The steel anchor bolts shall conform to ASTM A-307, Grade A.

LONGITUDINAL STRUCTURAL STIFFENERS (THRUST BEAMS)

Longitudinal stiffeners shall be located at the critical buckling area astride the longitudinal bolt seam which connects the structure's top and side arcs. The thrust beams shall consist of reinforced concrete conforming to Division II, Section 8, Class B of the AASHTO Standard Specifications for Highway Bridges having a minimum compression strength of 2400 psi. Reinforcing steel shall conform to ASTM A 615, Grade 40, having a minimum yield strength of 40,000 psi. Thrust beams shall be formed and poured conforming to the plan dimensions when the backfill reaches the bottom elevation of the thrust beams.

DESIGN

The long span structure shall be designed in accordance with the latest AASHTO design criteria and shall be required to incorporate the use of continuous longitudinal structural stiffeners (concrete thrust beams). The seller of the material shall be a qualified manufacturer of structural steel plate and long span structures with a minimum of 50 successful installations. The foundation, structural backfill and end treatment shall be as required herein and detailed on the plans.

ADDITIONAL REQUIREMENTS

1. Materials must be dense graded (open graded or gap graded materials are not allowed).
2. Fine beach sands, windblown sands, stream deposited sands exhibiting fine, rounded particles and typically classified by AASHTO M-145 as A-3 materials are not allowed.
3. On site mixing or blending to achieve specified gradation is not allowed.

BACKFILL ENVELOPE LIMITS

The backfill envelope limits are as detailed on the plans.

BACKFILL PLACEMENT

Approved backfill material shall be placed in horizontal, uniform layers not exceeding 8" in thickness, before compaction, and shall be brought up uniformly on both sides of the structure. Each layer of backfill shall be compacted to a relative density of not less than 90%, modified proctor per AASHTO Test Method No. T-180. Field density tests of compacted backfill will be made at regular intervals during backfill. Compaction equipment or methods that produce horizontal or vertical earth pressure which cause excessive distortion or damage to structures shall not be used.

Before backfilling, the erected structure shall be within 2% of the design shape.

STRUCTURE ERECTION

The structure shall be erected in strict accordance with the manufacturer's instructions and to the design shape shown on the plans. Plates shall be assembled according to plate assembly drawings supplied by the manufacturer.

INSPECTION

The manufacturer shall provide an inspector who is a qualified representative from a professional soils firm. The inspector shall take initial measurements of the erected structure before backfilling, monitor all backfill materials and the placement and compaction thereof. The inspector shall monitor the structure's shape throughout the backfilling operation. The engineer shall provide field density tests of the compacted backfill as directed by the inspector. The inspector shall have full authority to stop backfill work if necessary. Upon completion of the long span installation, the manufacturer shall provide certification of proper installation.

PRECONSTRUCTION CONFERENCE

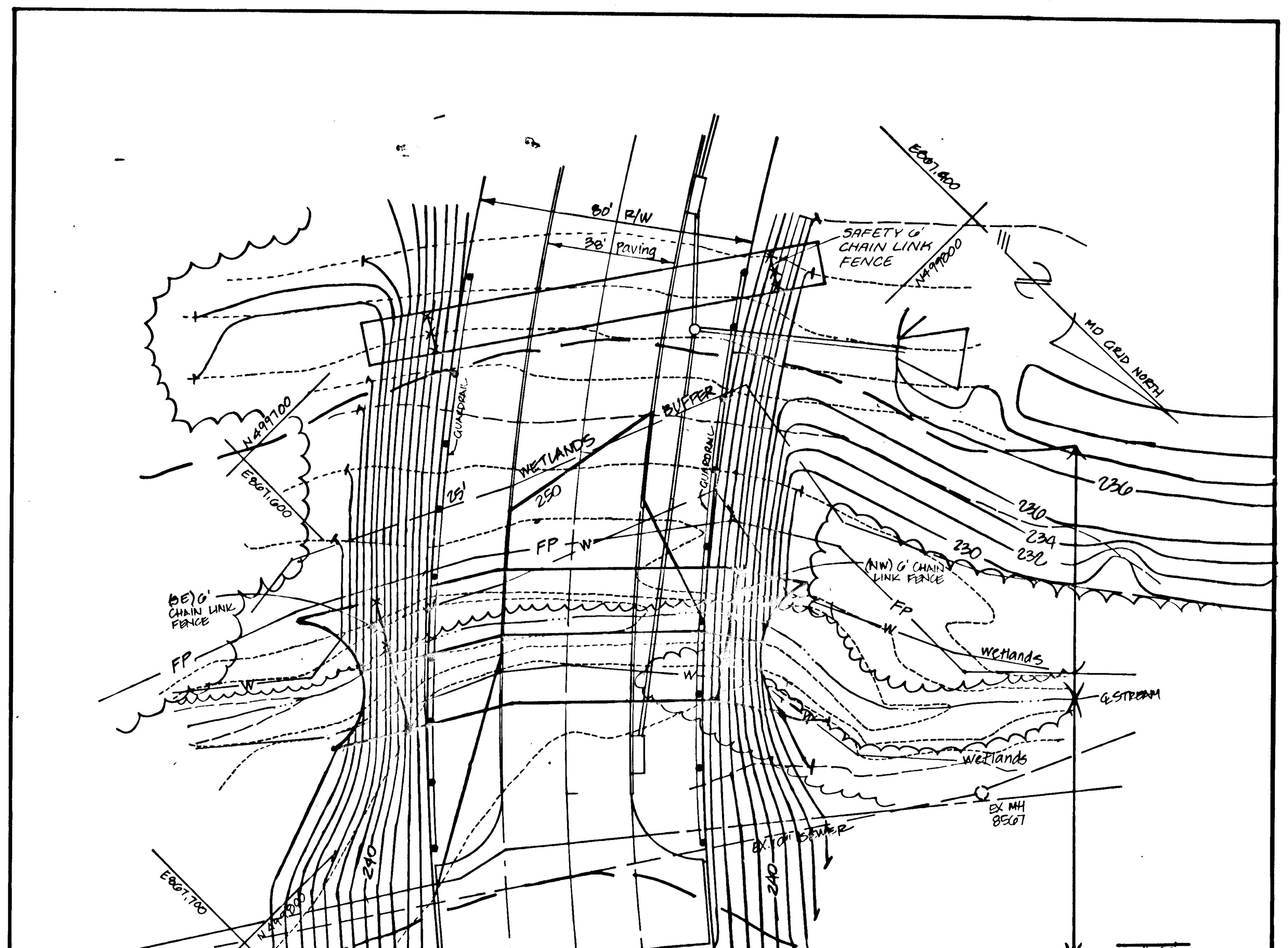
Prior to construction, a meeting will be held to review the construction procedures. A qualified representative of the manufacturer of the structure will be present to discuss methods and responsibility for shape monitoring and control, backfill material selection, testing and placement, and compaction methods and testing. A representative of the Engineer, Prime Contractor, and any involved Sub-Contractors must be present.

02/03/94 3

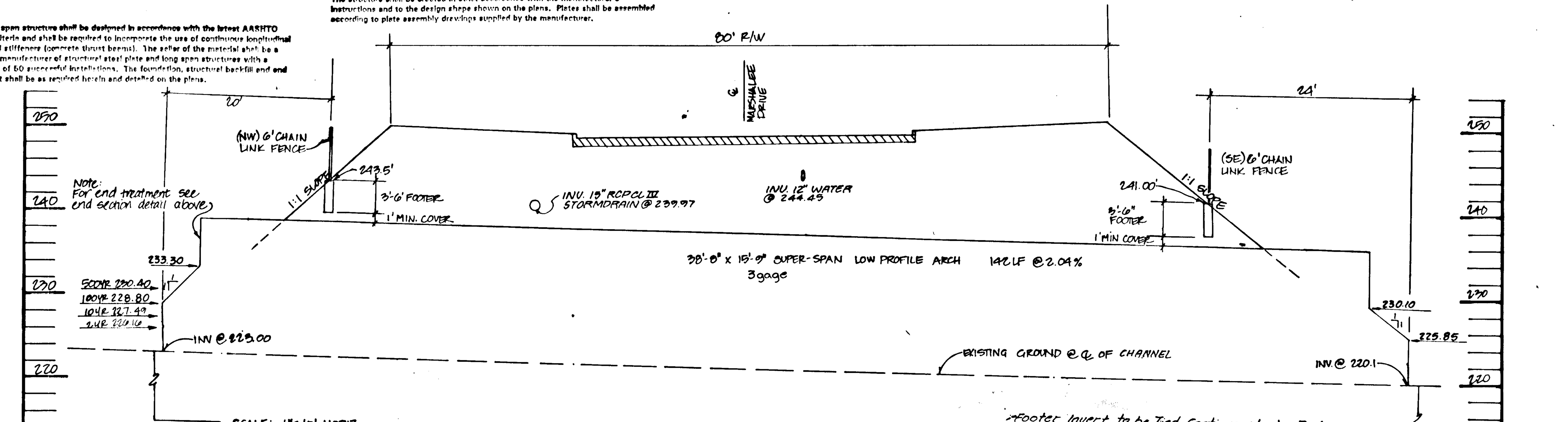
ALTERNATE STRUCTURES

The Contractor may furnish an alternate structure to the long span shown on the plans and these specifications but the following conditions must be met:

1. The structure must be designed using the AASHTO Long Span criteria and these plans and specifications.
2. The corrugated metal plate thickness specified is considered the minimum acceptable for the structure(s) on this project based on structural and durability requirements. Any other structure, regardless of "special features", must be of the same or greater thickness.
3. "Special Features", such as rolled structural steel ribs, shall be hot-dip galvanized after fabrication per ASTM A 123. Ribs shall be placed across the top 180° or to the springline of all structures. Maximum rib spacing shall be two (2) feet. Ribs shall be placed over the same length of structure that the thrust beams would apply. No allowance for composite action between the rib and plate will be allowed. The combined moment of inertia of both plate and rib must satisfy the normal flexibility factor as shown in AASHTO Division I, Section 12.6.1.4. The span in the formula for the flexibility factor shall be replaced by twice the top arc radius.
4. Alternate structures meeting the above criteria will only be considered for use if pre-approved in writing by the Engineer prior to the bid date. To qualify for pre-approval, an alternate submittal package must be submitted to the Engineer a minimum of 15 days prior to the bid date.



CROSSING PLAN VIEW



SCALE: 1" = 10' HORIZ.
1" = 10' VERTICAL

CULVERT PROFILE

NOTE: MINIMUM COVER OVER CULVERT = 2'
MAXIMUM COVER OVER CULVERT = 20'

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.

STATE OF MARYLAND BRUCE DAVID BURTON PROFESSIONAL ENGINEER

BRUCE D. BURTON 5/22/95
Signature of Engineer — Date

DEVELOPER'S CERTIFICATE

I/We certify that all development and 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 Department of the Environment Approved Training Program for the Control of Sediment and Erosion before begining the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

[signature] 3/21/94
Signature of Developer — Date

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

[signature] 5/30/95
U.S. Soil Conservation Service — Date

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Robert W. Ziehm 5/30/95
Howard Soil Conservation District — Date

APPROVED: Department of Public Works for Storm Drainage Systems and Roads

[signature] 6/16/95
Chief, Land Development Division — Date

[signature] 6/16/95
Chief, Bureau of Engineering — Date

Andrew M. [signature] 6-6-95
Chief, Bureau of Highways — Date

APPROVED: Department of Planning and Zoning

[signature] 6/22/95
Chief, Division of Land Development and Research — Date

[signature] 3/23/94

LAND DESIGN ENGINEERING, INC.
8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

DESIGNED	STREAM CROSSING CULVERT DETAILS	SCALE
TD		AS SHOWN
DRAWN	LYNDWOOD MANOR	DRAWING
GL	SECTION THREE AREA TWO	10 of 11
CHECKED	Tax Map 37 Part of Parcels 643, 38, 640	JOB No.
RM	1st Election District Howard County, MD.	92-176.7
DATE	Owner / Developer: 100 INVESTMENT LIMITED PARTNERSHIP, 8835-P Columbia 100 Parkway, Columbia, Maryland 21045 (410) 730-0810	FILE No.
12/94		F94-96

F-94-96

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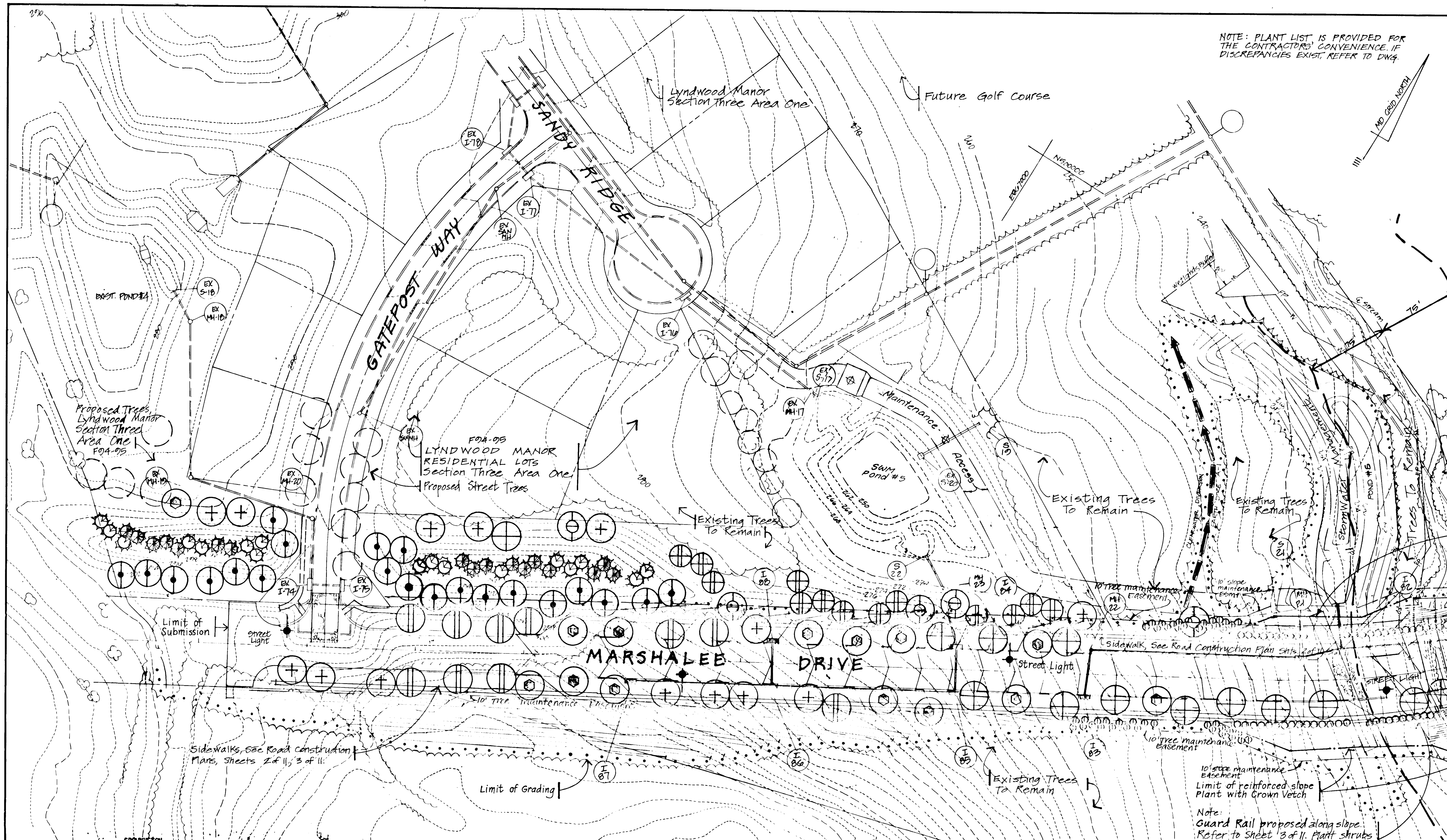


PLANT LIST

No	Key	Quan.	Plant Name	Size	Cond.	Remarks
1		10	*Acer rubrum 'Red Sunset'* Red Sunset Red Maple	2.5-3" CAL	B&B	FULL 40' O.C.
2		13	*Crataegus virdis 'Winter King'* Winter King Hawthorn	1.5-2" CAL	B&B	FULL 20' O.C.
3		17	*Cedrus deodora* Deodar Cedar	6-8" CAL	B&B	12'-15' O.C.
4		13	*Fraxinus pennsylvanica 'Marshalls Seedless'* Marshall's Seedless Green Ash	2.5-3" CAL	B&B	FULL 40' O.C.
5		65	*Forsythia Suspensa var 'sieboldii'* Siebold Weeping Forsythia	2-2.5' HT.	B&B	4' O.C.
6		17	*Pinus Strobus* Eastern White Pine	6'-8' HT.	B&B	10-15' O.C.
7		15	*Platanus x acerifolia 'Columbia'* Columbia London Plane	2.5-3" CAL	B&B	FULL 40' O.C.
8			*Prunus sargentii* Sargent Cherry	2.5-3' CAL	B&B	FULL 30' O.C.
9		21.	*Prunus Yedoensis* Yoshino Cherry	1.5-2" CAL	B&B	
10		5	*Quercus palustris 'Sovereign'* 'Sovereign' Pin Oak	2.5-3' CAL	B&B	FULL 40' O.C.
11		14	*Quercus rubra* Northern Red Oak	2.5-3' CAL	B&B	FULL 40' O.C.
12		45	*Rhus copallina* Flameleaf Sumac	18-24" HT	CONT	4' O.C.
13			*Viburnum dentatum* Arrowwood Viburnum	2-2.5' HT.	B&B or CONT.	5' O.C.

NOTE: THE DEVELOPER IS RESPONSIBLE FOR ALL REQ'D PLANTING.

NOTE:
This Schedule and Plan shown on Lyndwood Manor, Section Three. Area One.

SCHEDULE A
PERIMETER LANDSCAPE EDGE

Category	Adjacent to Roadways	Adjacent to Perimeter Properties
Landscape Type	C	
Linear Feet of Roadway Frontage/Perimeter	916.56'	
Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed)	NO	
Credit for Wall, Fence or Berm (Yes, No, Linear Feet) (Describe below if needed)	NO	
Number of Plants Required: Shade Trees, Evergreen Trees, Shrubs	23 Shade, 45 Evers.	
Number of Plants Provided: Shade Trees, Evergreen Trees, Other Trees (2:1 substitution), Shrubs (10:1 substitution) (Describe plant substitution credits below if needed)	13 Shade Trees, 34 Evergreen Trees, 34 Ornamental Trees, 40 Shrubs, See Below	

SUBSTITUTION CREDITS:
Comments 40 SHRUBS = 4 TREES / 23 Ornamentals = 11 TREES + 13 SHADE TREES = 28 TREES.
11 ORNAMENTALS SUBSTITUTED FOR 11 EVERGREENS

PLANTING NOTES

GENERAL:

1. Notify "Miss Utility" 72 hours prior to the installation of all plant material.
2. Plant installation must conform to the minimum standards cited in the latest edition of *Landscape Specification Guidelines*, published by the Landscape Contractor's Association.
3. Plants to be located in the field by the owner or the owner's representative. Notify owner 72 hrs. in advance of planting.
4. A *Certification of Landscape Installation* is required as per the *Howard County Landscape Ordinance.*
5. Contact Landscape Architect regarding the substitution of plant material.
6. The number, size and location of plants shall not be changed. Substitutions must be included in the recommended plant list as per *Howard County Landscape Ordinance.*
7. Street tree locations have been shown wherever possible. Drive aprons of proposed units may not allow a traditional placement of trees.

STREET TREE NOTES:

8. Biologic root inhibitor barrier or containment shall be installed for trees planted closer than 3 feet to sidewalk.
9. Trees shall be placed 30 feet (min.) from all sign and intersections when planting occurs between sidewalk and curb.
10. Street trees may not be planted within 5 feet of a drain inlet, 5 feet of an open space access strip or 10 feet of a driveway.
11. Street Tree planting must conform to the *Subdivision and Land Development Regulations* and the Department of Public Works' Design Manual of Howard County.

PLANTING:

12. Balled and Burlapped plant material shall not be accepted if ball is cracked or broken before or during planting. Protect all plants from drying by either sun or wind.
13. Tree pits shall be backfilled with 60% topsoil, 25% peat and 15% sand with one pound of 10-10-10 fertilizer per pit.
14. Topsoil shall be sandy loam soil, free from noxious weeds or grasses, roots, clay lumps, stones, sticks, etc. Peat moss shall be commercial with pH 4.5 to 5.5, free of woody material or harmful minerals.
15. All plants shall be watered at planting with weekly watering thereafter for the first 80 days. Watering shall continue bi-monthly or as necessary to maintain plants in a healthy condition. Fertilizer shall be applied with watering to insure a healthy plant.
16. Maintain the site in an orderly manner. Streets and sidewalks shall be swept clean. All rejected or dead materials shall be immediately removed from the site.

MAINTENANCE AND GUARANTEES:

17. Plant material to be alive and healthy at the time of the guarantee period specified as per the *Howard County Landscape Ordinance.*
18. Maintenance shall begin immediately after planting and continue to the end of the guarantee period.
19. Maintenance consists of pruning, watering, weeding, re-mulching, resetting plants to proper grades as needed and repairing guys and stakes as needed.

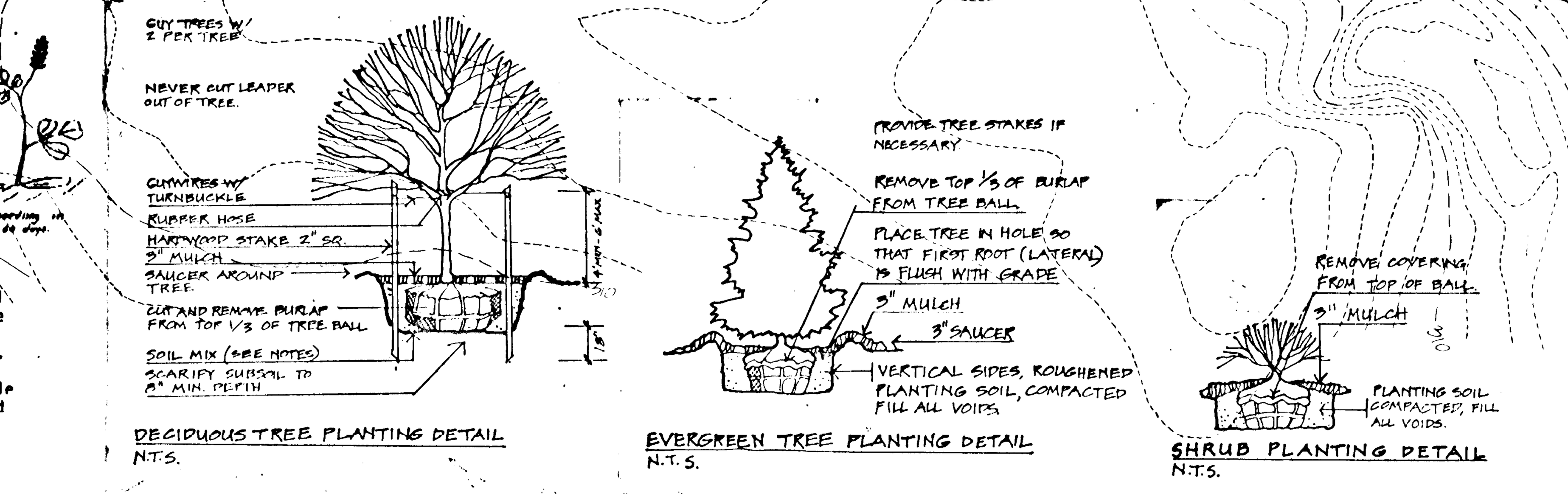
Claire L. Williams 3.24.94

CROWNVETCH

Critical Area Establishment: Correct acidity to a pH of 5.5 or higher, where possible scarify the soil 2 to 4 inches deep. Apply fertilizer according to soil test, or use at least 50C pounds of 5-10-10 fertilizer per acre.

Apply seed uniformly, cover seed up to 1/2 inch deep, mulch with 1 and 1/2 tons of straw and hold in place. All seed must be inoculated. and scarified.

Seed mixtures of 15 to 20 pounds of crownvetch mixed with either tall fescue or ryegrass at 30 pounds per acre. Grass provides quick growth and protects the site while the slower growing legume is getting established. Seeding date in the spring is best. Do not seed after mid-summer. Sites ready for seeding in late summer or fall can be seeded to grass and mulched, and the crownvetch over-seeded the following spring. Sites too steep or stoney to use mechanical equipment usually can be seeded without site preparation if "frost seeded". Soil conditions must have a favorable soil reaction of pH 5.5 and be of moderate fertility. Broadcast seed in late winter (Feb.-Mar.) while there still is frost action in the soil. Frost heaving will work seed into the soil. Seeding rate of 15 to 20 bounds of crownvetch with a grass usually is adequate.



DECIDUOUS TREE PLANTING DETAIL
N.T.S.

EVERGREEN TREE PLANTING DETAIL
N.T.S.

SHRUB PLANTING DETAIL
N.T.S.

1) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2) FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT IN THE AMOUNT OF $6,800.00.
3) STREET TREES MAY NOT BE PLANTED WITHIN 20 FEET OF ANY STREET LIGHT.

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

STATE OF MARYLAND — BRUCE DAVID BURTON — REGISTERED PROFESSIONAL ENGINEER

Bruce D. Burton 5/23/95
Signature of Engineer — Date

DEVELOPER'S CERTIFICATE

I/We certify that all development and 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 Department of the Environment Approved Training Program for the Control of Sediment and Erosion before begining the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District

[signature] 3/21/94
Signature of Developer — Date

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

Patricia Engler 5/30/95
U.S. Soil Conservation Service — Date

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

Robert W. Ziehm 5/31/95
Howard Soil Conservation District — Date

APPROVED Department of Public Works for Storm Drainage Systems and Roads

[signature] 6/16/95
Chief Land Development Division — Date

[signature] 6/16/95
Chief Bureau of Engineering — Date

Andrew M. Daneker 6-6-95
Chief Bureau of Highways — Date

APPROVED Department of Planning and Zoning

Gina Tournary 6/22/95
Chief Division of Land Development and Research — Date

Bruce D. Burton 6/22/95

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8835 Columbia 100 Parkway, Unit N, Columbia, MD 21045
(410) 715-1070 (Balto.) (301) 596-3424 (Wash.) (410) 715-0681 (Fax)

Designed: TD'ES	LANDSCAPE PLAN	Scale: 1"=50'
Drawn: GL	LYNDWOOD MANOR SECTION THREE AREA TWO Tax Map 37 Part of Parcels 643,38,640 1st Election District Howard County, MD S93-02, P93-11 F-94-26, F-94-29	Drawing: 11 of 11
Checked: RM		92-1767
Date: 12/94	Owner/Developer: 100 INVESTMENT LIMITED PARTNERSHIP 8835 Columbia 100 Parkway Columbia Maryland 21045 (410) 730-0810	F94-96

F-94-96

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