

GENERAL NOTES

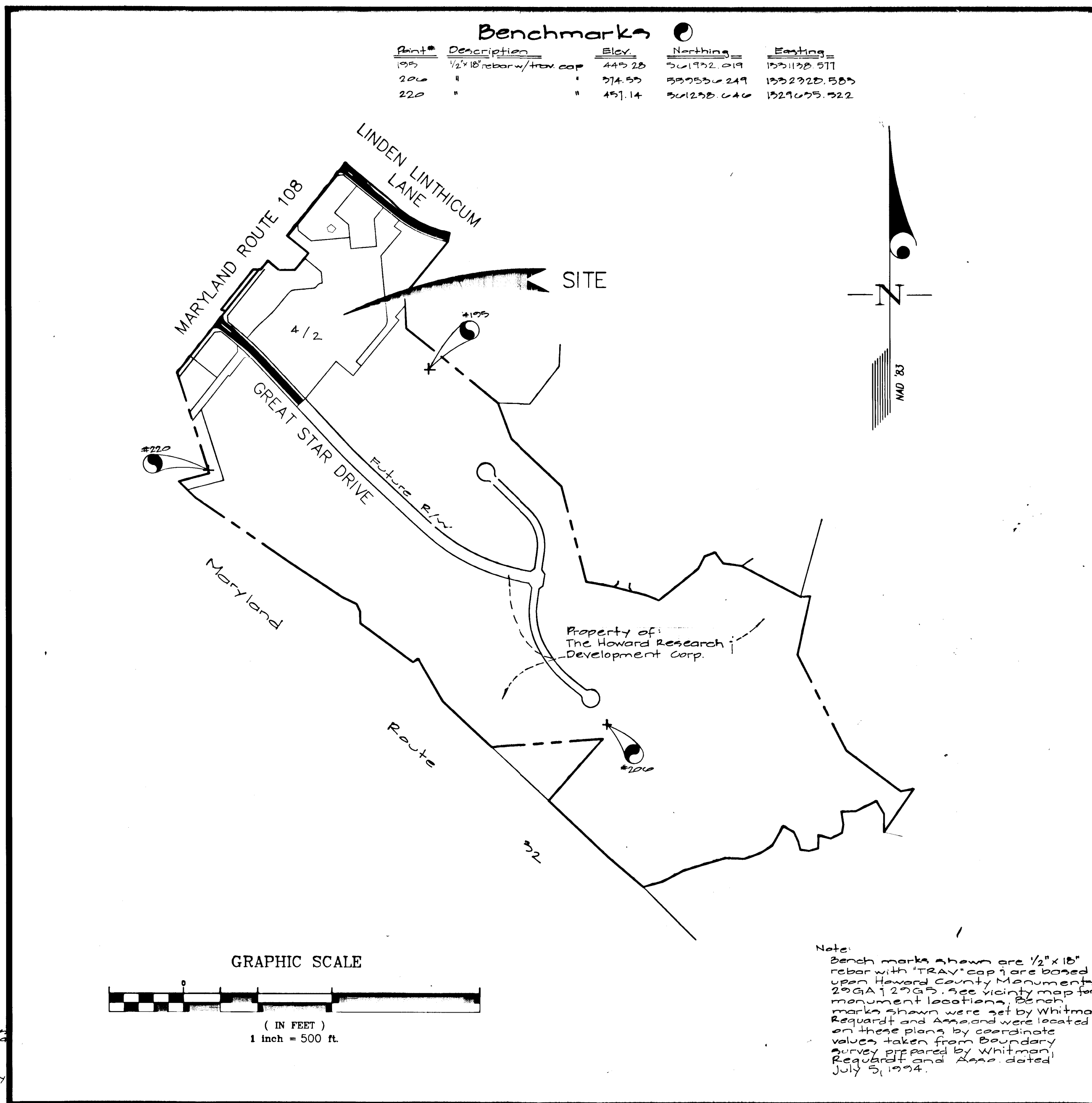
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- PROJECT BACKGROUND:
LOCATION: MD. ROUTE 108, 2600' WEST OF SHEPHERD LANE
TAX MAP: 34 AND 35
ZONING: NT
ELECTION DISTRICT: 5
GROSS AREA OF TRACT: 32.95 AC.
PRELIMINARY PLAN FILE NUMBER AND APPROVAL DATE: P-95-10 (6/15/95)
- SEE COUNTY FILE NOS. S93-21, P-95-10, WP-95-78, WP 95-32, & WP 95-114.
- TOPOGRAPHY SHOWN HAS A 2' CONTOUR INTERVAL AND WAS PHOTOGRAPHED BY MAPPING ASSOCIATES, INC. IN 1989.
- PUBLIC WATER AND SEWER TO BE UTILIZED. (MIDDLE PATUXENT DRAINAGE AREA) SITE IS IN METROPOLITAN DISTRICT. WATER AND SEWER CONSTRUCTION FOR THIS SUBDIVISION IS TO BE IN ACCORDANCE WITH HOWARD COUNTY DPW CONTRACT NO. 34-3436-D.
- STORMWATER MANAGEMENT QUANTITY WILL BE PROVIDED USING AN EXISTING POND IN SECTION 4, AREA 5 AND BY TAKING CREDIT FOR THE STORAGE BEHIND THE EXISTING SHA CULVERTS UNDER MD ROUTE 32, AS DESCRIBED IN A REPORT PREPARED BY WHITMAN, REQUARDT AND ASSOC. AND APPROVED AS OF 1/20/95. STORMWATER QUALITY WILL BE PROVIDED FOR PARCELS D AND LINDEN LINTHICUM LANE AT THE EXISTING POND IN SECTION 4, AREA 5. QUALITY MANAGEMENT FOR THE FIRST SECTION OF GREAT STAR DRIVE WILL BE PROVIDED AT A FACILITY BEING PROPOSED UNDER THE FINAL ROAD PLANS FOR SECTION 4, AREA 1. SEE NOTE 30 FOR RESPONSIBILITY OF MAINTENANCE.
- THE FLOODPLAIN STUDY HAS BEEN PREPARED BY WHITMAN, REQUARDT AND ASSOC. STUDY APPROVED AS OF 1/20/95.
- THE WETLAND DELINEATION WAS PERFORMED BY EXPLORATION RESEARCH, INC. STUDY APPROVED AS OF 1/20/95.
- A NOISE STUDY WAS PREPARED BY STAIANO ENGINEERING, INC. STUDY APPROVED AS OF 1/20/95.
- TRAFFIC STUDY PREPARED BY WELLS & ASSOCIATES, DATED 1/20/95.
- GEOTECHNICAL REPORT PREPARED BY ROBERT B. BALTER, INC.
- HORIZONTAL AND VERTICAL CONTROL BASED ON HOWARD COUNTY CONTROL STATIONS 29GA, ELEV. 420.12 AND 29G5, ELEV. 388.12.
- Street lights will be required in this development in accordance with the Design Manual. Street light placement and the type of fixture and pole selected shall be in accordance with the latest Howard County Design Manual, Volume III (1995) and as modified by Guidelines for Street Lights in Residential Developments (1995). A minimum spacing of 20' shall be maintained between any street light and driveway.
- MINIMUM BUILDING SETBACK RESTRICTION FROM PROPERTY LINES AND THE RIGHT-OF-WAY OF ANY PUBLIC ROAD WILL BE IN ACCORDANCE WITH THE FINAL DEVELOPMENT PLAN CRITERIA PHASE 2.22, Part II.
- SEE SOILS MAP # 23
- NO SLOPES OF 25% OR GREATER THAT ARE A CONTIGUOUS AREA OF 20,000 S.F. EXIST ON SITE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT (410) 313-1800 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- TYPES OF STORM DRAINS REFER TO THE STANDARD DETAILS OF HOWARD COUNTY AND MSHA.
- TRENCH COMPACTION FOR STORM DRAINS WITHIN ROADS AND STREET RIGHT-OF-WAYS LIMITS SHALL BE IN ACCORDANCE WITH "HOWARD COUNTY DESIGN MANUAL", VOL. IV, STANDARD G-2.01.
- EXISTING UTILITIES WERE LOCATED BY FIELD SURVEY AND AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF MAIN BY DIGGING TEST PITS, BY HAND, AT ALL UTILITY CROSSINGS, WELL IN ADVANCE OF CONSTRUCTION.
- SAG AND CREST VERTICAL CURVES WERE DESIGNED IN ACCORDANCE WITH "HOWARD COUNTY DESIGN MANUAL", VOL. III.
- CONCRETE SIDEWALK RAMPS SHALL BE PROVIDED AT ALL INTERSECTION AND AS INDICATED ON THE PLANS. THE RAMP SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA) 1992, AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH "HOWARD COUNTY DESIGN MANUAL", VOL. IV.
- SEDIMENT CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL".
- STREET TREES SHOWN ARE TENTATIVE AND ARE TO BE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMMODATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
- SEE SHEET 6 FOR STREET TREE DETAIL.
- 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.
A. STOP SIGNS R1-1, 30" x 30" OCTAGON
B. STOP AHEAD SIGNS, W3-1A, 30" x 30" DIAMOND
C. SPEED LIMIT SIGNS R2-1, 24" x 30" RECTANGULAR
- STREET TREES SHALL BE PLANTED A MINIMUM OF FIVE (5) FEET FROM STORM DRAIN, WATERLINE OR SEWER PIPE MANHOLES; ALSO A MINIMUM OF TWENTY (20) FEET FROM STREET LIGHTS.

VILLAGE OF RIVER HILL SECTION 4 ~ AREA 2

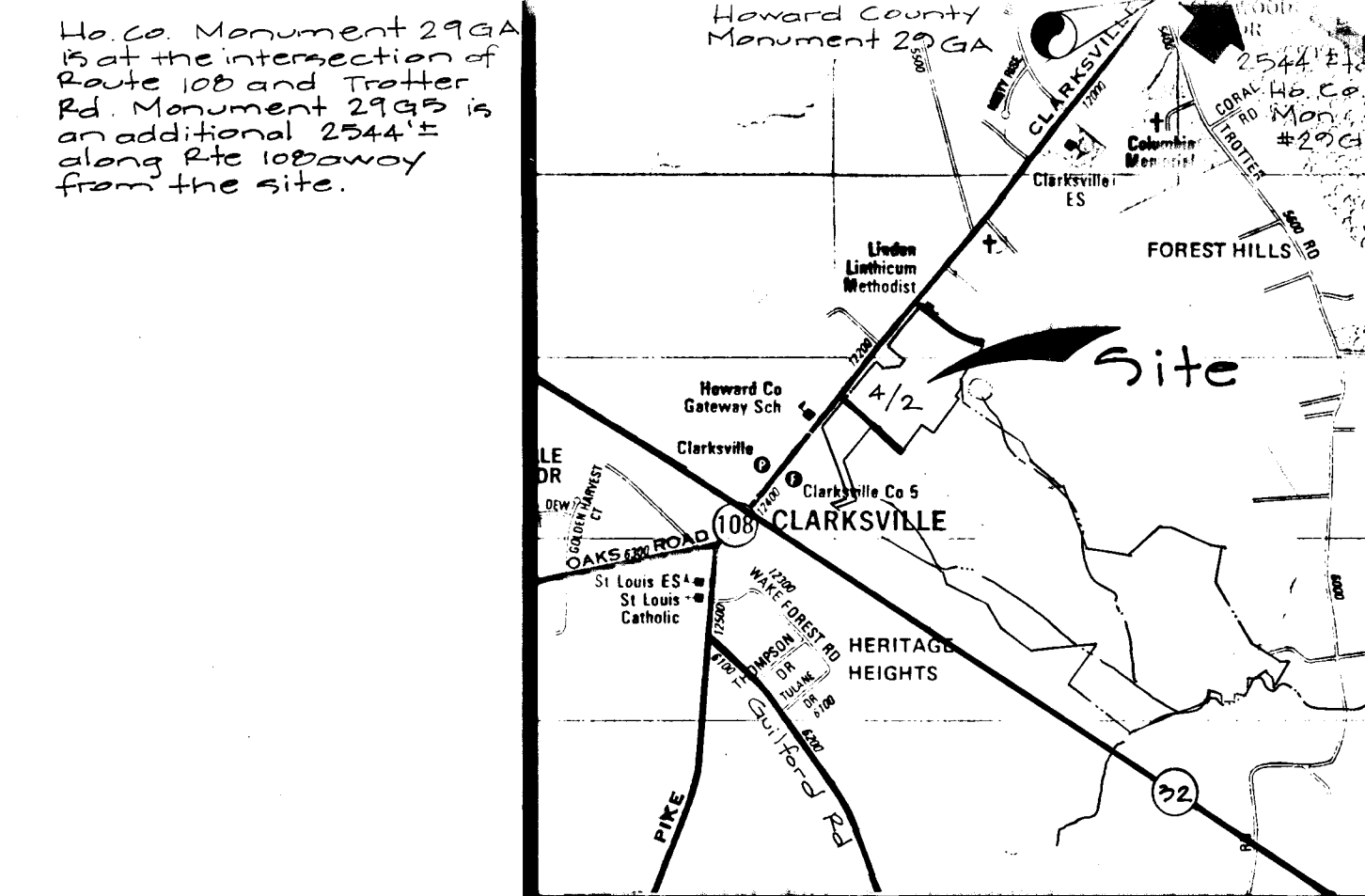
HOWARD COUNTY, MARYLAND

Benchmarks

Point	Description	Elev.	Northing	Easting
195	1/2" x 1/8" rebar w/ trav cap	443.28	501952.019	1531128.911
206	"	374.57	503755.249	1532322.583
220	"	451.14	501255.646	1529623.222



Note:
Bench marks shown are 1/2" x 1/8" rebar with "TRAV" cap. They are based upon Howard County Monument 29GA 12795. See vicinity map for monument locations. Bench marks shown were set by Whitman Requardt and Assoc. and were located on these plans by coordinate values taken from boundary survey prepared by Whitman Requardt and Assoc. dated July 5, 1994.



VICINITY MAP
SCALE: 1" = 2000'

No.	DESCRIPTION
1	COVER SHEET
2	MD ROUTE 108 (STATION 0+00 - 1+67)
3	MD ROUTE 108 (STATION 11+67 - 23+14 AND LINDEN LINTHICUM LANE (STATION -0+15.75 - 8+85.92)
4	GREAT STAR DRIVE (STATION 0+00 - 8+13.50)
5	STORM DRAIN PROFILES
6	STORM DRAIN PROFILES AND ROAD DETAILS
7	DRAINAGE AREA MAP (TYPICAL DETAILS)
8	MASS GRADING & SEDIMENT CONTROL PLAN
9	SEDIMENT CONTROL PLAN & WATER QUALITY FACILITIES
10	MASS GRADING & SEDIMENT CONTROL PLAN
11	GRADING & SEDIMENT CONTROL PLAN
12	GRADING & SEDIMENT CONTROL PLAN
13	GRADING & SEDIMENT CONTROL PLAN
14	SEDIMENT CONTROL NOTES & DETAILS
15	STORMWATER MANAGEMENT POND #1 PLAN VIEW
16	STORMWATER MANAGEMENT POND #1 PLAN VIEW
17	STORMWATER MANAGEMENT DETAILS
18	DRAINAGE AREA MAPS AND DETAILS
19	STORMWATER MANAGEMENT SPECIFICATIONS AND BORING LOGS

STREET LIGHT INFORMATION	
●	TYPE 2 250 Watt high pressure sodium vapor fixture (brown) with cutoff optics mounted on a 30' on a brown metal finish steel pole and aluminum bracketry spaced 10' from face using a 15' arm. Place 3' from face of curb.
●	TYPE 3 150 Watt high pressure sodium vapor pendant fixture with cutoff optics mounted on a 30' front aluminum pole. Place 3' from face of curb.

STREET LIGHT SCHEDULE				
SHEET NO.	STREET NAME	LOCATION	OFFSET	TYPE
4	GREAT STAR DRIVE	0+25	40' R	TYPE 2
4	"	2+50	36' R	TYPE 3
4	"	3+20	34' L	TYPE 3
4	"	7+05	30' R	TYPE 3
4	"	8+05	30' L	TYPE 3
3	LINDEN LINTHICUM LANE	0+25	38' R	TYPE 2
3	"	3+70	24' R	TYPE 3
3	"	2+72	21' L	TYPE 3

AS-BUILT

Professional Engineer Seal for **Shanley Riger & Lane**, License No. 10849.

OWNERS:

CLARKVILLE PIKE LIMITED PARTNERSHIP
GFS REALTY (GENERAL PARTNER)
P.O. BOX 1804 DEPT. 671
WASHINGTON, D.C. 20013
PHONE: (301) 341-8424

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MD 21044
PHONE: (410) 992-6370

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 9/9/96
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kathleen Blood 9/13/96
Chief, Division of Land Development and Research

John C. Cummins 9/14/96
Chief, Division of Planning Division

30. The Existing Farm Pond and Water Quality Facilities are located within land to be obtained by the Columbia Association, Cosmetic and Landscaping. Plans not performed by Howard County Dept. of Public Works will be the responsibility of the Columbia Association. Structural and scheduled Cosmetic/Aesthetic Items will be the responsibility of the Howard Co. Dept. of Public Works.

31. The planting of all landscape buffers required in accordance with the Landscape Manual for development on parcels D, Park and open space Lot 30 shall be the responsibility of the builder(s) in conjunction with the SOP(s) for these lots/parcels.

32. The following numbers can be used to track environmental permits:
MDE application tracking no. 199506088
NTWW division no. 23-NT-0311

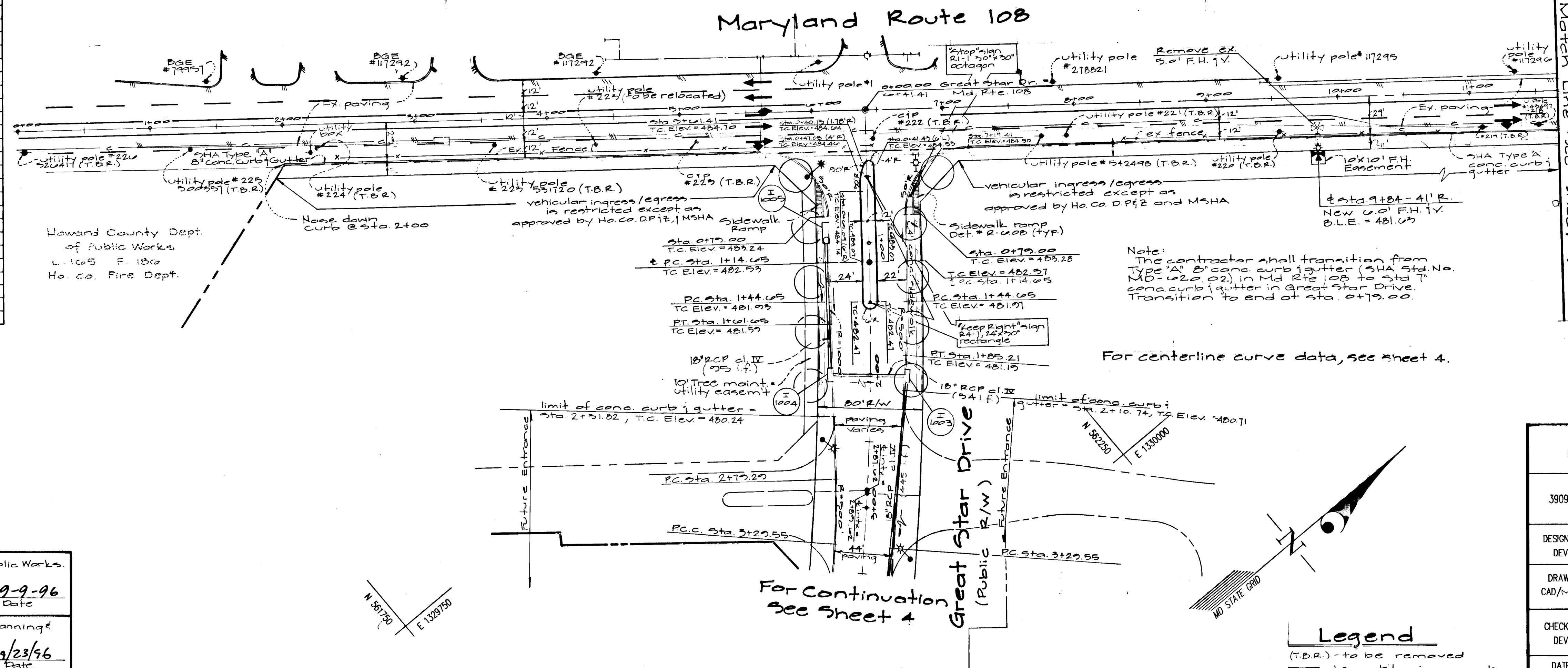
GLW GUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866 TEL: (301) 421-4024 NO. VA: (301) 989-2524 BALT. (410) 880-1820 FAX: (301) 421-4186	DES.	DRN. S.J.G.	CHK.	DATE	REVISION	BY	APPR.	PREPARED FOR: The Howard Research and Development Corporation The Rouse Building 10275 Little Patuxent Parkway Columbia, MD 21044 (410) 992-6370	COVER SHEET VILLAGE OF RIVER HILL SECTION 4 AREA 2 CLARKSVILLE ELECTION DISTRICT No. 6	SCALE AS SHOWN DATE 9/9/96	ZONING NT TAX MAP No. 34 & 35	G. L. W. FILE No. 94050 SHEET 1 OF 12
	HOWARD COUNTY, MARYLAND											

1487

1996-089

STREET TREE SCHEDULE				
SYMBOL	NAME (BOTANICAL/COMMON)	SIZE	QUANTITY	REMARKS
○	Zelkova serrata/Green Vase	2 1/2" - 3" Cal.	See sheet 4.	See General note #20.

T.C. Elevations along Rte 10B	
Sta	T.C. Elev.
2+22	486.10
2+30	486.08
3+25	486.08
3+72	486.23
4+24	485.87
4+37	485.85
4+65	485.58
5+18	485.10
7+02	484.08
8+08	483.64
8+67	482.71
9+05	482.18
9+77	481.37
10+14	480.68
10+42	480.20
10+52	479.97
11+22	479.12



Approved Howard County Dept. of Public Works
Richard M. Daniels 9-9-96
 Chief, Bureau of Highways Date

Approved Howard County Dept. of Planning & Zoning
Richard Blaylock 9/23/96
 Chief, Div. of Land Development & Research, Date

William Cummings 9/11/96
 Chief, Development Engineering Div. Date

Plan
 Scale: 1"=50'

Legend
 (T.B.R.) - to be removed
 — temp. bituminous curb
 — standard curb & gutter
 — reversed curb & gutter
 ● - street light, see sheet 1.

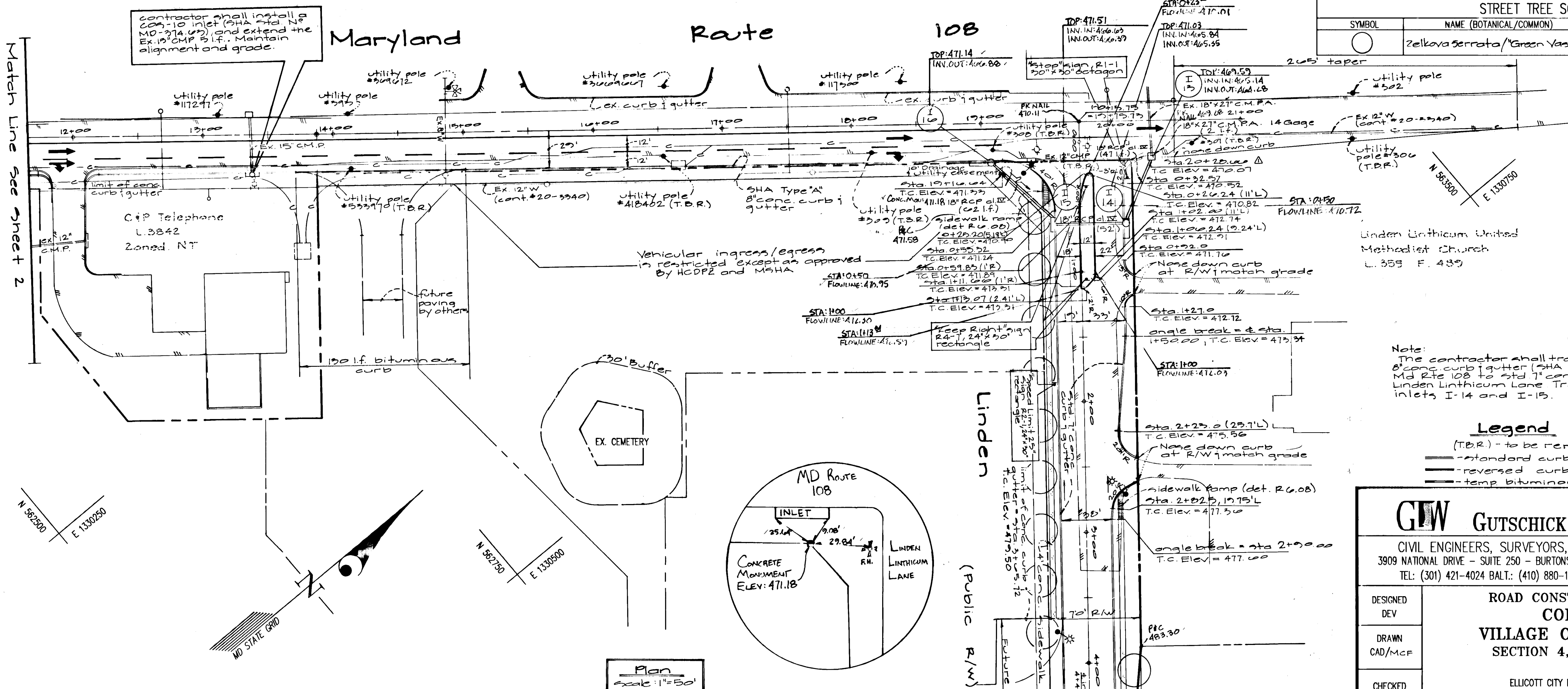
GW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
 TEL: (301) 421-4024 BALT.: (410) 880-1820 NO.VA. (301) 989-2524 FAX: (301) 421-4186

DESIGNED DEV	ROAD CONSTRUCTION PLANS COLUMBIA VILLAGE OF RIVER HILL SECTION 4, AREA 2	SCALE 1"=50'
DRAWN CAD/MCF		DRAWING 2 OF 10
CHECKED DEV	ELLCOTT CITY ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND	ZONING N T
DATE August 1996	OWNER THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION 10275 LITTLE PATIENT PARKWAY COLUMBIA, MARYLAND 21044 PHONE (410) 912-6370	JOB No. 94050

14887

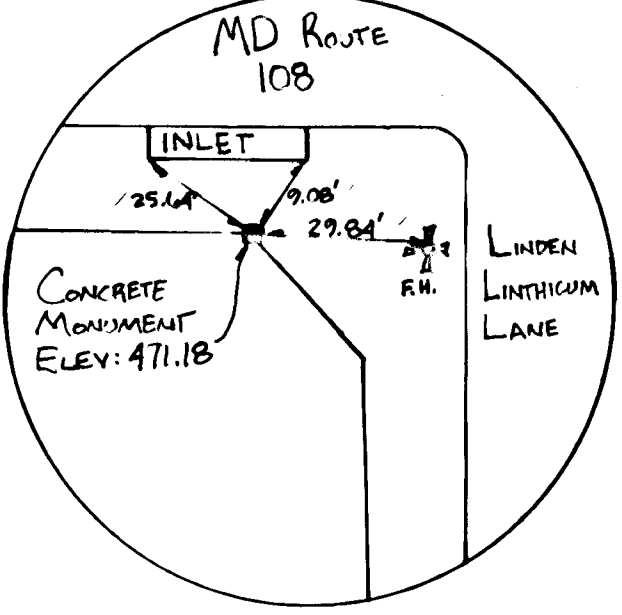
T.C. Elevations along Rte. 108	
Sta.	T.C. Elev.
11+74	477.17
12+18	478.06
12+57	477.50
13+14	477.25
13+81	477.50
14+02	477.40
14+57	477.41
15+10	478.54
15+61	479.01
16+12	478.84
16+48	478.35
17+00	476.54
17+57	474.78
18+08	473.21
18+22	473.07
18+64	472.05

contractor shall install a 20" x 10" inlet (SHA and No. 10) and extend the Ex. 15" CMP 5 ft. Maintain alignment and grade.



N 50230 E 130250

N 50230 E 130250



Plan Scale: 1" = 50'

Curve Data									
Street Name	P.C. Sta.	L.O.A. Sta.	P.T. Sta.	Radius	Arc	Tangent	Chord	Bearing	Delta
Linden Linthicum Lane	4+78.56	6+85.22		800.00	527.96'	197.55'	389.51'	S 24° 51' 21" E	27° 44' 04"

STREET TREE SCHEDULE				
SYMBOL	NAME (BOTANICAL/COMMON)	SIZE	QUANTITY	REMARKS
○	Zelkova serrata / "Green Vase"	2 1/2" Cal.	51	See General Note #26

Note: The contractor shall transition from Type "A" 8" concrete curb & gutter (SHA and No. 10) to standard 1" concrete curb & gutter in Linden Linthicum Lane. Transition across inlets I-14 and I-15.

Legend
 (TBR) - to be removed
 --- standard curb & gutter
 --- reversed curb & gutter
 --- temp bituminous curb
 * - street light, see sheet 1.

1-13-98 Rev I-13 from con. 15 to a rrm inlet KLP
 Date Revision By

Approved: Howard County Dept. of Public Works
Stephen M. Dancker 9-9-96
 Chief, Bureau of Highway

Approved: Howard County Dept. of Planning & Zoning
Richard Blood 9/23/96
 Chief, Div. of Land Development & Research

John W. ... 9/11/96
 Chief, Development Engineering Div.

GW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
 TEL: (301) 421-4024 BALT.: (410) 880-1820 NO. VA. (301) 989-2524 FAX: (301) 421-4186

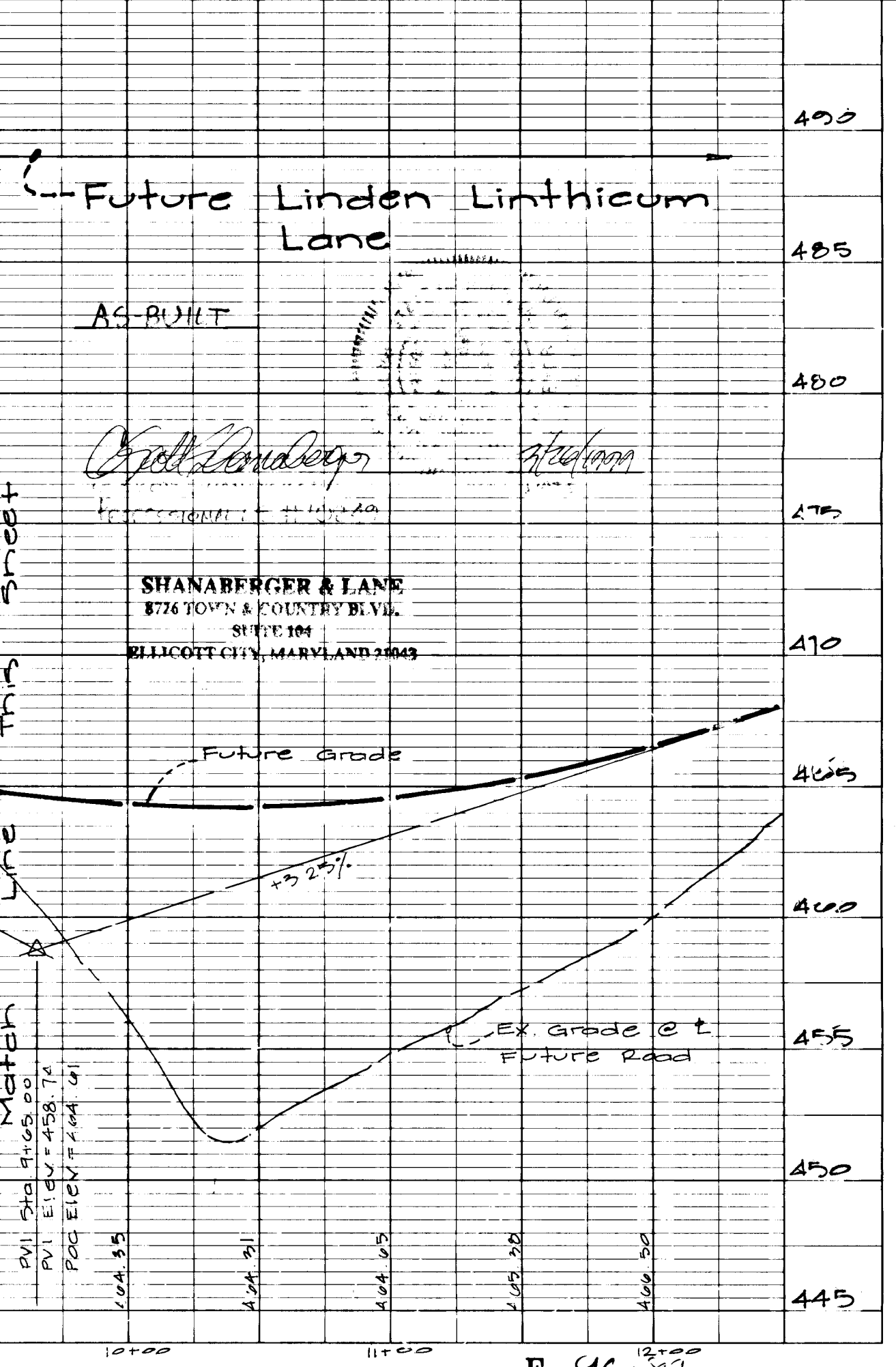
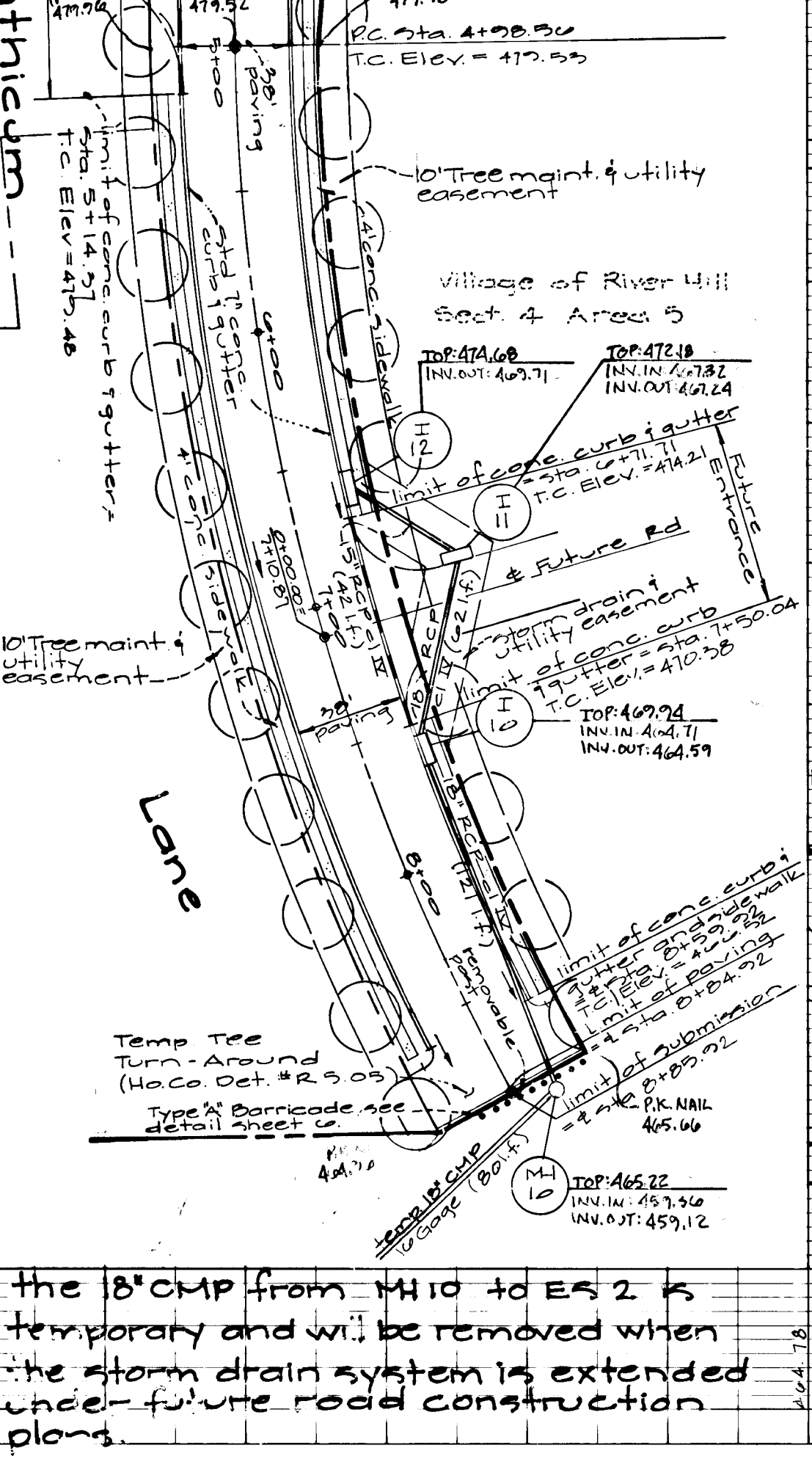
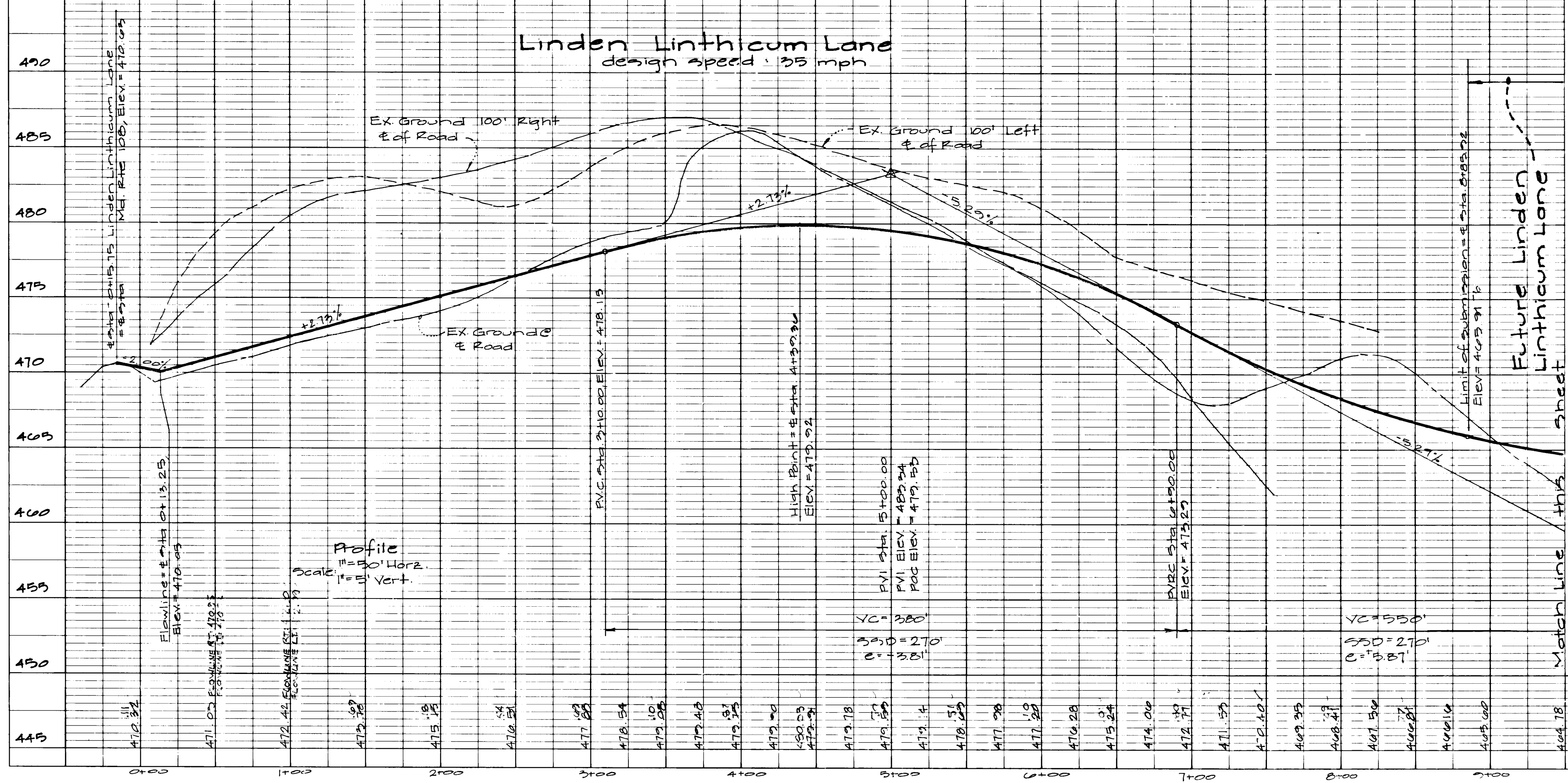
ROAD CONSTRUCTION PLANS
COLUMBIA
VILLAGE OF RIVER HILL
SECTION 4, AREA 2

ELLCOTT CITY ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

OWNER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 10275 LITTLE PATRIOT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE (410) 992-6570

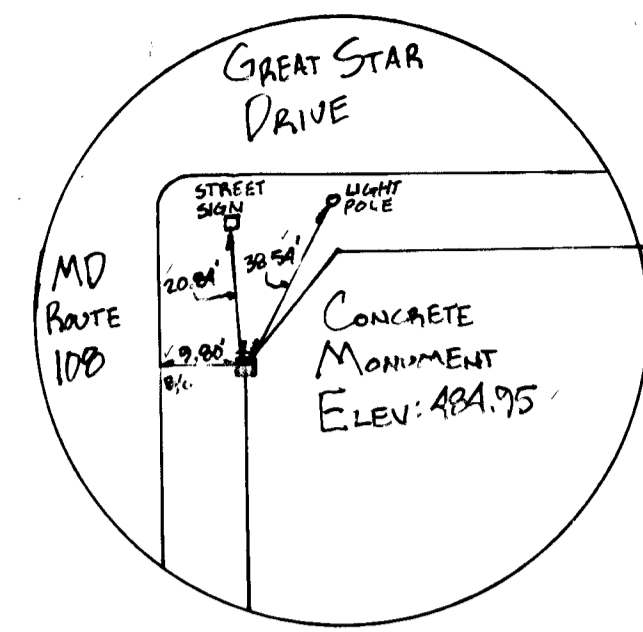
DESIGNED DEV: SCALE 1"=50'
 DRAWN CAD/MCF: DRAWING 2 OF 13
 CHECKED DEV: ZONING N T
 DATE August 1996: JOB No. 94050

1487



the 18" CMP from 1410 to E52 is temporary and will be removed when the storm drain system is extended under future road construction plans.

STREET TREE SCHEDULE				
SYMBOL	NAME (BOTANICAL/COMMON)	SIZE	QUANTITY	REMARKS
○	Zelkova Serrata / Green Vase*	2 1/2" Cal.	21	see general note #20



Great Star Drive
(Public R/W)

Maryland Route 10B
(Public R/W)

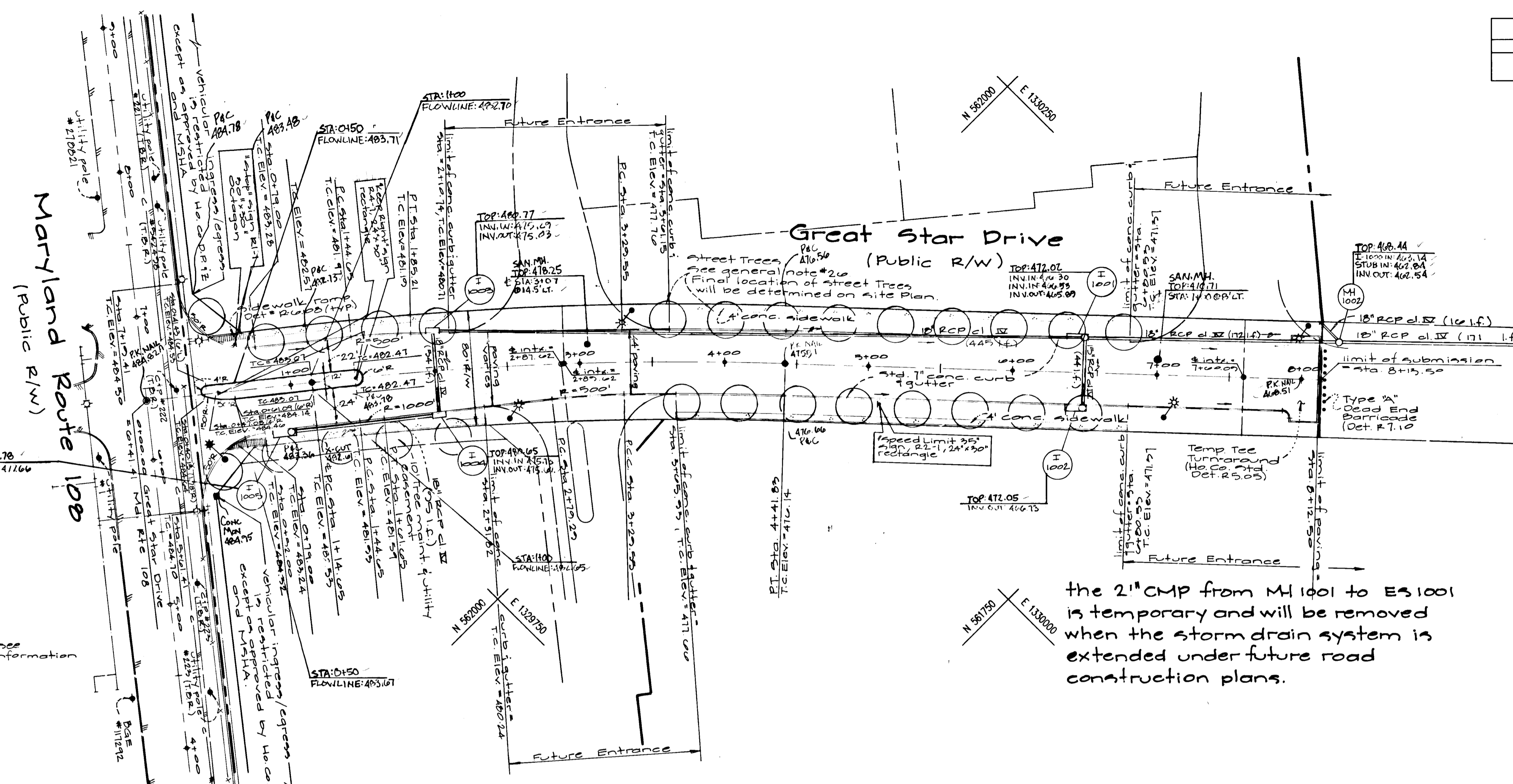
Note:
The contractor shall transition from Type 'A' concrete curb & gutter (SHA Std No MD-620.02) in Md Rt 10B to 4' x 11" conc curb & gutter in Great Star Drive. Transition to end of sta. 4+79.00.

- Legend**
- (T&R) - to be removed
 - standard curb & gutter
 - reversed curb & gutter
 - temp bituminous curb
 - street light see street light information sheet

Approved: Howard County Dept. of Public Works
Richard M. Cougle 9-9-96
Chief, Bureau of Highways

Approved: Howard County Dept. of Planning & Zoning
Richard Blood 9/23/96
Chief, Div. of Land Development & Research

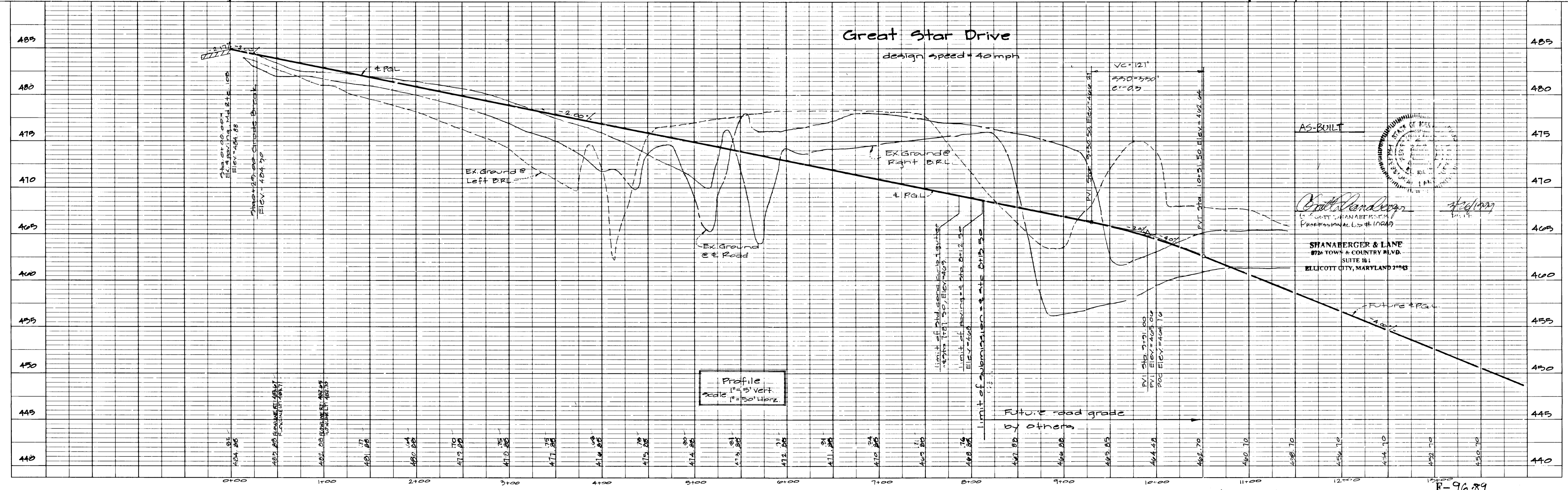
John Dawson 9/16/96
Chief, Development Engineering Div.



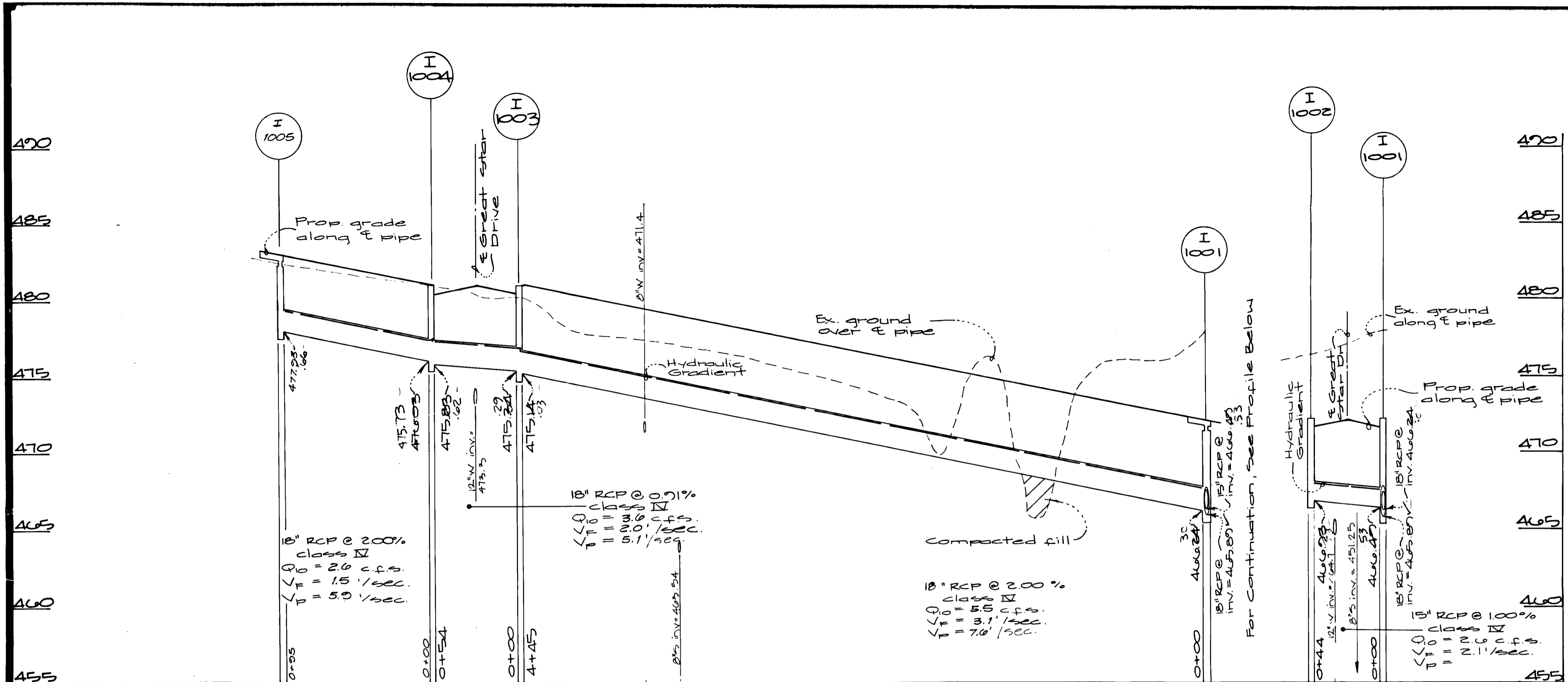
CURVE DATA

STREET NAME	P.C. STA.	P.C.C. STA.	P.T. STA.	RADIUS	ARC	TANGENT	CHORD	BEARING	DELTA
GREAT STAR DRIVE	1+14.65	none	4+41.83	2250.00'	327.18'	163.88'	326.88'	S 47°22'05" E	08°19'54"

the 2" CMP from M11001 to E51001 is temporary and will be removed when the storm drain system is extended under future road construction plans.



1487



Structure Schedule									
No	Type	Width (inside)	Top Elev.		Invert Elev.		Std Detail	Locations	Remarks
			Upper	Lower	Upper	Lower			
I-10	A-10	3'-0"	470.24	470.24	470.24	470.24	SD 441	E Sta 470.24 Linden Linthicum Ln - 10' Lt.	
I-11	A-10	3'-0"	472.24	472.24	472.24	472.24	SD 441	E Sta 472.24 Linden Linthicum Ln - 10' Lt.	
I-102	A-10	3'-0"	475.24	475.24	475.24	475.24	SD 441	E Sta 475.24 Linden Linthicum Ln - 10' Lt.	
I-1001	COS-15	4'-0"	471.24	471.24	471.24	471.24	MD 374.02	E Sta 471.24 Great Star Drive - 20' Rt.	
I-1002	COS-15	4'-0"	471.24	471.24	471.24	471.24	MD 374.02	E Sta 471.24 Great Star Drive - 20' Rt.	
I-1003	A-10	3'-0"	475.24	475.24	475.24	475.24	SD 441	E Sta 475.24 Linden Linthicum Ln - 10' Lt.	
I-1004	A-10	3'-0"	480.24	480.24	480.24	480.24	SD 441	E Sta 480.24 Linden Linthicum Ln - 10' Lt.	
I-1005	COS-15	4'-0"	483.14	483.14	483.14	483.14	MD 374.02	E Sta 483.14 Great Star Drive - 20' Rt.	
MH 10	Std Manhole	4'-0"	465.24	465.24	465.24	465.24	G. S. 01	E Sta 465.24 Linden Linthicum Ln - 15' Lt.	
MH 1001	Std Manhole	4'-0"	465.00	465.00	465.00	465.00	G. S. 01	E Sta 465.00 Linden Linthicum Ln - 15' Lt.	
MH 1002	Std Manhole	4'-0"	465.24	465.24	465.24	465.24	G. S. 01	E Sta 465.24 Linden Linthicum Ln - 15' Lt.	
MH 7	Std Manhole	4'-0"	455.30	455.30	455.30	455.30	G. S. 01	E Sta 455.30 Linden Linthicum Ln - 15' Lt.	
ES 1001	End Section		459.09	459.09	459.09	459.09	SD 551	E Sta 459.09 Linden Linthicum Ln - 15' Lt.	See plan
ES 2	End Section		441.11	441.11	441.11	441.11	SD 551	E Sta 441.11 Linden Linthicum Ln - 15' Lt.	See plan

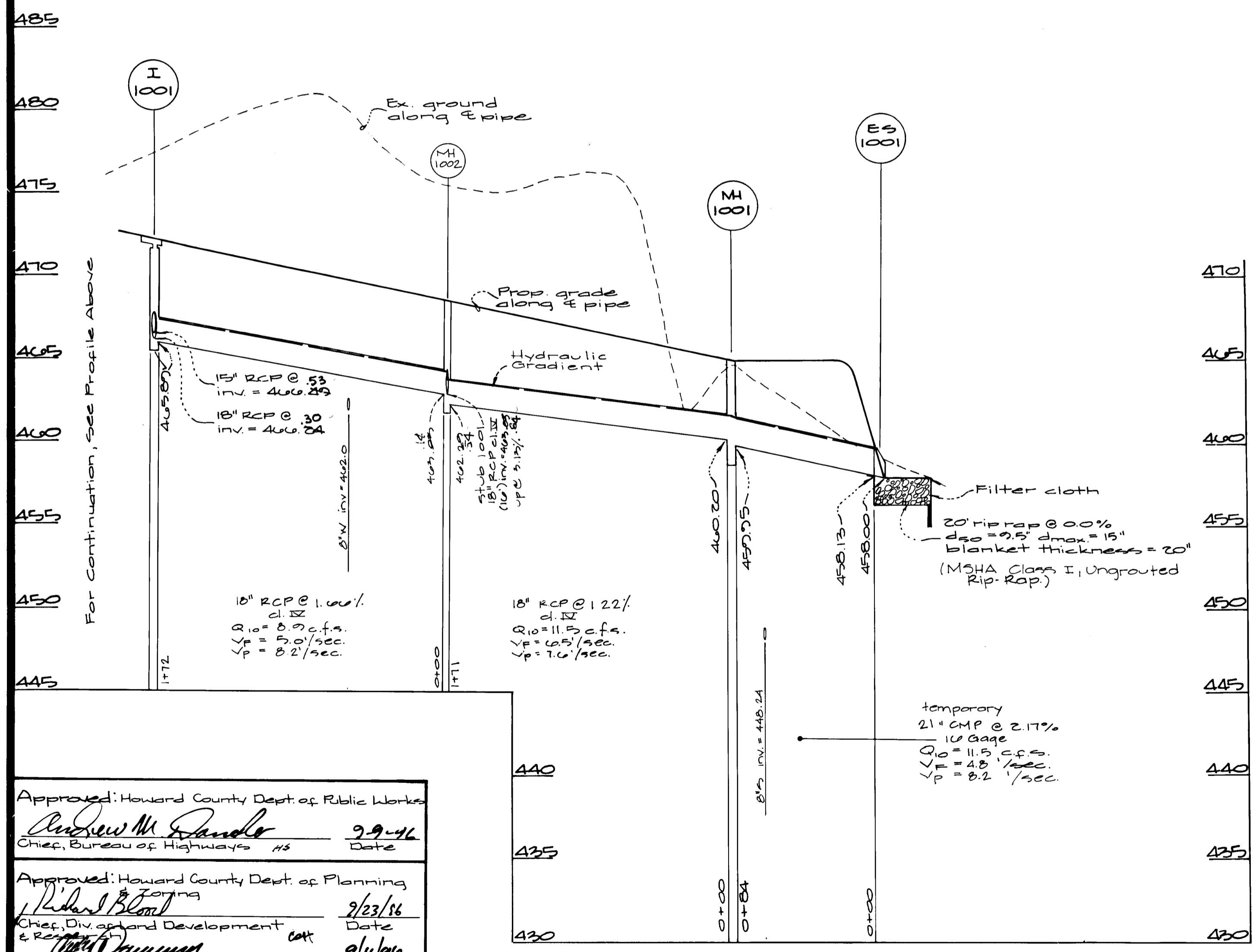
Pipe Schedule			
Size & Type	Class	Quan.	
15" RCP	IX	80'	
18" CMP	IX	100'	
21" CMP	IX	84'	
18" RCP	IX	1136'	

The 21" CMP from MH 1001 to ES 1001 and 18" CMP from MH 10 to ES 2 are temporary and will be removed when the storm drain systems are extended under future road construction plans.

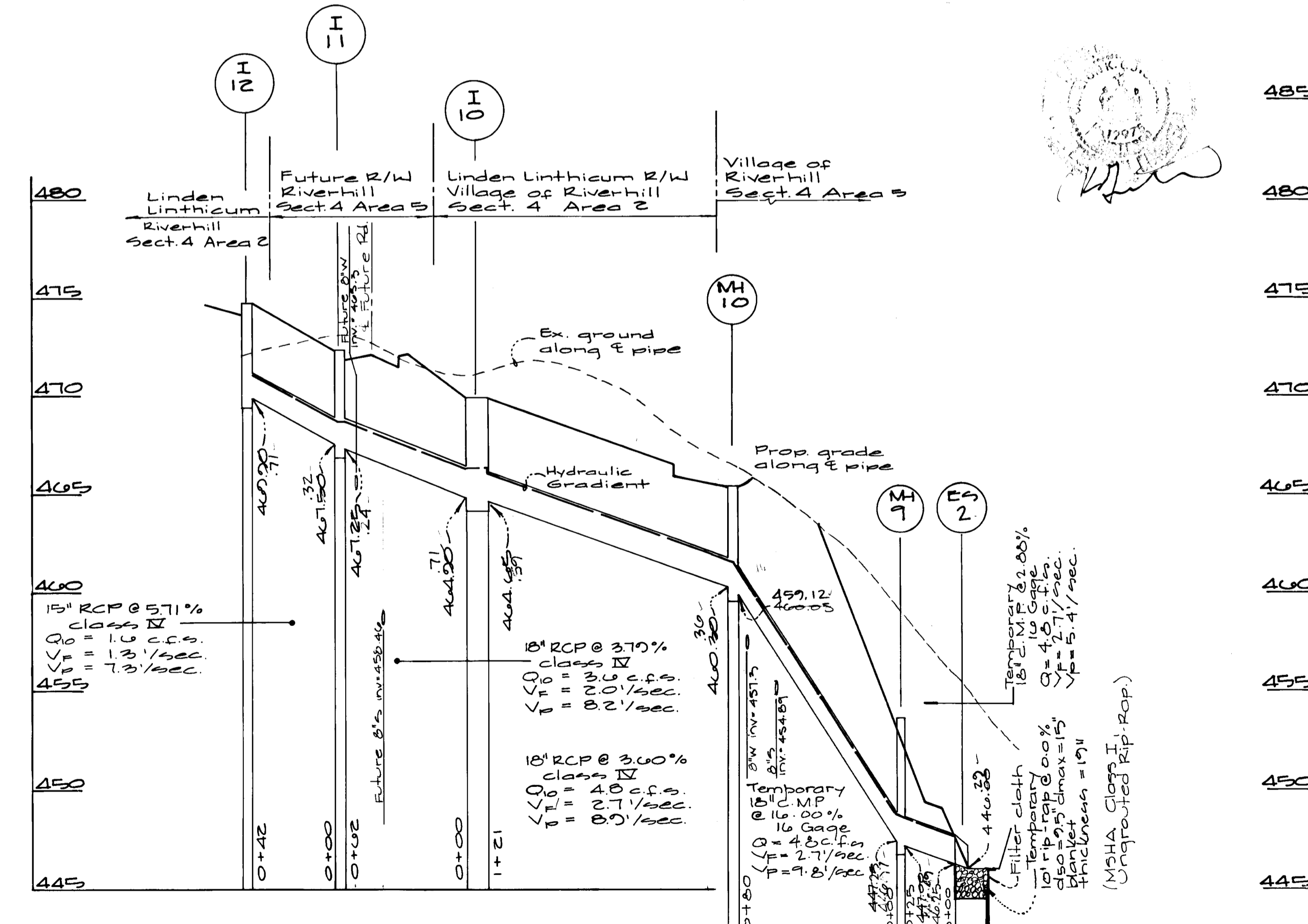
AS-BUILT

SCOTT SHANABERGER
PROFESSIONAL L.S.# 108849

SHANABERGER & LANE
7726 TOWN & COUNTRY BLVD.
SUITE 104
ELICOTT CITY, MARYLAND 21043



Profile Scale
Horiz.: 1" = 50'
Vert.: 1" = 5'



Approved: Howard County Dept of Public Works
Andrew M. Rando
Chief, Bureau of Highways
9/9/16
Date

Approved: Howard County Dept of Planning
Richard R. Jones
Chief, Div of Land Development & Regional Planning
9/23/16
Date

David C. ...
Chief, Development Engineering Div.
9/16/16
Date

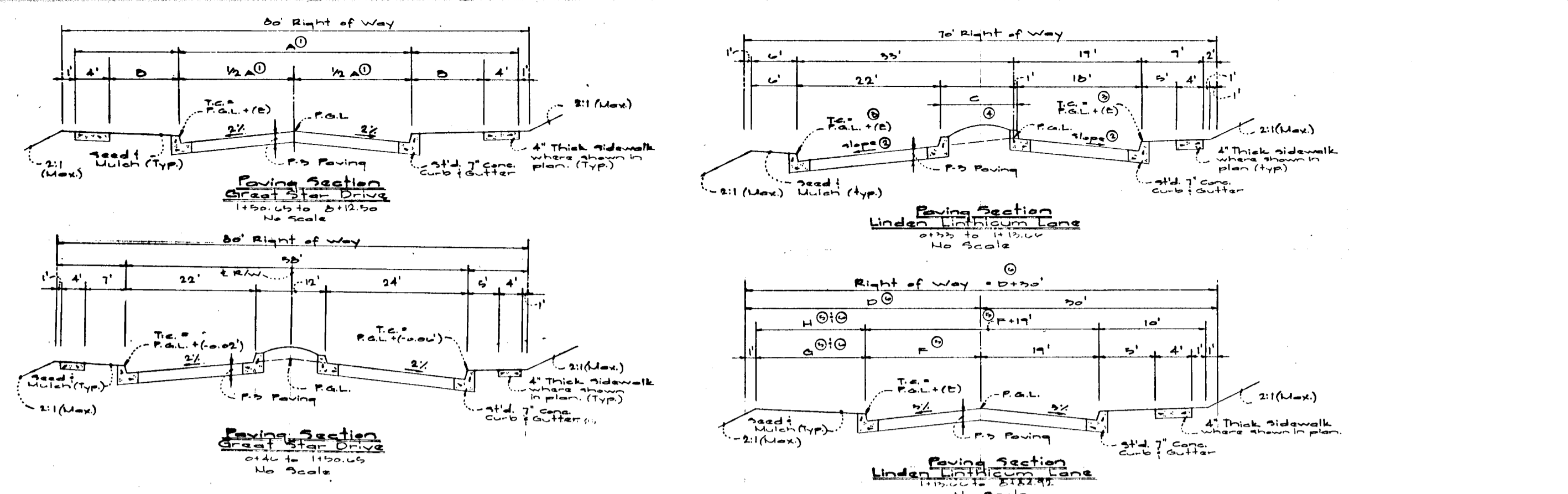
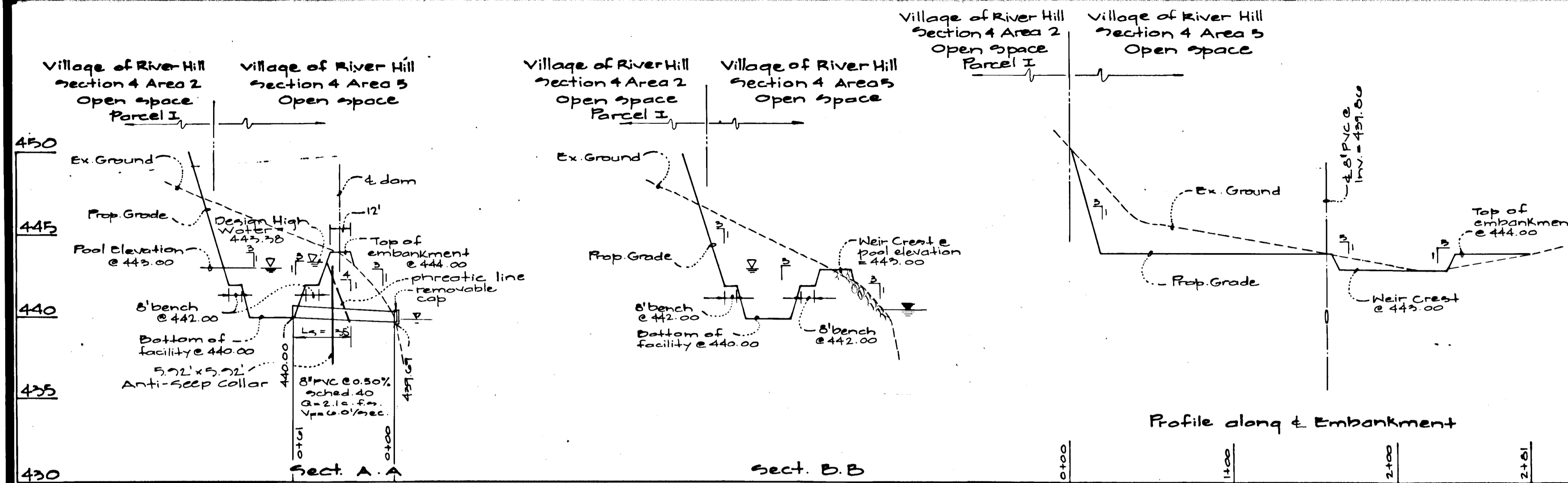
GILW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE SUITE 250 BURTONSVILLE OFFICE PARK BURTONSVILLE, MD 20866
TELEPHONE: (301)421-4024 NO. VA. (301)989-2524 BALTO. (301)880-1820 FAX: (301)421-4186

PREPARED FOR:
The Howard Research and Development Corporation
The Rouse Building
10275 Little Patuxent Parkway
Columbia, Maryland 21044
(410) 772-6370

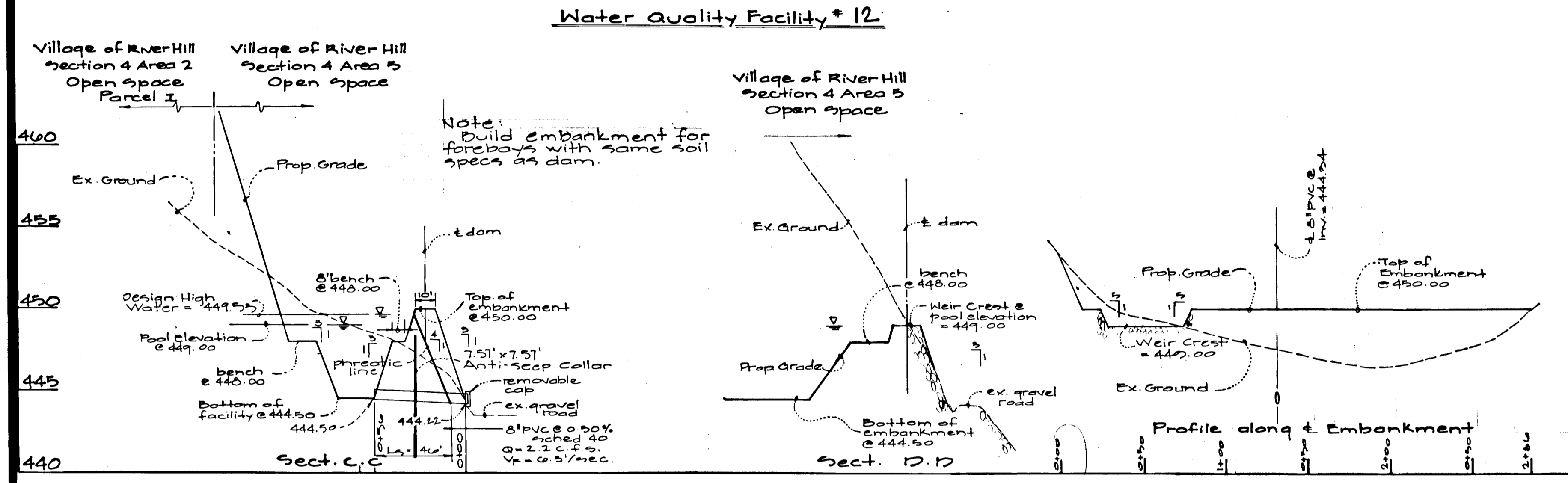
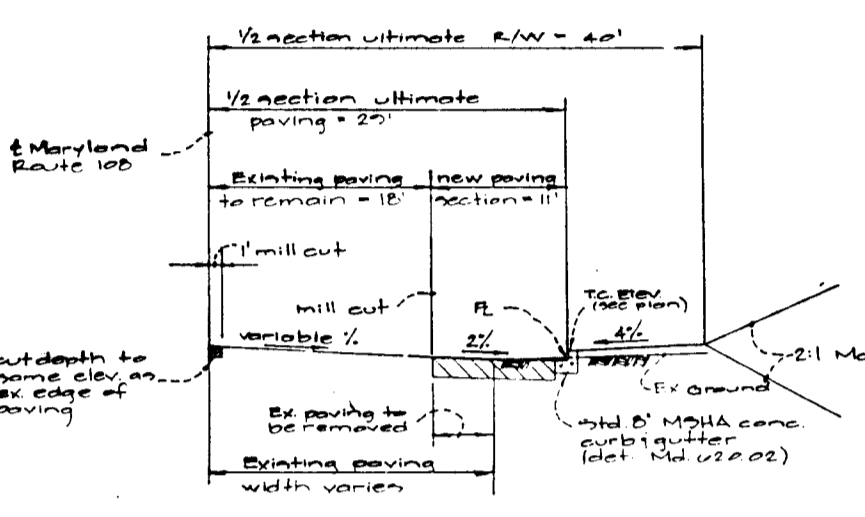
Storm Drain Profiles
Village of River Hill
section 4 Area 2
5th Election District
Howard County, Maryland

DES: DEV	SCALE: As Shown	ZONING: NT	G.L.W. FILE NO.: 74090
DRN: KL P	DATE: August 1996	TAX MAP NO.: 34135	SHEET: 5 of 19
CHK: DEV			

1487

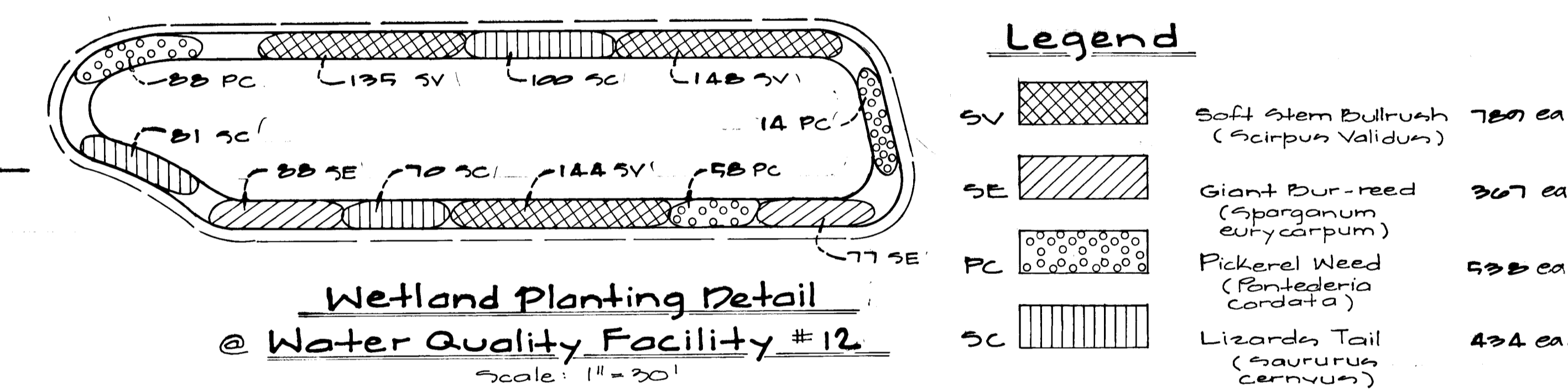


Street Name / Station	Type of Traffic	Lane	Design Speed	Prop. Section	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Great Star Dr. 1100.00 - 1100.50	Major Collector	40'	40	P-2	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	
Great Star Dr. 1100.50 - 1101.00	Major Collector	40'	40	P-2	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	11'	
Linden Lintinium Lane 1101.00 - 1101.50	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	
Linden Lintinium Lane 1101.50 - 1102.00	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	
Linden Lintinium Lane 1102.00 - 1102.50	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	
Linden Lintinium Lane 1102.50 - 1103.00	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	
Linden Lintinium Lane 1103.00 - 1103.50	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	
Linden Lintinium Lane 1103.50 - 1104.00	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	
Linden Lintinium Lane 1104.00 - 1104.50	Minor Collector	55'	55	P-2	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	

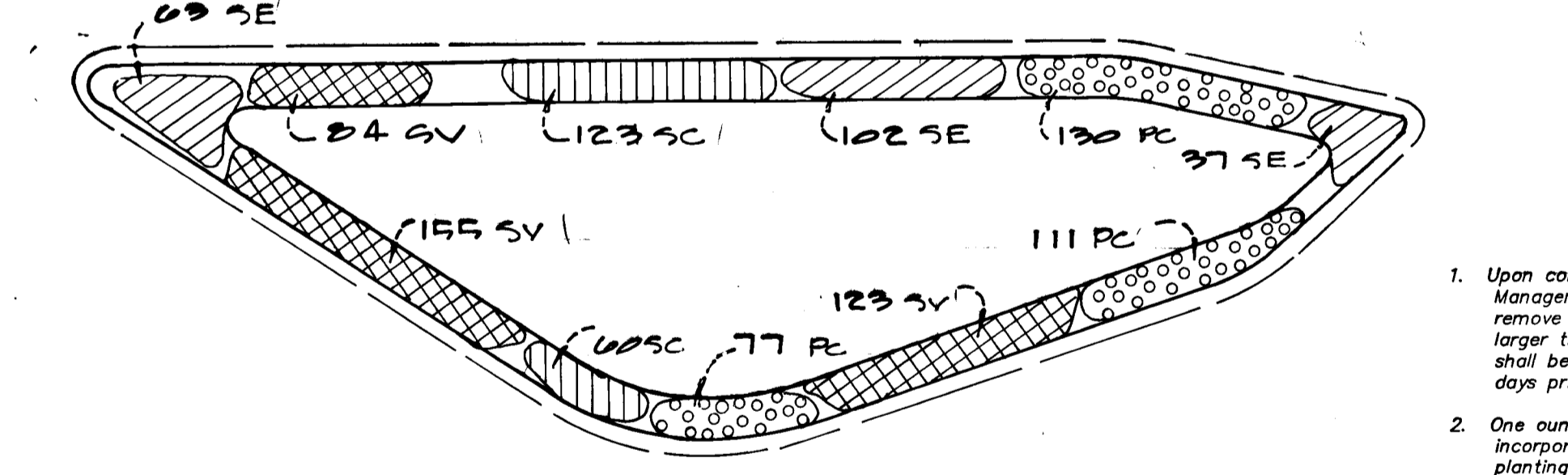


① The paving width along Great Star Dr. decreases from 55' at 1104.00 to 44' at 1103.50.
 ② The cross slope along Linden Lintinium Lane from 2.00% to 2.75% varies. The cross slope remains 2.0% beyond 1103.00.
 ③ The E values shown are from 1103.00 to 1102.00.
 ④ The island width along Linden Lintinium Lane decreases from 12' at 1102.00 to 0' at 1101.50. While the half section for the left side is a 14' constant, the half section for the right side of Linden Lintinium decreases from 55' at 1102.00 to 15' at 1101.50.
 ⑤ The Right of Way width along Linden Lintinium Lane decreases from 70' at 1102.00 to 50' at 1101.50.

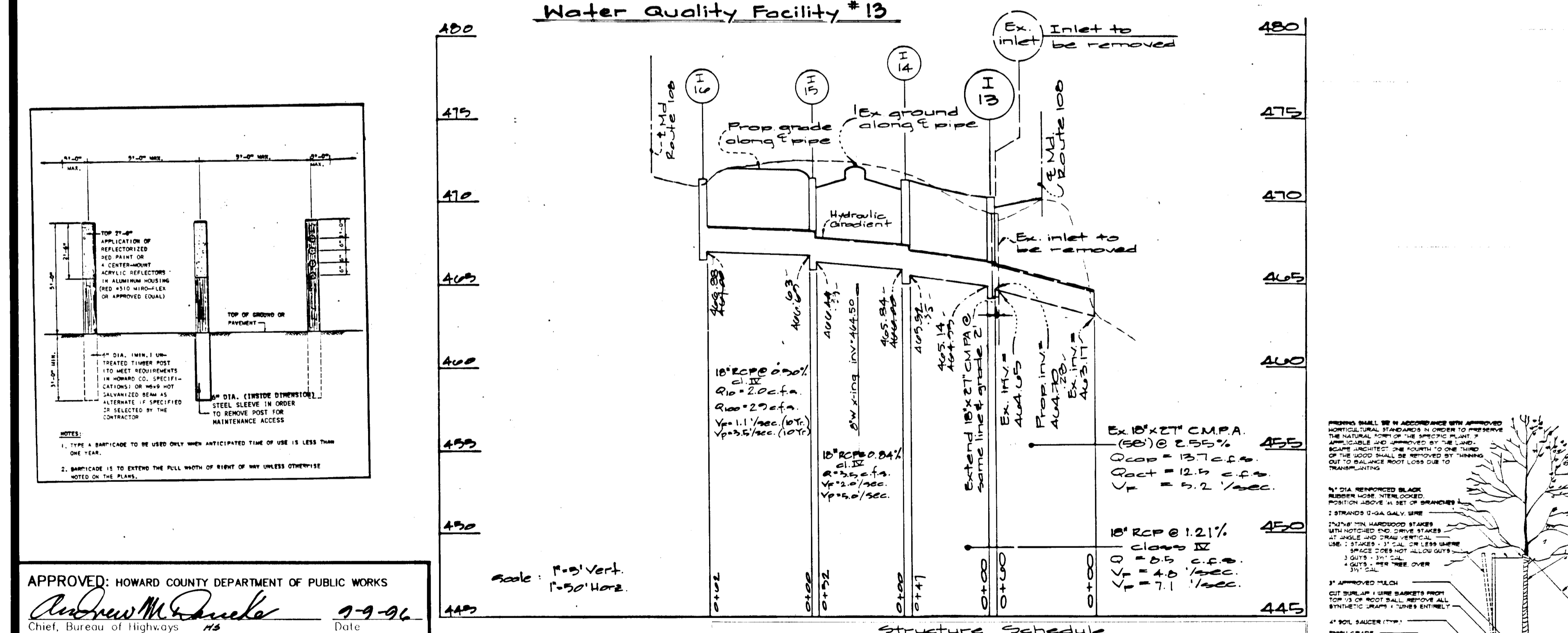
Widening Detail Along Md. Route 10B
Not to Scale



Symbol	Plant Species	Quantity
SV	Soft Stem Bulrush (Scirpus Validus)	750 ea
SE	Giant Bur-reed (Sparganium eurycarpum)	307 ea
PC	Pickeral Weed (Pontederia cordata)	535 ea
SC	Lizards Tail (Saururus cernuus)	434 ea



- Wetland Planting Notes
- Upon conversion of sediment control ponds to Stormwater Management Ponds, and rough grading, the contractor shall remove any stones, debris, or construction material larger than two inches (2") in any dimension. The ponds shall be flooded and left undisturbed for a period of 10 days prior to planting.
 - One ounce of 18-6-25 slow release fertilizer shall be incorporated into the soil for each plant at the time of planting.
 - Soil shall be saturated with water during and after planting, or the planting area may be completely flooded at these times (wet planting). Planting soil shall be firmly pressed around each plant to prevent flotation.
 - The source of all aquatic and emergent plants shall be approved by the owner or landscape architect prior to ordering. These plants shall be grown in pots (container specified) or nursery growing beds (bare root specified) for a minimum of 12 months prior to installation and shall have been wet cultivated during the entire period.
 - All plant material shall be guaranteed for a period of one year after formal acceptance. Plants which have greater than 33% dieback or have not grown so as to emerge from the water surface, shall be replaced at the next planting season.
 - Remove litter and debris as required during the first growing season and at the beginning of the second growing season.

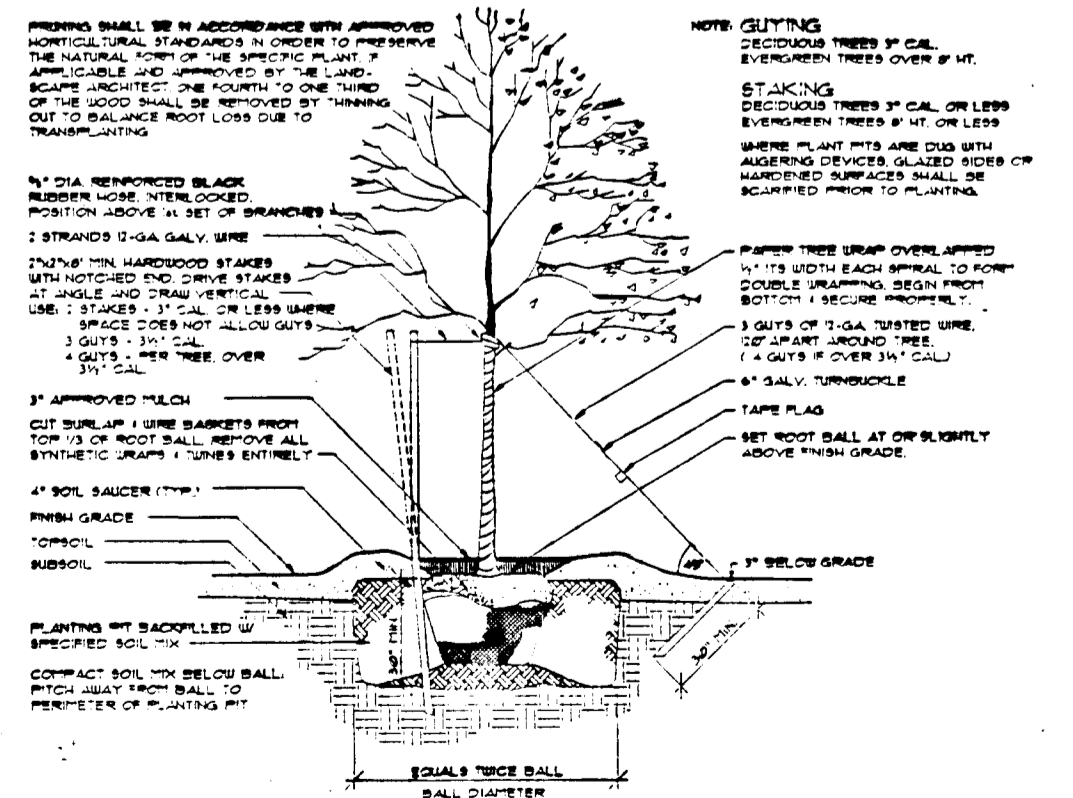


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Andrew M. Daniels 9-9-96
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Richard Blood 9/23/96
 Chief, Division of Land Development and Research

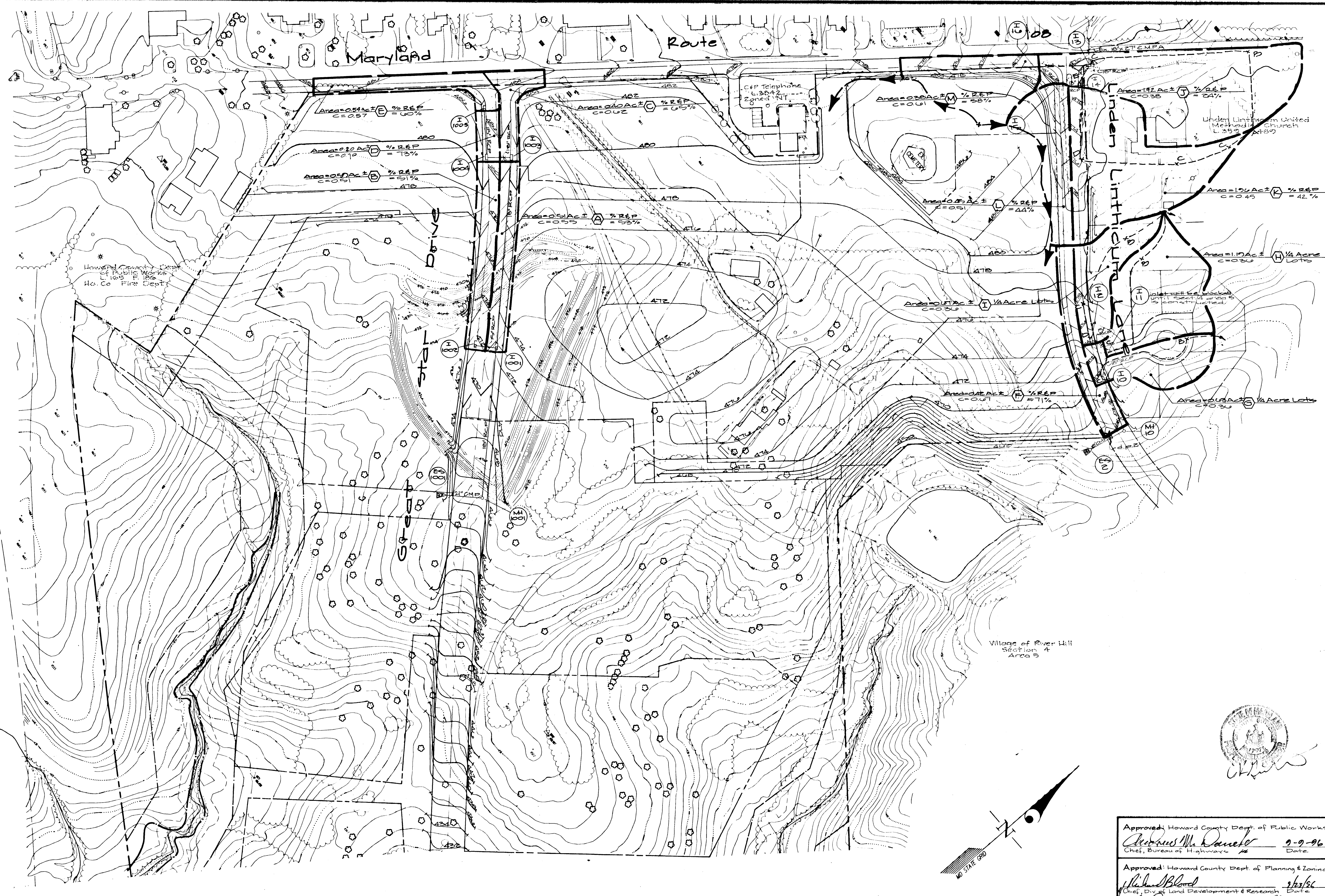
APPROVED: HOWARD COUNTY DEPARTMENT OF ENGINEERING
 M. Cummings 9/16/96
 Chief, Development Engineering Division

No	Type	Width	Top Elev.	Inlet Elev.	Outlet Elev.	Std. Detail	Location	Remarks
I-13	NRM Inlet	4'-0"	444.50	444.50	444.50	MD 374.15	From East to West	10' RCP @ 0.50% slope
I-14	CS	4'-0"	444.50	444.50	444.50	MD 374.15	From East to West	10' RCP @ 0.50% slope
I-15	A-10	3'-0"	444.50	444.50	444.50	MD 374.15	From East to West	10' RCP @ 0.50% slope
I-16	CS	4'-0"	444.50	444.50	444.50	MD 374.15	From East to West	10' RCP @ 0.50% slope

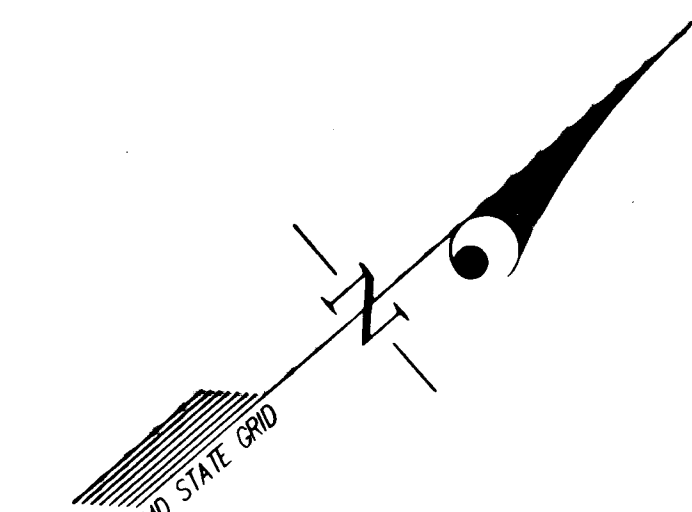


Wetland Planting Detail @ Water Quality Facility #13
 Scale: 1/4" = 30'
 AS-BUILT

SHANERFERGEE & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 101
 LICOTT CITY, MARYLAND 21043



Maryland
Route 32
Sta. Post 92400



Approved: Howard County Dept. of Public Works
Thomas M. Daniels 9-9-96
 Chief, Bureau of Highways Date

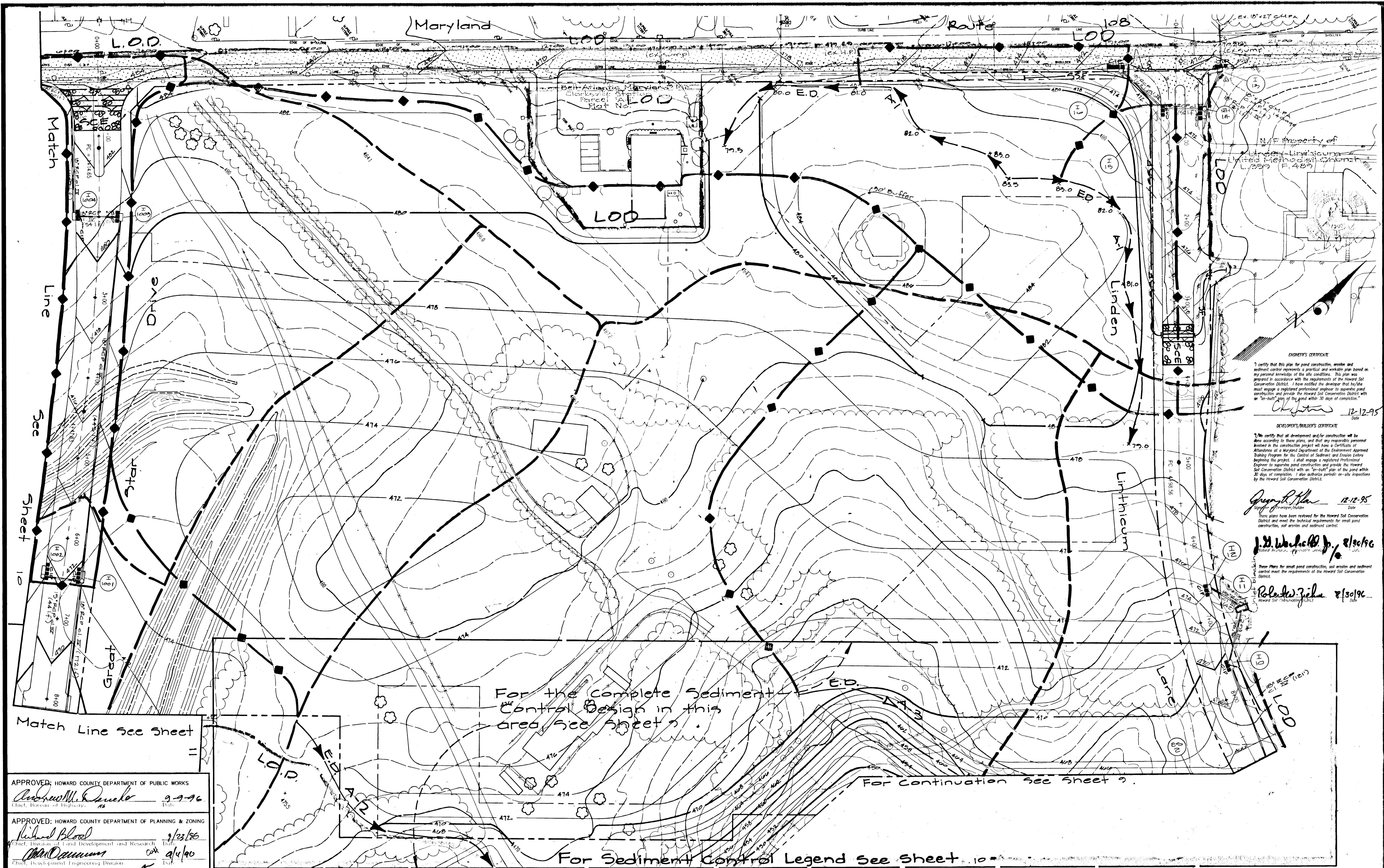
Approved: Howard County Dept. of Planning & Zoning
Richard Blood 9/23/96
 Chief, Div. of Land Development & Research Date

Chris Damann 2/14/96
 Chief, Development Engineering Div. Date

1487

GLW GUTSCHICK LITTLE & WEBER, P.A. CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866 TEL: (301) 421-4024 NO. VA. (301) 989-2524 BALI. (410) 880-1820 FAX: (301) 421-4186 DES. DEV. DRN.: KLP CHK.: DEV.	DATE	REVISION	BY	APPR.	PREPARED FOR: The Howard Research and Development Corporation The Rame Building 16275 Little Patuxent Parkway Columbia, Maryland 21244 (410) 292-0210	Drainage Area Map Village of River Hill Section 4 Area 2 3rd Election District Howard County, Maryland	SCALE 1" = 100' DATE August 1996	ZONING NT TAX MAP No. 34 & 35	G. L. W. FILE No. 94-050 SHEET 7 of 19

F-96-89



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.
 Christopher
 12-12-95
 Date

DEVELOPER'S/BUILDER'S CERTIFICATE
 I certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance of a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.
 Joseph H. Hahn
 12-12-95
 Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 J.D. Washfield, Jr., P.E.
 12-12-95
 Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Robert Ziska, P.E.
 12-12-95
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Andrew M. Daniels
 Chief, Bureau of Highway
 9-9-96
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Richard Blood
 Chief, Division of Land Development and Research
 9/22/96
 Date
 Chris Cummings
 Chief, Development Engineering Division
 9/14/96
 Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
 TEL: (301) 421-0024 MO. NO. (301) 989-2524 BALTE. (410) 880-1820 FAX: (301) 421-4186 DES. DRN/MCH/CHK/DEV

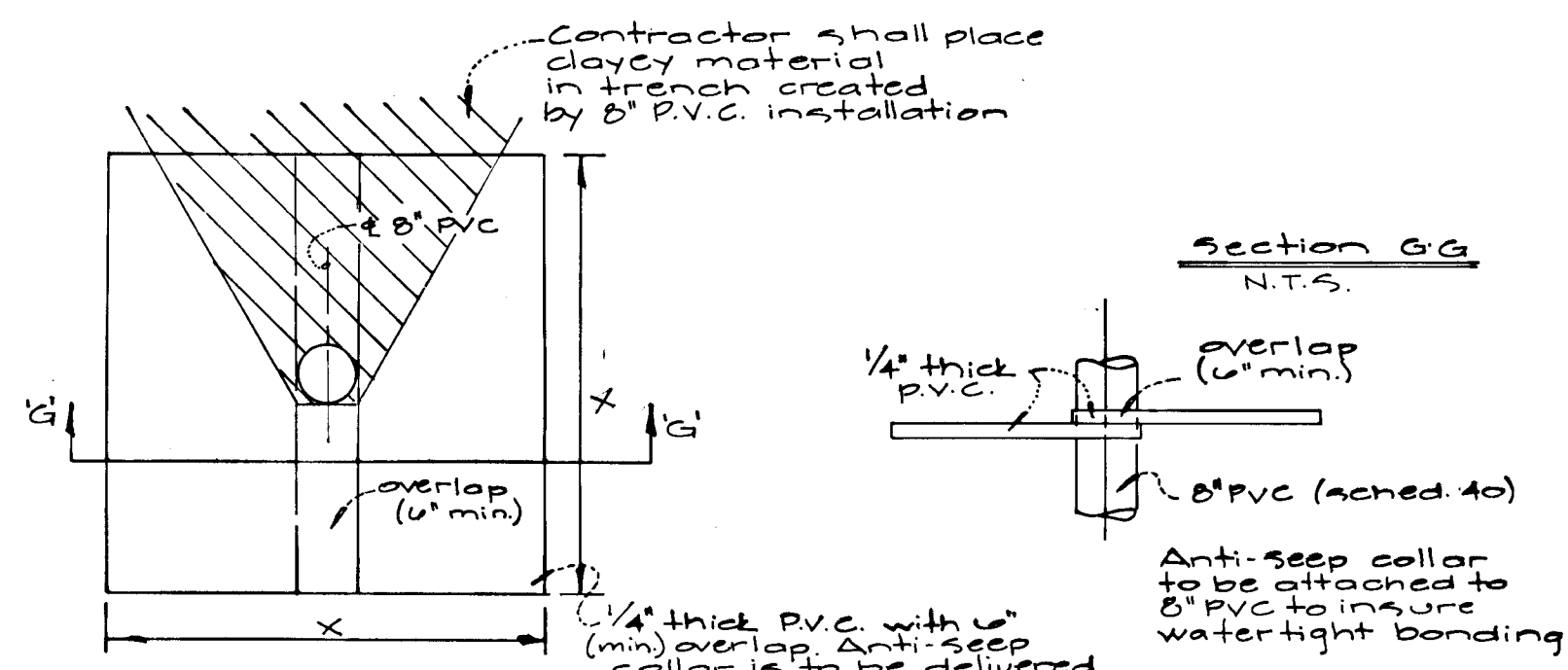
DATE	REVISION	BY	APPR.
11-12-95	Rev I-13 from a 200.15 inlet to a NRM inlet	KLP	

PREPARED FOR:
 The Howard Research and Development Corporation
 The Rapp Building
 10275 Little Potomac Parkway
 Columbia, Maryland 21044
 (410) 992-6270

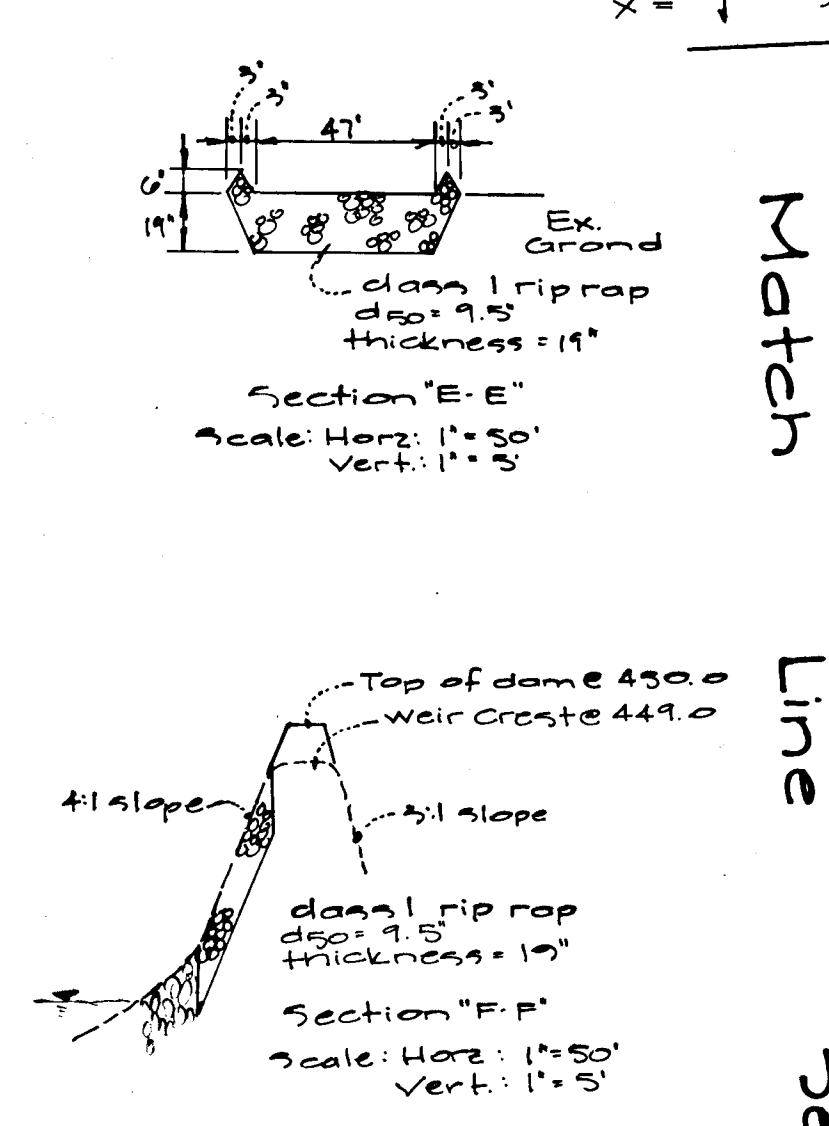
Mass Grading & Sediment Control Plan
Village of River Hill
 Section 4 Area 2
 5th Election District
 Howard County, Maryland

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	N.T.	74050
DATE	TAX MAP No.	SHEET
June 1996	34133	8 of 10

1487



For Additional Sediment Control see Sheet 8



Rip-Rap Outfall Sediment Trap ST IV Detail 10A	Trap #12	Trap #13
Before Development DA.	12.9 Act	4.02 Act
After Development DA.	14.8 Act	9.47 Act
Storage Required	30,240 cf.	17,040 cf.
Storage Provided	30,017 cf.	17,100 cf.
Weir Length	64'	24'
Outfall Length	25'	15'
Channel Depth	10'	10'
Cleanout Elev.	440.75	447.0
Top of Dam	444.0	450.0
Bottom Elev.	443.5	446.0
Limit of Wet Storage	442.0	448.0
Weir Crest Elev.	443.0	447.0

THIS PLAN IS SIGNED AND SEALED FOR REVISIONS DATED 4-18-97 ONLY.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Robert W. Ziehm 9-9-96
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Richard Blood 9/23/96
 Date
Chris Drummond 9/14/96
 Date

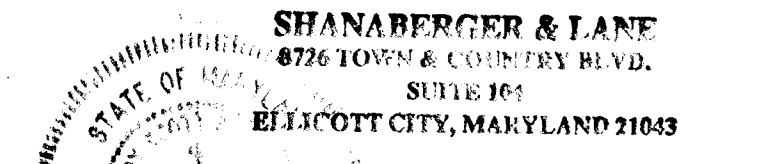
ENGINEER'S CERTIFICATE
 I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion.
Robert W. Ziehm 12-12-95
 Date

DEVELOPER'S/BUILDER'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 Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.
Gregory R. ... 12-12-95
 Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
J. D. Warfield Jr. 8/30/96
 Date
Robert W. Ziehm 8/30/96
 Date

Conversion Detail from Sediment Trap to Water Quality Facilities AS-BUILT

Note: Build embankment for forebays with the same soil specs as dam



Shanabarger & Lane
 PROFESSIONAL ENGINEERS
 37209 DATE

GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20886
 TEL: (301) 421-4024 NO. VA.: (301) 989-2524 BALT.: (410) 880-1820 FAX: (301) 421-4186

DATE	REVISION	BY	APPR.
4-18-97	REVISION GRADING, ADDING CULVERT ON LINEN LINE	ME/A	

PREPARED FOR:
 The Howard Research and Development Corporation
 The Rouse Building
 10275 Little Patuxent Parkway
 Columbia, Maryland 21044
 (410) 992-6370

Sediment Control Plan
 Village of River-Hill
 Section 4 Area 2
 5th Election District
 Howard County, Maryland

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	N.T.	94050
DATE	TAX MAP No.	SHEET
August 1996	34155	2 of 19

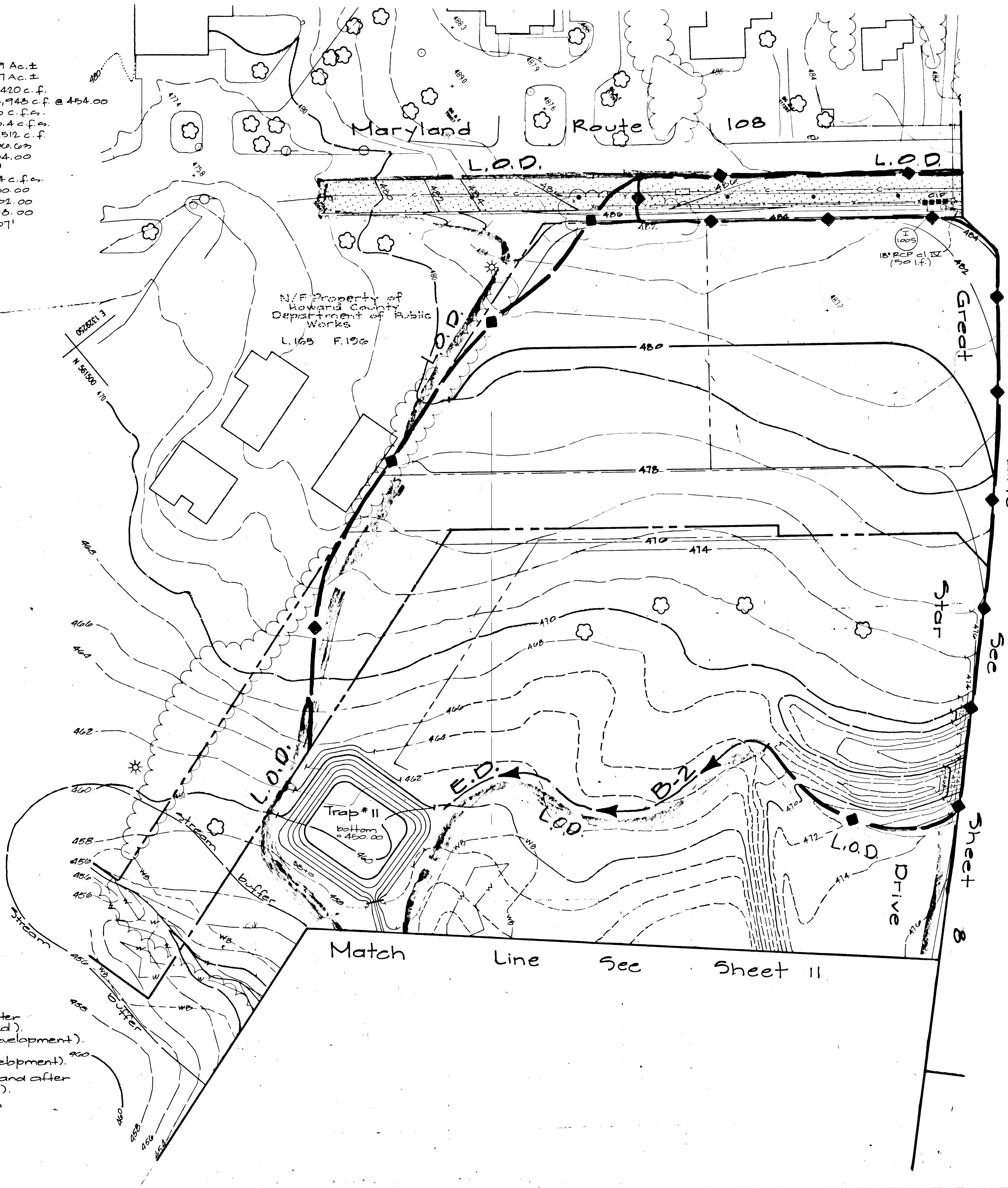
1487

1-96-89

Trap # 11

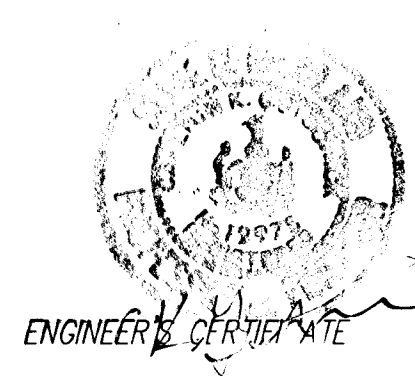
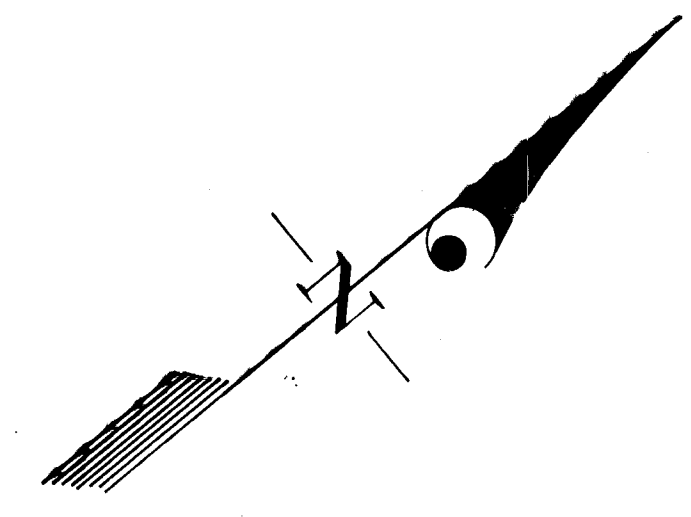
Sediment Outlet Trap

Existing Drainage Area	11.9 Ac. ±
Proposed Drainage Area	6.7 Ac. ±
Volume Required For Sediment Control	21,420 c.f.
Volume provided at elevation	24,945 c.f. @ 454.00
Before Development Discharge	75 c.f.s.
After Development Discharge	25.4 c.f.s.
Volume Required For Temp. SWM	22512 c.f.
Elevation to Provide Volume	450.00
Orifice Invert	454.00
Orifice Diameter	14"
Discharge Release Rate	7.4 c.f.s.
Bottom Elevation	450.00
Cleanout Elevation	452.00
Top of Dam	456.00
Free Board	1.97'



Legend

- 462 --- Existing Contour
- 462 --- Proposed Contour
- WB WB Wetland Buffer
- W W Limit of Wetlands
- Existing Treeline
- Proposed Treeline
- L.O.D. Limit of Disturbance
- Super Silt Fence
- Silt Fence
- E.D. Earth Dike
- E.D. Earth Dike (Relocation After grading has been completed)
- Drainage Divide (Before Development)
- Drainage Divide (After Development)
- Drainage Divide (Before and after Development Conditions)
- curb inlet protection



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

[Signature] 12-12-95
Date

DEVELOPER'S/BUILDER'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 Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

[Signature] 12-12-95
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion, and sediment control.

[Signature] 1/30/96
Natural Resources Conservation Service Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

[Signature] 1/30/96
Howard Soil Conservation District Date

Approved: Howard County Dept of Public Works
[Signature] 1-9-96
Chief, Bureau of Highways Date

Approved: Howard County Dept of Planning & Zoning
[Signature] 1/22/96
Chief, Div. of Land Development & Research Date

[Signature] 1/11/96
Chief, Development Engineering Div. Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
3809 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
TEL: (301) 421-4024 MO. NO. (301) 899-2524 BALT. (410) 880-1870 FAX: (301) 421-4186 DES. DRN. MGP. CHK. DEV.

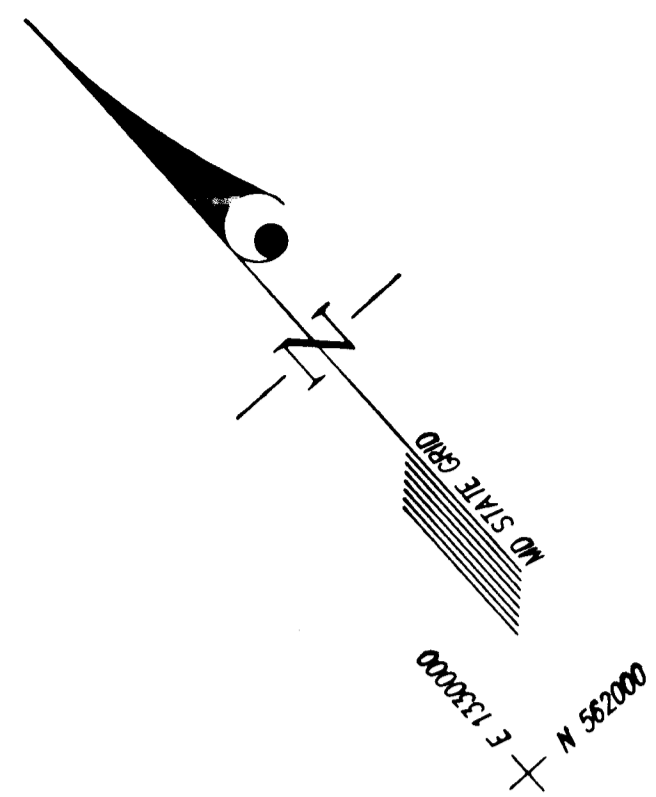
PREPARED FOR:
The Howard Research and Development Corporation
The Range Building
10275 Little Patuxent Parkway
Columbia, Maryland 21044
(410) 992-0370

Mass Grading & Sediment Control Plan
Village of River Hill
Section 4 Area 2
5th Election District
Howard County, Maryland

SCALE	ZONING	G. L. W. FILE No.
1"=50'	N.T.	94050
DATE	TAX MAP No.	SHEET
August 1996	34135	10 of 19

1487

F.96.89



ENGINEER'S CERTIFICATE

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CKY 12-12-95
Date

DEVELOPER'S/BUILDER'S CERTIFICATE

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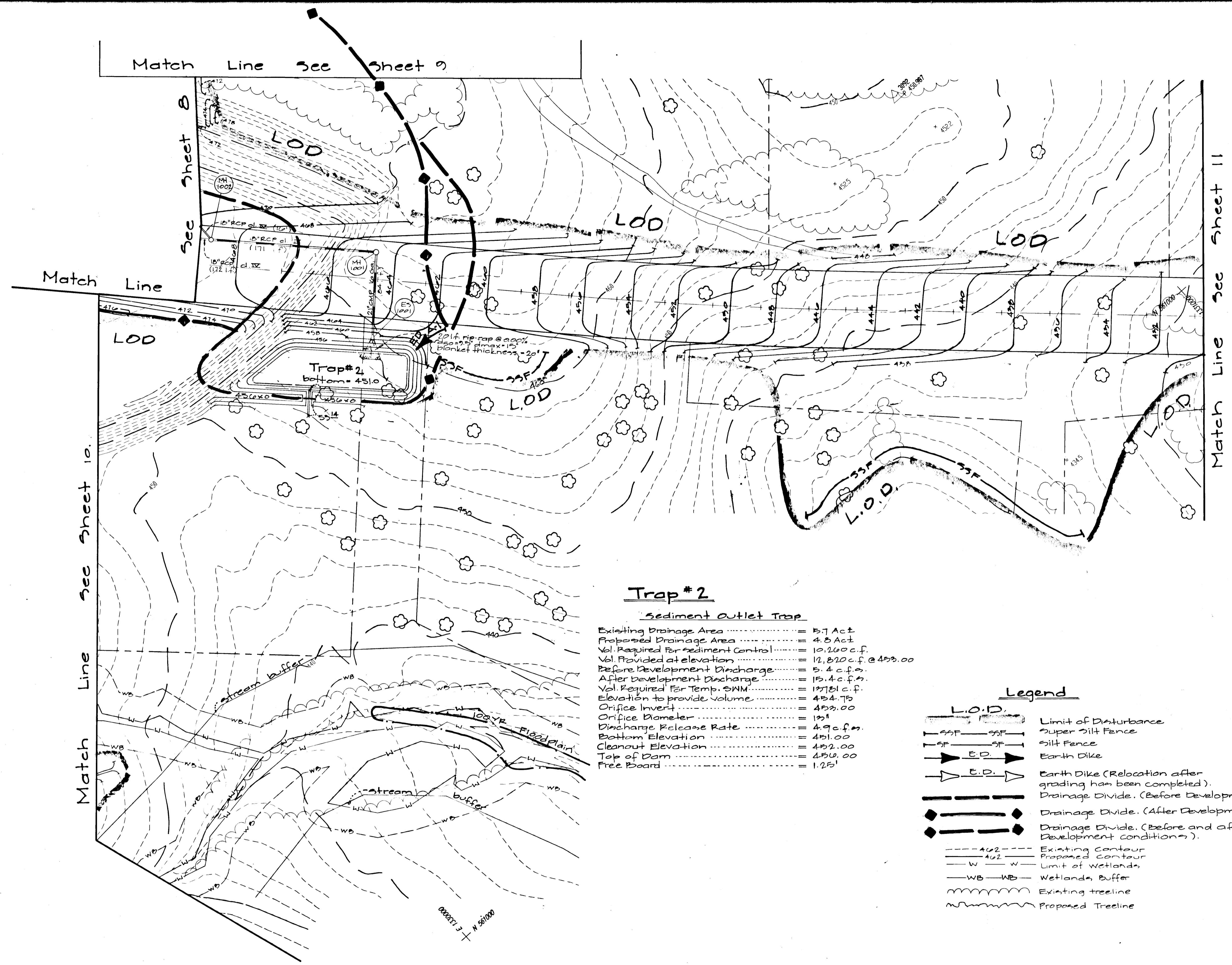
Joseph R. Ma 12-12-95
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

J. S. Warfield Jr. 8/30/96
Natural Resources Conservation Service Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Robert W. Ziehm 8/30/96
Howard Soil Conservation District Date



Trap #2

Sediment Outlet Trap

Existing Drainage Area	= 5.7 Act
Proposed Drainage Area	= 4.3 Act
Vol. Required for sediment control	= 10,200 c.f.
Vol. Provided at elevation	= 12,820 c.f. @ 453.00
Before Development Discharge	= 5.4 c.f.s.
After Development Discharge	= 15.4 c.f.s.
Vol. Required for Temp. SWM	= 13761 c.f.
Elevation to provide volume	= 454.75
Orifice Invert	= 453.00
Orifice Diameter	= 12"
Discharge Release Rate	= 4.9 c.f.s.
Bottom Elevation	= 451.00
Cleanout Elevation	= 452.00
Top of Dam	= 455.00
Free Board	= 1.25'

Legend

- L.O.D. Limit of Disturbance
- Super Silt Fence
- Silt Fence
- Earth Dike
- Earth Dike (Relocation after grading has been completed).
- Drainage Divide. (Before Development)
- Drainage Divide. (After Development)
- Drainage Divide. (Before and after Development conditions)
- Existing Contour 462
- Proposed Contour 462
- Limit of Wetlands
- Wetlands Buffer
- Existing treeline
- Proposed Treeline

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Decker 9-9-96
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Richard Blavel 9/23/96
Chief, Division of Land Development and Research Date
Bill Cannon 9/21/96
Chief, Development Engineering Division Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
TEL: (301) 421-4024 NO. VA. (301) 989-2524 BALI: (410) 880-1820 FAX: (301) 421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:
The Howard Research and Development Corporation
The Rouse Building
10275 Little Patuxent Parkway
Columbia, Maryland 21044
(410) 992-6370

Grading & Sediment Control Plan
Village of River Hill
Section 4 Area 2
5th Election District
Howard County, Maryland

SCALE 1" = 50'	ZONING N.T.	G. L. W. FILE No. 7A050
DATE August 1996	TAX MAP No. 34155	SHEET 111 of 17

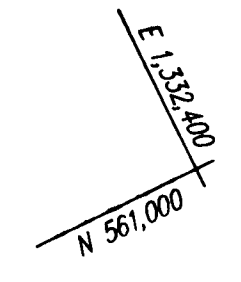
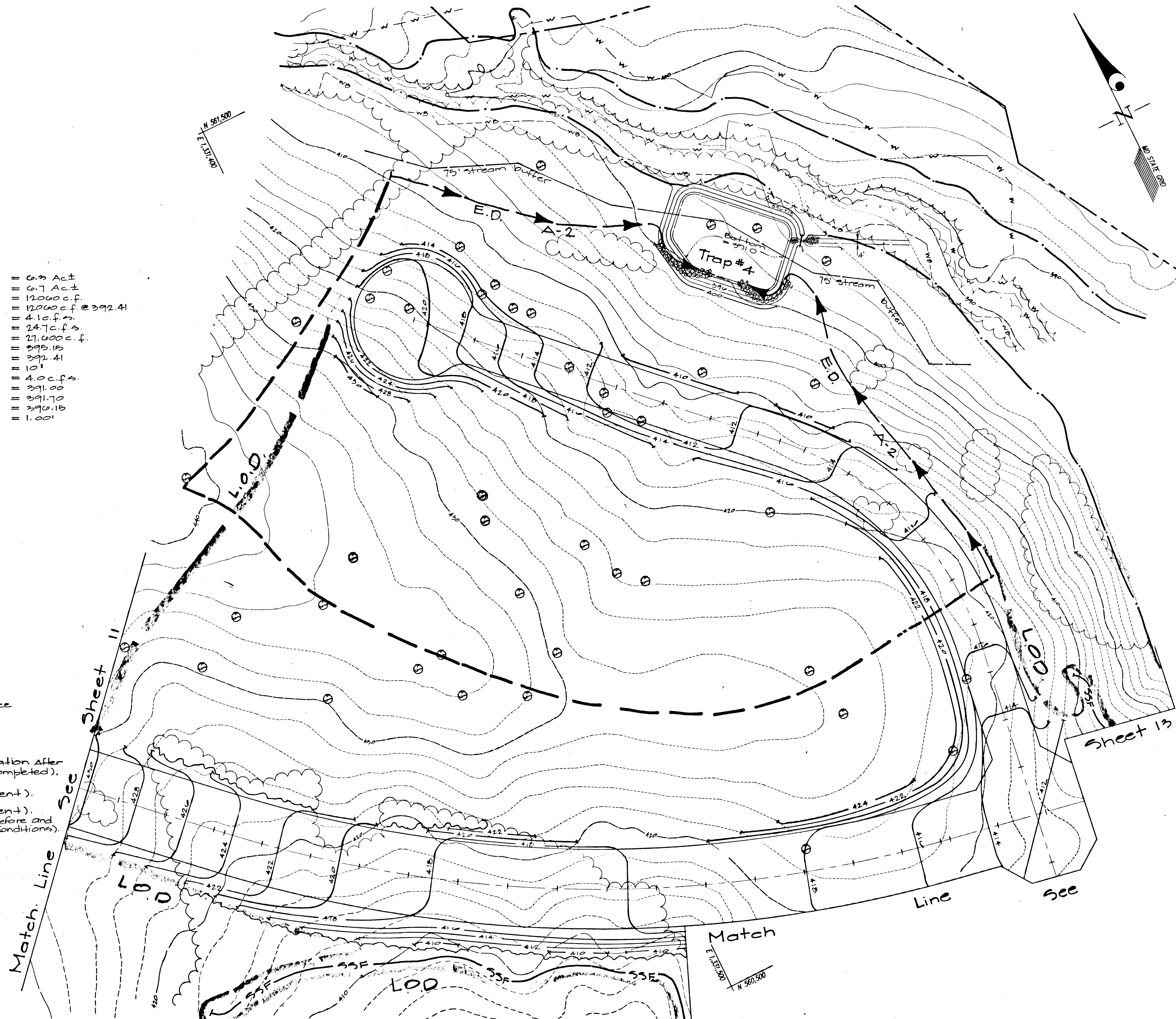
1987

Trap #4
Sediment Outlet Trap

Existing Drainage Area	= 6.9 Ac.±
Proposed Drainage Area	= 6.7 Ac.±
Vol. Required For Sediment Control	= 12,000 c.f.
Volume Provided at Elevation	= 4.1 c.f. @ 392.41
Before Development Discharge	= 24.7 c.f. @ 392.41
Volume Required For Temp. SWM	= 27,600 c.f.
Elevation to Provide Volume	= 395.15
Orifice Invert	= 392.41
Orifice Diameter	= 10"
Discharge Release Rate	= 4.0 c.f.s.
Bottom Elevation	= 391.00
Cleanout Elevation	= 391.70
Top of Dam	= 396.15
Free Board	= 1.00'

Legend

- L.O.D.** Limit of Disturbance
- SF— Super Silt Fence
- SF— Silt Fence
- E.D. → Earth Dike
- E.D. → Earth Dike (Relocation After grading has been completed).
- Drainage Divide (Before Development).
- Drainage Divide (After Development).
- Drainage Divide (Before and after development conditions).
- Existing Contour
- Proposed Contour
- Wetland Buffer
- Limit of Wetlands
- Existing Treeline
- Proposed Treeline



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."

CK [Signature] 12-12-95
Date

DEVELOPER'S/BUILDER'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 Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

[Signature] 12-12-95
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

J.D. Washburn 8/30/96
Natural Resources Conservation Service Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Robert W. Ziehl 8/30/96
Howard Soil Conservation District Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniels 9-9-96
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Robert Blood 9/22/96
Chief, Division of Land Development and Research Date
Chad [Signature] 9/11/96
Chief, Engineering Division Date

GW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
TEL: (301) 421-4024 NO. VA.: (301) 989-2524 BALI: (410) 880-1820 FAX: (301) 421-4186

DATE	REVISION	BY	APP'R.

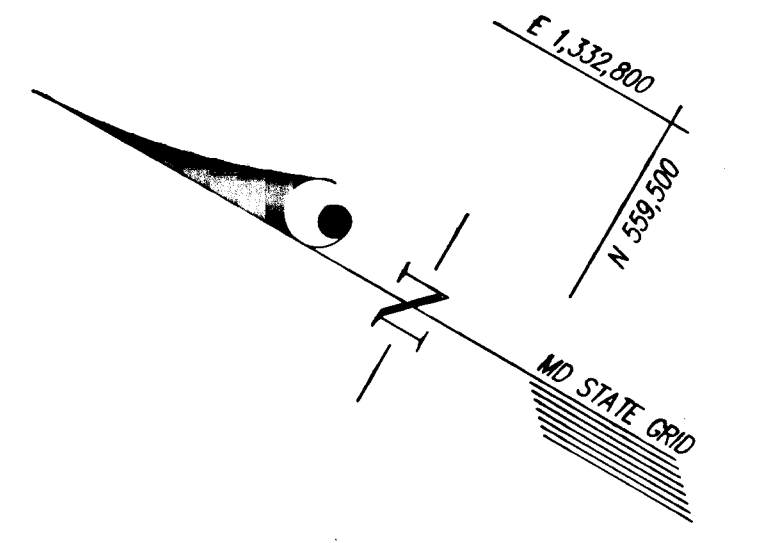
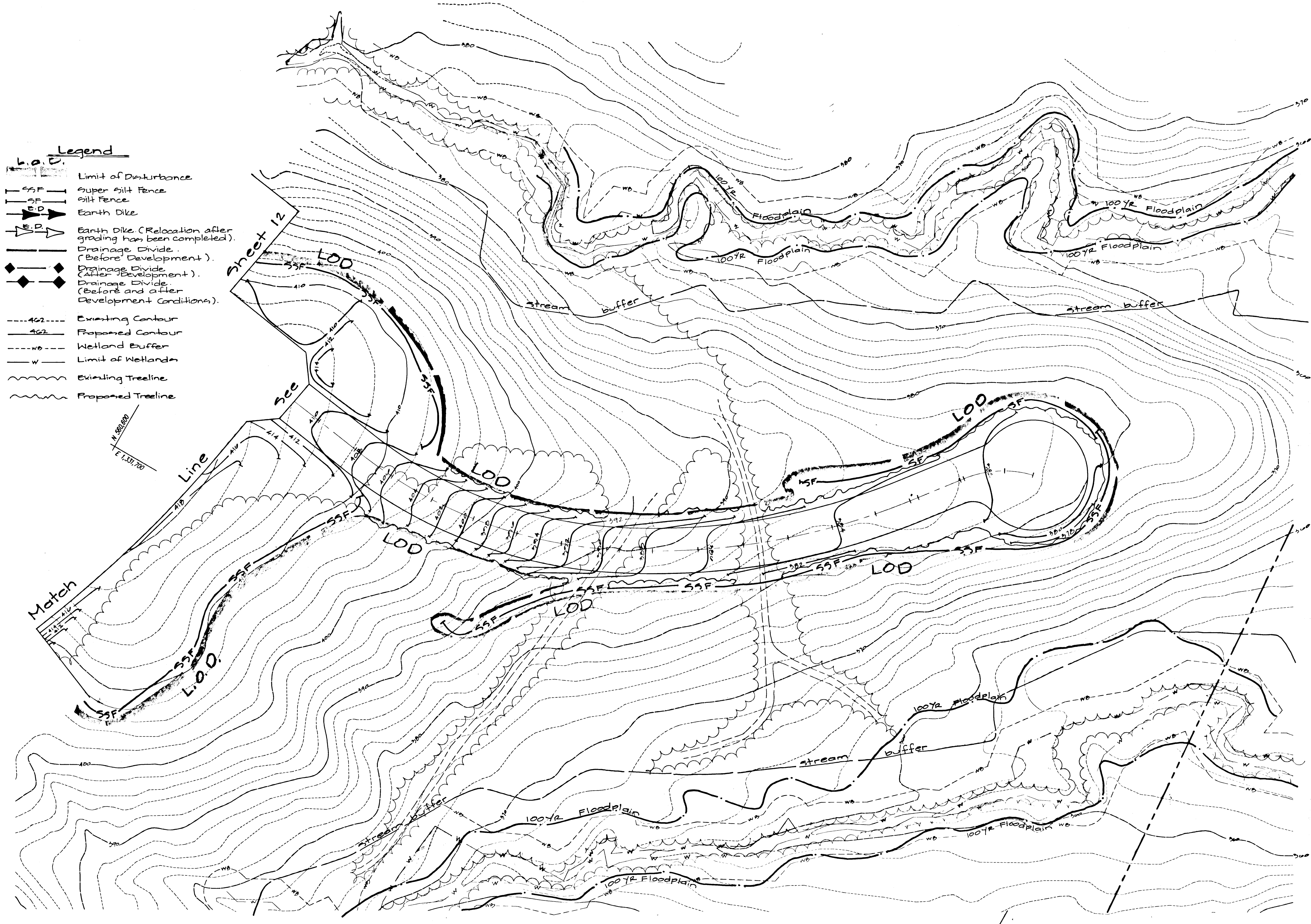
PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSEBUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(410) 992-6370

Grading & Sediment Control Plan
VILLAGE OF RIVER HILL
SECTION 4 AREA 2
5TH ELECTION DISTRICT

SCALE 1" = 50'	ZONING N.T.	G. L. W. FILE No. 94050
DATE August 1996	TAX MAP No. 34135	SHEET 12 of 13

1487

- Legend**
- Limit of Disturbance
 - Super Silt Fence
 - Silt Fence
 - Earth Dike
 - Earth Dike (Relocation after grading has been completed).
 - Drainage Divide (Before Development).
 - Drainage Divide (After Development).
 - Drainage Divide (Before and after Development Conditions).
 - Existing Contour
 - Proposed Contour
 - Wetland Buffer
 - Limit of Wetlands
 - Existing Treeline
 - Proposed Treeline



ENGINEER'S CERTIFICATE

CKM

"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."

CKM 12-12-95
Date

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Joseph R. Han 12-12-95
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

J. P. Washfield M. S. 8/30/96
Natural Resources Conservation Service Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Robert W. Ziehn 8/30/96
Howard Soil Conservation District Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Danelo 9-9-96
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Richard Blum 8/23/96
Chief, Division of Land Development and Research Date
Chad Quinlan 8/24/96
Chief, Planning Division Date

GLW GUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866
TEL: (301) 421-4024 NO. VA: (301) 989-2524 BALT: (410) 880-1820 FAX: (301) 421-4186 DES. DRN. CHK.

PREPARED FOR:
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
THE ROUSEBUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
(410) 992-6370

Grading & Sediment Control Plan
VILLAGE OF RIVER HILL
SECTION 4 AREA 2

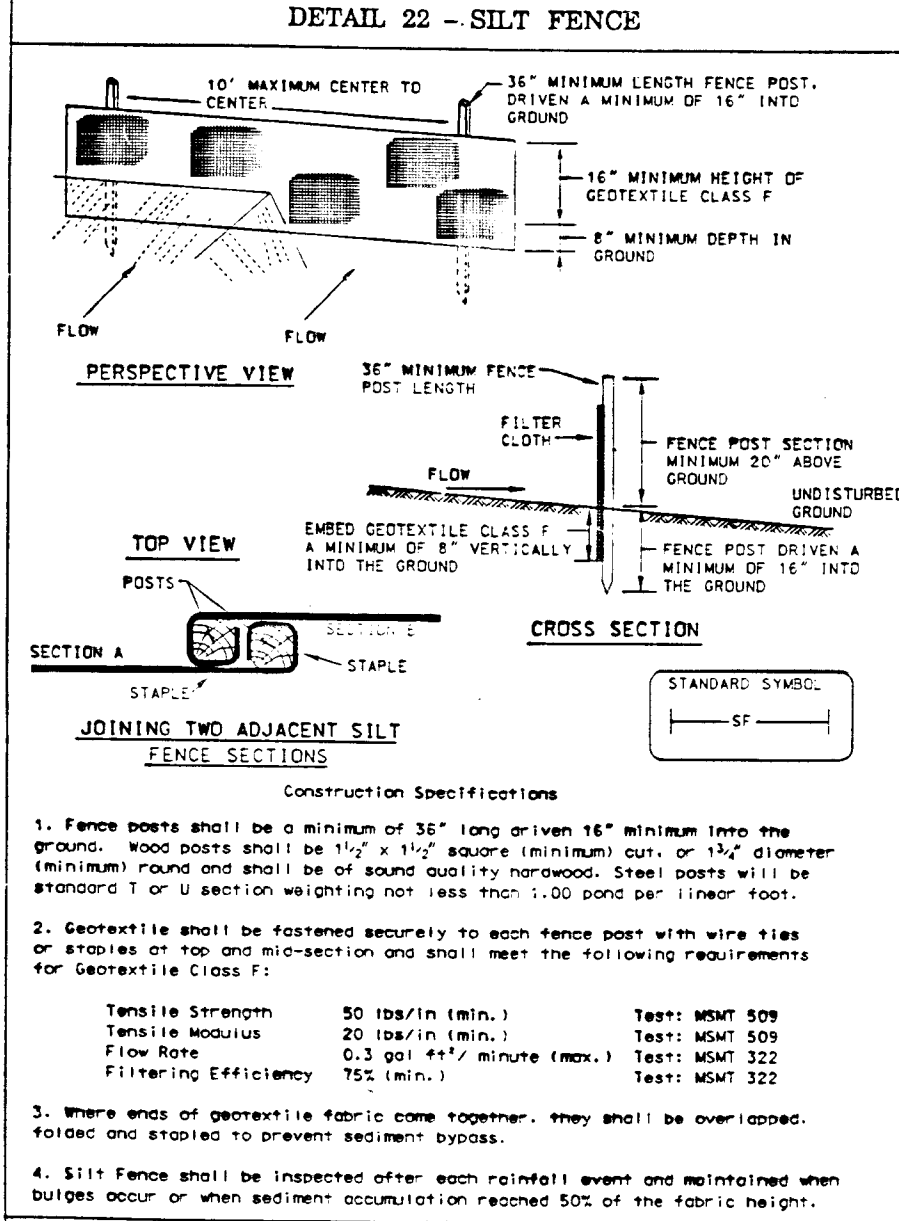
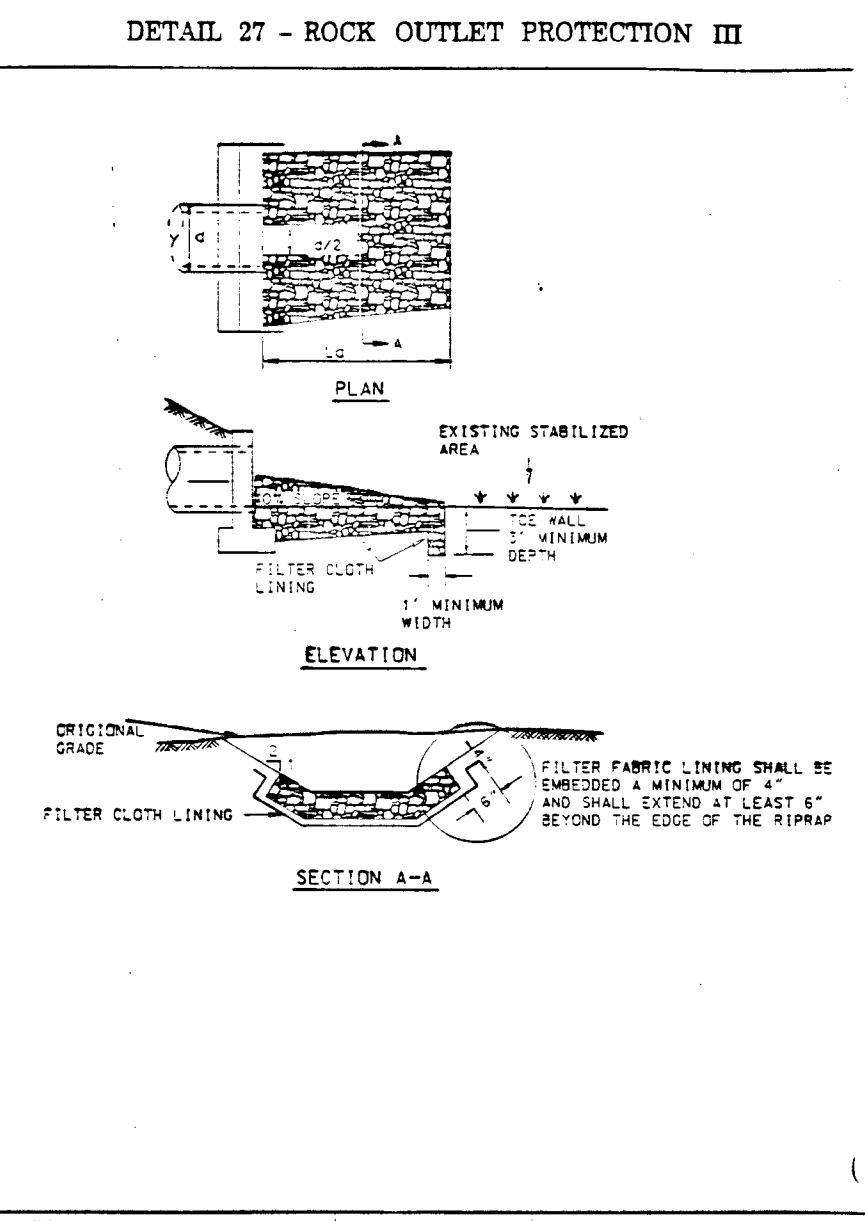
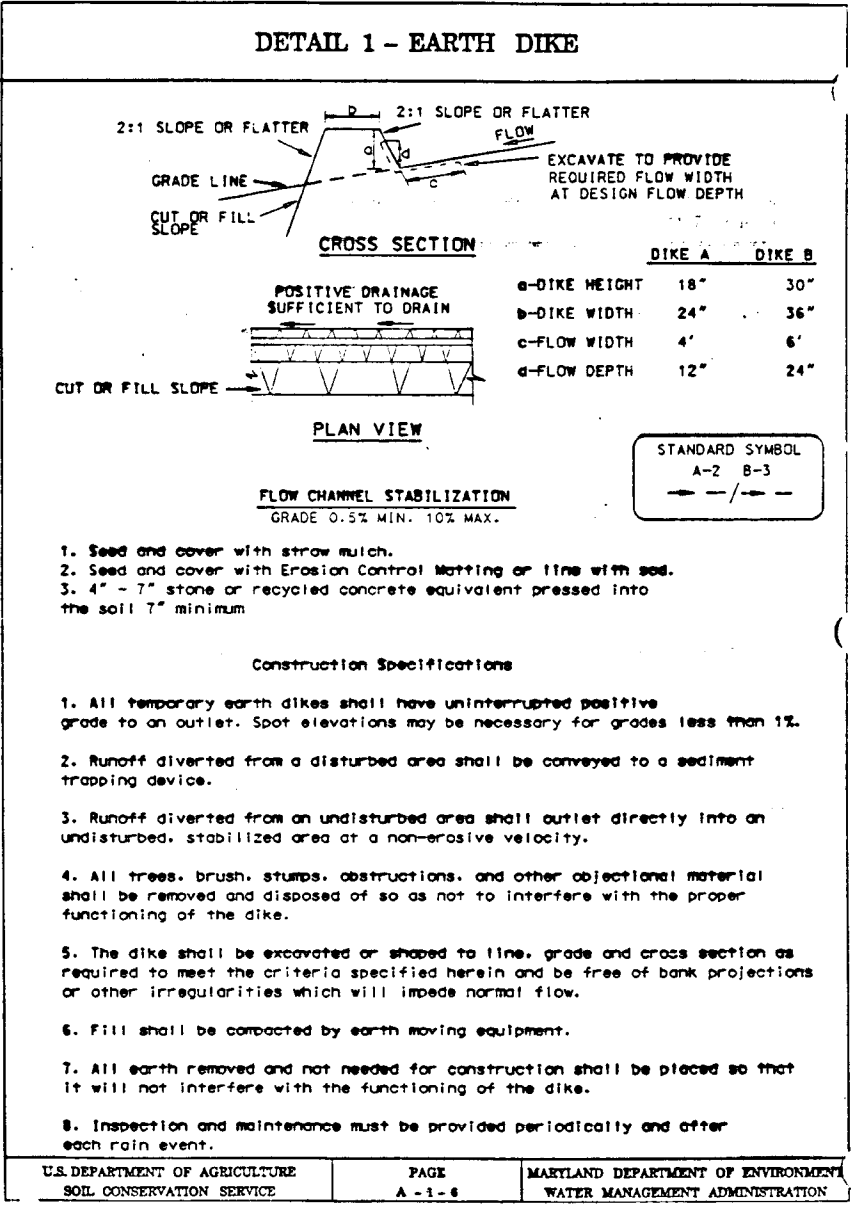
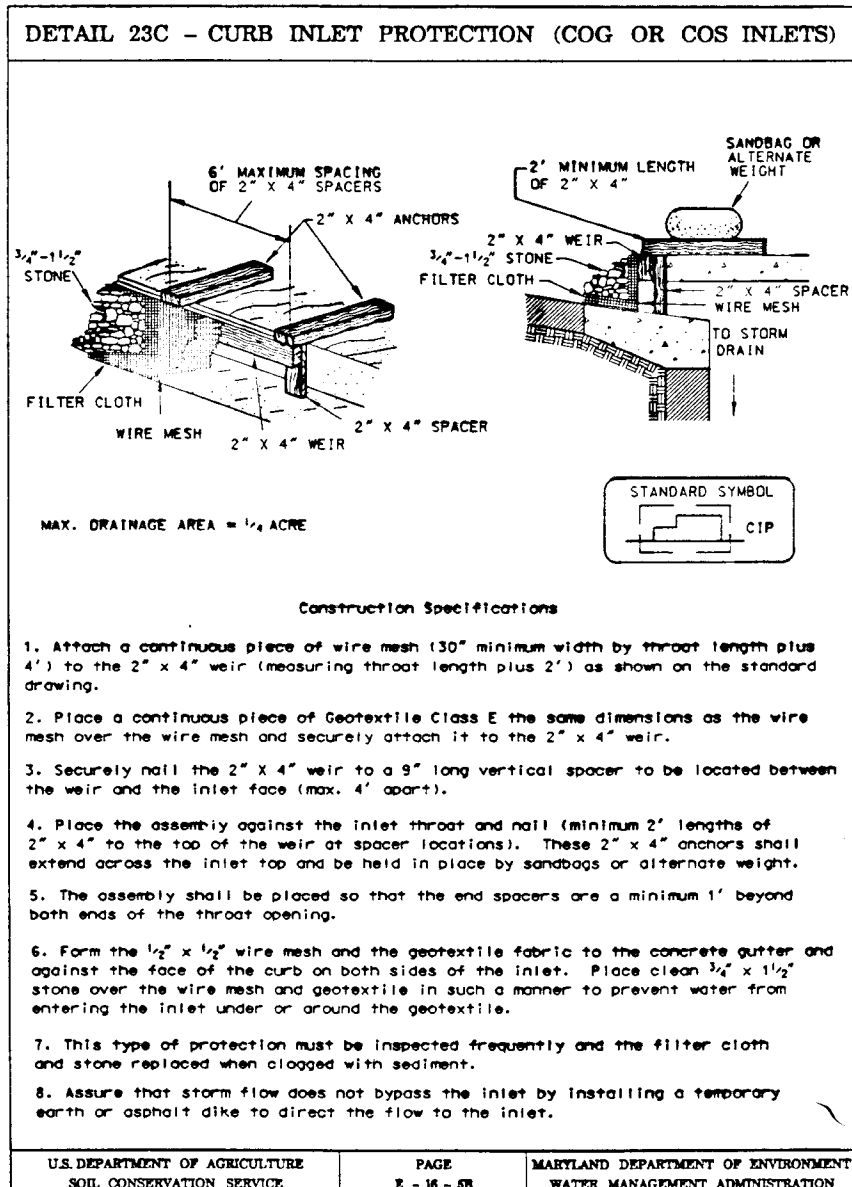
SCALE	ZONING	G. L. W. FILE No.
1" = 50'	N.T.	94050
DATE	TAX MAP No.	SHEET
August 1996	24 135	13 of 19

5TH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

F96.89

1487



SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (410) 915-1855
- 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 and revisions thereto.
- 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.
- 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.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 19 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, mulching, sod, and temporary seeding (Sec. G) Temporary stabilization, with mulch done, shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

Total Area of Site	: 32.75 Acres
Area Disturbed	: 5.83 Acres
Area to be roofed or paved	: 1.70 Acres
Area to be vegetatively stabilized	: 58.15 Acres
Total Cut	: 101,000 Cu. Yds.
Total Fill	: 121,200 Cu. Yds.

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

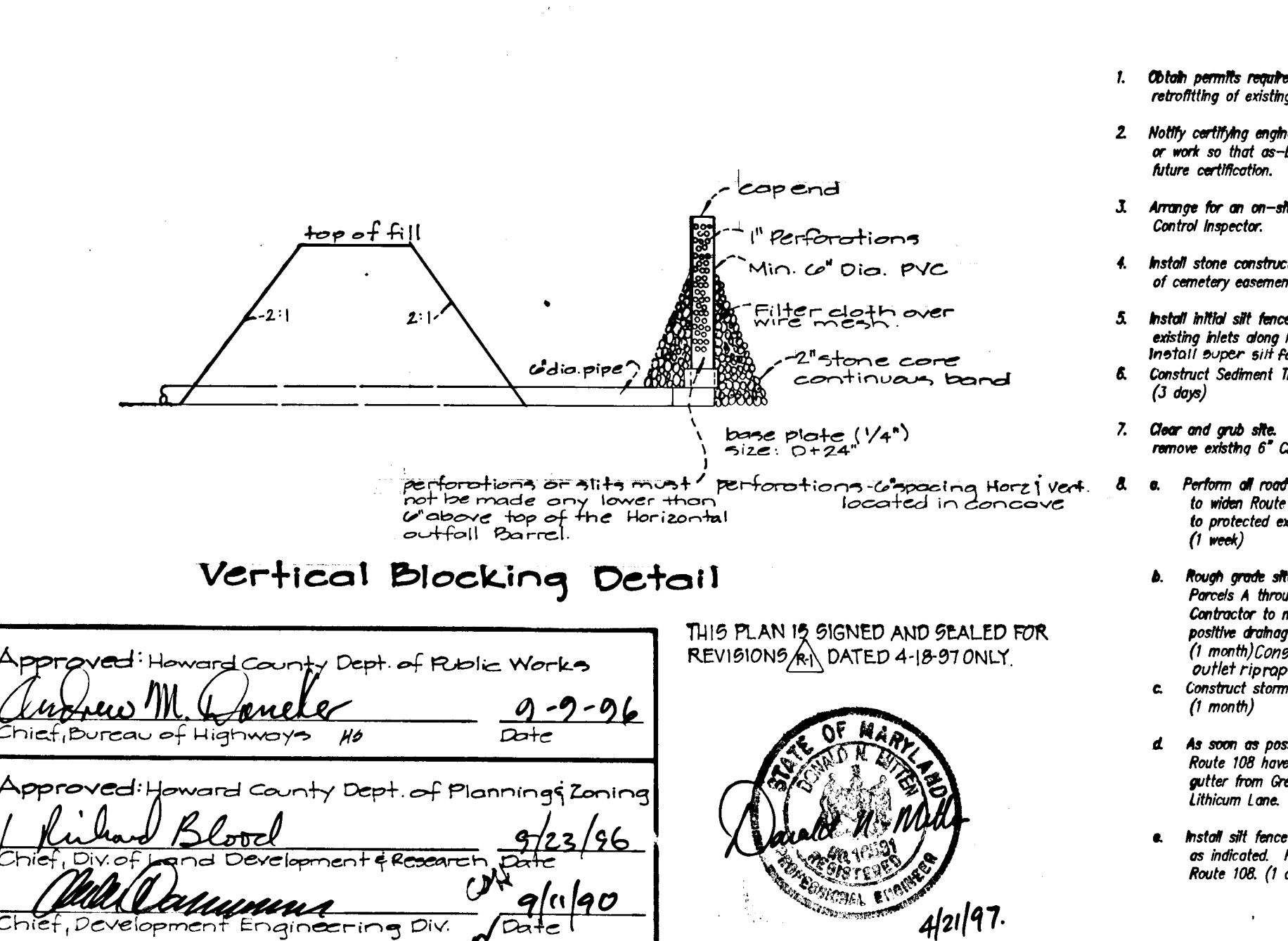
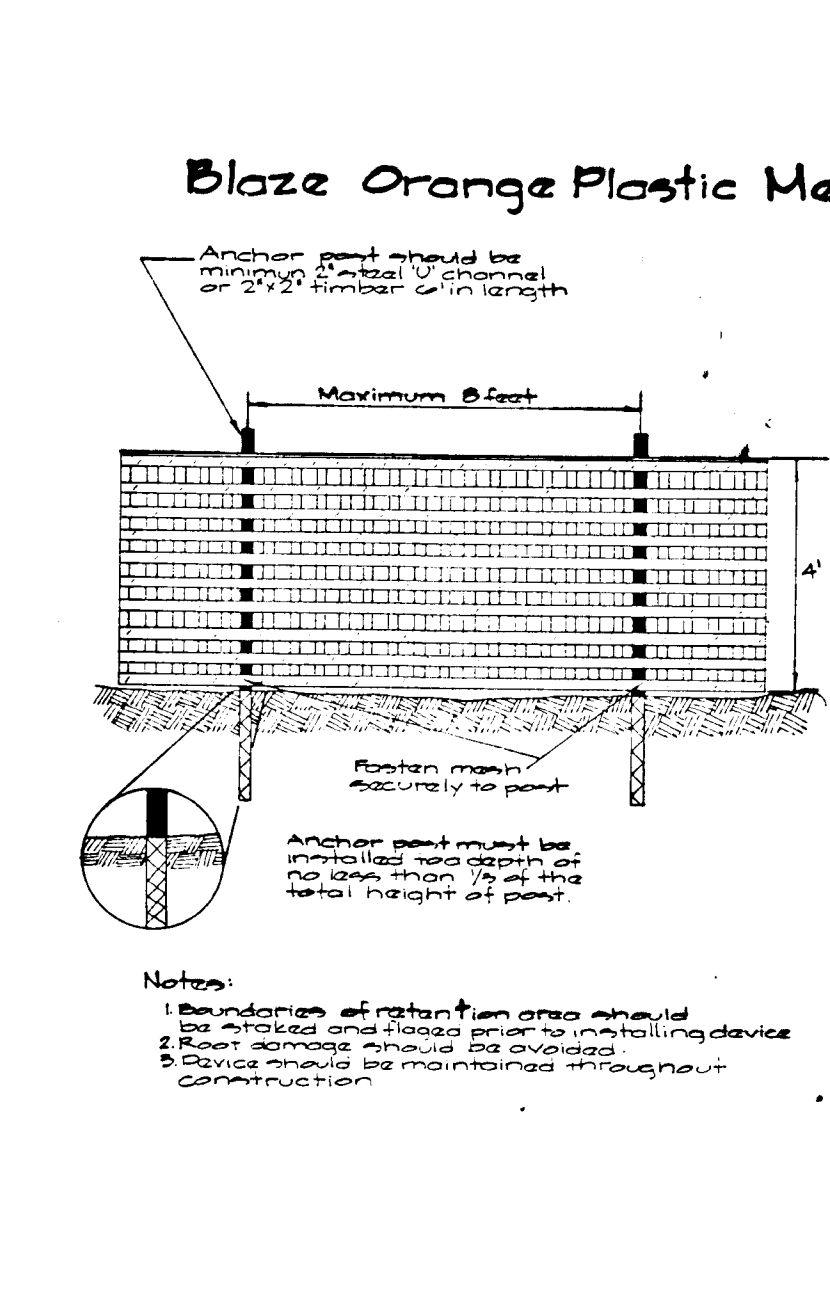
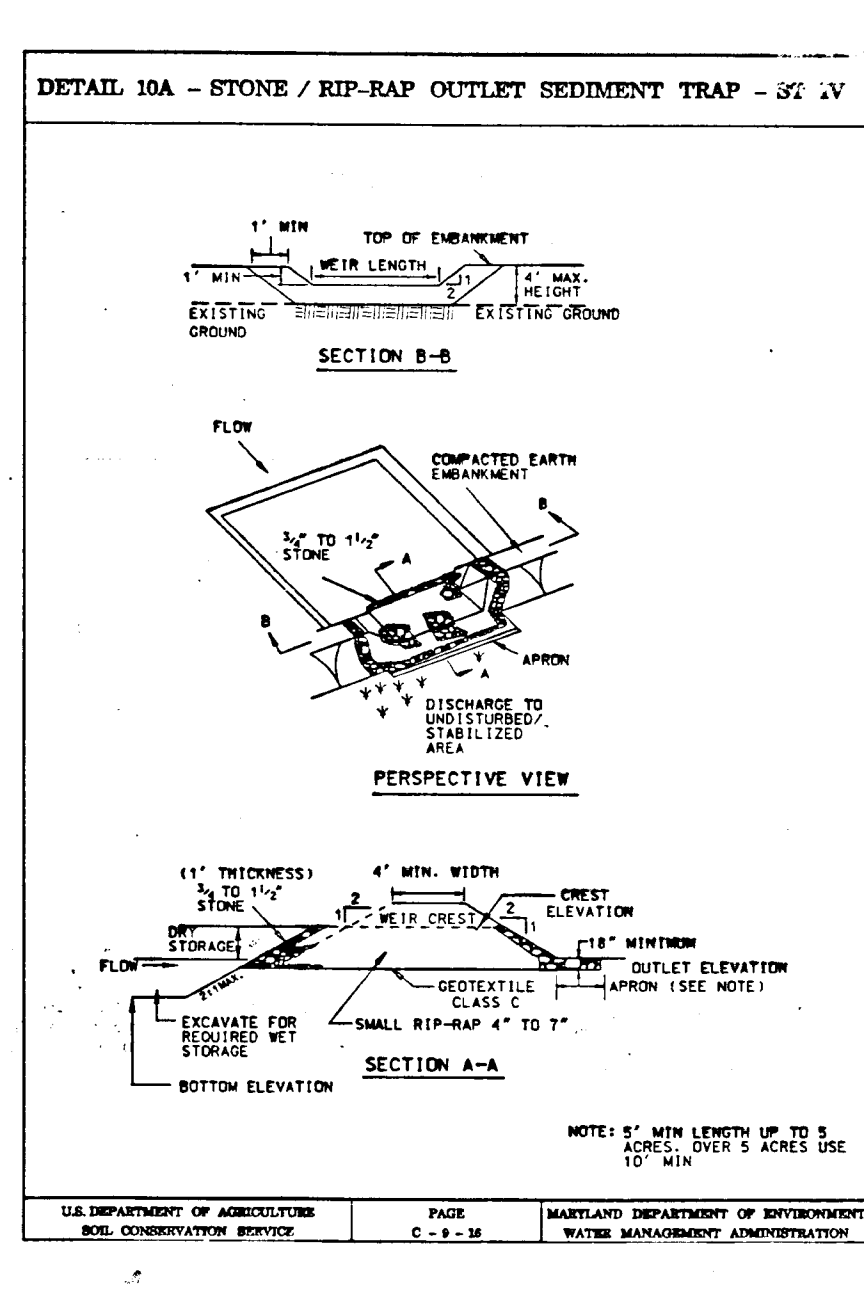
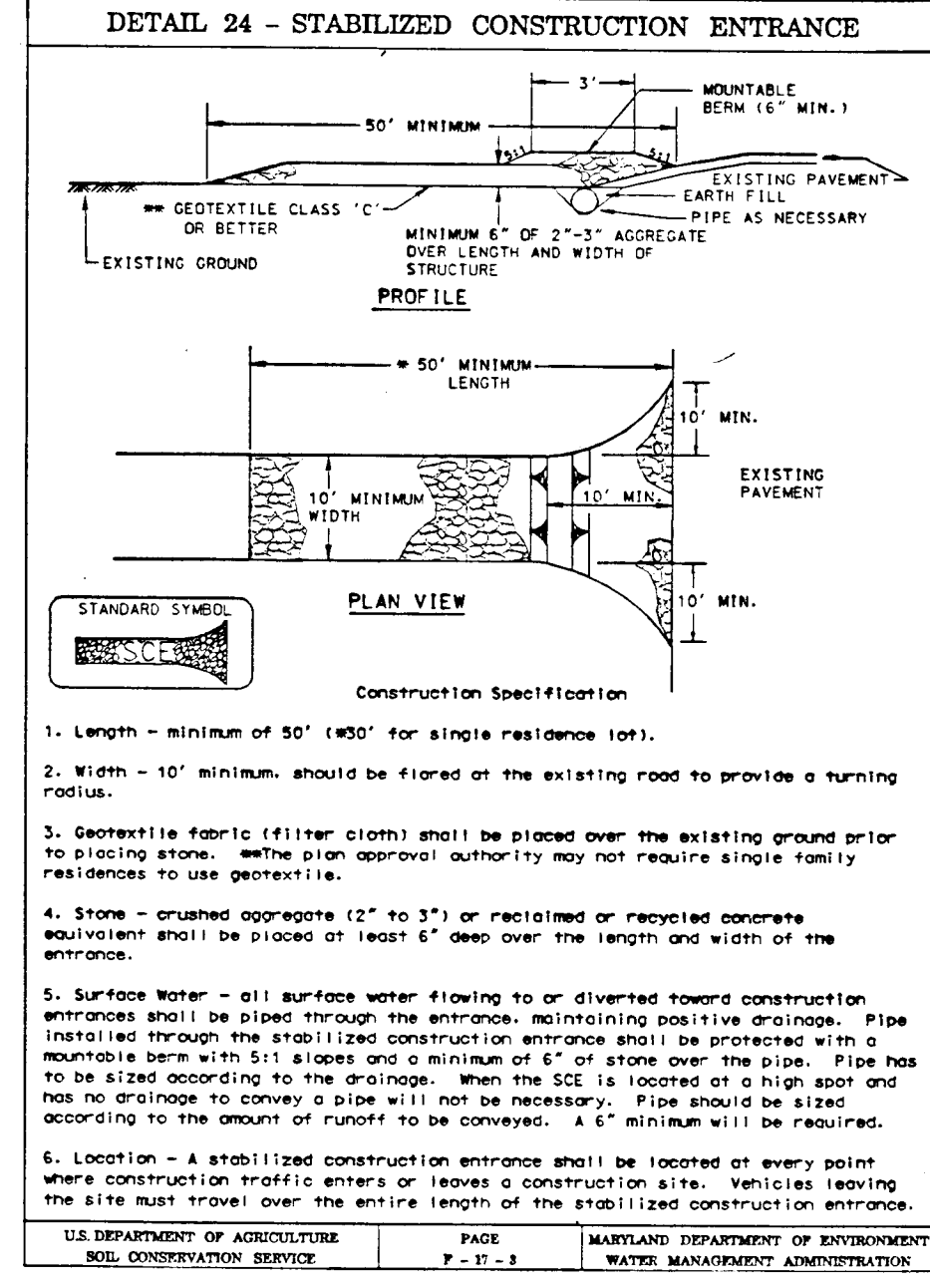
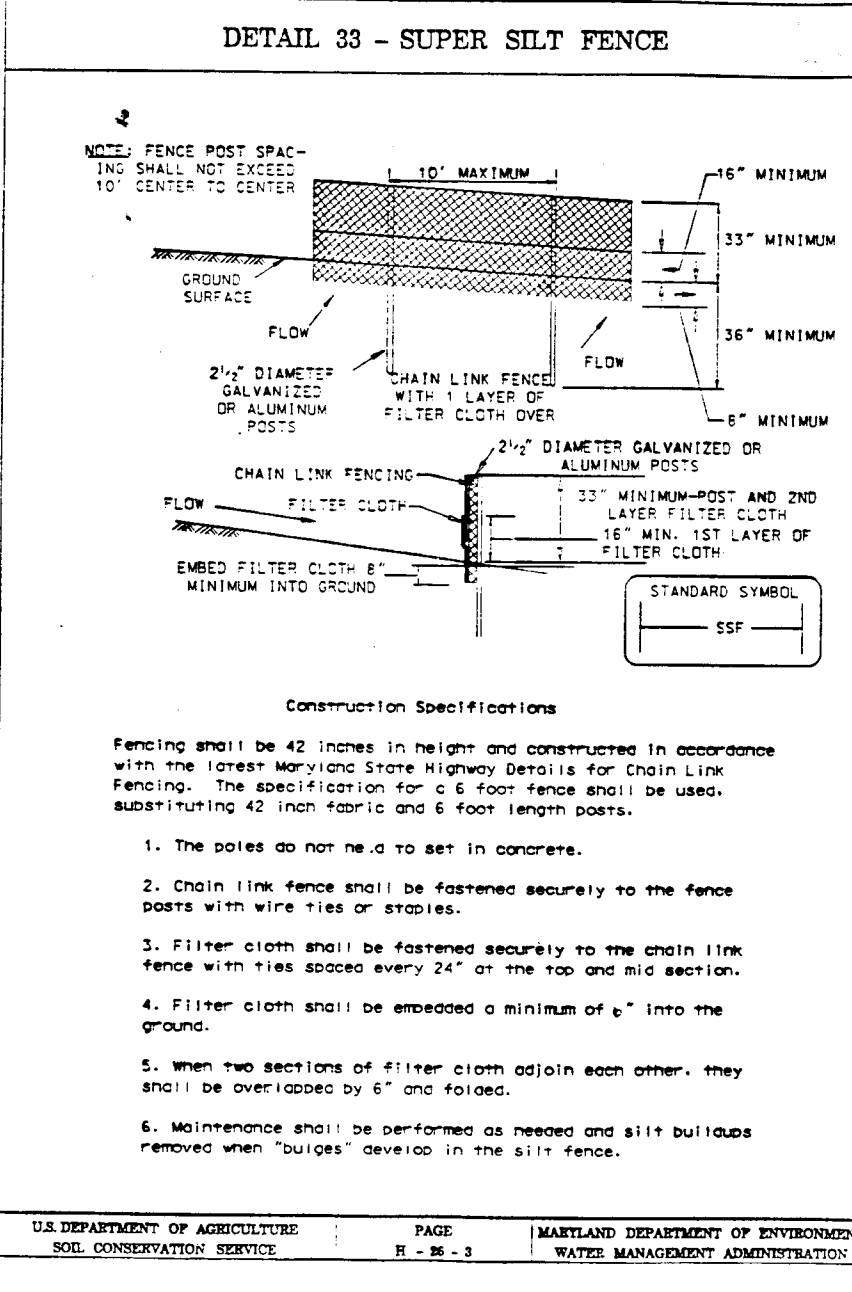
PERMANENT SEEDING NOTES

- Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is desired.
- Seeded Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.
- Soil Amendments: In lieu of soil test recommendations, use one of the following schedules
- 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).
 - 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.



- SEQUENCE OF CONSTRUCTION**
- Obtain permits required to perform grading operation and retrofitting of existing pond.
 - Notify certifying engineer at least 2 weeks prior to beginning of work so that as-built information can be acquired for future certification.
 - Arrange for an on-site meeting with the County Sediment Control Inspector.
 - Install stone construction entrances and indicate limits of cemetery easement with orange blaze fence. (1 day)
 - Install initial silt fence and inlet protection for existing inlets along Route 108 as shown. (1 day)
 - Construct Sediment Traps 2, 4, and 11 through 13. (3 days)
 - Clear and grub sites. Begin clearing for embankment and remove existing 8" C&P. (4 days)
 - Perform all roadway and shoulder grading necessary to widen Route 108. Surface runoff to be conveyed to protected existing dikes along Route 108. (1 week)
 - Rough grade site. During the grading for Parcels A through E and G through V, Contractor to make provisions to insure positive drainage toward Traps 12 and 13. (1 month) Construct 24" RCP culvert, inlet and outlet riprap protection.
 - Construct storm drains and other utilities. (1 month)
 - As soon as possible after utility poles along Route 108 have been removed, install curb and gutter from Great Star Drive to Linden (Ulthum Lane). (3 days)
 - Install all fence behind curb along Route 108 as indicated. Remove inlet protection on Route 108. (1 day)
 - As areas become available after utility construction, the grade site, install curb and gutter and base road. (1 week)
 - Stabilize of disturbed areas in accordance with temporary or permanent seeding notes. Flush all storm drain and install rip-rap aprons at outfalls. (3 days)
 - Trap Number 2 will remain in order to provide sediment control for Section 4, Area 1, Phase 1 (F 96-110). Trap Numbers 4 and 11 will be utilized in future development schedules for sediment control and ultimately as water quality facilities. Traps 12 and 13 will also be utilized in future development schedules for sediment control and ultimately as water quality facilities for the existing pond. Earth dikes draining to these traps will remain for future development until it is determined that they need to be relocated or removed.
 - Install surface course paving. (2 days)
 - Devote existing pond. (1 day)
 - Stabilize all areas disturbed during construction. (2 days)
 - With permission of Sediment Control Inspector, remove sediment control devices. See item 8.h. for exceptions. (3 days)
 - Stabilize any remaining areas, and go home. (1 day)
- NOTE: Construction operations described in Items 8 and 9 may be performed concurrently.

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 County Department of the Environment and the requirements of the Howard County Sediment Control 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. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Gregory J. Piller 12-12-95
Signature of Developer/Builder Date

DEVELOPER'S/BUILDER'S CERTIFICATE

I certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

Robert J. Ziehm 8/30/96
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

J. J. Washburn 8/30/96
Natural Resources Conservation District Date

Cliff
Howard Soil Conservation District

DATE	REVISION	BY	APP'R.
4-18-97	REVISED SEQUENCE OF OPERATIONS		

SCALE	ZONING	G. L. W. FILE No.
N/A	N.T.	7A050
DATE	TAX MAP No.	SHEET
August 1996	74135	14 of 19

Sediment Control Notes & Details
Village of River Hill
Section 4 Area 2
5th Election District
Howard County, Md.

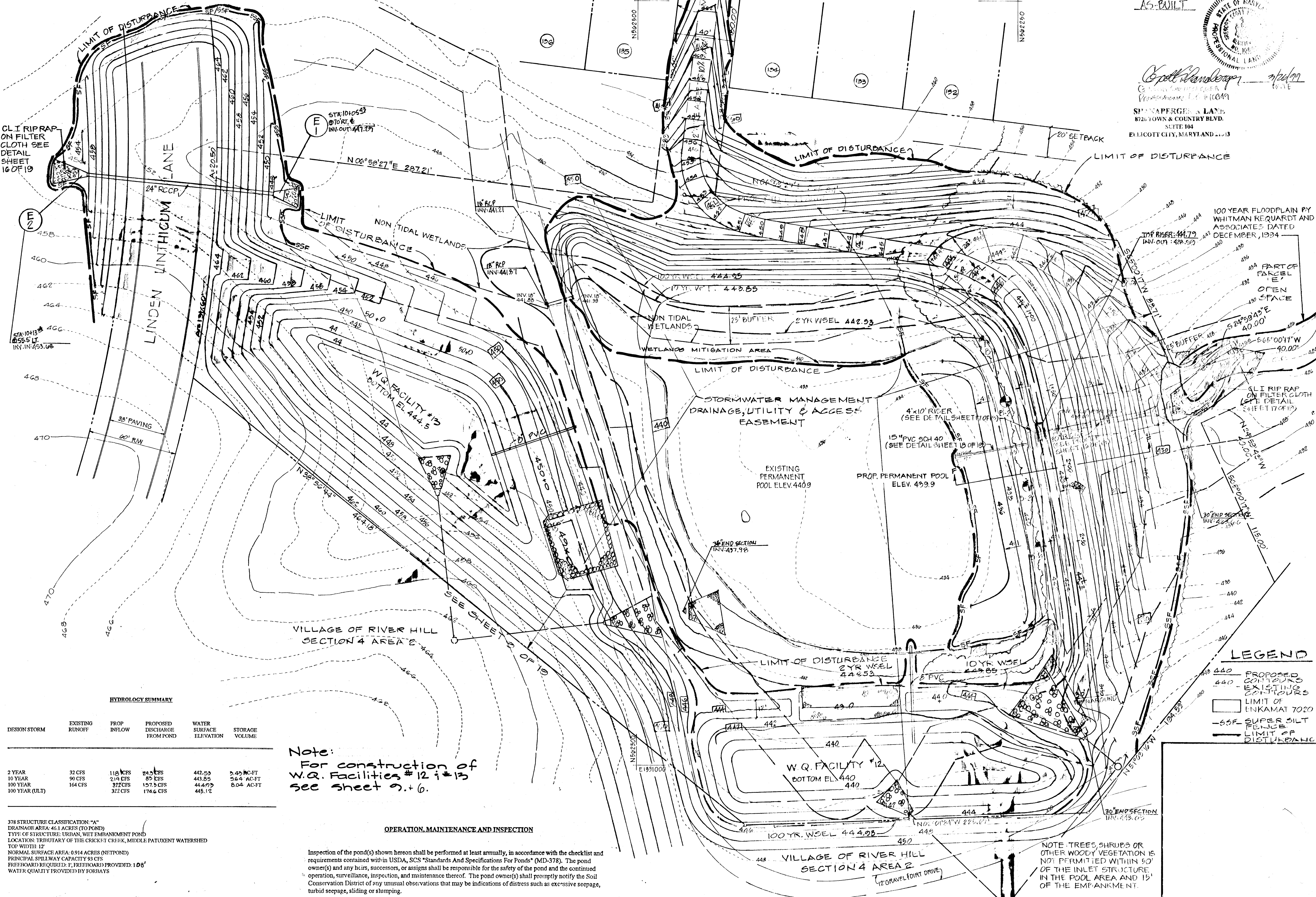
1487

F96.89

CONSULTANT'S HAZARD CLASS CERTIFICATION

I certify that these ponds meet all requirements for hazard class A. [Requirements as stated in the SOIL CONSERVATION SERVICE - MARYLAND STANDARDS AND SPECIFICATIONS FOR POND, CODE 378, NOVEMBER, 1992]. All necessary investigations and computations have been performed to verify these findings. A copy of said information has been supplied to S.C.S./B.C.S.C.D.

Signature: Donald N. Mitten Md. License No. 16581 Date: 3/21/96
 Print Name: DONALD N. MITTEN



NOTE: THE EXISTING FARM POND LIES WITHIN LAND TO BE OWNED BY THE COLUMBIA ASSOCIATION. COSMETIC AND LANDSCAPING ITEMS NOT PERFORMED BY HOWARD COUNTY DEPT. OF PUBLIC WORKS WILL BE THE RESPONSIBILITY OF THE COLUMBIA ASSOCIATION. STRUCTURAL AND SCHEDULED COSMETIC/AESTHETIC ITEMS WILL BE THE RESPONSIBILITY OF THE HOWARD COUNTY DEPT. OF PUBLIC WORKS.

TRACKING #
 MDL #1996-62-407
 NON TIDAL WETLANDS-96-NT 0227

AS-BUILT
 STATE OF MARYLAND
 PROFESSIONAL LAND SURVEYOR
 Donald N. Mitten
 License No. 16581
 SPINAPERGE & LAND
 8226 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21113

By the Developer:
 "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 the Howard Soil Conservation District."
 Date: 8/8/96

By the Engineer:
 "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."
 Date: 8-8-96

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 Date: 8/30/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Date: 9-9-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Date: 9/23/96

APPROVED: HOWARD COUNTY DEPARTMENT OF ENGINEERING DIVISION
 Date: 9/11/96

4-10-97 2 REV. GRADING LINDEN LINTHICUM LANE (ADDED CULVERT)
 3-17-97 1 REV. CONTOURS, LIMIT OF DISTURBANCE, ELEV.
 DATE NO. REVISION

OWNER/DEVELOPER
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL SECTION 4, AREA 5

AREA TAX MAP NO. 35 ZONE: NEW TOWN
 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT POND #1 - PLAN VIEW
 96-05-22

MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 110 WEST ROAD SUITE 195
 TOWSON, MARYLAND 21204
 (410) 821-1600
 FAX (410) 821-1748

DATE: 8-8-96
 DESIGNED BY: R.L.R.
 DRAWN BY: J.A.G.
 PROJECT NO.: 9927
 DATE: OCTOBER, 1995
 SCALE: 1"=30'
 DRAWING NO. 15 OF 19

HYDROLOGY SUMMARY

DESIGN STORM	EXISTING RUNOFF	PROP INFLOW	PROPOSED DISCHARGE FROM POND	WATER SURFACE ELEVATION	STORAGE VOLUME
2 YEAR	32 CFS	118 CFS	24.5 CFS	442.53	5.45 AC-FT
10 YEAR	90 CFS	214 CFS	89 CFS	443.55	36.4 AC-FT
100 YEAR	164 CFS	322 CFS	157.5 CFS	444.73	6.04 AC-FT
100 YEAR (ULT)		322 CFS	174.4 CFS	445.12	

Note:
 For construction of W.Q. Facilities #12 & #13 see sheet 9, & 6.

OPERATION, MAINTENANCE AND INSPECTION

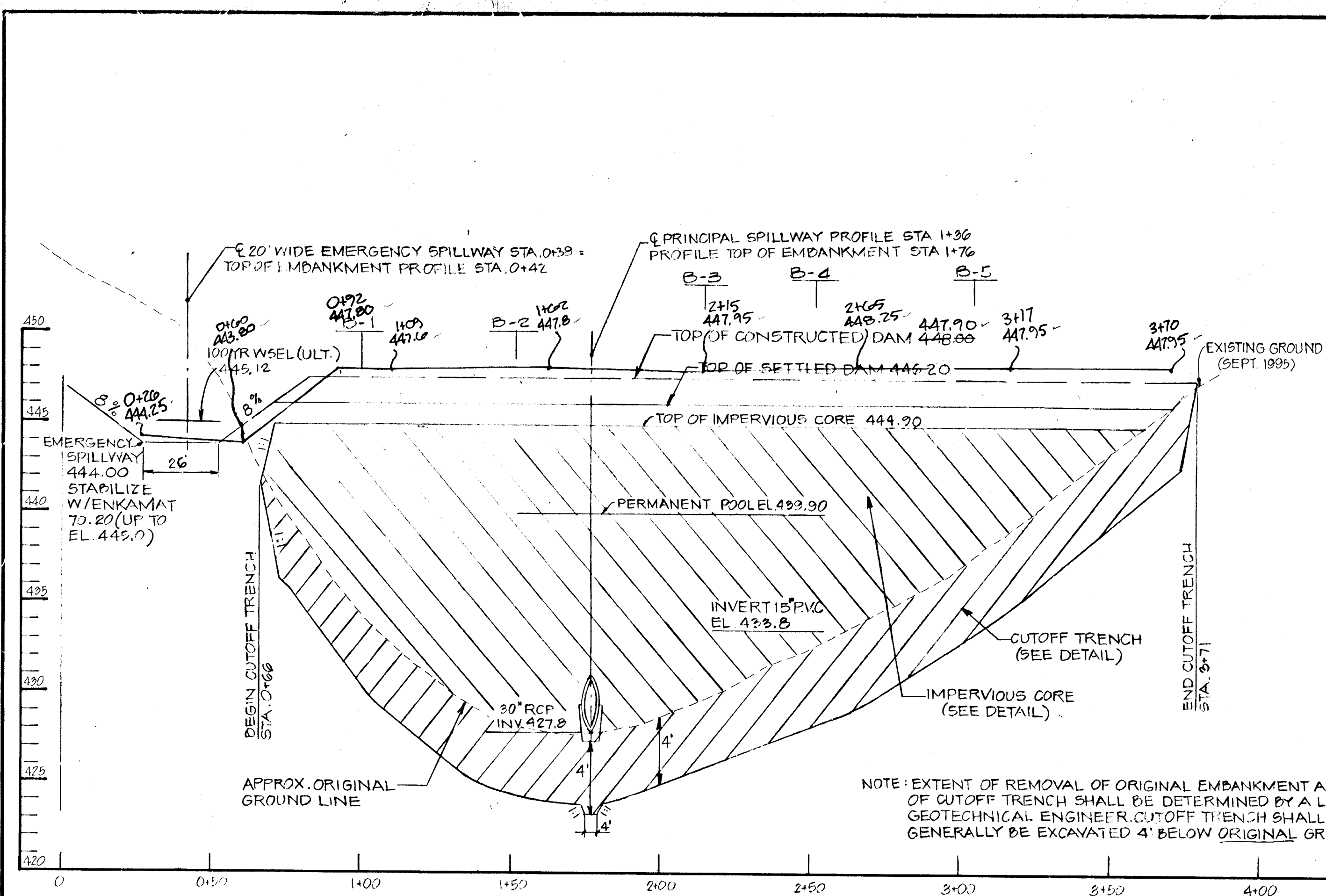
Inspection of the pond(s) shown herein shall be performed at least annually, in accordance with the checklist and requirements contained within in USDA, SCS "Standards And Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of 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.

LEGEND

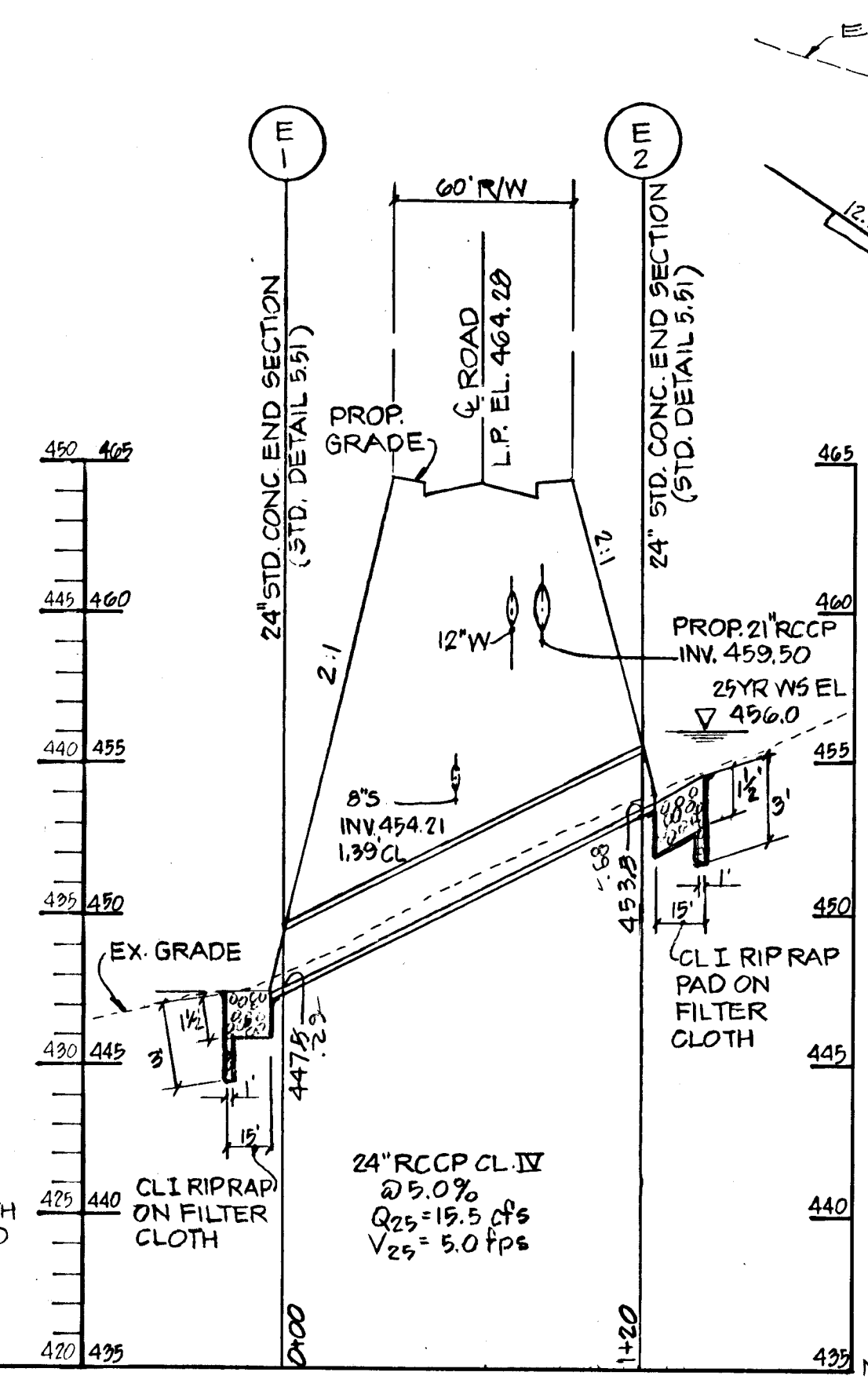
- 440 PROPOSED CONTOURS
- 440 EXISTING CONTOURS
- LIMIT OF ENKAMAT 7020
- SSF SUPER SILT FENCE
- LIMIT OF DISTURBANCE

NOTE: TREES, SHRUBS OR OTHER WOODY VEGETATION IS NOT PERMITTED WITHIN 50' OF THE INLET STRUCTURE IN THE POOL AREA AND 15' OF THE EMBANKMENT.

1487



TOP OF EMBANKMENT PROFILE
SCALE: HORIZ: 1"=30'
VERT: 1"=5'



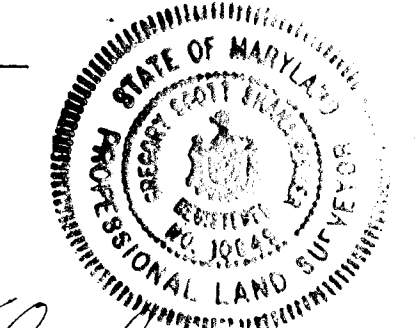
TYPICAL EMERGENCY SPILLWAY
CROSS-SECTION
NOT TO SCALE

Maintenance Requirements

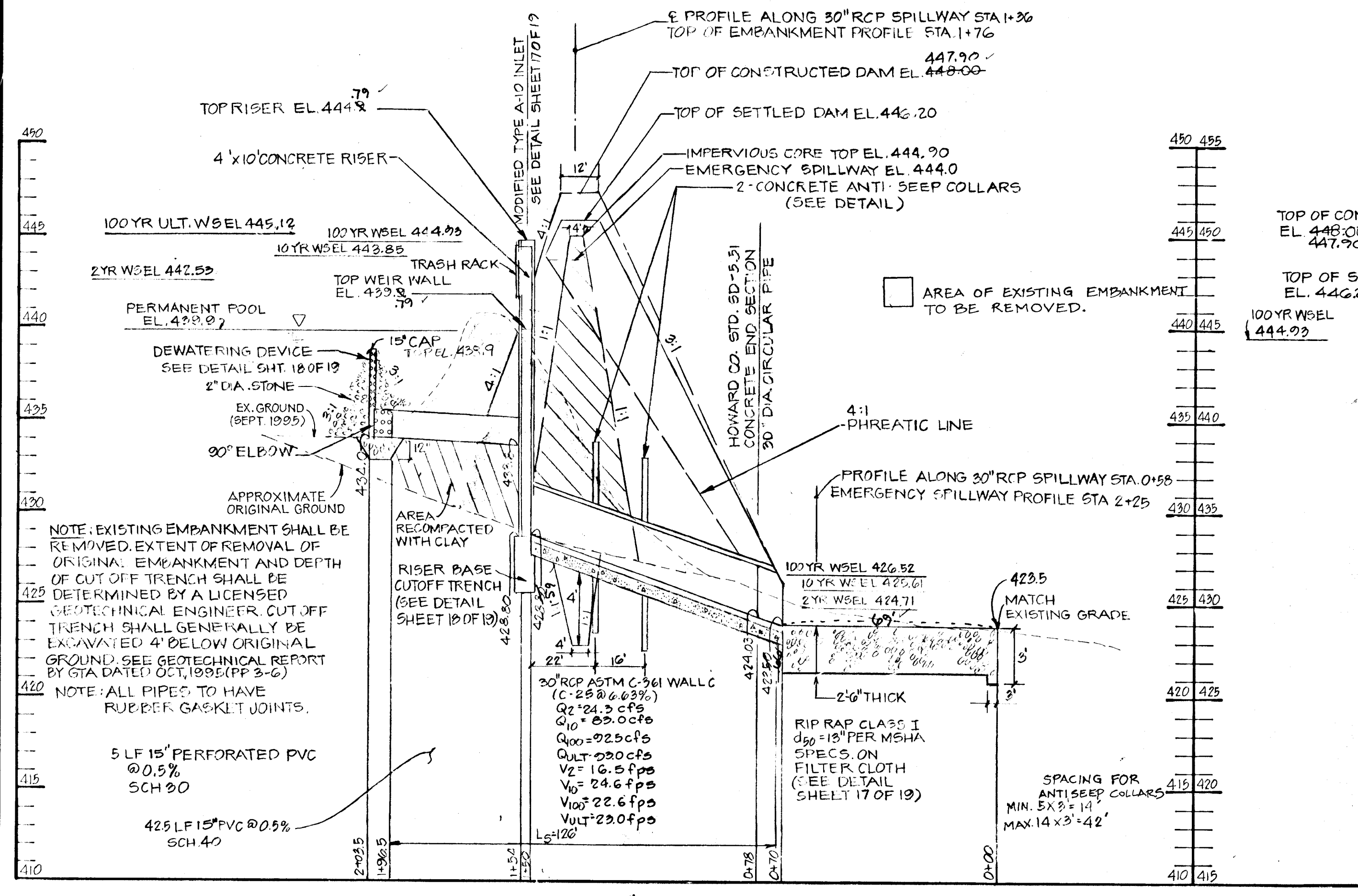
1. Owner shall remove silt when accumulation exceeds six (6) inches in forebay.
2. Remove accumulated paper, trash and debris as necessary.
3. Vegetation growing in embankment top and faces of the forebay or basin shall be cut back when height reaches 18 inches.
4. Annual inspection shall be made on or about June of each year and repairs if any, shall be done at that time. Cosmetic and landscaping items not performed by Howard County Dept. of Public Works will be the responsibility of the Columbia Association. Structural and scheduled cosmetic/aesthetic items will be the responsibility of the Howard County Dept. of Public Works.

NOTE: ANY WATER ENCOUNTERED DURING CONSTRUCTION OF THE CORE TRENCH SHALL BE REMOVED BY PUMPING.

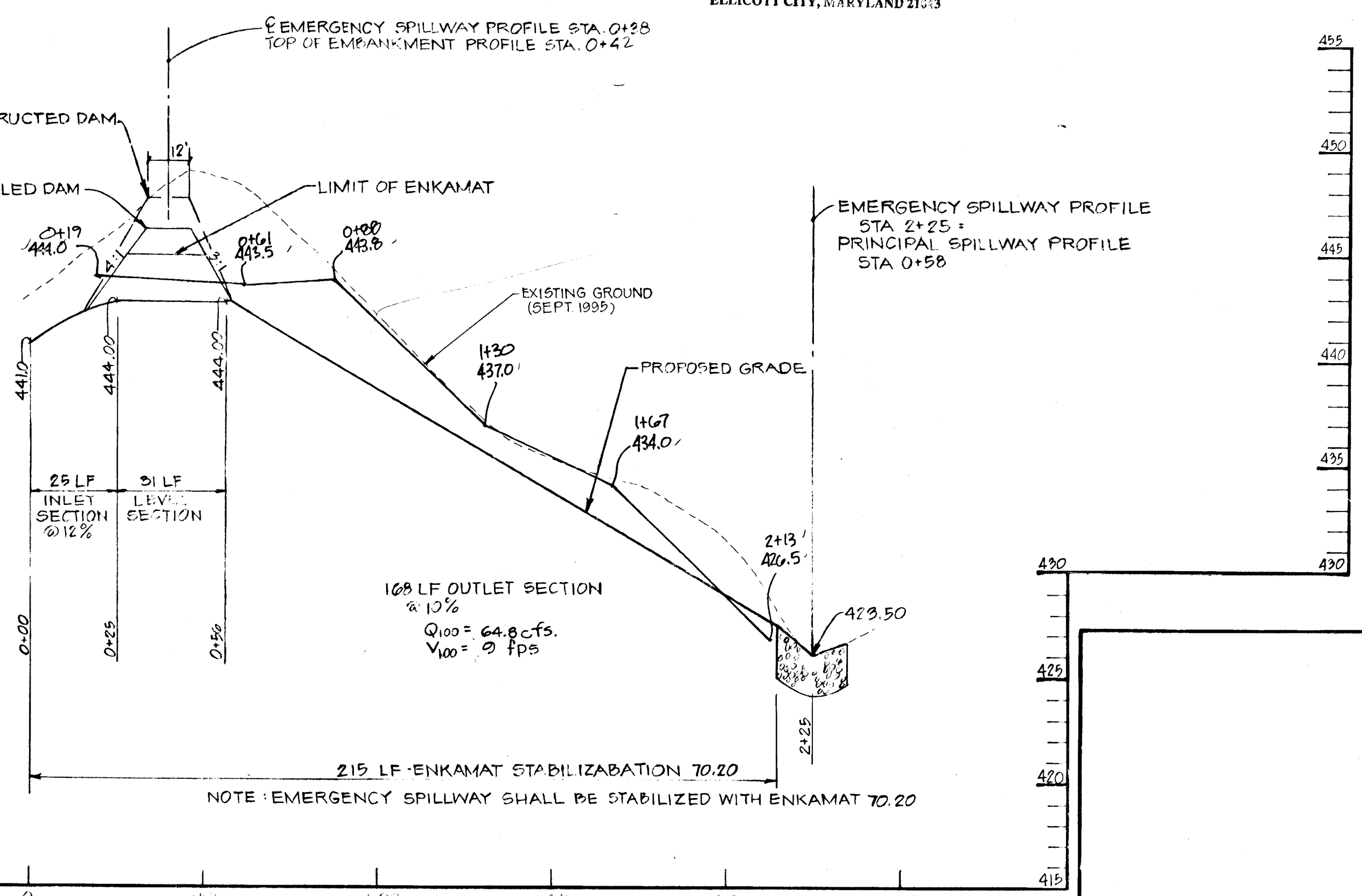
AS-BUILT



SHANABERGER & LANSING
7726 TOWN & COUNTRY BLVD.
SUITE 104
ELLICOTT CITY, MARYLAND 21113



PROFILE ALONG 30" RCP SPILLWAY
SCALE: HORIZ: 1"=30'
VERT: 1"=5'



EMERGENCY SPILLWAY PROFILE
SCALE: HORIZ: 1"=30'
VERT: 1"=5'

By the Developer:
"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 the Howard Soil Conservation District."

DEVELOPER: (GREGORY R. KLAR) 8/6/96
By the Engineer:
"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."
Donald N. Mitten 8-8-96
ENGINEER (DONALD N. MITTEN) DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
J. D. Warfield Jr. 8/30/96
NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Roberta W. Ziehm 8/30/96
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Ducker 9-9-96
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood 9/23/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

APPROVED: 9/1/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NO.	REVISION
4-17-97	1	REV. ELEV. PN
4-18-97	2	ADDED 24" RCP PROFILE PN

OWNER/DEVELOPER
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL
SECTION 4, AREA 5

AREA: TAX MAP NO. 35 ZONING: NEW TOWN
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

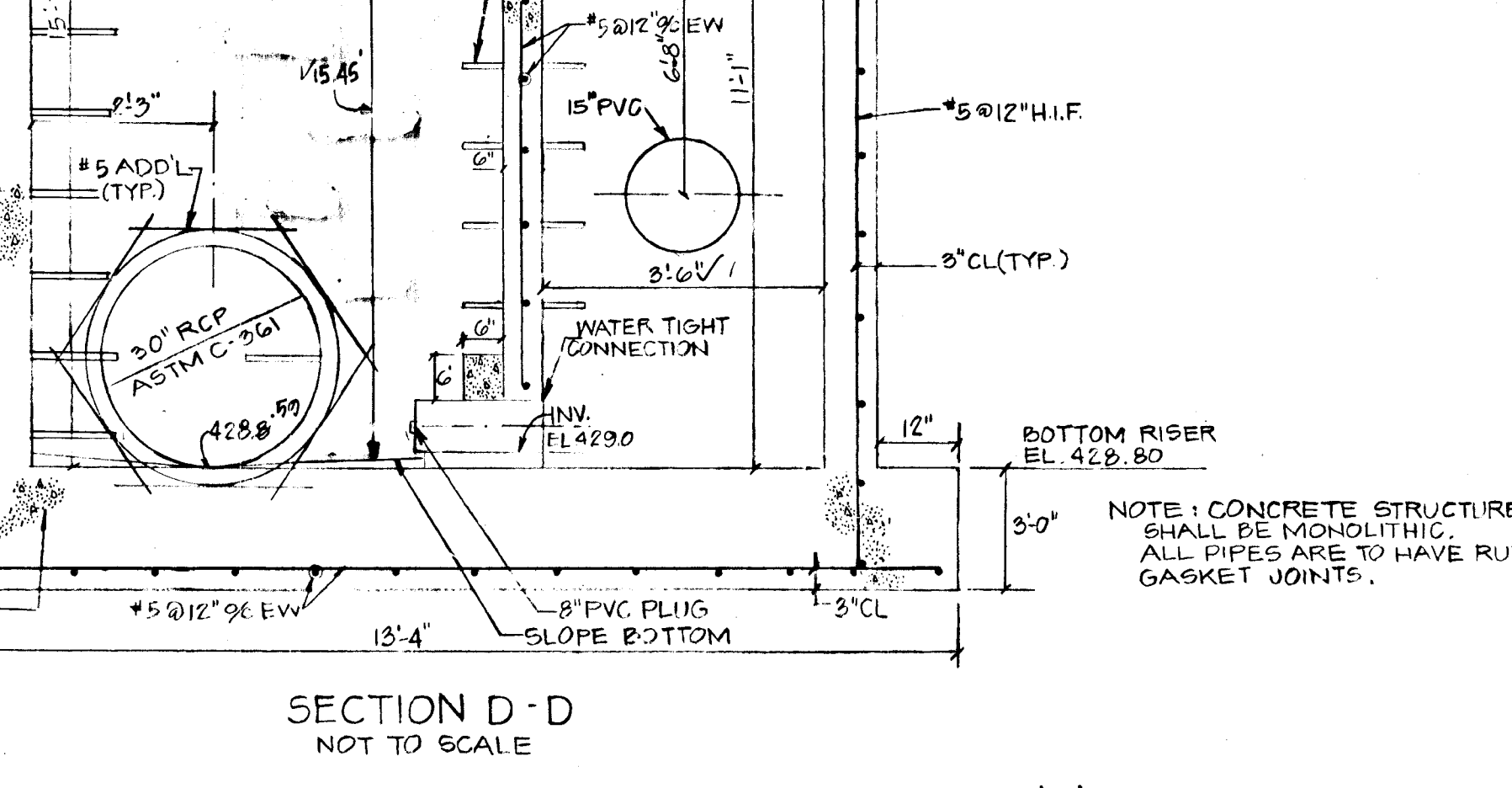
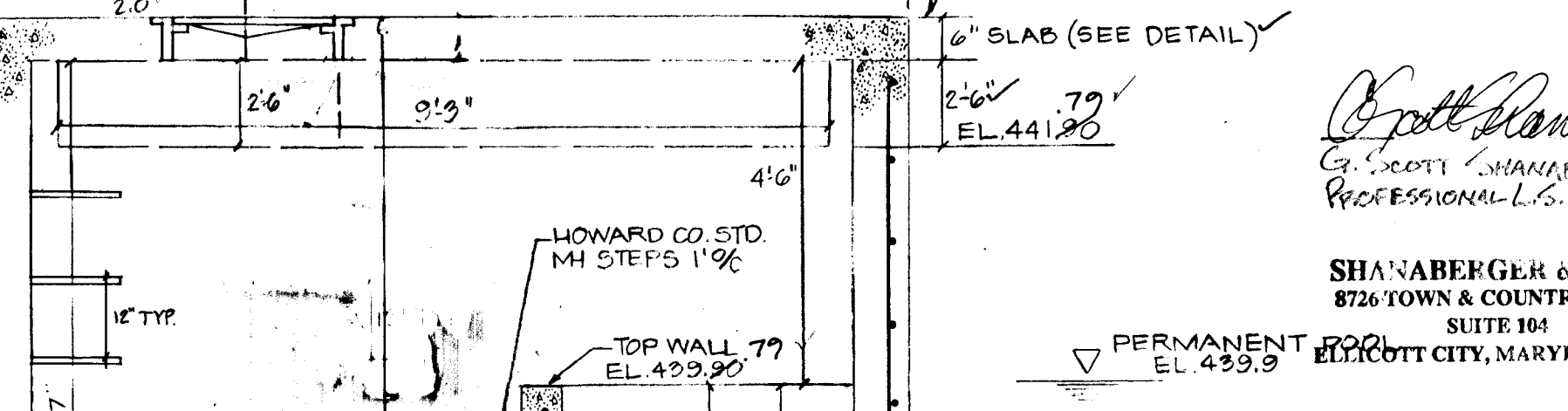
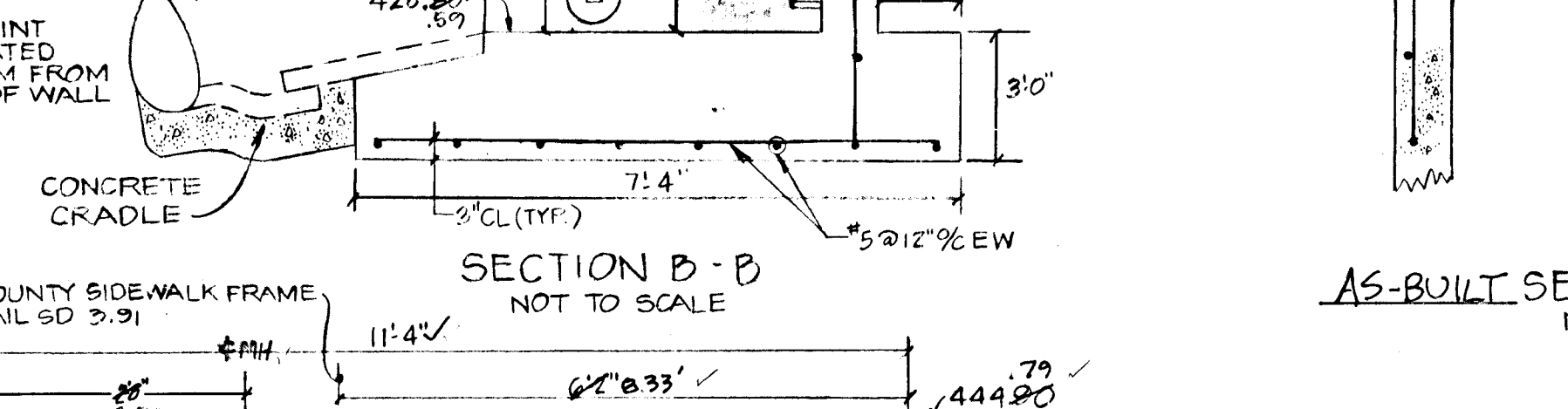
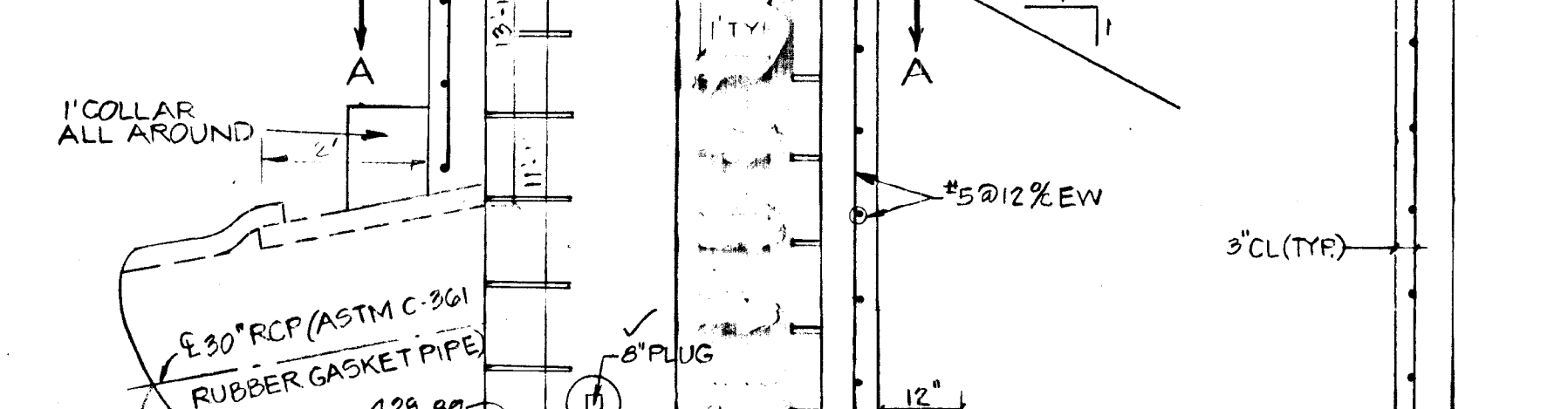
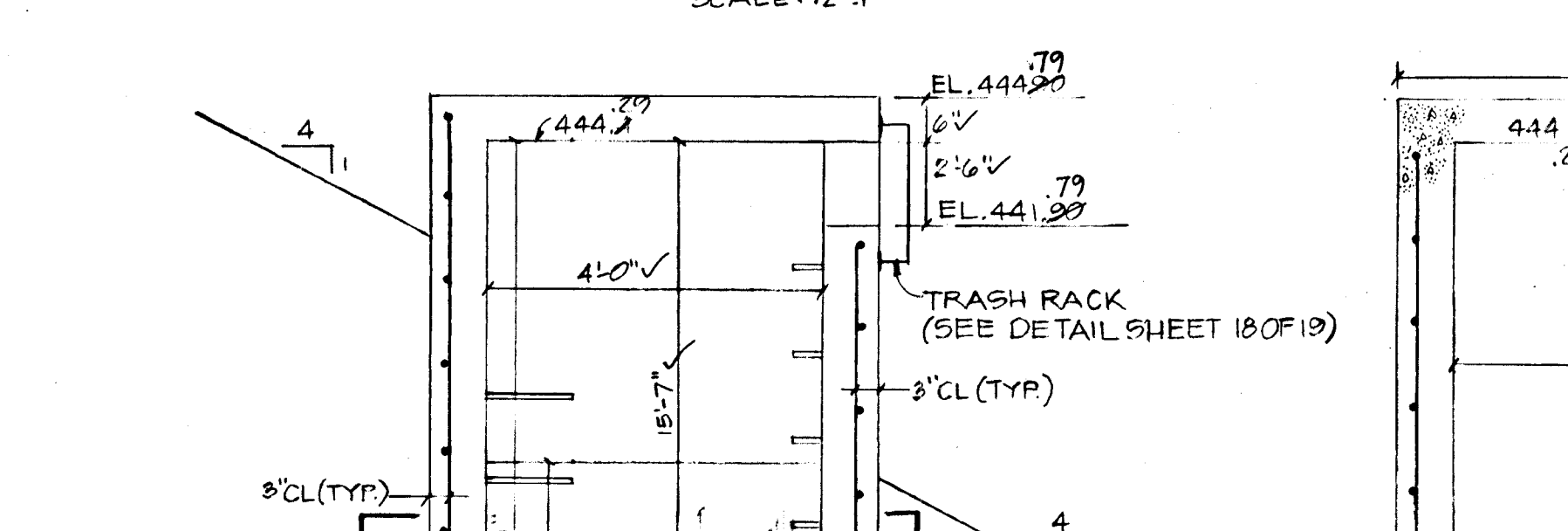
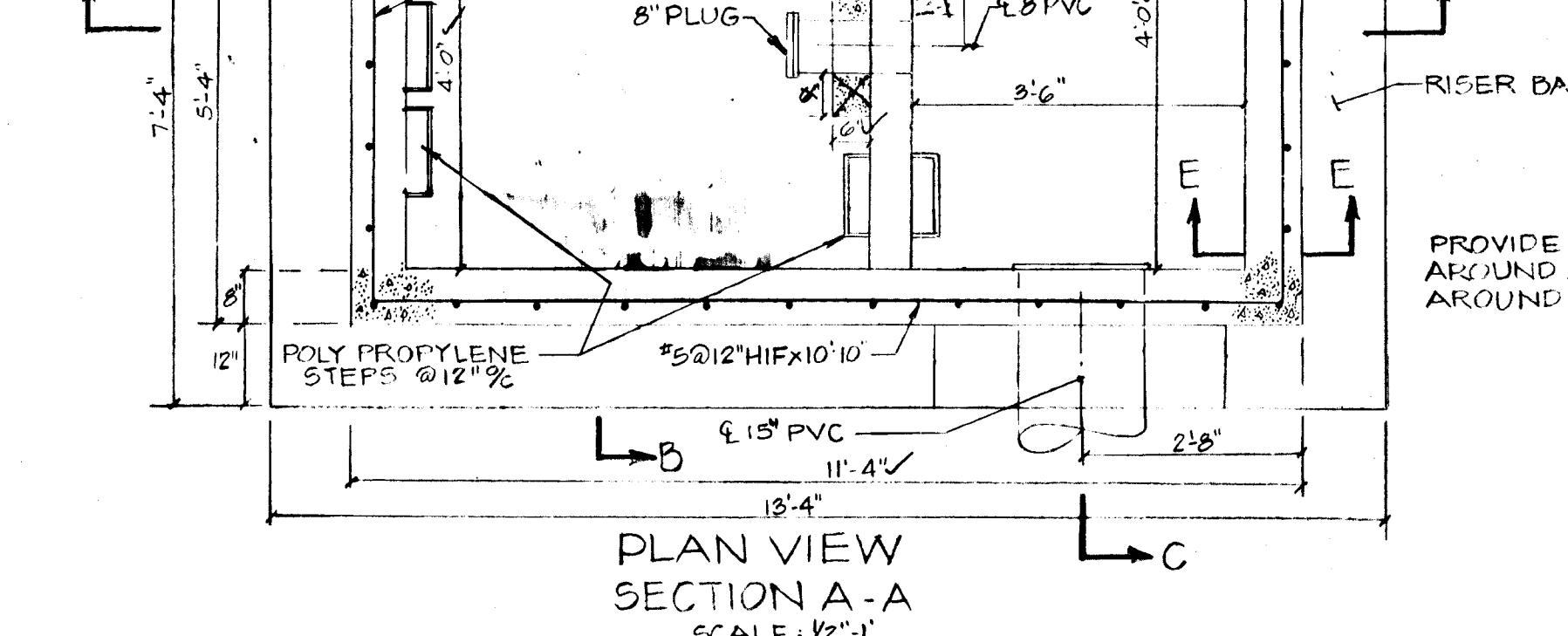
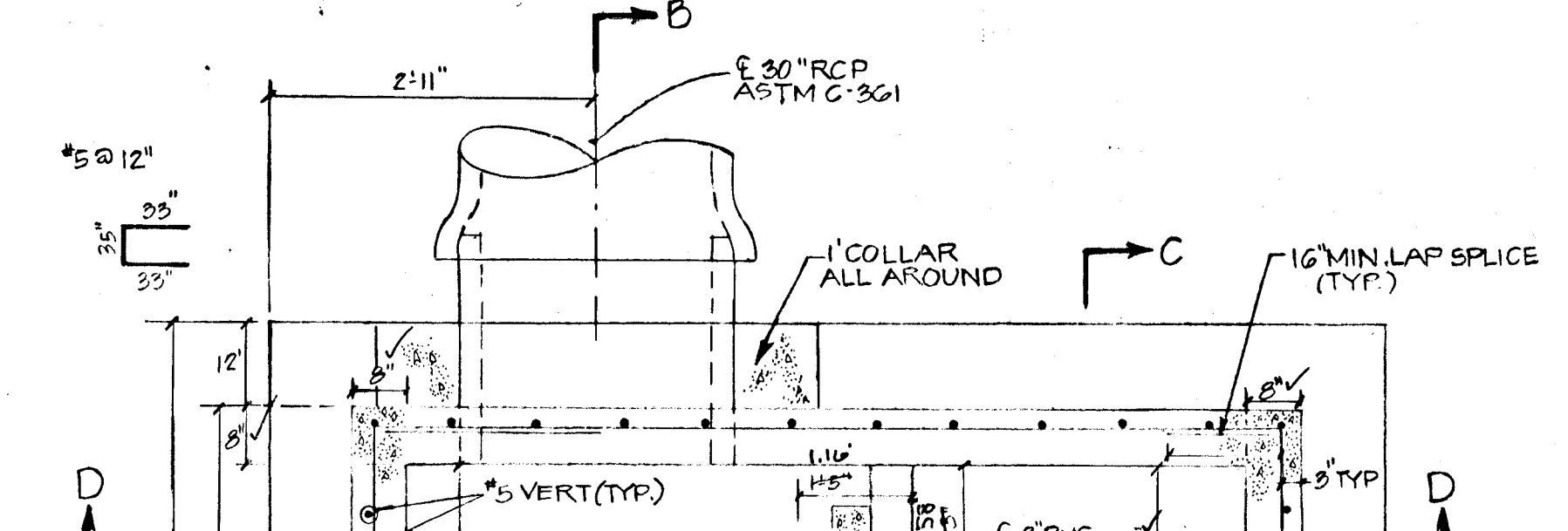
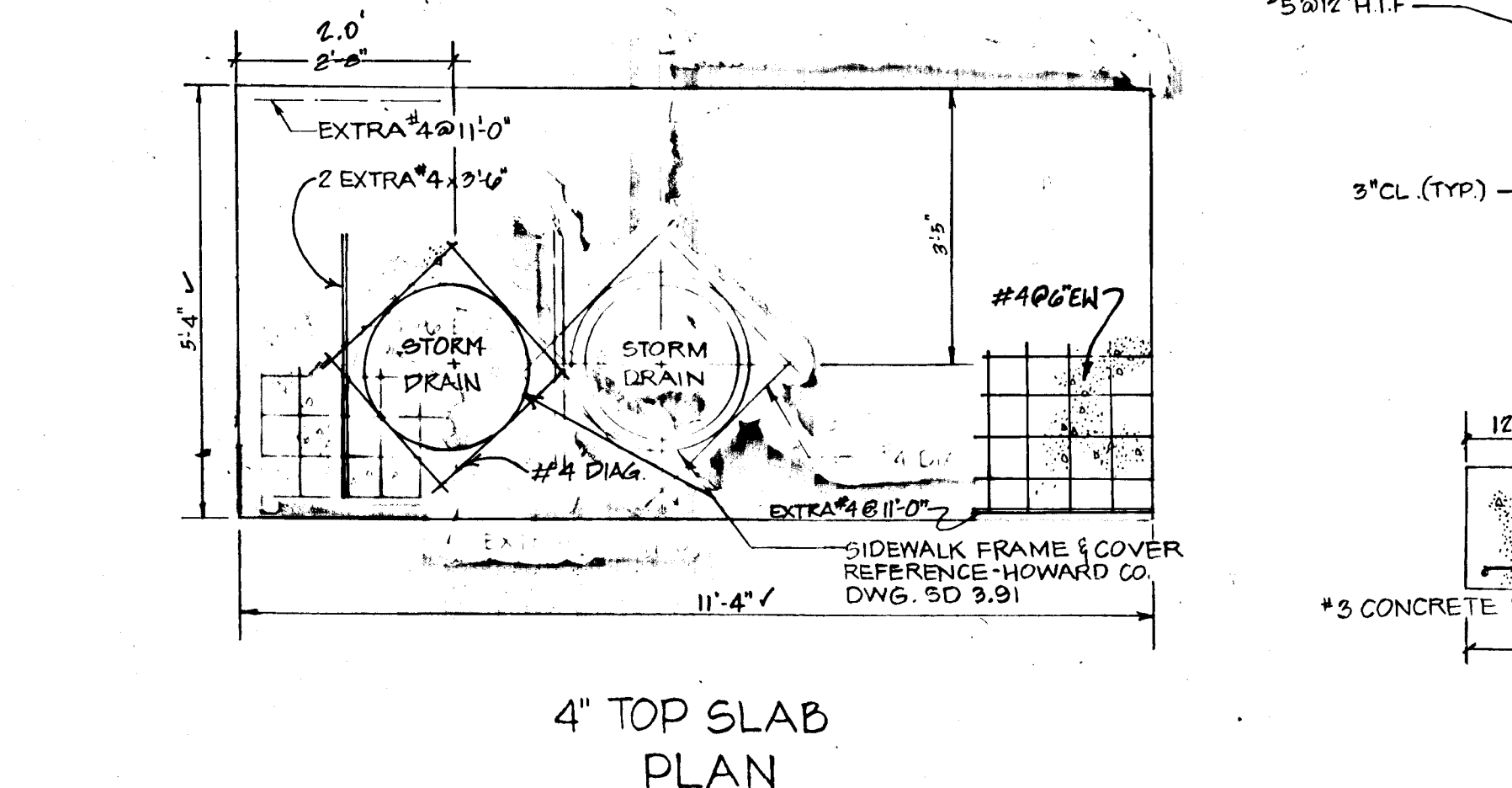
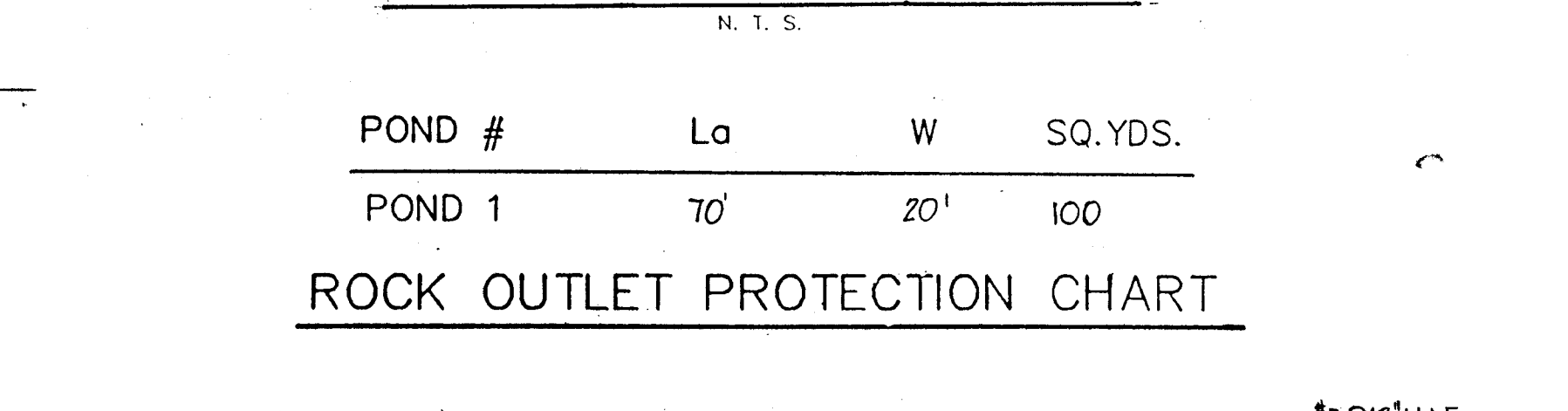
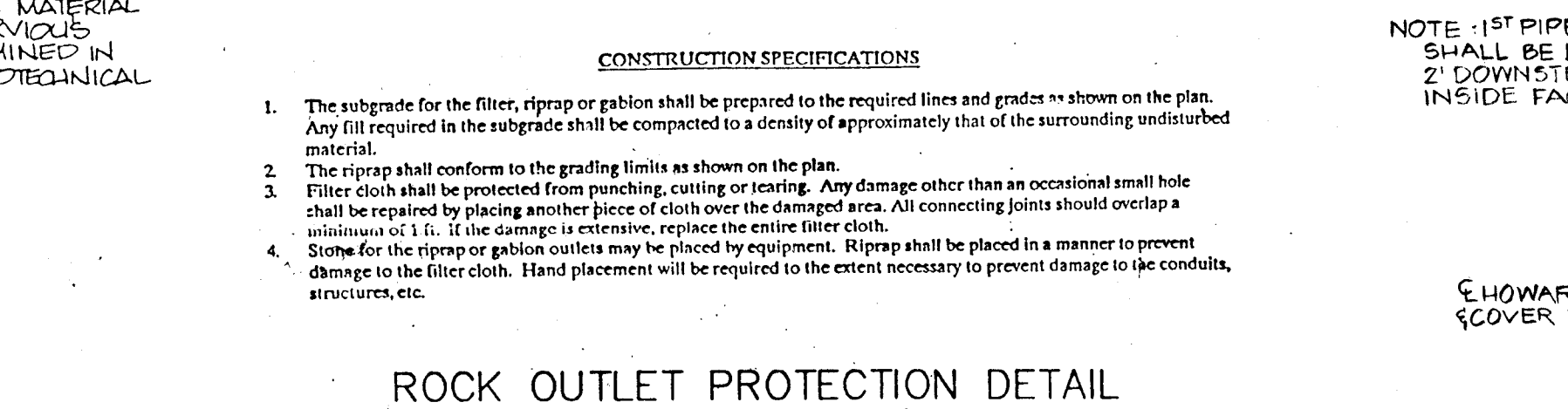
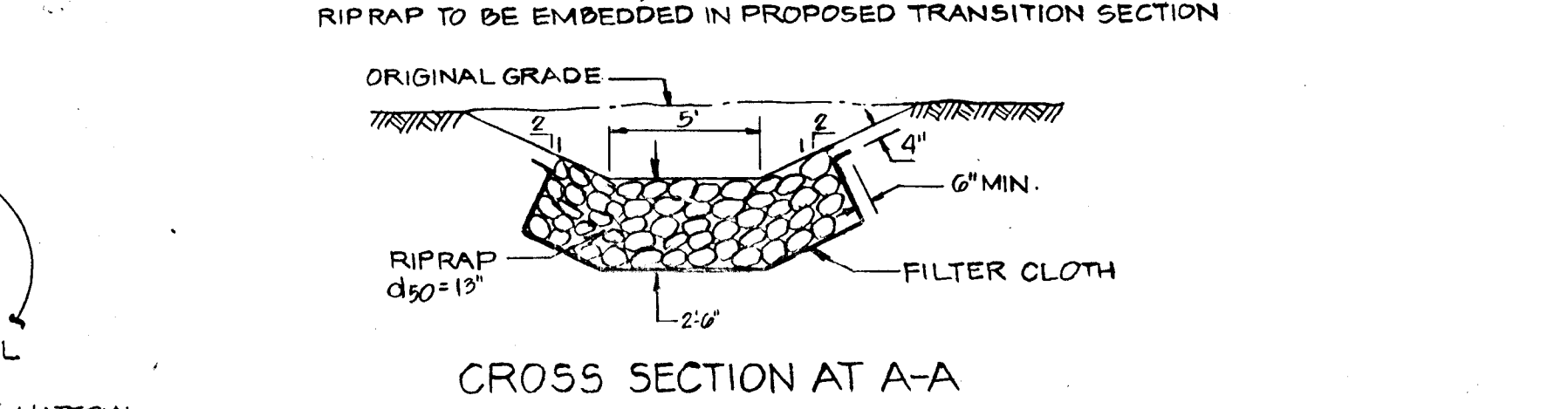
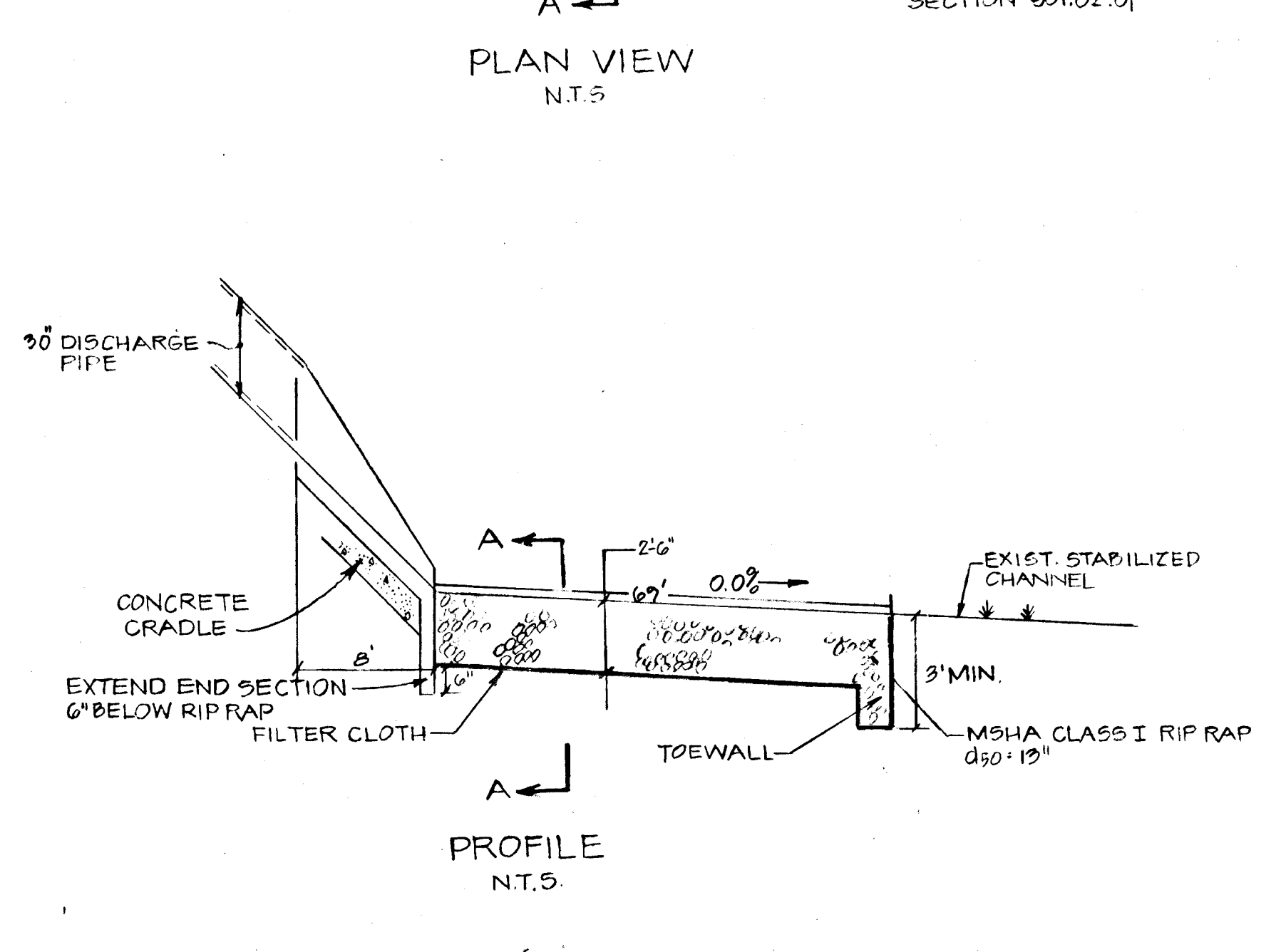
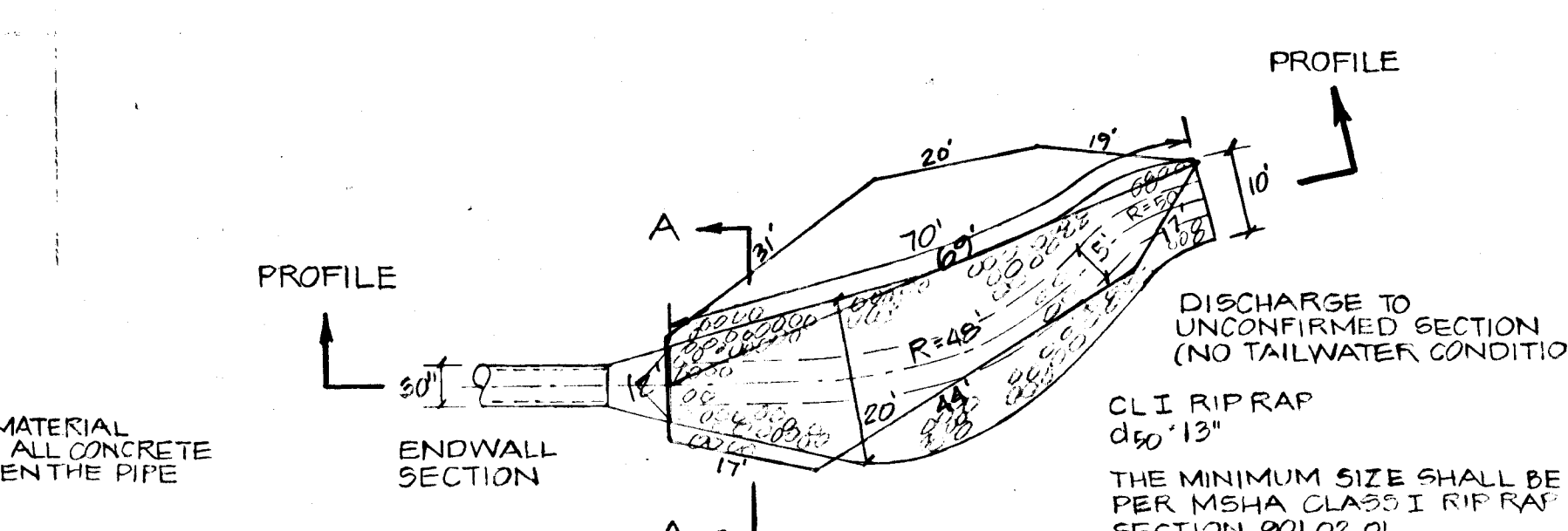
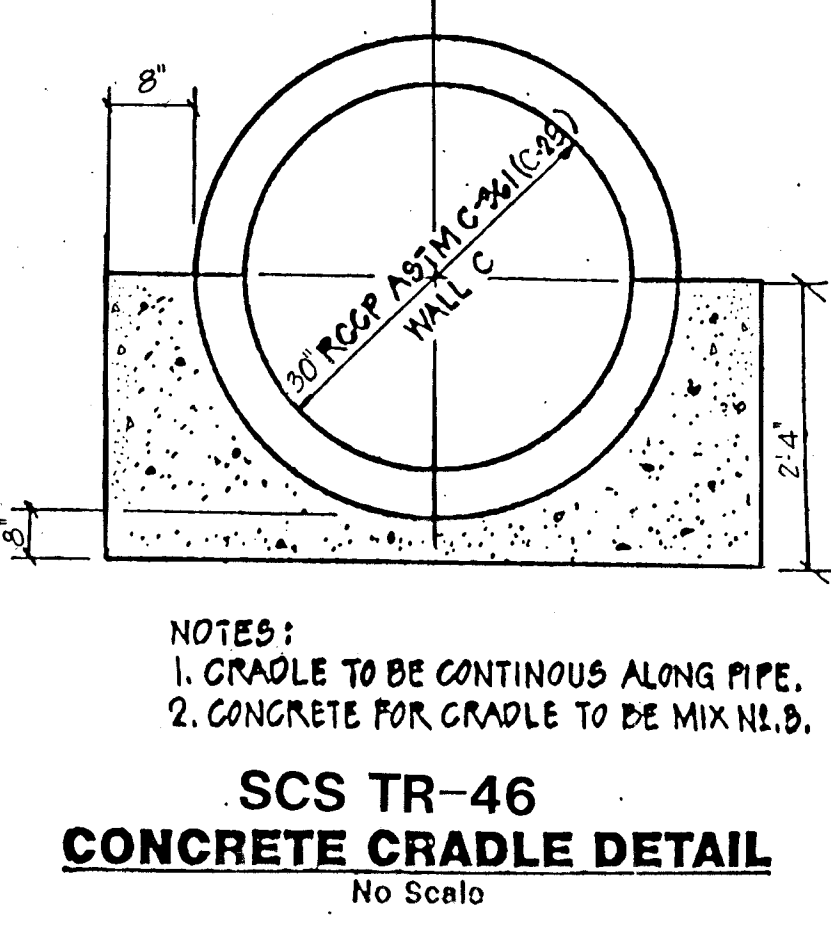
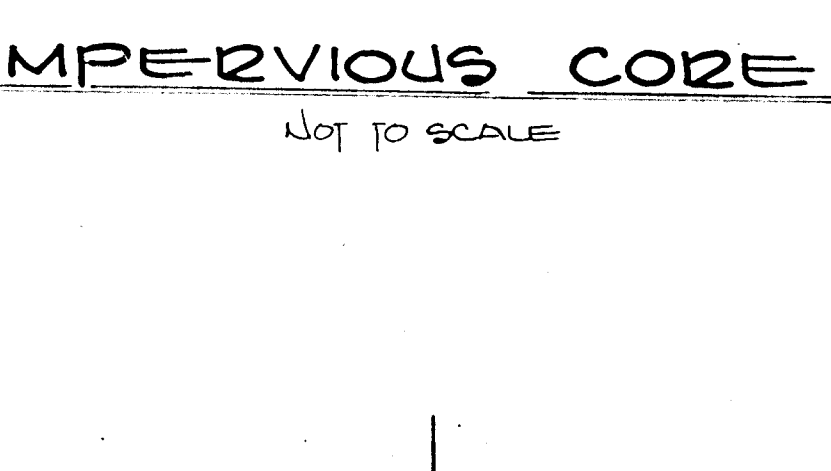
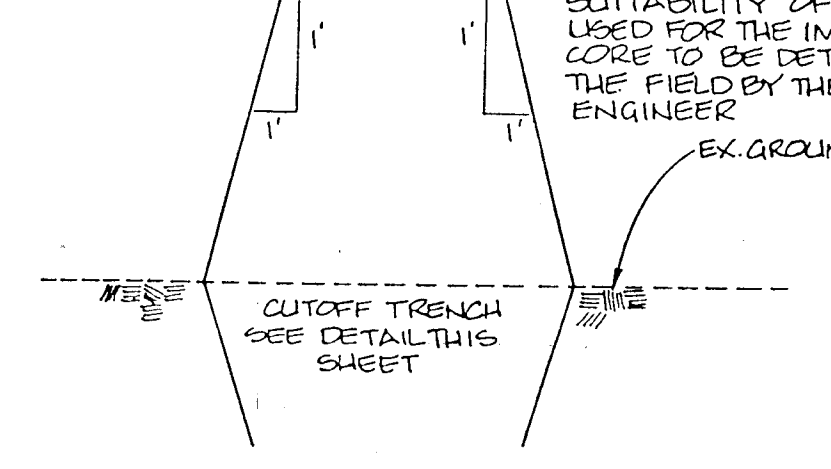
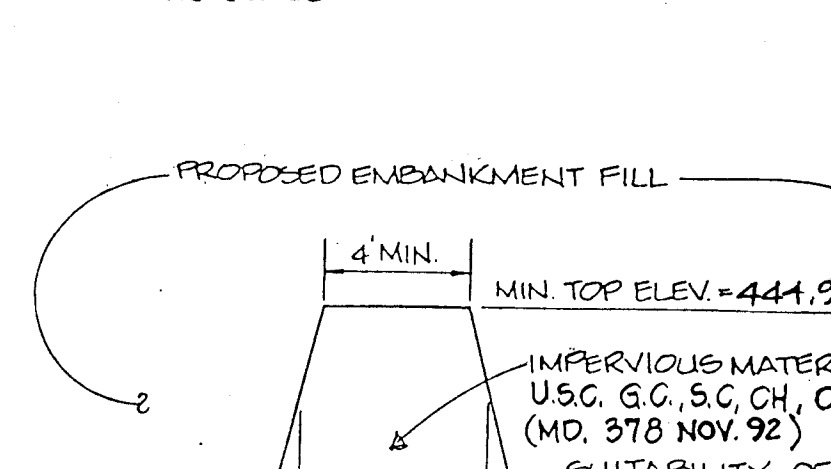
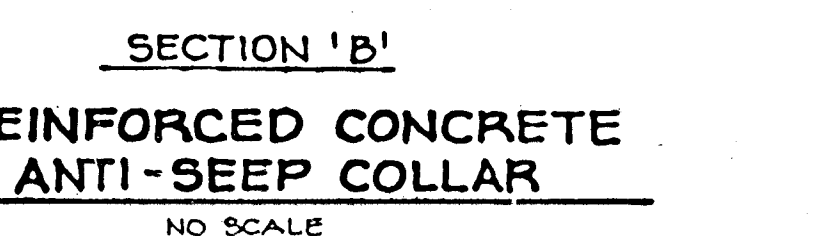
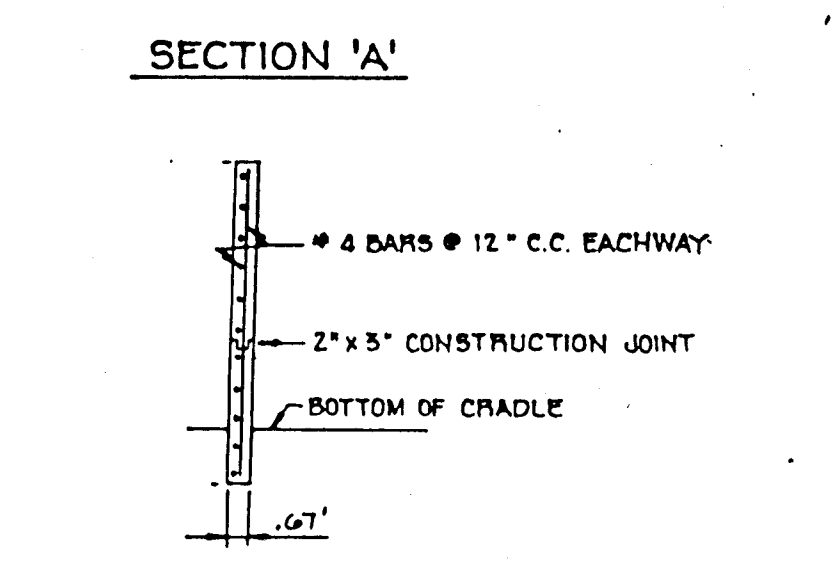
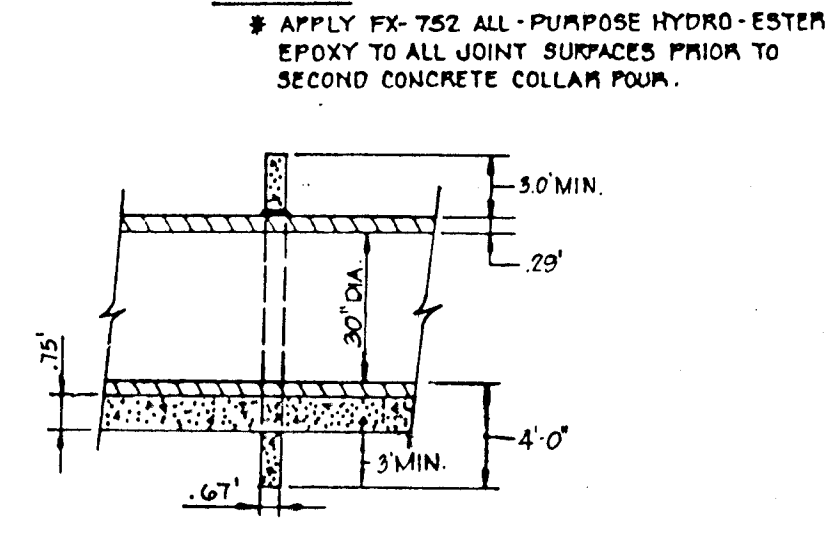
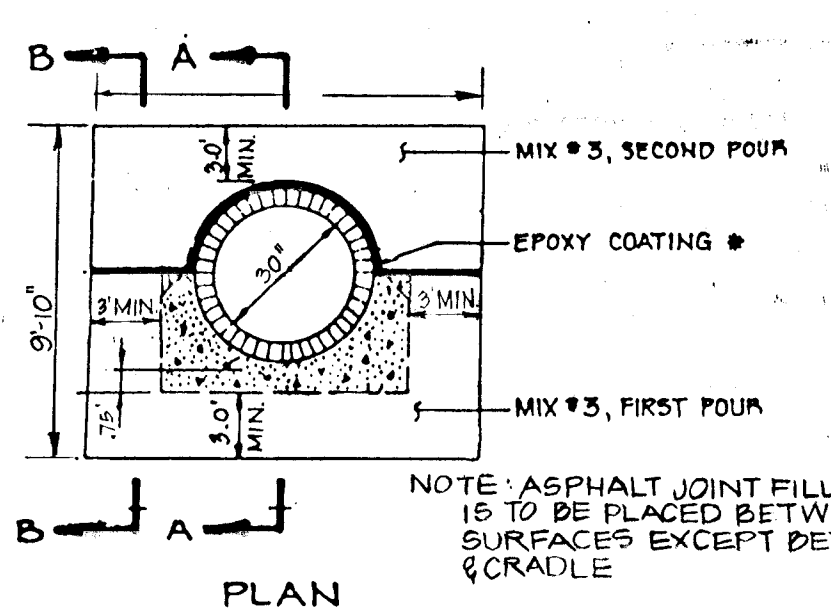
TITLE: STORMWATER MANAGEMENT PROFILES

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
110 WEST ROAD SUITE 105
TOWSON, MARYLAND 21204
(410) 821-1690
FAX (410) 821-1748

8-8-96
DATE
DESIGNED BY: R.L.R.
DRAWN BY: J.A.G.
PROJECT NO.: 9927
DATE: OCTOBER, 1996
SCALE: AS SHOWN
DRAWING NO. 16 OF 19

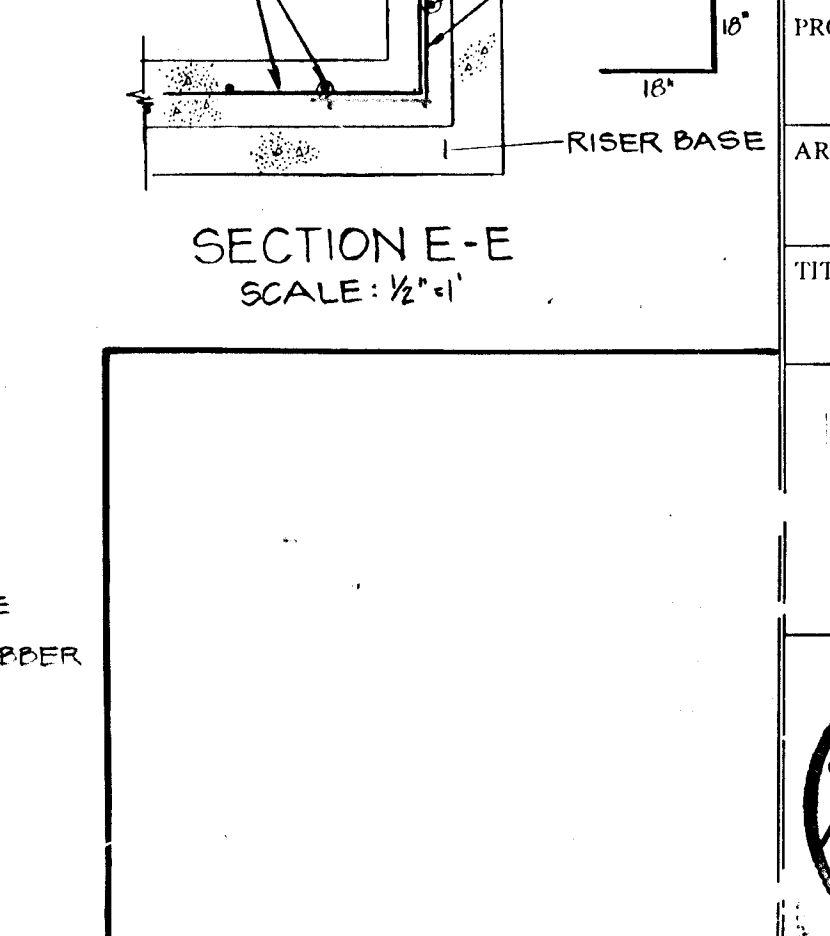
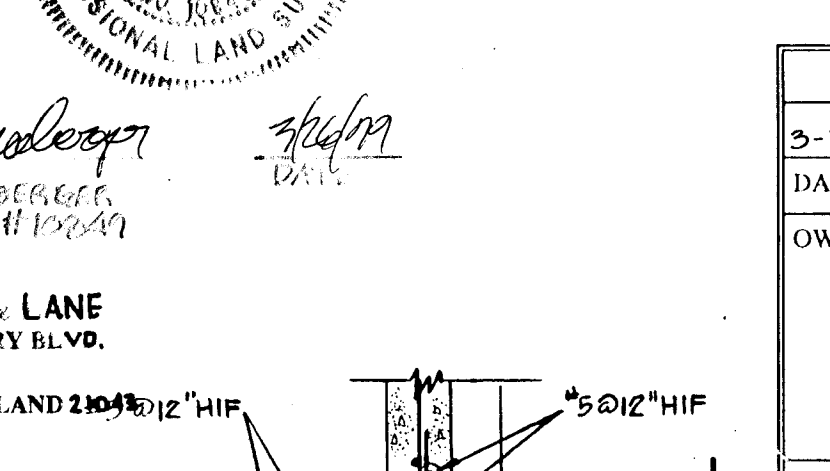
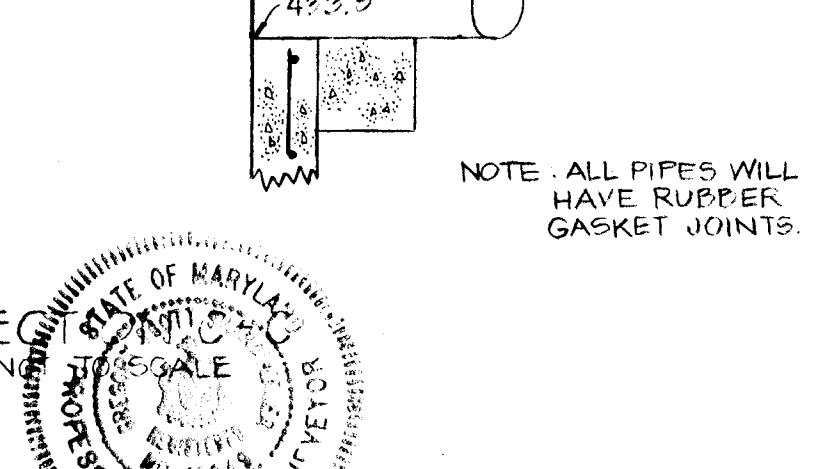
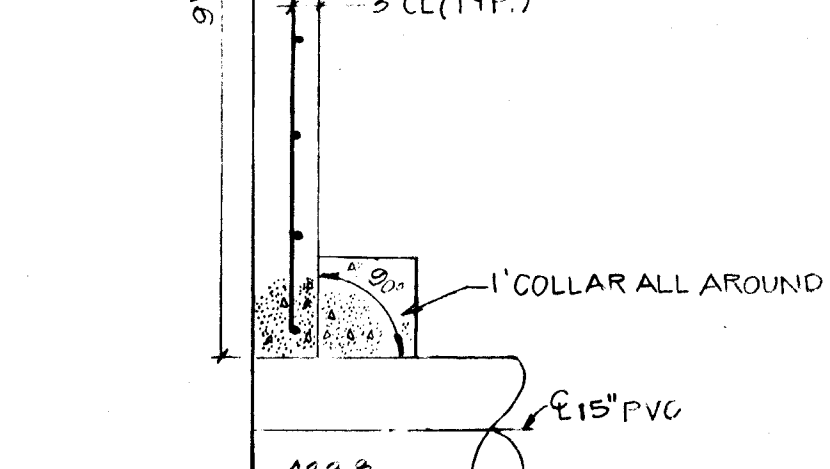
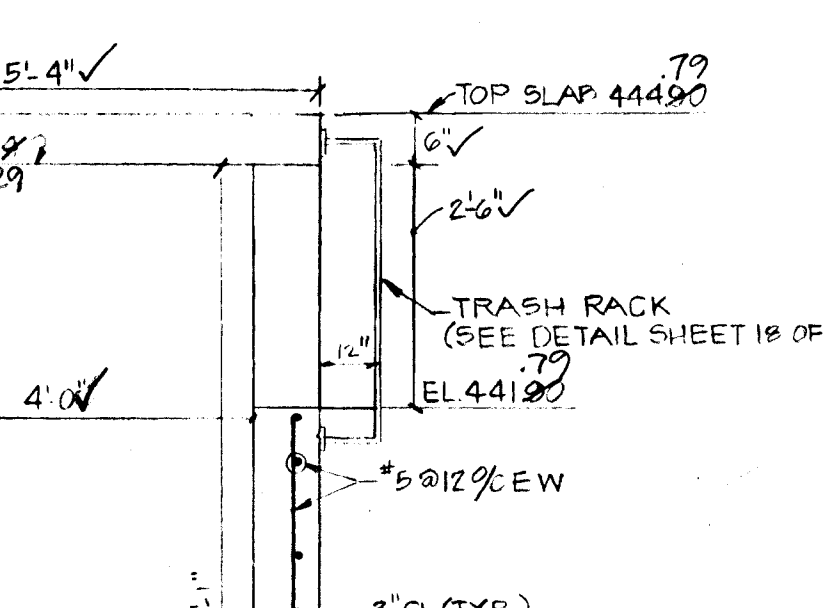
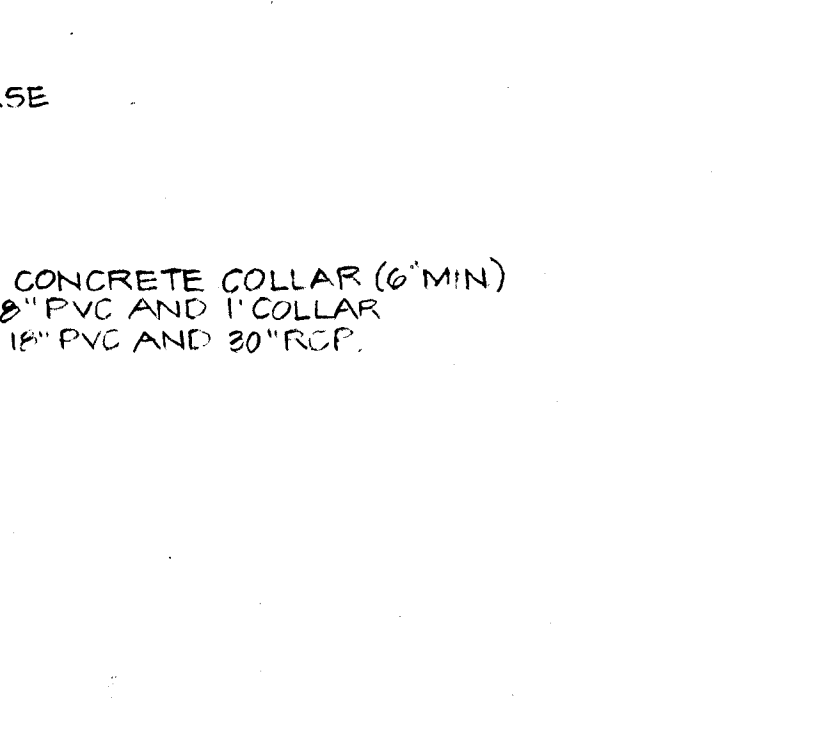


1487



NOTES:

- CONCRETE SHALL CONFORM TO MARYLAND DOT STANDARD SPECIFICATION FOR CONSTRUCTION & MATERIALS 1982, MIX NO. 6. IN ADDITION, $f_c = 4500$ PSI @ 28 DAYS, CEMENT SHALL BE TYPE II, AND #3 COARSE AGGREGATE SHALL BE USED.
- POLYPROPYLENE STEPS SHALL BE TYPE PS 4 OR PS 5 AS MANUFACTURED BY M.A. INDUSTRIES, INC. STEP SHALL BE INSTALLED IN LINE WHERE A > 3'-6" (SEE G 5.21)
- REFERENCE DRAWING FOR TYPE A-10 INLET IS HOWARD COUNTY STANDARD DRAWING NO. SD 4.02
- REINFORCING SCHEDULE IS BASED ON USD METHOD AND DESIGN LOADS AS SPECIFIED IN AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, 13th EDITION, 1983 AND INTERM SPECIFICATIONS.
- WEIGHTS: 4" TOP SLAB WT. = 2,000*
 MAX. INLET BOX WT. = 24,000* (10' HEIGHT, I.D.)
 RISER WT/VF = 2,000*VF



By the Developer:
 "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 the Howard Soil Conservation District."

Gregory R. Klar 8/8/96
 DEVELOPER (GREGORY R. KLAR) DATE

By the Engineer:
 "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."

Donald N. Mathen 8-8-96
 ENGINEER (DONALD N. MATHEN) DATE

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

J. H. Warfield Jr. 8/30/96
 HOWARD SOIL CONSERVATION SERVICE DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daveler 9-9-96
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard Blodgett 9/23/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard Blodgett 9/23/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard Blodgett 9/23/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

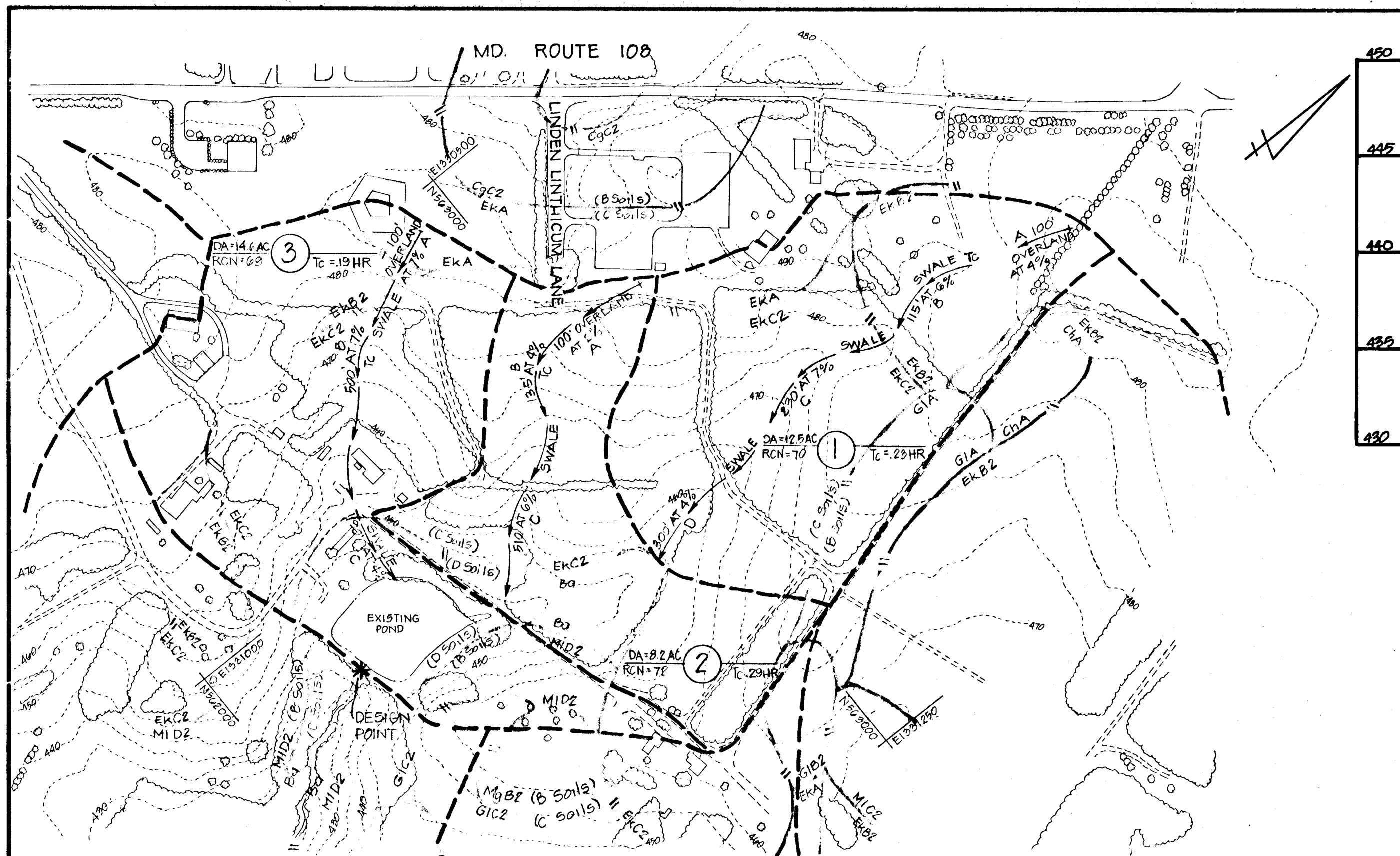
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard Blodgett 9/23/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

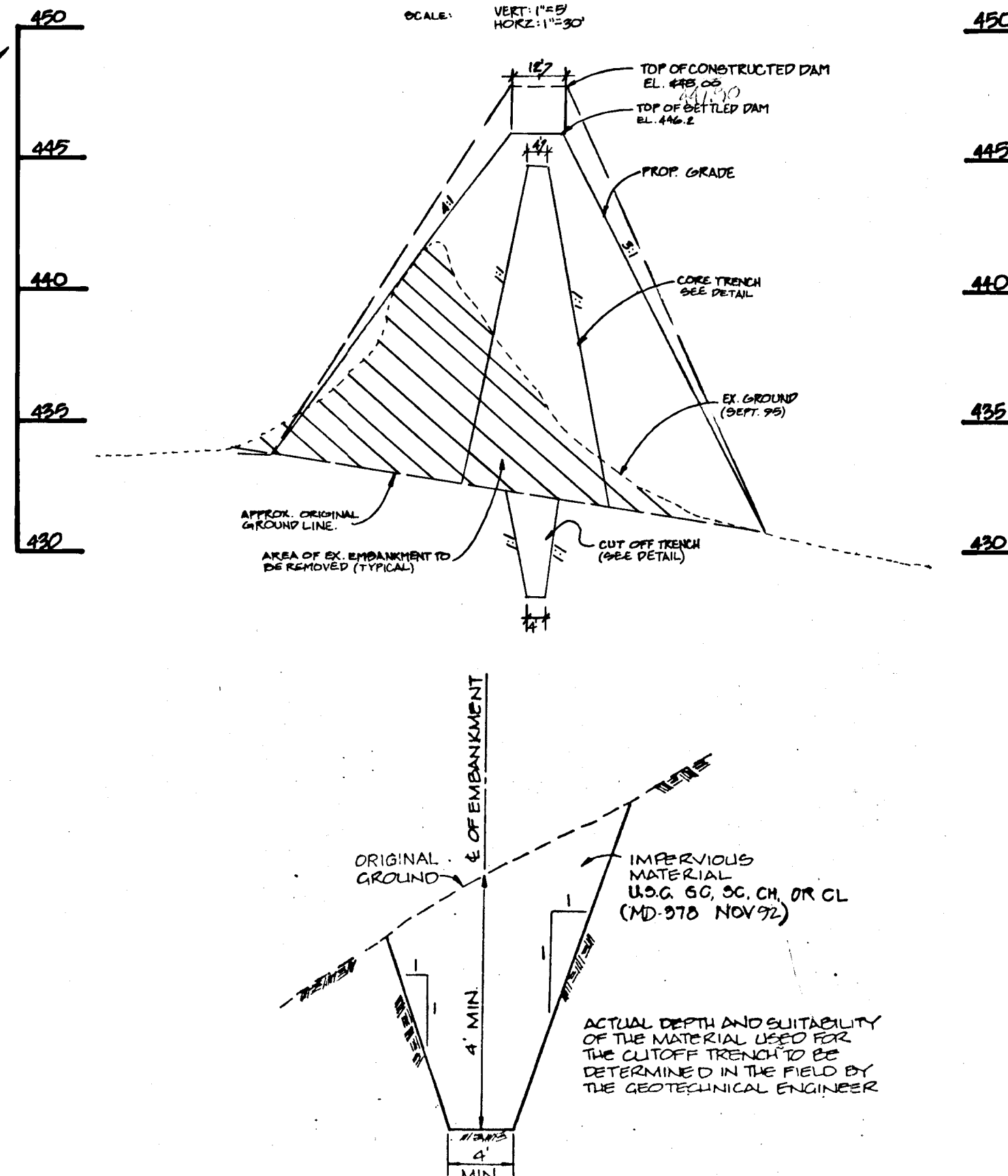
DESIGNED BY: R.L.R.
 DRAWN BY: J.A.G.
 PROJECT NO: 9927
 DATE: OCTOBER, 1995
 SCALE: AS SHOWN
 DRAWING NO. 17 OF 19

1487

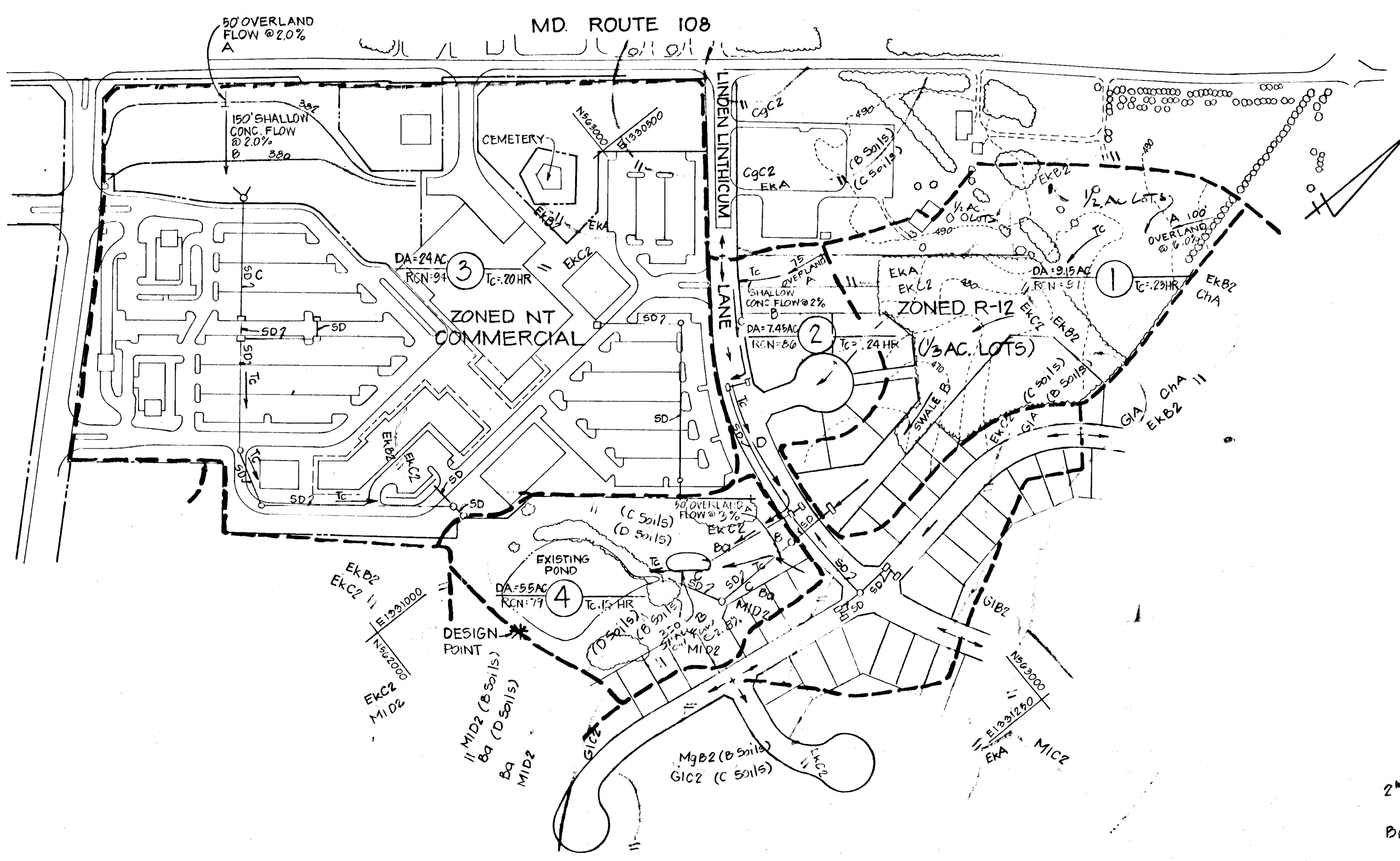
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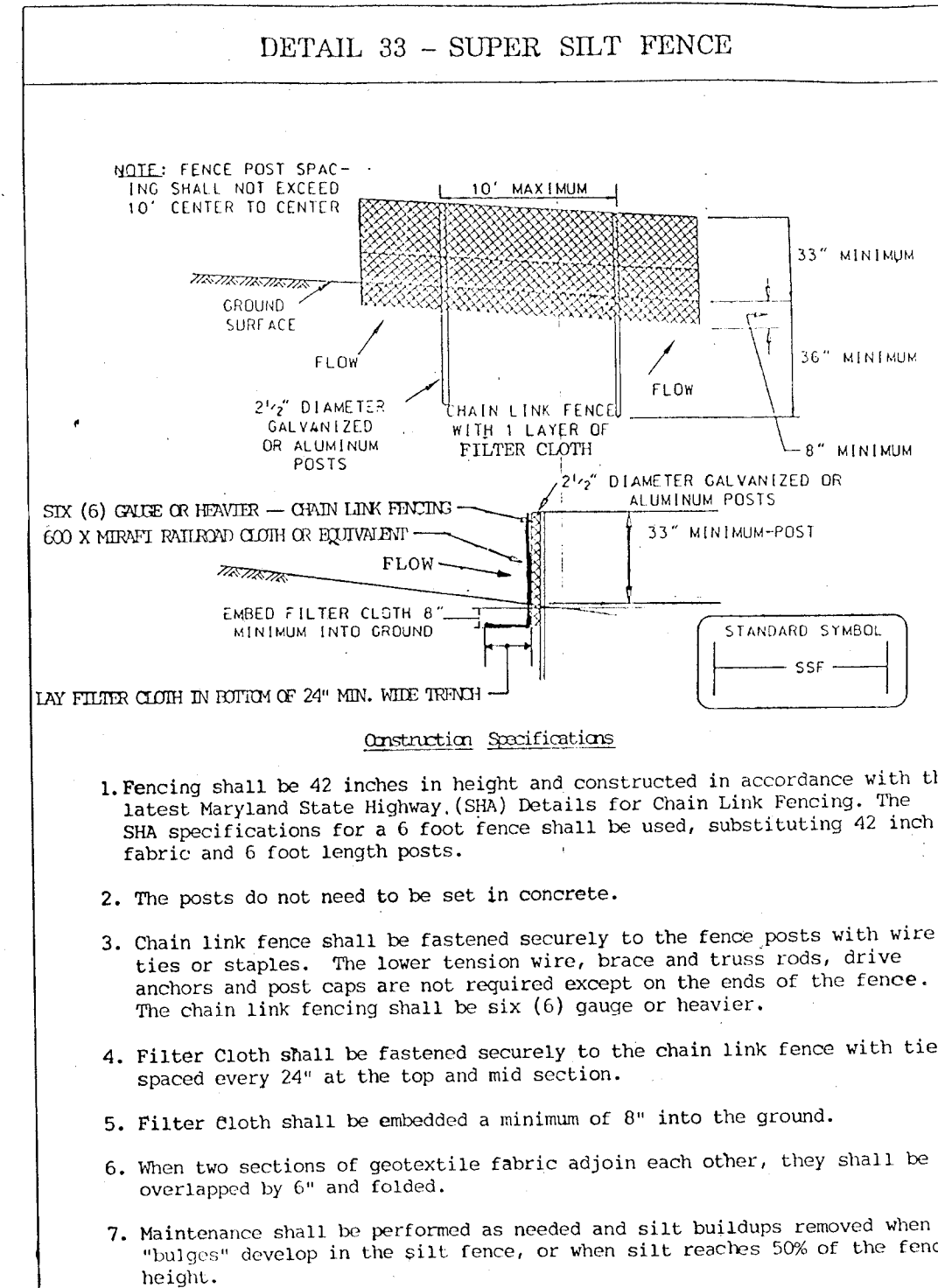
EXISTING DRAINAGE AREA MAP
SCALE: 1"=200'



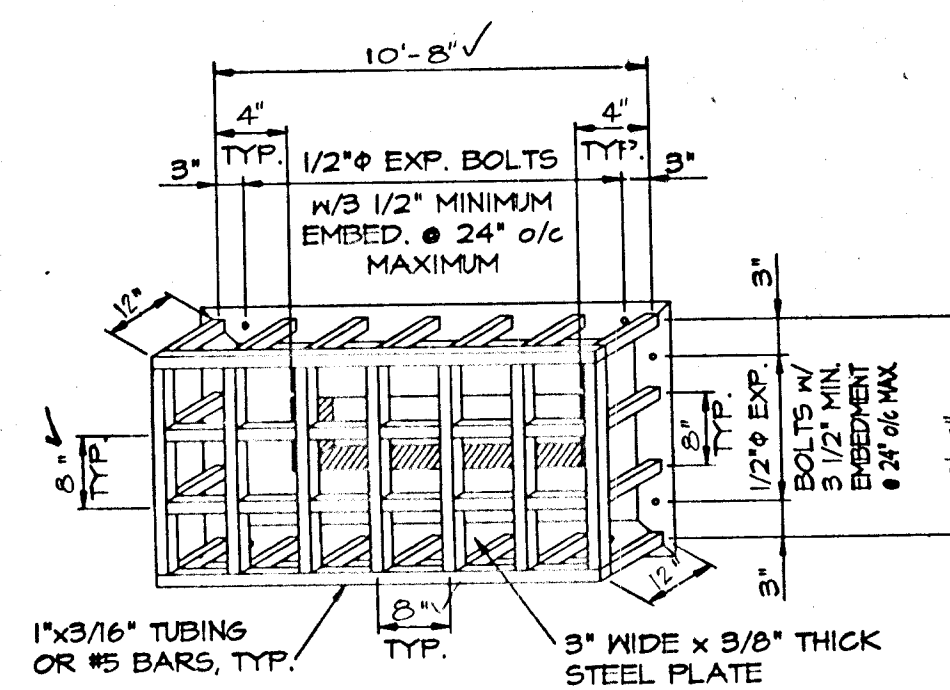
CUTOFF TRENCH
NOT TO SCALE



PROPOSED DRAINAGE AREA MAP
SCALE: 1"=200'



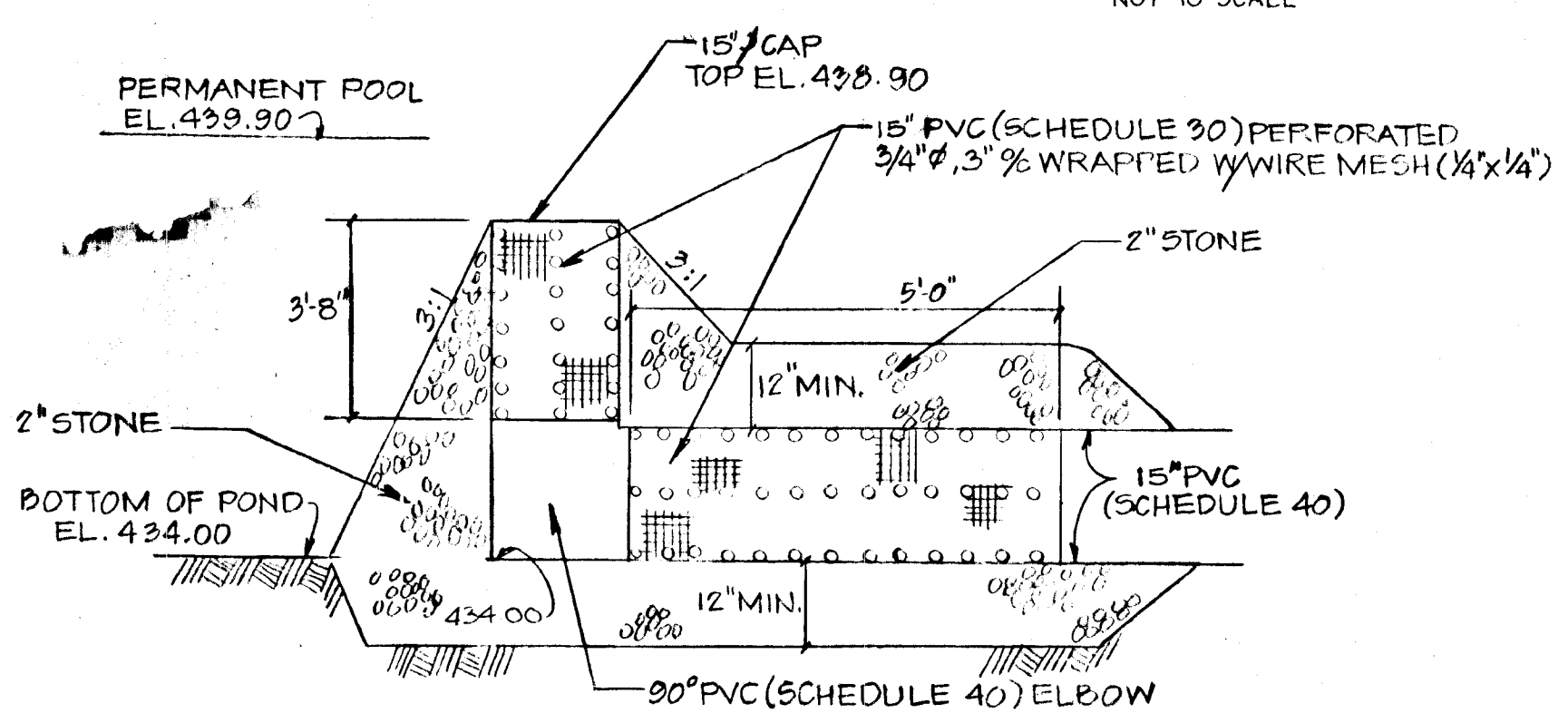
- Construction Specifications**
- Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The SHA specifications for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.
 - The posts do not need to be set in concrete.
 - Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.
 - 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 geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.
 - Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of the fence height.



TYPICAL TRASH RACK DETAIL

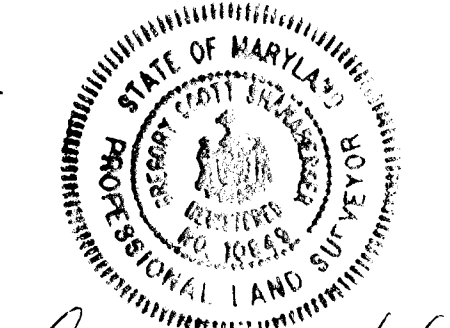
- NOTES:**
- ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND PAINTED WITH TWO COATS OF BATTLESHIP GREY PAINT.
 - #5 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.

TRASH RACK DETAIL
NOT TO SCALE



DEWATERING DEVICE
NOT TO SCALE

AS-BUILT



SHAW-BURGESS & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELICOTT CITY, MARYLAND 21043

- LEGEND**
- DRAINAGE AREA DIVIDE
 - SOIL LINE
 - TIME OF CONCENTRATION

By the Developer:
"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 day of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

By the Engineer:
"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."

8/6/96
DEVELOPER: GREGORY R. KLAR
DATE: 8/6/96
BY THE ENGINEER: DONALD N. MYLLEN
DATE: 8/30/96
DATE: 8/30/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
ANDREW M. DUEFF
CHIEF, BUREAU OF HIGHWAYS
DATE: 9-9-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
RICHARD BLOOD
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
DATE: 9/23/96

APPROVED: HOWARD COUNTY DEPARTMENT OF ENGINEERING
ALAN PRUSSER
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 9/11/96

2-17-97	1	REV. DIM. 15" PVC
DATE	NO.	REVISION
OWNER/DEVELOPER		
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION THE ROUSE BUILDING 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044		
PROJECT: VILLAGE OF RIVER HILL SECTION 4, AREA 5		
AREA: TAX MAP NO. 35 ZONE: NEW TOWN		
5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
TITLE		
DRAINAGE AREA MAPS AND DETAILS		

MORRIS & FLETCHER ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

110 WEST ROAD SUITE 105
TOWSON, MARYLAND 21204
(410) 821-1690
FAX (410) 821-1748

8-8-96
DATE: 8-8-96
DESIGNED BY: R.L.R.
DRAWN BY: J.A.G.
PROJECT NO.: 9927
DATE: OCTOBER, 1995
SCALE: AS SHOWN
DRAWING NO. 18 OF 19

1487

STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

I. 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.

Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish, and other objectionable material unless otherwise designated on the plans.

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.

II. EARTH FILL

A. 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.

B. 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 layers.

C. COMPACTION

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one track of the equipment.

Minimum required density shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum.

III. CUT OFF TRENCH AND IMPERVIOUS CORE

The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans.

IV. STRUCTURE BACKFILL

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material.

V. PIPE CONDUITS

All pipes shall be circular in cross section.

A. POLYVINYL CHLORIDE (PVC) PIPE

All the following criteria shall apply for polyvinyl chloride (PVC) pipe:

- 1. Material - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
2. Joints on connections to anti-seep collars shall be completely interfit.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length.

B. REINFORCED CONCRETE PIPE

- 1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ATSM Specification C-361.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length.

VI. CONCRETE STRUCTURES

A. CONCRETE

Concrete shall meet the minimum requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414 Mix No. 3.

B. REINFORCEMENT

Reinforcement shall meet the minimum requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 416 (Reinforcement for Concrete Structures).

VII. STABILIZATION

All borrow areas shall be graded to provide drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow area, and berms shall be stabilized by seeding, liming, fertilizing, mulching or sodding in accordance with the MD SCS Standard and Specifications for Critical Area Planting (MD 342) or as shown on the accompanying drawings.

A. SOD

- 1. Specifications - Sod shall be KY-31 Tall Fescue or Kentucky Bluegrass/Red Fescue mixture or approved equal.
2. Site Preparation - Where soil is acidic or composed of heavy clays, ground limestone shall be spread at the rate of 100 lbs/1000 sq. ft.

B. PERMANENT SEEDING

- 1. Seedbed Preparation - Loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.
2. Soil Amendments - Apply 2 to 2 1/2 per acre dolomitic limestone (82 lbs/1000 sq. ft.).

C. TEMPORARY SEEDING

- 1. Seedbed Preparation - Loosen upper 3 inches of soil by discing, raking or other acceptable means before seeding.
2. Soil Amendments - Apply 600 lbs. per acre of 10-10-10 fertilizer.

D. ENKAMAT STABILIZATION (FOR EMERGENCY SPILLWAY)

- 1. Materials enkamat shall conform to or exceed ASTM 1682
2. All construction shall be in accordance with enkamat meeting technical manual for soil erosion control applications, as amended.

VIII. 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, as shown on these plans and as set forth in the latest Standards & Specifications for Soil Erosion and Sediment Control in Developing Areas of the Soil Conservation Service of Maryland.

IX. ROCK RIPRAP

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration standard specifications for construction and materials, Section 901.

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.

X. FILTER CLOTH

Filter Cloth to be Mirel 140N or approved equal.

XI. GABIONS

Gabions to be PVC coated, Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials Section 906.

XII. INSPECTION

The contractor shall notify the engineer at least 5 working days prior to starting any work on these plans so that stormwater management pond may be inspected during construction.

XIII. CARE OF WATER DURING CONSTRUCTION

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works.

XIV. REFERENCES

- 1. 'Howard County Design Manual Vol. I' of the Howard County, Maryland Department of Public Works, as amended.
2. 'Standard Specifications for Construction and Materials', 1993, of the Maryland State Highway Administration, as amended.
3. 'Standard and Specifications for Ponds' of the Soil Conservation Service of Maryland (MD-378), November 1992 and as amended.

SOIL LOGS

HARFORD DRILLING AND TESTING, INC. Bel Air, Maryland
Project Name: River Hill SWM HDT Job No.: 90366
Date Started: 9/27/95 Date Completed: 9/27/95 Boring No. B-3

Table with columns: Strata Depth, Sample Depth, No., Blows/G, Rec, DESCRIPTION (Color, Moisture, Proportions)

Table with columns: Strata Depth, Sample Depth, No., Blows/G, Rec, DESCRIPTION (Color, Moisture, Proportions)

Standard Penetration Test: Driving 2-inch O.D. Sampler with 140-pound hammer freely falling 30 inches.

Table with columns: Strata Depth, Sample Depth, No., Blows/G, Rec, DESCRIPTION (Color, Moisture, Proportions)

Table with columns: Strata Depth, Sample Depth, No., Blows/G, Rec, DESCRIPTION (Color, Moisture, Proportions)

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By the Developer:

'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.'

DEVELOPER: (GRI GORY R. KLAR) 9/8/96 DATE

By the Engineer: '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.'

Donald N. Mitten ENGINEER (DONALD N. MITTEN) 8-8-96 DATE

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

J. S. Warfield, Jr. (J. S. WARFIELD, JR.) 8/30/96 DATE

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

Rolando Ziehm (ROLANDO ZIEHM) 8/30/96 DATE

AS BUILT CERTIFICATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Donnelly CHIEF, BUREAU OF HIGHWAYS 9-9-96 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Rubens Blood CHIEF, DIVISION OF LAND DEVELOPMENT 9/23/96 DATE

Chief, Development Engineering Division 9/1/96 DATE

DATE NO. REVISION

OWNER/DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION THE ROUSE BUILDING 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044

PROJECT: VILLAGE OF RIVER HILL SECTION 4, AREA 5

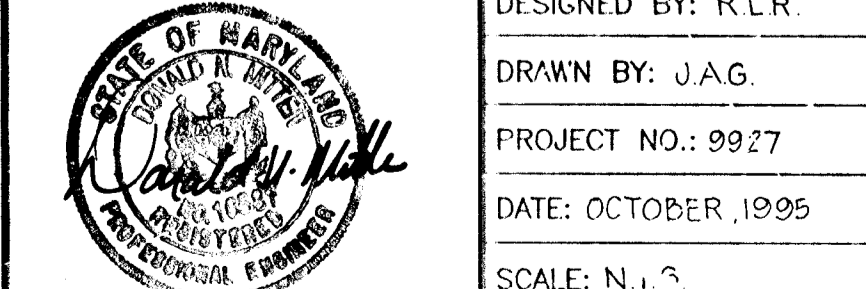
AREA: TAX MAP NO. 35 ZONING: NEW TOWN

5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT SPECIFICATIONS AND BORING LOGS

MORRIS & FITCHE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 110 WEST ROAD SUITE 105 TOWSON, MARYLAND 21204 (410) 821-1690 FAX (410) 821-1748

DESIGNED BY: R.L.R. DRAWN BY: J.A.G. PROJECT NO.: 9927 DATE: OCTOBER, 1995 SCALE: N.T.S. DRAWING NO. 19 OF 19



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NOTE: OWNER & CONTRACTOR THE ENGINEER SHALL BE NOTIFIED 2 WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE FACILITY MUST BE FIELD INSPECTED FOR AS-BUILT PLAN.