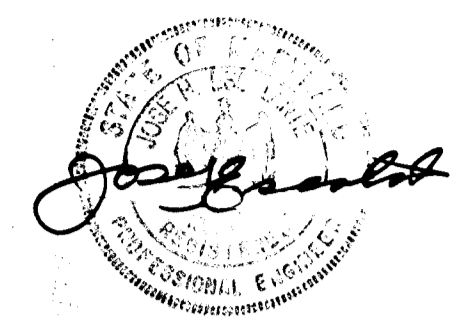


This is to certify that the undersigned is responsible for revision No. 1 shown dated 1-20-95.



- ROADWAY LIGHTING & SIGNING LEGEND**
- 150 Watt High Pressure Sodium Vapor Pendant Mounted Fixture on a 25 foot galvanized steel pole
 - 150 Watt High Pressure Sodium Vapor Lamp Post Top Fixture on a 14 foot black or grey fiberglass pole
 - R-1 "Stop" Sign, 30" X 30" Octagon
 - R-2 "Speed Limit" Sign, 24" X 30" Rectangle

- CURB & GUTTER LEGEND**
- Modified C&G
 - Reverse Mod C&G
 - Std 7" C&G

GENERAL NOTES

- All storm drain & paving shall be constructed in accordance with the latest edition & specifications of Howard County & MDSHA.
- Types of storm drainage refer to the standard details of HO.00 & MDSHA.
- Trench compaction for storm drains within road or street right-of-way limits shall be in accordance with H&C Design Manual, Vol. II, Spt. G-2.01.
- Information concerning underground utilities was obtained from available records, but the contractor must determine the exact location and elevation of mains by digging test pits by hand, at all utility crossings, well in advance of construction.
- All utility companies shall be notified 24 hrs. in advance of construction.
- All traffic services, parking & signing to be done in accordance with the "Manual of Uniform Traffic Control Devices" 1984 Revised Edition.
- Sign & Street Vertical Curves were designed in accordance with the H&C Design Manual, Vol. III.
- Provide Conc. Sidewalk Ramps H&C Std. Type A R-9-01 where shown on plan.
- Design Speed: See table Sht. 3 Zoning: R-12
- The contractor or developer shall contact the construction inspection / survey Division 24 hrs. in advance of commencement of work. Phone: 792-7272.
- Street Lights to be placed 2'-10" behind curb and in accordance with Howard County Design Manual Vol. III.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

E. Chaudhuri 3/23/89
Signature of Developer/Builder Date

Reviewed for... Howard County, Md. S.C.D. Name and meets Technical Requirements
James M. Moran 10/19/89
Signature Date
U.S. Soil Conservation Service

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



ENGINEER'S CERTIFICATE

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

John R. Roberts 10/19/89
Approved Date
G. Nelson Clark 5-12-89
Date

Approved: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James M. Moran 10/26/89
Chief, Land Development Division Date
Dr. William W. Weiland 10/24/89
Chief - Bureau of Highways Date
James M. Moran 10/30/89
Chief - Bureau of Engineering Date
Approved: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Mark J. Z. Lang 1/16/89
Chief, Division of Community Planning & Land Development Date

CLARK • FINEROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED: GLB, MCB
DRAWN: GS/KIW
CHECKED: MCB, GLB
DATE: 5-12-89

ROAD CONSTRUCTION PLANS
KARA'S WALK
MELBOURNE ESTATES
SECTION ONE AREA THREE
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: As Shown
DRAWING: 1 OF 6
JOB NO.: 88-122
FILE NO.: 86-122-D

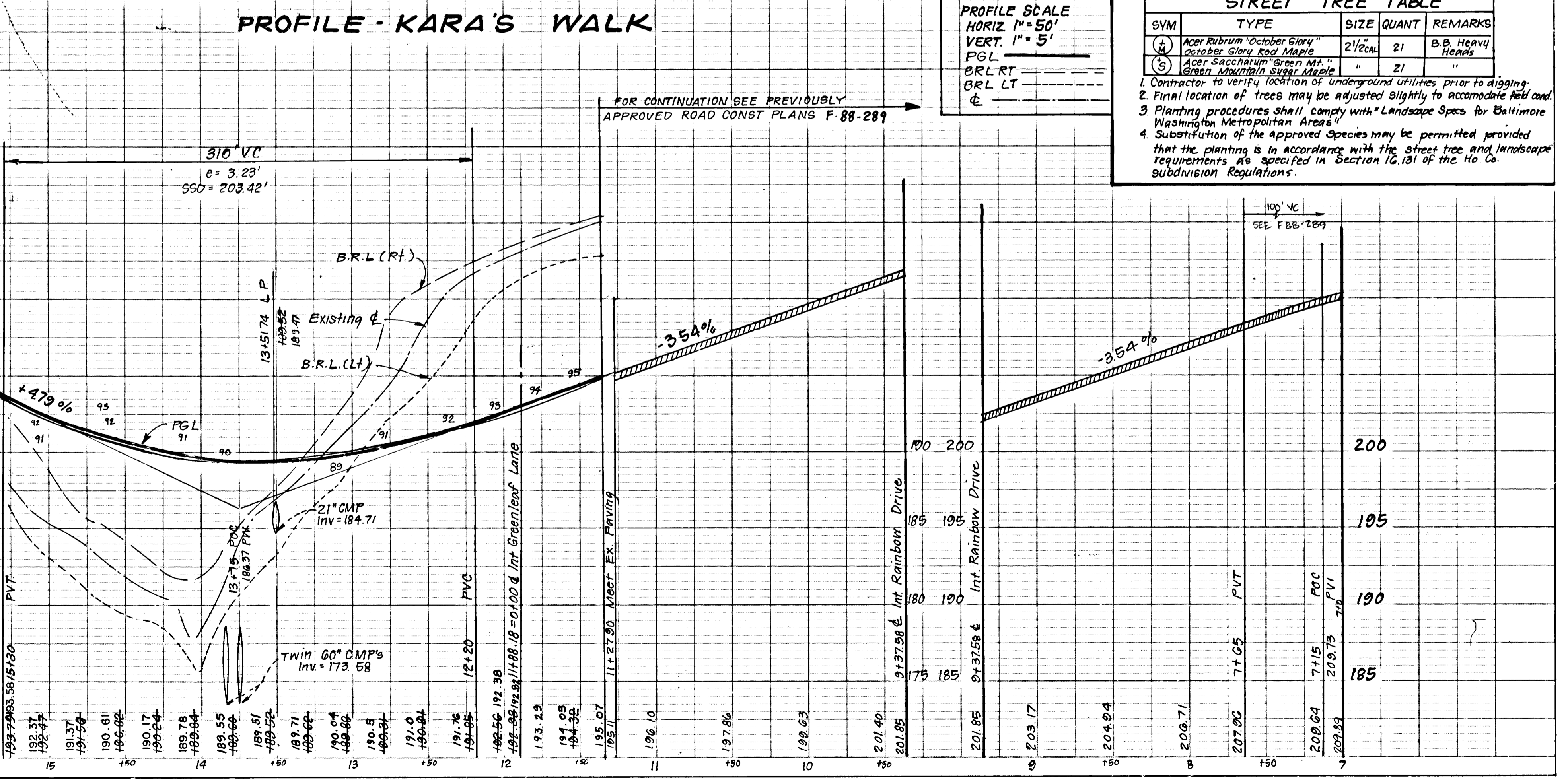
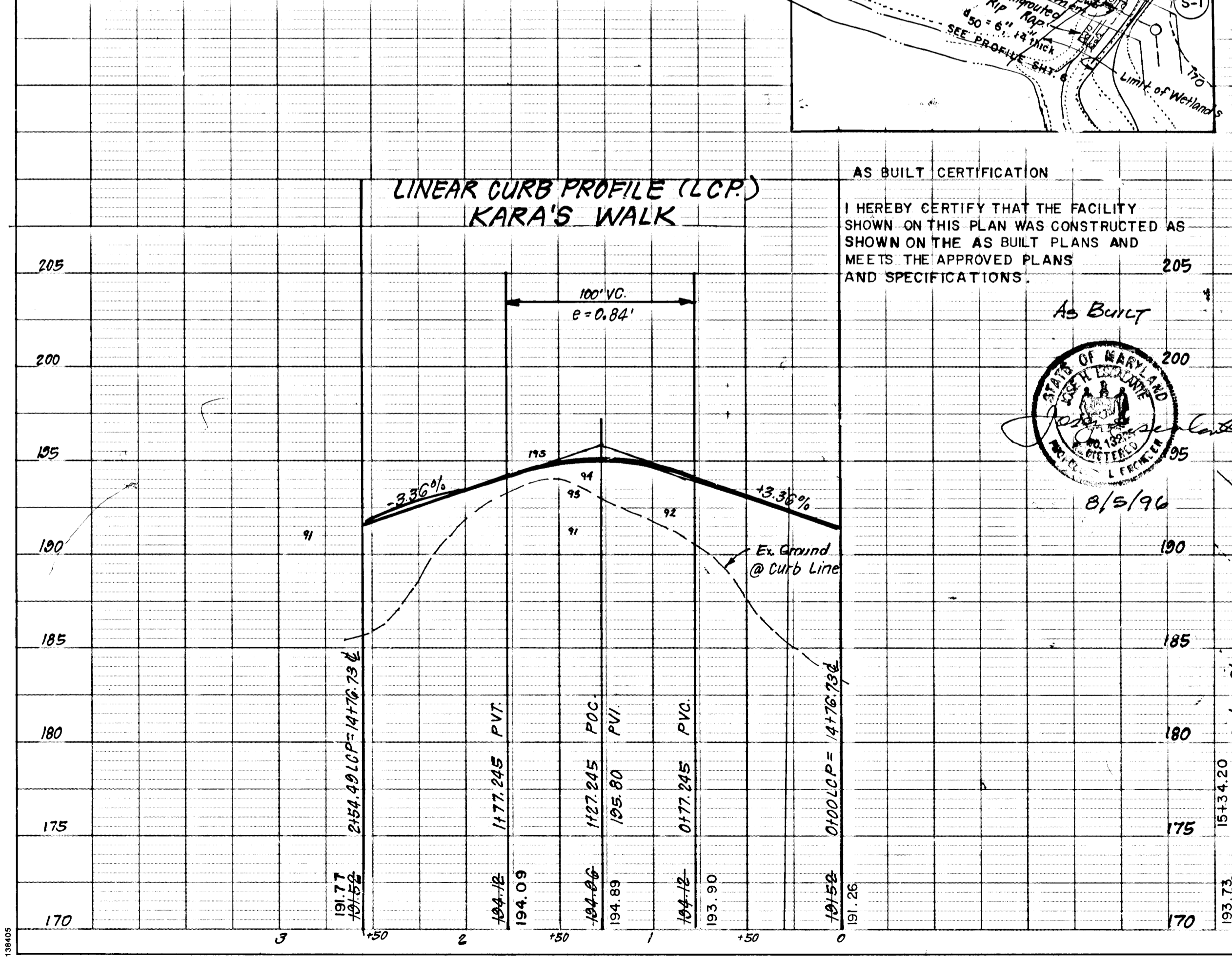
FOR: BUILDERS BUILD
8950 ROUTE 108 #114
COLUMBIA, MD 21045

REVISIONS

No.	Date	By	Description
1	1-20-95	JHE	Rev. Pond grading, outfall to proposed, Dwg. # to 1 of 6
2	5-3-93	JHE	Rev. Curb and Gutter type for a portion of Kara's Walk

CENTERLINE CURVE DATA

NAME	PC to PT	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
KARA'S WALK	PC: 11141.24 to PT: 14103.04	600.00'	25°00'00"	822.05'	133.02'	254.73'	S72°30'00"W



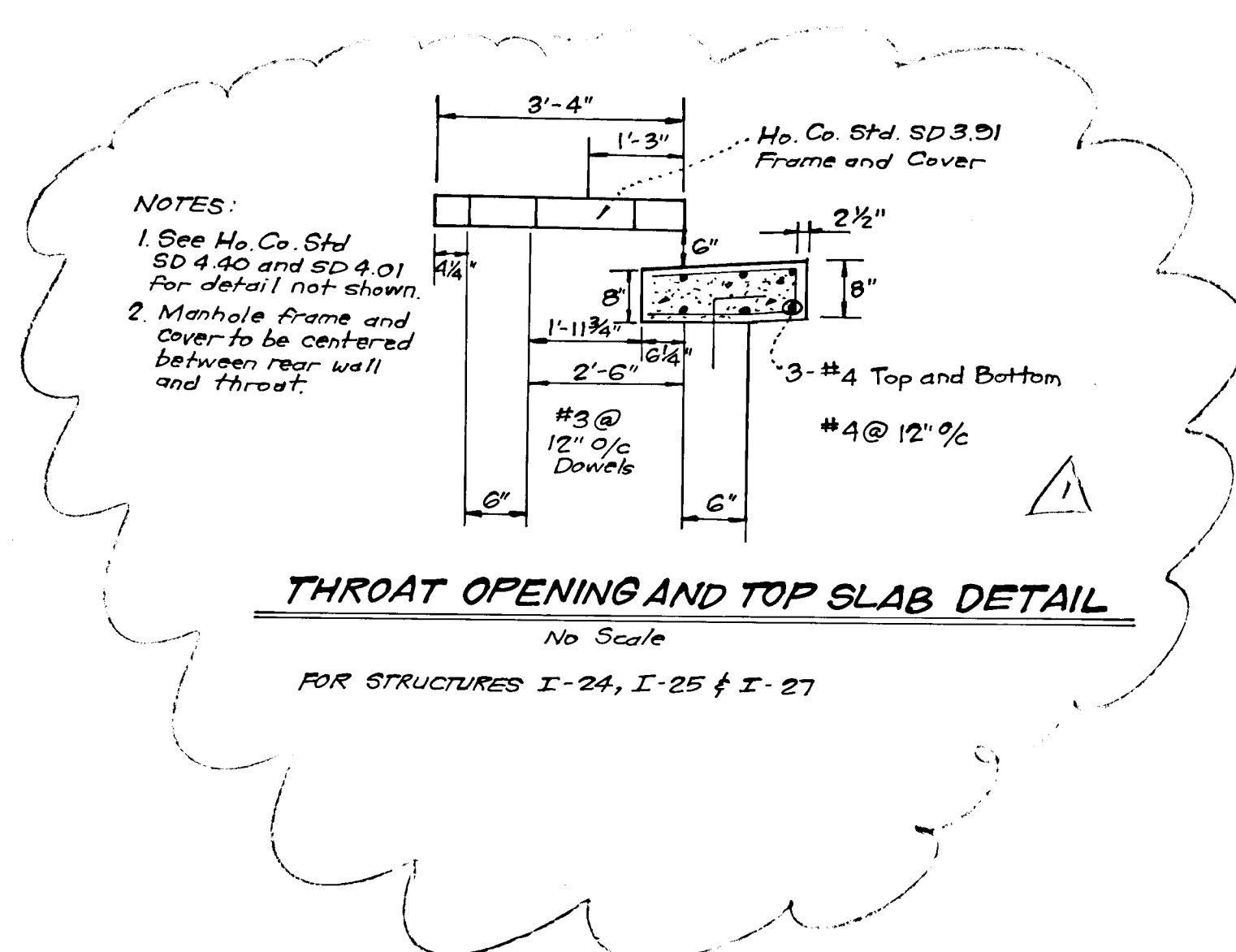
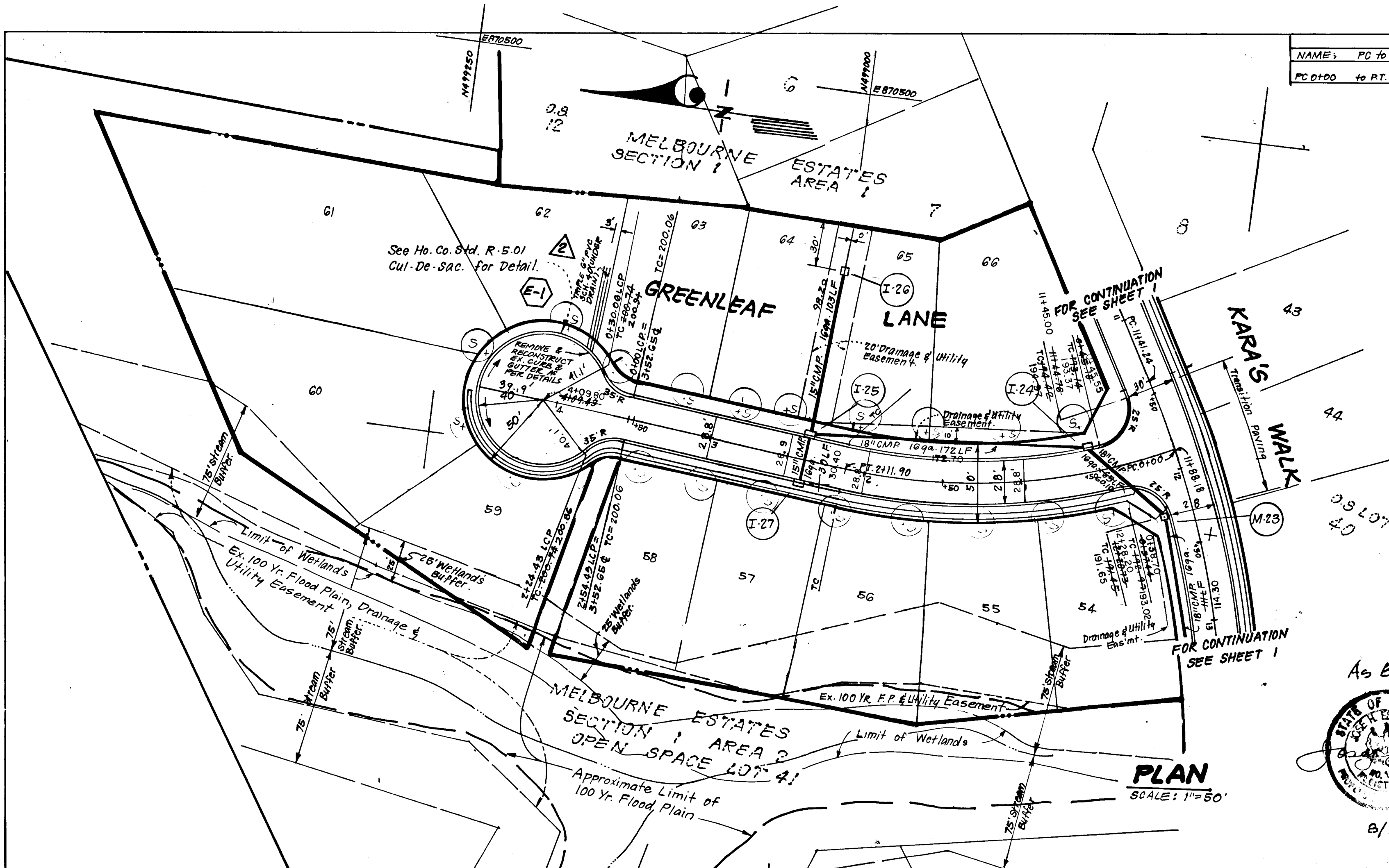
STREET TREE TABLE

SYM	TYPE	SIZE	QUANT	REMARKS
(A)	Acer Rubrum "October Glory"	2 1/2" Cal.	21	B.B. Heavy Heads
(B)	Acer Saccharum "Green Mt."		21	

- Contractor to verify location of underground utilities prior to digging.
- Final location of trees may be adjusted slightly to accommodate field conditions.
- Planting procedures shall comply with Landscape Specs for Baltimore Washington Metropolitan Area.
- Substitution of the approved species may be permitted provided that the planting is in accordance with the street tree and landscape requirements as specified in Section 16.131 of the Ho Co. Subdivision Regulations.

1439

CENTERLINE CURVE DATA							
NAME	PC TO PT	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
PC 2100	to PT 2111.90	380.00'	31°56'53"	212.96'	106.78'	80.16'	N10°58'30"W



As Built

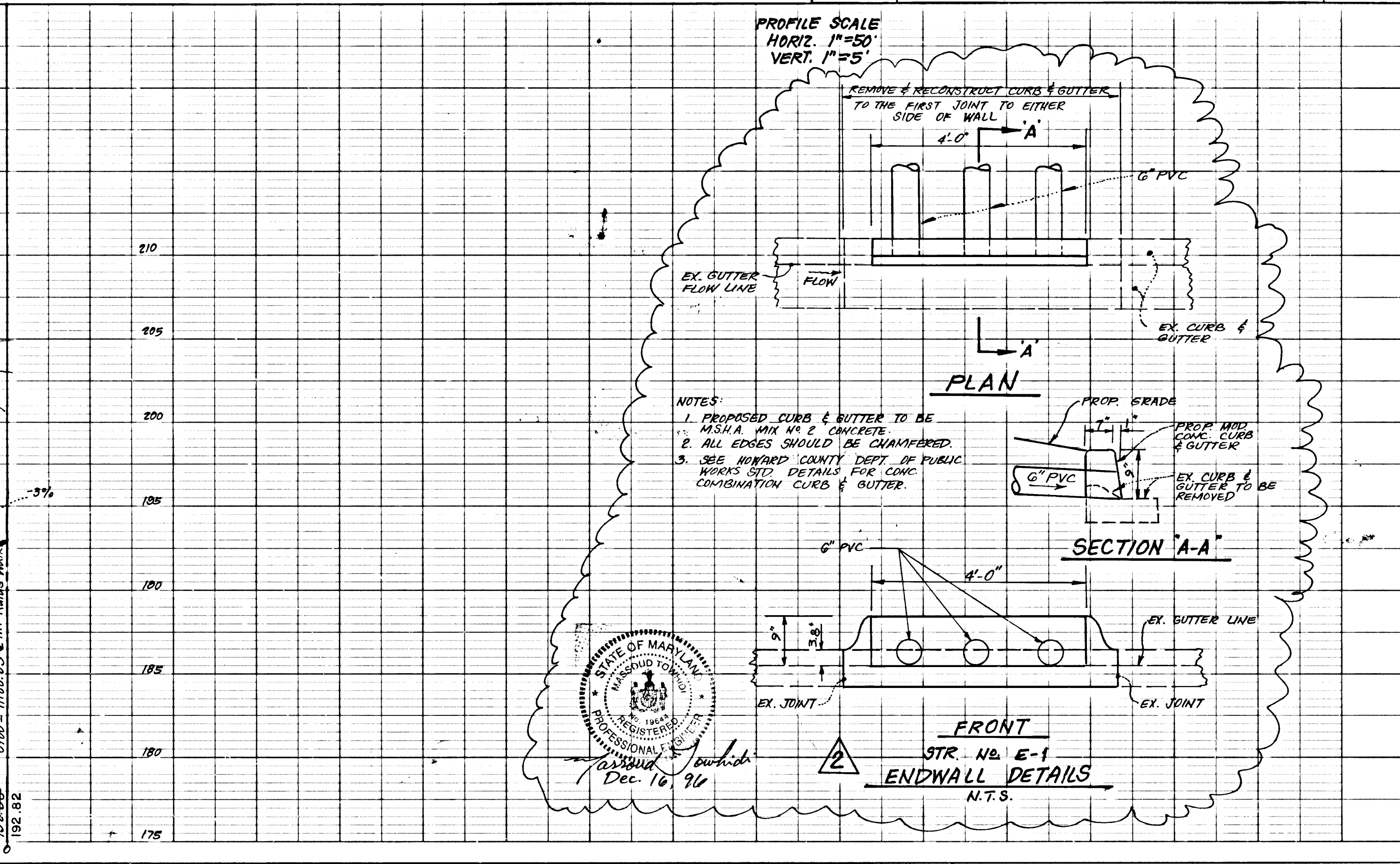
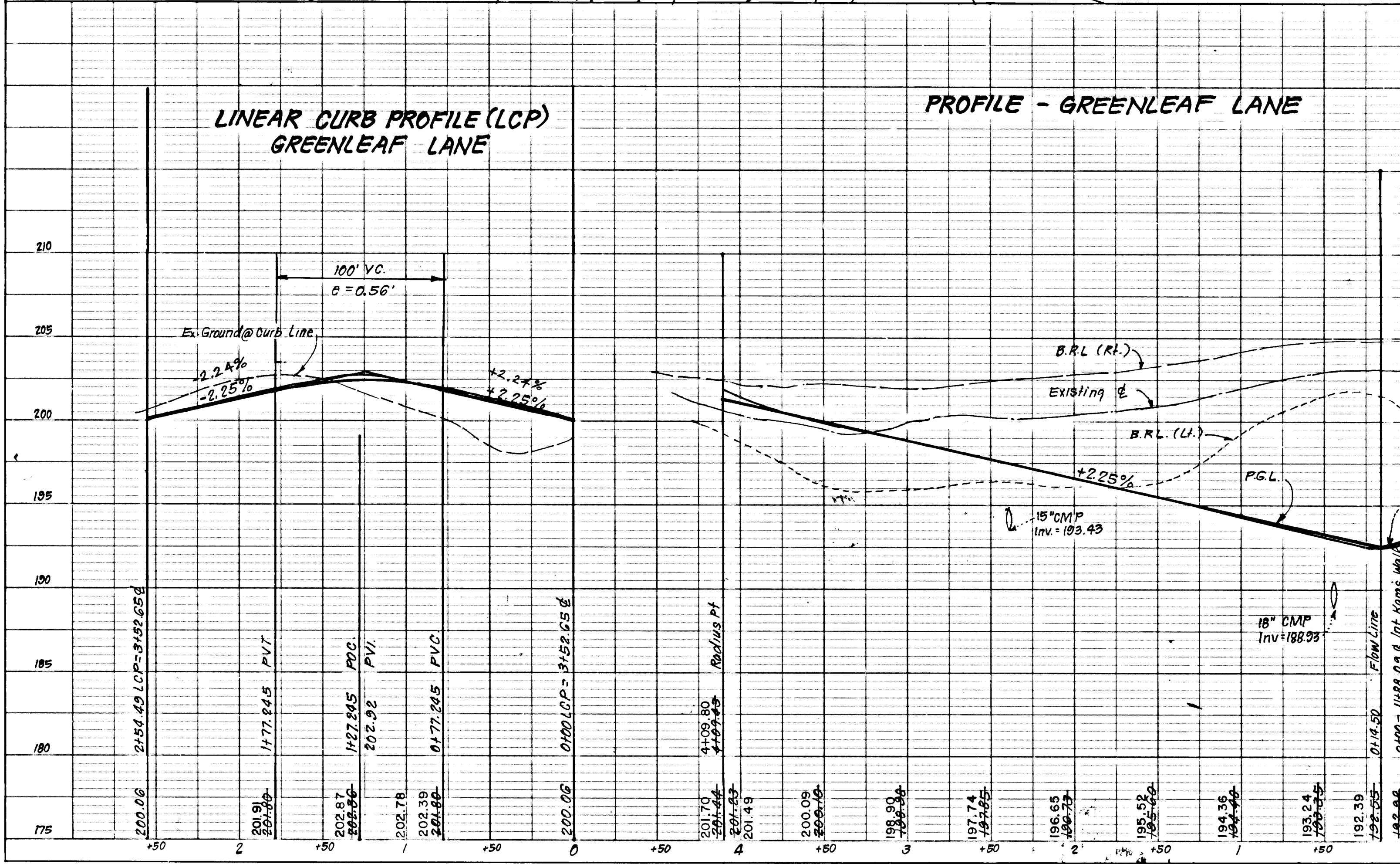
 8/8/96

DATE	REVISIONS	DATE
12-16-96	No. 2: ADDED UNDERDRAIN ON LOT 62 & MODIFIED CURB & GUTTER @ STR. NO. E-1. THIS REVISION IS MADE BY "SHAFFER BATTI ASSOC., INC."	10/26/02
5-3-93	No. 1: Added detail for throat opening and top slab	10/24/89

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James J. Mason 10/26/02
 Chief, Land Development Division
Stanley W. Huleand 10/24/89
 Chief, Bureau of Highways
James J. Mason 10/30/89
 Chief, Bureau of Engineering
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Frank J. Taylor 10/16/89
 Chief, Division of Community Planning & Land Development

CLARK • FINEROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED MGB GLB	ROAD CONSTRUCTION PLANS GREENLEAF LANE SECTION ONE AREA THREE MELBOURNE ESTATES 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND FOR: THE BUILDERS GUILD, INC. 8750 Rte. 108 Suite 114, Gorman Plaza Columbia, Md. 21045	SCALE As Shown
DRAWN KIW		DRAWING 2 OF 6
CHECKED MGB GLB		JOB NO. 86-122
DATE 5-12-89		FILE NO. 86-122-D

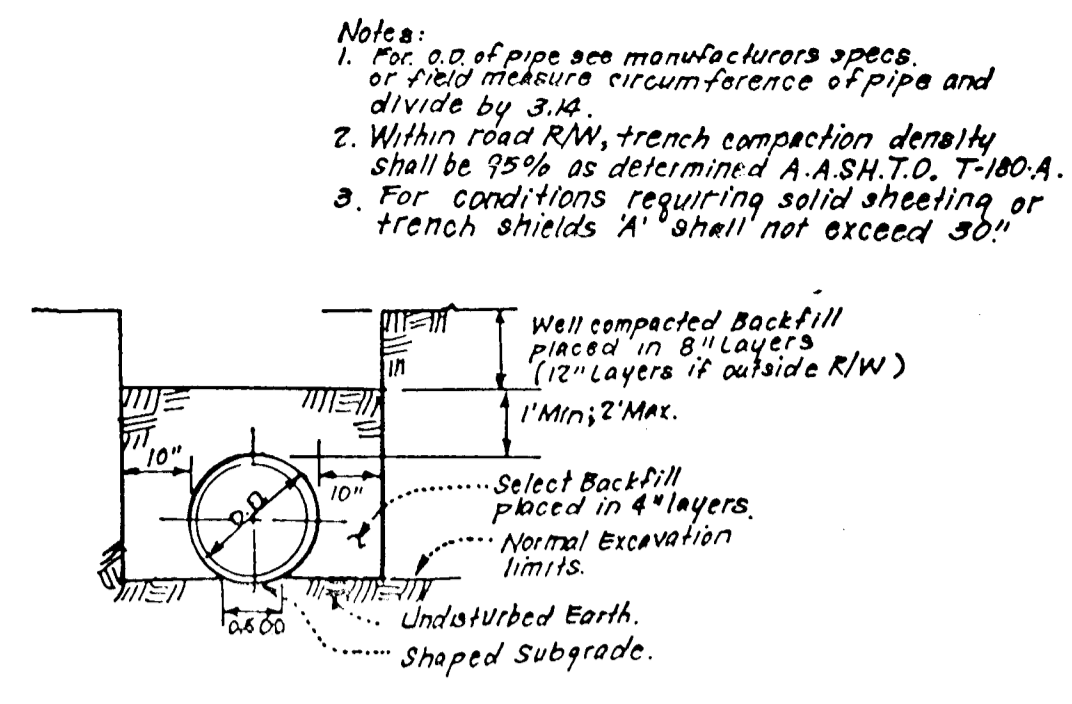


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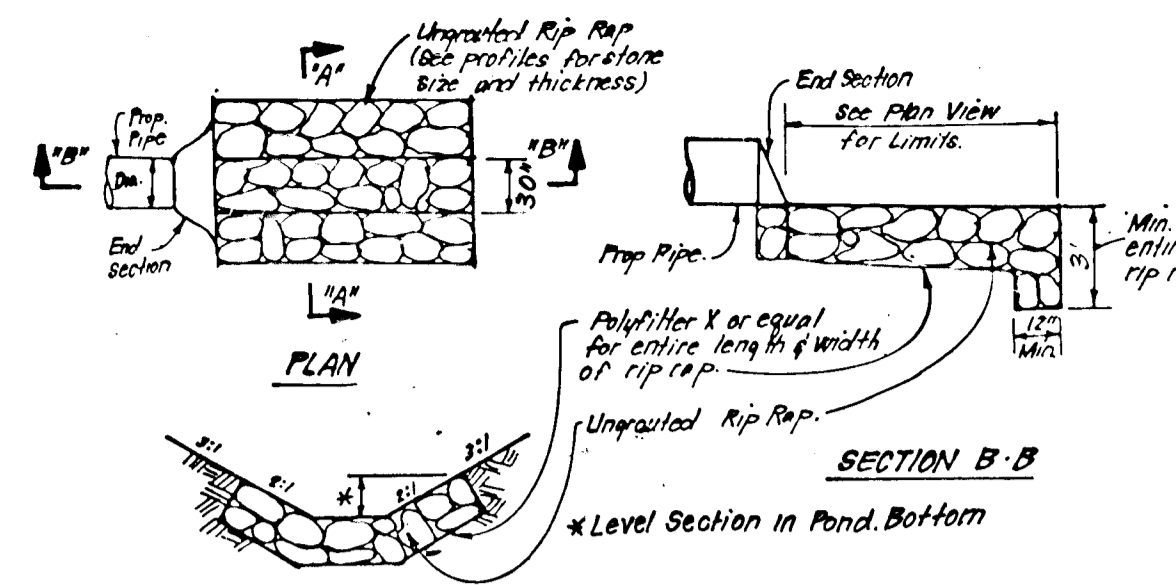
STRUCTURE SCHEDULE							
NO.	TYPE	INV. IN.	INV. OUT.	TOP ELEVATION		REMARKS	LOCATION
				UPPER	LOWER		
S-4	Endwall	170.90	169.80	176.84	175.80	See Det. this Sht.	See Plan
S-5	Endwall	176.95	175.85	183.37	182.35	See Det. this Sht.	See Plan
S-19	Manhole	170.3	170.00	167.33	166.00	See Det. this Sht.	See Plan
M-20	Manhole	170.3	170.00	169.06	168.00	See Det. this Sht.	See Plan
I-21	A-10 Inlet	183.85	184.42	189.52	189.52	See Det. this Sht.	See Plan
I-22	A-10 Inlet	185.19	185.71	191.71	191.71	See Det. this Sht.	See Plan
M-23	Shallow Manhole	187.01	187.90	193.57	193.57	See Det. this Sht.	See Plan
I-24	A-5 Inlet w/Deflectors	189.09	189.28	193.57	193.57	See Det. this Sht.	See Plan
I-25	A-5 Inlet w/Deflectors	192.70	192.70	197.58	197.58	See Det. this Sht.	See Plan
I-26	D Inlet	193.50	193.50	197.58	197.58	See Det. this Sht.	See Plan
I-27	A-5 Inlet w/Deflectors	193.50	193.50	197.58	197.58	See Det. this Sht.	See Plan

PRECAST SUBSTITUTE STRUCTURE SCHEDULE		
TYPE	BRICK STR. STD.	PRECAST SUBST. TUTE. STD.
A-5 Inlet	SD 4.01	SD 4.40
A-10 Inlet	SD 4.02	SD 4.41
D Inlet	SD 4.11	SD 4.57
Brick Manhole	G 5.01	G 5.11
Shallow Brick MH	G 5.05	G 5.12

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
15"	CMP 10ga.	139 LF
18"	CMP 16ga.	348 LF
21"	CMP 16ga.	131 LF
24"	CMP 10ga.	260 LF

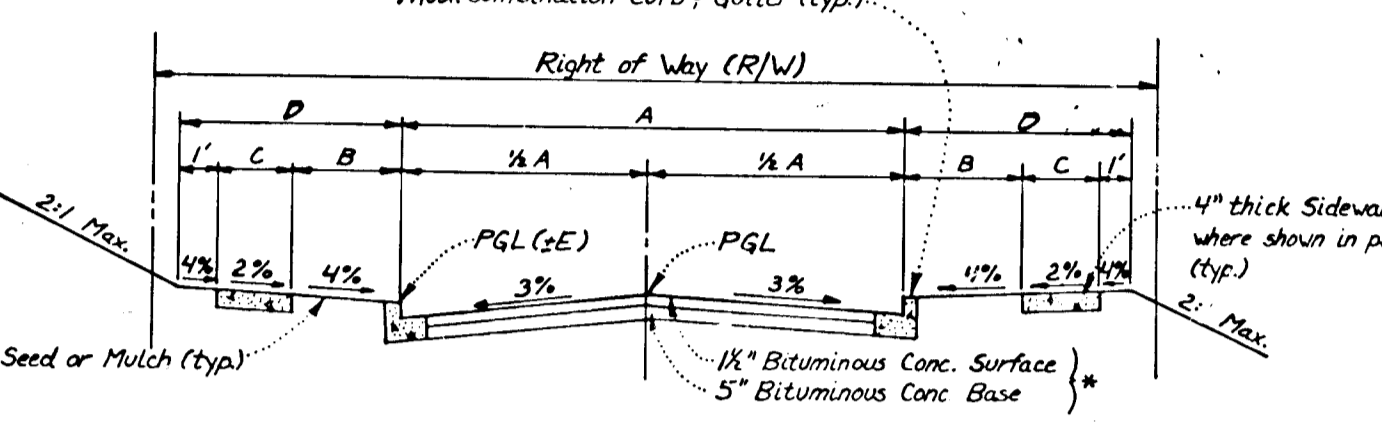


TRENCH COMPACTION DETAIL
NO SCALE

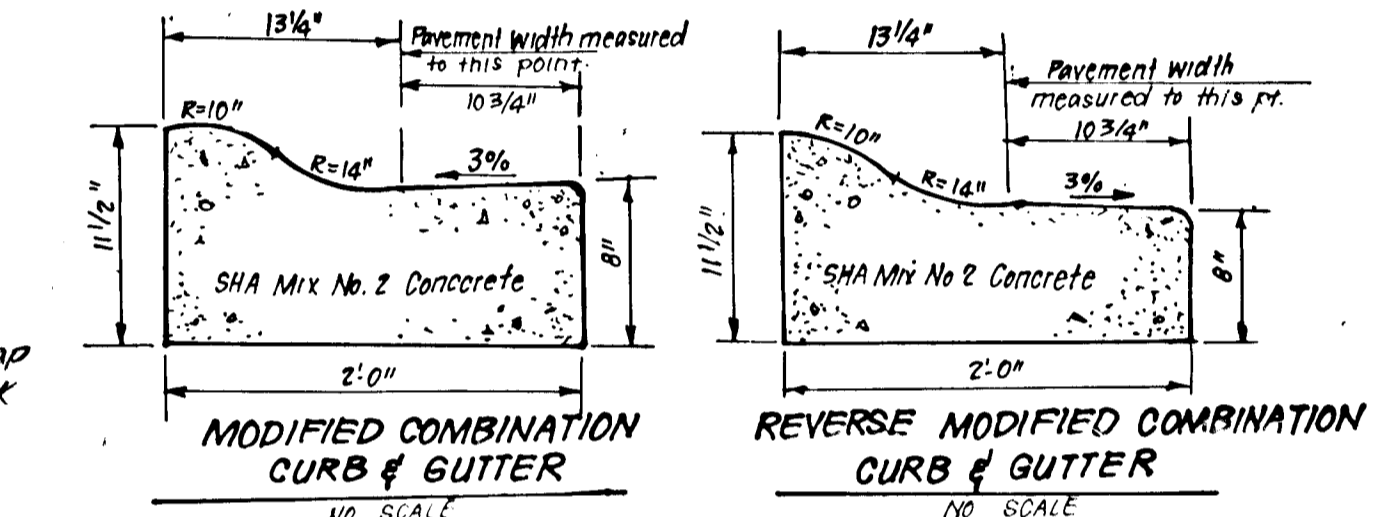


UNGRADED RIPRAP PAVING DETAILS @ S-18

STREET NAME & STATION	TYPE OF TRAFFIC	A	B	C	D	R/W	ZONING	DESIGN SPEED
KARA'S WALK 1117.90 to 1117.73	LOCAL	28'	4'	4'	2'	50'	R-12	30 mph
GREENLEAF LA 0100 to 0152.65	LOCAL	28'	4'	4'	2'	50'	R-12	30 mph

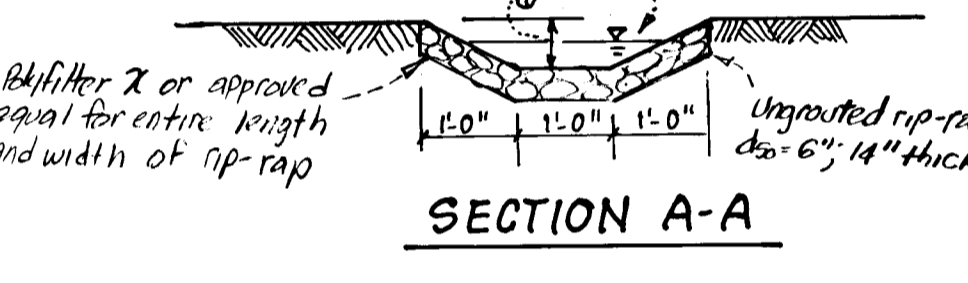


TYPICAL PAVING SECTION - PUBLIC ROADS
NO SCALE



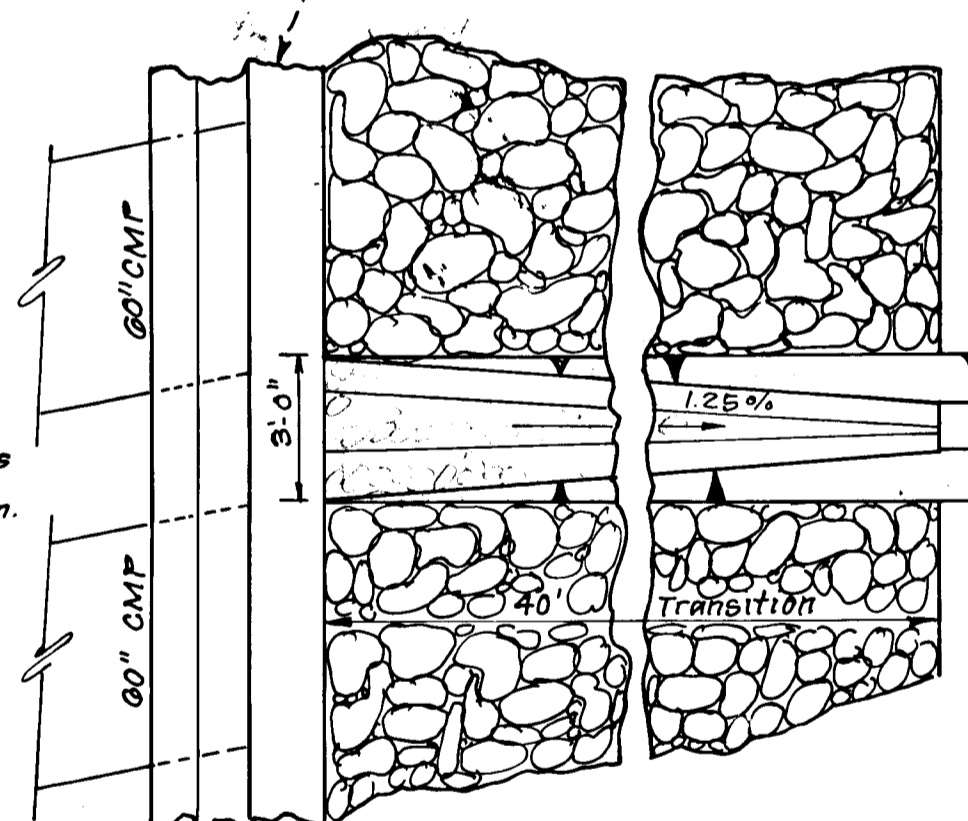
MODIFIED COMBINATION CURB & GUTTER
NO SCALE

REVERSE MODIFIED COMBINATION CURB & GUTTER
NO SCALE



SECTION A-A

HEADWALL S-4



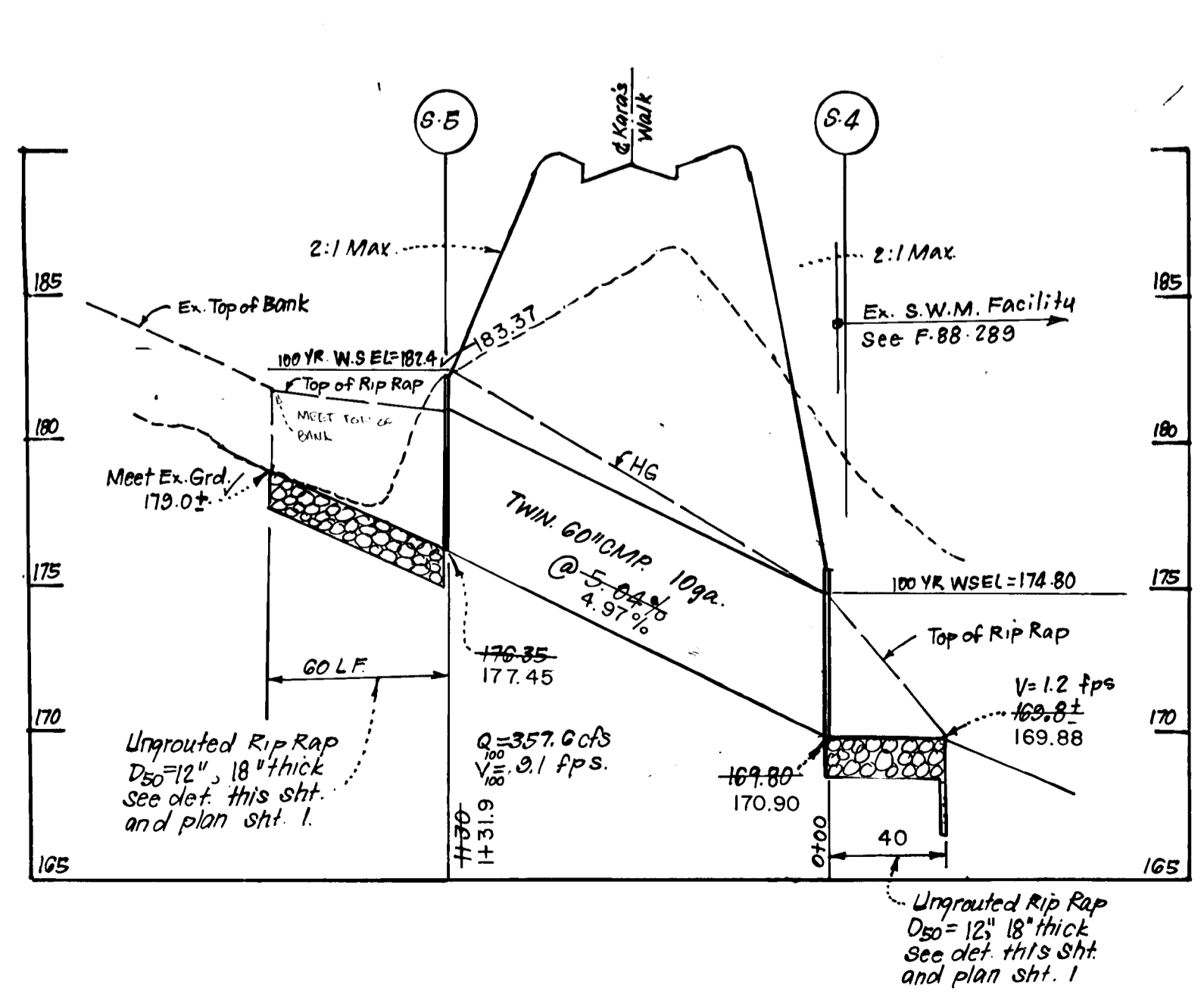
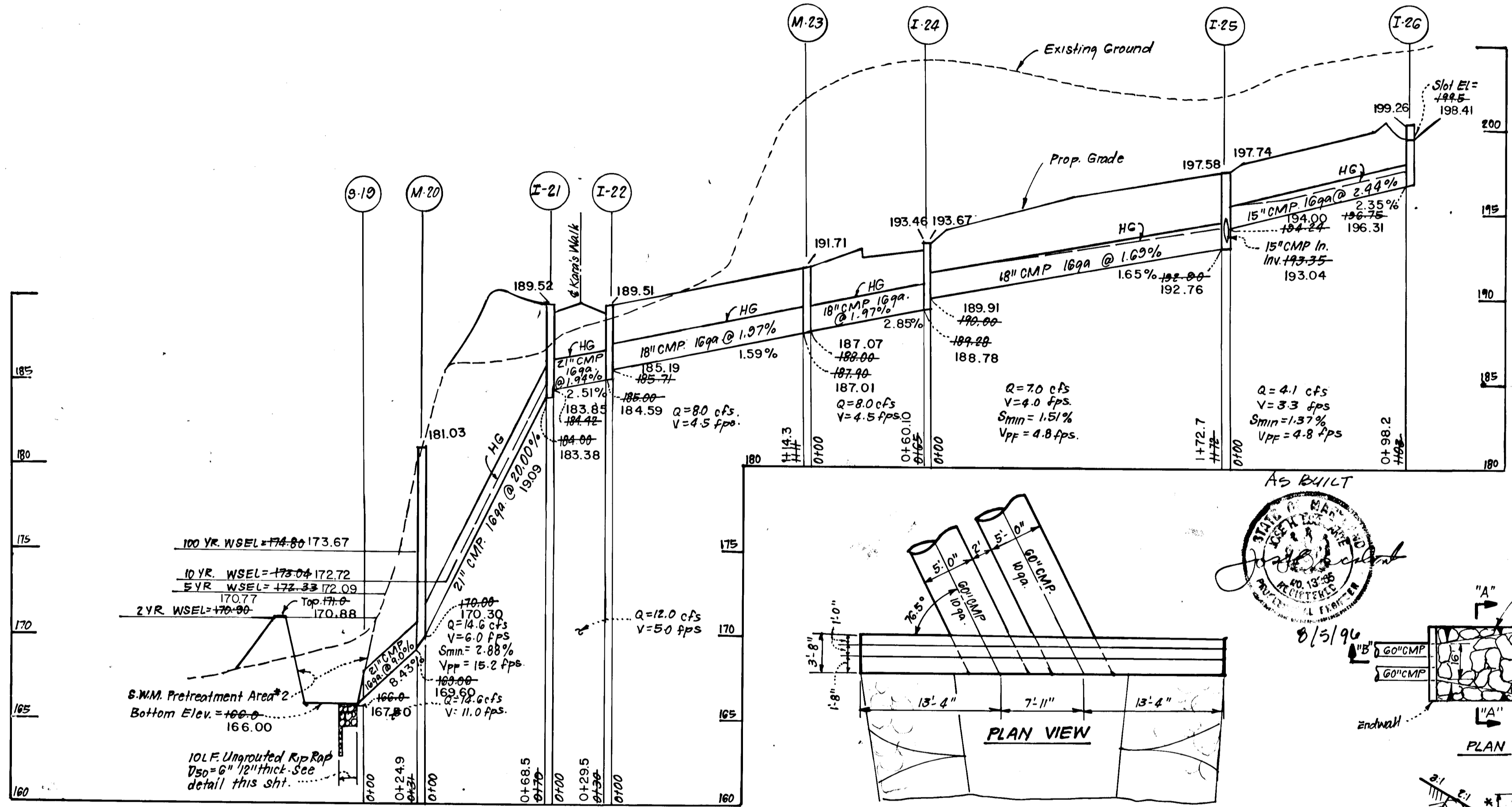
RIP-RAP CHANNEL DETAIL
Scale: 1/2" = 1'-0"

LOW-FLOW CHANNEL NOTES

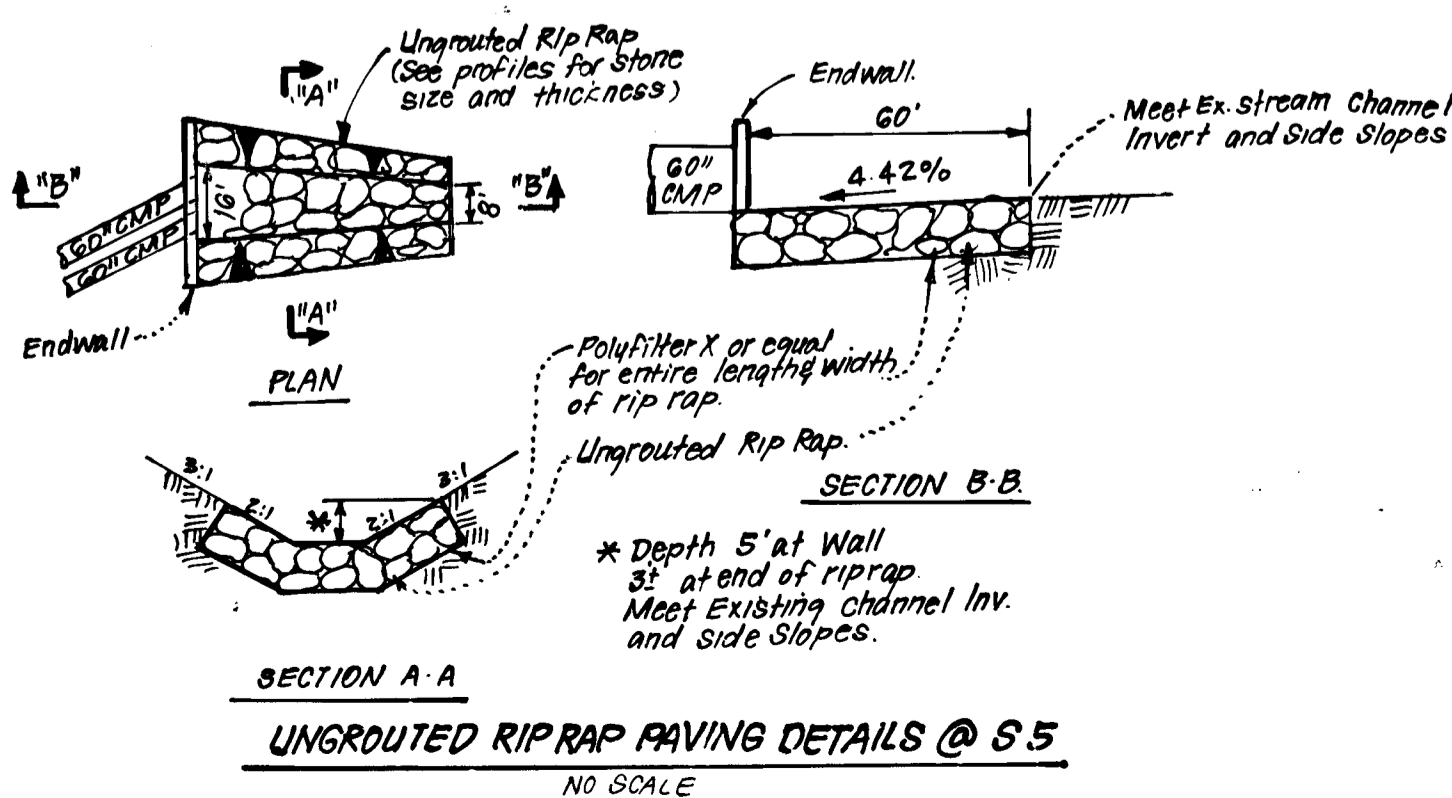
- Transition depth of channel from 0' @ S-4 to 6" at end of rip rap apron.
- Rip rap size shall be $d_{50} = 6"$ and placed 14" thick.
- Filter cloth to be placed on all earth/stone interfaces.

Material	Thickness
Bituminous Conc. Surface	1 1/2"
Bituminous Conc. Base	2 1/4"
Prime	1"
3" Crusher Run Base (Placed in 2 Courses)	8" or 6"
6" Dense Graded Stabilized Aggregate Base Course	6"

ALTERNATE PAVING SECTION FOR PUBLIC ROADS
NO SCALE
(SECTION P-2)



ELEVATION
ENDWALL DETAIL @ STR. S-4 & S-5
NO SCALE



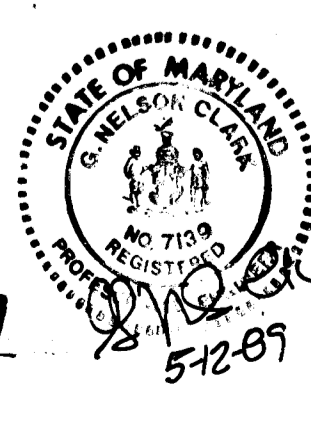
UNGRADED RIPRAP PAVING DETAILS @ S-5
NO SCALE



Reviewed for Howard S.C.D. and meets Technical Requirements
Signature: John R. Robertson 10/19/89
U.S. Soil Conservation Service

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

John R. Robertson 10/19/89
Approved Date



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

G. Nelson Clark 5-12-89
Date

DEVELOPER'S/BUILDER'S CERTIFICATE
I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources Approved Training Program for the Control of Sedimentation before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

K. A. ... 3/23/89
Signature of Developer/Builder

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Paul D. ... 10/20/89
Date
Brawley W. ... 10/20/89
Date
... 10/30/89
Date
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
... 11/11/89
Date

CLARK • FINEPROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7115 MINISTRELL WAY • COLUMBIA, MD 21045 • (301) 381-7500 • BALTO • (301) 621-8800 • WASH

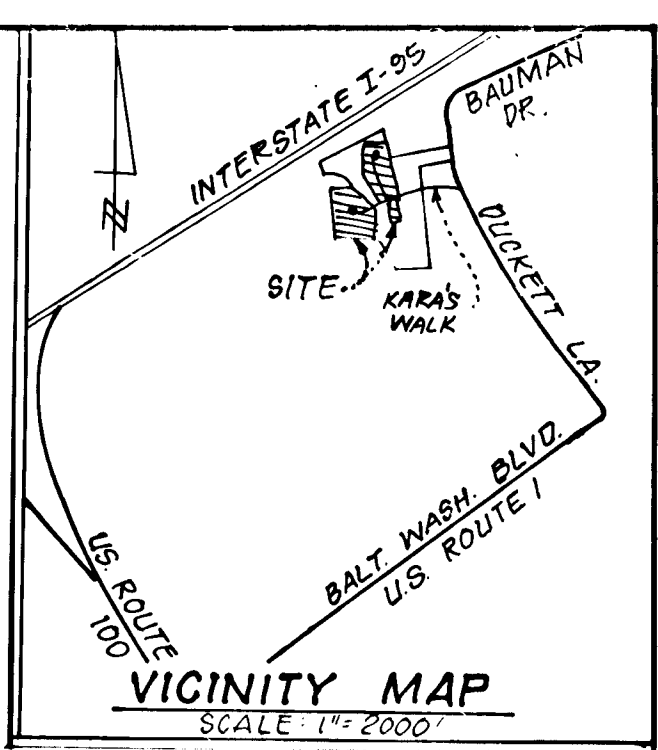
DESIGNED: MCB/CLB
DRAWN: KIW
CHECKED: MCB/CLB
DATE: 5-12-89

ROAD CONSTRUCTION PLANS
PAVING & DRAINAGE DETAILS
SECTION ONE AREA THREE
MELBOURNE ESTATES

1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FOR: THE BUILDERS GUILD, INC.
8950 Rte. 108 Suite 114, Gorman Plaza
Columbia MD 21045

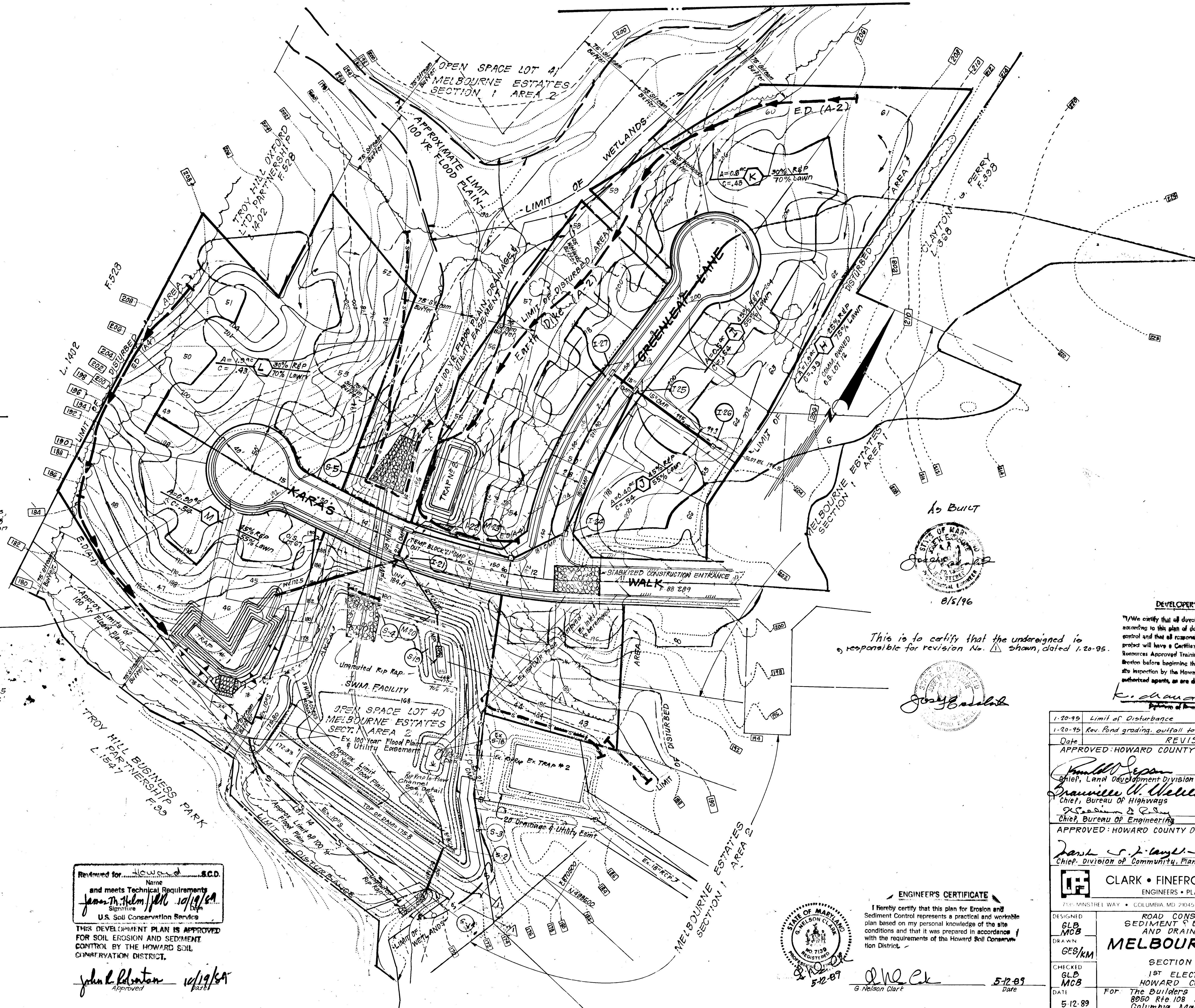
SCALE: As Shown
DRAWING: 3 OF 6
JOB NO: 86-122
FILE NO: 86-122-D



TRAP# 2 S.O.S.T. ST V *
 D.A. = 4.6 Acres
 Storage Required = 8280 cf.
 Storage Provided = 8512 cf.
 Stone Crest El. = 188.0
 Storage Depth = 4'
 Bottom El. = 183.0
 Bottom Dimensions = 2.0' x 68'
 Clean Out El. = 185.0
 L = 13'

* NOTE: For construction details, see the 1983 Md. Standards & Specifications for Soil Erosion and Sediment Control.

TRAP# 1 R.O.S.T. (ST-VI)
 D.A. = 6.7 Acres
 Storage Required = 12060 cf.
 Storage Provided = 12500 cf.
 Weir Crest Elev = 175.0
 Bottom Elev = 163.0
 Clean Out Elev = 171.5
 Top of Embankment Elev = 178.5
 Bottom Dimensions = 120' x 15'
 a = 1.5' b = 16.0' Depth = 5'
 1:1 Side Slopes



As BUILT
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 J. J. [Signature]
 8/5/96

This is to certify that the undersigned is responsible for revision No. 1 shown, dated 1-20-95.

[Signature]
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 5-12-89

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all reasonable personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources Approved Training Program for the Control of Sedimentation before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.
 [Signature] 3/23/89
 [Signature]

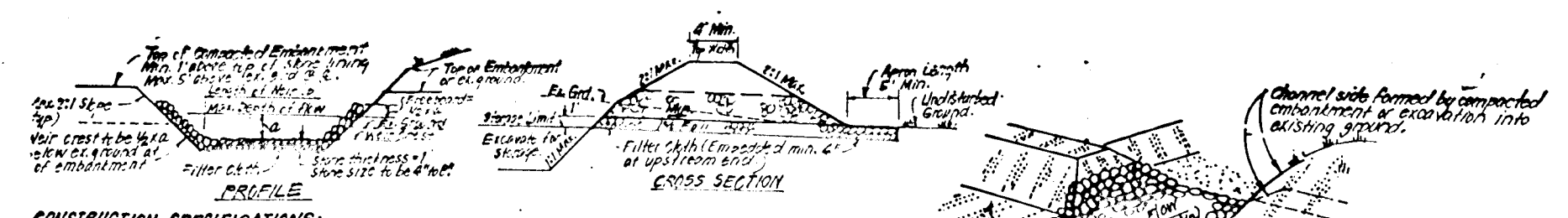
1-20-95	Limit of Disturbance	JHC	△
1-20-95	Rev. Pond grading, outfall to proposed, Dwg. # to 4 of 6	JHC	△
Date	REVISIONS	By	No.
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS			
[Signature]	Chief, Land Development Division	10/26/89	Date
[Signature]	Chief, Bureau of Highways	11/26/89	Date
[Signature]	Chief, Bureau of Engineering	10/23/89	Date
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING			
[Signature]	Chief, Division of Community, Planning & Land Development	11/16/89	Date

Reviewed for Howard County, S.C.D. and meets Technical Requirements
 [Signature] 10/19/89
 U.S. Soil Conservation Service
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 10/19/89
 Approved

ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 [Signature] 5-12-89
 G. Nelson Clark

CLARK • FINEPROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7101 MANSFIELD WAY • COLUMBIA, MD 21045 • (301) 381-7200 - BALTO. • (301) 621-8100 - WASH.

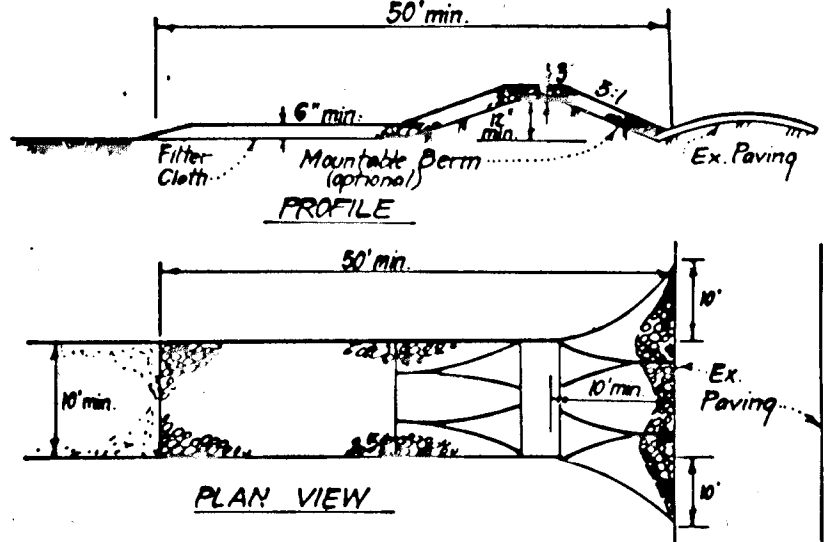
DESIGNED GLB MGB	ROAD CONSTRUCTION PLANS SEDIMENT & EROSION CONTROL PLAN AND DRAINAGE AREA MAP	SCALE 1" = 50'
DRAWN GES/km	MELBOURNE ESTATES	DRAWING 4 OF 6
CHECKED GLB MGB	SECTION ONE AREA THREE 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 86-122
DATE 5-12-89	FOR: The Builders Guild, Inc. 8050 Rte 108 Suite 114, Gorman Plaza Columbia, Maryland 21045	FILE NO. 86-122-D



CONSTRUCTION SPECIFICATIONS:

- The area where embankment shall be cleared, grubbed and stripped of any vegetation and cut out. The soil shall be tested.
- The fill material for the embankment shall be free of rocks or other woody vegetation as well as any other debris. The embankment shall be constructed by hand or machine, while it is being constructed. Max height of embankment shall be 6' measured to top of embankment.
- All fill slopes shall be 1:1 or flatter (at slopes 1:1 or flatter).
- Elevation of the top of any dike directing water into trap must equal or exceed height of embankment.
- Storage area provided shall be planned by consulting the volume available behind the outlet channel up to an elevation of 1' below the outlet wall crest.
- Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of filter cloth shall be at least 1' with sections nearest the entrance placed on top. Filter cloth shall be secured to the outlet channel on outside of outlet channel.
- Stone used in the outlet channel (in areas of outlet channel) shall be embedded 1 foot into the upstream face of the outlet stone area. A thick layer of 2" of filter cloth shall be placed on the upstream face of the outlet stone area.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to the extent that the trap cannot sediment. Sediment shall be deposited in a suitable area and in such a manner that it will not blow.
- The structure shall be inspected after each rain and repaired as needed.
- Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
- The structure shall be removed and the area stabilized when the drainage area has not been properly stabilized.
- Drainage area for this structure is limited to 1/2 acre or less.

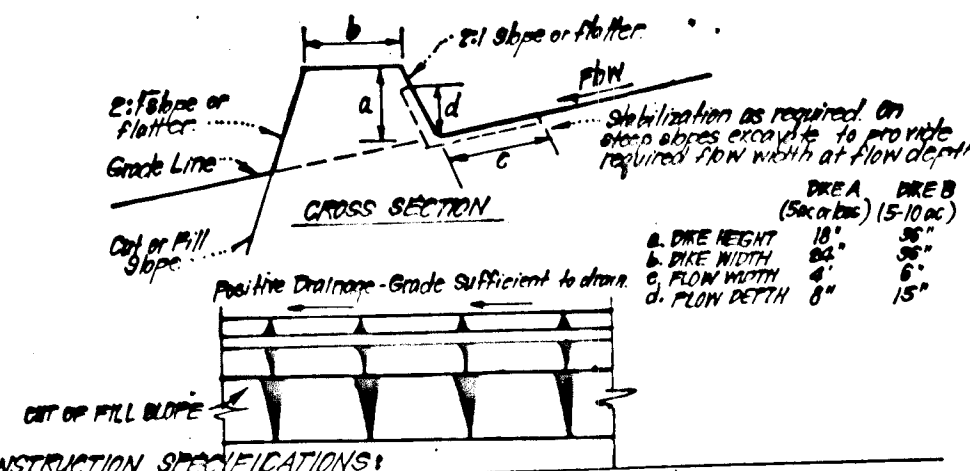
RIPRAP OUTLET SEDIMENT TRAP - ST-II
NO SCALE



CONSTRUCTION SPECIFICATIONS:

- Stone size - Use 2" stone, or reclaimed or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
- Thickness - Not less than 6" inches.
- Width - Ten (10) feet minimum, but not less than the full width of points where ingress or egress occurs.
- Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
- Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 3:1 slopes will be permitted.
- Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment into public rights-of-way. This may require periodic top dressing with additional stone. No conditions deemed and/or removal and/or cleanup of any type are used to trap sediment. All sediment applied, dragged, washed or tracked onto public rights-of-way must be removed immediately.
- Warning - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE (SCE)
NO SCALE



CONSTRUCTION SPECIFICATIONS:

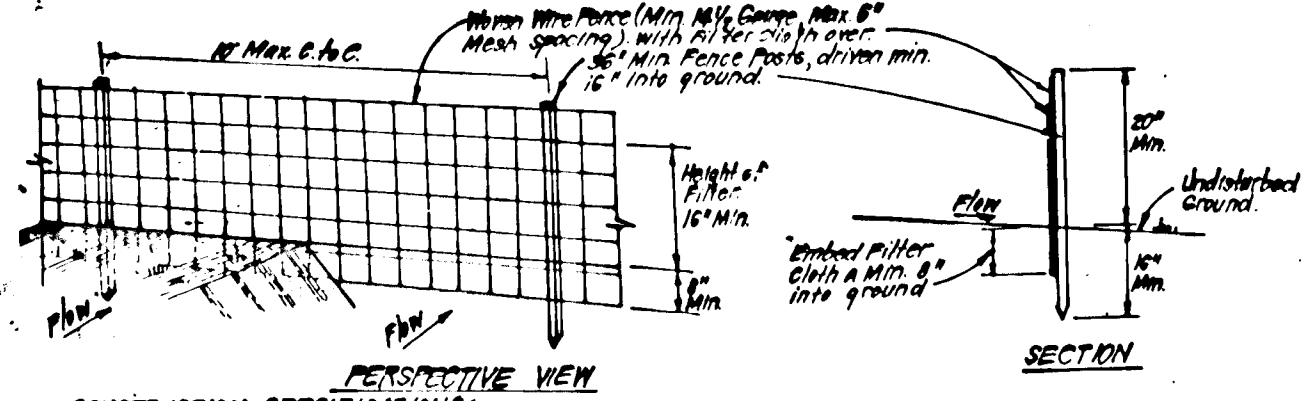
- All dikes shall be constructed by earth-moving equipment.
- All dikes shall have positive drainage to an outlet.
- Top width may be wider and side slopes may be flatter if desired, to facilitate crossing by construction traffic.
- Dike location should be adjusted as needed to utilize a stabilized outlet with ditching by construction traffic.
- Earth dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be directed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.
- Stabilization shall be: (A) in accordance with standard specifications for seed and straw mulch or straw mulch if not in seeding season, (B) flow channel as per chart below.

TYPE OF DISTURBANCE	CHANNEL	DIKE A	DIKE B
1	15-30%	Seed & Straw Mulch	Seed or Straw Mulch
2	31-50%	Seed & Straw Mulch	Seed with or without straw mulch
3	51-80%	Seed with or without straw mulch	Limit Top of Dike to 12'
4	81-100%	Limit Top of Dike to 12'	Engineering Design

A dike to be 2' Stone, or recycled concrete equivalent, in a layer at least 3" thick and be pressed into soil with construction equipment.
B Rip Rap to be 4" in a layer at least 8" thick, pressed into soil.
C Approval equivalent can be substituted for any of the above materials.

7 Periodic inspection and required maintenance must be provided after each rain.

EARTH DIKE DETAIL (E.D.)
NO SCALE



CONSTRUCTION SPECIFICATIONS:

- When wire fence is fastened securely to fence posts with wire ties or staples.
- Filter cloth to be fastened securely to heavy wire fence with ties spaced every 24" by top and bottom.
- When 2 sections of filter cloth begin each other they shall be overlapped by 6" and stapled.
- Maintenance shall be performed as needed and material removed when it hinders drainage in Silt Fence.

POSTS: Steel either Tee or U Type or 2" diameter
FENCE: Heavy Wire, 1/4" Dia. with 1/2" Mesh
FILTER CLOTH: Filter Cloth, 100% Polypropylene, 100% Synthetic, 100% Nonwoven
PREPARED UNIT: Geotext, Environment, approved equal.

SILT FENCE DETAIL (S)
NO SCALE

PERMANENT SEEDING NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 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, perimeter slopes and all slopes greater than 1:1, 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) and (Sec. 52), temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 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	7.4 Acres
Total Area Disturbed	7.2 Acres
Area to be roofed or paved	0.7 Acres
Area to be vegetatively stabilized	2.5 Acres
Total Cut	2385 Cu. yds
Total Fill	2785 Cu. yds
Offsite waste/borrow area locat.	N/A
- 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 DWM 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.
- If houses are to be constructed on an "As-Built" basis, at random, Single Lot Sediment Control as shown below shall be implemented. N/A
- All pipes to be blocked at the end of each day (see detail below). N/A
- The total amount of straw bale dikes/silt fence equals 280 L.F.

PERMANENT SEEDING NOTES

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

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or 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 anchor 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 reseedings.

TEMPORARY SEEDING NOTES

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

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

Seeding - For periods March 1 thru April 30 and from August 15 thru November 15, seed with 25 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

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

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

CONSTRUCTION SEQUENCE

- Obtain Grading Permit. 1 Day
 - Remove existing 8" sewer from MH 101 to MH 102. 1 Day
 - Install twin 60" CMP culverts and headwalls utilizing silt fence as shown or as deemed necessary by the sediment control inspector and stabilize. 15 Days
 - Install all remaining sediment controls and stabilize. 2 Days
 - Rough grade and temporarily stabilize; install I-21 to I-22 and temporary 15" CMP to Trap #1. 14 Days
 - Install remaining storm drainage, temporarily blocking 21" CMP out of I-21; construct SWM pretreatment area as shown on plan; install utilities. 30 Days
 - Construct curb and gutter, paving and sidewalks. 30 Days
 - Fine grade and stabilize in accordance with standards and specifications. 5 Days
 - Flush storm drainage system and remove temp. 15" CMP. Install tip trap apron 84" dia. 10'-10" diameter. 1 Day
 - Upon approval of the sediment control inspector remove all sediment and erosion controls; stabilize and remove temporary blocking from 21" CMP at I-21. 1 Day
- * Maintain existing stream channel while laying pipes & constructing headwalls B-4 and B-3. Over excavate apron area at S-4 (3' deep). Divert stream into pipes and fill for roadway and construct new 8" sewer line from MH 101 to MH 102.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Small 10/26/89
Date

Drauwille W. McLeod 10/26/89
Date
Chief, Bureau of Highways

William E. Reddy 10/26/89
Date
Chief, Bureau of Engineering

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Frank J. Taylor 11/16/89
Date
Chief, Division of Community Planning & Land Development

		CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 715 MINISTERIAL WAY • COLUMBIA, MD 21046 • (301) 381-7500 • BAL TO • (301) 421-8100 • WASH	
DESIGNED MGB GLB	ROAD CONSTRUCTION PLANS GREENLEAF LANE SECTION ONE AREA THREE MELBOURNE ESTATES		SCALE As Shown
DRAWN KIW	1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND		DRAWING 5 OF 6
CHECKED MGB GLB	FOR: The BUILDERS GUILD, INC. 8950 Rte. 108 Suite 114, Gorton Plaza Columbia Md 21045		JOB NO 86-122
DATE 5-12-89	G. Nelson Clark Date 5-12-89		FILE NO 86-122-D

Reviewed for Howard S.C.D. and meets Technical Requirements

James M. Nelson 10/19/89
Signature
U.S. Soil Conservation Service

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

John P. Robertson 10/19/89
Approved
Date

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

F. Chandrup 3/23/89
Signature of Developer/Builder
Date

ENGINEER'S CERTIFICATE

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



G. Nelson Clark 5-12-89
Date

As BUILT

John P. Robertson 8/19/90
Signature
Professional Engineer

STORM WATER MANAGEMENT NOTES

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. Channel banks and sharp breaks shall be sloped to an average of 1:1.

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. Trees, brush and stumps shall be cut approximately level with the ground surface.

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. A sufficient quantity of rock shall be provided to be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow areas or areas. It shall be free of roots, stumps, wood, rubbish, excessive stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement in the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including forward) as shown on the plans.

Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portion of the embankment.

Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one track of the sufficient equipment shall be provided to achieve a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1:1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

SELECTION OF BACKFILL

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

III. PIPE CONDUITS

All pipes shall be class A or class section.

A. Corrugated Metal Pipe

Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated. The coating shall conform to the requirements of AASHTO Specification M-190 Type A with water tight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Mastic, Plast-Coat, Blue-Klad, and Tech-Co-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-243 and M-245.

Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-771 with water tight coupling bands or flanges.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or shall conform to the requirements of AASHTO Specification M-243 or M-245. This pipe shall be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 3/4 inch thick. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be less than 4 and greater than 12.

Connections - All connections with pipes must be completely water tight. The drain pipe or barrel connection to the riser shall be sealed all around when the pipe and riser are metal. Water tight coupling bands or flanges shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely water tight. Dimple bands are not considered to be water tight.

Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

Laying pipe - The pipe shall be placed with inside circumference 1/2 inch pointing downstream and with the longitudinal line at the side.

Backfilling shall conform to structural backfill as shown above.

Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

IV. REINFORCED CONCRETE PIPE

1. Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is ASTM Specification C-301.

2. Bedding - All reinforced concrete pipe conduits shall be laid in concrete for their entire length. This bedding shall consist of high strength concrete placed under the pipe and on the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 4" or as shown on the drawings.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are placed for the entire length, the bedding shall be placed so that all areas under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.

4. Backfilling shall conform to structural backfill as shown above.

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

C. For pipes of other materials, specific specifications shall be shown on the drawings.

V. CONCRETE

1. Materials

a. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.

b. Water - The water used in concrete shall be clean, free from oil, acid, alkali, water, organic matter or other objectionable substances.

c. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a No. 20 sieve. Limestone sand shall not be used.

d. Coarse Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.

e. Reinforcing Steel - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

2. Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water/cement ratio shall be 5-1/2 to 6 U.S. gallons of water per 40 pound bag of cement. The proportion of materials for the trial mix shall be 1:1.5:3. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the curve of rotation of the mixer and of introduction of the water. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be water tight and constructed so that they can be removed without hammering or prying against the concrete.

Forms of forms shall be filled with a non-setting mineral oil or thoroughly oiled before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be removed from the surface of the concrete.

5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. Consolidating - Concrete shall be consolidated with internal top mechanical vibrators. Vibration shall be supplemented by tapping and hand tamping as necessary to insure smooth and dense concrete along form surface, in corners, and around embedded items.

7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of form, edges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be resand and completely filled with dry-dressing mortar.

8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

9. Placement Temperature - Concrete may not be placed at temperatures below 32°F with the temperature falling, or 34°F with the temperature rising.

VI. STABILIZATION

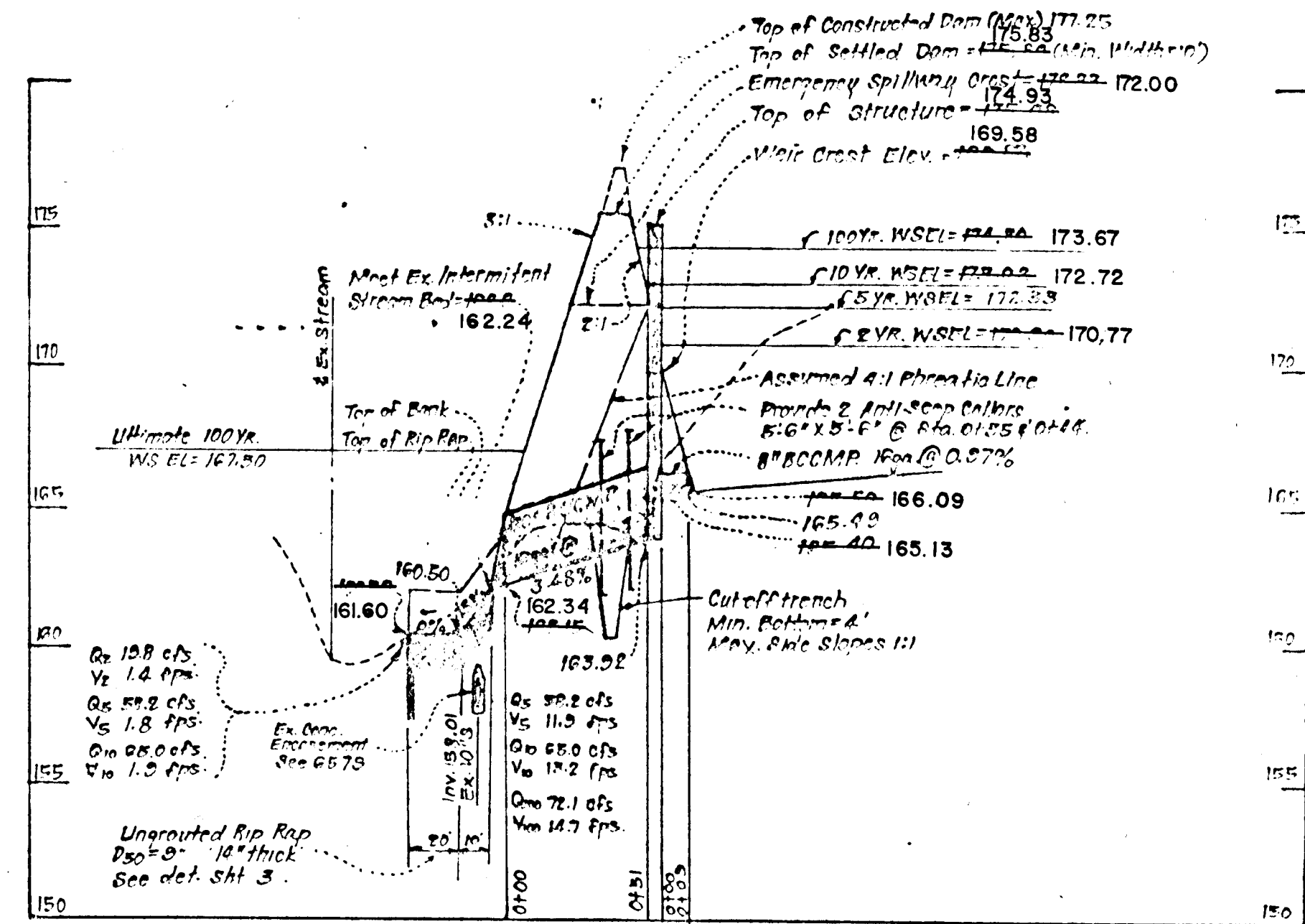
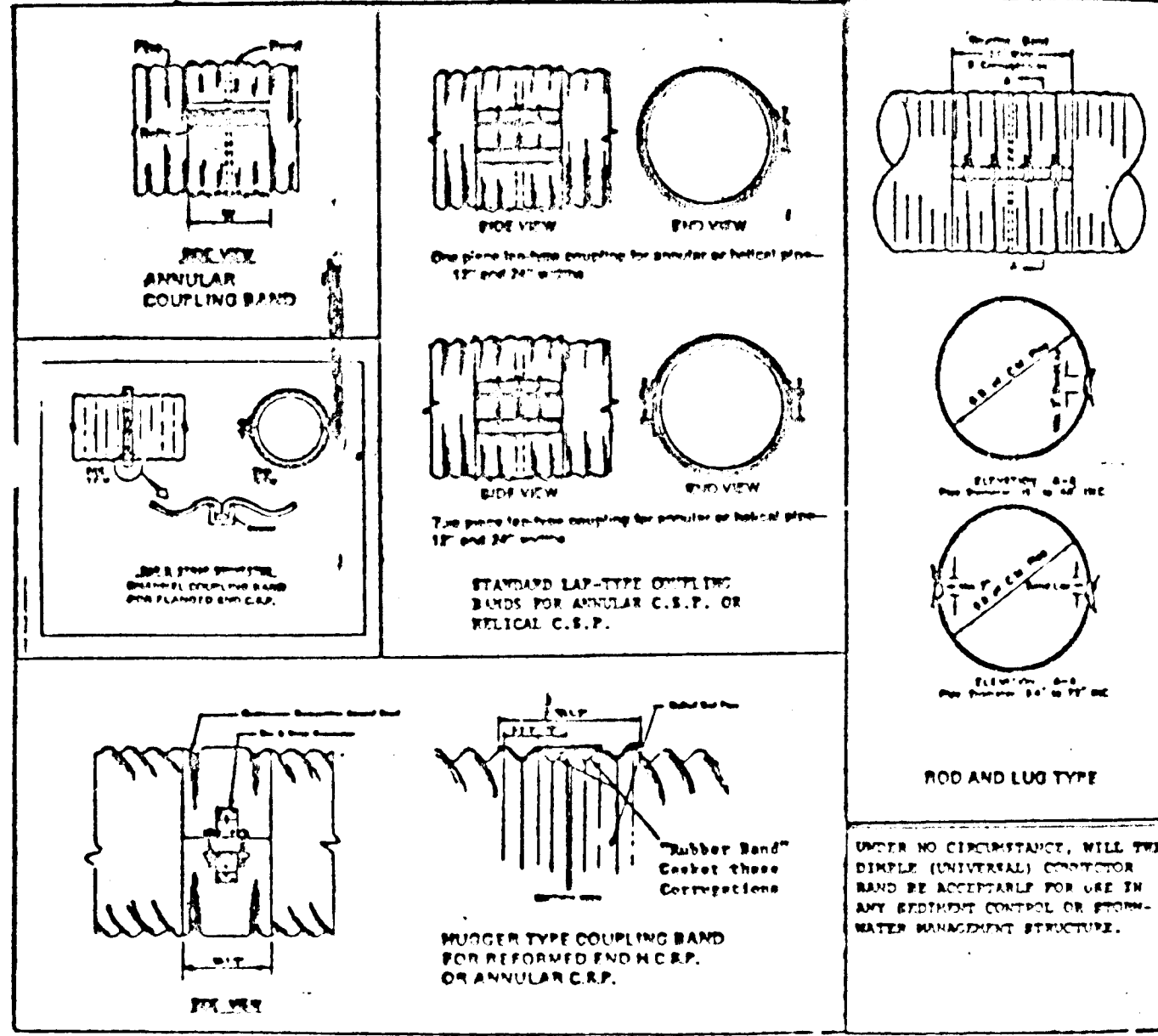
All borrow areas shall be graded to provide proper drainage and left in a slightly convex condition. All exposed surfaces of the embankment, spillway, ditch and borrow areas, and borrow shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

VII. EROSION AND SEDIMENT CONTROL

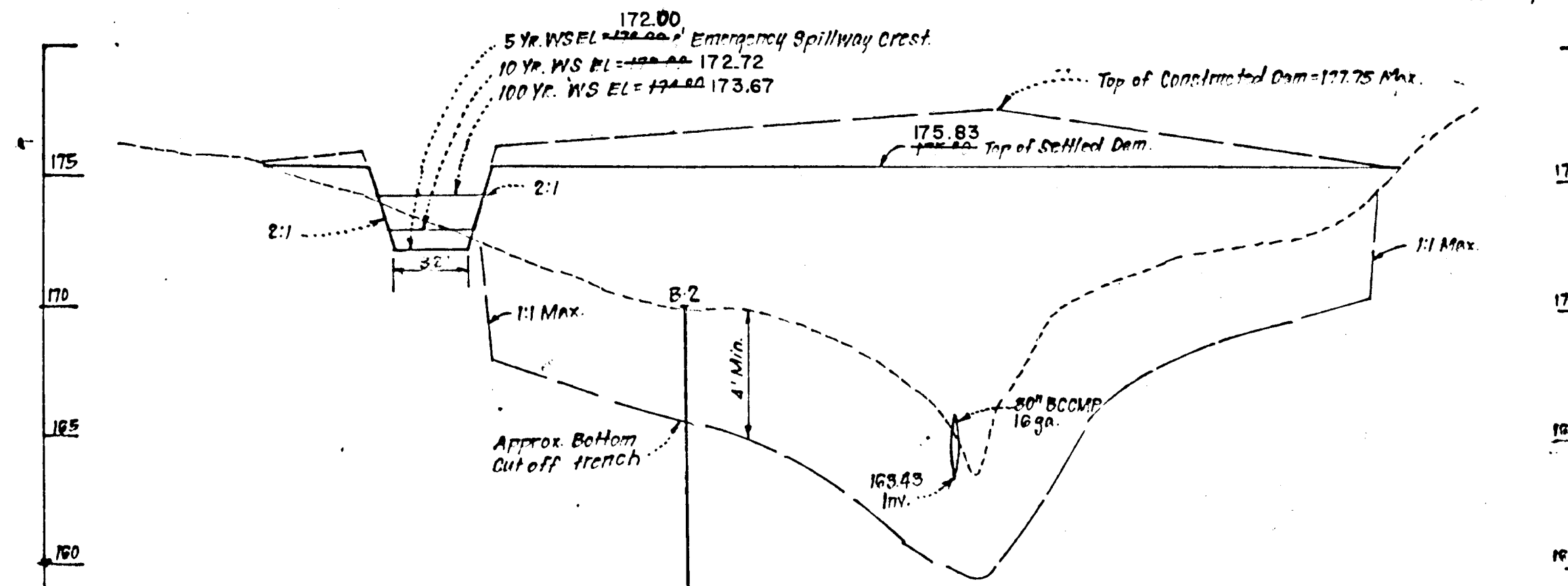
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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

VIII. CORE TRENCH MATERIAL

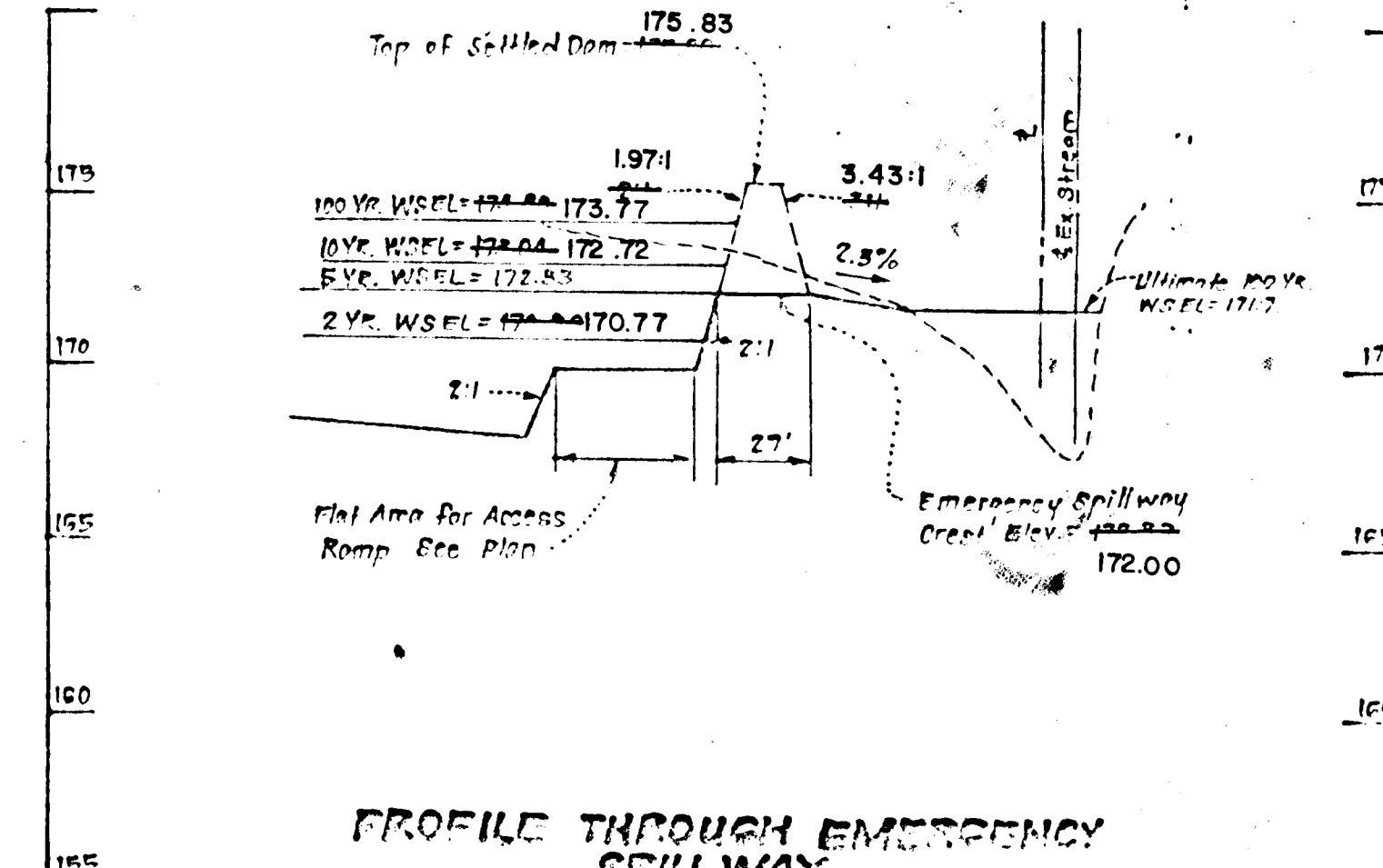
Core trench material shall be ML, CL, CH, CU, or MH ONLY. Core trench shall be constructed under the supervision of a registered professional geotechnical engineer.



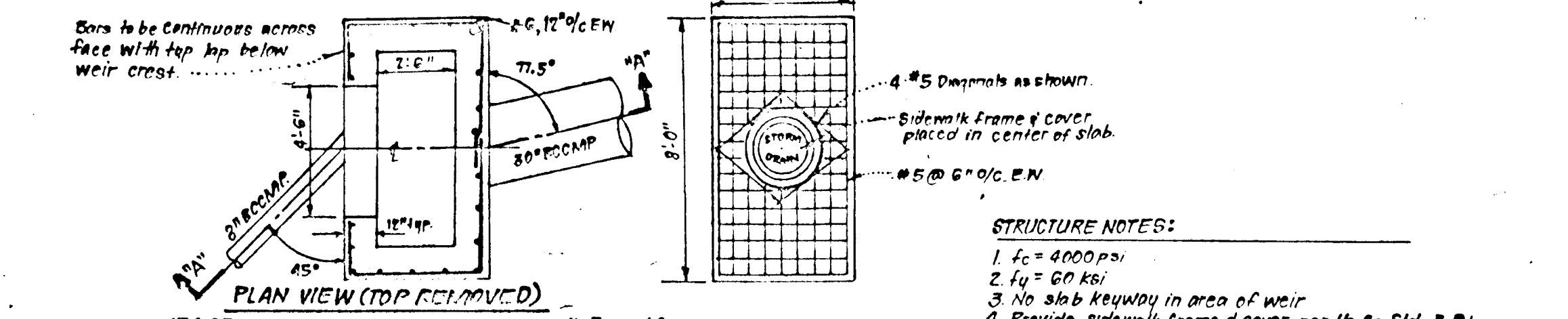
PRINCIPLE SPILLWAY PROFILE
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



PROFILE ALONG DAM-LOOKING UPSTREAM
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

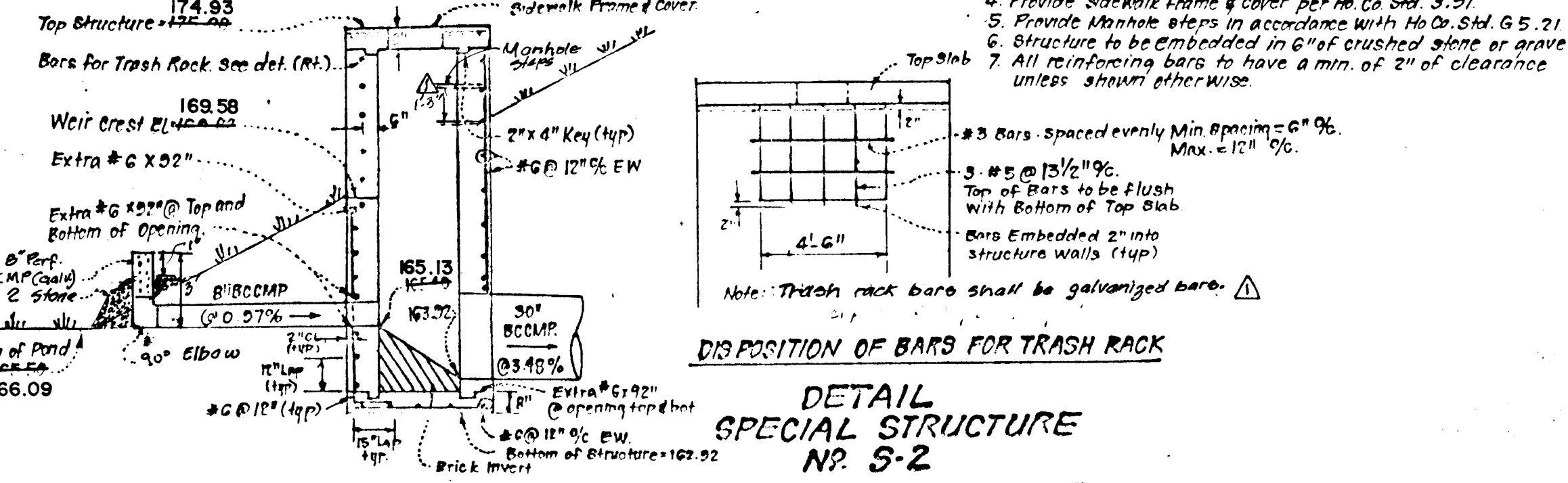


PROFILE THROUGH EMERGENCY SPILLWAY
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

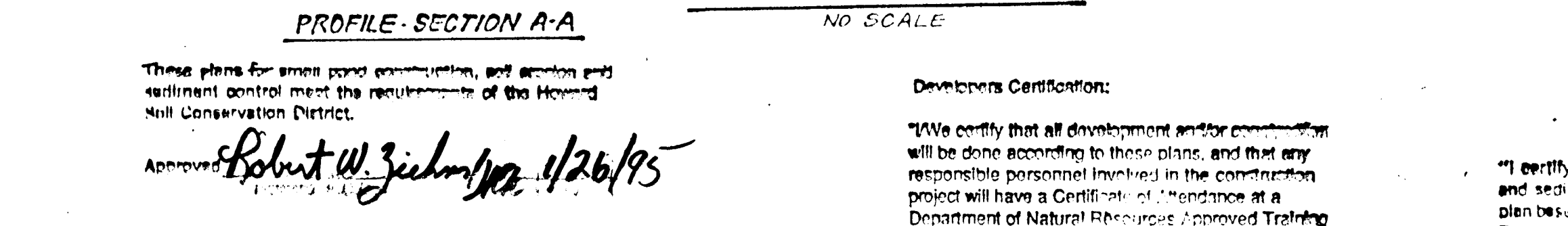


STRUCTURE NOTES:

1. $f_c = 4000$ psi
2. $f_y = 60$ ksi
3. No slab keyway in area of weir
4. Provide sidewalk frame & cover per H.C. Std. 3-D
5. Provide manhole steps in accordance with H.C. Std. G.5.21
6. Structure to be embedded in 6" of crushed stone or gravel
7. All reinforcing bars to have a min. of 2" of clearance unless shown otherwise



DISPOSITION OF BARS FOR TRASH RACK



PROFILE SECTION A-A
NO SCALE

These plans for small pond construction, and erosion and sediment control meet the requirements of the Howard Soil Conservation District.
Approved: Robert W. Zielh/1/26/95
I have reviewed these plans for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
Approved: Patricia L. [Signature] 1/26/95

This is to certify that this sheet, except for the revisions shown, was formerly sheet 426 of Melbourne Estates, Section One, Area One, F 88-205. The stormwater management pond plans, details, and other supporting materials are being transferred to Melbourne Estates Section One, Area Three, F 88-244. So the construction responsibility for the pond is transferred to this project.
It is further certified that the undersigned is only responsible for revision No. 1 shown dated 1-20-98.

[Signature]

1-20-98	Rev. Trash rack to galvanized bars, hand pipe 3/4" dia, 4' long	JHE	Δ
1-20-98	Transfer this sheet from Melbourne Estates Section One, Area One	JHE	Δ
1-20-98	Rev. title to Section One, Three; Dwg. 4 to 6 & 6	JHE	Δ
Date	REVISIONS	BY	No.
Approved:	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.		
[Signature]	Chief, Land Development Division	2/16/95	Date
[Signature]	Chief, Bureau of Engineering	2/19/95	Date
[Signature]	Chief, Bureau of Highways	2-8-95	Date
Approved:	HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.		
[Signature]	Chief, Division of Land Development & Research	2/1/95	Date

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7155 LANSHIRE WAY • COLUMBIA, MD 21045 • (301) 341-7500 • BALTO • (301) 621-8100 • WASH.

DESIGNED	RMK CONSTRUCTION PLANS	SCALE
CLB	STORM WATER MANAGEMENT DETAILS	AS SHOWN
DRAWN	MDY	DRAWING
	MDY	6096
CHECKED	GLB	JOB NO.
		88-122
DATE	FILE NO.	
5-27-88	PG-122-D	

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6271