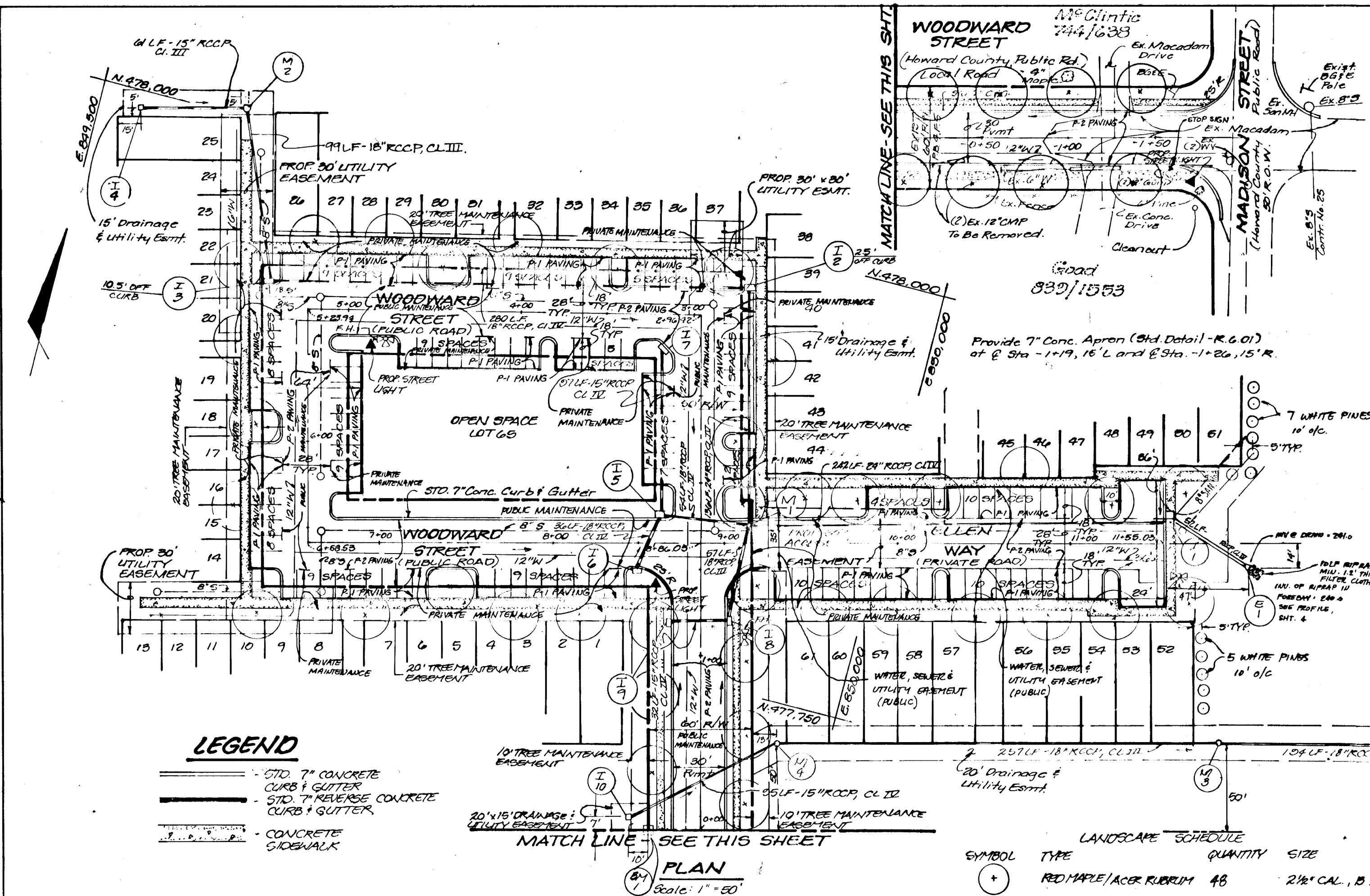


DATE	
BY	
REVISION	
1. APPROVED	
2. CHECKED	
3. DRAWN	
4. DESIGNED	
5. FIELD	
6. SURVEY	
7. PLAN	
8. NOTE BOOK	
9. ALTIMETER CHECKED	
10. BY OF WAY CHECKED	

DATE	
BY	
REVISION	
1. APPROVED	
2. CHECKED	
3. DRAWN	
4. DESIGNED	
5. FIELD	
6. SURVEY	
7. PROFILE	
8. NOTE BOOK	
9. ALTIMETER CHECKED	
10. BY OF WAY CHECKED	



Notes to Contractor:

1. Driveway access to the McClinton and Good properties must be maintained during the entire reconstruction of Woodward Street.
2. Contractor shall provide at least one week notice to the residents of the McClinton and Good properties prior to beginning construction.
3. For limits of P-1 & P-2 paving see sheet 3 of 11 typical sections.
4. S.W.M. and side slopes shall be established during construction. S.W.M. shall be placed and top of sheet 10.

- SHEET INDEX**
- | SHEET NO. | TITLE |
|-----------|---|
| 1 | ROAD CONSTRUCTION PLAN |
| 2 | DRAINAGE AREA AND SOILS MAP & SWM POND |
| 3 | SECTIONS AND PROFILES |
| 4 | STORM DRAIN PROFILES AND STRUCTURE SCHEDULE |
| 5 | SEDIMENT AND EROSION CONTROL PLAN |
| 6 | SEDIMENT AND EROSION CONTROL DETAILS |
| 7 | STORMWATER MANAGEMENT DRAINAGE AREA & SOILS MAP |
| 8 | STORMWATER MANAGEMENT ROAD DETAILS |
| 9 | STORMWATER MANAGEMENT ROAD OUTLET STRUCTURE DETAILS |
| 10 | 10'-5" SWM POND SPECS. AND BORING PROFILES |

▲ STREET LIGHT - 150 W. TRADITIONAL HIGH PRESSURE SODIUM VAPOR LAMP ON 14' BLACK FIBERGLASS POLE FOR TREE PLANTING DETAIL, SEE SHEET 3 OF 10.

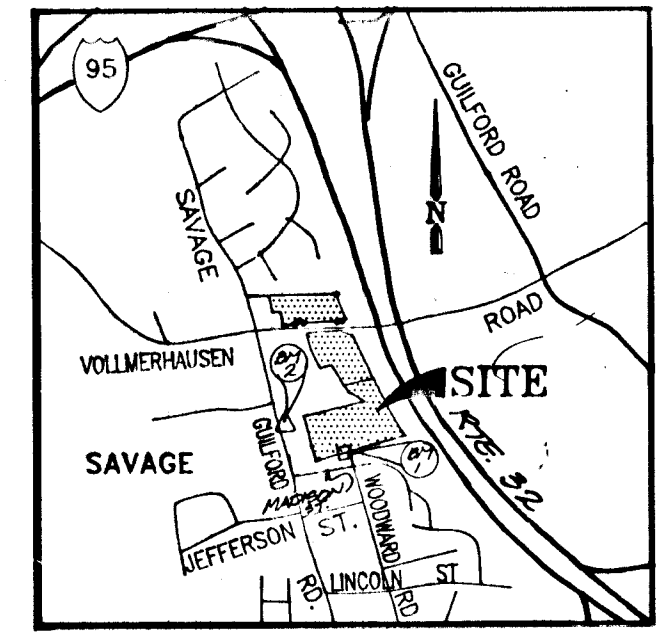
NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE REQUIRED WETLANDS OR STREAM BUFFERS EXCEPT AS AUTHORIZED FOR THE CENTER LINE CONSTRUCTION BY PERMIT NUMBER 02-NY-0030 AND WATER QUALITY CERTIFICATE NUMBER SWQIC-83-001R. AND FOR THE NECESSARY DISTURBANCE FOR THE SWM FACILITY IN ACCORDANCE WITH SECTION 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

BENCHMARK DATA:

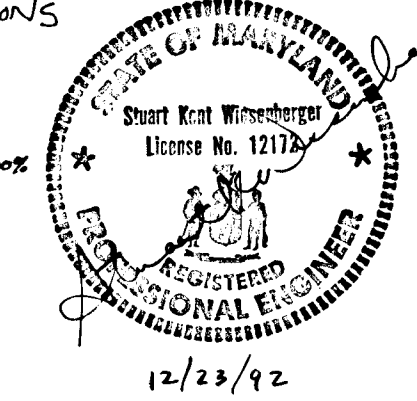
- BENCHMARK NO. 1
CONC. MON. @ LOT COR. AND WOODWARD STREET
N 47° 06' 17" W, E 84° 09' 44" S
ELEV. = 275.00
- BENCHMARK NO. 2
CONC. MON. 0.3' BELOW SURF
N 47° 06' 17" W, E 84° 09' 44" S
ELEV. = 291.82

GENERAL NOTES

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications, if applicable.
2. The contractor shall notify the Department of Public Works/Bureau of Construction Inspection at (301) 793-7272 at least five (5) working days prior to the start of work.
3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
4. Total tract area is 20.80 Ac. with 65 proposed lots, sketch plan 5-92-01.
5. Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
6. A field run survey was conducted by Boender Associates, Inc. on or about November of 1989.
7. Light poles and fixtures for street lights shall be in accordance with the latest Howard County Design Manual, Volume III Roads and Bridges.
8. Water and sewer to be provided will be a public system.
Water - 24-3238-0
Sewer - 24-3238-0
The drainage area for this site is Little Potomac.
9. Floodplain shown hereon is from study prepared by Boender Assoc. Inc. dated June 21, 1991.
10. Stormwater management will be an extended detention facility. It will be gravity flow and constructed by the H.O.A. (See Floodplain Ordinance to be approved by county court).
11. The wetland delineation study was performed by Landscape on July 28, 1989.
12. The geotechnical report was prepared by Froehling and Robertson, Inc. in August of 1989.
13. Existing utilities were located by field run survey and approved County drawings.
14. ALL PARKING BAY RADII ARE TO BE 5' EXCEPT WHERE SHOWN OTHERWISE.
15. LAWNER NOTATIONS:
WP-02-05 16. 120' WAVE PRELIM. PLAN PROCESS
WP-02-146 16. 157(A)(3)(C) - ROAD IMPROVEMENTS
WP-02-66 16. 116 (B)(6) - EXCISED 200' PRIVATE ROAD



VICINITY MAP
Scale: 1" = 2000'



OWNER/DEVELOPER
Vollerhausen-Sect. III, Inc.
P.O. Box 39
Columbia, Maryland 21045
301-539-3700

TITLE: ROAD CONSTRUCTION PLAN			
PROJECT: SHIPLEY MEADOWS			
LOCATION: WP-02-05, WP-02-66, WP-02-146, S-02-01			
SIXTH ELECTION DISTRICT		HOWARD CO., MD.	
SCALE: AS SHOWN	DESIGNED BY: J.L.B.	DRAWN BY: J.C.O.	CHECKED BY: SKW
FIELD BOOK: 123	PAGE NO.: 46-67	JOB NO.: 87071	DATE: Aug. 1992
DRAWING NO.: 1 OF 10		DATE: 5/25/93	

Boender Associates
ENGINEERS, PLANNERS, SURVEYORS
3230 BETHANY LANE
ELLCOTT CITY, MD. 21043
(301) 465-7777 FAX: (301) 465-7866

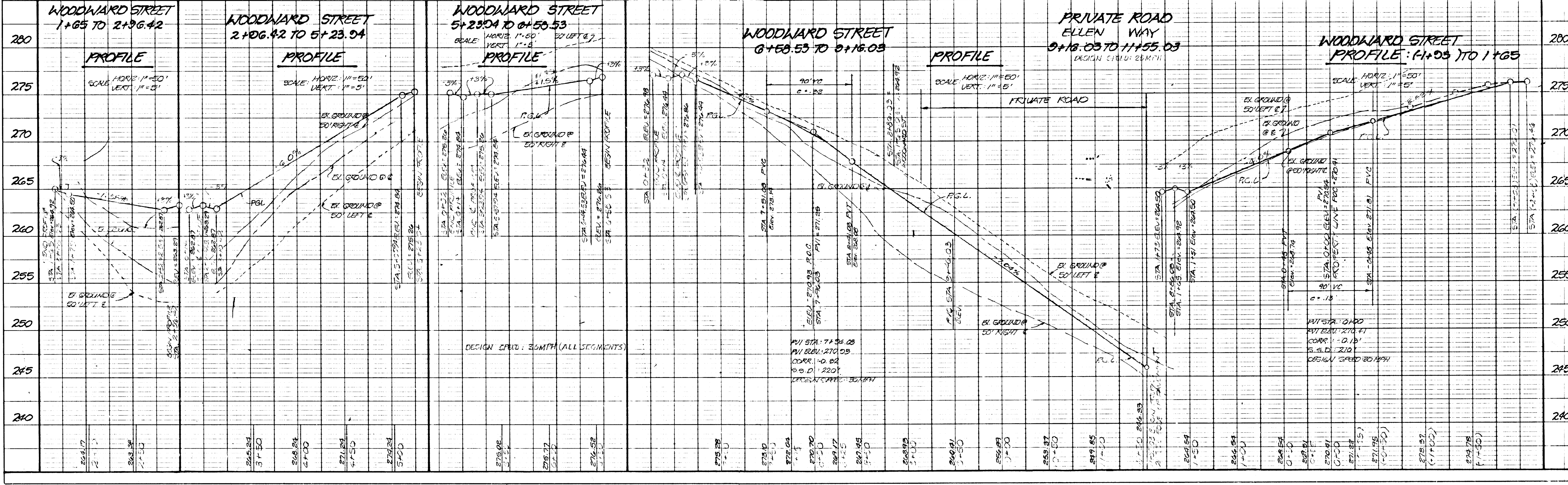


PLATE 1, PLAN PROFILE
REPLIFF & ESSER CO.

1658

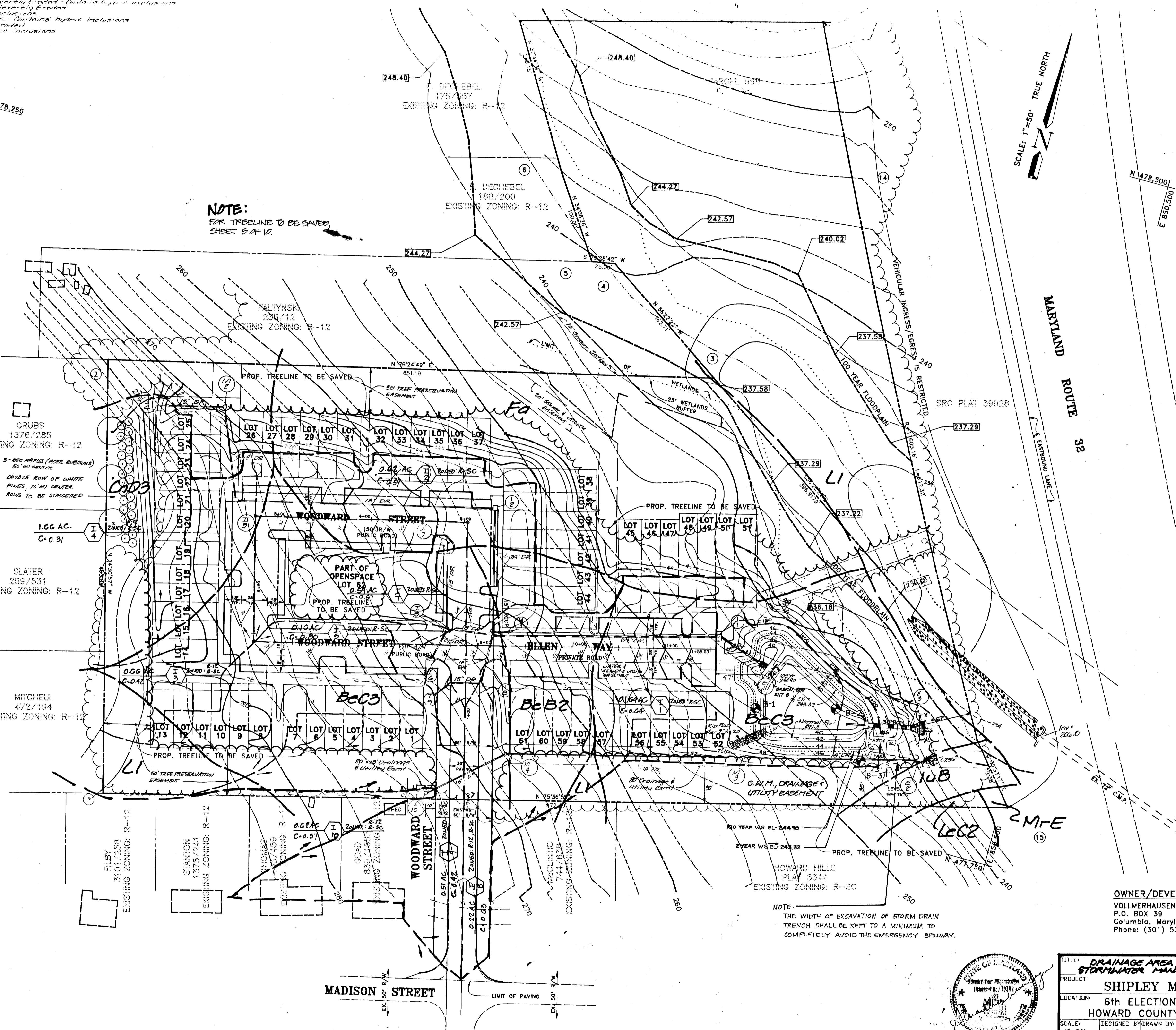
Soil Classifications

- PaB2 - Baltimore Soil Group, 2-5% Slopes, Most Eroded - Contains hydric inclusions
- PaC2 - Baltimore Soil Group, 5-10% Slopes, Severely Erodible - Contains hydric inclusions
- CaD2 - Chillum Soil Group, 5-15% Slopes, Severely Erodible
- Pa - Chillum Soil Group, 5-15% Slopes, Severely Erodible
- LuB - LuB Soil Group, 2-5% Slopes, Contains hydric inclusions
- LuC - LuC Soil Group, 5-15% Slopes, Contains hydric inclusions
- LuE - LuE Soil Group, 15-45% Slopes, Contains hydric inclusions
- Cl - Chillum Soil Group, 5-15% Slopes, Most Eroded
- McE - Montvale & Relay Soil, 15-45% Slopes

E 849,250
N 478,250

SCALE: 1"=50'
TRUE NORTH

NOTE:
FOR TREELINE TO BE SAVED
SHEET 5 OF 10



GRUBS
1376/285
EXISTING ZONING: R-12

SLATER
259/531
EXISTING ZONING: R-12

MITCHELL
472/194
EXISTING ZONING: R-12

FILBY
3101/258
EXISTING ZONING: R-12

STATION
1379/241
EXISTING ZONING: R-12

THOMAS
17450
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

WOODWARD STREET
EXISTING ZONING: R-12

NOTE:
THE WIDTH OF EXCAVATION OF STORM DRAIN
TRENCH SHALL BE KEPT TO A MINIMUM TO
COMPLETELY AVOID THE EMERGENCY SPILLWAY.

OWNER/DEVELOPER
VOLLMERHAUSEN - SECTION III, Inc.
P.O. BOX 39
Columbia, Maryland 21045
Phone: (301) 539-3700

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Charles D. ... DATE: 5/6/93
Chief, Land Development Division
John M. ... DATE: 5-25-93
Chief, Bureau of Highway
Chief, Bureau of Engineering M.E.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Emma ... DATE: 5/20/93
Chief, Division of Community Planning
and Land Development

DEVELOPERS CERTIFICATE
I certify that all development and/or construction will be done according to these, and that any responsible personnel involved in the construction project will have a certificate of attendance at Md. Dept. of Environ. approved training program for the control of sediment and erosion before beginning the project. I will 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 inspection by the Howard Soil Conservation District.
Paul ... DATE: 5/20/93
Developer: TROUTMAN Co.

ENGINEER CERTIFICATE
I certify that this plan for erosion and sediment control represents a practical and workable plan based on personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with an "AS-BUILT" plan of the pond within 30 days of completion.
Steve ... DATE: 12/23/92
Engineer

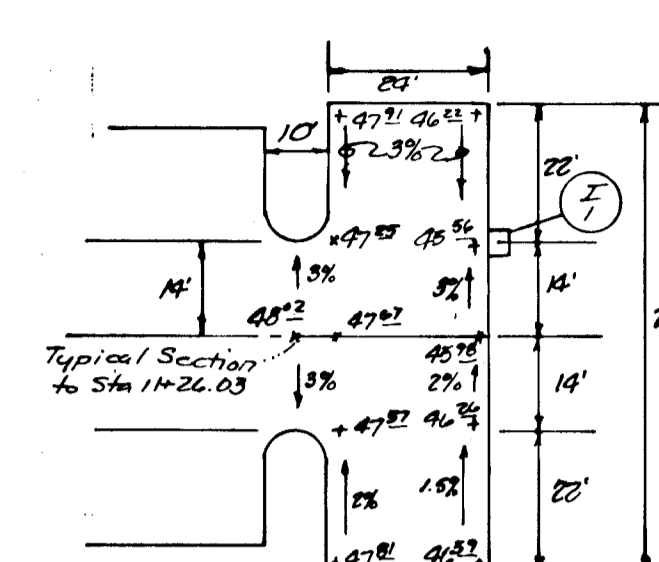
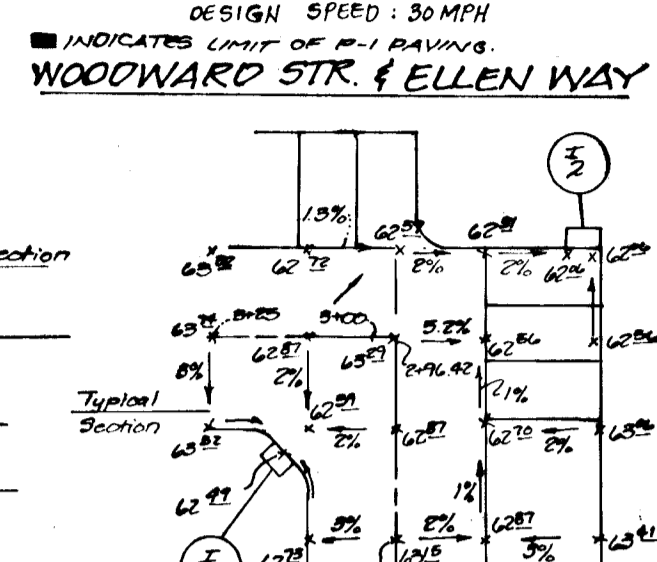
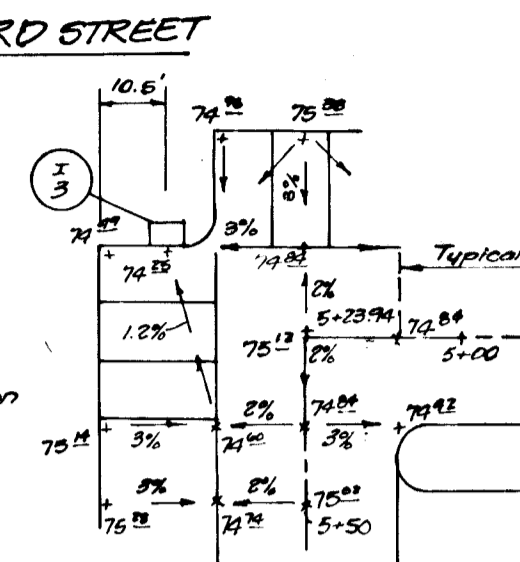
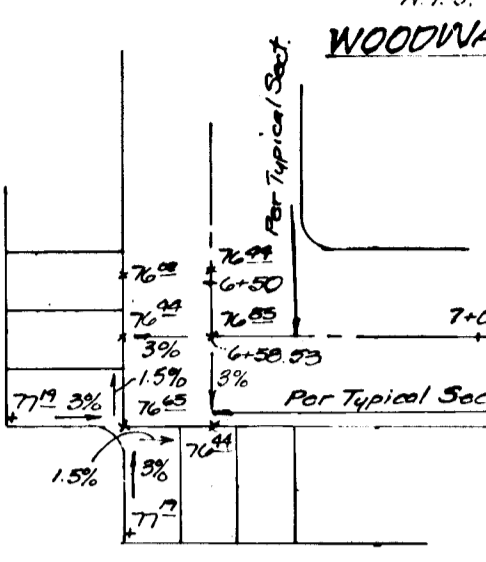
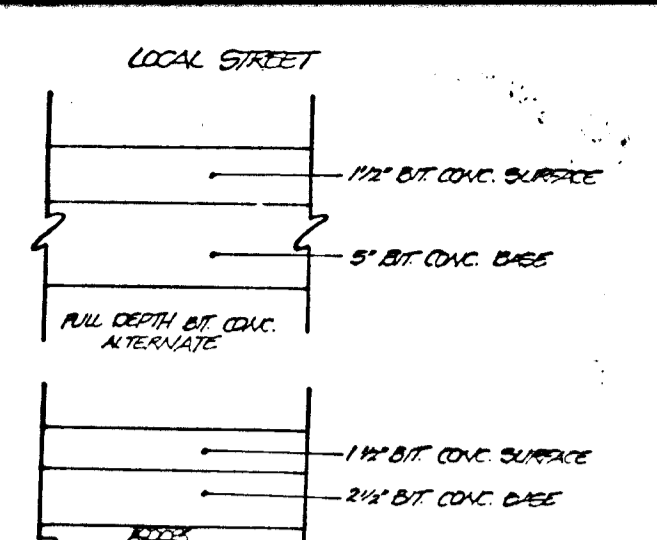
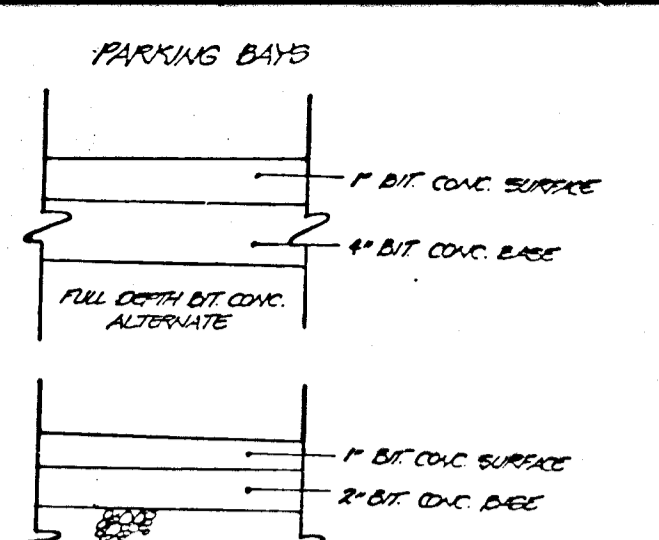
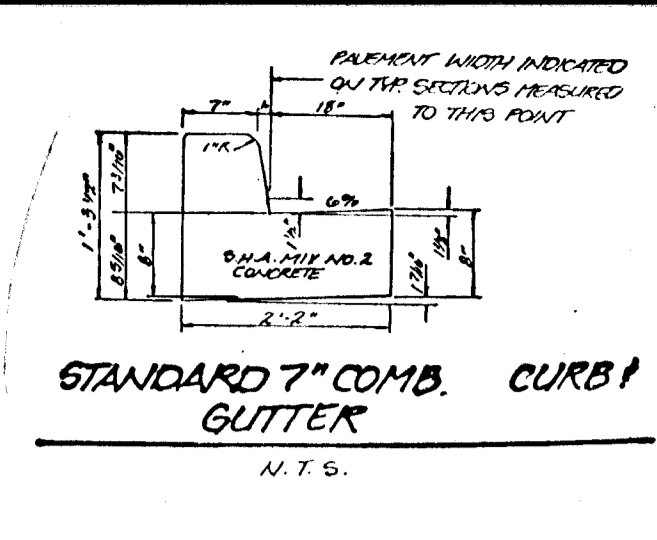
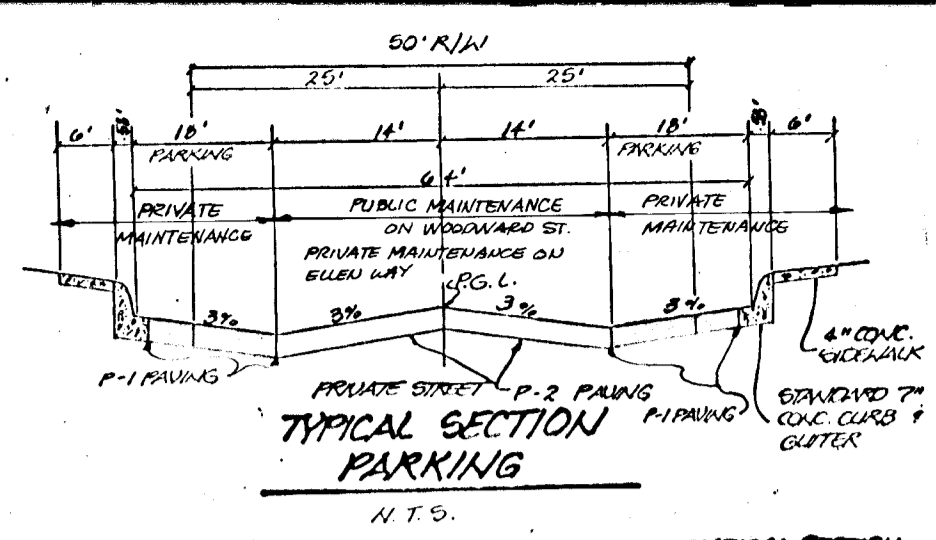
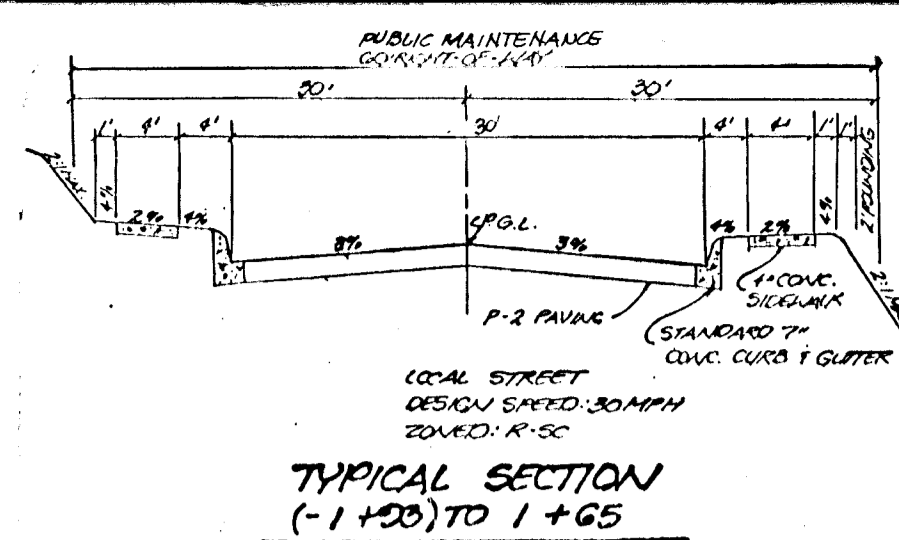
Reviewed for Howard Soil Conservation District and meets technical requirements for small pond construction, soil erosion and sediment control.
Jan M. ... DATE: 4/24/93
SOIL CONSERVATION SERVICE

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
Rand W. ... DATE: 9/22/93
SOIL CONSERVATION DISTRICT



TITLE: DRAINAGE AREA, SOILS MAP / STORMWATER MANAGEMENT PLAN			
PROJECT: SHIPLEY MEADOWS			
LOCATION: 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND			
SCALE: 1"=50'	DESIGNED BY: J.J.B.	CHECKED BY: M.B.B.	DATE: Aug. 1991
FIELD BOOK: 123	PAGE No: 46-67	JOB No: 87071	DRAWING No: 2 OF 10

Boandar Associates
ENGINEERS - PLANNERS - SURVEYORS
3230 BETHANY LANE
ELLCOTT CITY, MD. 21042
(410) 465-7777 FAX: (410) 465-7966



PAVING ELEVATION DETAIL #2 (Scale: 1"=20')

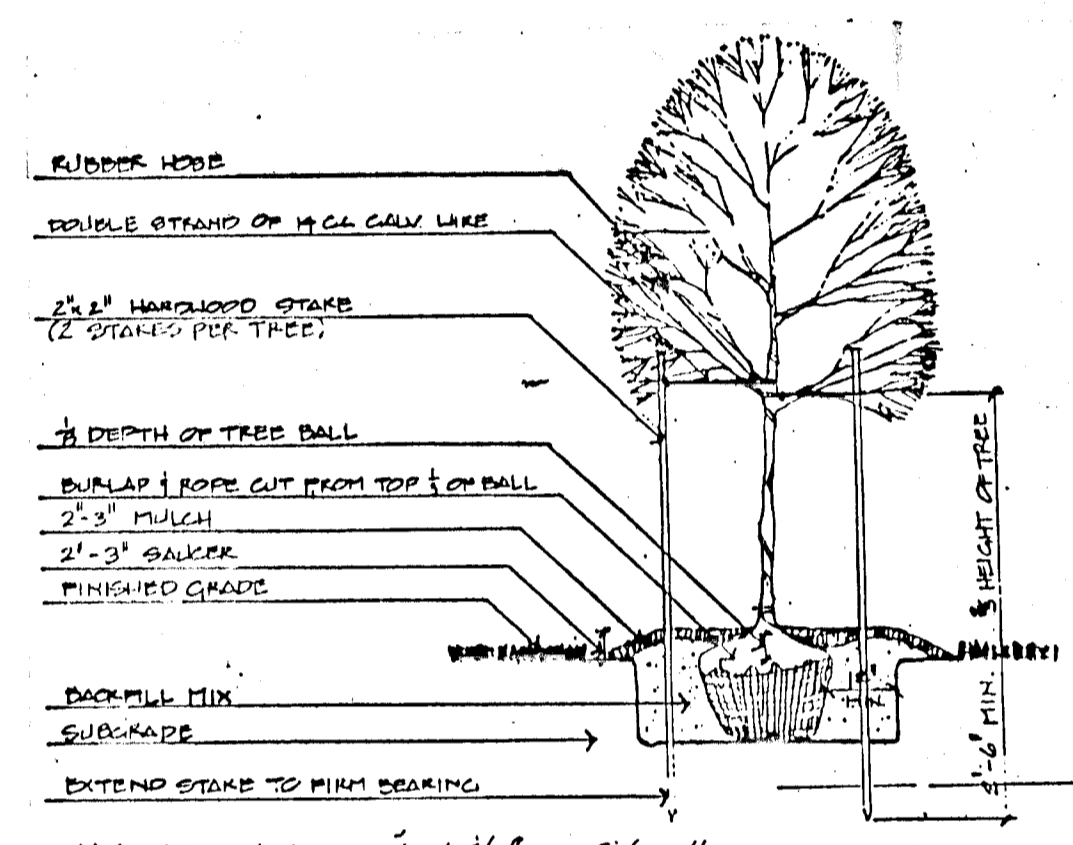
PAVING ELEVATION DETAIL #3 (Scale: 1"=20')

PAVING ELEVATION DETAIL #4 (Scale: 1"=20')

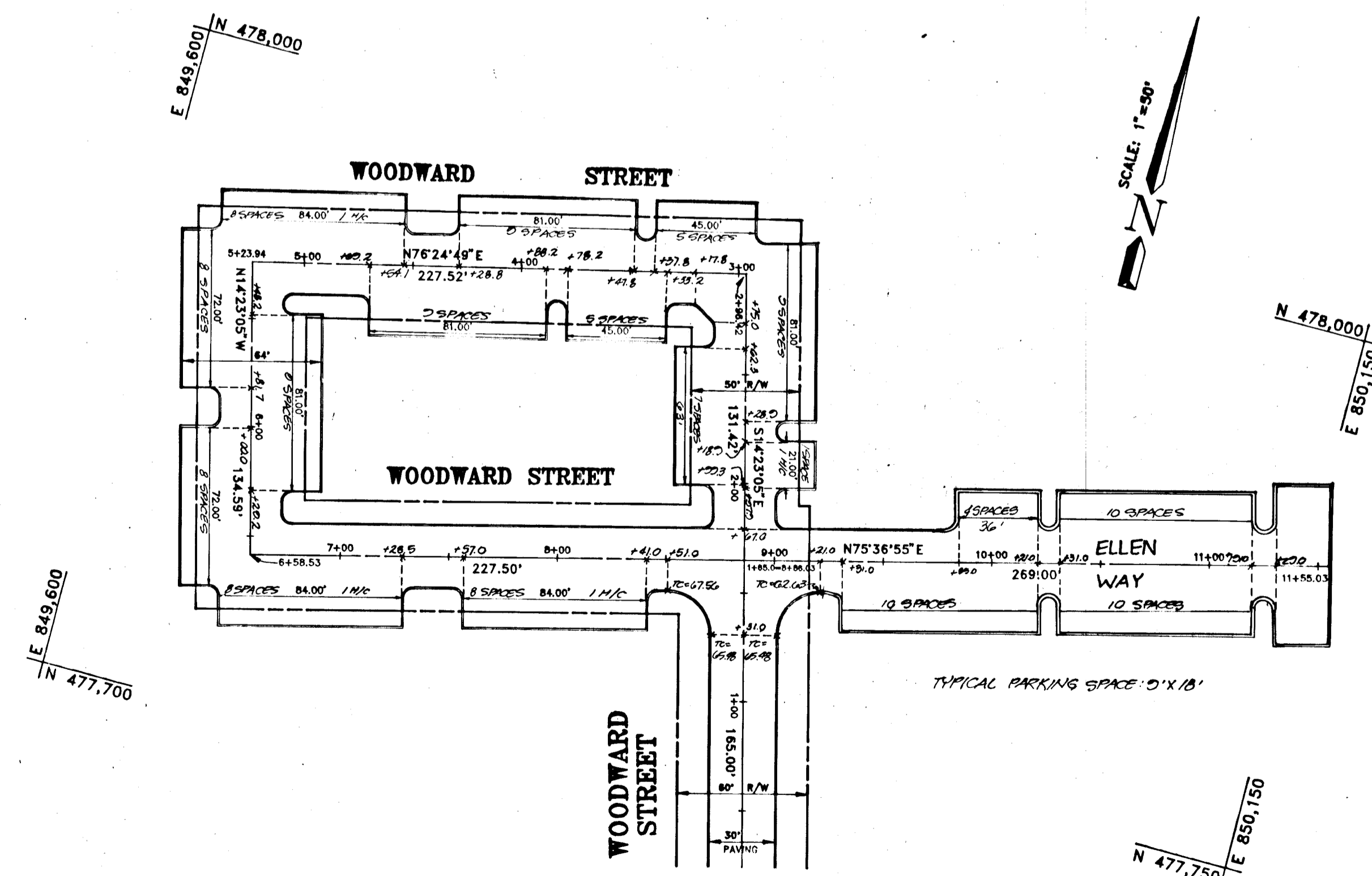
PAVING ELEVATION DETAIL #1 (Scale: 1"=20')

Note: All elevations are top of paving.

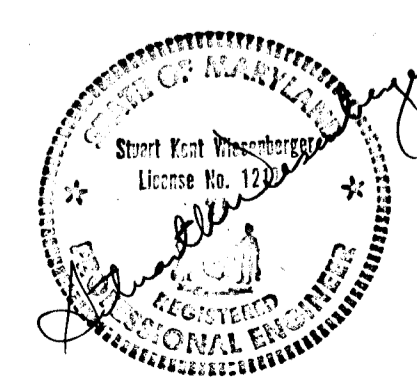
PAVING ELEVATION DETAILS FOR NON-TYPICAL SECTIONS



TREE PLANTING DETAIL - TREES UNDER 2 1/2\"/>



LAYOUT PLAN SCALE: 1"=50'



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.

U.S. CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

DEVELOPER'S CERTIFICATE

I 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 GOVERNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

DEVELOPER: *John Le...* DATE

ENGINEER'S CERTIFICATE

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

ENGINEER: *...* DATE 12/23/92

SECTIONS & DETAILS			
PROJECT:	SHIPLEY MEADOWS		
LOCATION:	6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
AS SHOWN	J.J.B.	L.J.G.	S.K.W. Aug. 92
FIELD BOOK:	PAGE No.:	JOB No.:	DRAWING No.:
123	46-67	87071	3 OF 10

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John De... 5/15/93
Chief, Land Development Division

John M. T... 5/16/93
Chief, Bureau of Highways

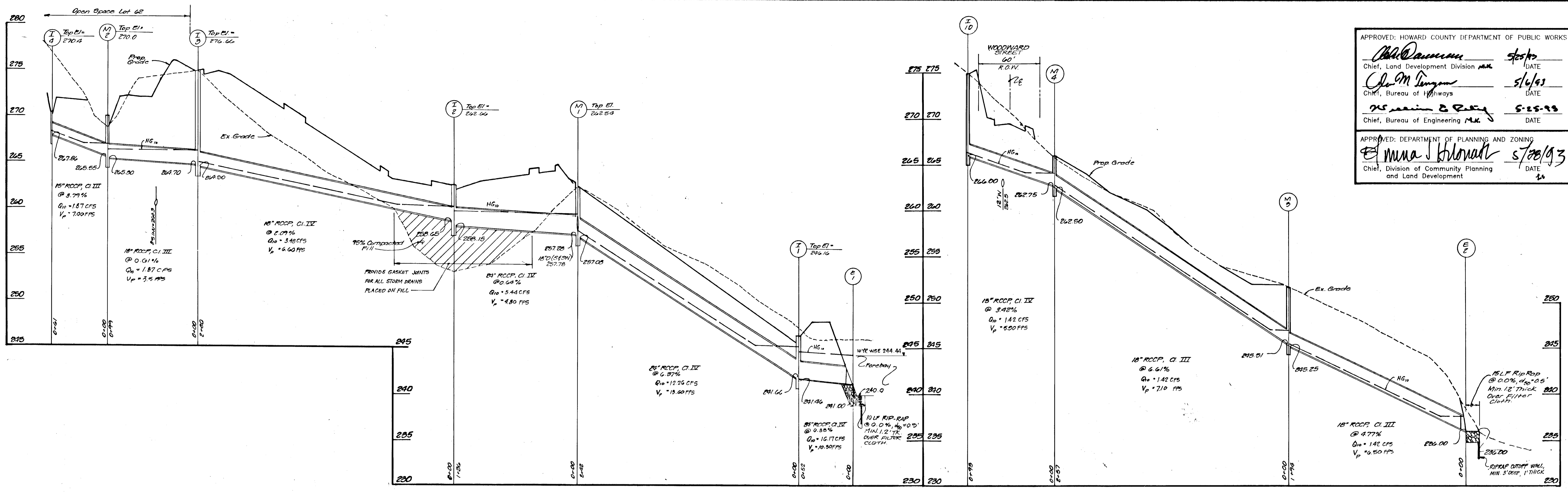
... 6-25-93
Chief, Bureau of Engineering

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Emma J. H... 5/28/93
Chief, Division of Community Planning and Land Development

OWNER
VOLLMERHAUSEN - SECTION III, Inc.
P.O. Box 39
Columbia, Maryland 21045
Phone: (410) 539-3700

Beander Associates
ENGINEERS - PLANNERS - SURVEYORS
3230 BETHANY LANE
ELLICOTT CITY, MD. 21042
(410) 465-7777 FAX: (410) 465-7966



PROFILE
Scale: Hor: 1"=50'
Vert: 1"=5'

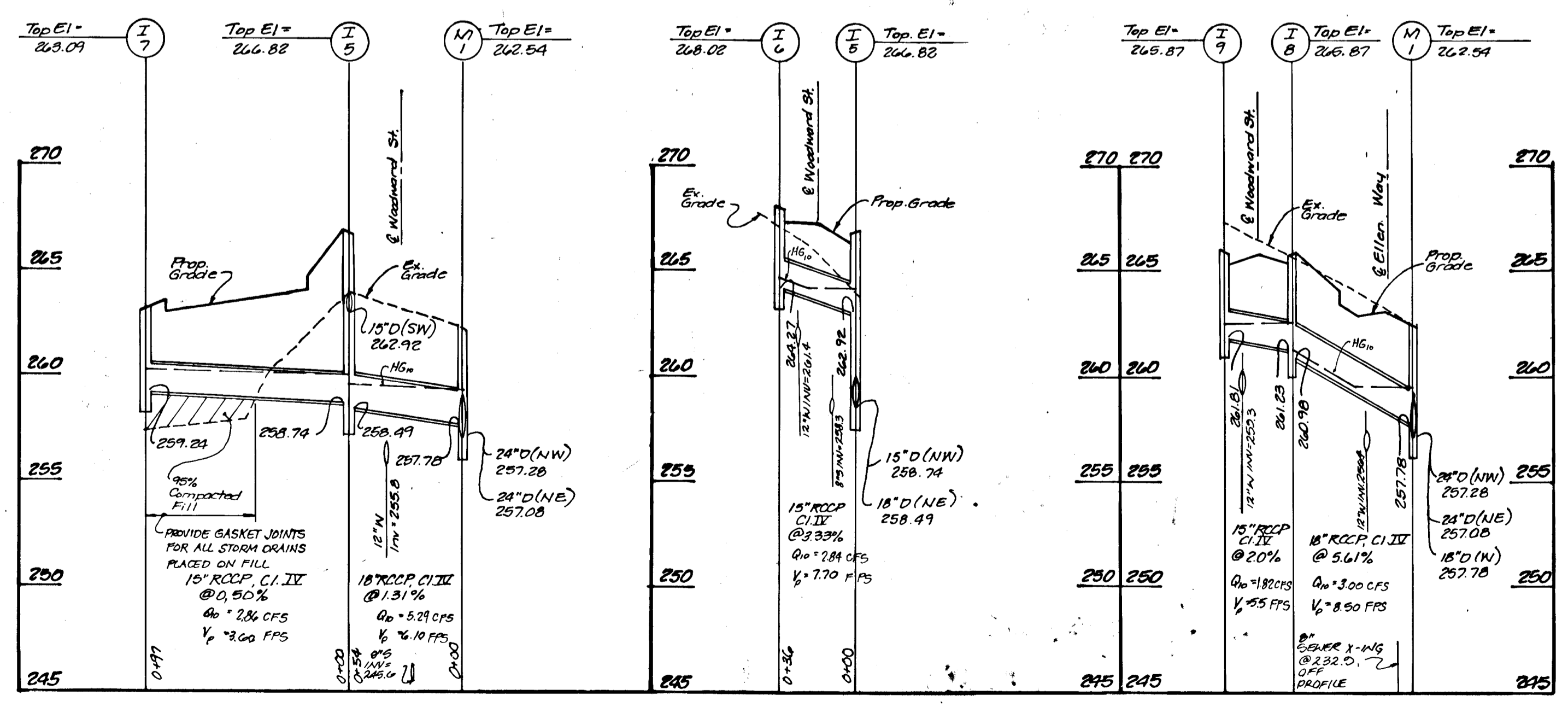
PROFILE
Scale: Hor: 1"=50'
Vert: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division *[Signature]* 5/25/93 DATE
 Chief, Bureau of Highways *[Signature]* 5/16/93 DATE
 Chief, Bureau of Engineering *[Signature]* 5-25-93 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Community Planning and Land Development *[Signature]* 5/28/93 DATE

STRUCTURE SCHEDULE

STRUCTURE NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP OF CURB ELEVATION	REMARKS
I-1	A-5 INLET	CYRINE STA 1445.03 E.W., 14' W	241.66	241.46	246.16	HO. CO. STD DETAIL, SP-4.01
I-2	A-5 INLET	SEE PLAN, SHEET 9	250.65	250.15	252.66	HO. CO. STD DETAIL, SP-4.01
I-3	A-5 INLET	SEE PLAN, SHEET 9	244.70	244.50	244.50	HO. CO. STD DETAIL, SP-4.01
I-4	YARD INLET	SEE PLAN, SHEET 1	267.86	267.86	247.80	HO. CO. STD DETAIL, SP-4.01
I-5	A-5 INLET	CYRINE STA 8461.53 W.S., 14' W	262.92	258.49	258.49	HO. CO. STD DETAIL, SP-4.01
I-6	A-5 INLET	CYRINE STA 8449.53 W.S., 14' W	258.74	---	257.73	HO. CO. STD DETAIL, SP-4.01
I-7	A-5 INLET	SEE PLAN, SHEET 3, 2-79 @ 20' LT	---	---	259.74	HO. CO. STD DETAIL, SP-4.01
I-8	A-5 INLET	CYRINE STA 1420.5 W.S., 15' W	261.23	260.89	265.97	HO. CO. STD DETAIL, SP-4.01
I-9	A-5 INLET	CYRINE STA 1420.5 W.S., 15' W	---	---	261.87	HO. CO. STD DETAIL, SP-4.01
I-10	D INLET	4 5/8" x 7 W.S., 40' LT	256.00	---	275.80	SHOULDER OPENING EL. 275
M-1	SHALLOW HR	CYRINE STA 9415 W.S., 11' W	257.78 (2)	257.08	259.54	HO. CO. STD DETAIL, SP-4.11
M-2	SHALLOW HR	SEE PLAN, SHEET 1	255.55	255.30	270.00	HO. CO. STD DETAIL, C-5.12
M-3	SHALLOW HR	SEE PLAN, SHEET 1	245.51	245.25	250.02	HO. CO. STD DETAIL, C-5.12
M-4	SHALLOW HR	4 5/8" x 15 W.S., 45' W	262.75	262.50	266.00	HO. CO. STD DETAIL, C-5.12
C-1	24" CONC END SEC	SEE PLAN, SHEET 2	---	---	241.00	HO. CO. STD DETAIL, SP-5.51
C-2	18" CONC END SEC	SEE PLAN, SHEET 2	---	---	236.00	HO. CO. STD DETAIL, SP-5.51
C-3	30" C ENDWALL	SEE PLAN, SHEET 2	---	---	237.00	HO. CO. STD DETAIL, SP-5.71
S-1	OUTLET CYCL STROD	SEE PLAN, SHEET 2	239.50	239.00	245.50	SEE DETAIL, SHEET 5

* DENOTES INV ELEVATION
 ** DENOTES GRATE ELEVATION



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

[Signature] 4/26/93 Date
 U.S. SOIL CONSERVATION SERVICE

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

APPROVED: *[Signature]* 4/26/93 Date
 HOWARD SOIL CONSERVATION DISTRICT

DEVELOPERS CERTIFICATE

I certify that all development and/or construction will be done according to these, and that any responsible personnel involved in the construction project will have a certificate of attendance of the State of Maryland approved training program for the control of sediment and erosion before beginning the project. I will 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 inspection by the Howard Soil Conservation District.

[Signature] Developer
 BRISTON PETERSON
 MOUNTAIN CO. Date

ENGINEER CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with an AS-BUILT plan of the pond within 30 days of completion.

[Signature] 12/23/92 Date
 Engineer

OWNER
 VOLLMEYERHAUSEN - SECTION III, Inc.
 P.O. Box 39
 Columbia, Maryland 21045
 Phone: (410) 539-3700

STORM DRAIN PROFILES

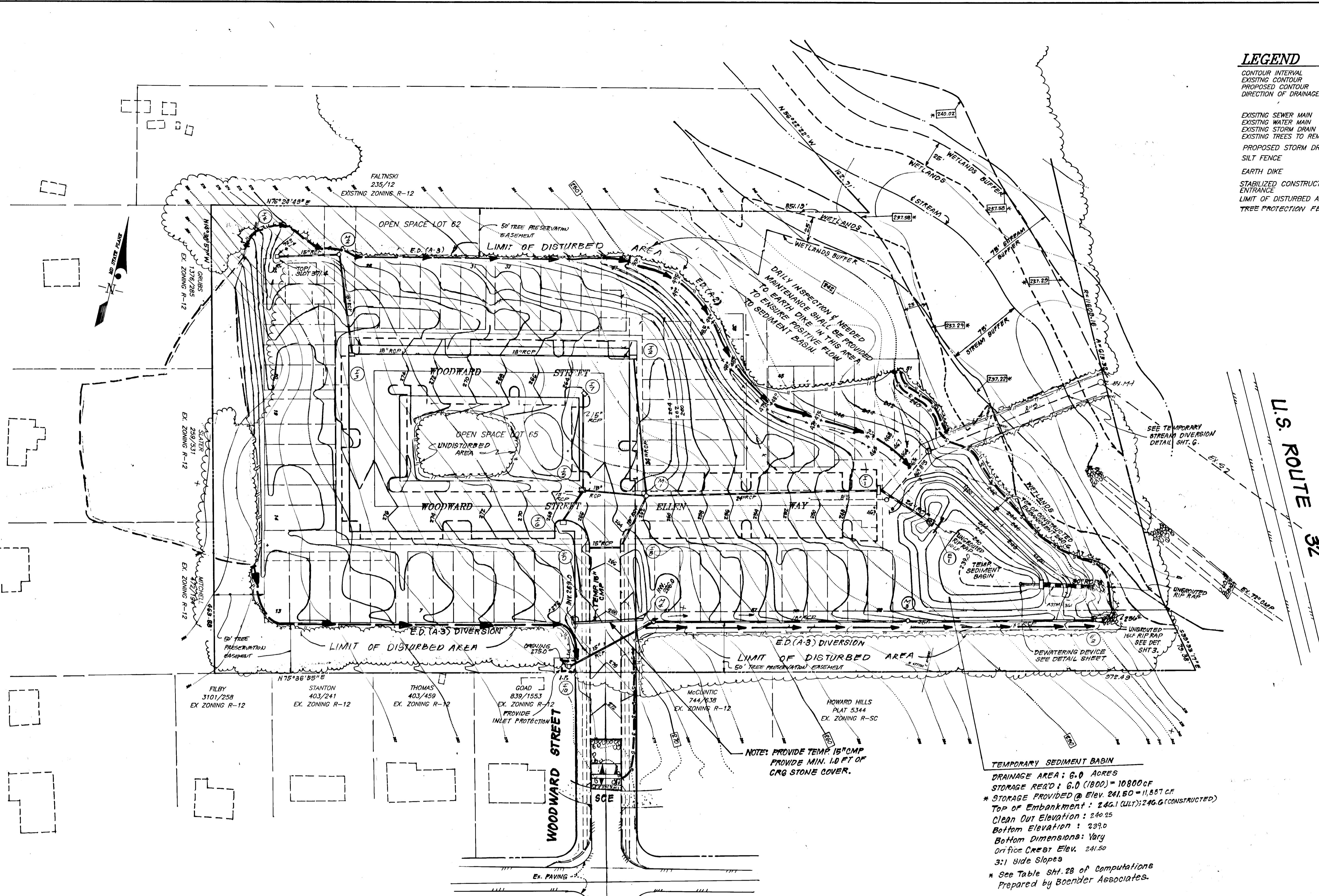
PROJECT: SHIPLEY MEADOWS
 LOCATION: 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 DESIGNED BY: J.J.B.
 DRAWN BY: J.C.O.
 CHECKED BY: S.K.W.
 DATE: Aug. 92

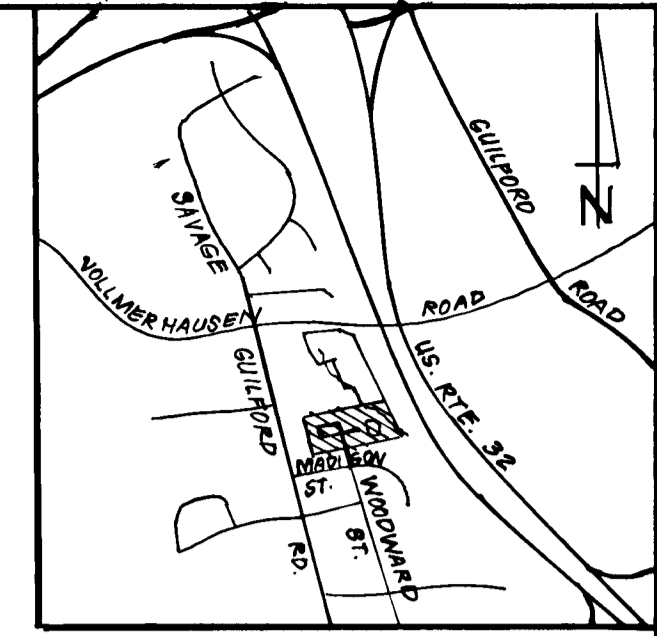
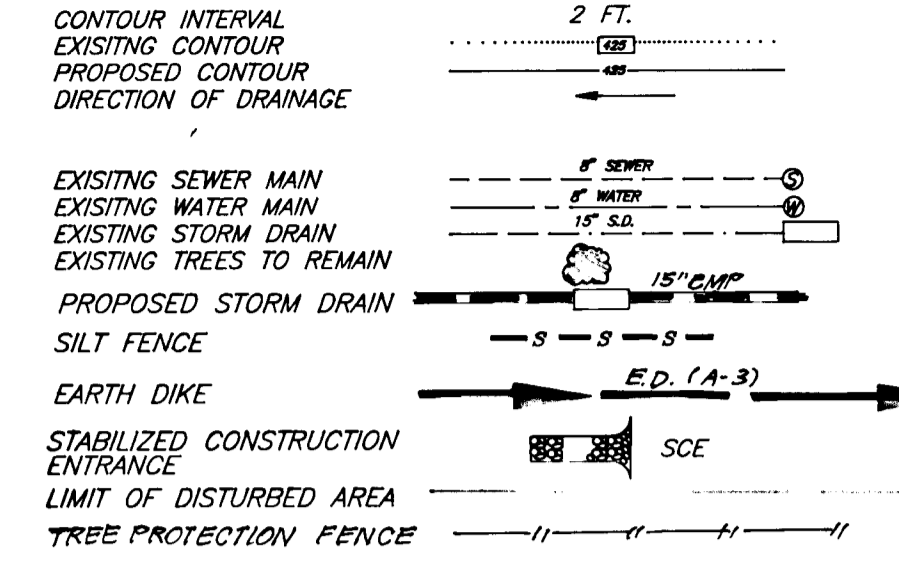
IF L.D. BOOK: 23
 PAGE No.: 66-67
 JOB No.: 87071
 DRAWING No.: 4 OF 10

Beander Associates
 ENGINEERS - PLANNERS - SURVEYORS
 3230 BETHANY LANE
 ELLICOTT CITY, MD. 21042
 (410) 465-7777 FAX: (410) 465-7966

1658



LEGEND



CONSTRUCTION SEQUENCE:	NO. OF DAYS:
1. Obtain grading permit.	7
2. Install Tree Protection Fence	7
3. Install SCE, Temporary 15" CMP under entrance Road, and Storm Drainage Str. 1'-10" thru E-2 that functions as a diversion.	14
4. Install Sediment Basin including Temp. 12" D.I.P. & Steel Support shown on Sht. 3. Block 2' x 6' opening during construction.	30
5. Install remaining sediment control devices.	
6a. Rough grade site. Temporarily stabilize in accordance with stds. and specs.	14
6. Install remaining storm drainage & utilities.	30
7. Construct roadways and sidewalks.	60
8. Permanently stabilize all remaining disturbed areas.	14
9. Once complete stabilization of their respective drainage areas and upon approval of the sediment control inspector, remove temp. 12" D.I.P. and steel support and convert temporary sediment basin to a permanent SWM facility as per Boender Associates plans as follows:	
a. Flush out storm drainage.	
b. Pump out impounded water. Remove blocking of 2' x 6" opening Cap 12" dia.	
c. Remove dewatering device and accumulated sediment as directed by the inspector. Complete outfall to pond per Boender Assoc. Road Plans.	
d. Final grade the basin as per Boender Associates road plans. Sheet 2 of 11.	
e. Permanently stabilize.	14
9. Remove all other sediment and erosion control devices.	7

TEMPORARY SEDIMENT BASIN
 DRAINAGE AREA: 6.0 ACRES
 STORAGE CAP: 6.0 (1800) = 10800 CF
 * STORAGE PROVIDED @ Elev. 241.60 = 11,887 CF
 Top of Embankment: 246.1 (ULT); 246.6 (CONSTRUCTED)
 Clean Out Elevation: 240.25
 Bottom Elevation: 239.0
 Bottom Dimensions: Vary
 Orifice Crest Elev. 241.60
 3:1 Side Slopes
 * See Table Sht. 28 of Computations
 Prepared by Boender Associates.

NOTE: PROVIDE TEMP. 15" CMP PROVIDE MIN. 1.0 FT OF CRG STONE COVER.

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.

Approved: *John M. Walters, Jr.* *H. H. H. H.*
 Soil Conservation Service
 Date: _____
 Approved: *Robert W. Zehly* *H. H. H. H.*
 Howard S.C.D.
 Date: _____
 Plan Number: **895-39**

DEVELOPER'S CERTIFICATION
 "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 Certificate of Attendance at a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with "As Built" plan of the pond within 30 days of completion. I will also authorize periodic on-site inspections by the Howard Soil Conservation District."
 Signature: *THOMAS W. CO.* Date: **August 7, 1992**

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 must provide the Howard Soil Conservation District with a red lined "As Built" plan of the pond within 30 days of completion."
 Signature: *D. N. Ek* Date: **8-7-92**

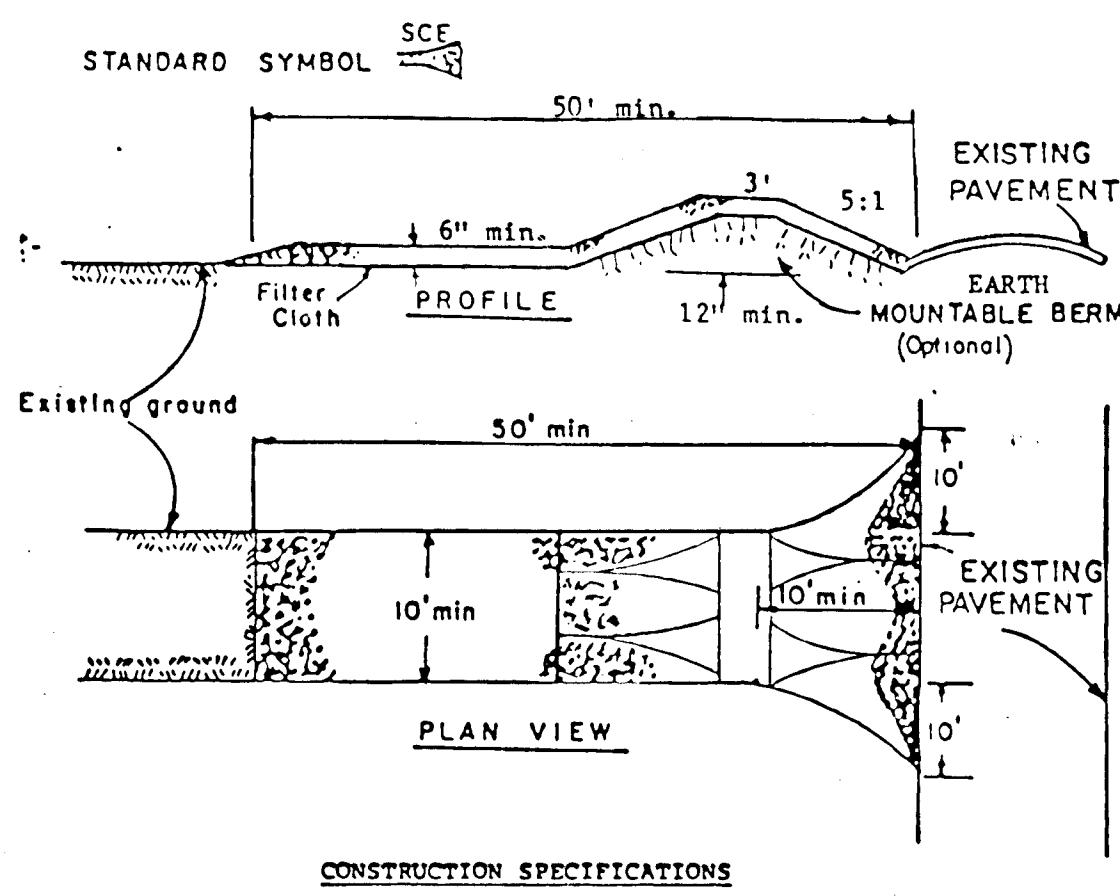
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division: *5/25/92*
 Chief, Bureau of Highways: *5/4/92*
 Chief, Bureau of Engineering: *5-25-92*
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 Chief, Division of Community Planning & Land Development: *5/20/92*

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

DESIGNED	ROAD CONSTRUCTION PLANS	SCALE
DRAWN	SEDIMENT AND EROSION CONTROL PLAN	1" = 50'
CHECKED	SHIPLEY MEADOWS	DRAWING
JLS	6TH ELECTION DISTRICT	5 of 10
DATE	HOWARD COUNTY, MARYLAND	JOB NO.
JULY, 1992	OWNER/DEVELOPER: VOLLMERHAUSEN-SECTION III, INC.	87071
	P.O. BOX 39	FILE NO.
	COLUMBIA, MARYLAND 21045 PH. (301) 539-3700	

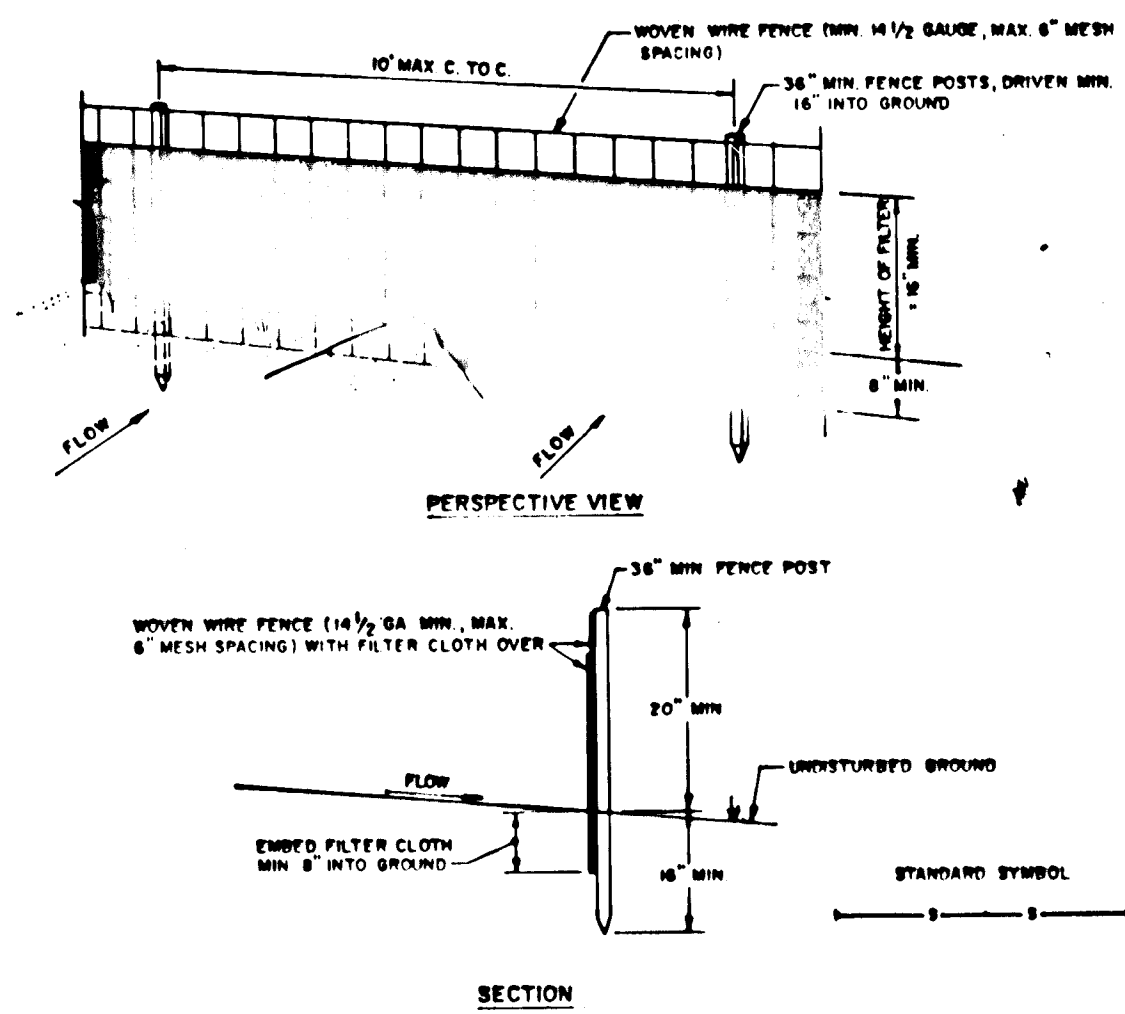
NO.	REVISION	DATE
2	Removed Trap #1 and relocated diversion dike to Basin	8-17-92
1	Revd. Sediment Basin add Temp. Pipe at Entrance	12-23-92

STABILIZED CONSTRUCTION ENTRANCE
not to scale



- CONSTRUCTION SPECIFICATIONS**
1. Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
 2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
 3. Thickness - Not less than six (6) inches.
 4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
 5. 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.
 6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mounatable berm with 5:1 slopes will be permitted.
 7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
 8. Washing - 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.
 9. Periodic inspection and needed maintenance shall be provided after each rain.

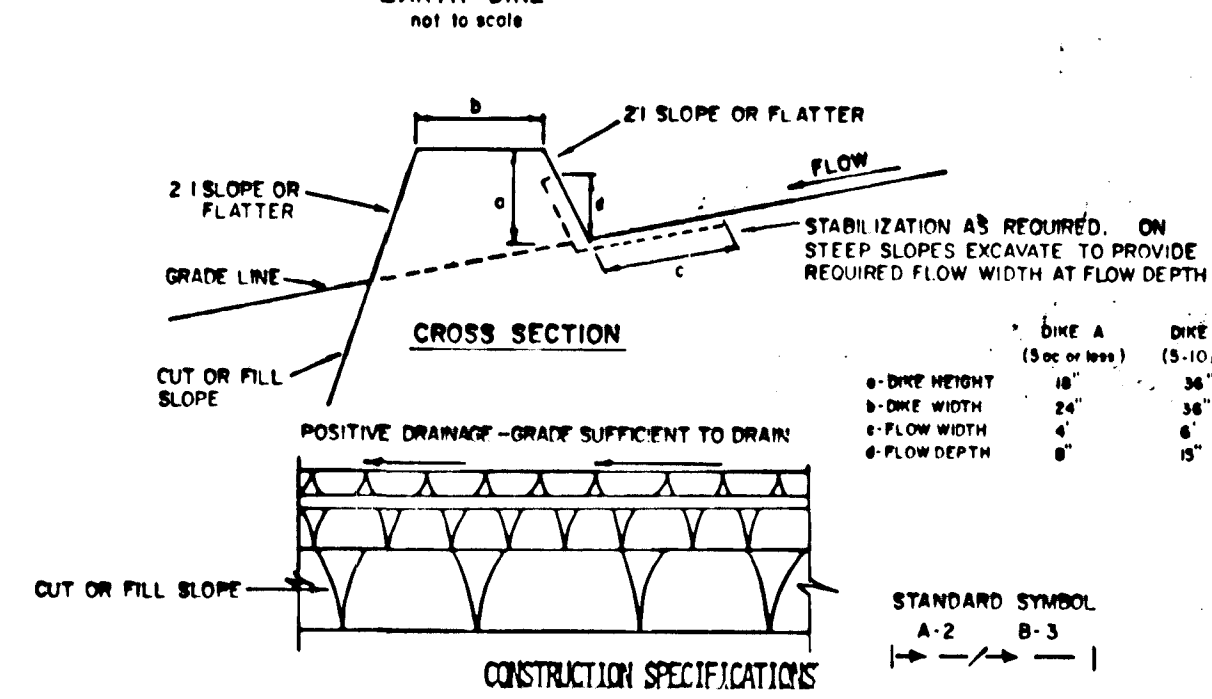
SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES (SPACED EVERY 24" AT TOP AND MID SECTION).
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NECESSARY AND MATERIAL REMOVED FROM "BURGES" DEVELOP IN THE SILT FENCE.

EARTH DIKE
not to scale



1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. FLOWOFF BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. 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 THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSTOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
 B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
 C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
 7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

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

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 600 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 (0.5 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 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 unrattled grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

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

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing 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 2 1/2 bushel per acre of annual ryegrass (3.2 lbs./1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (0.7 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.

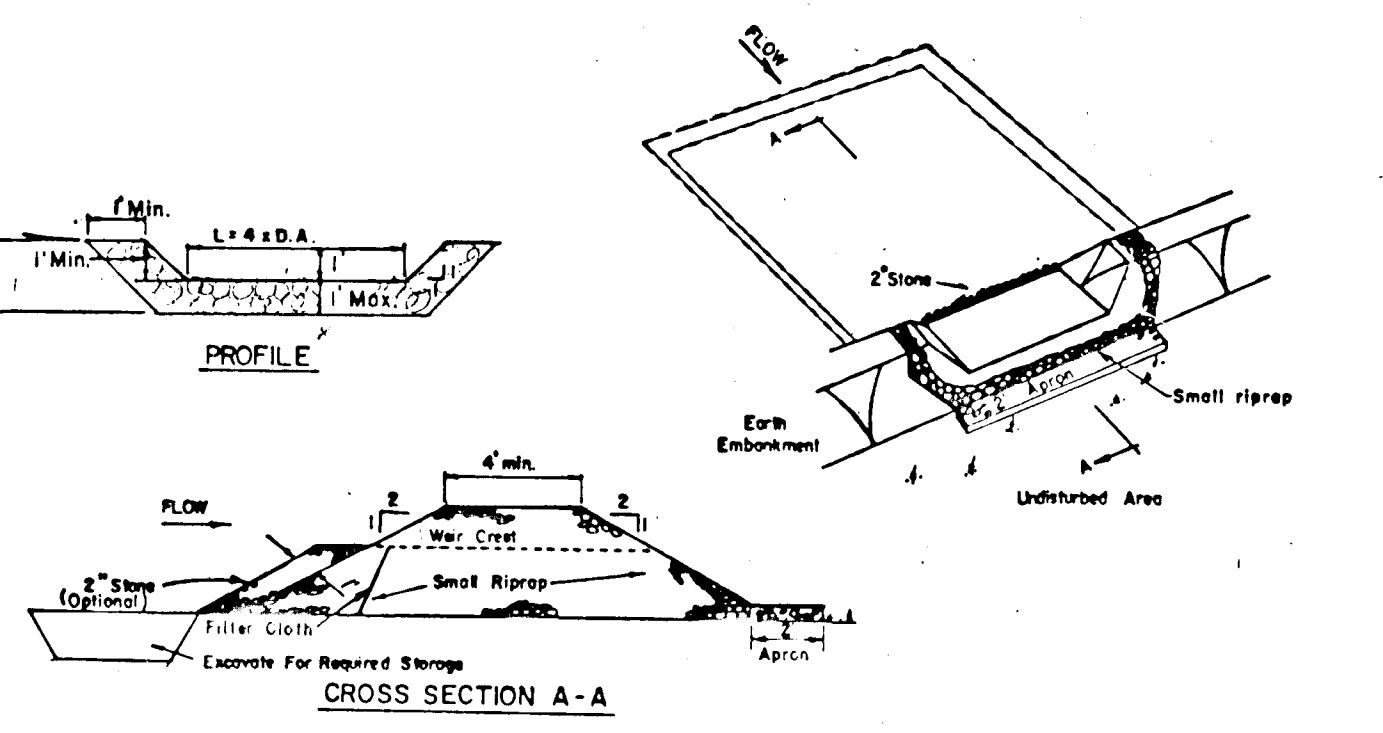
MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrattled grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use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

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

SEDIMENT AND EROSION CONTROL NOTES

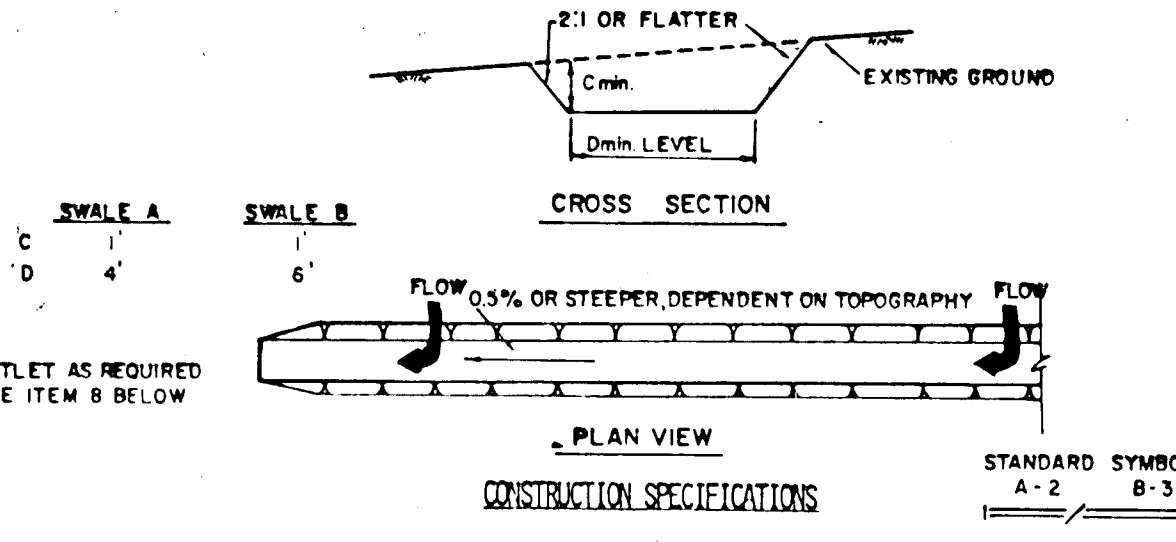
1. A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437).
 2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL.
 3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
 4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeters in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
 5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) and (Sec. 54), temporary seeding (Sec. 52) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
 6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
 7. SITE ANALYSIS:
 Total Area of Site: 20,756 AC
 Area Disturbed: 1,123 AC
 Area to be roofed or paved: 17 AC
 Area to be vegetatively stabilized: 4,112 AC
 Total Cut: 18,870 CY
 Total Fill: 18,870 CY
 Offsite Waste/Borrow Area Location:
 8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
 9. Additional sediment control must be provided, if deemed necessary by the Howard County DPW 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.
 10. All sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
 11. All sites to be constructed on an "as-built" basis at random, Single-Family Sediment Control, as shown below, shall be implemented.
 12. All pipes to be blocked at the end of each day (see detail this sheet).
 13. The total amount of silt fence = 625 LF
- * It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

STONE OUTLET SEDIMENT TRAP



- OPTION:** A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.
- CONSTRUCTION SPECIFICATIONS FOR ST-Y**
1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
 2. The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
 3. All cut and fill slopes shall be 2:1 or flatter.
 4. The stone used in the outlet shall be small riprap 4"-8" along with a 1' thickness of 2" aggregate placed on the small riprap on embedded filter cloth in the riprap.
 5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap.
 6. The structure shall be inspected after each rain and repairs made as needed.
 7. Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
 8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

TEMPORARY SWALE

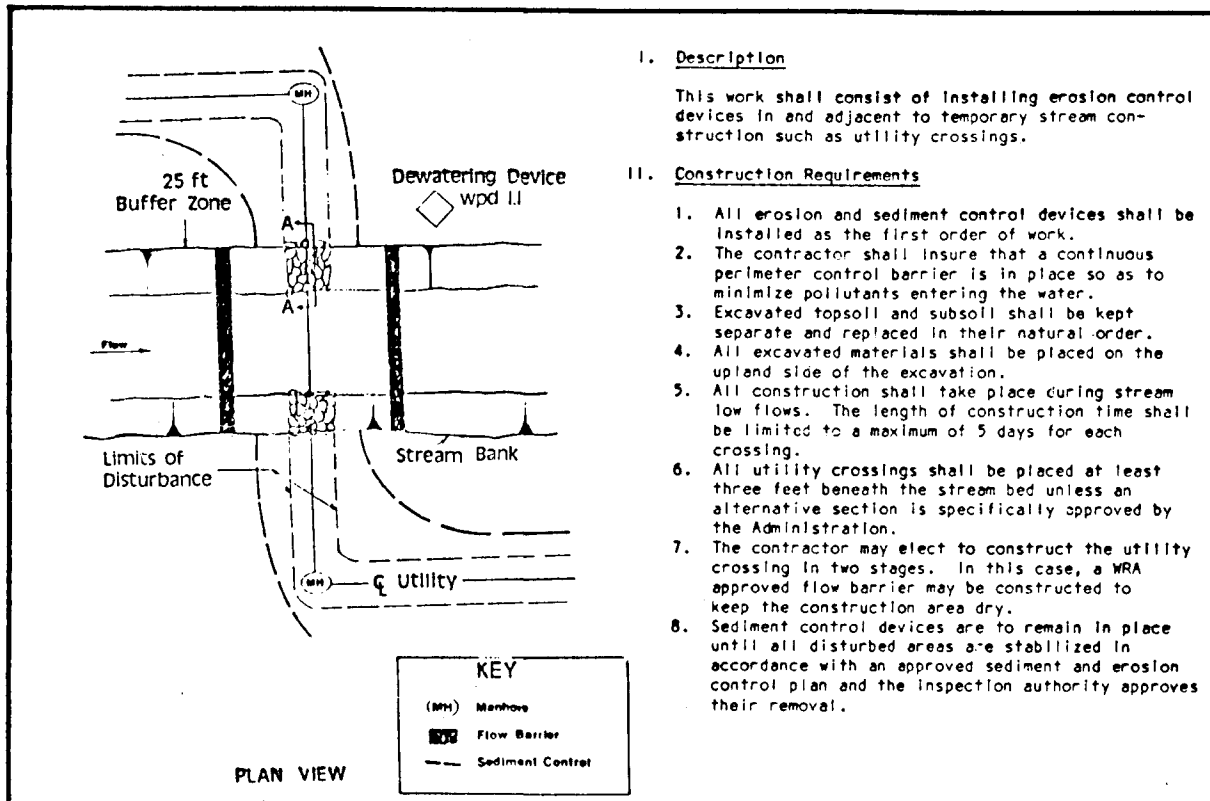


1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC OR LESS)	B (5 AC - 10 AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSTOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSTOR; SOD	LINED RIP-RAP 4-8"
4	8.1-20%	LINED 4-8" RIP-RAP	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

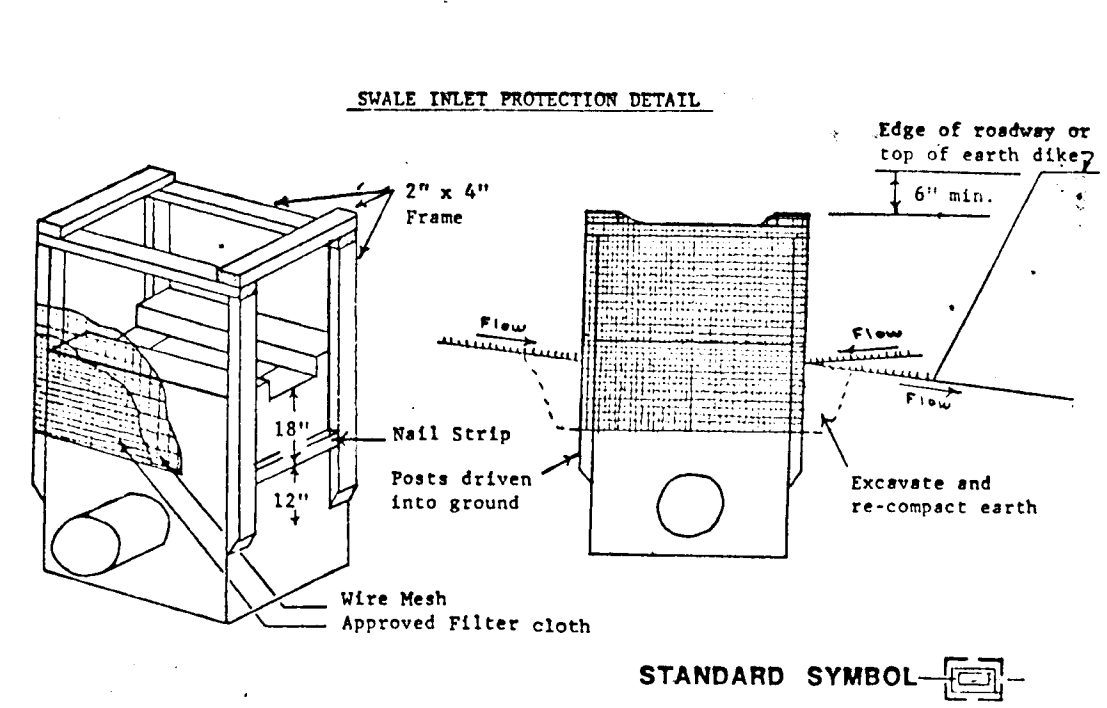


WATER RESOURCES ADMINISTRATION

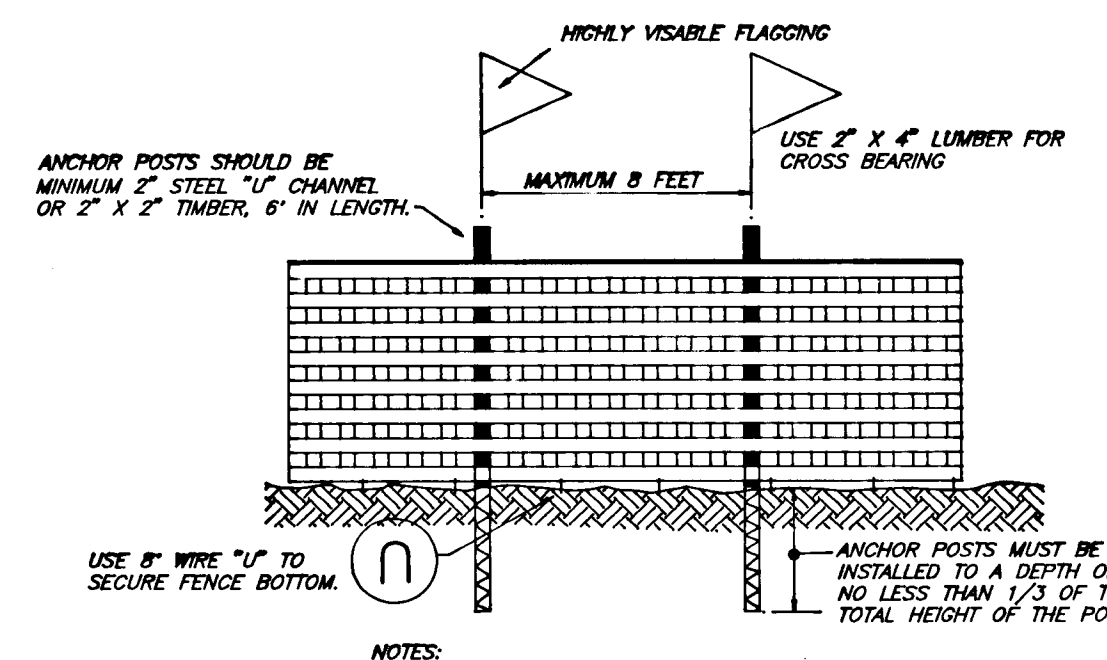
UTILITY CROSSING

Approved On: 1-24-92
 Signature: [Signature]
 Title: Chief, Waterway Permits

WPD 5.1



- II. Procedure**
- A. A swale, ditchline or yard inlet protection.
 1. Excavate completely around inlet to a depth of 18" below notch elevation.
 2. Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (wire) must be 6" below edge of roadway adjacent to inlet.
 3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
 4. Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
 5. Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
 6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (wire).
 7. This structure must be inspected frequently and the filter fabric replaced when clogged.



BLAZE ORANGE PLASTIC MESH TYPICAL TREE PROTECTION FENCE DETAIL

NO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Signature: [Signature]
 Title: CHIEF, LAND DEVELOPMENT DIVISION
 DATE: 5/25/92

Signature: [Signature]
 Title: CHIEF, BUREAU OF HIGHWAYS
 DATE: 5/6/92

Signature: [Signature]
 Title: CHIEF, BUREAU OF ENGINEERING
 DATE: 5-25-92

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

Signature: [Signature]
 Title: CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT
 DATE: 5/20/92

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS

7135 HINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH

DESIGNED: KJMM
 DRAWN: KJMM
 CHECKED: JLS
 DATE: JULY 1992

ROAD CONSTRUCTION PLANS
 SEDIMENT AND EROSION CONTROL DETAILS

WP-92-05, WP-92-06, WP-92-14C, S-92-01

SHIPLEY MEADOWS
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER: VOLLMEYERHAUSEN-SECTION III, INC.
 P.O. BOX 39
 COLUMBIA, MARYLAND 21045 PH (301) 539-3700

SCALE: AS SHOWN
 DRAWING: 606/10
 JOB NO.: 87071
 FILE NO.:

DEVELOPER'S/BUILDER'S CERTIFICATE

Reviewed for HOWARD S.C.D. and meets Technical Requirements of the US Soil Conservation Service

Signature: [Signature]
 Title: [Title]
 Date: 7/19/92

Signature: [Signature]
 Title: [Title]
 Date: 7/19/92

Signature: [Signature]
 Title: [Title]
 Date: 7/19/92

ENGINEER'S CERTIFICATE

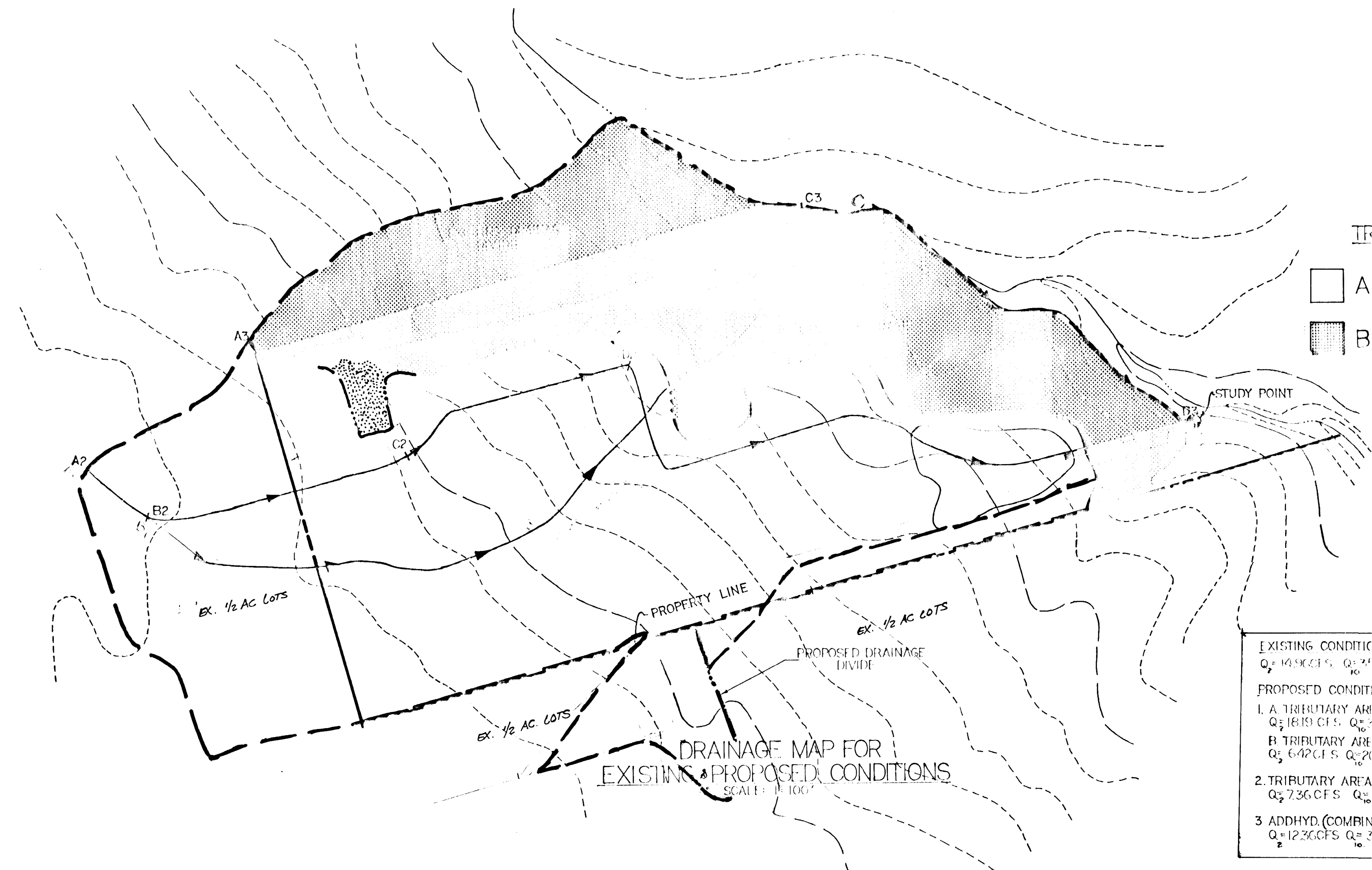
I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature: [Signature]
 Title: [Title]
 Date: 8-7-92



1658

REVISION	DATE
1 Added Tree Protection detail	12-23-92



EXISTING CONDITIONS
 $Q_2 = 14.83 \text{ CFS}$, $Q_3 = 14.49 \text{ CFS}$, $Q_4 = 60.34 \text{ CFS}$

PROPOSED CONDITIONS

1. TRIBUTARY AREA "A" W/O SWMF
 $Q_2 = 18.19 \text{ CFS}$, $Q_3 = 20.89 \text{ CFS}$, $Q_4 = 49.04 \text{ CFS}$

2. TRIBUTARY AREA "A" W/ SWMF
 $Q_2 = 6.42 \text{ CFS}$, $Q_3 = 20.17 \text{ CFS}$, $Q_4 = 42.17 \text{ CFS}$

3. TRIBUTARY AREA "B"
 $Q_2 = 7.36 \text{ CFS}$, $Q_3 = 15.96 \text{ CFS}$, $Q_4 = 26.01 \text{ CFS}$

4. ADDHYD. (COMBINED A + B)
 $Q_2 = 12.36 \text{ CFS}$, $Q_3 = 32.16 \text{ CFS}$, $Q_4 = 66.11 \text{ CFS}$



SOILS MAP
SCALE: 1" = 100'

LEGEND

□ TYPE "C" SOIL

▨ TYPE "D" SOIL

TRIBUTARY SECTION

□ A

▨ B

DEVELOPER'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 the Dept. of Public Works approved training program for the control of sediment and erosion during the project. I will provide the Howard Soil Conservation District with a copy of the plans within 30 days of completion. I also authorize the Howard Soil Conservation District to inspect the project.

Yank
BRISTAN PETERSON
 Developer
 F. Robinson Co.
 Date: _____

ENGINEER CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District. I hereby certify the developer that he must provide the Howard Soil Conservation District with a copy of the plans within 30 days of completion.

Shirley
Shirley
 Engineer
 12/23/92
 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John
John
 Chief, Erosion Control Division
 5/6/93
 Date

John
John
 Chief, Bureau of Engineering
 5-25-93
 Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Anna
Anna
 Chief, Division of Community Planning and Land Development
 5/6/93
 Date

U.S. SOIL CONSERVATION SERVICE

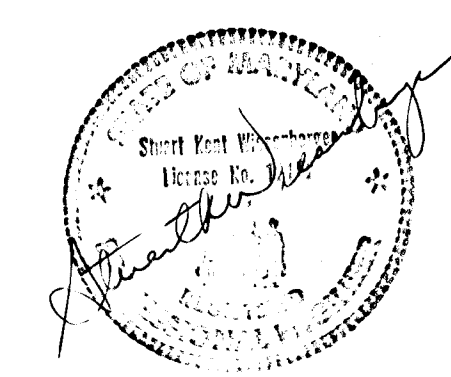
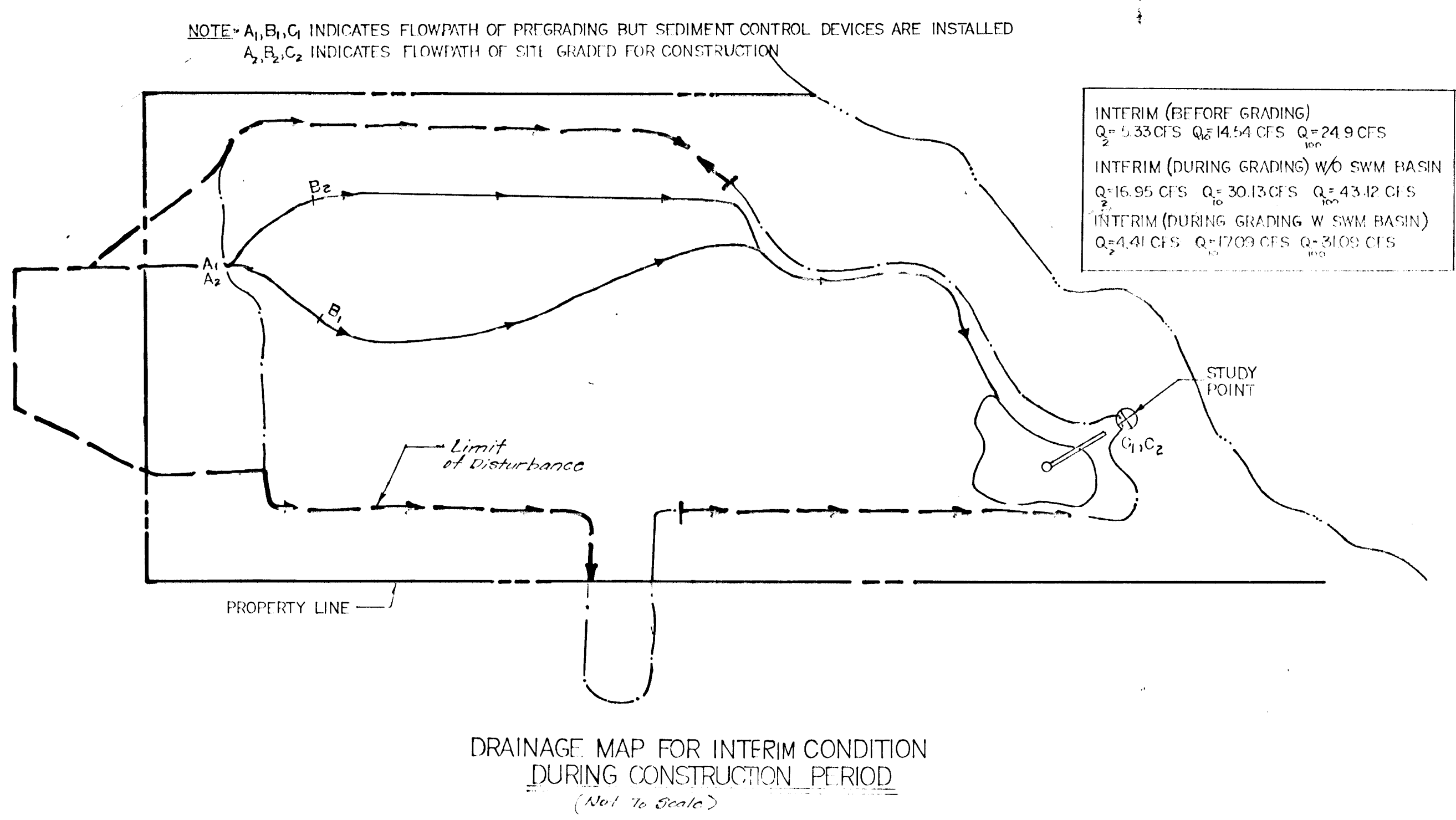
APPROVED: _____

DATE: _____

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: _____

DATE: _____



OWNER / DEVELOPER
 VOLLMERHAUSEN - CRECHON ET AL., INC.
 P.O. BOX 30
 COLUMBIA, MD 21046, TEL: 380-3700

TITLE: **STORMWATER MANAGEMENT & DRAINAGE AREA MAP**

PROJECT: **SHIPLEY MEADOWS**

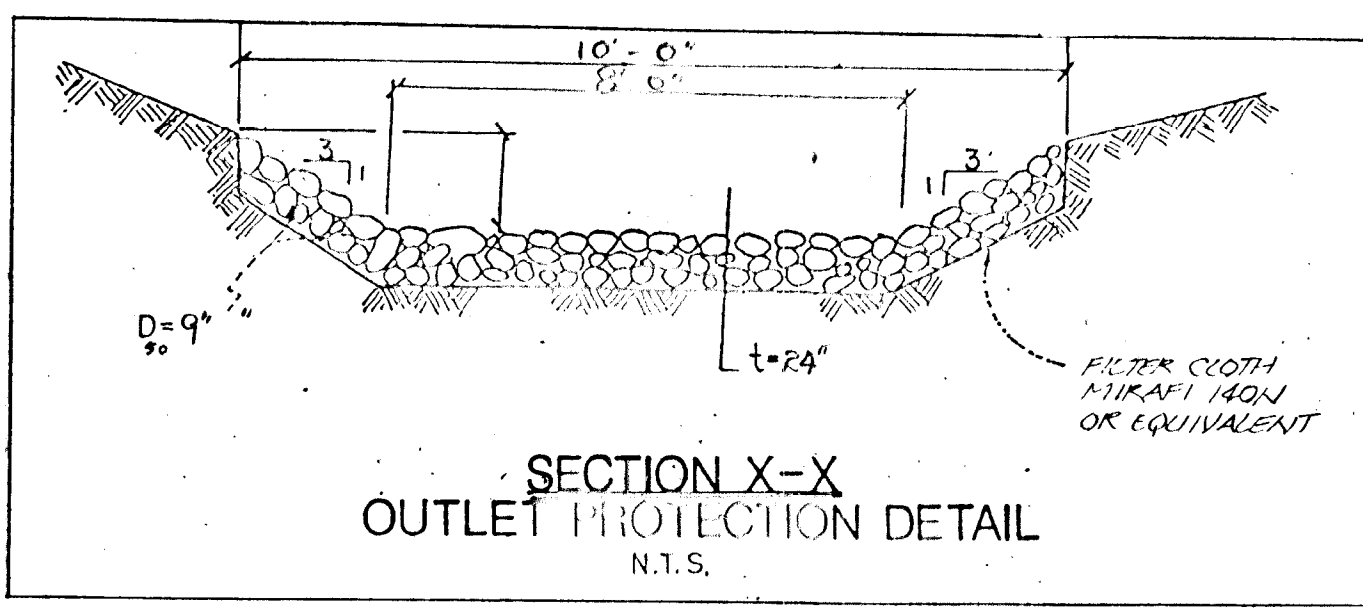
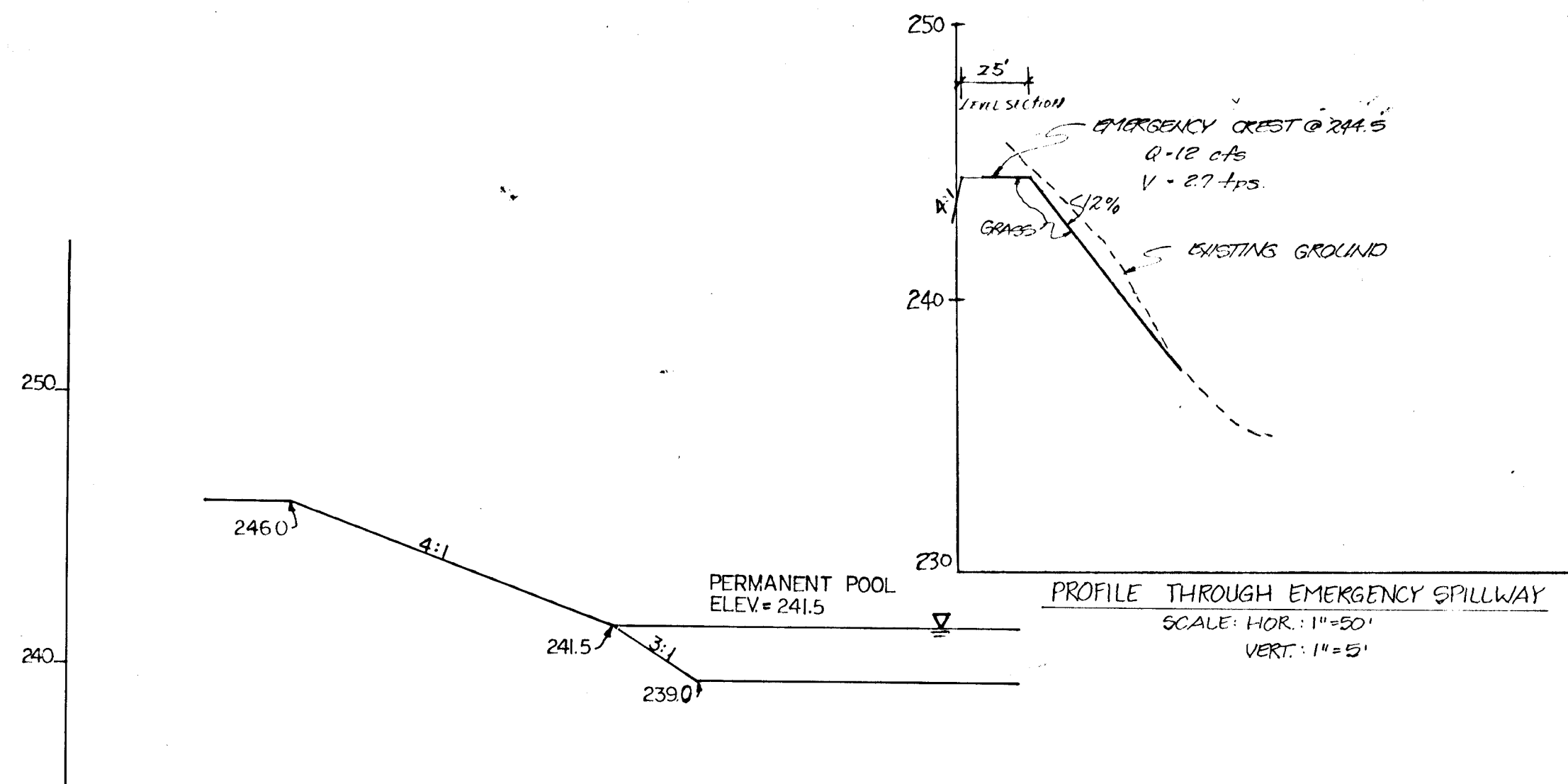
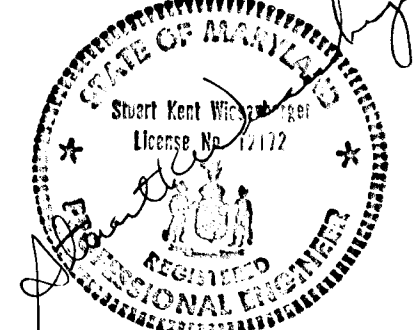
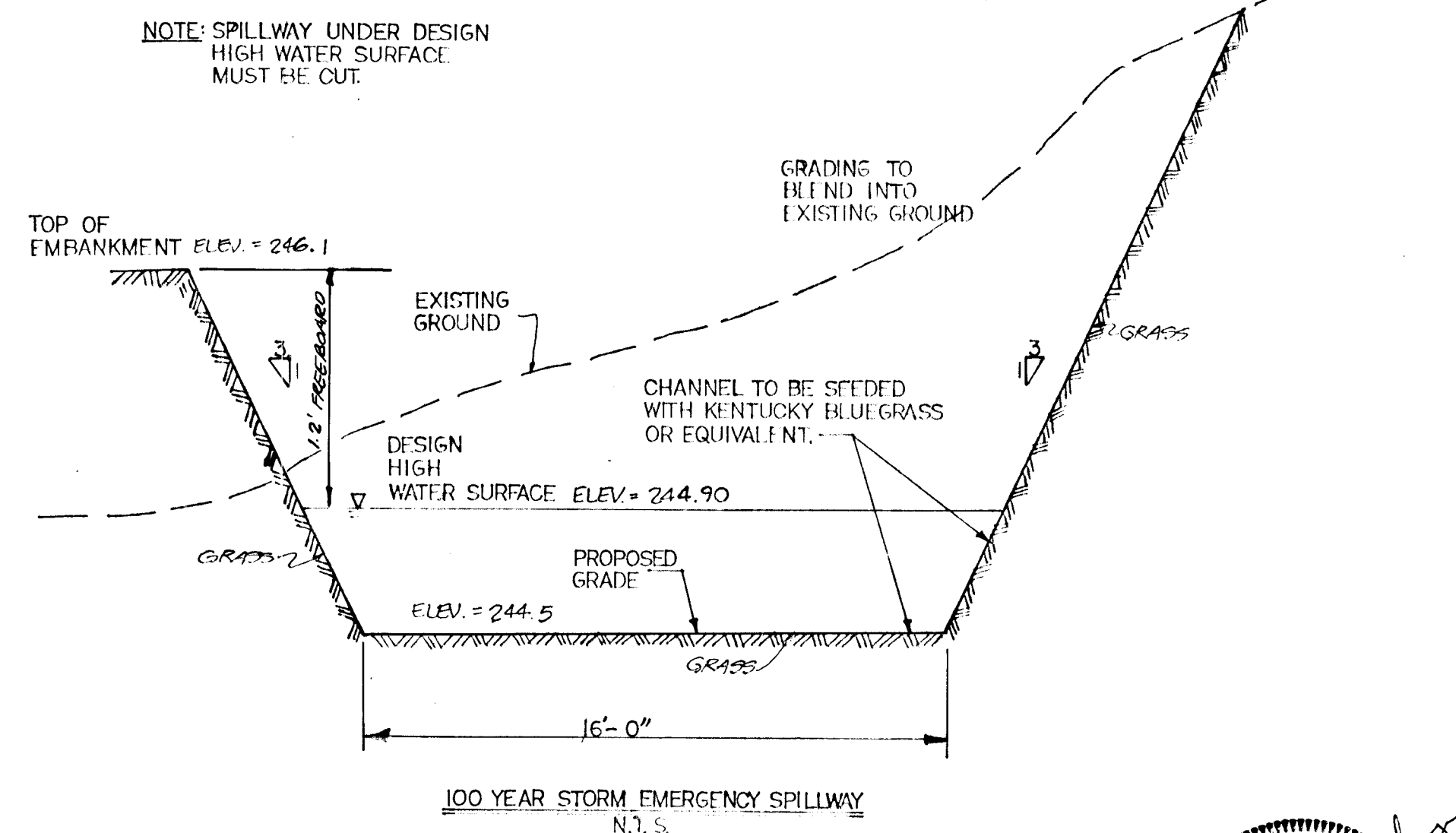
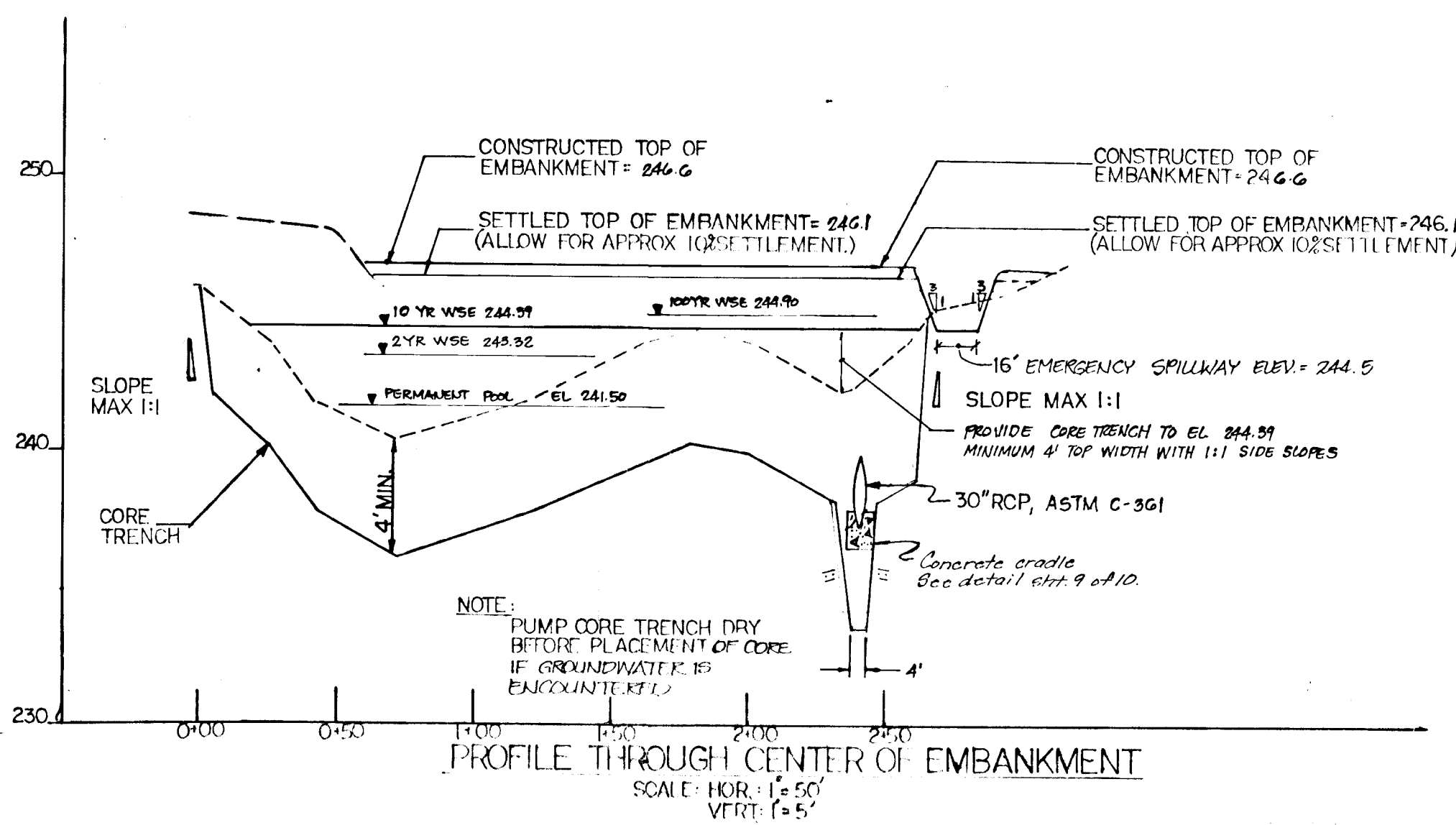
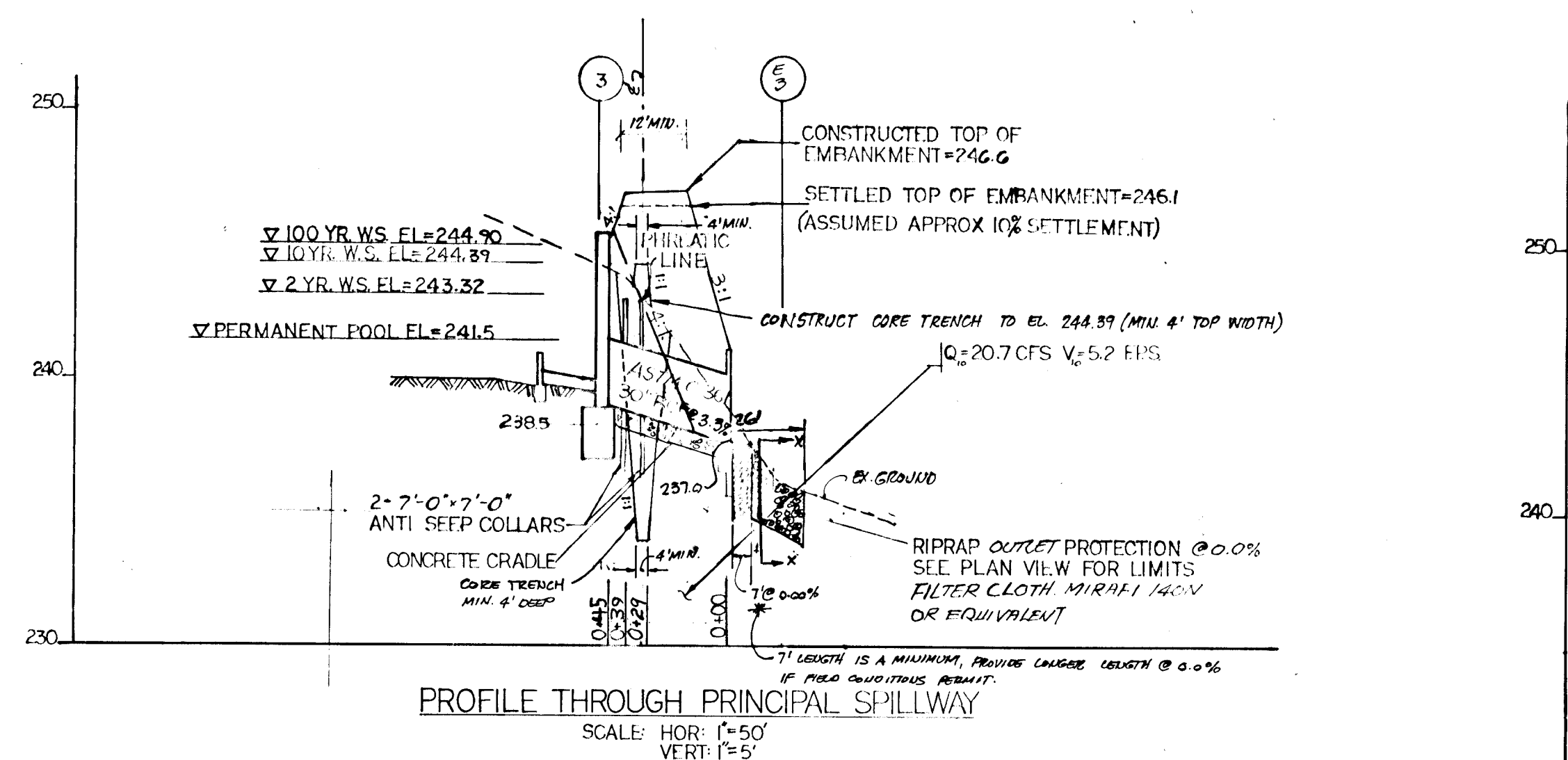
LOCATION: **6777 ELECTION DISTRICT HOWARD CO., MD.**

SCALE: _____ DESIGNED BY: **CSL** DRAWN BY: **WDI** CHECKED BY: **ASB** DATE: _____

FIELD BOOK: **123** PAGE NO: **46-67** JOB NO: **87070** DRAWING NO: **1 OF 10**

Boender Associates
 ENGINEERS, PLANNERS, SURVEYORS
 3290 BETHANY LANE
 ELLICOTT CITY, MD 21043
 (301) 468-7777 FAX: (301) 468-7597

1658

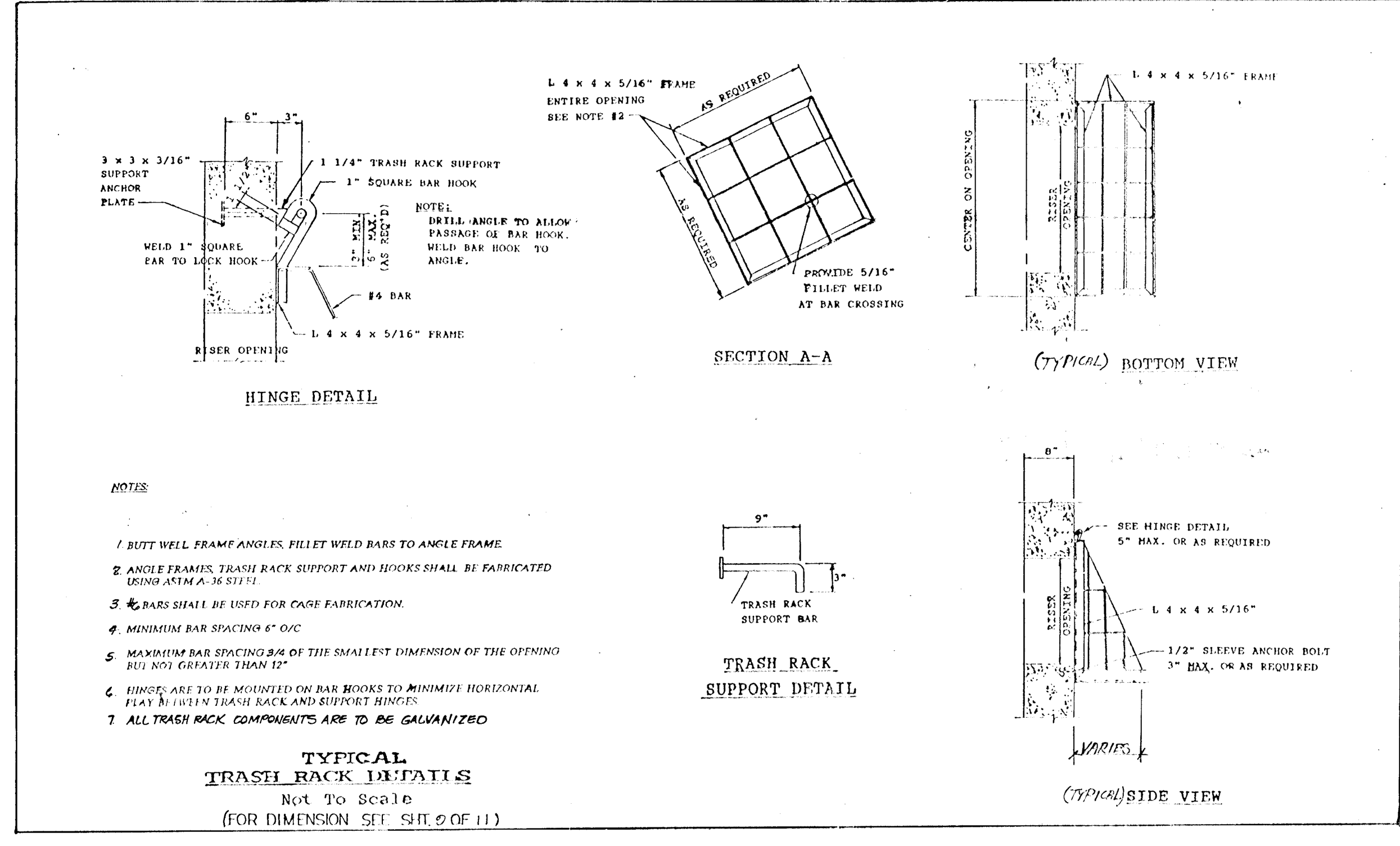
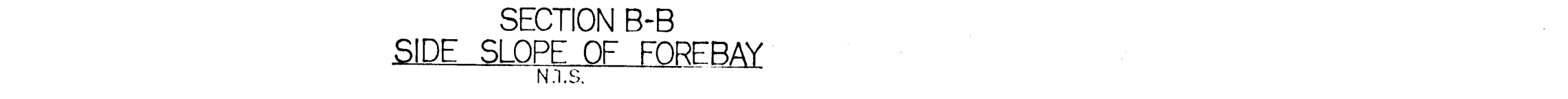
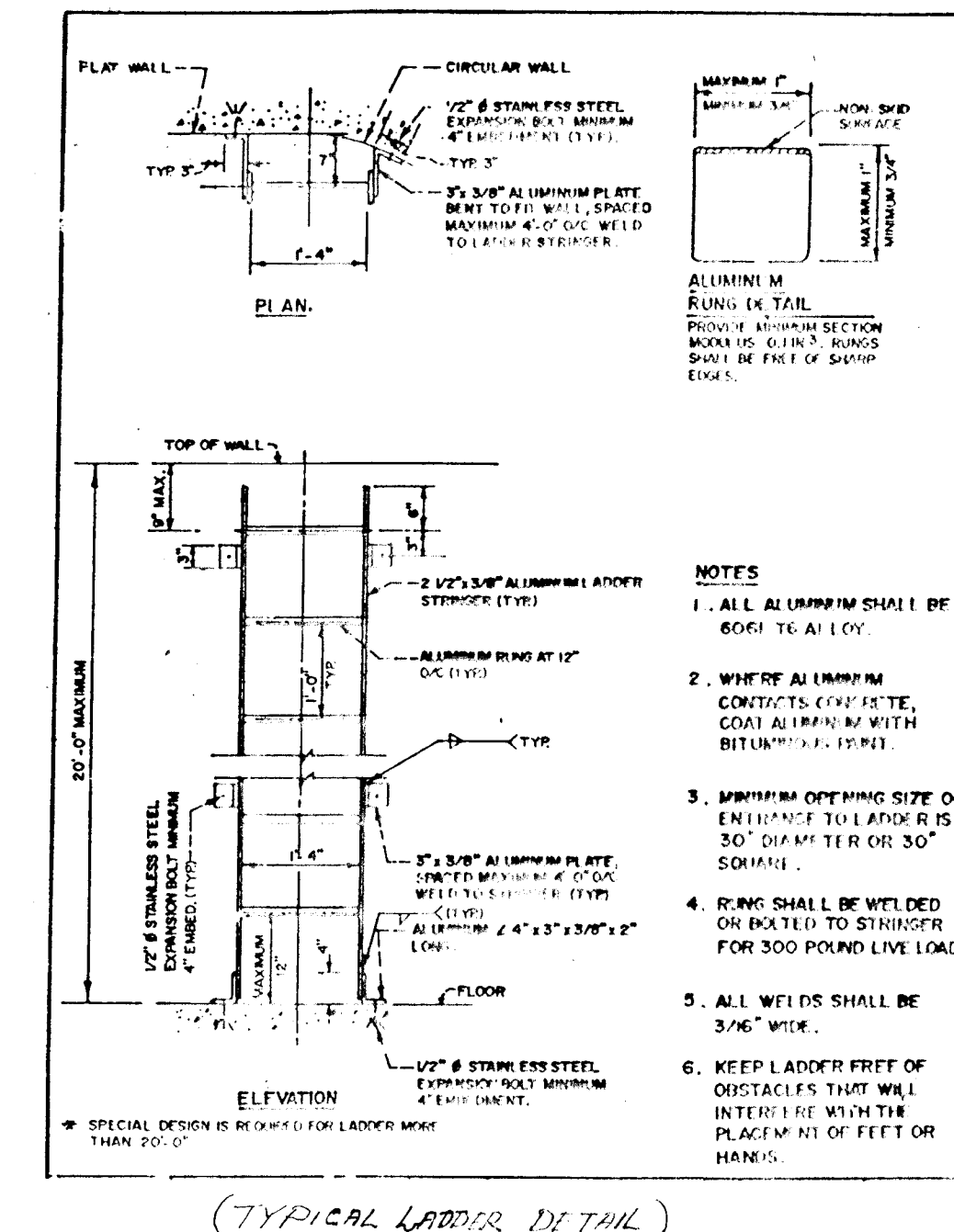
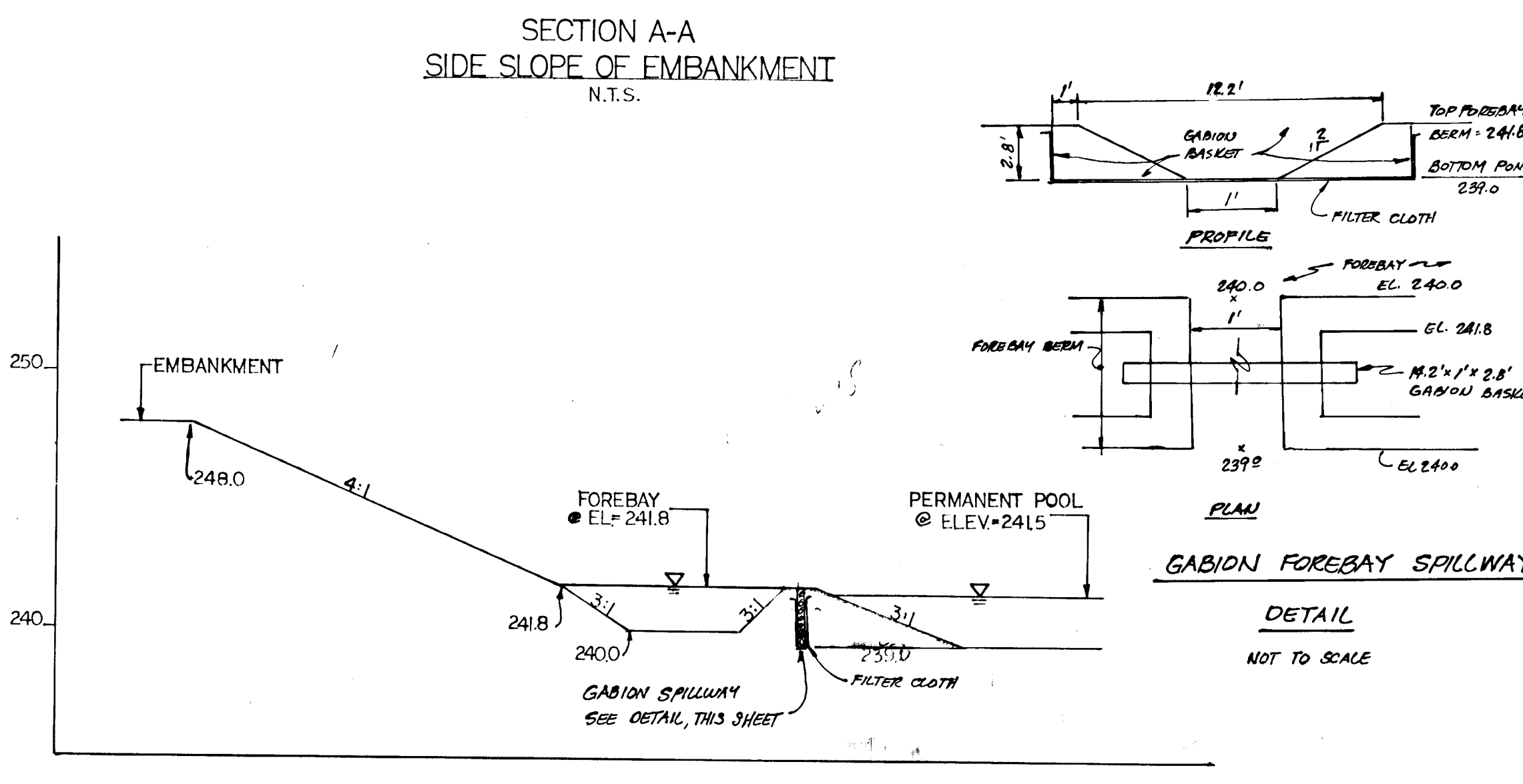


THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John M. Tolleson 5/15/93
 Chief, Bureau of Highways
James B. Ray 5-20-93
 Chief, Bureau of Engineering

APPROVED: DEPT. OF PLANNING AND ZONING
Thomas Belmont 5/20/93
 Chief, Division of Community Planning
 And Land Development

DEVELOPER'S CERTIFICATE		ENGINEER'S CERTIFICATE	
I DO HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MAINTENANCE TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENTATION BEFORE BEGINNING THE PROJECT. I WILL TRAIN THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZED PERIODIC OR-5314 INSPECTION OF THE POND BY THE HOWARD SOIL CONSERVATION DISTRICT.		I DO HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND FEASIBLE 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 DISTRICT THAT I HAVE PROVIDED THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.	
<i>John M. Tolleson</i> Date: 5/15/93	<i>Thomas Belmont</i> Date: 5/20/93	<i>Thomas Belmont</i> Date: 5/20/93	<i>Thomas Belmont</i> Date: 12/23/92



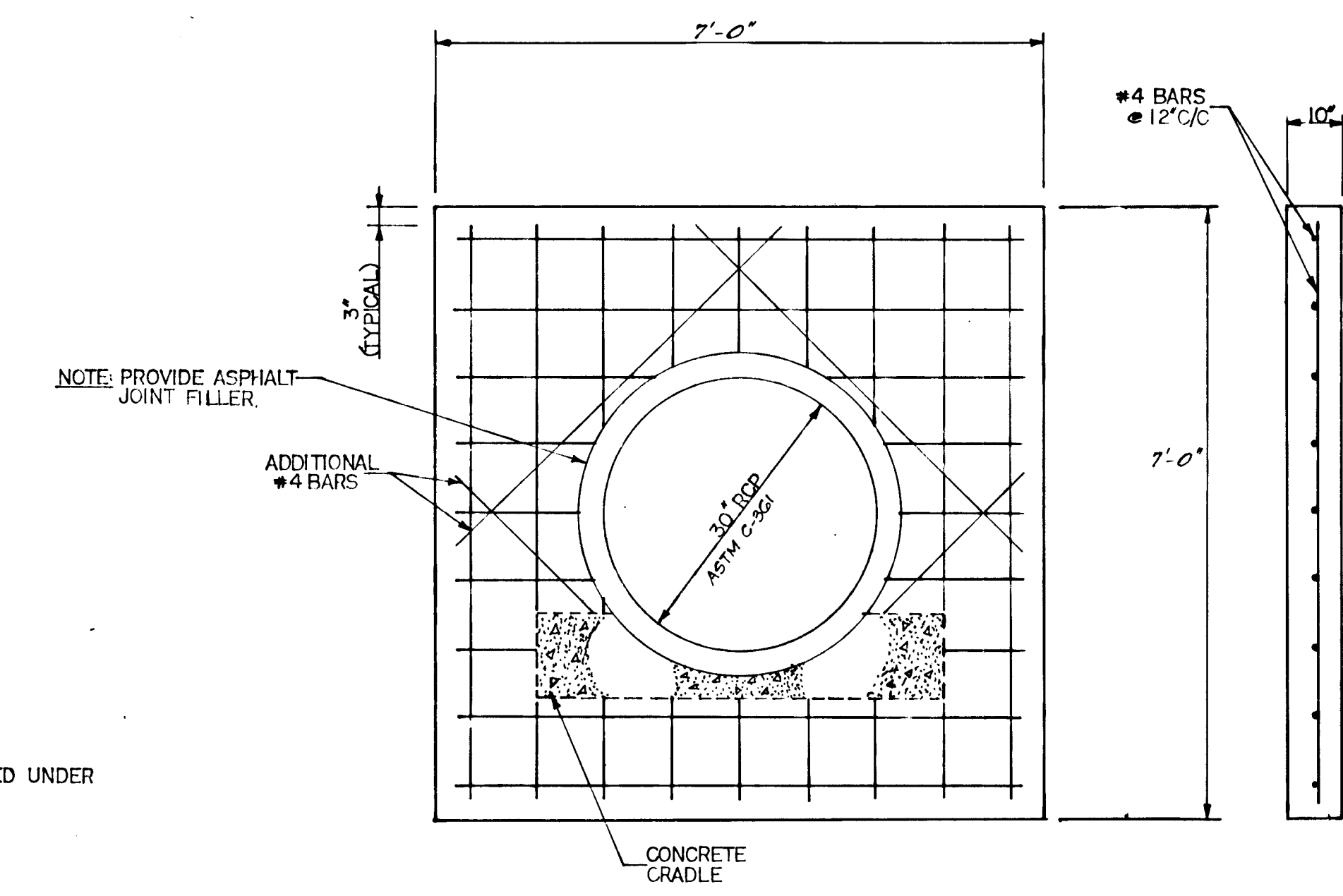
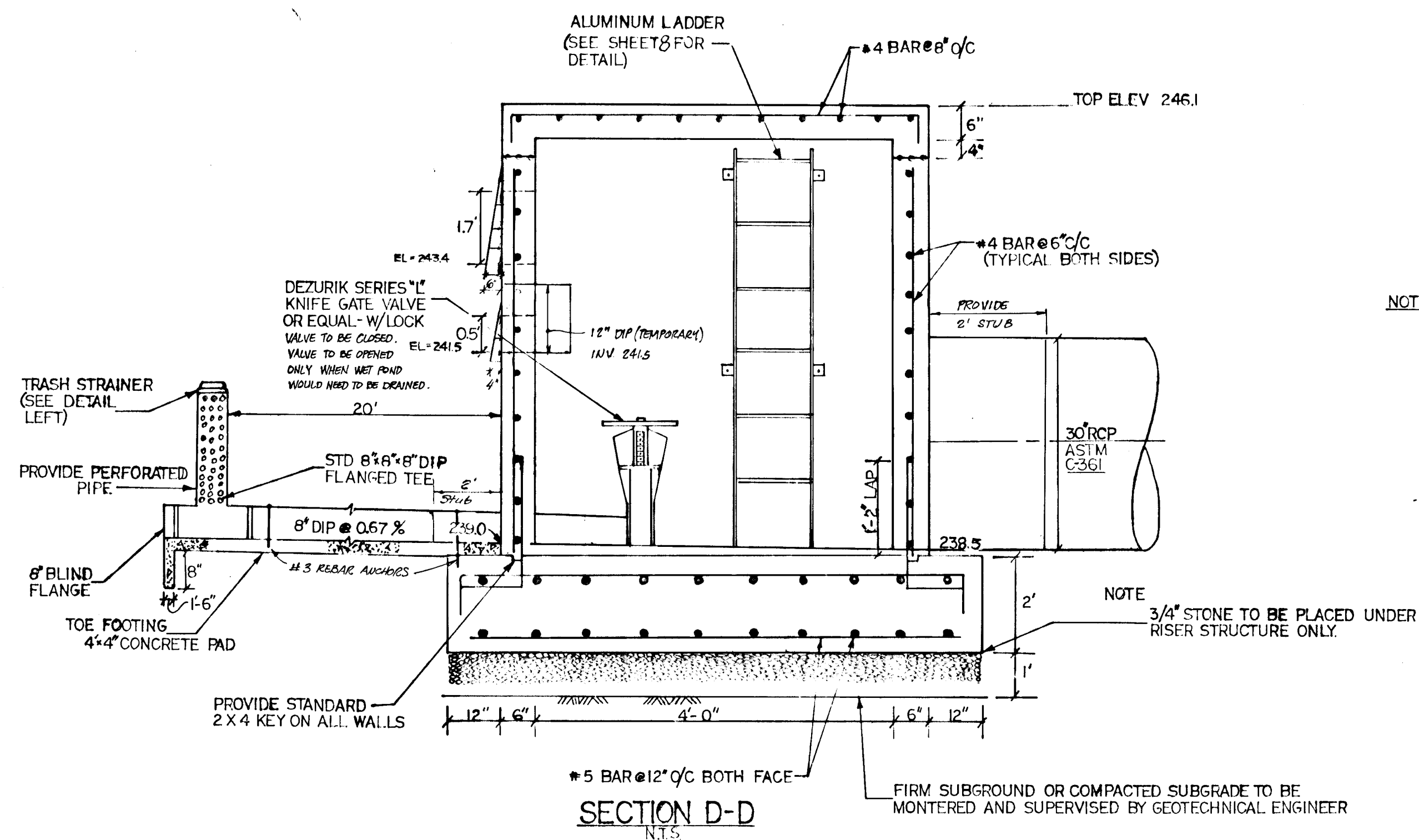
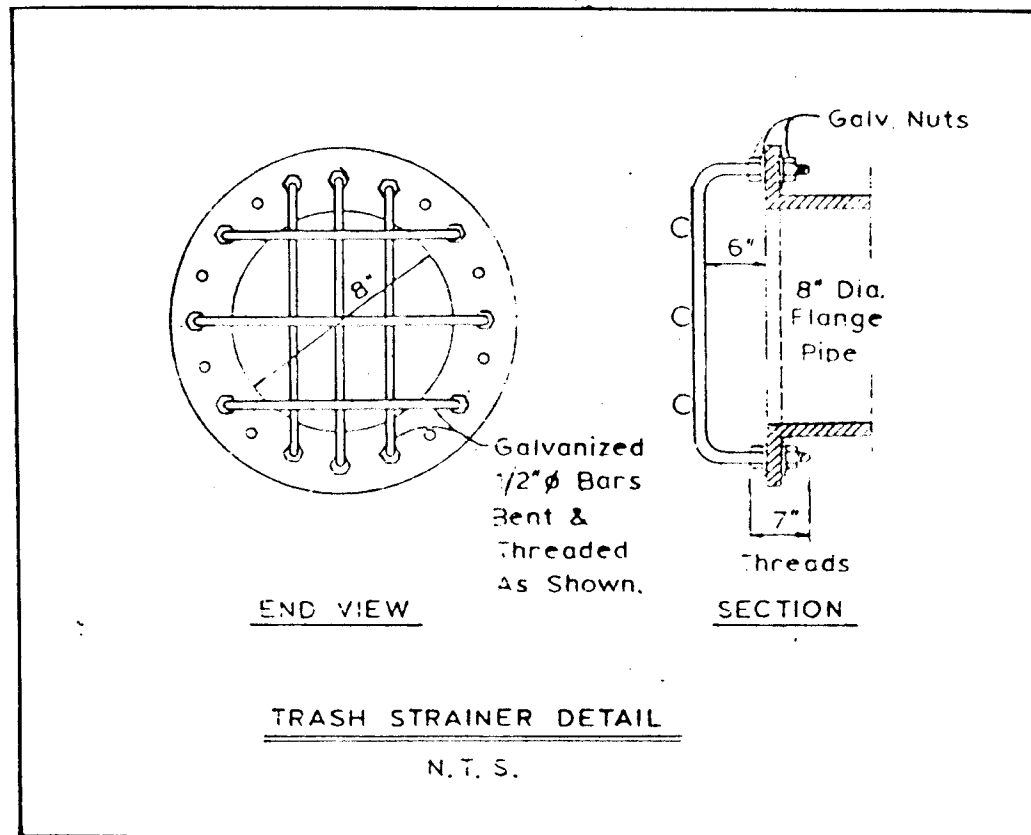
OWNER/DEVELOPER
 VOLLMEYER/BAUER-SECTION #5, INC.
 P.O. BOX 30
 COLUMBIA, MD 21045
 TEL: 630-3700

TITLE	STORMWATER MANAGEMENT POND DETAILS		
PROJECT	SHIPLEY MEADOWS		
LOCATION	67th ELECTION DISTRICT HOWARD CO., MD		
SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
SEE PLAN	CSL	WDL	DATE: 4/20/93
FIELD BOOK	PAGE NO.	JOB NO.	DRAWING NO.
120	58-67	87071	8-0710

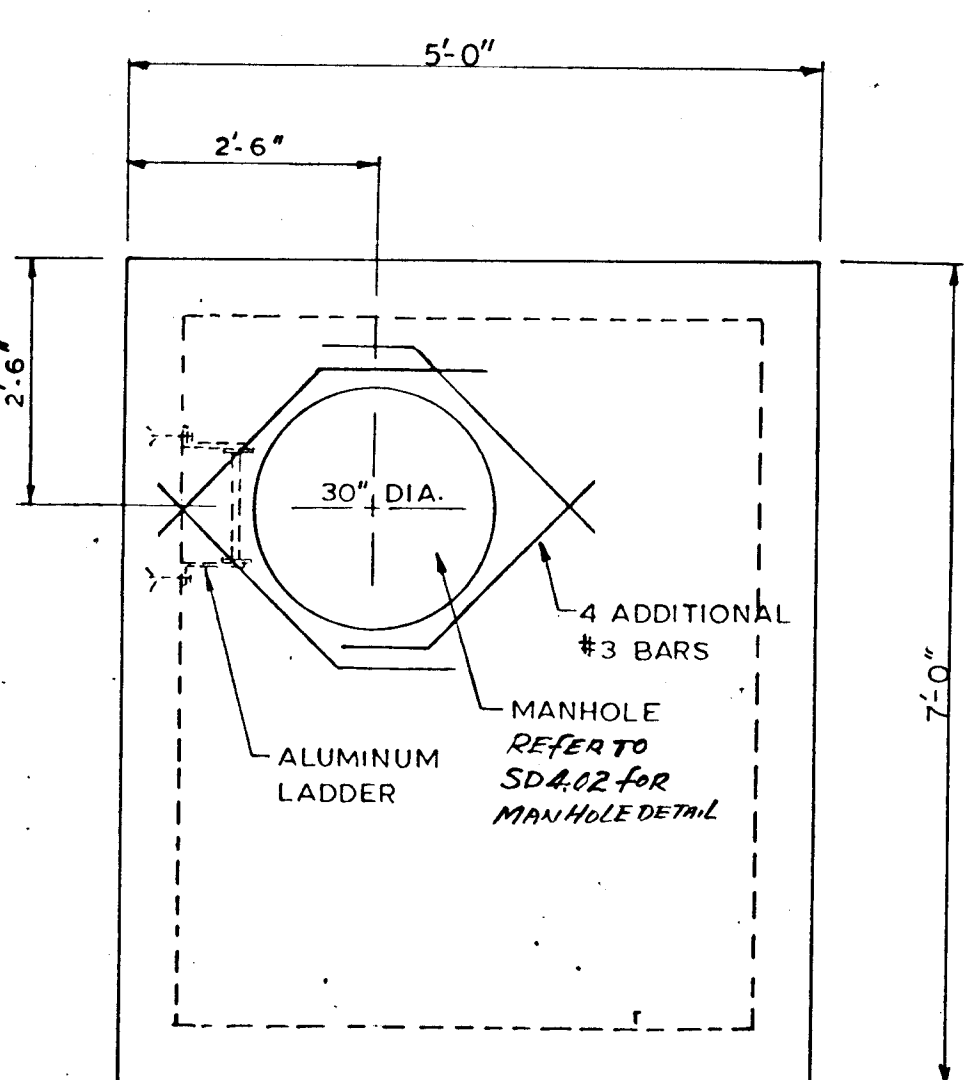
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 ELLICOTT CITY, MD 21045
 (301) 465-7777 FAX: (301) 465-7936

1658

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NOTE: 1. FIRST, POUR UP TO THE BOTTOM OF CONCRETE BEDDING.
 2. SECOND, POUR UP TO THE TOP OF CONCRETE BEDDING.
 3. THIRD, POUR TO FINISH CONCRETE CRADLE ELEVATION OF COLLAR.



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.

John M. Kelly, Inc. 1/23/92
 U.S. 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. Zick, Inc. 1/23/92
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Mark Dammann 5/25/93
 Chief, Department Division DATE

John M. Kelly, Inc. 5/16/93
 Chief, Bureau of Highways DATE

William E. Ray 5-25-93
 Chief, Bureau of Engineering DATE

APPROVED: DEPT. OF PLANNING AND ZONING

Bluma H. Hornath 6/20/93
 Chief, Division of Community Planning DATE

DEVELOPER'S CERTIFICATE

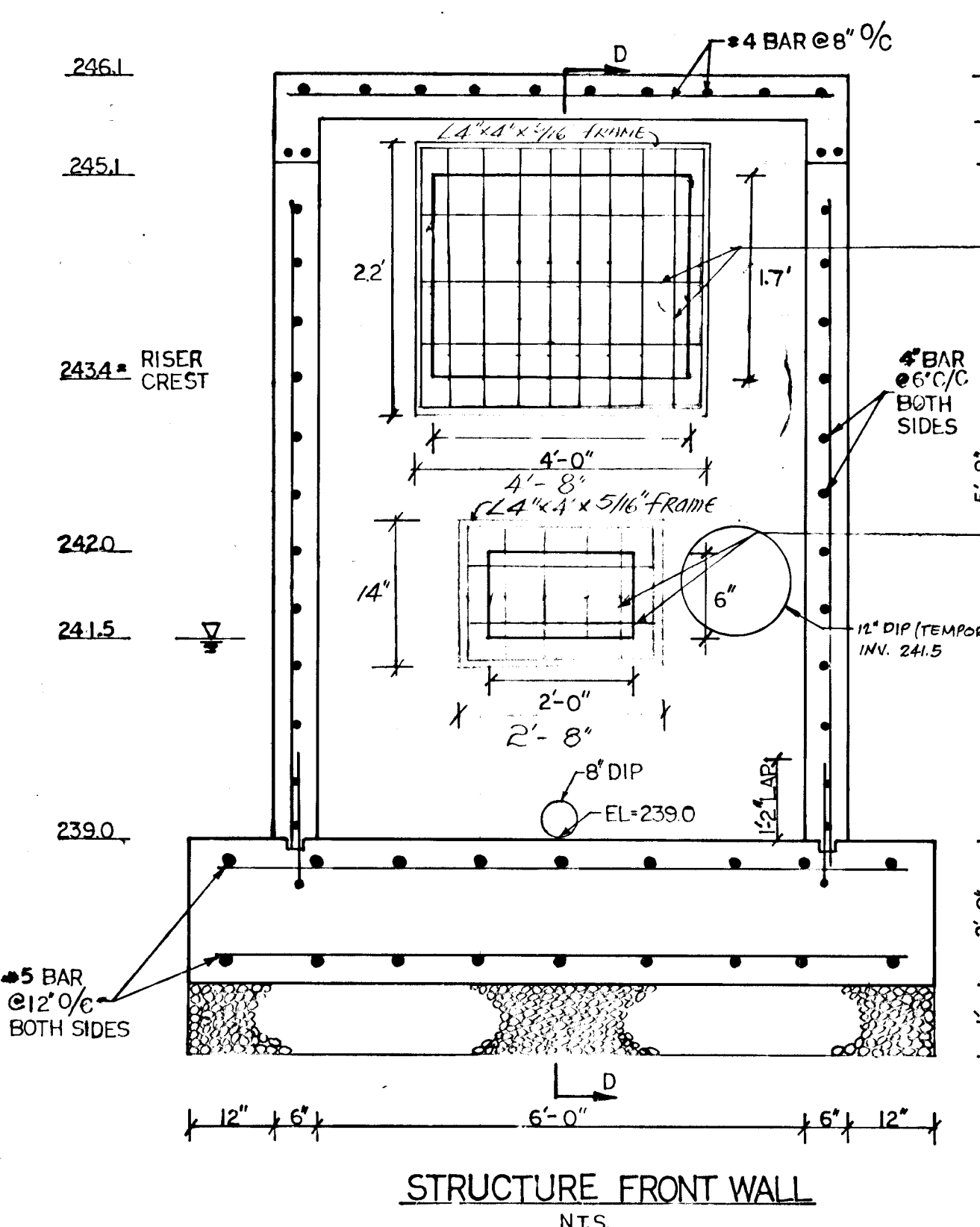
"I ME CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A 4 HOUR COURSE IN ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I WILL 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

John M. Kelly, Inc. 1/23/92
 DEVELOPER DATE

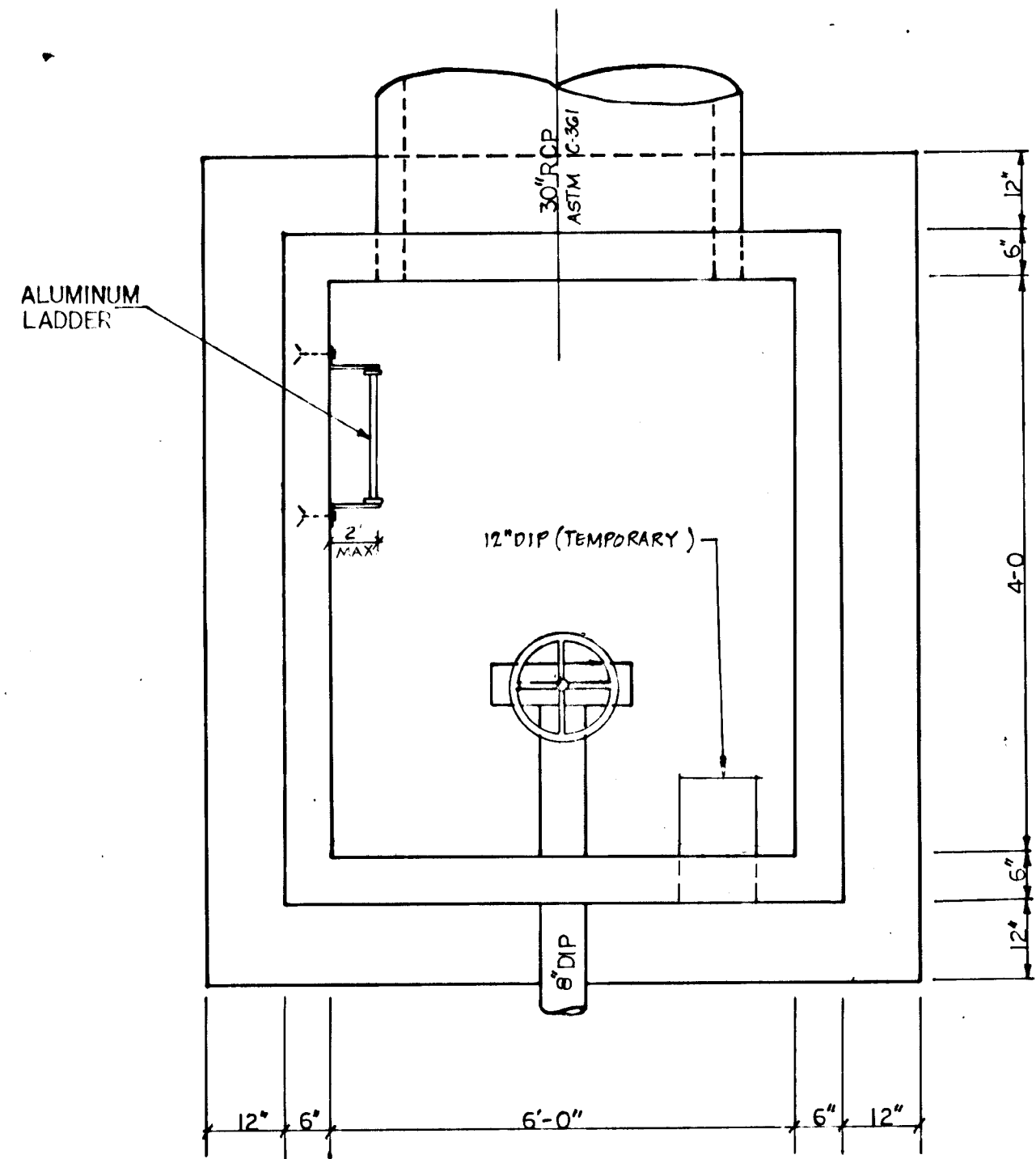
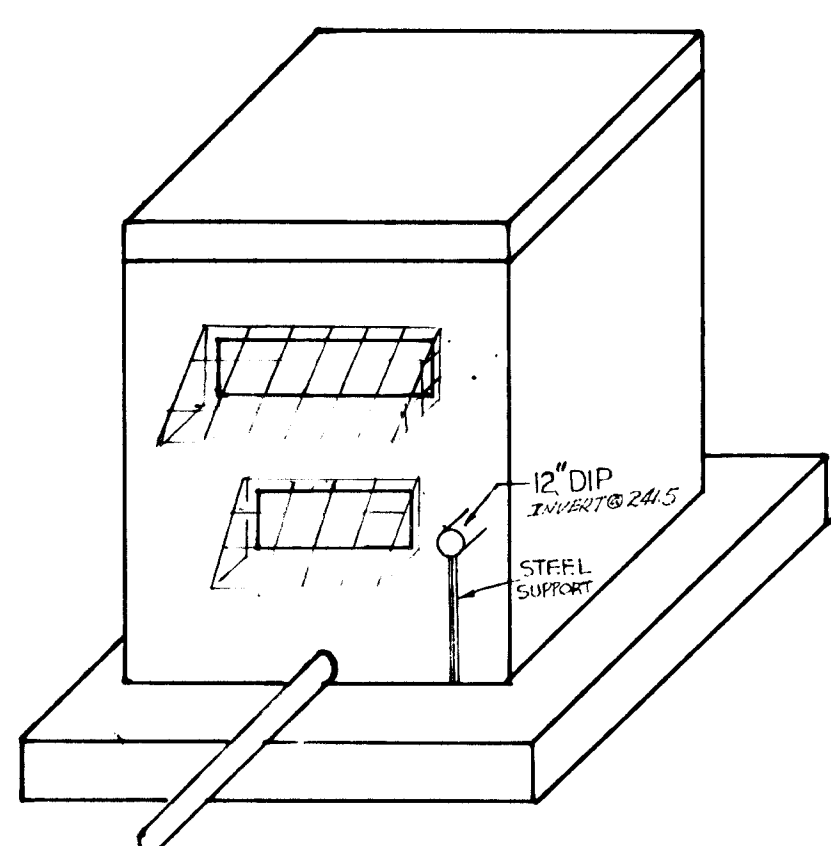
ENGINEER'S CERTIFICATE

"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 MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

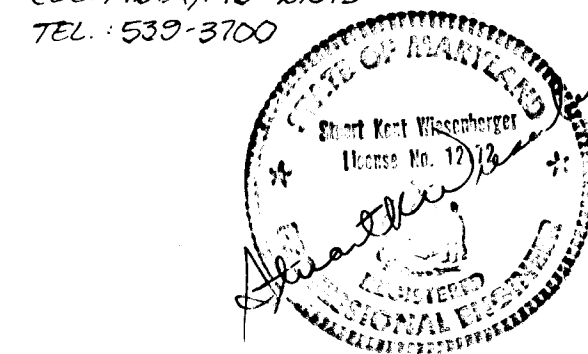
John M. Kelly, Inc. 12/23/92
 ENGINEER DATE



TRASH RACK NOTES:
 BUTT WELD FRAME ANGLES
 FILET WELD BAR TO ANGLE FRAME
 PROVIDE 5/16" FILET WELD BAR CROSSINGS
 PROVIDE ONE SHOP COAT OF RED LEAD
 4" PAINT AFTER FABRICATION AND TWO COATS OF BITUMINOUS PAINT AFTER ERECTION.



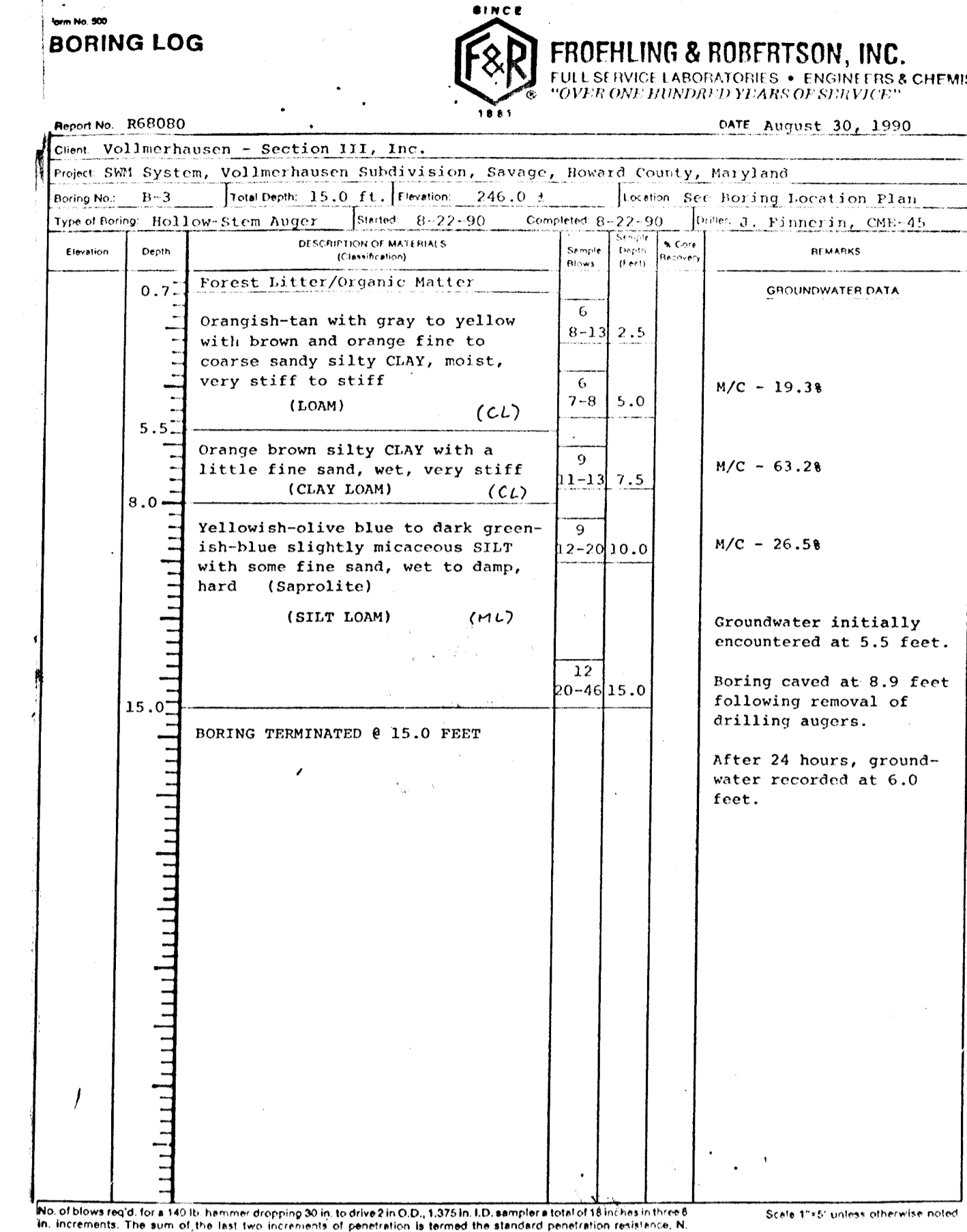
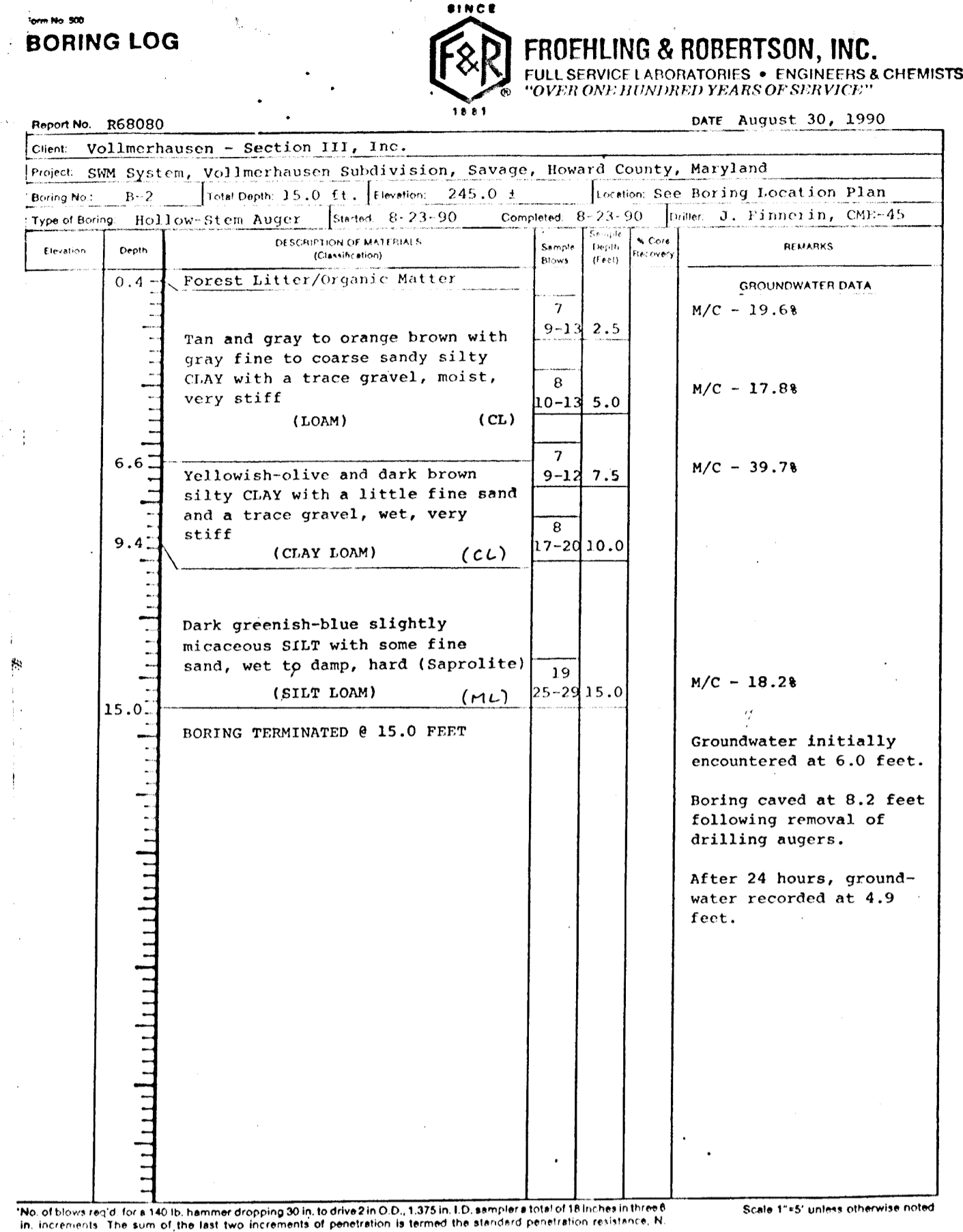
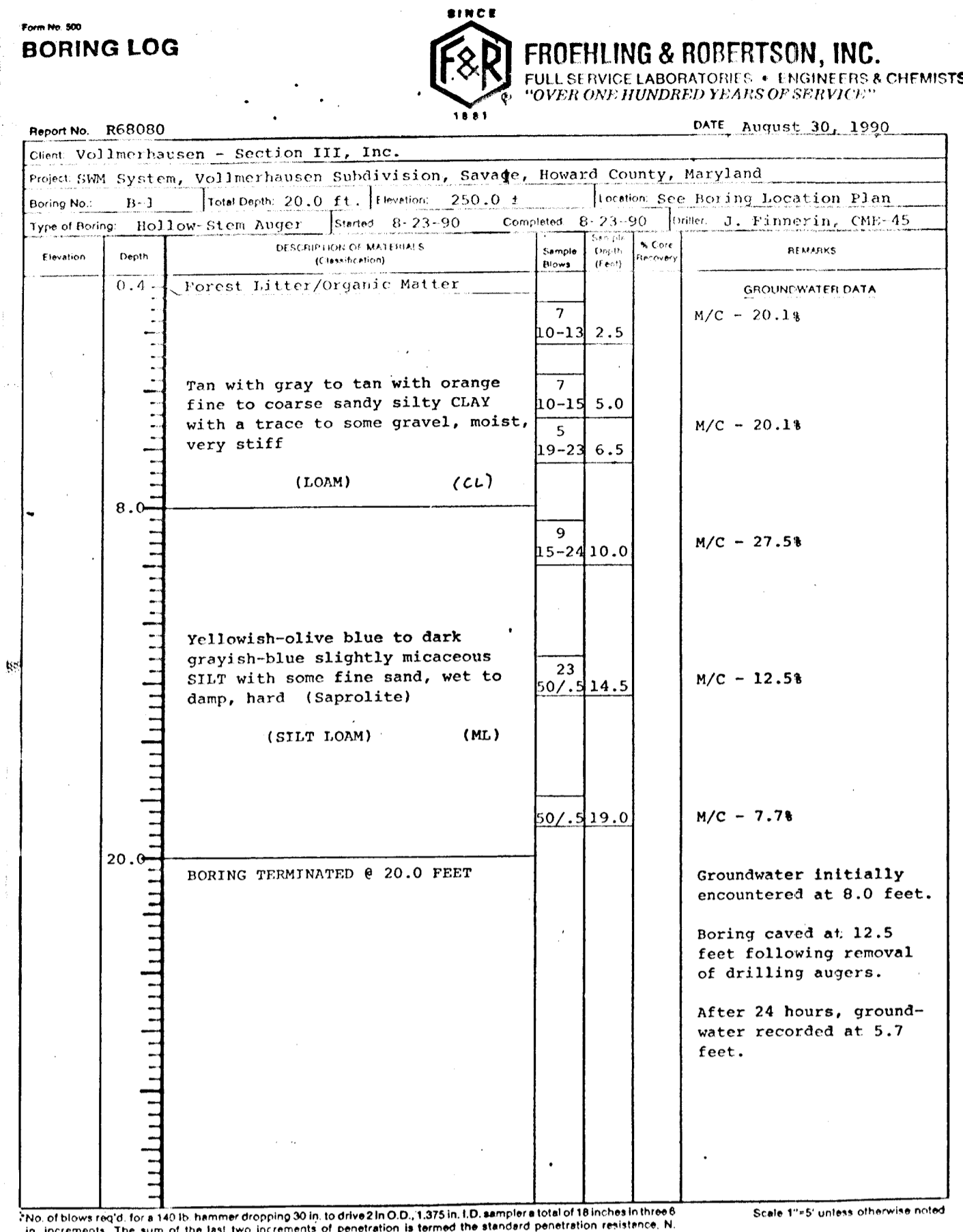
OWNER/DEVELOPER
 VOLLMEYER/SECTION III, INC.
 P.O. BOX 30
 COLUMBIA, MD 21045
 TEL. 533-3700



TITLE: STORMWATER MANAGEMENT POND OUTLET STRUCTURE DETAILS			
PROJECT: SHIPLEY MEADOWS			
LOCATION: 6TH ELECTION DISTRICT HOWARD CO., MD			
SCALE: SEE PLAN	DESIGNED BY: CSL	DRAWN BY: WDL	CHECKED BY: DATE: MAY 92
FIELD BOOK: 123	PAGE NO.: 44-67	JOB NO.: 87071	DRAWING NO.: 2 OF 10

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378-12 Pond

SPECIFICATIONS

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

Site Preparation

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

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

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

Earth Fill

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

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

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

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

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

Structure Backfill

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

Pipe Conduits

All pipes shall be circular in cross section.

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

- Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any

bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasticoat, Black-Kat, and Both-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

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

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

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

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

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 0-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24".

Helically corrugated pipe shall have either continuously welded seams or have lock seams.

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

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

- Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.
- Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
- 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. The joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
- Backfilling shall conform to "Structure Backfill."
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
- Joints and connections to anti-seep collars shall be completely watertight.

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

Concrete

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

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subrounded in shape. The least dimension of an individual rock fragment shall be not less than one-third the greatest dimension of the fragment.

The rock shall have the following properties:

- Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- Absorption not more than three percent.
- Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

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

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

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

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. M. Zielke 4/28/93
 U.S. CONSERVATION SERVICE

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

R. H. Zielke 4/28/93
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

John M. Taylor 5/6/93
 Chief, Bureau of Highways

William E. Ray 5-25-93
 Chief, Bureau of Engineering

APPROVED: DEPT. OF PLANNING AND ZONING

Emma Sklonardh 5/28/93
 Chief, Division of Community Planning and Land Development

DEVELOPER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MAP REVISION ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENTATION BEFORE BEGINNING THE PROJECT. I WILL 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

K.M. / BRISTOL PROPERTIES 4/28/93
 DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND USABLE 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 DISTRICT THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Att: M. ... 4/28/93
 DATE

OWNER/DEVELOPER
 VOLLMERHAUSEN-SECTION III, INC.
 P.O. BOX 30
 COLUMBIA, MD 21046
 TEL: 630-3700

TITLE: MD-378 POND SPECS AND BORING PROFILES

PROJECT: SHIPLEY MEADOWS

LOCATION: 6TH ELECTION DISTRICT HOWARD CO. MD

SCALE: DESIGNED BY: DRAWN BY: CHECKED BY: DATE: 4/28/93

SEE PLAN: CSL WDL

FIELD BOOK: 123 PAGE NO.: 46-67 JOB NO.: 87071 DRAWING NO.: 10 OF 10

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