CENTERLINE CURVE DATA

¢ STATIONS	RADIUS	Δ	ARC	TAN	CHORD & BEARING
P.C. 1+28.00 to PCC 2+71.14	535.44	15°19'02"	143.14'	72.00'	S33°35'31"E · 142.72'
PCC 2+71.14 to P.T. 6+36.76	147.79	141°44'58"	365.62'	426.18'	N67°52'29"E - 279.26'
P.C. 7+77.09 to P.T. 9+03.98	150.35	48°21'24"	126.89'	67.50'	N27°10'42"W - 123.16'
P.C. 0+29.51 to P.T. 0+57.90	35.59	45°42'30"	28.39'	15.00	S16°56'17"W - 27.64'

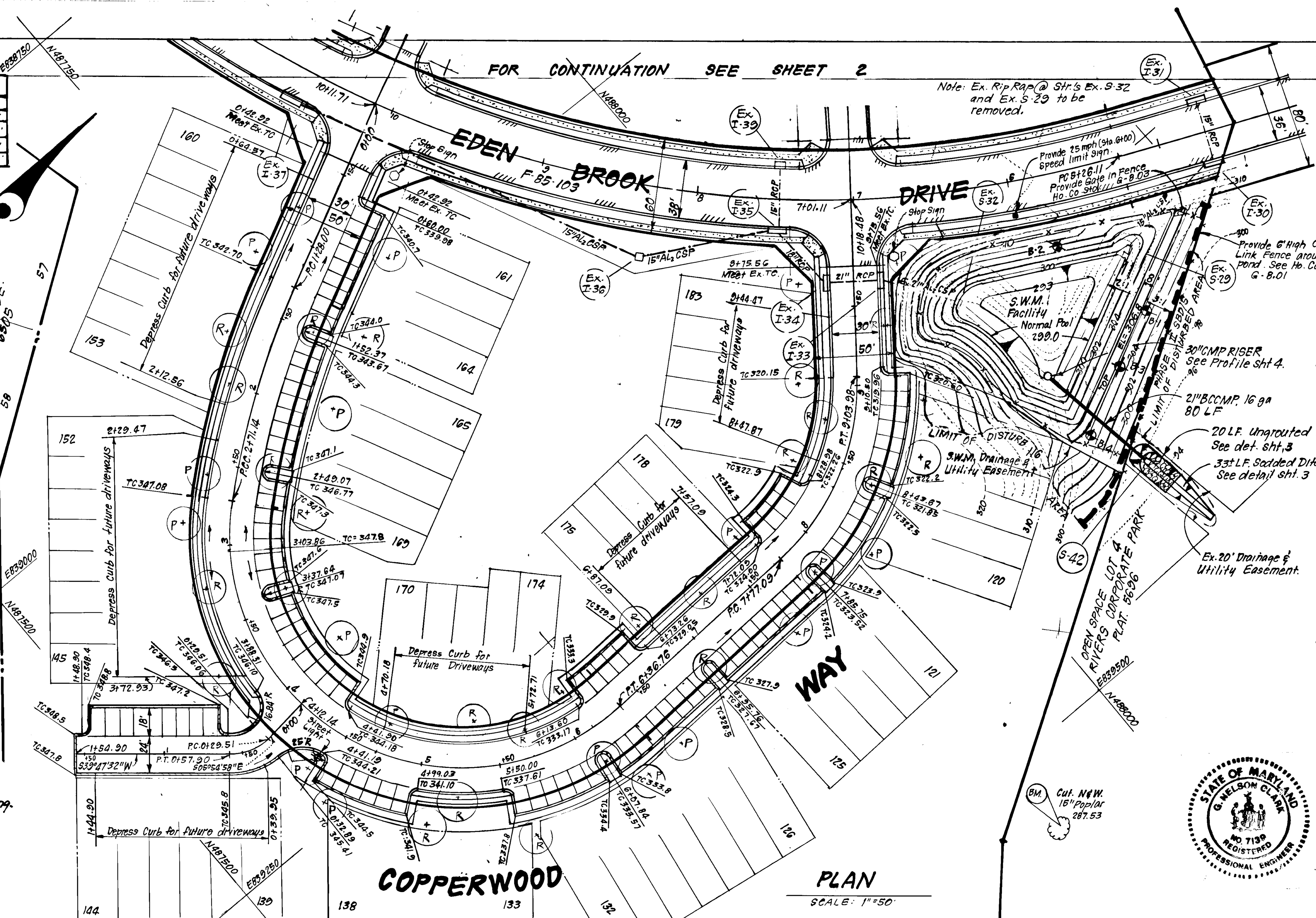
CURB & GUTTER LEGEND

- 7" Std. Comb. Curb & Gutter
- Rev. 7" Comb. Curb & Gutter
- 6" Std. Comb. Curb & Gutter
- Rev. 6" Comb. Curb & Gutter

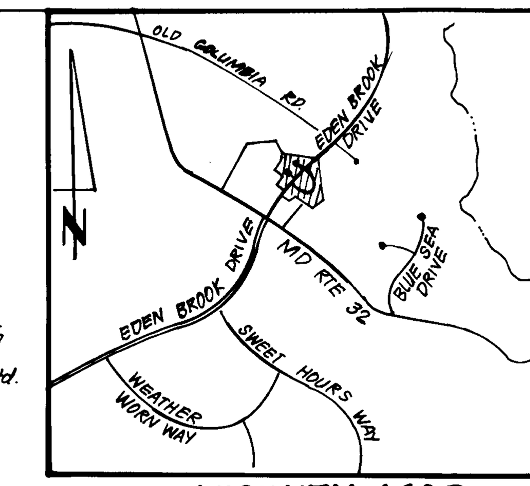
PLANT SCHEDULE

KEY	PLANT NAME	SIZE	QUANT.	REMARKS
P	Quercus Palustris Pin Oak	2½ CAL. MIN.	21	B & B HEAVY HEADS
R	Acer Rubrum 'Red Sunset Red Sunset Maple		23	

1. Contractor shall verify location of underground utilities prior to digging.
2. Final location of trees may be adjusted slightly to accommodate field conditions.
3. Planting procedures shall comply with "Landscape Specifications for Baltimore-Washington Metropolitan areas."
4. Substitutions to the above 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.



Note: Stabilize Pond Slopes with Crown Vetch.



VICINITY MAP
SCALE: 1"=2000'

GENERAL NOTES

1. All storm drain and paving shall be constructed in accordance with the latest Details and Specifications of Howard County and MDSHA
2. Types of storm drainage structures refer to the Stds. & Specs of Ho. Co. and MDSHA.
3. Trench compaction for storm drains within road or street rights-of-way limits shall be in accordance with Howard County Design Manual Vol IV Std. G-2.01.
4. Information concerning underground utilities was obtained from available records, but the contractor must determine the exact location and elevation of the mains by digging test pits, by hand, at all utility crossings, well in advance of construction.
5. All utility companies shall be notified 24 hrs. in advance of construction.
6. All traffic control devices, parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices," 1978 Edition.
7. Sag and Crest vertical curves were designed in accordance with Howard County Design Manual, Vol. III.
8. Provide concrete sidewalk ramps, Ho. Co. Std. Type A, R-4.01 where shown in plan.
9. Design Speed: 30 mph Zoning: RSC
10. Contractor or Developer shall contact the Construction Inspection/Survey Division 24 hrs. before commencing work at 792-7272.
11. Storm Water Management provided in part by previously approved plans F-85-103.
12. Provide 175 Watt Mercury Vapor Lamp Post Top Fixtures on 14' Grey Fiberglass Pole. Sta. 4+41.19 Rt. Copperwood Way.

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

[signature] 8-27-86
U.S. Soil Conservation Service — Date

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

Approved [signature] 8-26-86
Howard S.C.D. — Date

Plan Number

DEVELOPER'S CERTIFICATE

"I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary. Deviation from this plan will not be made unless authorized by The Howard Soil Conservation District. I will provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

John F. Liparini 5-21-86
Signature of 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 a red-lined "as built" of the pond within 30 days of completion."

[signature] 5-21-86
Signature of Engineer — Date
G. Nelson Clark

STATE OF MARYLAND · G. NELSON CLARK · NO. 7139 · REGISTERED · PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 8-28-86
Chief, Bureau of Engineering — Date

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
ACTING [signature] 8-27-86
Chief, Division of Land Development & Zoning Administration — Date

CFS CLARK · FINEFROCK & SACKETT
ENGINEERS · PLANNERS · SURVEYORS
11315 LOCKWOOD DRIVE · SILVER SPRING, MARYLAND 20904 · (301) 593-3400

DESIGNED	ROAD CONSTRUCTION PLANS COPPERWOOD WAY	SCALE
JLS		As Shown
DRAWN	**KINGS MEADE**	DRAWING
KIW	SECTION TWO 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	1 OF 6
CHECKED		JOB NO.
JLS		86-0 11
DATE	FOR: BRITAM DEVELOPMENT GROUP, INC. 9030 Red Branch Road #210 Columbia, Md. 21045	FILE NO.
5-16-86		86-011-D

F-86-195

As Submitted for Signatures 8/22/86

#1156

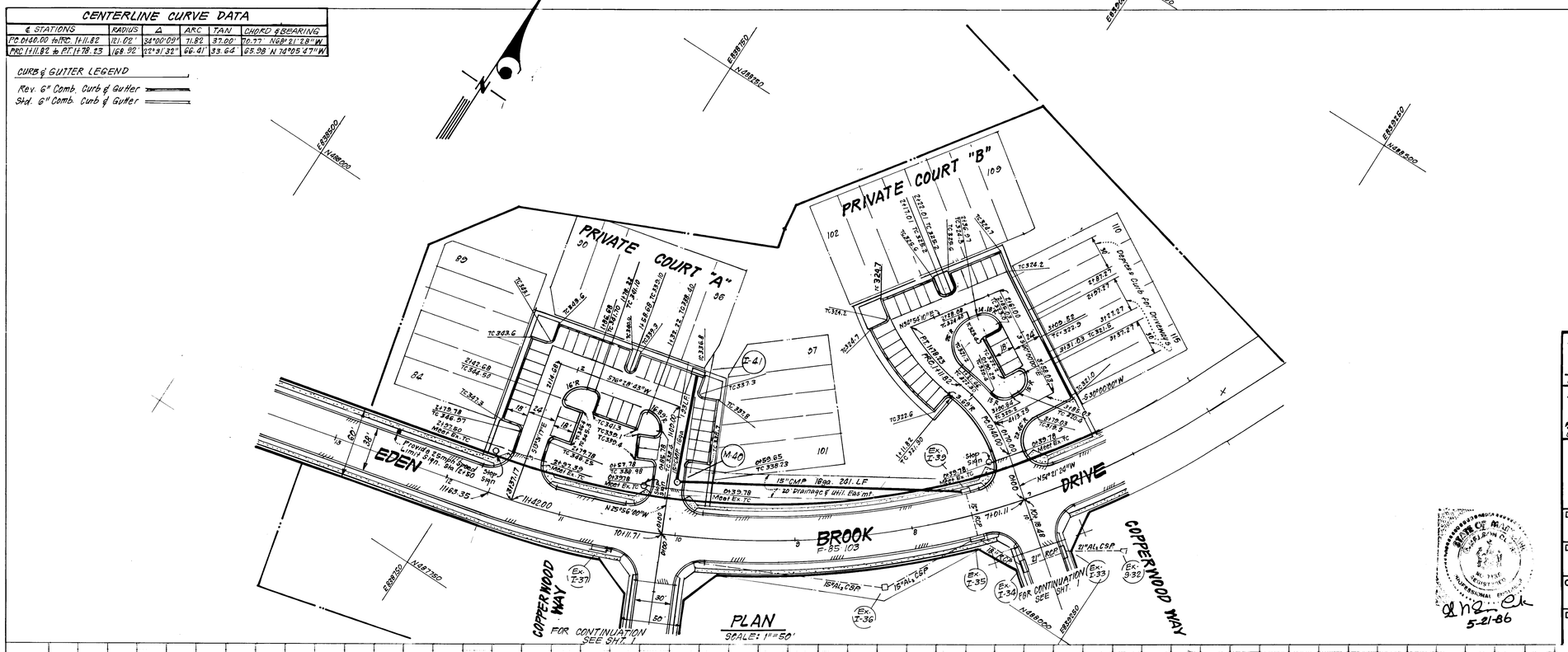
CENTERLINE CURVE DATA

℄ STATIONS	RADIUS	Δ	ARC	TAN	CHORD & BEARING
PC 0+40.00 to PRC 1+11.82	121.02'	34°00'09"	71.82	37.00'	70.77' N68°21'28"W
PRC 1+11.82 to PT 1+78.23	168.92'	22°31'32"	66.41'	33.64'	65.98' N74°05'47"W

CURB & GUTTER LEGEND

Rev. 6" Comb. Curb & Gutter

Std. 6" Comb. Curb & Gutter



PLAN
SCALE: 1"=50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Engineering — Date 8-23-86

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

ACTING — Chief, Division of Land Development & Zoning Administration — Date 8-27-86

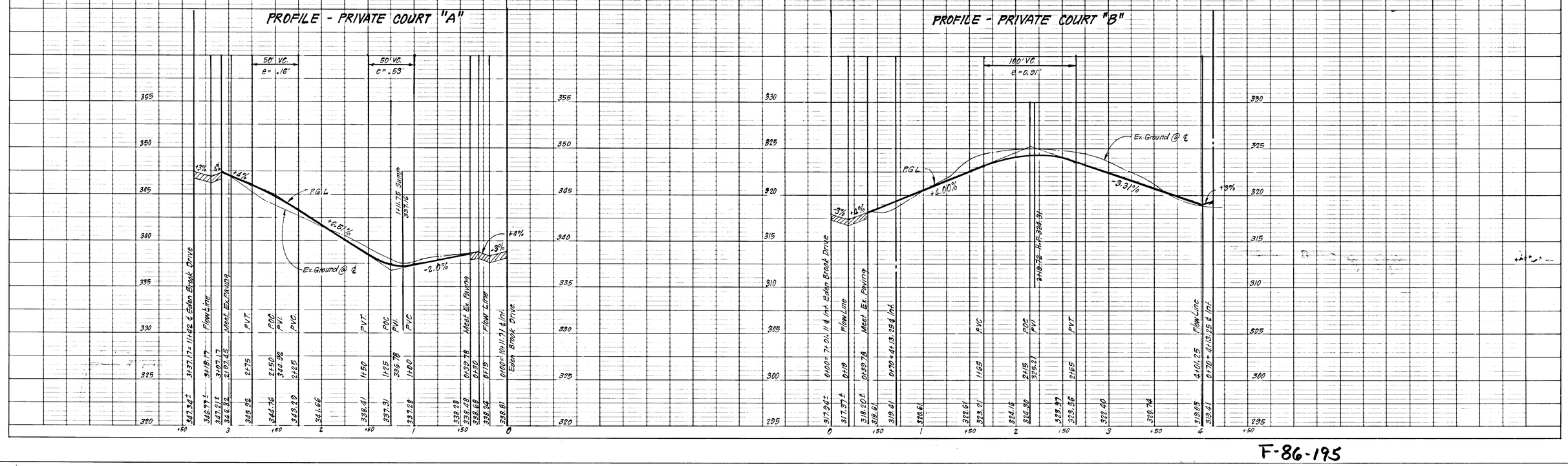
CLARK · FINEFROCK & SACKETT
ENGINEERS · PLANNERS · SURVEYORS
11315 LOCKWOOD DRIVE · SILVER SPRING, MARYLAND 20904 · (301) 593-3400

DESIGNED JLS	ROAD CONSTRUCTION PLANS	SCALE As Shown
DRAWN KIW.	**KINGS MEADE** SECTION TWO 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	DRAWING 2 OF 6
CHECKED JLS.		JOB NO. 86-011
DATE 5-16-86	FOR: BRITAM DEVELOPMENT GROUP, INC. 9030 Red Branch Road #210 Columbia, Md. 21045	FILE NO. 86-011-D

5-21-86

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

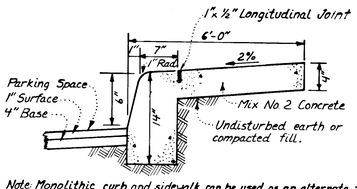
PROFILE LEGEND
Profile Grade Line
Existing ℄



1156

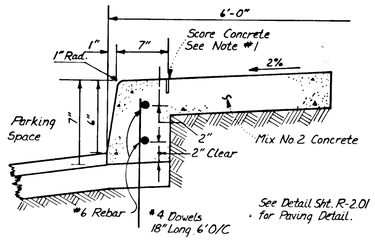
F-86-195

Notes:
1. Longitudinal Joint between sidewalk & curb shall be continuous and to a depth of 1/4 the thickness of the sidewalk or 1" Max. Latitudinal Joints shall run from back edge of sidewalk continuous to the bottom face of curb to a depth of 1/2" and spaced 5' apart.
2. Provide 1/2" expansion joints at 15' intervals. In latitudinal joints to full cross-section.



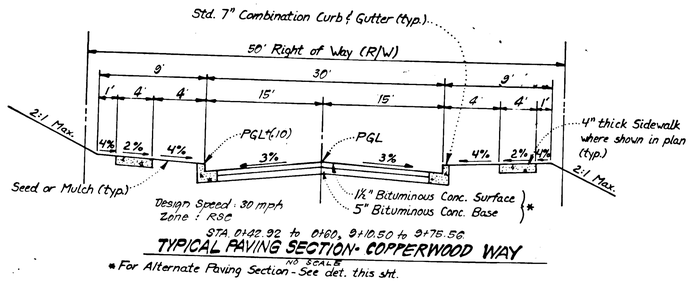
Note: Monolithic curb and sidewalk can be used as an alternate to reverse 6" curb & gutter where curb is adjacent to sidewalk.

MONOLITHIC CURB & SIDEWALK - PRIVATE PARKING AREA
NO SCALE



See Detail Sht. R-2.01 for Paving Detail.

ALTERNATE SECTION
NO SCALE



STA. 0+32.92 to 0+60, 9+10.50 to 9+76.56

TYPICAL PAVING SECTION - COPPERWOOD WAY
NO SCALE

* For Alternate Paving Section - See det. this sht.

STRUCTURE SCHEDULE △

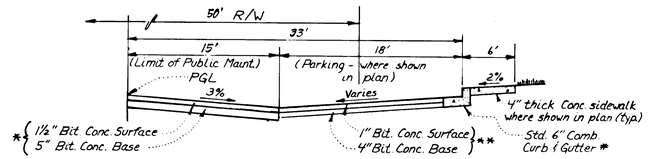
No.	TYPE	INV. IN	INV. OUT	TOP ELEVATION UPPER	TOP ELEVATION LOWER	REMARKS		LOCATION
M-40	Brick Manhole	331.91	331.81	336.17		Ho. Co. Std. G-5.01	48" Rct.	℄ Str. Sta. 9+45 1.50' Left of ℄
I-41	A-10 Inlet	-	332.80	336.80		Ho. Co. Std. SD 4.02	W=2'-6"	See Plan
S-42	Metal End Section	292.00	291.96	-		Ho. Co. Std. SD 5.61	Dia=21"	See Plan

△ All Inverts to be fully developed.

PIPE SCHEDULE

	SIZE	TYPE	LENGTH
*	15"	CMP 16ga	334 LF
*	21"	BCCMP 16ga	80 LF

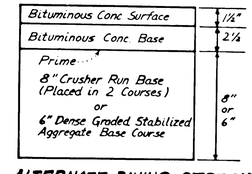
* 2 2/3" x 1/2" Corrugations.



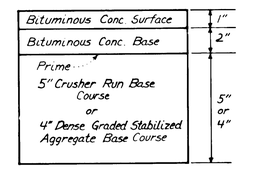
* See Alternate Paving Section for Public Roads, this sht.
** See Alternate Paving Section for Parking, this sht.
# Where flow is away from curb & gutter, Rev. 6" Comb Curb & Gutter shall be used.

ZONE: RSC
DESIGN SPEED: 30 mph.

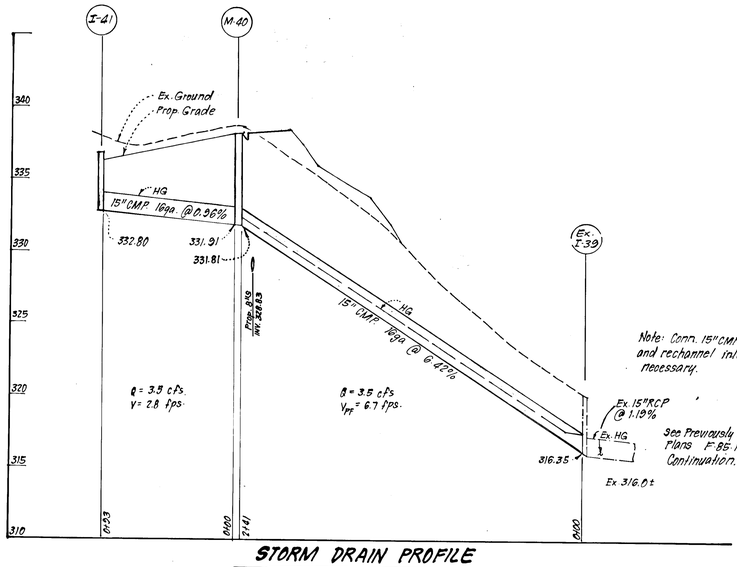
TYPICAL HALF SECTION PARKING ADJACENT TO PUBLIC ROADS
COPPERWOOD WAY STA 0+60 to 9+10.50
NO SCALE



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



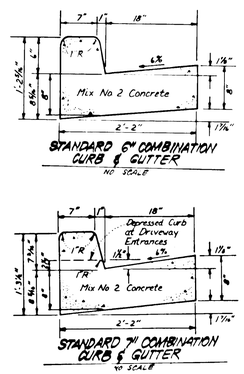
ALTERNATE PAVING SECTION FOR PARKING AREAS
NO SCALE
(SECTION P-1)



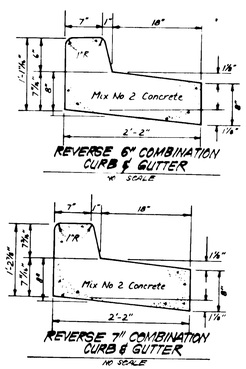
Note: Conn. 15" CMP to Ex. Inlet and rechannel inlet as necessary.

See Previously Approved Plans F-85-103 for Continuation.

STORM DRAIN PROFILE
SCALE: HORIZ: 1"=50'
VERT. 1"=5'



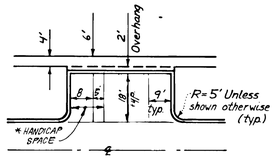
STANDARD 6" COMBINATION CURB & GUTTER
NO SCALE



REVERSE 6" COMBINATION CURB & GUTTER
NO SCALE

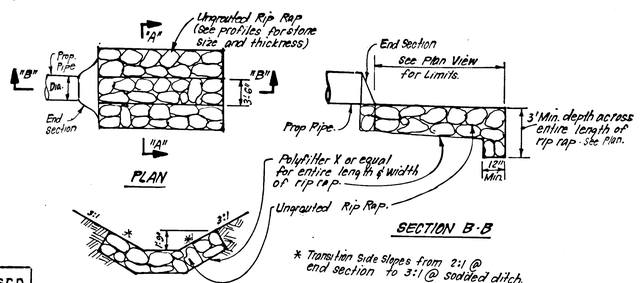
STANDARD 7" COMBINATION CURB & GUTTER
NO SCALE

REVERSE 7" COMBINATION CURB & GUTTER
NO SCALE



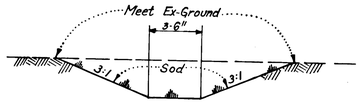
TYPICAL PARKING
NO SCALE

* Two 8' Handicap Spaces may share one 5' Aisle



* Transition Side Slopes from 2:1 @ end section to 3:1 @ sodded ditch.

UNGROUTED RIPRAP PAVING DETAILS
NO SCALE



SODDED DITCH DETAIL
NO SCALE

GENERAL SODDING NOTES:
1. Apply 10-10-10 Fertilizer @ 1000#/acre (25#/1000 sf)
2. Apply Ground Agricultural Limestone @ 2000#/acre (50#/1000 sf)
3. Incorporate both Lime and Fertilizer into soil by discing. Firm up after incorporation.
4. Lay sod to a tight fit. Roll to insure contact with underlying soil. Water as necessary for 1st 2 weeks, in summer, to ensure establishment.
5. All sod to be used must be certified by the state of Maryland.
6. Sod to be pegged and stapled.

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."

John F. Lupprini 5-21-86
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 5-21-86
G. Nelson Clark Date

STATE OF MARYLAND — G. NELSON CLARK — No. 3130 — REGISTERED ENGINEER

Reviewed for Howard S.C.D.
Name
and meets Technical Requirements
Signature Date
U.S. Soil Conservation Service

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

Approved 8-26-86
Date

APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Engineering 8-28-86 Date

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
ACTING Chief, Division of Land Development & Zoning Administration 8-27-86 Date

CLARK · FINEFROCK & SACKETT
ENGINEERS · PLANNERS · SURVEYORS
11315 LOCKWOOD DRIVE · SILVER SPRING, MARYLAND 20904 · (301) 593-3400

DESIGNED JLS	ROAD CONSTRUCTION PLANS STORM DRAIN & PAVING DETAILS	SCALE As Shown
DRAWN KW	KINGS MEADE SECTION TWO 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	DRAWING 3 OF 6
CHECKED JLS		JOB NO. 86-011
DATE 5-16-86	FOR: BRITAM DEVELOPMENT GROUP, INC. 9030 Red Branch Road #210 Columbia, Md. 21045	FILE NO. 86-011-D

#1156

F-86-195

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 no steeper than 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. When specified, a sufficient quantity of topsoil will 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 area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) 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 portions 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 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 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 to 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.

III. STRUCTURAL 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 tampers or other 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 twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

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

   Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

   Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-79I with watertight coupling bands or flanges.

   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. Coupling bands, anti-seep collars, end sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. 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 9 and greater than 4.

2. 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. Watertight 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 the completely watertight. Dimple bands are not considered to be watertight.

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

4. Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

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

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

B. 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 AWWA Specification C-301.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3", or as shown on the drawings.

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

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, scales, 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 one-quarter inch 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 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. 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 speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. 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 to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.

   The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

   Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed 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 type mechanical vibrators. Vibration shall be suplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges 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 reamed and completely filled with dry-patching 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 compunds may also be used.

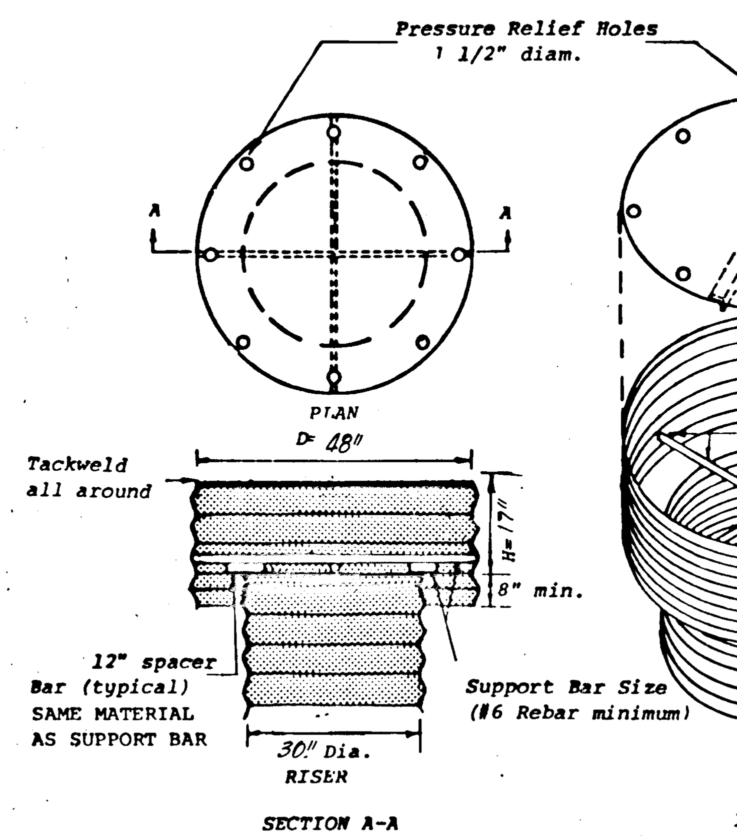
9. Placing Temperature - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (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.



Top stiffener (if required) is __x__x__ angle welded to top and oriented perpendicular to corrugations. Not Required.

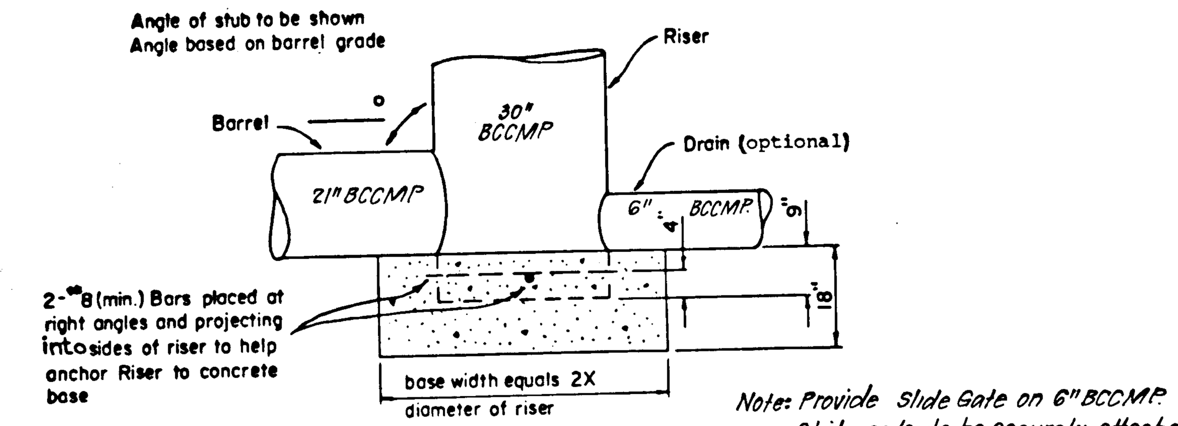
Top is 14 gage corrugated metal or 1/8" steel plate. Pressure relief holes may be ommitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

Cylinder is 16 gage corrugated metal pipe or fabricated from 1/8" steel plate.

Notes:
1) The cylinder must be firmly fastened to the top of the riser.
2) Support bars are welded to the top of the riser or attached by straps bolted to top of riser.

ANTI-VORTEX DEVICE DETAIL

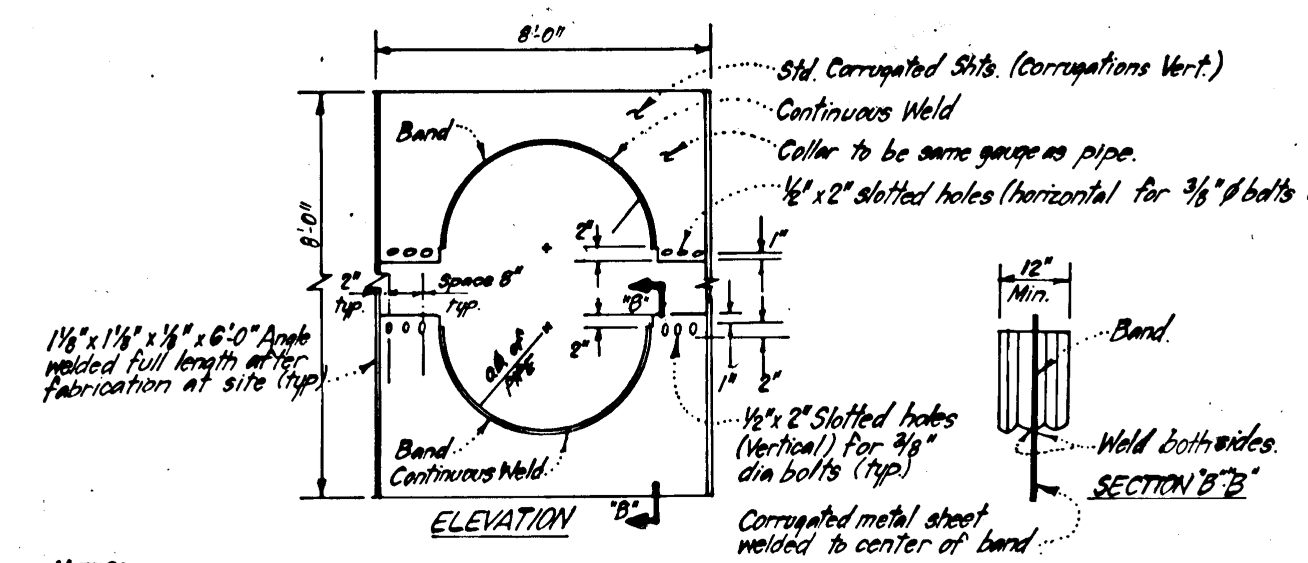
NO SCALE



Note: Provide Slide Gate on 6" BCCMP. Slide gate to be securely attached to 48" trash rack and anti-vortex device.

RISER BASE DETAIL

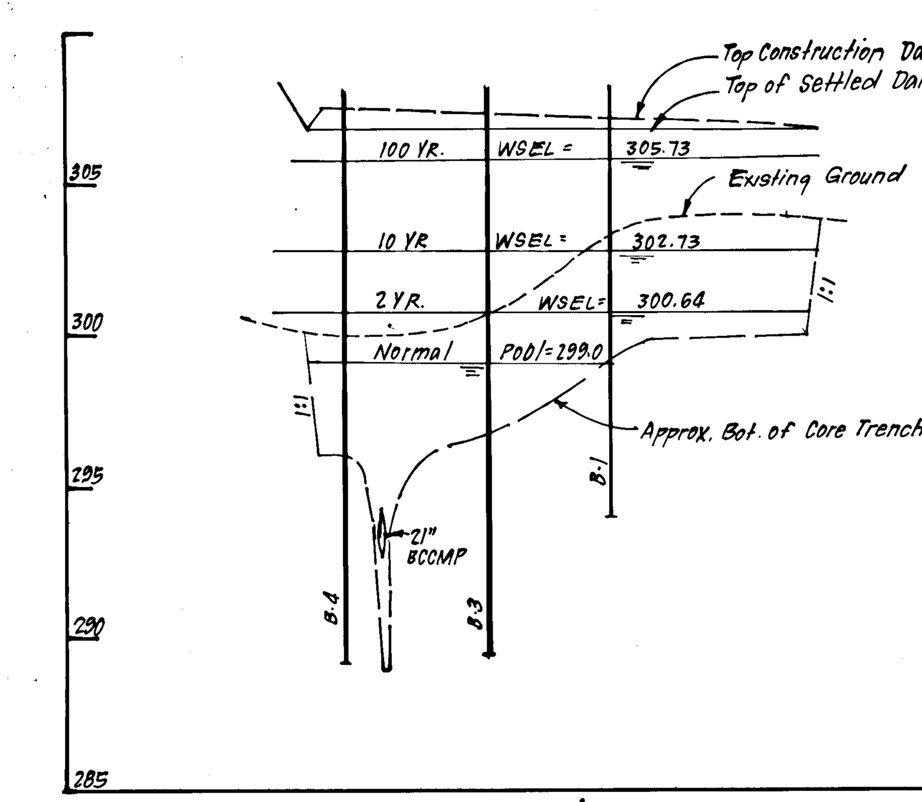
NOTES:
1. The concrete base shall be poured in such a manner to insure that the concrete fills the bottom of the riser to the invert of the outlet pipe to prevent the riser from breaking away from the base.
2. With aluminum or aluminized pipe, the embedded section must be painted with zinc chromate or equivalent.
3. Riser base may be sized as computed using floatation with a factor of safety of 1.2.



NOTES:
1. All materials to be in accordance with construction material specifications.
2. When specified on the plans, coating of collars shall be in accordance with contr. material specs.
3. Unassembled collars shall be marked by painting or tagging to identify matching pairs.
4. The lap between the two half sections and between the pipe and connection band shall be caulked with asphalt mastic at time of installation.
5. Each collar shall be furnished with two 1/2" diameter rods w/std. tank lugs for connecting collars to pipe.

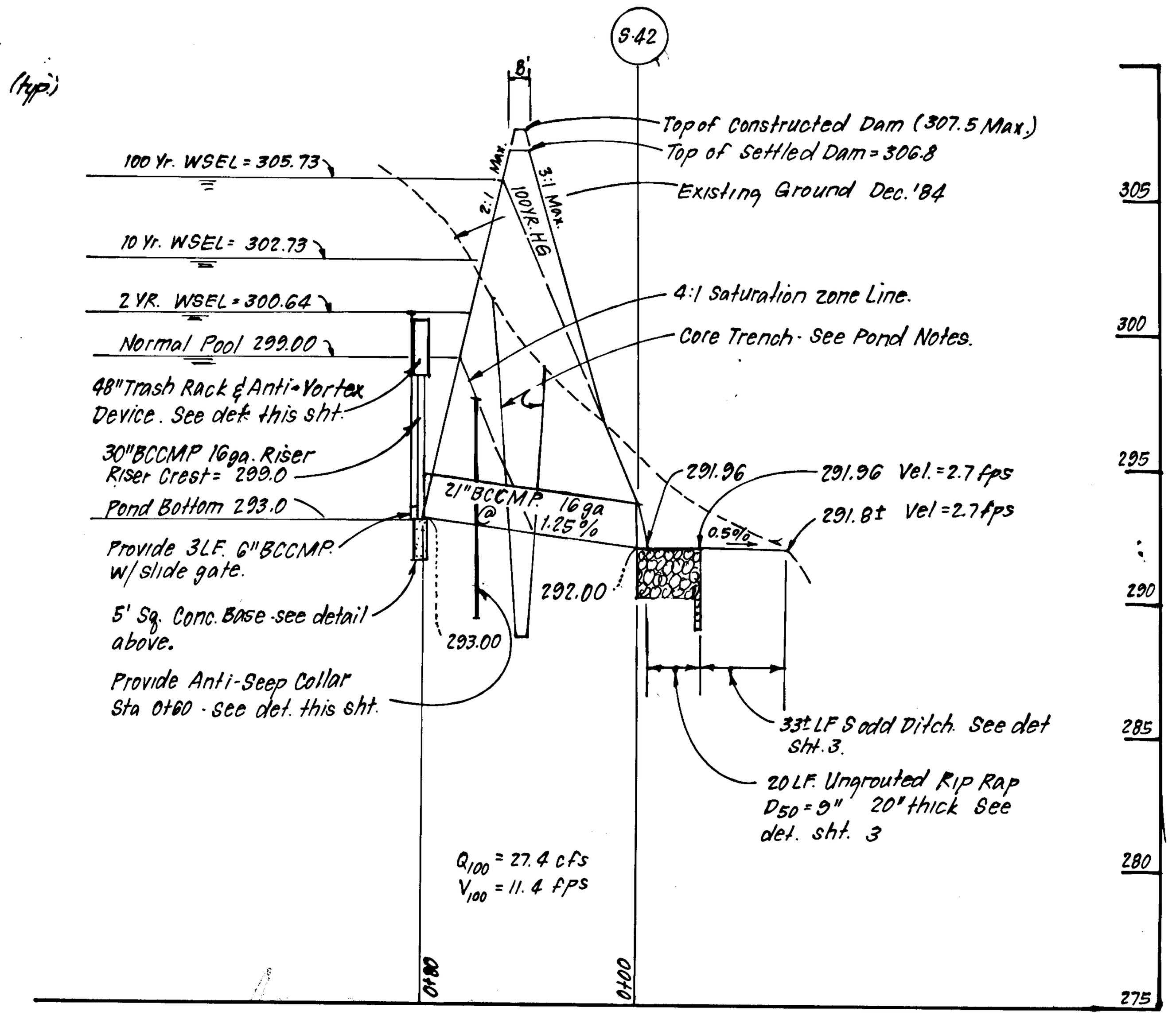
CORRUGATED METAL ANTI-SEEP COLLAR DETAILS

NO SCALE



PROFILE ALONG ℄ OF DAM

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



PROFILE - PRINCIPAL SPILLWAY

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

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

Approved Robert W. Zielen 8-26-86
Howard S.C.D. Date

Plan Number

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

[signature] 8-27-86
U.S. Soil Conservation Service Date

DEVELOPER'S CERTIFICATE

"I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary. Deviation from this plan will not be made unless authorized by The Howard Soil Conservation District. I will provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

John L. Liparini 5-21-86
Signature of 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 a red-lined "as built" of the pond within 30 days of completion."

G. N. Clark 5-21-86
Signature of Engineer Date
G. Nelson Clark

STATE OF MARYLAND · G. NELSON CLARK · NO. 7130 · REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 8-28-86
Chief, Bureau of Engineering Date

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

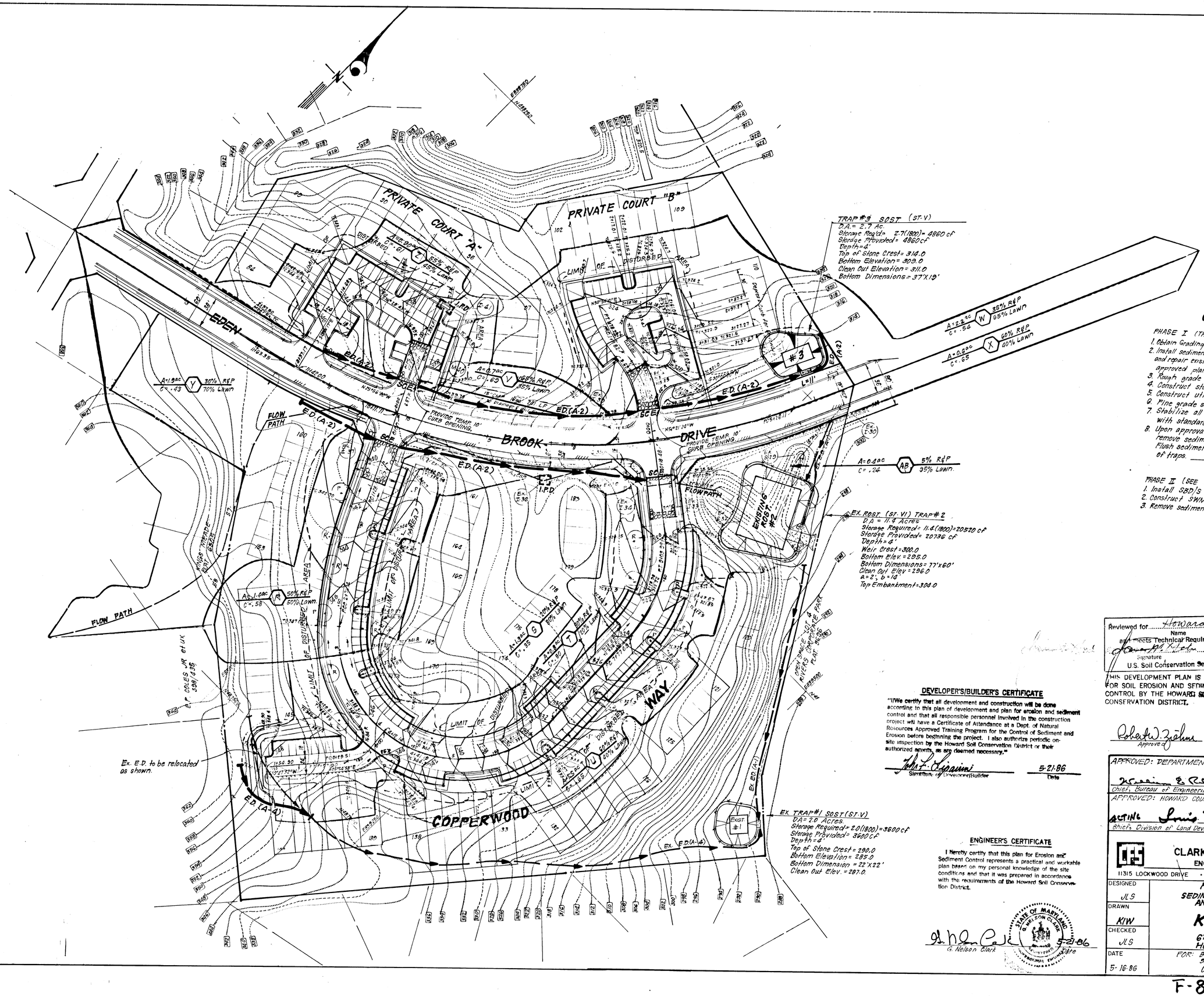
ACTING Louis F. Dunn 8-29-86
Chief, Division of Land Development & Zoning Administration Date

CFS CLARK · FINEFROCK & SACKETT
ENGINEERS · PLANNERS · SURVEYORS
11315 LOCKWOOD DRIVE · SILVER SPRING, MARYLAND 20904 · (301) 593-3400

DESIGNED JLS	ROAD CONSTRUCTION PLANS STORM WATER MANAGEMENT DETAILS	SCALE As Shown
DRAWN KIW	KINGS MEADE	DRAWING 4 OF 6
CHECKED JLS	SECTION TWO 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 86-011
DATE 5-16-86	FOR: BRITAM DEVELOPMENT GROUP, INC. 5030 Red Branch Road #210 Columbia, Md. 21045	FILE NO. 86-011-D

F-86-195

#1152



CONSTRUCTION SEQUENCE

PHASE I (THIS SHEET)

	No. OF DAYS
1. Obtain Grading Permit	2
2. Install sediment & erosion control measures. Cleanout and repair exist. traps in accordance with previously approved plans F-85-103.	14
3. Rough grade site.	21
4. Construct storm drainage and install I.P.D's.	14
5. Construct utilities.	60
6. Fine grade site and construct paving.	60
7. Stabilize all disturbed areas on-site in accordance with standards and specs.	14
8. Upon approval of the sediment control inspector, remove sediment & erosion control measures and stabilize. Flush sediment out of storm drainage prior to removal of traps.	14

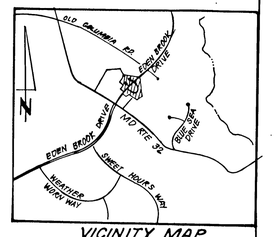
PHASE II (SEE SHEET 1)

	No. OF DAYS
1. Install SBD/S below S.W.M. Pond embankment	1
2. Construct SWM Pond and immediately stabilize.	14
3. Remove sediment & erosion control measures.	2

Reviewed for Howard S.C.D.
Name
and meets Technical Requirements
Signature — Date
U.S. Soil Conservation Service

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

Approved — Date 8-26-86



VICINITY MAP
SCALE: 1"=2000'

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."

Signature of Developer/Builder — 5-21-86 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 — 5-21-86 State

APPROVED: DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Engineering — 8-28-86 Date

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

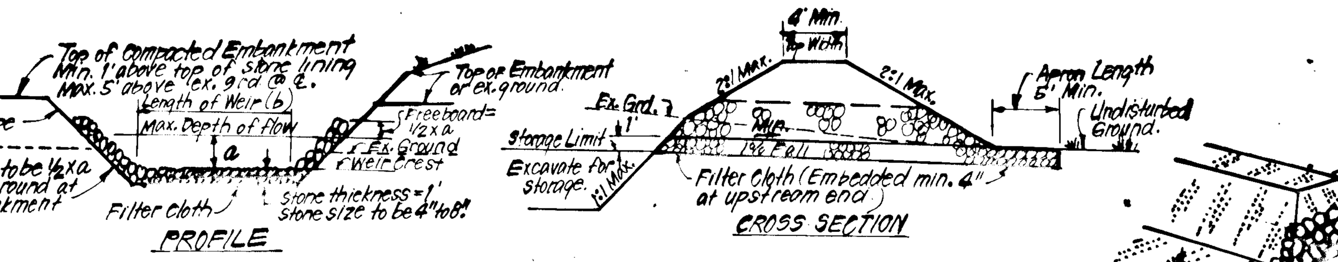
ACTING Director, Division of Land Development & Zoning Administration — 8-27-86 Date

CLARK · FINEFROCK & SACKETT
ENGINEERS · PLANNERS · SURVEYORS
11315 LOCKWOOD DRIVE · SILVER SPRING, MARYLAND 20904 · (301) 593-3400

DESIGNED JLS	ROAD CONSTRUCTION PLANS SEDIMENT & EROSION CONTROL PLAN AND DRAINAGE AREA MAP	SCALE As Shown
DRAWN KIW	KINGS MEADE SECTION TWO 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	DRAWING 5 OF 6
CHECKED JLS		JOB NO. 86011
DATE 5-16-86	FOR: BRITAM DEVELOPMENT GROUP, INC. 5430 Red Branch Road #210 Columbia, Md. 21045	FILE NO. 86011-D

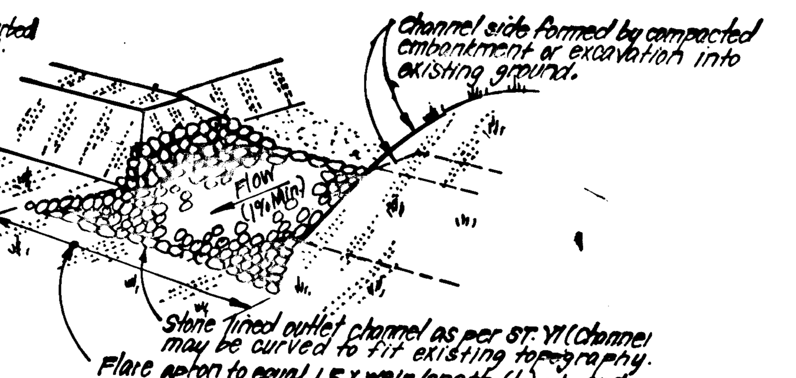
#1156

F-86-195



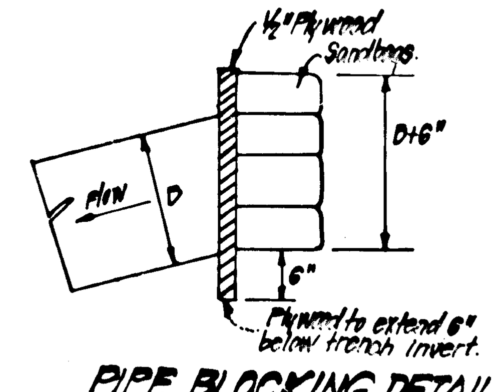
CONSTRUCTION SPECIFICATIONS:

1. The 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 or other woody vegetation as well as over sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equip. while it is being constructed. Max. height of embankment shall be 5' measured at ℄ of embankment.
3. All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of 1' below the lower weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be 4" to 8" rip rap. To provide a filtering effect, a layer of filter cloth shall be embedded 1' back into the upstream face of the outlet stone or a 1' thick layer of 2" or finer aggregate shall be placed on the upstream face of the outlet.
8. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 15 acres or less.



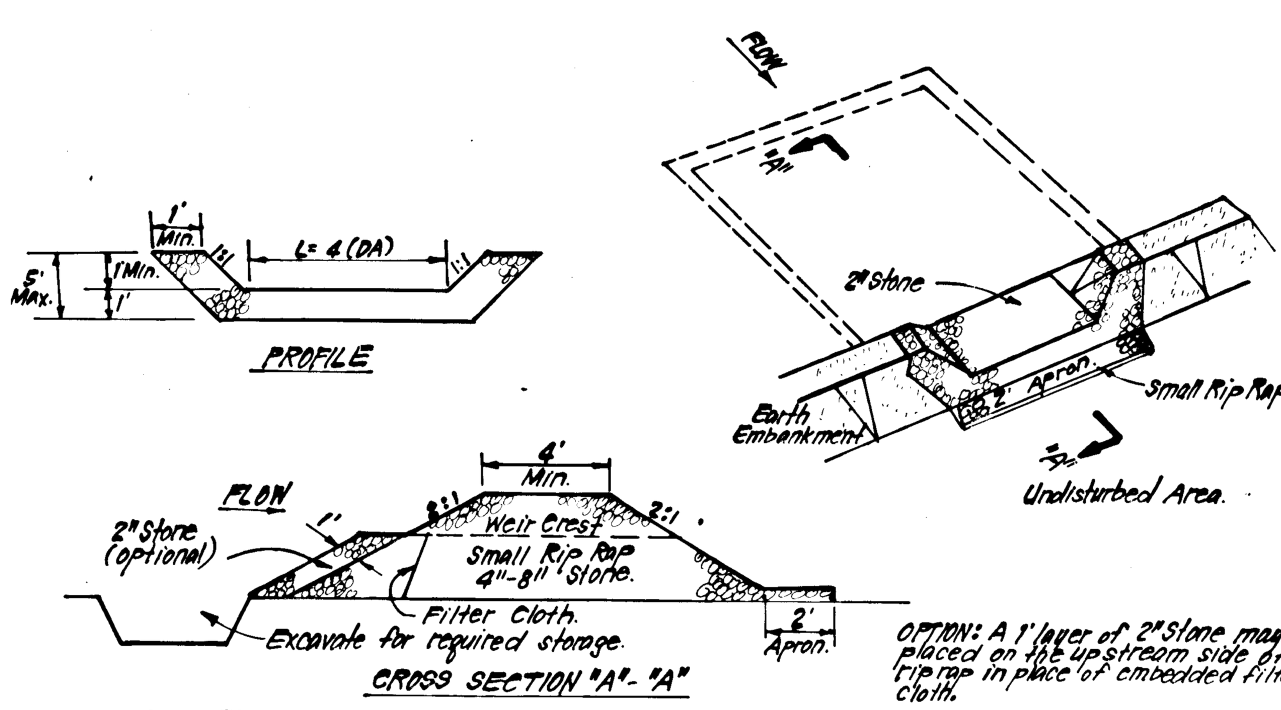
RIPRAP OUTLET SEDIMENT TRAP - ST-VI.

NO SCALE



PIPE BLOCKING DETAIL

NO SCALE



OPTION: A 1' layer of 2" Stone may be placed on the upstream side of the rip rap in place of embedded filter cloth.

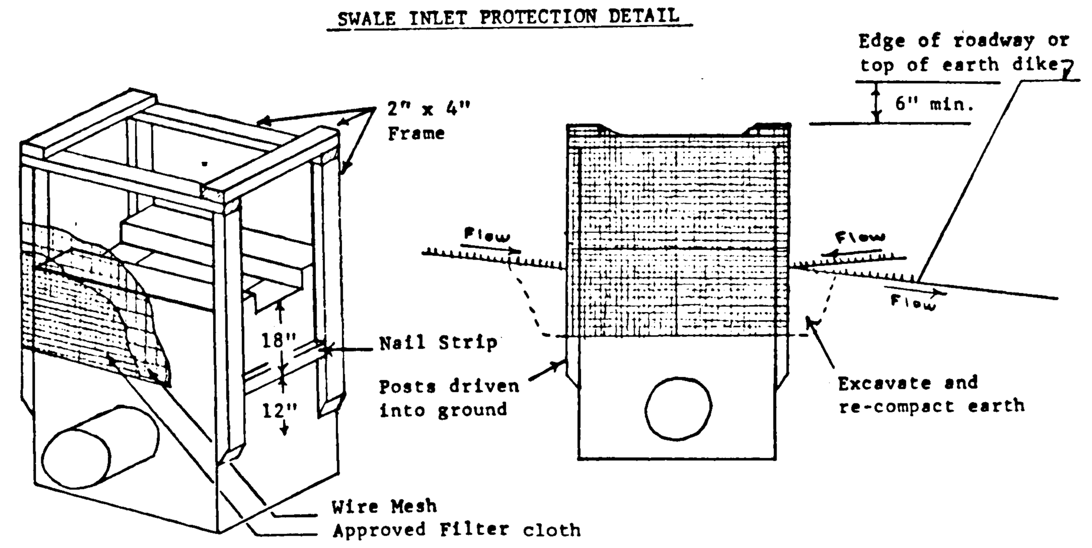
CONSTRUCTION SPECIFICATIONS:

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 over-sized 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 rip rap 4"-8" along with 1' thickness of 2" aggregate placed on the up-grade side on the small rip rap or embedded filter cloth in the rip rap.
5. Sediment shall be removed and trap restored to its orginal dimensions when the sediment has accumulated to ½ 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 than erosion and water pollution is minimized.
8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

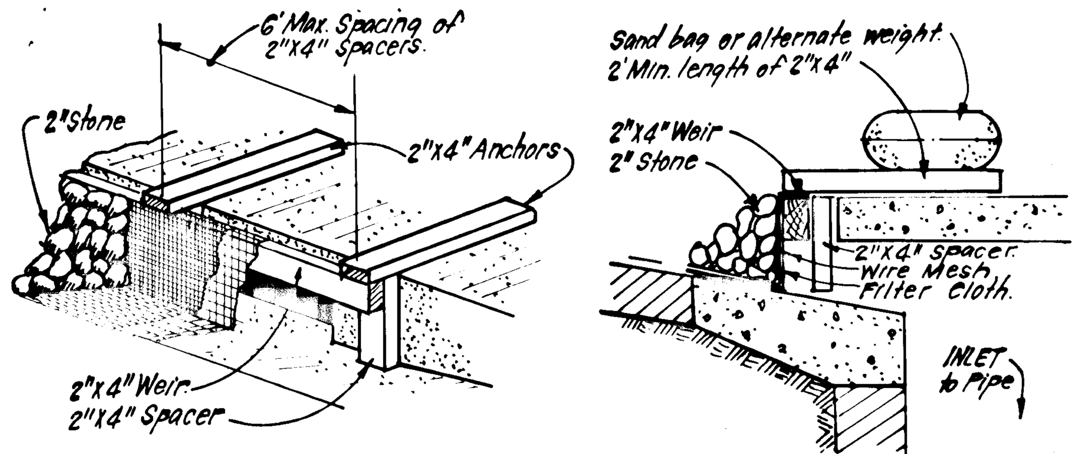
STONE OUTLET SEDIMENT TRAP (S.O.S.T.) ST-V.

NO SCALE

SWALE INLET PROTECTION DETAIL



STANDARD SYMBOL



CURB INLET PROTECTION DETAIL

CONSTRUCTION SPECIFICATIONS:

I MATERIALS:
A. Wooden frame is to be constructed of 2"x4" construction grade lumber.
B. Wire mesh must be of sufficient strength to support filter fabric, and stone for curb inlets, with water fully impounded against it.
C. Filter cloth must be of a type approved for this purpose; resistant to sunlight with sieve size, EOS, 40-85, to allow sufficient passage of water and removal of sediment.
D. Stone is to be 2" in size and clean, since fines would clog the cloth.

II PROCEDURE: SWALE, DITCHLINE OR YARD INLET PROTECTION

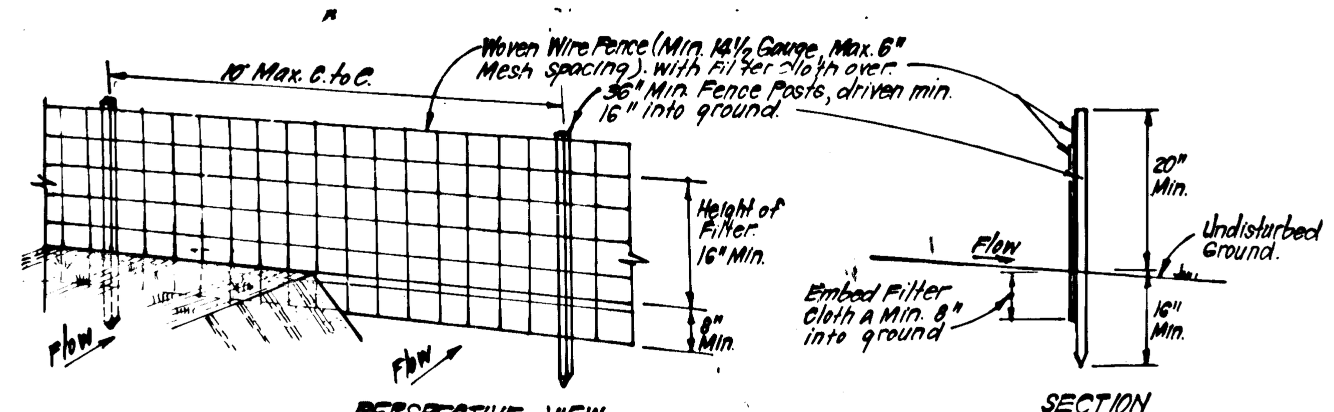
1. Excavate completely around inlet to a depth of 18" below notch elevation.
2. Drive 2x4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2x4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent 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 ditch line below it. The top of this earth dike is to be at least 6" higher than the top of frame (weir).
7. The structure must be inspected frequently and filter fabric replaced when clogged.

II PROCEDURE: CURB INLET PROTECTION

1. Attach a continuous piece of wire mesh (30" min. width by throat length plus 4') to the 2x4" weir (measuring throat length plus 2') as shown on std. drawing.
2. Place a piece of approved filter cloth (40-85 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2"x4" weir.
3. Securely nail the 2"x4" weir to 9" long vertical spacers to be located between the weir and inlet face (max 6' apart).
4. Place the assembly against the inlet throat and nail (min. 2' lengths of 2"x4" to the top of the weir at spacer locations. These 2"x4" anchors shall extend accross the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a min 1' beyond both ends of throat opening.
6. From the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow to inlet.

INLET PROTECTION DETAIL (I.P.D.)

NO SCALE



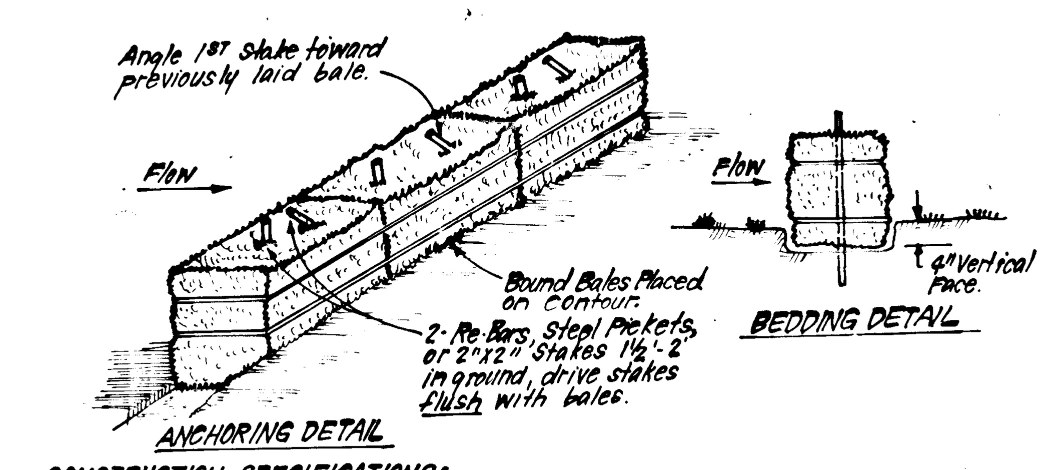
CONSTRUCTION SPECIFICATIONS:

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 2 sections of filter cloth adjoin each other they shall be overlapped by 6" and folded.
4. Maintenance shall be performed as needed and material removed when "Bulges" develop in Silt Fence.

POSTS: Steel either T or U Type or 2" Hardwood.
FENCE: Woven Wire, 14½ Gage 6" Max. Mesh Opening.
FILTER CLOTH: Filter X, Mirafi 100X, Stablinka, T140N or Approv. equal.
PREFABRICATED UNIT: Geofab, Envirofence, or Approv. equal.

SILT FENCE DETAIL (S)

NO SCALE



CONSTRUCTION SPECIFICATIONS:

1. Bales shall be placed at the Top of a Slope or on the contour and in a row with ends tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a min. of 4" and placed so the bindings are horizontal.
3. Bales shall be securely anchored in place by either 2 stakes or re-bars driven thru the bale. The 1st stake in each bale shall be driven toword the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the bale.
4. Inspection shall be frequent and repair replacement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

STRAW BALE DIKE DETAIL (SBD)

NO SCALE

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.

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

1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square 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).

2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding - For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thre 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 1½ to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

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

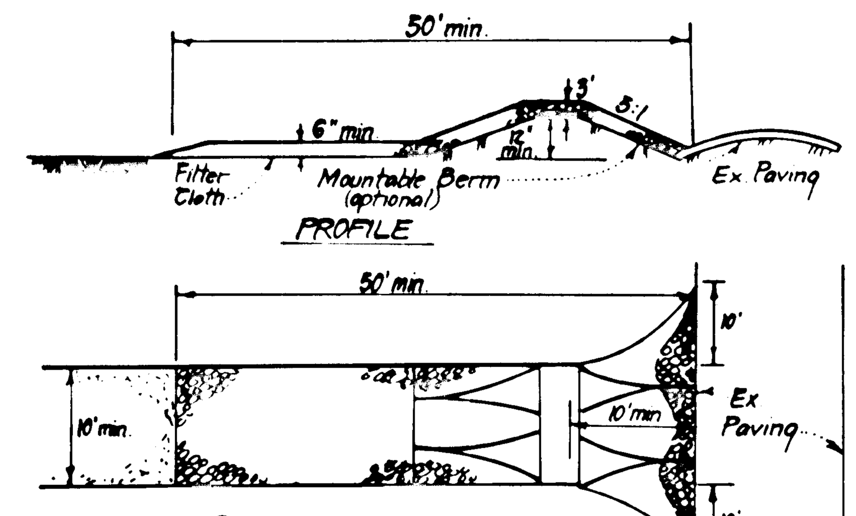
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

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 2½ 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 1½ 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 SPECIFICATIONS:

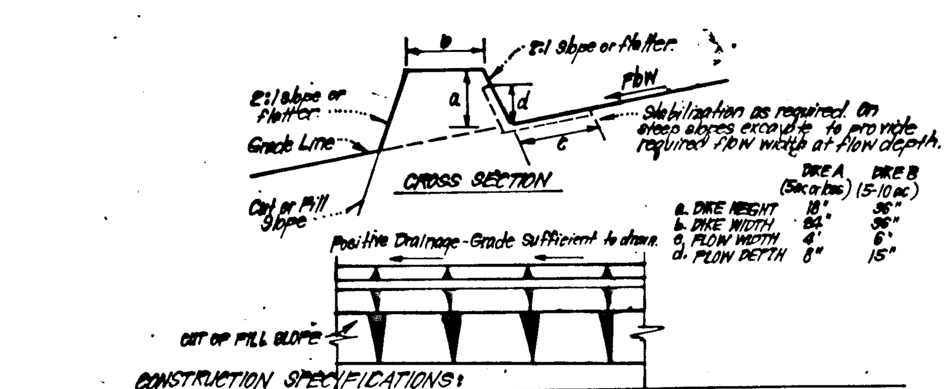
1. Stone size - Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply.
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) foot minimum, but not less than 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 mountable 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.

STABILIZED CONSTRUCTION ENTRANCE (SCE)

NO SCALE

SEDIMENT CONTROL NOTES

1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (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 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chaper 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) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6) All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector
7) Site Analysis:
   - Total Area of Site 12.17 Acres
   - Area Disturbed 4.90 Acres
   - Area to be roofed or paved 2.00 Acres
   - Area to be vegetatively stabilized 2.90 Acres
   - Total Cut ______ Cu. yds
   - Total Fill ______ Cu. yds
   - Offsite waste/borrow area location N/A
8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9) Additional sediment control must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
10) On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11) If houses are to be constructed on an "As-Sold" basis, at random, Single Lot Sediment Control as shown below shall be implemented. N/A
12) All pipes to be blocked at the end of each day (see detail below).
13) The total amount of straw bale dikes/silt fence equals 190 L.F.



CONSTRUCTION SPECIFICATIONS:

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. Runoff shall be conveyed 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.
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 chart below.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1.	0.5-3.0%	Seed & Straw Mulch	Seed or Straw Mulch
2.	3.1-5.0%	Seed & Straw Mulch	Seed w/Jute, or Excelsior; Sod; 2" Stone
3	5.1-8.0%	Seed w/Jute, or Sod; 2" Stone.	Lined Rip Rap 4"-8" Stone
4	8.1-20.0%	Lined Rip Rap 4-8" Stone	Engineering Design

A. Stone 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"-8" in a layer at least 8" thick, pressed into 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.

EARTH DIKE DETAIL (E.D.)

NO SCALE

Reviewed for Howard S.C.D.
Name
and meets Technical Requirements
[signature] 8-27-86
Signature Date
U.S. Soil Conservation Service

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

Robert W. Zielm 8-26-86
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."

John L. Liparini 5-21-86
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 5-21-86
G. Nelson Clark Date

STATE OF MARYLAND G. NELSON CLARK 7139 PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 8-28-86
Chief, Bureau of Engineering Date

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
ACTING Louis 7Dunes 8-27-86
Chief, Division of Land Development & Zoning Administration Date

CFS CLARK · FINEFROCK & SACKETT
ENGINEERS · PLANNERS · SURVEYORS
11315 LOCKWOOD DRIVE · SILVER SPRING, MARYLAND 20904 · (301) 593-3400

DESIGNED JLS	ROAD CONSTRUCTION PLANS SEDIMENT & EROSION CONTROL DETAILS	SCALE As Shown
DRAWN KIW	KINGS MEADE SECTION TWO	DRAWING 6 OF 6
CHECKED JLS	6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 86-011
DATE 5-16-86	FOR: BRITAM DEVELOPMENT GROUP, INC. 5030 Red Branch Road #210 Columbia, Md. 21045	FILE NO. 86-011-D

F-86-195

#1156