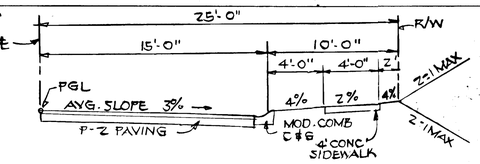
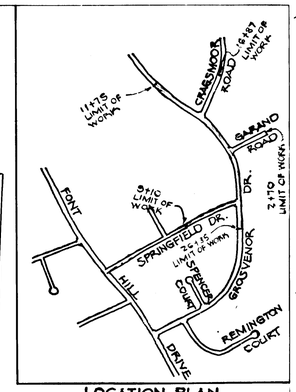
+ DENOTES 175W. MODERN "MERCURY VAPOR LAMP POST TOP FIXTURES ON A 14' GRAY FIBERGLASS POLE.



TYPICAL HALF SECTION
GROSVENOR DRIVE STA. 11+75 TO 26+35
SPRINGFIELD DRIVE STA 0+10 TO 14+27.13
GARAND ROAD STA 0+00 TO 2+70
CRAGSMOOR ROAD STA 16+87 TO 21+08
ZONED R-20 DESIGN SPEED 30MPH
LOCAL ROADS

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH HO. CO. STDS, SPECS. & DETAILS FOR CONSTRUCTION.
2. ANY DAMAGE TO PUBLIC RIGHTS-OF-WAYS OR PAVING WILL BE DONE AT THE DEVELOPERS EXPENSE.
3. APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXIST. UTILITIES & MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTORS OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE.
4. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES WHERE DIRECTED BY THE ENGR. AT LEAST 2 WEEKS BEFORE CONSTRUCTION
5. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST 5 DAYS BEFORE STARTING WORK SHOWN HEREON:
   C & P TELEPHONE CO. 1-800-257-7777
   STATE HIGHWAY ADMIN. 531-5533
   BALTO. G & E. CO.: - CONTRACTOR SERVICES 850-4620
   " " " " - UNDER GROUND DAMAGE CONTROL 850-8004
   " " " " - TROUBLE SHOOTING - 208-0001
   MISS UTILITY 1-559-0100
   COLONIAL PIPELINE CO 795-1390
   HO. CO. BUREAU OF UTILITIES 992-2366
   H.C. CO. DEPT. OF INSPECTION & PERMITS 992-2436
6. TRENCH BEDDING TO BE PER G 2.01

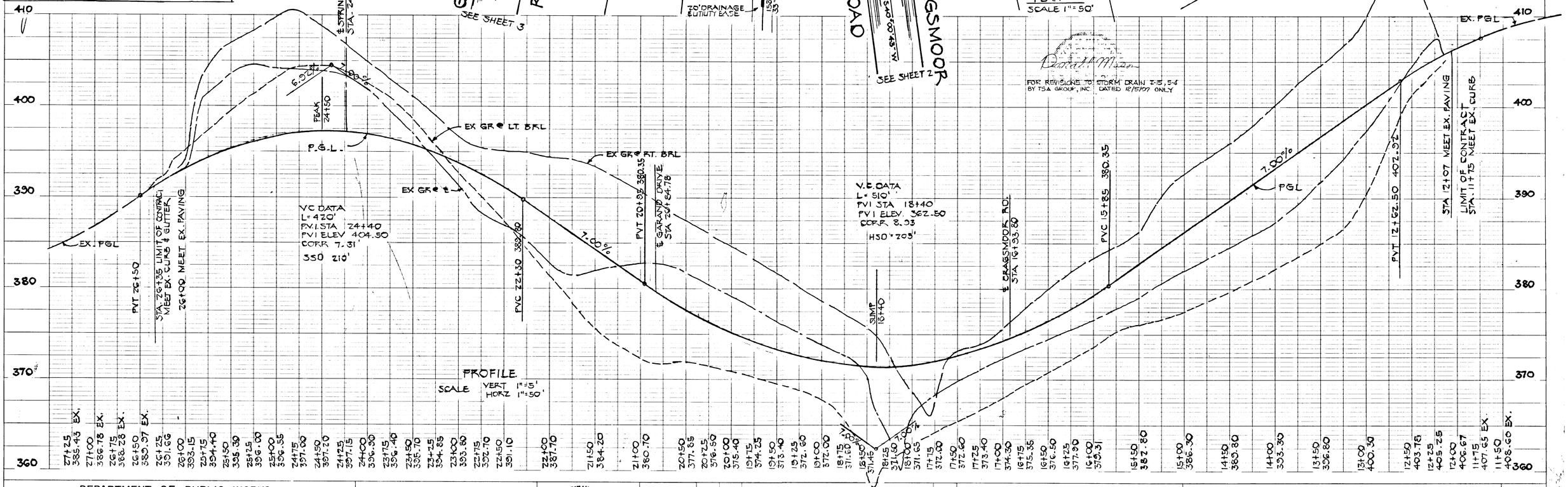


LOCATION PLAN
SCALE 1"=600'

BENCH MARK
W.R.&A. BM# W-1 ELEV. 370.78
TOP FLANGE BOLT, FIRE HYDRANT, INTERSECTION FONT HILL DR. & WILDFLOWER DRIVE.

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen K. Hahn 3/23/87
HOWARD SCD DATE
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
Donald M. Zeln 3-23-87
US SOIL CONSERVATION SERVICE DATE

PLAN
SCALE 1"=50'



PROFILE
SCALE VERT 1"=5'
HORZ 1"=50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF ENGINEERING DATE 3-31-87
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION DATE

HUDKINS ASSOCIATES
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

STATE OF MARYLAND — DONALD L. ZELN — No. 10788 — REGISTERED PROFESSIONAL ENGINEER
10-28-85

DES:				
DRN:				
CHK:				
DATE:				
BY	NO.	REVISION	DATE	
TSA	1	REMOVE S-2; ADD I-15 & S-4	12-5-87	

ROAD AND STORM DRAIN PLANS

600' SCALE MAP NO. _____ BLOCK NO. _____

GROSVENOR DRIVE
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

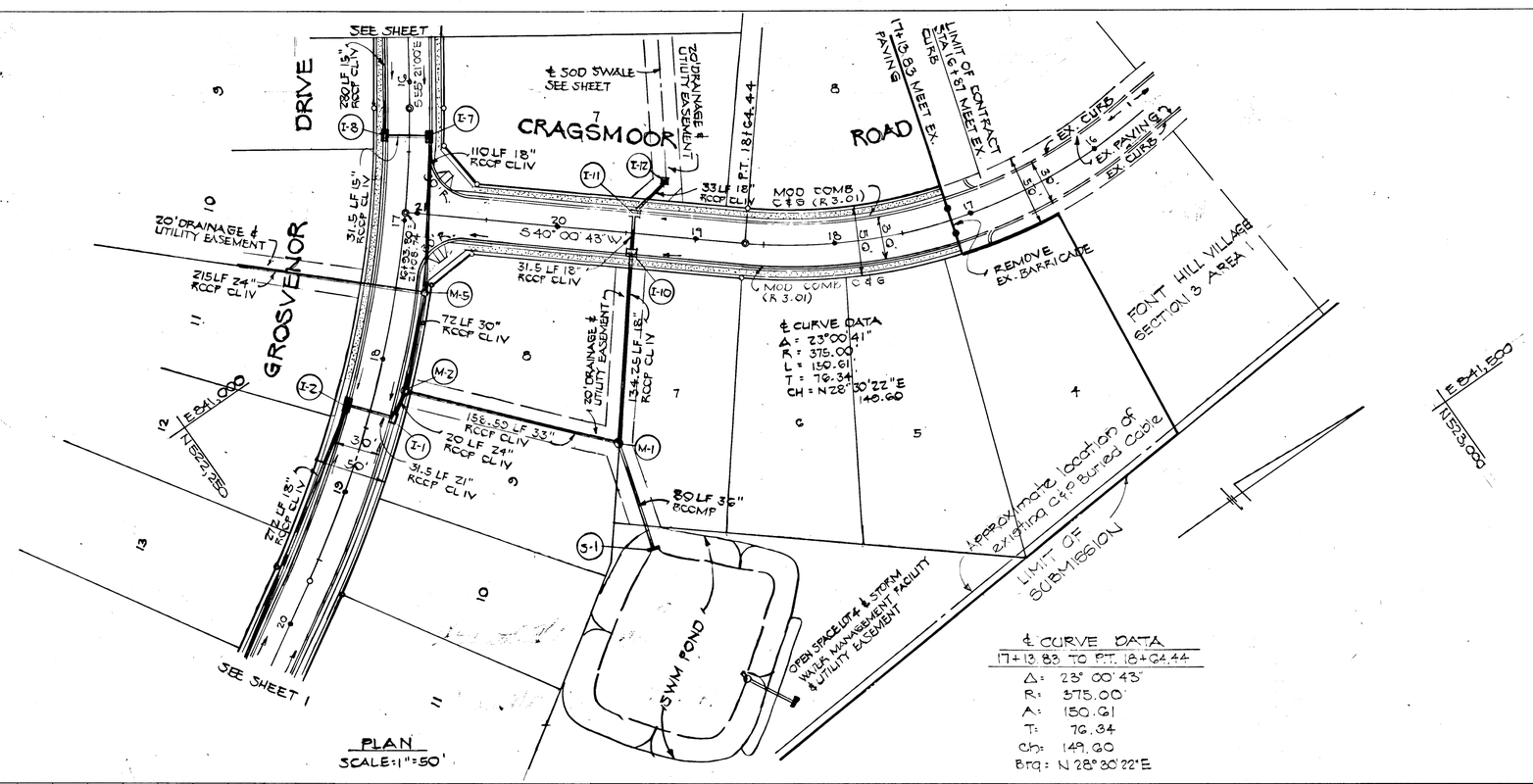
SCALE AS SHOWN

SHEET 1 OF 12

Donald M. Zeln
FOR REVISIONS TO STORM DRAIN I-15, S-4 BY TSA GROUP, INC. DATED 12/5/87 ONLY

SEE SHEET 3
SEE SHEET 3
SEE SHEET 2
20' DRAINAGE & UTILITY EASEMENT
20' DRAINAGE & UTILITY EASE
4' CONC. WALK
MOD. COMB C & G (R 3.01)
℄ SPRINGFIELD DR. STA. 24+24.75
N572,000
E 841,500
E 840,500
N571,750

F-87-36

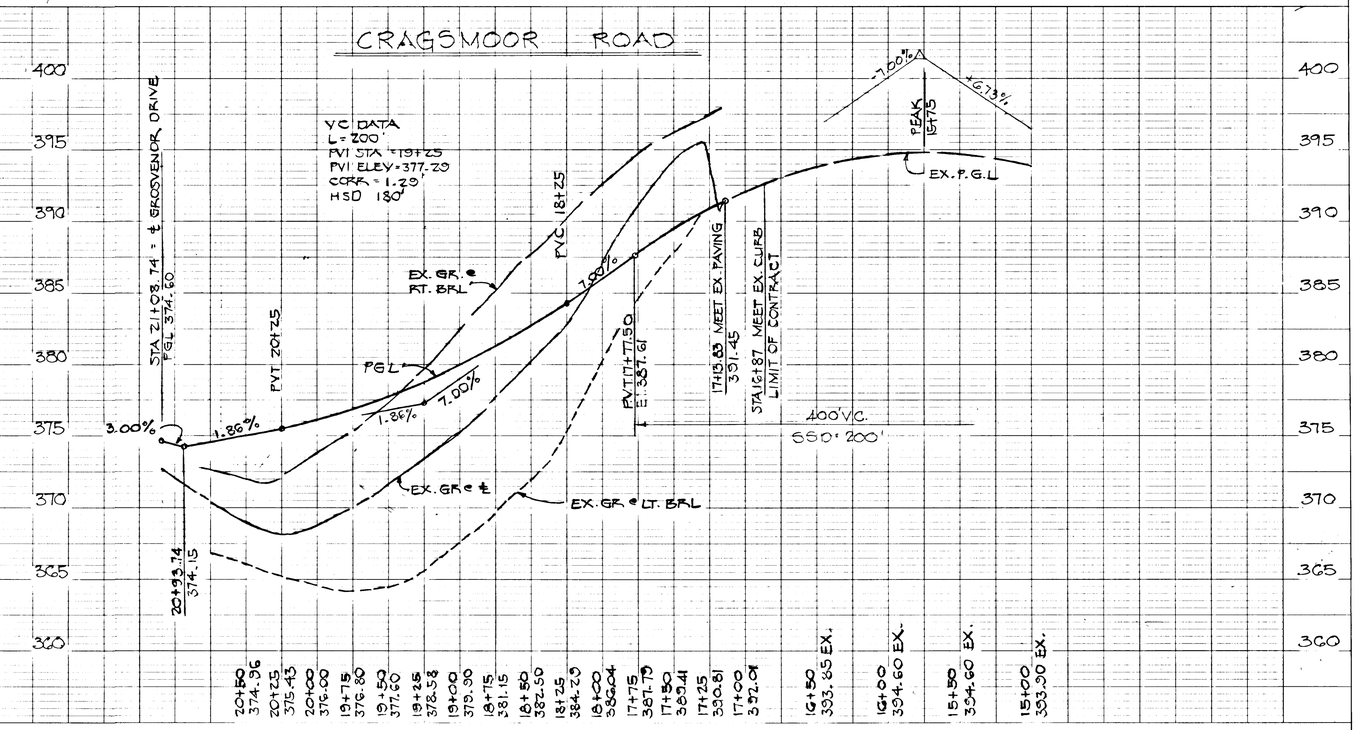


PLAN
SCALE: 1" = 50'

℄ CURVE DATA
17+13.83 TO P.T. 18+64.44
Δ: 23° 00' 43"
R: 375.00'
A: 150.61
T: 76.34
Ch: 149.60
Brg: N 28° 30' 22" E

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
HOWARD SCD 3/23/87 DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
US SOIL CONSERVATION SERVICE 3/23/87 DATE



PROFILE
SCALE VERT 1" = 5'
HORZ 1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING 3-19-87
& ZONING ADMINISTRATION

HUDKINS ASSOCIATES
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

STATE OF MARYLAND
10-28-87

DES:
DRN:
CHK:
DATE: 2-17-84

BY	NO	REVISION	DATE

ROAD AND STORM DRAIN PLANS

600' SCALE MAP NO. _____ BLOCK NO. _____

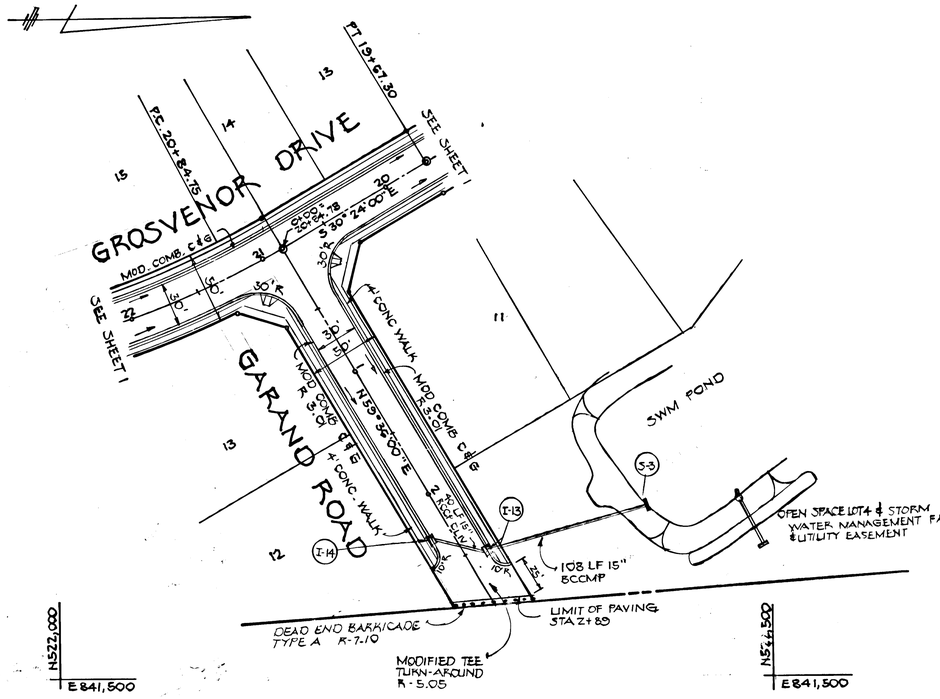
CRAGSMOOR ROAD
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

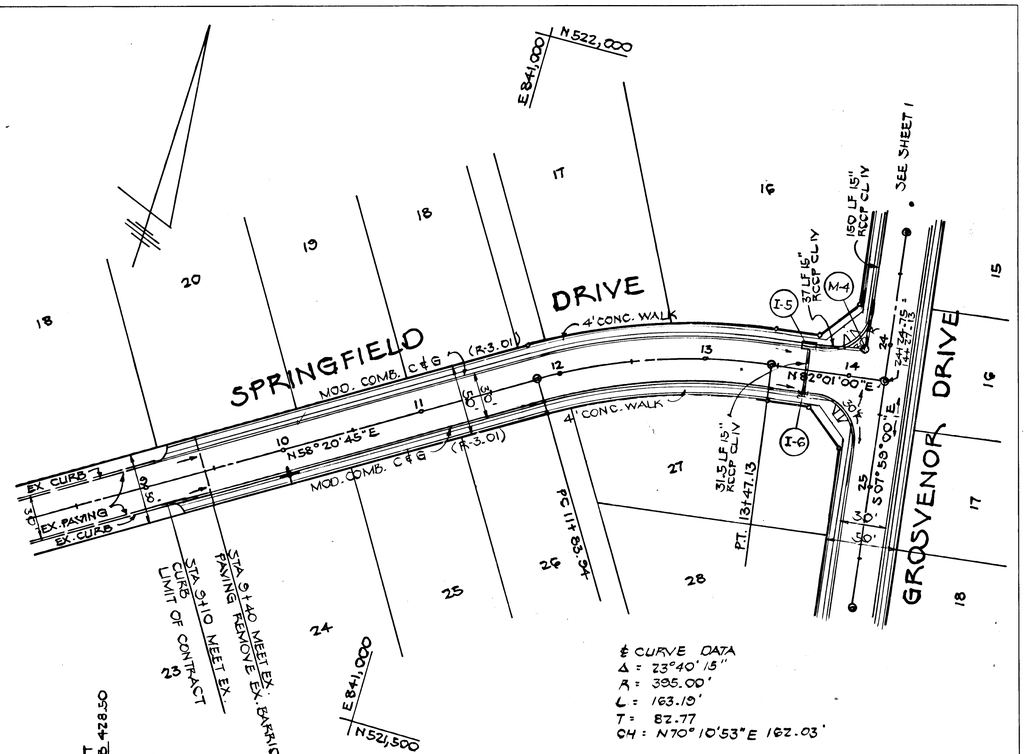
SCALE AS SHOWN

SHEET 2 OF 12

#82

F-87-36





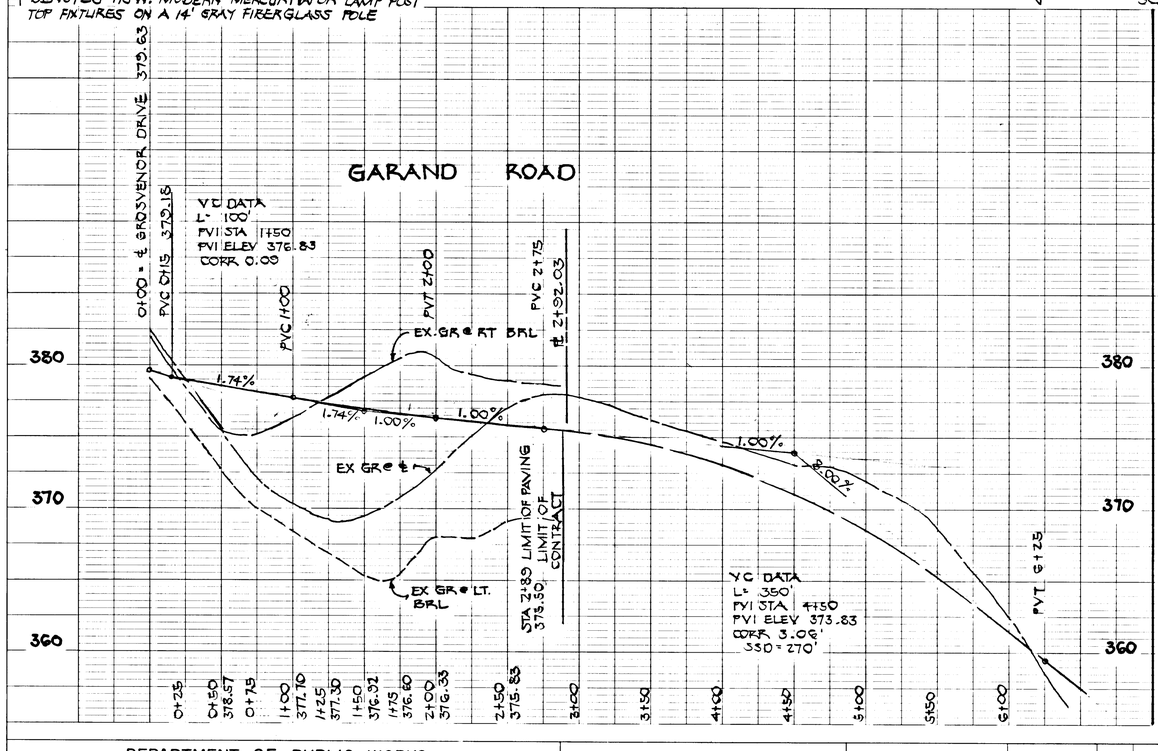
℄ CURVE DATA
Δ = 23°40'15"
R = 395.00'
L = 163.19'
T = 82.77
CH = N70°10'53"E 162.03'

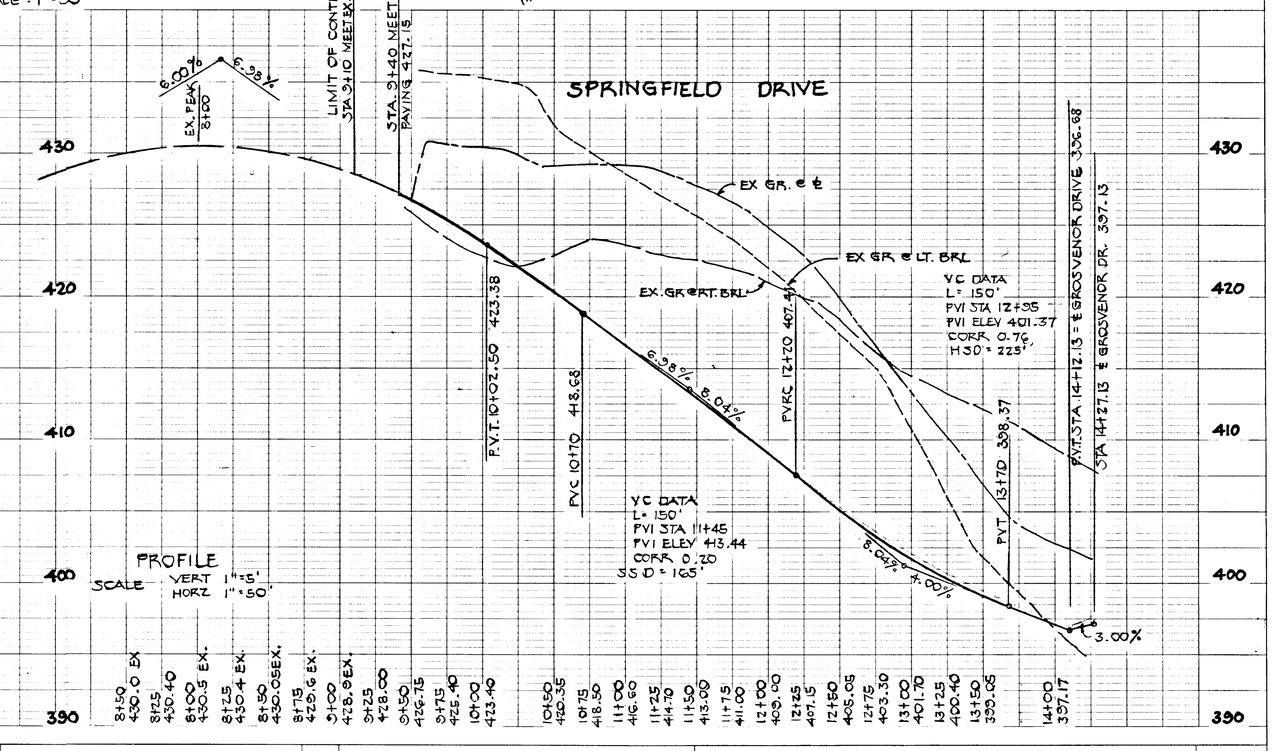
+ DENOTES 175 W. "MODERN" MERCURY VAPOR LAMP POST TOP FIXTURES ON A 14' GRAY FIBERGLASS POLE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. Hilbish 3/23/87
HOWARD SCD DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
3/23/87
US SCS CONSERVATION SERVICE DATE

PLAN
SCALE : 1" = 50'





PROFILE
SCALE VERT 1" = 5'
HORZ 1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING — DATE 3-19-87
DIRECTOR OF PLANNING & ZONING — DATE

HUDKINS ASSOCIATES
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

STATE OF MARYLAND — ARTHUR E. HUDKINS — No. 4326 — REGISTERED PROFESSIONAL ENGINEER

DES:
DRN:
CHK:
DATE:

BY	NO	REVISION	DATE

ROAD AND STORM DRAIN PLANS

600' SCALE MAP NO. _____ BLOCK NO. _____

SPRINGFIELD DRIVE GARAND ROAD
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 12

F-87-36

STRUCTURE SCHEDULE

NO	TYPE	INV. IN.	INV. OUT	STA.	℄	TOP	HO.CO. STD.
I-1	A-5	365.37	365.12	18+40	15'-9" LT	371.56	SD 4.01
I-2	A-10	366.10	365.85	18+40	15'-9" RT	371.56	SD 4.02
I-3	STD. WR	374.78	374.53	21+15	18'-9" RT	381.83	SD 4.34
I-4	STD. WR	–	375.60	21+39	15'-9" LT	383.56	SD 4.34
I-5	A-10 W/DEFLEC.	392.21	392.01	13+69	15'-9" LT	398.54	SD 4.02 & 4.83
I-6	A-5 W/DEFLEC.	–	393.00	13+69	15'-9" RT	398.54	SD 4.01 & 4.83
I-7	STD. WR	369.45	369.20	16+38	18'-9" LT	377.13	SD 4.34
I-8	A-5 W/ DEFLEC.	370.91	370.71	16+38	15'-9" RT	377.13	SD 4.01 & 4.83
I-9	A-10 W/DEFLEC.	–	390.40	13+58	15'-9" RT	396.37	SD 4.02 & 4.83
I-10	STD. WR	372.80	372.60	19+43.74	15'-9" LT	378.13	SD 4.34
I-11	STD. WR	373.40	373.20	19+43.74	15'-9" RT	378.13	SD 4.34
I-12	'D'	–	373.73			377.00 *	SD 4.11
M-1	STD. MH	359.60 365.35	356.60	–	–	365.90	G 5.02
M-2	STD. MJ	364.05 364.80	364.05	18+20	21' LT.	371.83	G 5.02
M-3	STD. MJ	385.70	385.50	22+52	12' RT.	390.76	G 5.01
M-4	STD. MJ	391.42	391.22	24+05	18' RT	396.77	G 5.01
M-5	STD. MH	365.72 366.23	365.23	17+47.64	21' LT	373.08	G 5.02
S-1	'C' ENDWALL	–	350.00	–	–	354.00	SD 5.21
S-2	C' ENDWALL	–	370.00	–	–	375.48	SD 5.21
S-3	C' ENDWALL	–	350.00	–	–	352.00	SD 5.21
I-13	STD WR	368.60	368.40	2+55	15'-9" LT	375.83	SD 4.34
I-14	A-5 W/DEFLEC.	–	368.25	2+30		376.08	SD 4.01 & 4.83

* OPEN ALL 4 SIDES - INVERT OF OPENINGS 376.83

I-15	'D'	375.75	375.65	–	–	379.90 **
6-4	'C' ENDWALL	–	377.15	–	–	379.90

** OPEN ALL 4 SIDES - INV. OF OPENINGS = 379.07

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. Gruber 3/23/87
HOWARD SCD DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
Donald McLean 3/23/87
US SOIL CONSERVATION SERVICE DATE

Donald Moran
STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER
FOR REVISIONS TO STORM DRAIN I-15, S-4 BY TSA GROUP, INC., DATED 12/5/97 ONLY

PROFILES
SCALE HORZ. 1"=50'
VERT. 1"=5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION 3-19-87 DATE

HUDKINS ASSOCIATES
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

STATE OF MARYLAND — ARTHUR E. HUDKINS — No. 7878 — REGISTERED PROFESSIONAL ENGINEER

	BY	NO.	REVISION	DATE
DES:				
DRN:				
CHK:				
DATE:	TSA	1	REMOVE S-2; ADD I-15 & S-4	12-5-97

ROAD AND STORM DRAIN PLANS

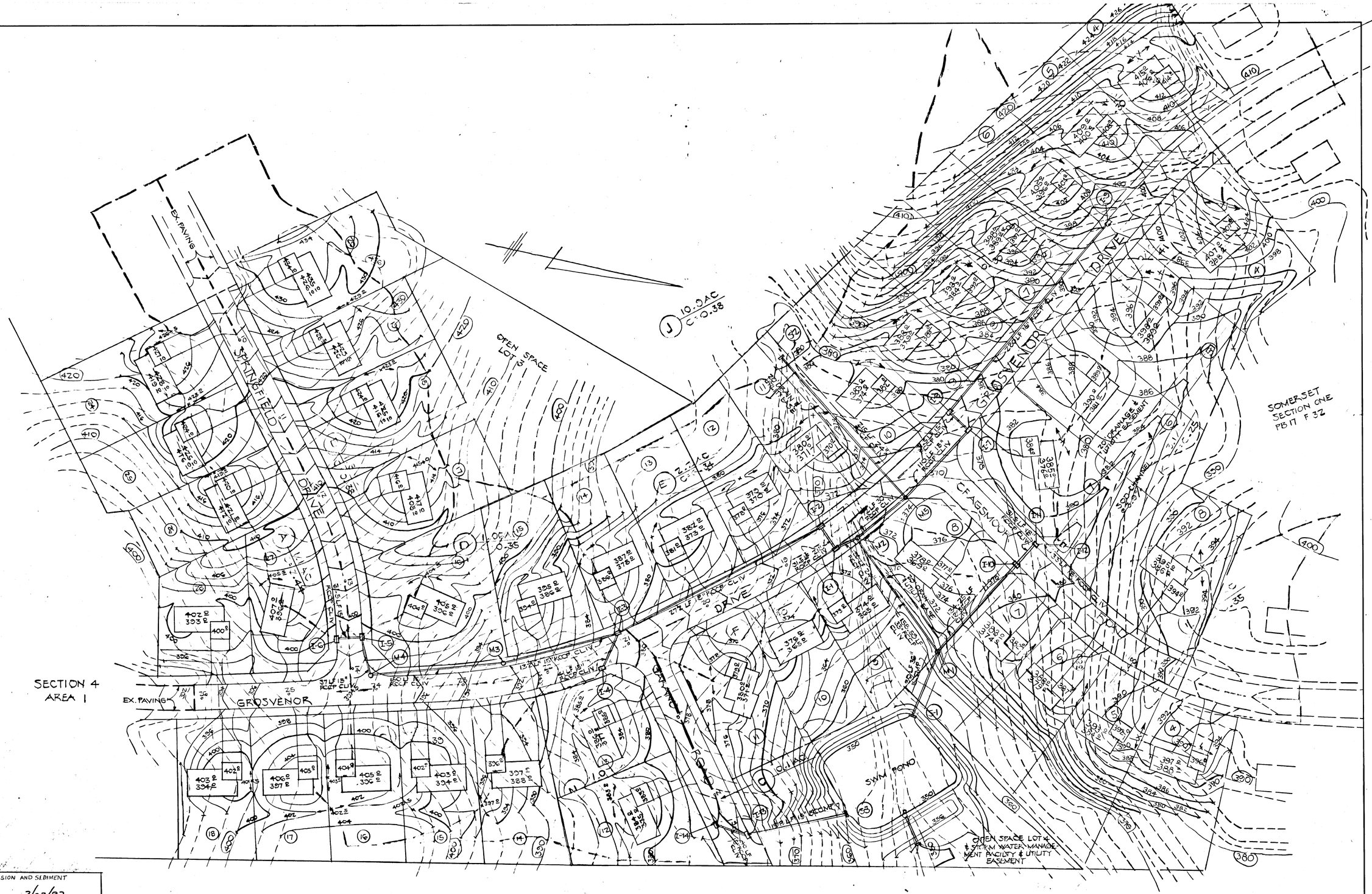
600' SCALE MAP NO. _____ BLOCK NO. _____

SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 4 OF 12

F-87-36



THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD

Stephen L. Hudkins — 3/23/87
HOWARD SCD — DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

James M. Hahn — 3/23/87
U.S. SOIL CONSERVATION SERVICE — DATE

SCALE
1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING — DATE 3-19-87

CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION — DATE 3-19-87

HUDKINS ASSOCIATES, INC.
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

12-13-85

DES: DWB				
DRN: DWB				
CHK: VJM				
DATE:	BY	NO.	REVISION	DATE

DRAINAGE AREA MAP

600' SCALE MAP NO. _____ BLOCK NO. _____

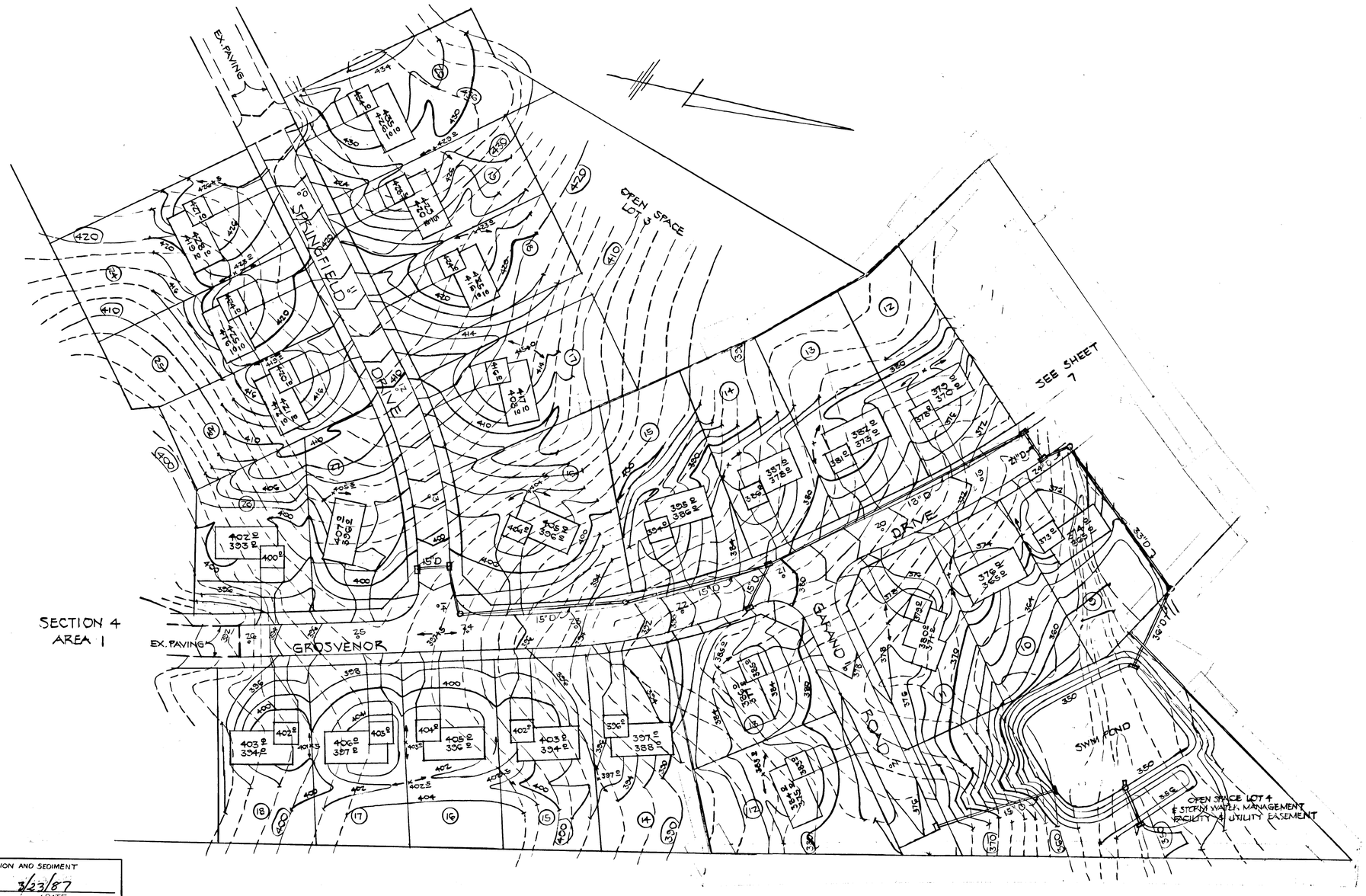
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 12

#82

F-87-36



SCALE
1" = 50'

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. Ehrlin 3/23/87
HOWARD SCD DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
James M. Helm 3/23/87
US SOIL CONSERVATION SERVICE DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING DATE 2-20-87
John W. Muschenheim 3-19-87
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION DATE

HUDKINS ASSOCIATES, INC.
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

Arthur E. Grand
12-12-85

DES: DWB
DRN: DWB
CHK: VJM
DATE:

BY	NO.	REVISION	DATE

GRADING PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

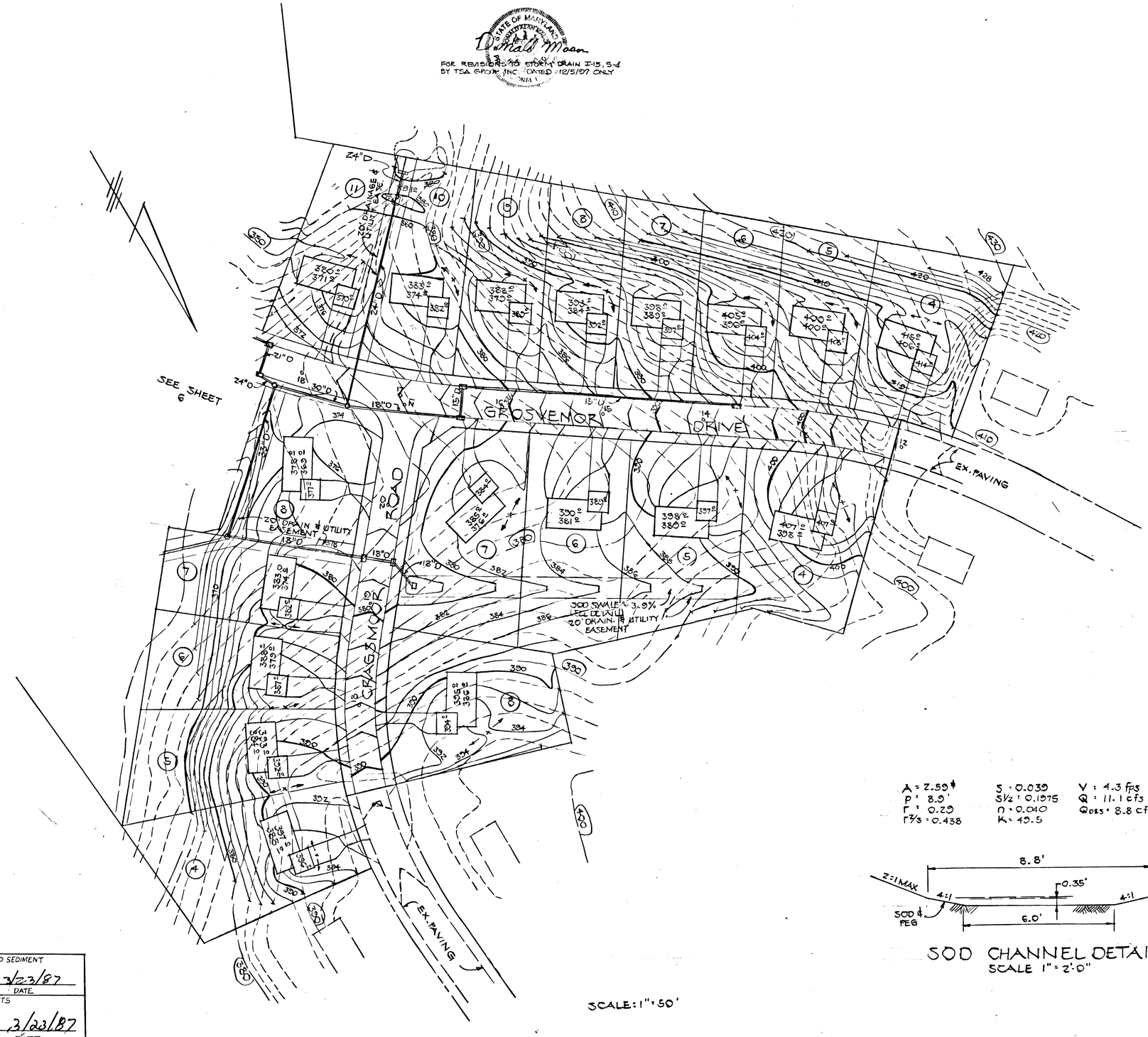
SHEET 6 OF 12

#82

F-87-36

STATE OF MARYLAND
DONALD W. MOAN
No. 7968
PROFESSIONAL ENGINEER

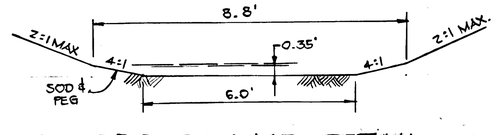
FOR REVISIONS TO STORM DRAIN I-15, S-4
BY TSA GROUP, INC. DATED 12/5/97 ONLY



A = 2.59 ♯
P = 8.9'
r = 0.29
r⅔ = 0.438

S = 0.039
S½ = 0.1975
n = 0.040
K = 49.5

V = 4.3 fps
Q = 11.1 cfs OK
Q_{DES} = 8.8 cfs



SOD CHANNEL DETAIL
SCALE 1" = 2'-0"

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. Shuler 3/23/87
HOWARD SCD DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
James M. Shuler 3/23/87
US SOIL CONSERVATION SERVICE DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE

CHIEF, BUREAU OF ENGINEERING DATE 3-20-87

ZONING ADMINISTRATION

HUDKINS ASSOCIATES, INC.
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

11-12-85

DES: DWB					
DRN: DWB					
CHK: VJM					
DATE:	TSA	1	REV. GRADING & STORM DRAIN ON LOTS 10, 11	12-97	
	BY	NO.	REVISION	DATE	

GRADING PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

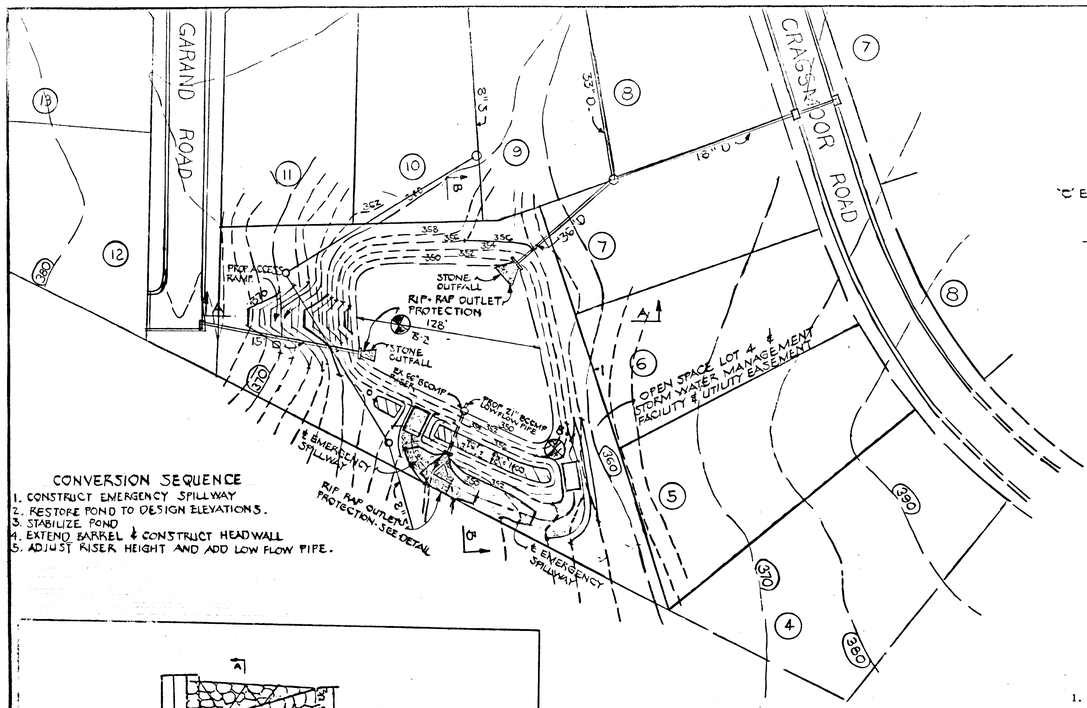
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

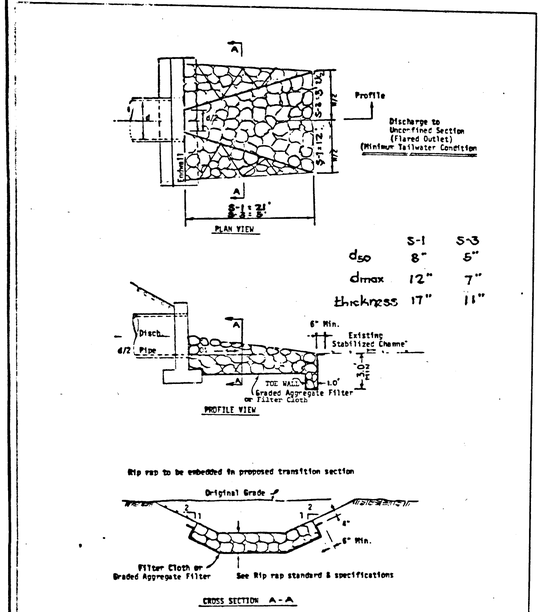
SHEET 7 OF 12

82

F-87-36



CONVERSION SEQUENCE
1. CONSTRUCT EMERGENCY SPILLWAY
2. RESTORE POND TO DESIGN ELEVATIONS.
3. STABILIZE POND
4. EXTEND BARREL & CONSTRUCT HEADWALL
5. ADJUST RISER HEIGHT AND ADD LOW FLOW PIPE.



	S-1	S-3
d_{50}	8"	5"
dmax	12"	7"
thickness	17"	11"

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	RIPRAP OUTLET PROTECTION-I	STANDARD DRAWING ROP-I

STONE OUTFALL DETAILS BELOW S-1 & S-3

ENGINEER

I certify that the plan for pond construction erosion and sediment control reprsents 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. The existing core trench, dam, pipes, and appurtenances were installed in accordance with MD 378 Stds. and Specs.

Arthur E. Leonard — STATE OF MARYLAND — 3-12-87

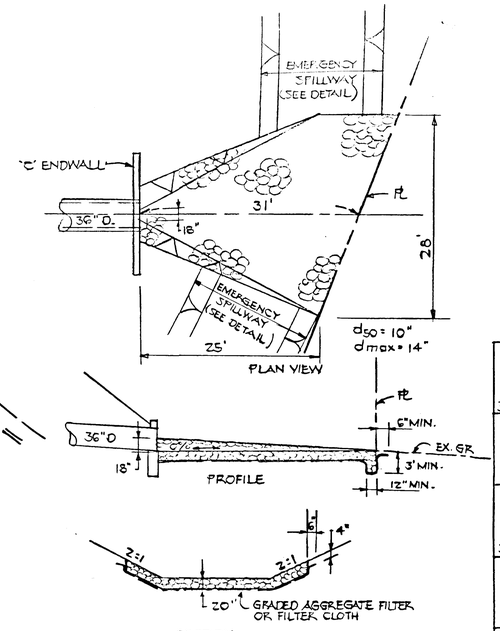
BORING LOG B-1

DEVELOPER

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 the 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. Responsible personal involved on the construction project will have a certification of attendance at a Dept. of Natural Resources approved training program for the control of sediment & erosion before beginning the project. Martin Hanft

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Stephen J. Hanft 3/23/87
HOWARD SCD — DATE

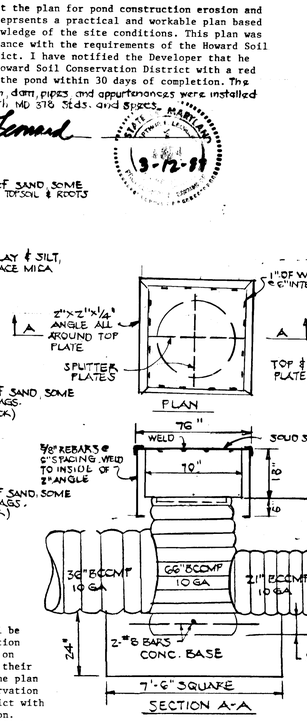
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL
J. Amos McNeil 3/25/87
U.S. SOIL CONSERVATION SERVICE — DATE



CONSTRUCTION SPECIFICATIONS

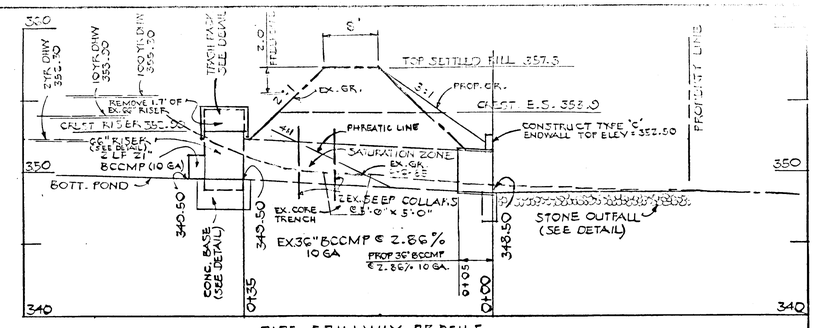
1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

STONE OUTFALL DETAILS

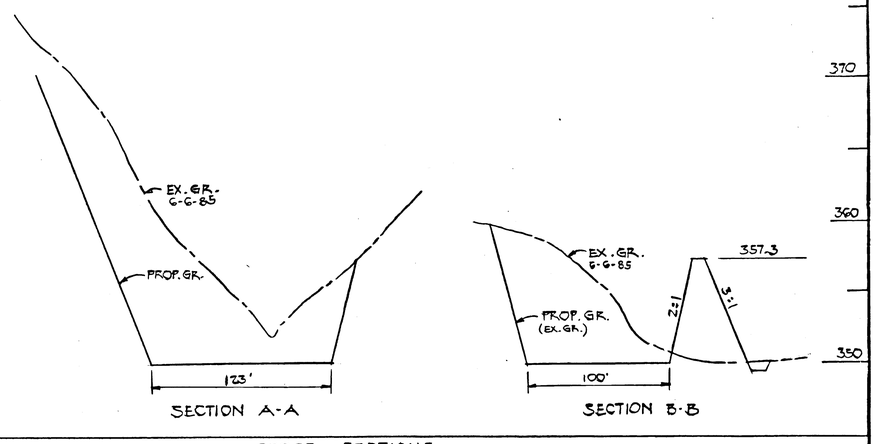


NOTES :
1. PAINT ASSEMBLY USING 2 COATS RED LEAD & 2 COATS ALUMINUM
2. FASTEN ASSY TO RISER USING ANGLES BOLTED TO SPLITTER PLATES AND VERTICAL RISER PIPE.
3. SET TOP OF ASSY LEVEL WHEN INSTALLING ON RISER.

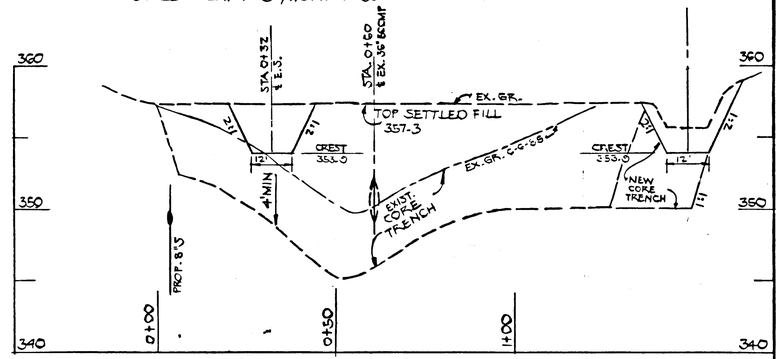
RISER ASSEMBLY DETAIL



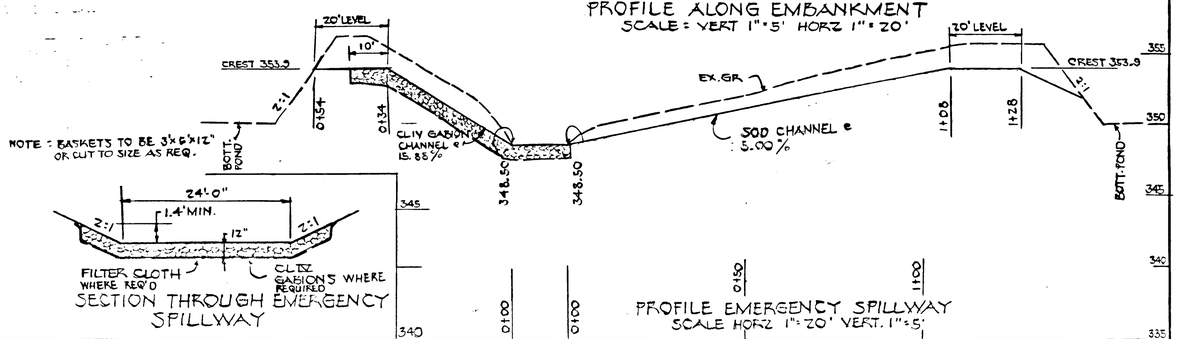
PIPE SPILLWAY PROFILE
SCALE : VERT. 1"=5', HORZ. 1"=10'



CROSS SECTIONS
SCALE : VERT 1"=5', HORZ 1"=50'



PROFILE ALONG EMBANKMENT
SCALE : VERT 1"=5' HORZ 1"=20'



NOTE : BASKETS TO BE 3'x6'x12' OR CUT TO SIZE AS REQ.

SECTION THROUGH EMERGENCY SPILLWAY

PROFILE EMERGENCY SPILLWAY
SCALE HORZ 1"=20' VERT. 1"=5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING — DATE 3-24-87
John W. Meckley 3-19-87
DIRECTOR — DATE

HUCKINS ASSOCIATES, INC.
200 E. JOPPA RD.
SUITE 101 SHELL BUILDING
TOWSON, MD 21204
828-8060

STATE OF MARYLAND — Arthur E. Leonard

DES: DWB				
DRN: DWB				
CHK: VJM				
DATE:	BY	NO	REVISION	DATE

STORM WATER MANAGEMENT

SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GOD SCALE MAP NO _____ BLOCK NO. _____

SCALE AS SHOWN

SHEET 5 OF 12

#82

SOIL CONSERVATION SERVICE
MARYLAND
CONSTRUCTION SPECIFICATIONS
FOR
PONDS

These specifications are appropriate to ponds within the scope of the standard for practice 378.

I. SITE PREPARATION

Areas under the borrow areas, embankment, and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas 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 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.

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 governed by the equipment used for excavation, 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 the contractor drive equipment 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

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.

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. 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.

Helically corrugated pipe in addition to the requirements above shall have either continuously welded seams or have lock seams which are caulked, during fabrication, with a neoprene bead.

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 shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight.

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

4. 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. Approved equivalents are AWWA Specification C-300, 301, and 302.

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 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.

378-18

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 compounds 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, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications shown on or accompanying the drawings.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
3/23/87
HOWARD SCD — DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
3/23/87
US SOIL CONSERVATION SERVICE — DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF ENGINEERING — DATE 3-19-87 CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION — DATE	HUDKINS ASSOCIATES, INC. 200 E. JOPPA RD. SUITE 101 SHELL BUILDING TOWSON, MD. 21204 828-9060	DES: DRN: CHK: DATE:	BY / NO. / REVISION / DATE	STORM WATER MANAGEMENT 600' SCALE MAP NO. ______ BLOCK NO. ______	SECTION 4 AREA 2 FONT HILL VILLAGE SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 9 OF 12

F-87-36

EARTH DIKE
not to scale

	DIKE A (5 ac or less)	DIKE B (5-10 ac.)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

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 the chart below.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	Seed and Straw Mulch	Seed and Straw Mulch
2	3.1-5.0%	Seed and Straw Mulch	Seed using Jute, or Excelsior; 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	EARTH DIKE	STANDARD DRAWING ED-1

SEQUENCE OF CONSTRUCTION

1. This plan utilizes sediment control features installed in conjunction with G.P. 85-78. Those features are shown hereon, and must be maintained and inspected daily.
2. Install Utilities
3. Fine grade site
4. Place sub base material on roads
5. Stabilize remaining areas per permanent seeding procedures
6. Flush storm drains
7. Convert sediment basin to storm water management basin per sheet numbers
8. Remove sediment control devices after approval is given by inspector

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 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.

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE College Park, Md.	STABILIZED CONSTRUCTION ENTRANCE	Standard Drawing SCE-1

STRAW BALE DIKE

CONSTRUCTION SPECIFICATIONS

1. Bales shall be placed at the toe 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 minimum of (4) inches, and placed so the bindings are horizontal.
3. Bales shall be securely anchored in place by either two stakes or re-bars driven through the bale. The first stake in each bale shall be driven toward 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	STRAW BALE DIKE	STANDARD DRAWING SBD-1

SEDIMENT CONTROL NOTES

1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits pror 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 21.149 Acres
   - Area Disturbed 19.6 Acres
   - Area to be roofed or paved 4.35 Acres
   - Area to be vegetatively stabilized 15.25 Acres
   - Total Cut 42,000 Cu. yds
   - Total Fill 42,000 Cu. yds
   - Offsite waste/borrow area location NA
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 controls 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.

11/84 - 3 S&E

Maryland SCS/WRA April 1983

STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION

Definition

Filter cloth installed around inlets in the form of a fence or across an opening, thereby reducing sediment content of sediment laden water.

Purpose

To prevent sediment laden water from entering a storm drain system through inlets.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a sediment trapping device and watertight blocking of inlets is not advisable. It is not to be used in place of sediment trapping devices. This practice may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with a low slope angle.

Construction Specifications

I. Materials

A. Wooden frame is to be constructed of 2" x 4" 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.

21.01

Maryland SCS/WRA April 1983

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 (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 ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
7. This structure must be inspected frequently and the filter fabric replaced when clogged.

B. Curb Inlet Protection.

1. Attach a continuous piece of wire mesh (30" min. width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard 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" x 4" weir.
3. Securely nail the 2" x 4" 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 (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations. These 2" x 4" anchors shall extend across 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 minimum 1' beyond both ends of the throat opening.
6. Form 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 into inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MARYLAND	INLET PROTECTION DETAIL	STANDARD DRAWING IPD-1

21.04

SECTION 4
AREA 1

SCALE
1" = 50'

ENGINEER' CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of The Howard Conservation District.

Malcolm E Hudkins

DEVELOPER'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 Department of Natural Resources approved training program for the control of sediment and erosion before beginning the Project. I also authorize periodic onsite inspection by The Howard Conservation District of their authorized Agents as are deemed necessary.

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. [signature] 3/23/87
HOWARD SCD DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
James M. Helm 3/23/87
US SOIL CONSERVATION SERVICE DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION DATE 3-19-87

HUDKINS ASSOCIATES, INC.
200 EAST JOPPA ROAD
ROOM 101, SHELL BUILDING
TOWSON, MARYLAND 21204

STATE OF MARYLAND — MALCOLM E. HUDKINS — REGISTERED LAND SURVEYOR

DES: DWB
DRN: DWB
CHK: VJM
DATE:

BY	NO.	REVISION	DATE

SEDIMENT CONTROL PLAN

600' SCALE MAP NO. ______ BLOCK NO. ______

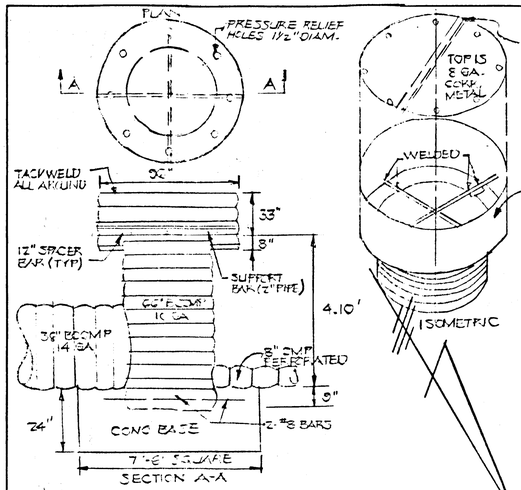
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

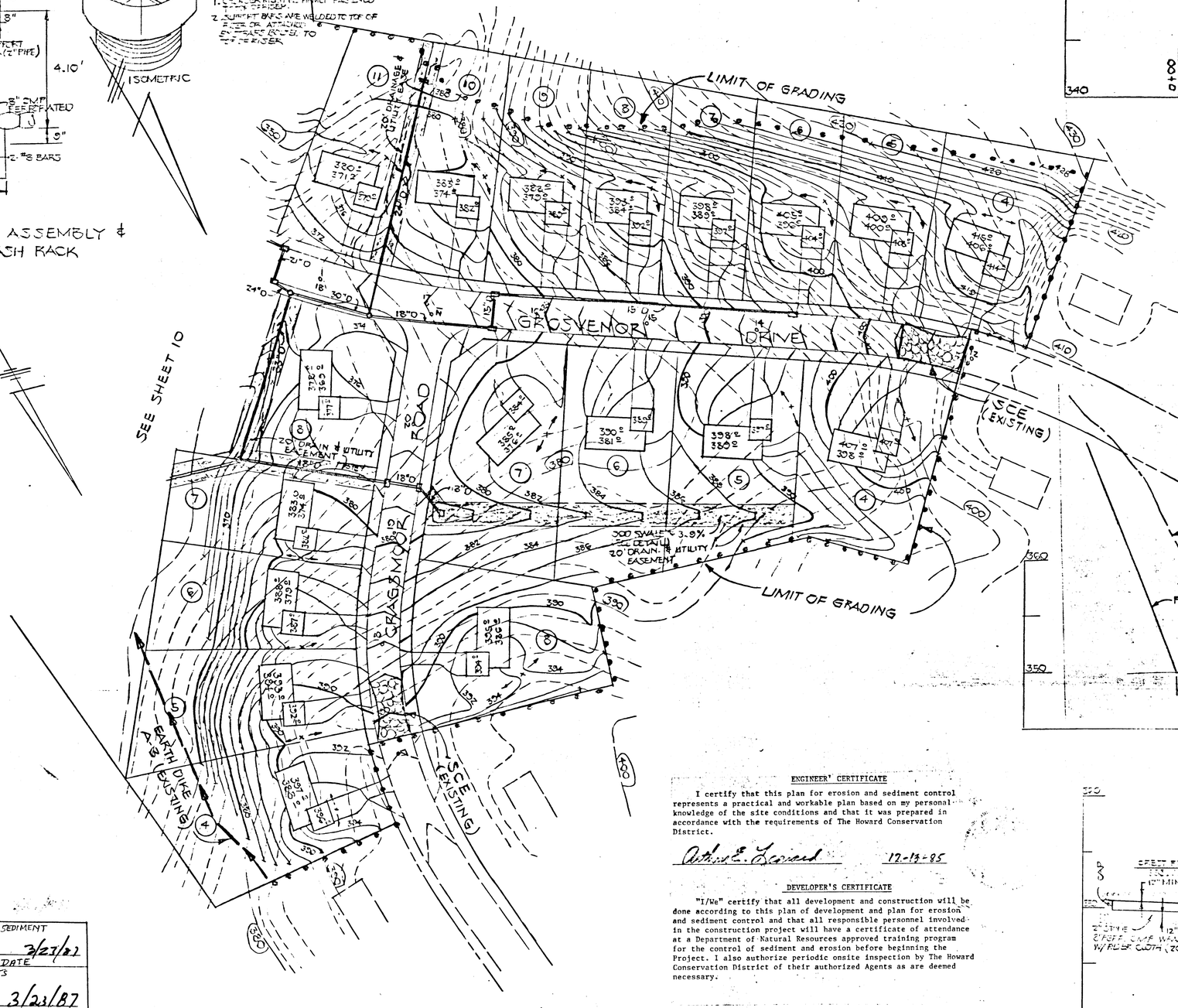
SHEET 10 OF 12

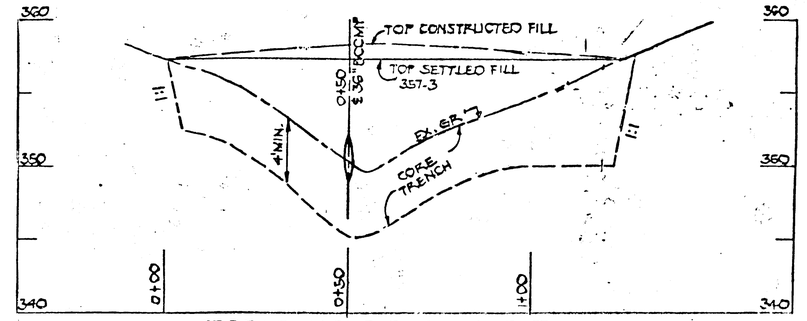
F-87-36

#82

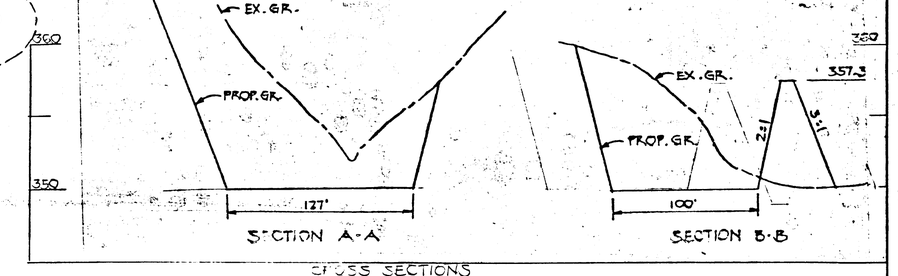


RISER ASSEMBLY & TRASH RACK

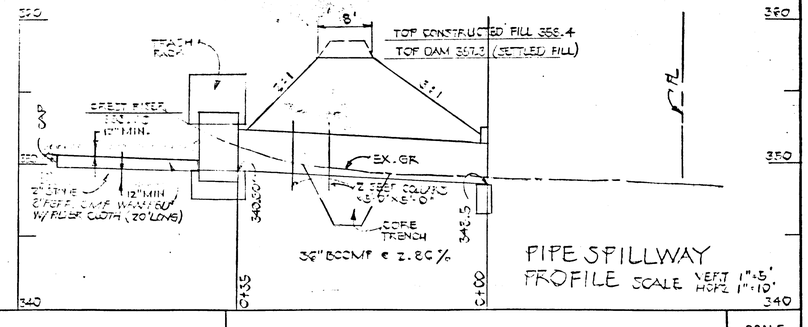




PROFILE ALONG EMBANKMENT
SCALE: VERT 1"=5' HORZ 1"=20'



CROSS SECTIONS
SCALE VERT 1"=5' HORZ 1"=50'



PIPE SPILLWAY PROFILE SCALE VERT 1"=5' HORZ 1"=10'

ENGINEER' CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of The Howard Conservation District.

Arthur E. Leonard 12-13-85

DEVELOPER'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 Department of Natural Resources approved training program for the control of sediment and erosion before beginning the Project. I also authorize periodic onsite inspection by The Howard Conservation District of their authorized Agents as are deemed necessary.

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. Huber 3/23/87
HOWARD SCD DATE
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
James M. Allen 3/23/87
US SOIL CONSERVATION SERVICE DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF BUREAU OF ENGINEERING DATE
John A. Musselman 3-19-87
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION DATE

DES: DWB			
DRN: DWB			
CHK: VJM			
DATE:	BY	NO.	REVISION	DATE

SEDIMENT CONTROL PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

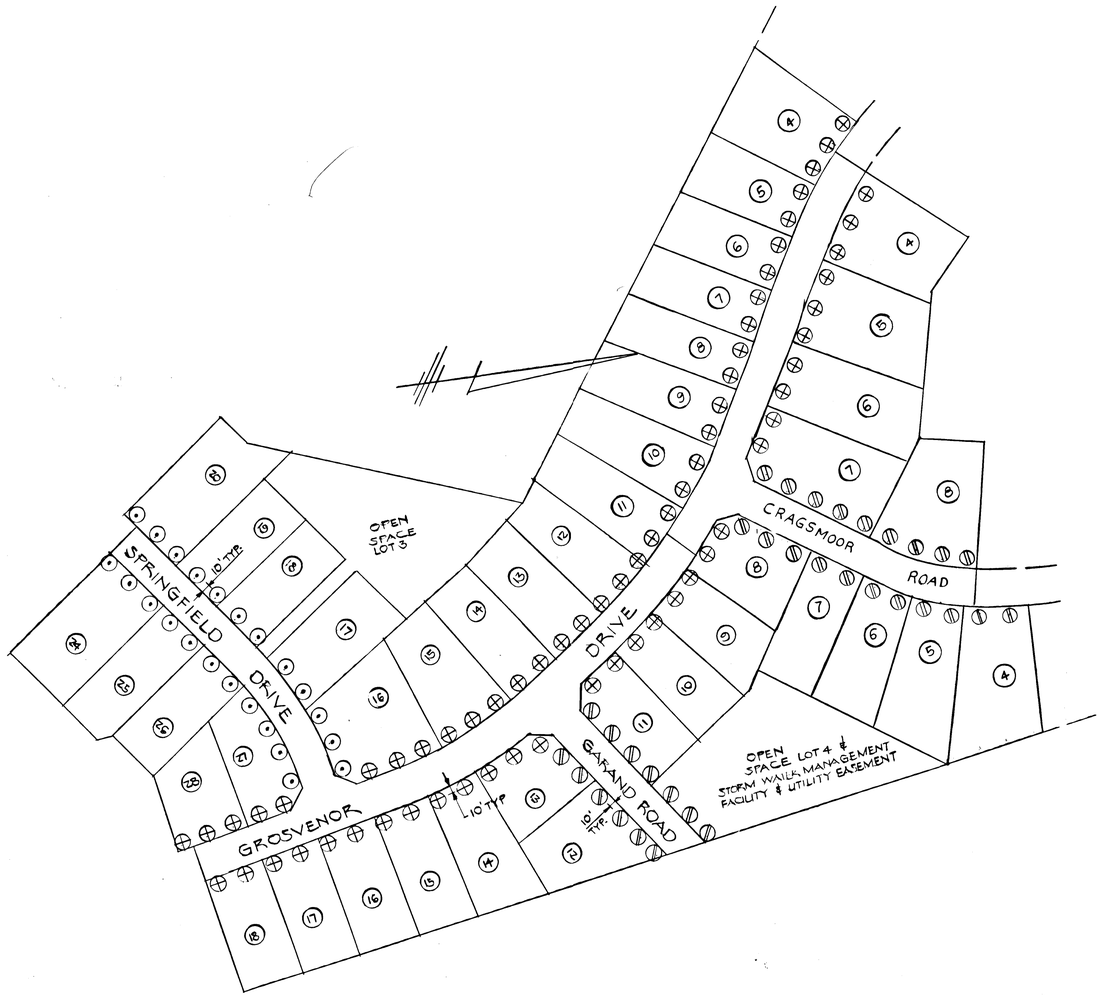
SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 11 OF 12

#82

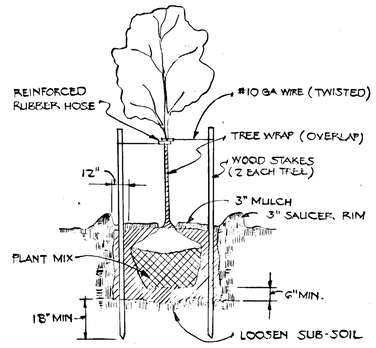
F-87-36



PLANT LIST

SYMBOL	NAME	QUANTITY
⊘	QUERCUS PALUSTRIS PIN OAK	33
⊕	LIQUIDAMBER STYRACIFLUA SWEET GUM	66
⊙	PLATANUS ACERIFOLIA LONDON PLANETREE	23

ALL TREES SHALL BE A MINIMUM OF 2½ IN. CAL. AND 8 FT. HIGH



STAKING DETAIL

NOTES:

1. FINAL LOCATION OF TREES IS SUBJECT TO WALKS, DRIVEWAYS, UTILITIES, ETC.
2. ALL TREES SHALL BE BALLED & BURLAPPED.
3. PLANT MIX PER CUBIC YARD
   3 PARTS TOPSOIL, 1 PART PEAT MOSS
   2 POUNDS FERT. (10-6-4)
4. ALL TREE PLANTING TO BE GUARANTEED FOR ONE (1) CALANDER YEAR FROM TIME OF ACCEPTANCE.

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SCD
Stephen L. Phelps 3/23/87
HOWARD SCD DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
[signature] 3/23/87
US SOIL CONSERVATION SERVICE DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING DATE 3-17-87
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION DATE

STATE OF MARYLAND
Arthur E. Leonard
10-28-88

DES:				
DRN:				
CHK:				
DATE:	BY	NO.	REVISION	DATE

STREET TREE PLANTING DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

SECTION 4 AREA 2
FONT HILL VILLAGE
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 12 OF 12

#82

F-87-36