

STATION	START TRANSITION	END TRANSITION
4+07.5	14' RIGHT	14' RIGHT
4+07.5	0+00LP	0+30LP
4+07.5	0+00LP	0+30LP
4+07.5	14' LEFT	14' LEFT

FOR STD. CONC. CURB & GUTTER TRANSITION SEE STD DETAIL R-3.02

SYMBOL	COMMON NAME	BOTANICAL NAME	CAL. HEIGHT	SPACING	NO. OF UNITS
(Symbol)	RED MAPLE	ACER RUBRUM	2 1/2'	1 @ 40' MIN	16
(Symbol)	EASTERN WHITE PINE	PINUS STROBUS	2 1/2'	1 @ 15' STAGGERED	11 @ 21' = 78 UNITS

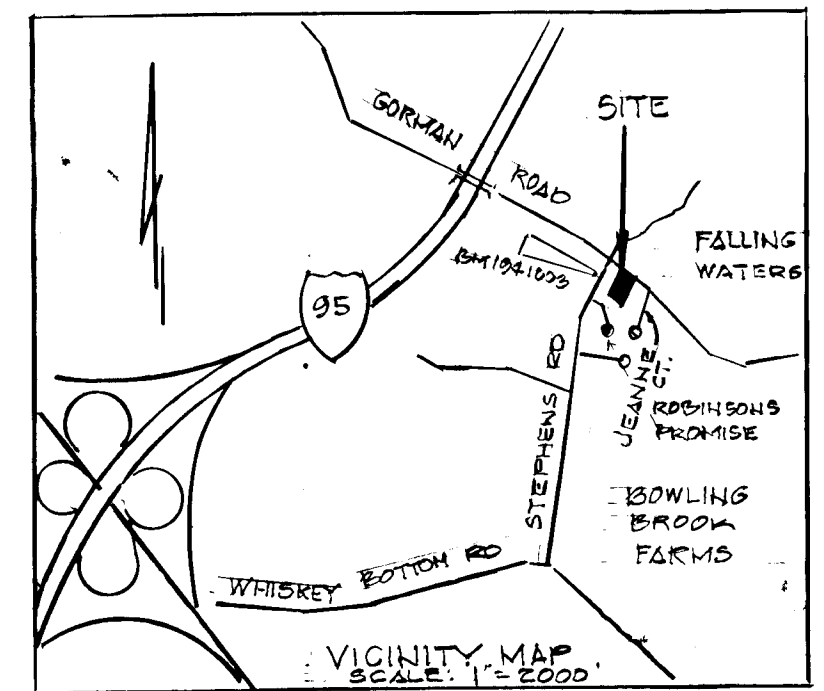
CURVE DATA					
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING
C2	150.00'	212.27'	126.73'	125.22'	167.33' SW 211.44'

GENERAL NOTES:

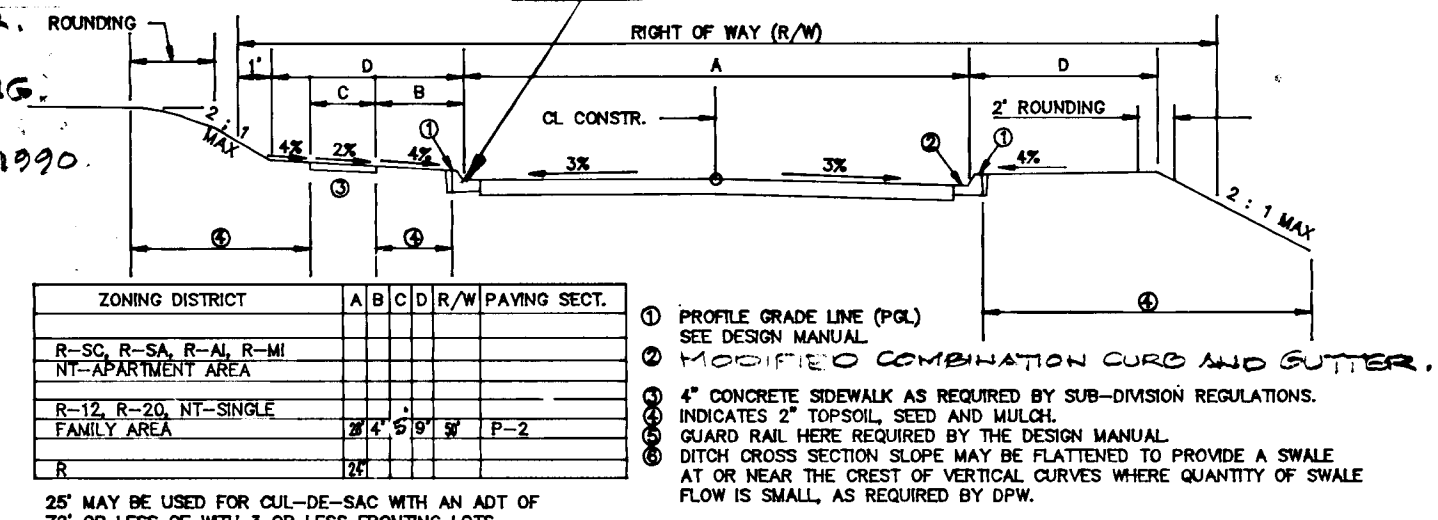
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT (301) 782-7872 AT LEAST (5) FIVE WORKING DAYS PRIOR TO START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-287-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL VOLUME III, ROADS AND BRIDGES.
6. PROVIDE 100 WATT TRADITIONAL SODIUM VAPOR LAMP POST TOP FIXTURES ON 14 FOOT BLACK FIBERGLASS POLE AT THE END OF CUL-DE-SAC NEXT TO USE-IN-COMMON DR.
7. PRELIMINARY PLAN FILE NO. 91-01 APPROVED ON FEB. 27, 1992.
8. THIS PLAN IS SUBJECT TO DESIGN MANUAL WAIVER GRANTED 12-9-1991 WHICH APPROVED THE FOLLOWING: WAIVER FROM TABLE 2.04 OF THE DESIGN MANUAL VOL. III.
9. TOPOGRAPHY SHOWN HEREON IS FROM SURVEYS BY LAND DESIGN ENGINEERING DATED AUG. 1990.
10. WATER AND SEWER SYSTEMS ARE PUBLIC. CONTACT NO. 24-3822-0.
11. STORM WATER MANAGEMENT FOR THIS DEVELOPMENT ARE DETENTION DEVICES, CREATED BY AN EXCAVATED POND AND CONTROL STRUCTURES. WATER QUALITY IS PROVIDED BY EXTENDED DETENTION.
12. GEOTECHNICAL STUDY FOR STORM WATER MANAGEMENT PROVIDED BY A.T.C. DATED SEPT. 11, 1990.
13. ANY DAMAGE TO COUNTY'S R/W SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.

GENERAL NOTES CONTINUED:

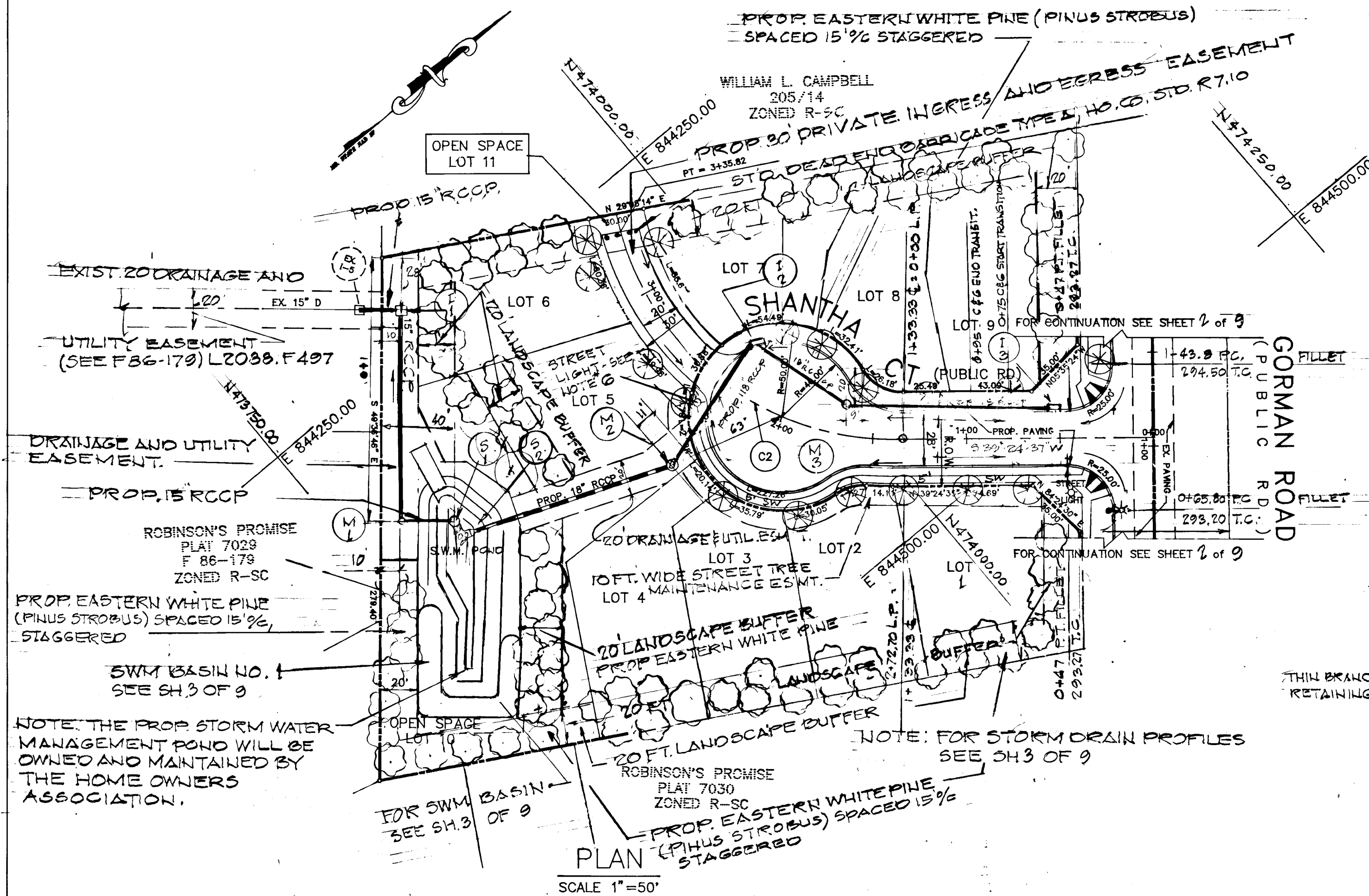
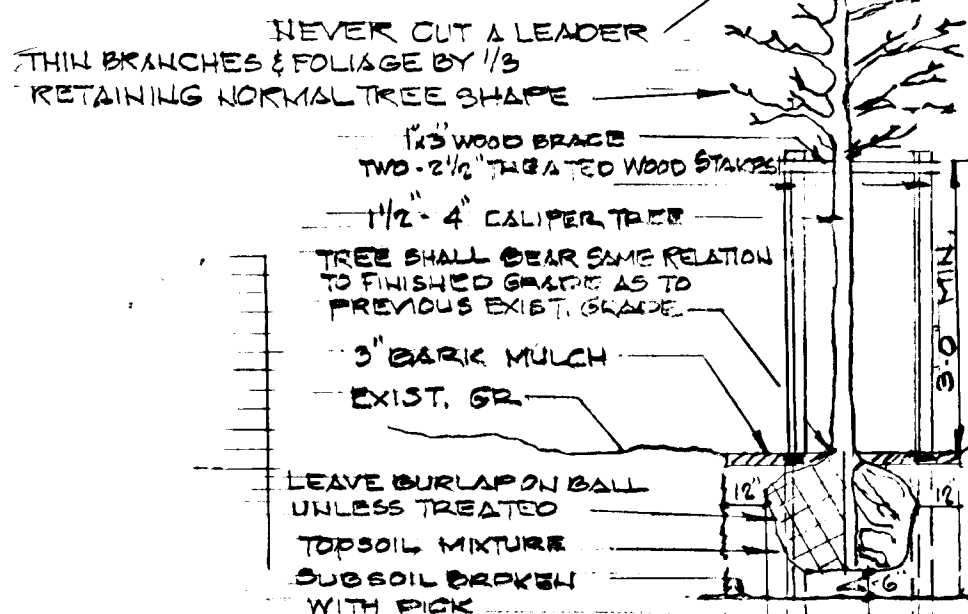
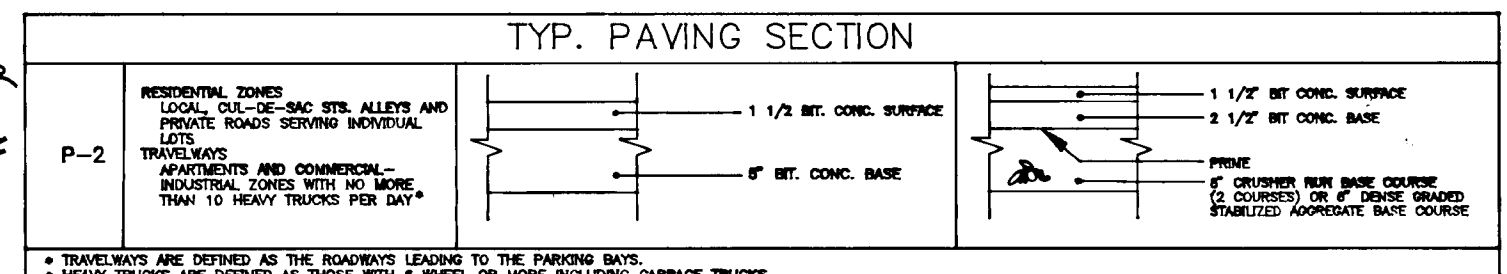
14. ALL HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH A.D.A. STANDARDS.
15. PROJECT BACKGROUND
 - A. LOCATION: MIDWAY BETWEEN STEPHENS ROAD AND JEANNE CT. ALONG GORMAN ROAD. TAX MAP 47, PARCEL 487, ELECTION DIST. 6TH.
 - B. ZONING CLASSIFICATION: R-SC
 - C. SUBMISSION AREA: 2.644 AC.±
 - D. NO. OF PROP LOTS: 9 BUILDING LOTS 20.5, LOT. TOTAL AREA OF LOTS: 63,910.89 S.F. OR 1.4672 AC.±
 - E. TOTAL AREA OF OPEN SPACE LOTS: 25,997.25 S.F. OR 0.5968 AC.±
 - F. TOTAL AREA OF R/W DEDICATION: 25,997.25 S.F. OR 0.5799 AC.±
16. HORIZONTAL AND VERTICAL DATUM: HO. CO. MON. # 194 1003 EL. ± 299.438. N 474 229, 399 E 844, 287.774.
17. EXISTING UTILITIES LOCATED FROM HO. CO. RECORDS.
18. DEVELOPER IS RESPONSIBLE FOR FULL PAYMENT OF THE COST OF A. TRAFFIC CONTROL AND B. ROAD STRIPING.



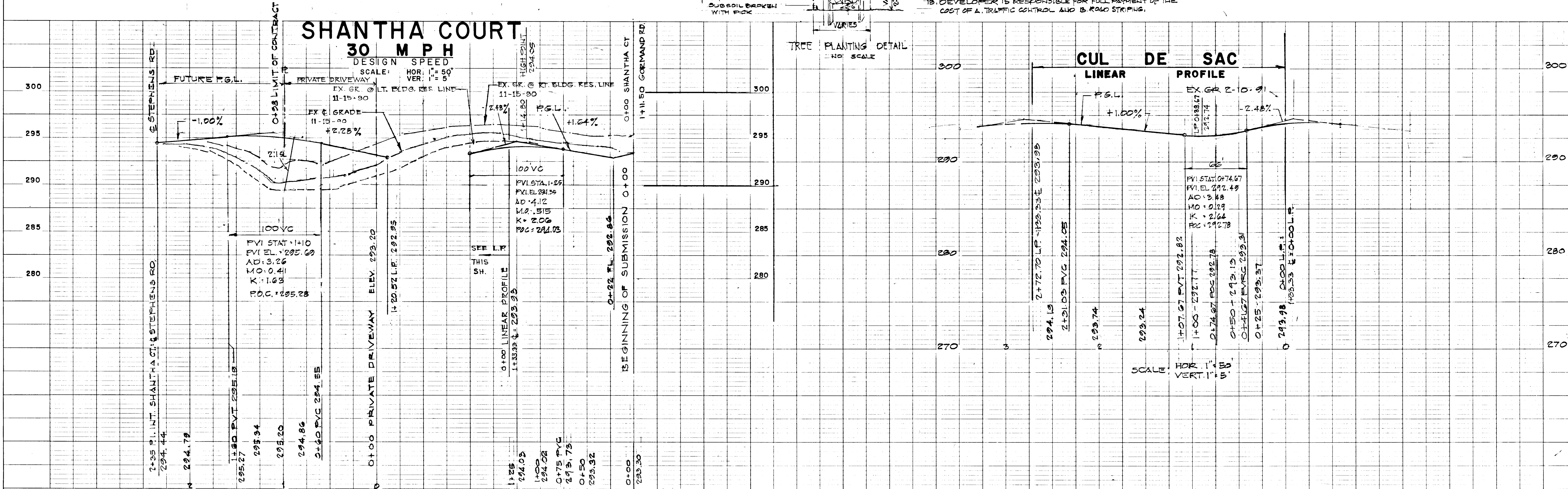
MODIFIED COMB. CURB & GUTTER, SEE HO. CO. STD DETAIL R-3.01



TYP. SECTION - SHANTHA COURT



SHANTHA COURT
30 MPH



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature]
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature]
 CHIEF, LAND DEVELOPMENT DIVISION

LAND DEVELOPMENT CONSULTANTS INC.
 10 BRIARLEAF COURT
 BALTIMORE, MD. 21228
 788-1732



DES:	
DRN:	
CHK:	
DATE:	

PLAN & PROFILE
SHANTHA COURT

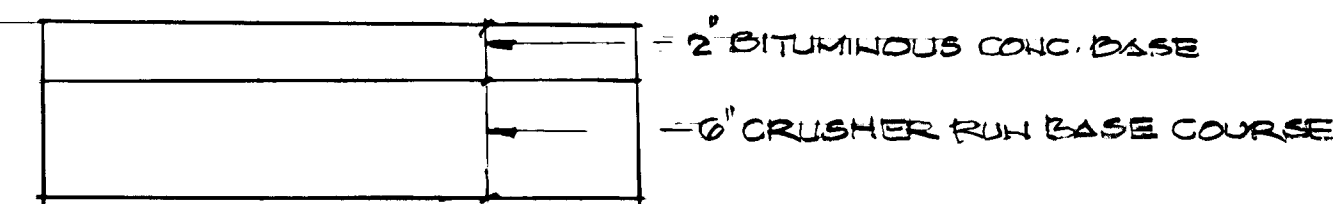
STA 0+00 TO 4+75

PLANTING PLAN AND ROAD PROFILES
SHANTHA COURT

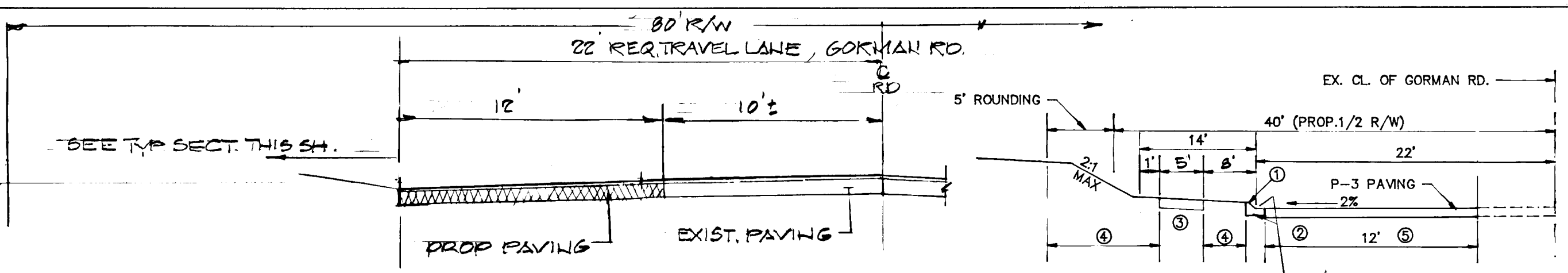
LOTS 1 THRU 11
 TAX MAP 47, PARCEL 487 6TH ELECTION DISTRICT HOWARD COUNTY MD.
 SCALE: AS SHOWN DATE: JAN., 1992

SCALE AS SHOWN
SHEET 1 OF 9

2662

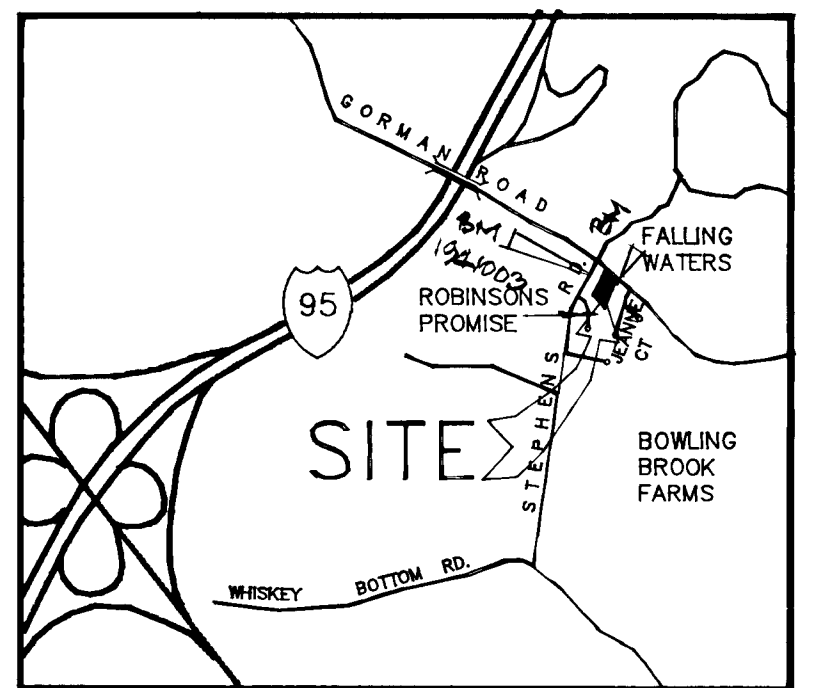


TEMPORARY SHOULDER PAVING SECTION
NO. SCALE



PROP. WIDENING STRIP ALONG GORMAN RD.
SCALE: 1"=5'
SEE HO. CO. STD. DETAIL R10.01

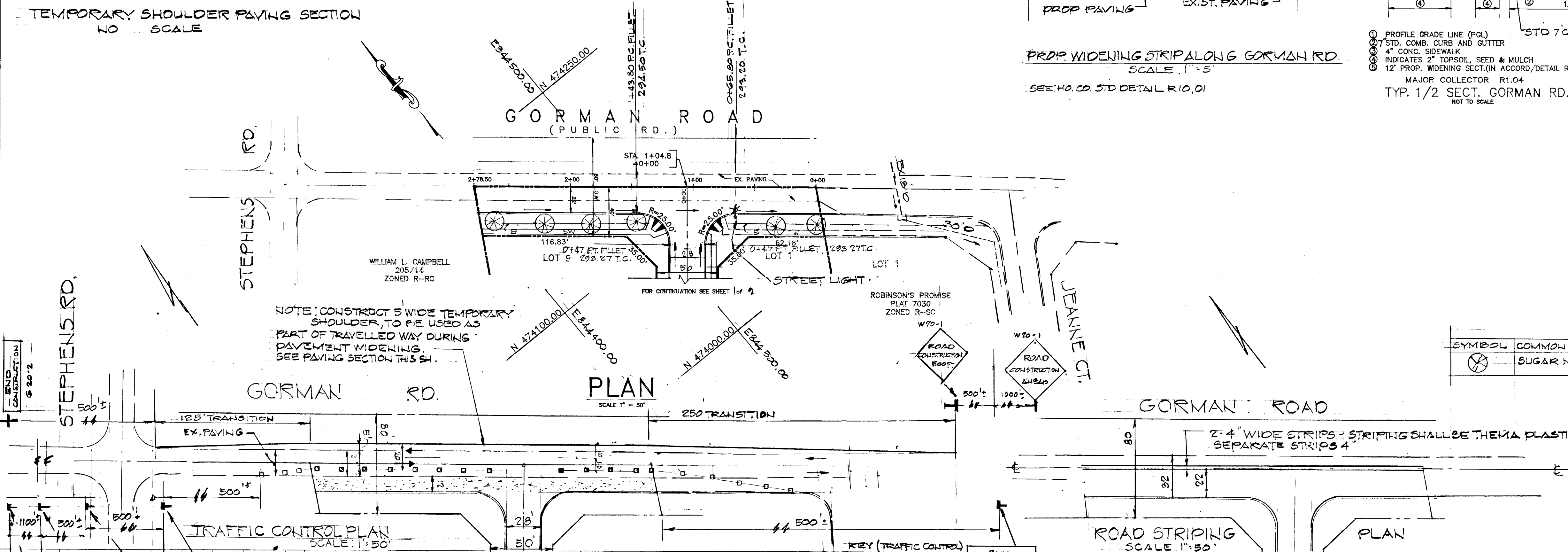
- ① PROFILE GRADE LINE (PGL)
 - ② STD. COMB. CURB AND GUTTER
 - ③ 4" CONC. SIDEWALK
 - ④ INDICATES 2" TOPSOIL, SEED & MULCH
 - ⑤ 12" PROP. WIDENING SECT. (IN ACCORD. DETAIL R10.01)
- MAJOR COLLECTOR R1-04
TYP. 1/2 SECT. GORMAN RD.
NOT TO SCALE



STAT. DESIGNATION 1941003
BENCH MARK: HO. CO. CONC. MON. 7' E. OF V. VICINITY MAP
E. EDGE RD. 3' BELOW SURF.
N 474269, 299 E. 844287.774
SCALE 1" = 2000'
BENCH MARK: CROSS CUT TOP EX. CONC. CURB
110' N.W. OF CL. JEANNE CT.
ELEV. = 291.60

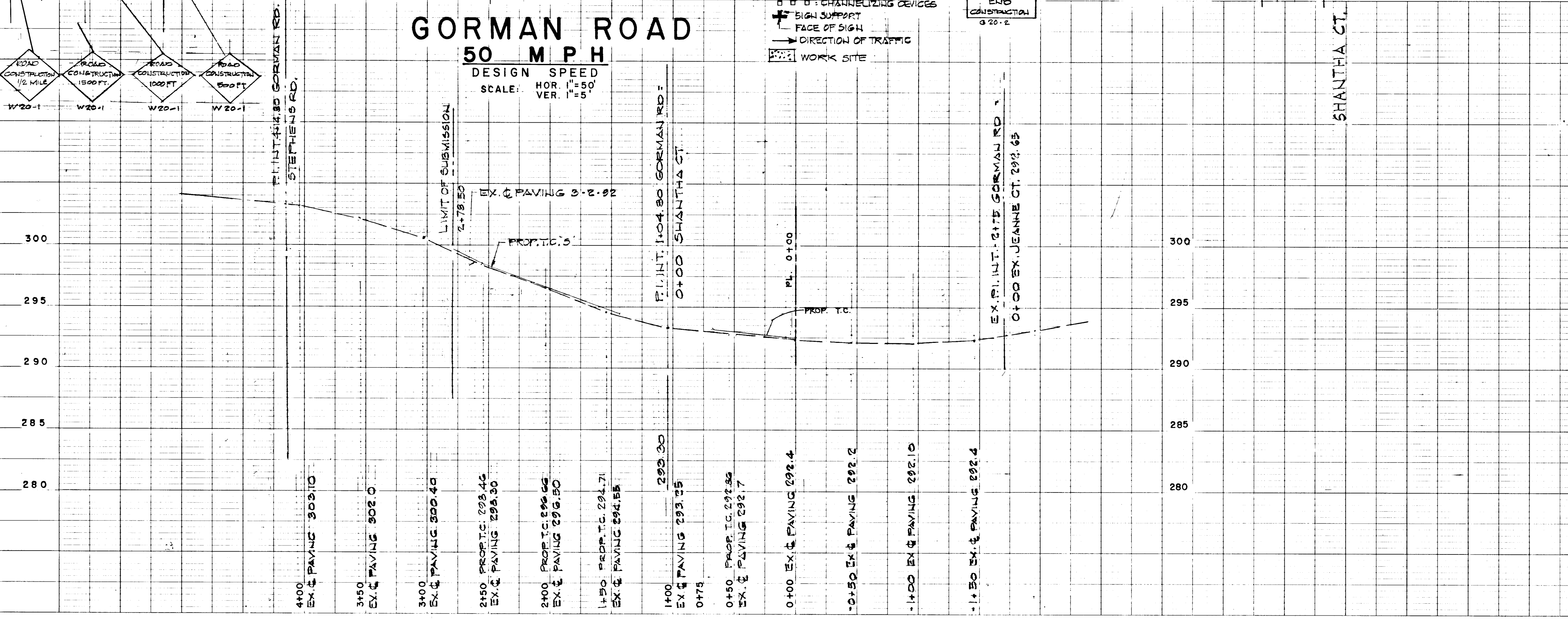
- NOTE: ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HO. CO. ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS.
- NOTE: STOP SIGN TO BE IN ACCORDANCE WITH HO. CO. TRAFFIC DIVISION SPECIFICATIONS.
- NOTE: STREET LIGHT - 150 WATT HIGH POWER SODIUM LAMP - 25 FT. GALVANIZED AT SHANTHA CT. & GORMAN RD.

PLANTING SCHEDULE - GORMAN RD						
SYMBOL	COMMON NAME	BOTANICAL NAME	CAL.	HEIGHT	SPACING	NO. OF UNITS
⊗	SUGAR MAPLE	ACER SACCHARUM	2'-2 1/2"	5'-6"	10' @ 30'	6



GORMAN ROAD
50 MPH
DESIGN SPEED
SCALE: HOR. 1"=50'
VER. 1"=5'

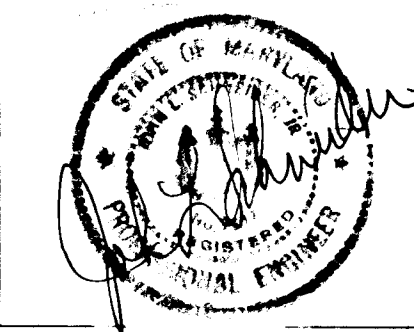
- ⊗ CHANNELEZING DEVICES
- ⊕ SIGN SUPPORT
- FACE OF SIGN
- DIRECTION OF TRAFFIC
- ▭ WORK SITE



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Imad Ahmad 7/1/93
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Ch. M. [Signature] 6/24/93
CHIEF, LAND DEVELOPMENT DIVISION
Ch. M. [Signature] 7/1/93
CHIEF, BUREAU OF HIGHWAYS
Ch. M. [Signature] 6-24-93
CHIEF, BUREAU OF ENGINEERING

LAND DEVELOPMENT CONSULTANTS INC.
19 BRARLEAF COURT
BALTIMORE, MD. 21228
788-1733



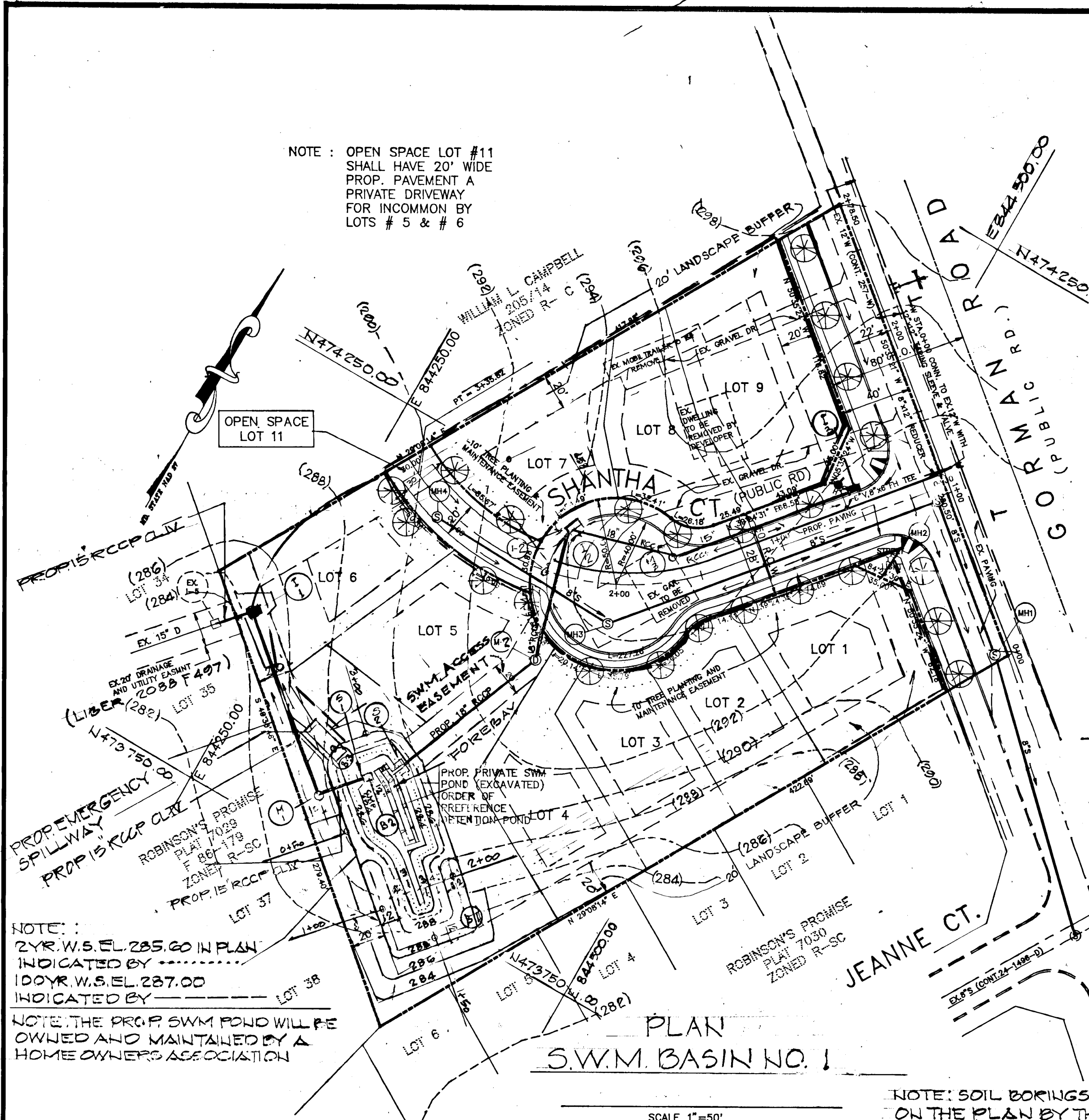
DES:	
DRN:	
CHK:	
DATE:	
BY:	NO
REVISION:	
DATE:	

PLAN & PROFILE
GORMAN ROAD
STA 0+00 TO 2+78.5
600' SCALE MAP NO. BLOCK NO.

PLANTING PLAN AND ROAD PROFILES
SHANTHA COURT
LOTS 1 THRU 11
TAX MAP 47 PARCEL 487 6th ELECTION DISTRICT HOWARD COUNTY MD.
SCALE: AS SHOWN
DATE: JAN. 1992

SCALE AS SHOWN
SHEET 2 OF 2

NOTE: OPEN SPACE LOT #11 SHALL HAVE 20' WIDE PROP. PAVEMENT A PRIVATE DRIVEWAY FOR INCOMMON BY LOTS # 5 & # 6



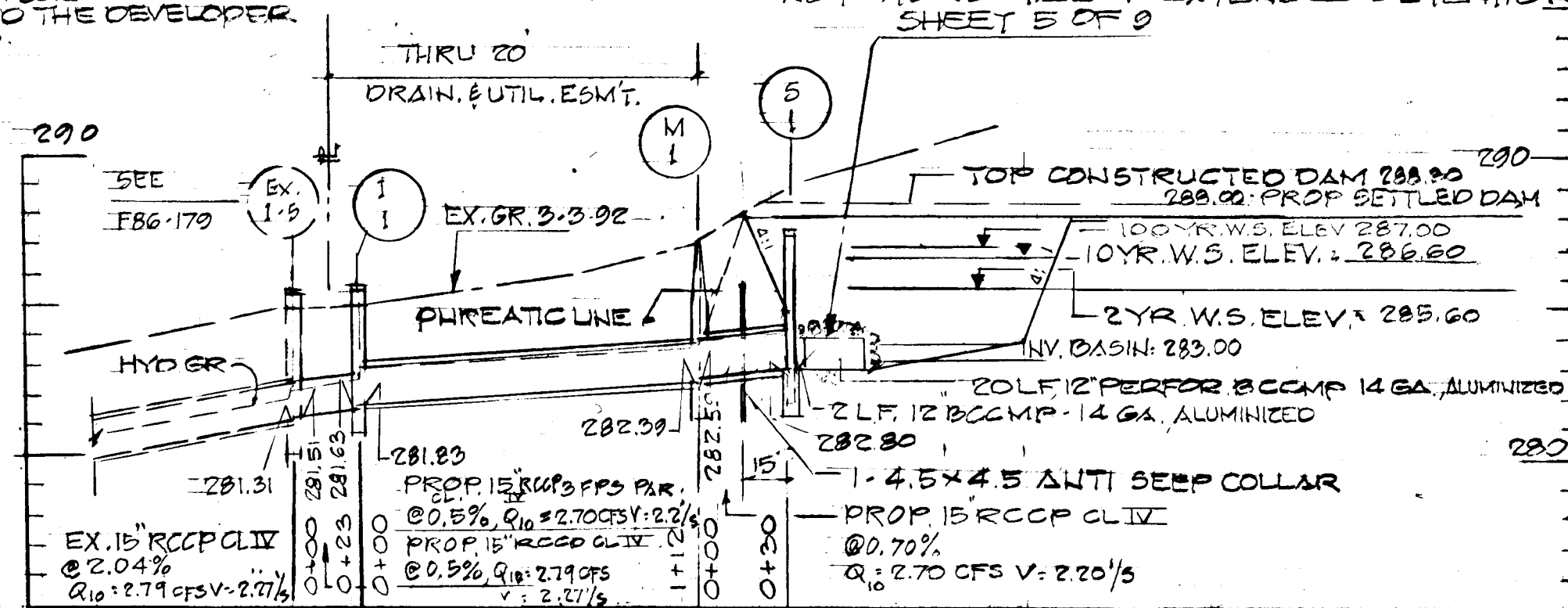
NOTE: 2YR. W.S. EL. 285.60 IN PLAN INDICATED BY ... 100YR. W.S. EL. 287.00 INDICATED BY ... NOTE: THE PROP. SWM POND WILL BE OWNED AND MAINTAINED BY A HOME OWNERS ASSOCIATION

PLAN SWM BASIN NO. 1

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE H.O. CO. SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE H.O. CO. SOIL CONSERVATION DISTRICT WITH AN AS BUILT PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

9/24/92
 ENGINEER

NOTE: I-1 TO HAVE ALL SIDES OPEN, TYPE D INLET.



PROFILE OF PRINCIPAL SPILLWAY

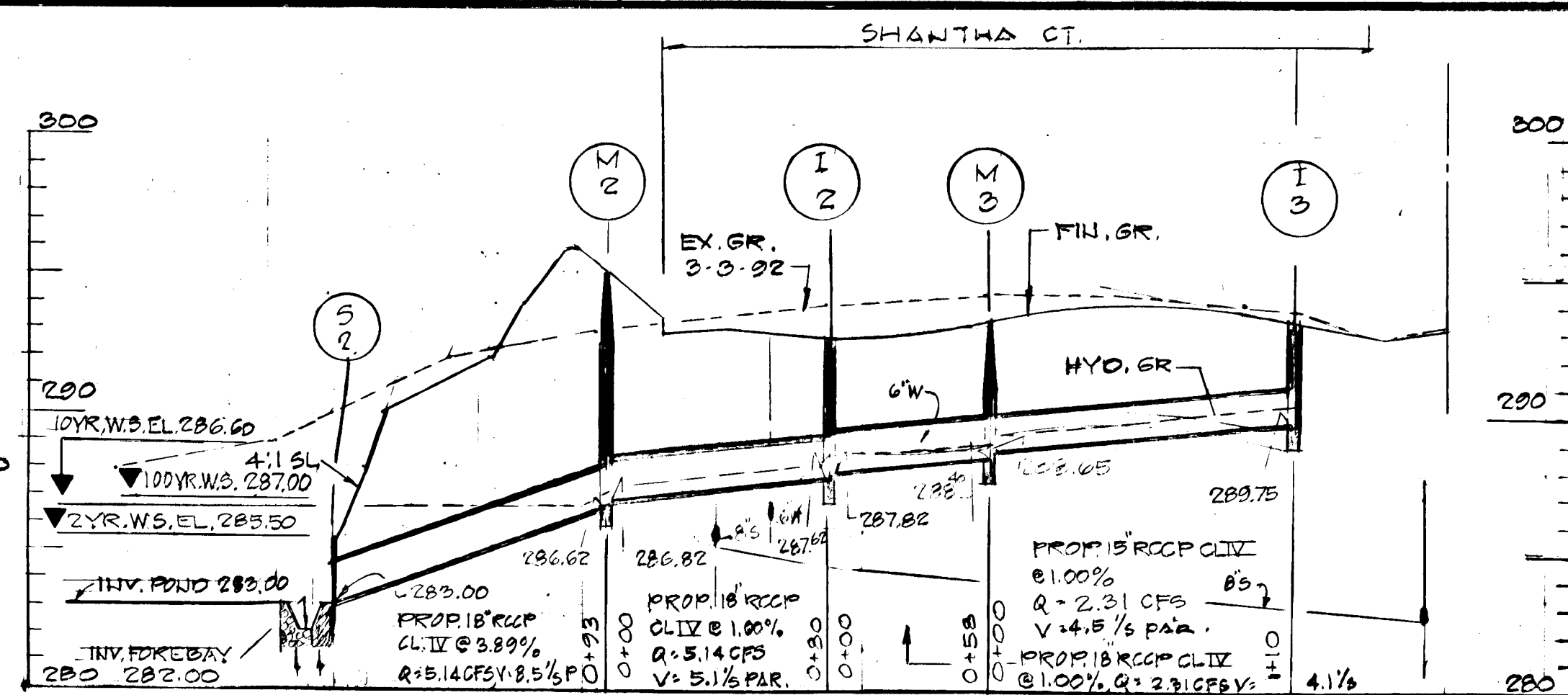
SCALE: HOR. 1"=50' VERT. 1"=5'

NOTE: ANTI SEEP COLLARS ALONG THE BARREL PRINCIPAL SPILLWAY, SHALL BE A MINIMUM OF 2' FROM PIPE JOINTS. NOTE FOR DETAIL OF PROP RISER SEE DETAIL THIS SH.

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION OF THIS 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 WILL PROVIDE H.O. CO. SOIL CONSERVATION DISTRICT WITH AN AS BUILT PLAN OF THE POND WITHIN THIRTY DAYS OF COMPLETION.

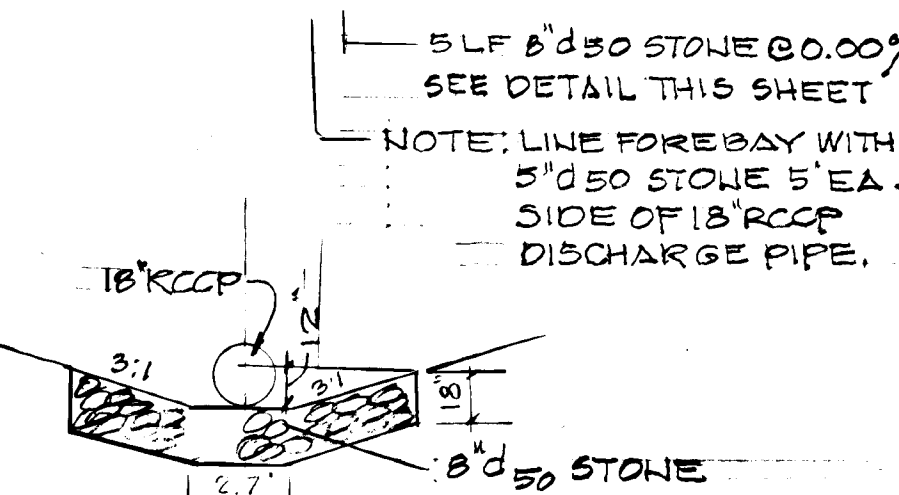
9-24-92
 DEVELOPER/OWNER

9-24-92
 DATE



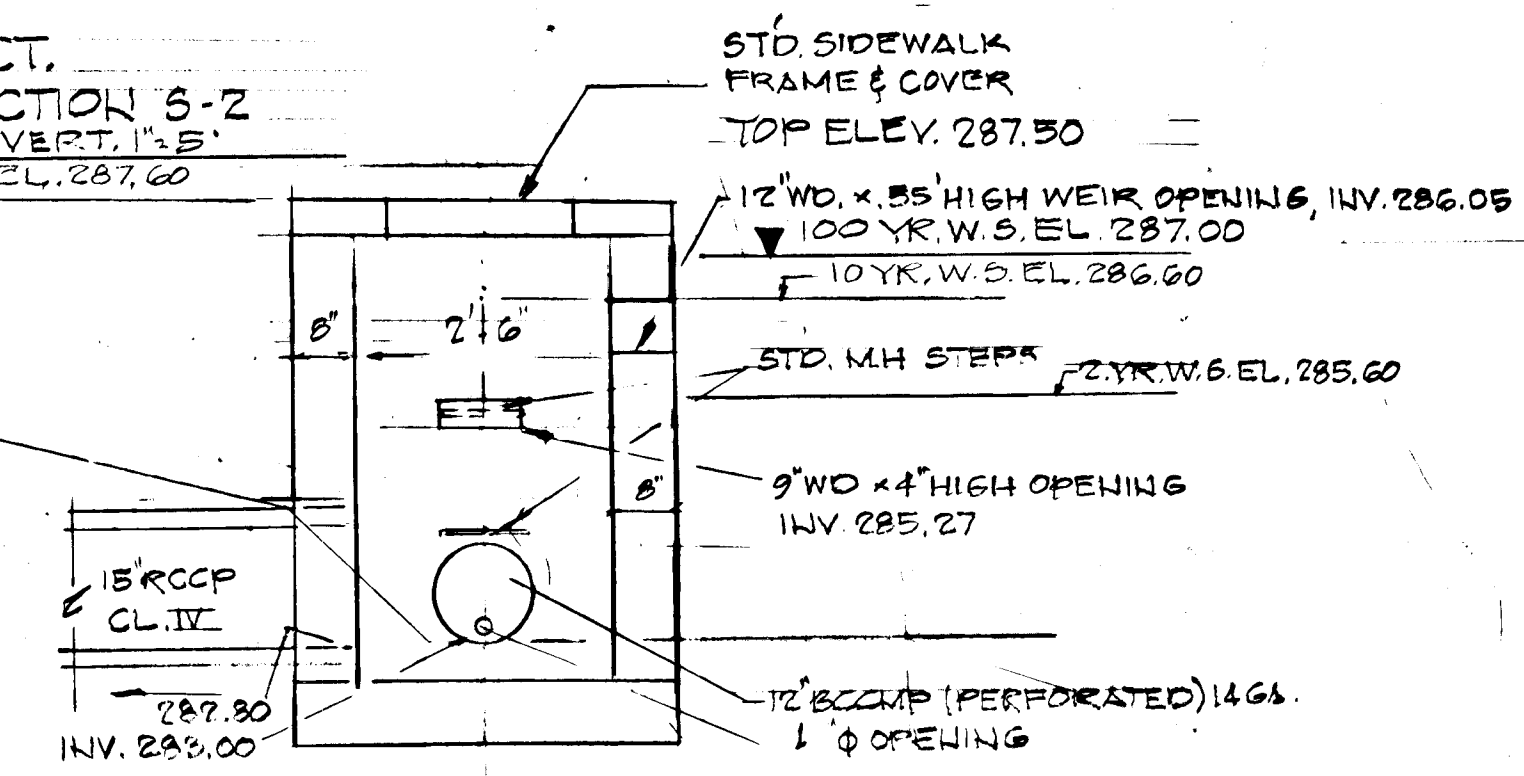
PROFILE

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



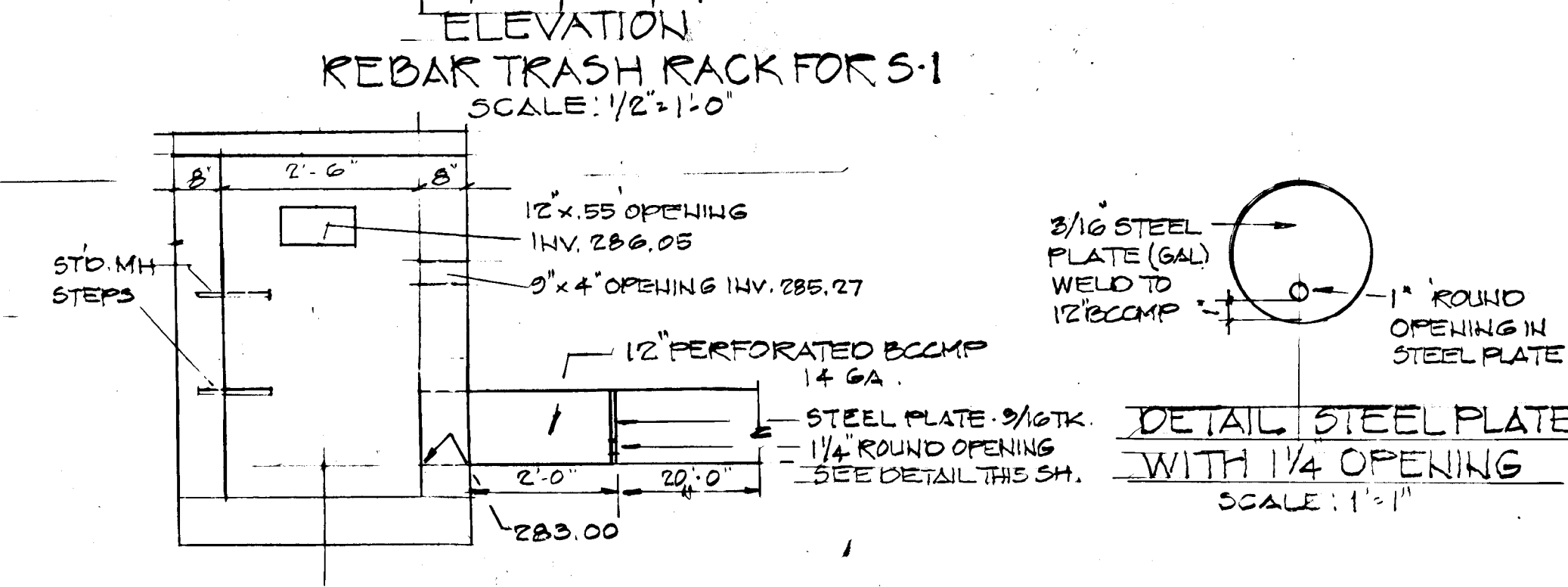
TYP. SECT. OUTFALL PROTECTION 5-2

SCALE: HOR. 1"=5' VERT. 1"=5'



5:1 RISER DETAIL SOUTHEAST ELEV.

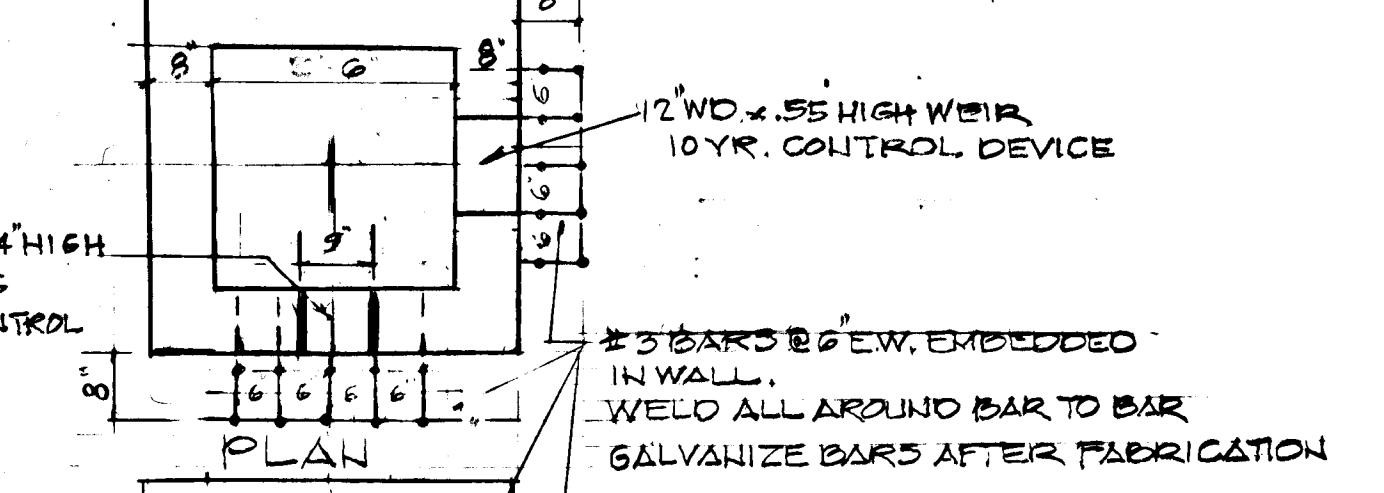
NOTE: RISER IS MODIFIED TYPE D INLET SEE HO. STD. SD. 4.11 SCALE: 1/2"=1'-0"



5:1 RISER DETAIL EAST ELEV.

SCALE: 1/2"=1'-0"

NO	TYPE	IN/IN	IN/OUT	TOPEL	REMARKS
I-1	TYPE D INLET	281.00	281.60	281.60	HO. CO. STD. 4.11
I-2	A-B INLET	-	283.00	282.75	" " " " SD. 4.01
M-1	STD. 48" D MH	282.00	282.00	287.00	" " " " G 5.01
M-2	STD. 48" D MH	282.00	287.00	287.00	" " " " F 8.00
S-1	SWM MOD. TYPE D INLET	283.00	282.80	286.47	SEE SH. OF
S-2	TYPE C ENDWALL	-	283.00	SET IN PAV.	HO. CO. STD. SD. 5.21
I-3	TYPE A-B INLET	-	282.75	-	-

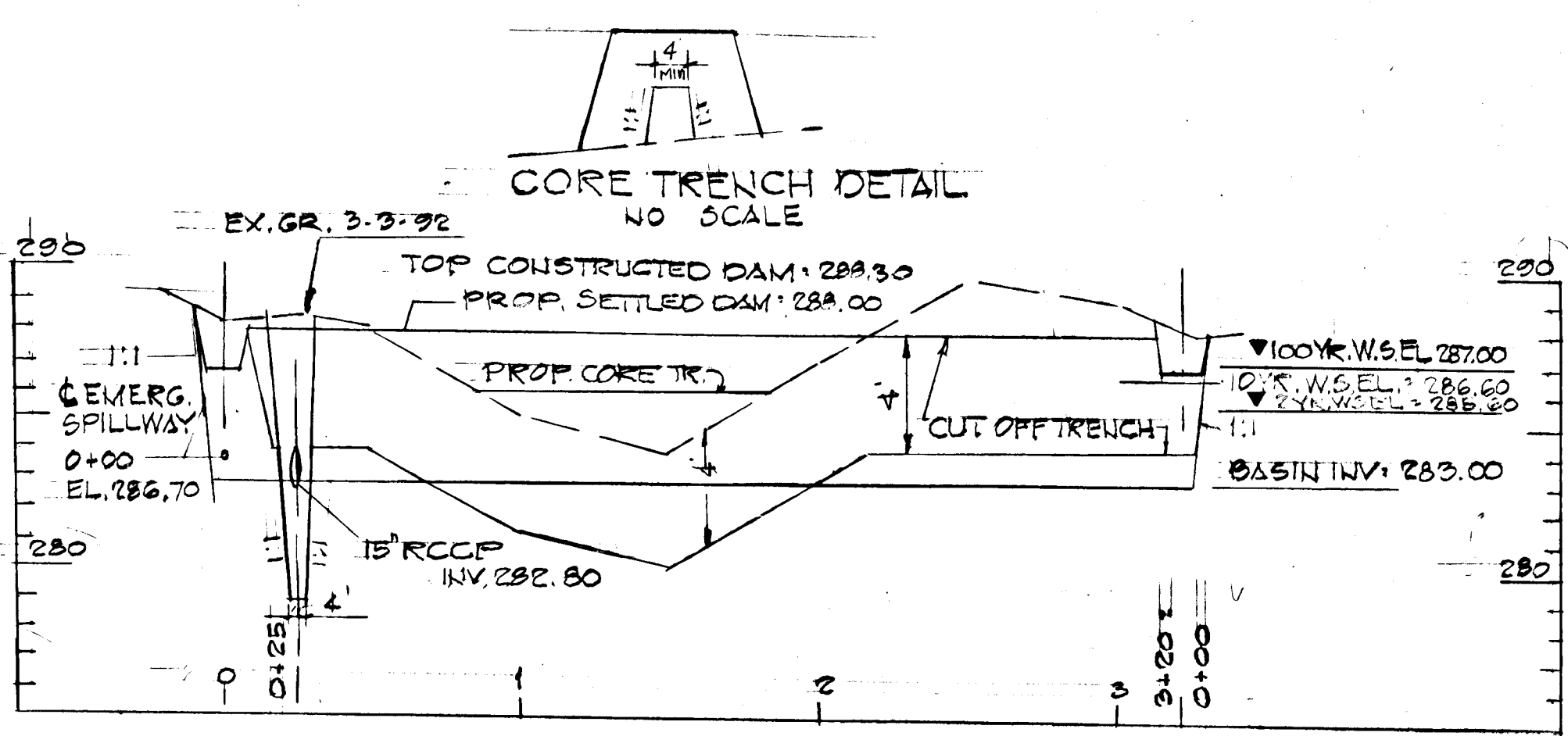


REBAR TRASH RACK FOR 5:1

SCALE: 1/2"=1'-0"

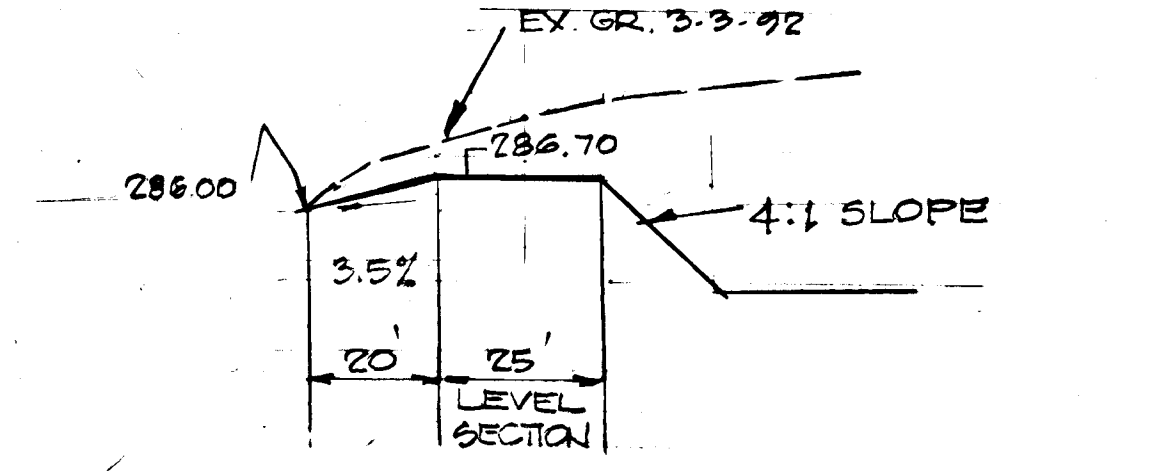
DETAIL STEEL PLATE WITH 1/4" OPENING

SCALE: 1"=1'-0"



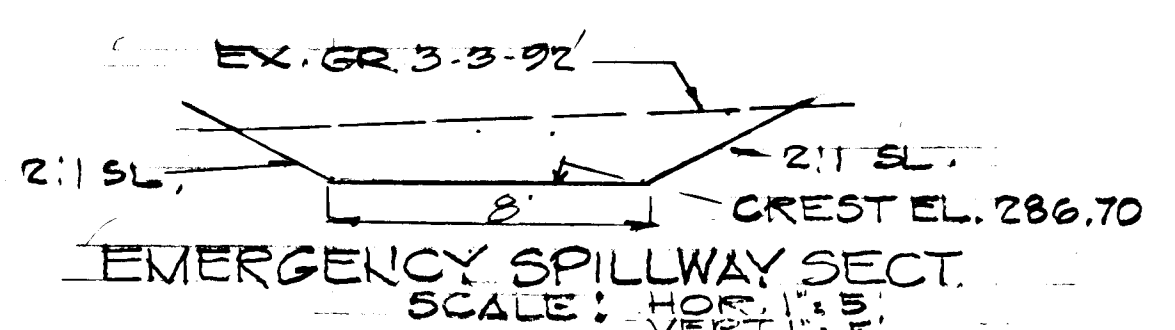
PROFILE ALONG EMBANKMENT

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



PROFILE ALONG EARTH SPILLWAY

SCALE: HOR. 1"=30' VERT. 1"=5'



EMERGENCY SPILLWAY SECT.

SCALE: VERT. 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Anna H. ... 7/19/93
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 ... 6/24/93
 CHIEF, LAND DEVELOPMENT DIVISION
 ... 6/14/93
 CHIEF, BUREAU OF HIGHWAYS
 ... 6-24-93
 CHIEF, BUREAU OF ENGINEERING

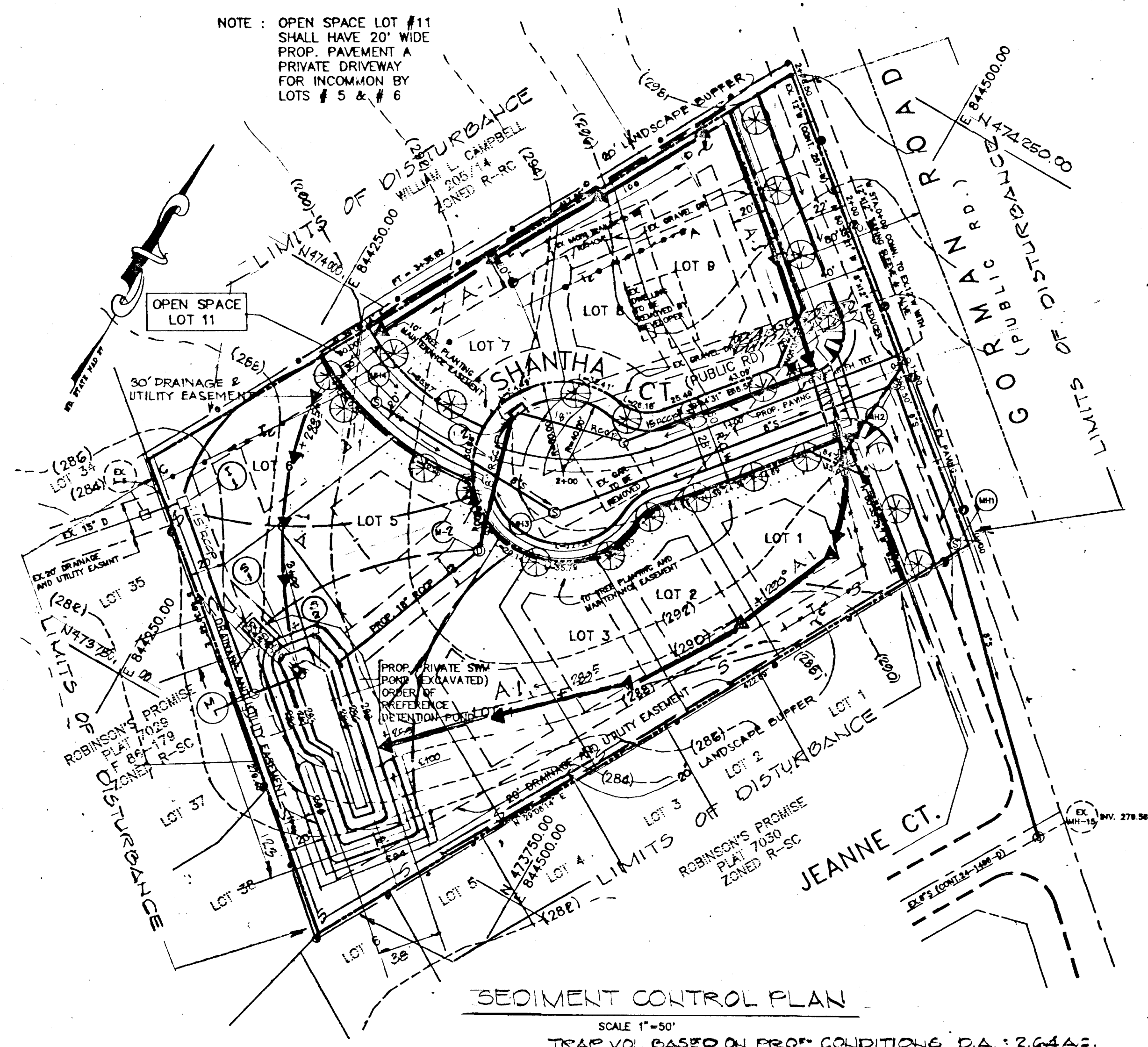
DESIGNED	DATE	DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
T3	6/19/92	T3	6/19/92	J3	6/19/92		

LAND DEVELOPMENT CONSULTANTS INC.
 10 BRIARLEAF COURT
 BALTIMORE, MD. 21228
 788-1733



OWNER / DEVELOPER:
 DR. E. GNANARAJ MOSES
 c/o BRUCE A. COWDRICK
 8156 MAIN ST.
 ELLICOTT CITY, MD. 21043
 750-2665

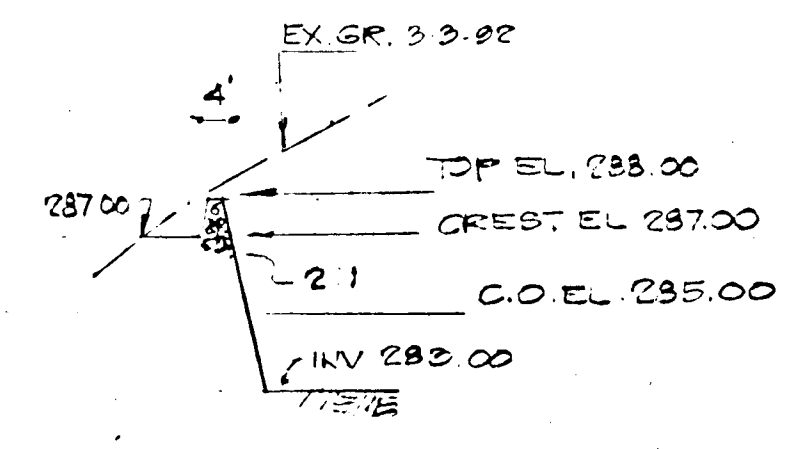
STORM DRAINS & SWM PLAN, PROFILES
 SHANTHA COURT
 LOTS 1 THRU 11
 TAX MAP 47 PARCEL 487 6th ELECTION DISTRICT HOWARD COUNTY MD.



REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
James M. Helm 6/11/93
 U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
John R. Robertson 6/11/93
 HOWARD S.C.D. DATE

TRAP NO. 1
 TYPE TRAP STONE OUTLET SED. TRAP STY.
 DRAINAGE AREA = 2.64 AC.
 VOL. REQ. = 2.64 AC. x 67 CY = 176.88 CY
 VOL. SHOWN = 0.142 AC FT. = 223.00 CY
 TOP EL. 288.00
 C.O. EL. 235.00

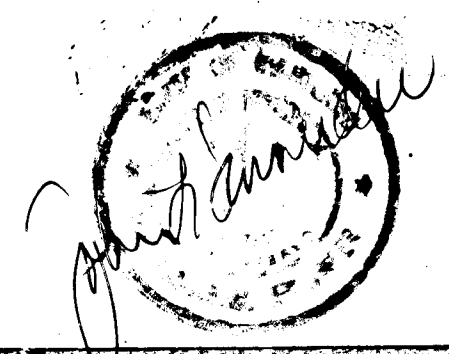


APPROVED: HOWARD COUNTY DEPARTMENT PLANNING AND ZONING
Almina Howard 7/1/93
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John D. Williams 6/24/93
 CHIEF, LAND DEVELOPMENT DIVISION

Ed M. Long 6/14/93
 CHIEF, BUREAU OF HIGHWAYS

Debra J. Reed 6-24-93
 CHIEF, BUREAU OF ENGINEERING



DISTURBED AREA = 2.64 AC. OR 114,998.4 SF.

DESIGNED	DATE	NO.	DATE	DESCRIPTION	BY

LAND DEVELOPMENT CONSULTANTS INC.
 10 BRIARLEAF COURT
 BALTIMORE, MD. 21228
 788-1733

OWNER / DEVELOPER:
 DR. E. GNANARAJ MOSES
 c/o BRUCE A. COWDRICK
 8156 MAIN ST.
 ELLICOTT CITY, MD. 21043
 750-2665

SEDIMENT CONTROL PLAN
SHANTHA COURT
 LOTS 1 THRU 11
 TAX MAP 47 PARCEL 487 6th ELECTION DISTRICT HOWARD COUNTY MD.

1662

378-12 Pond SPECIFICATIONS

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

Site Preparation

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

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

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

Earth Fill

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

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

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four

complete passes of a sheepfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture to obtain the required degree of compaction. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

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

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

Structure Backfill

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

Pipe Conduits

All pipes shall be circular in cross section.

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

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

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

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

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

4. 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.

5. Backfilling shall conform to "Structure Backfill."
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.

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 inches, or as shown on the drawings.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell and 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. The first joint must be located within 2 feet from the riser.

4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

2. Joints and connections to anti-seep collars shall be completely watertight.

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

378-14 Pond

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. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

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

Rock Riprap

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

The rock shall have the following properties:

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

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

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 819.12.

Care of Water during Construction

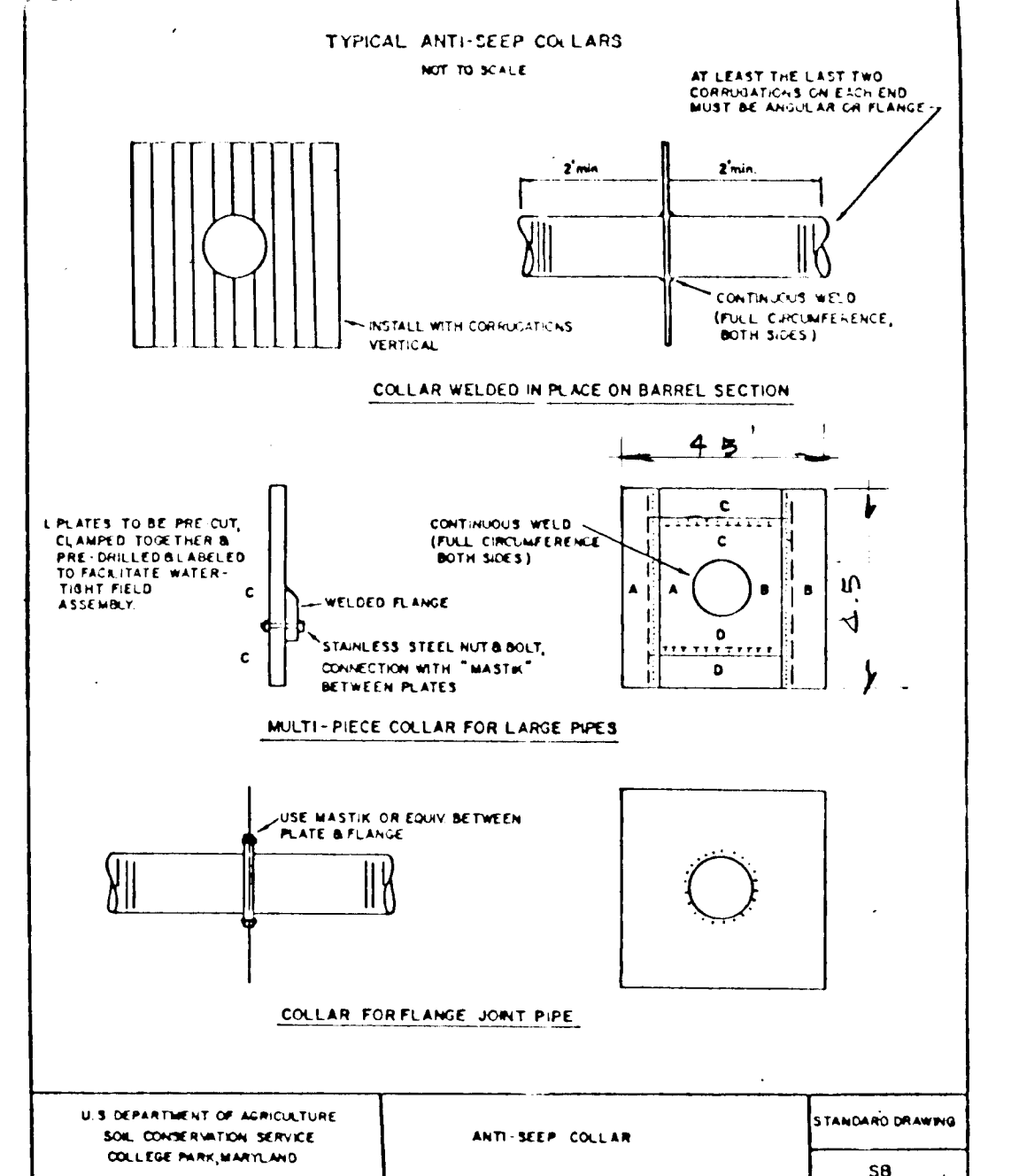
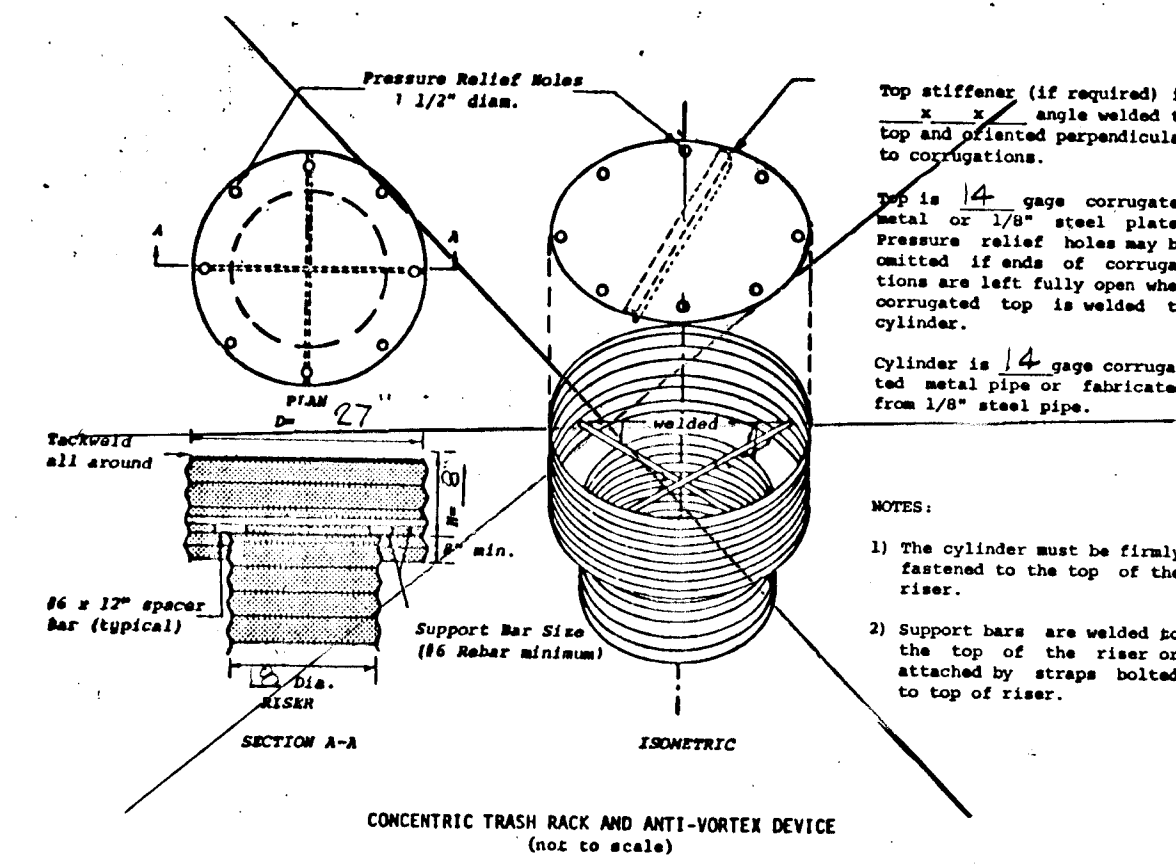
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also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

Stabilization

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

Erosion and Sediment Control

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



SCS - MARYLAND

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Pond 378-13

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

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

4. 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.

5. Backfilling shall conform to "Structure Backfill."
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.

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 inches, or as shown on the drawings.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell and 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. The first joint must be located within 2 feet from the riser.

4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

2. Joints and connections to anti-seep collars shall be completely watertight.

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

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JANUARY 1981

Structure Classification: 'a' Extended Detention Dry Pond
Storage / Height product: 0.16 AC FT X 3 = 0.48
Water Shed Area to Facility: 6.0 AC OR 1.445 AC
Level of management provided by facility: 2YR, 10YR, 1YR WATER QUALITY
Top Width of Embankment: 12'

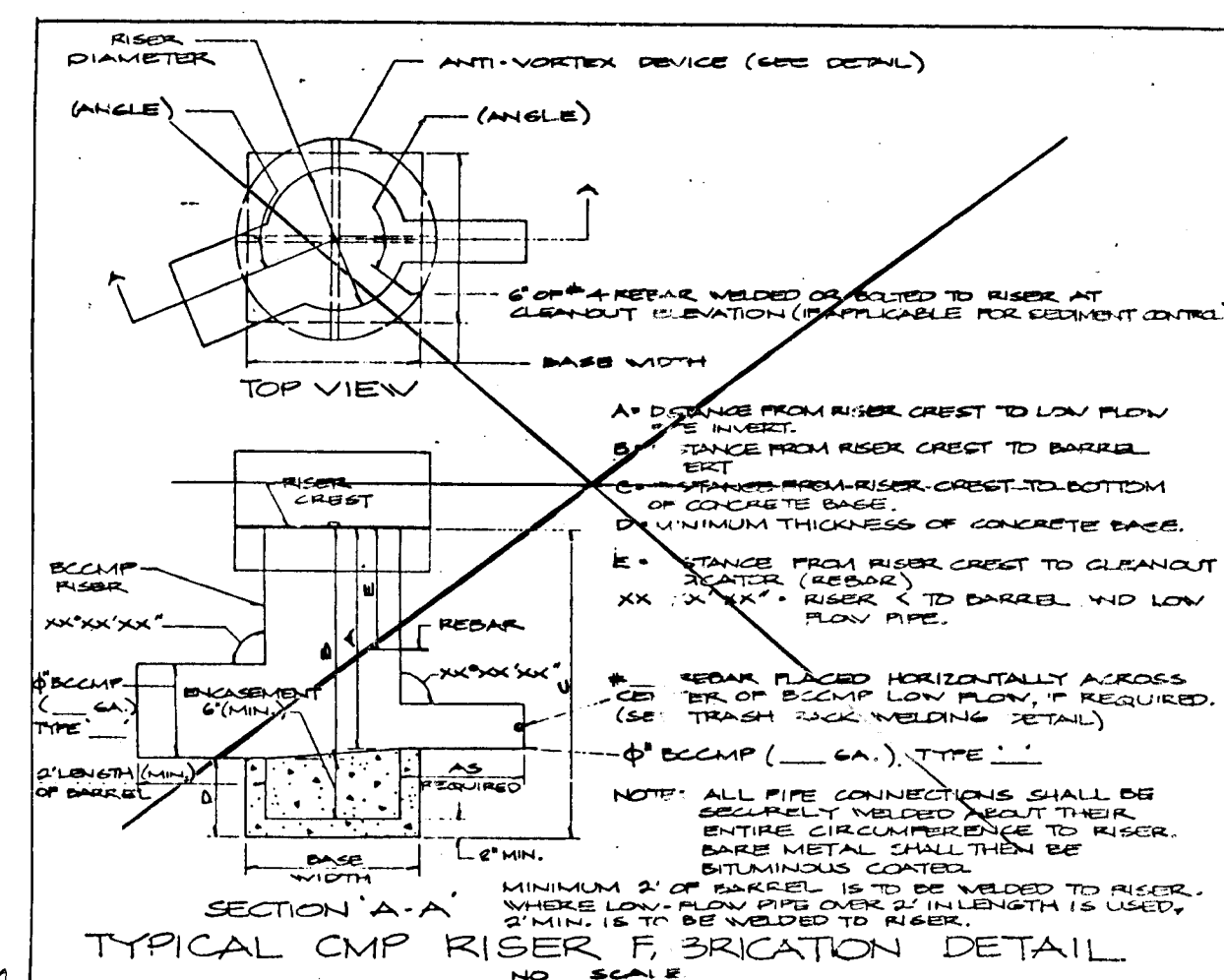
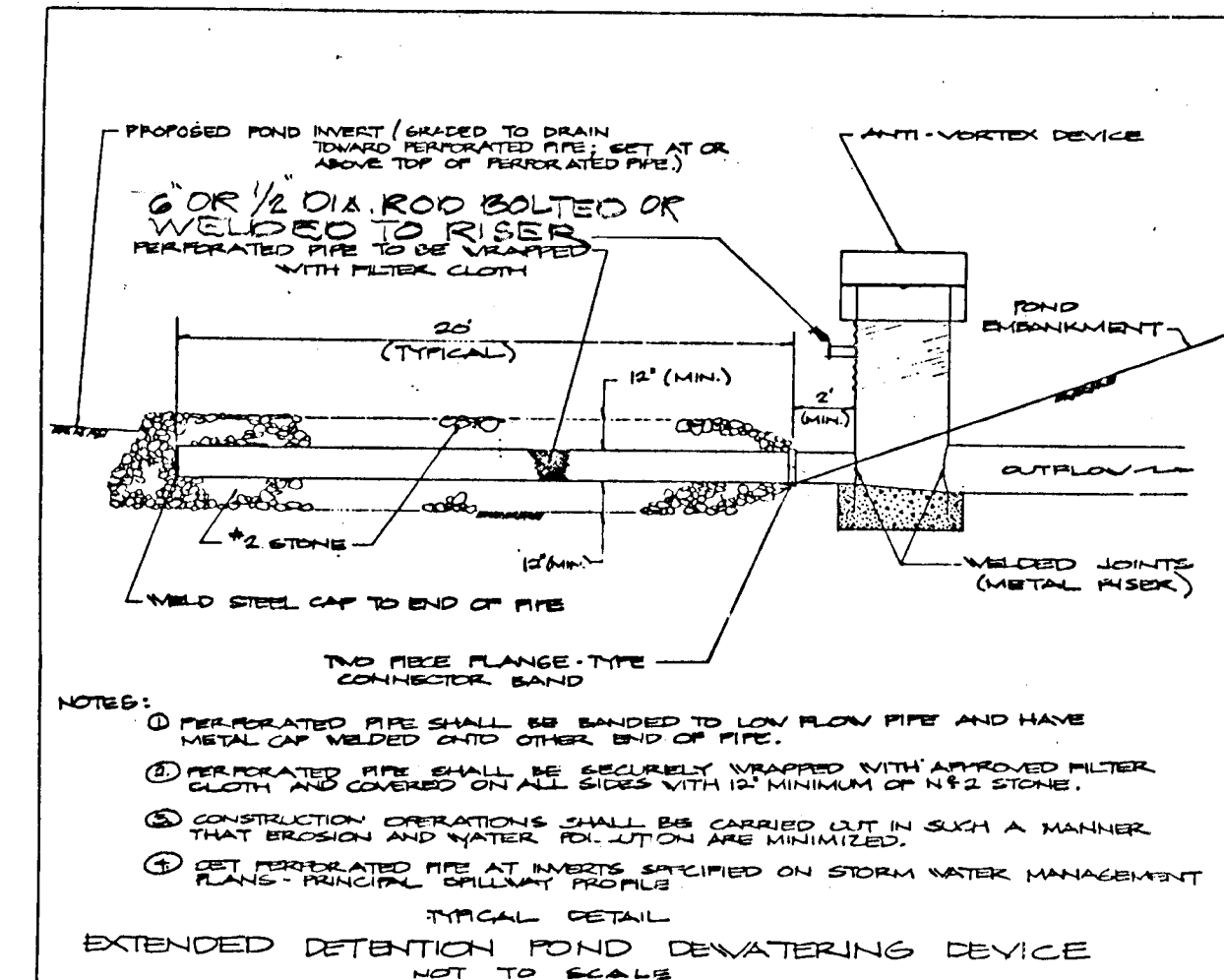
- Sequence of construction
1. Obtain necessary permits.
 2. After contributing area is stabilized convert existing Sediment Control Basin into SWM Pond.
 3. Revise sediment control devices to meet proposed SWM elevations and specifications shown on the SWM construction plans if necessary.

APPROVED: HOWARD COUNTY DEPARTMENT PLANNING AND ZONING
Shirley Adams 1/19
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John Adams 1/19
CHIEF, LAND DEVELOPMENT DIVISION

John Adams 1/19
CHIEF, BUREAU OF HIGHWAYS

John Adams 1/19
CHIEF, BUREAU OF ENGINEERING



STORM WATER MANAGEMENT & SEDIMENT CONTROL
DETAILS AND SPECIFICATIONS FOR POND NO. 1
SHANTHA COURT
LOTS 1 THRU 11
TAX MAP 47 PAR 487 6TH DIST. HOWARD CO. MD
DATE: 6-3-92
OWNER: DR. E. GHANARAJ MOSEK
C/O BRUCE A. COWDRICK
816 MAIN ST.
ELLCOTT CITY, MD 21113
780-2665
LAND DEVELOPMENT CONSULTANTS INC.
10 BRIARLEAF CT, BALTO MD 21228
301-788-1738
SH 5 OF 9
P-92-163

1662

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 schedule

- 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 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

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

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

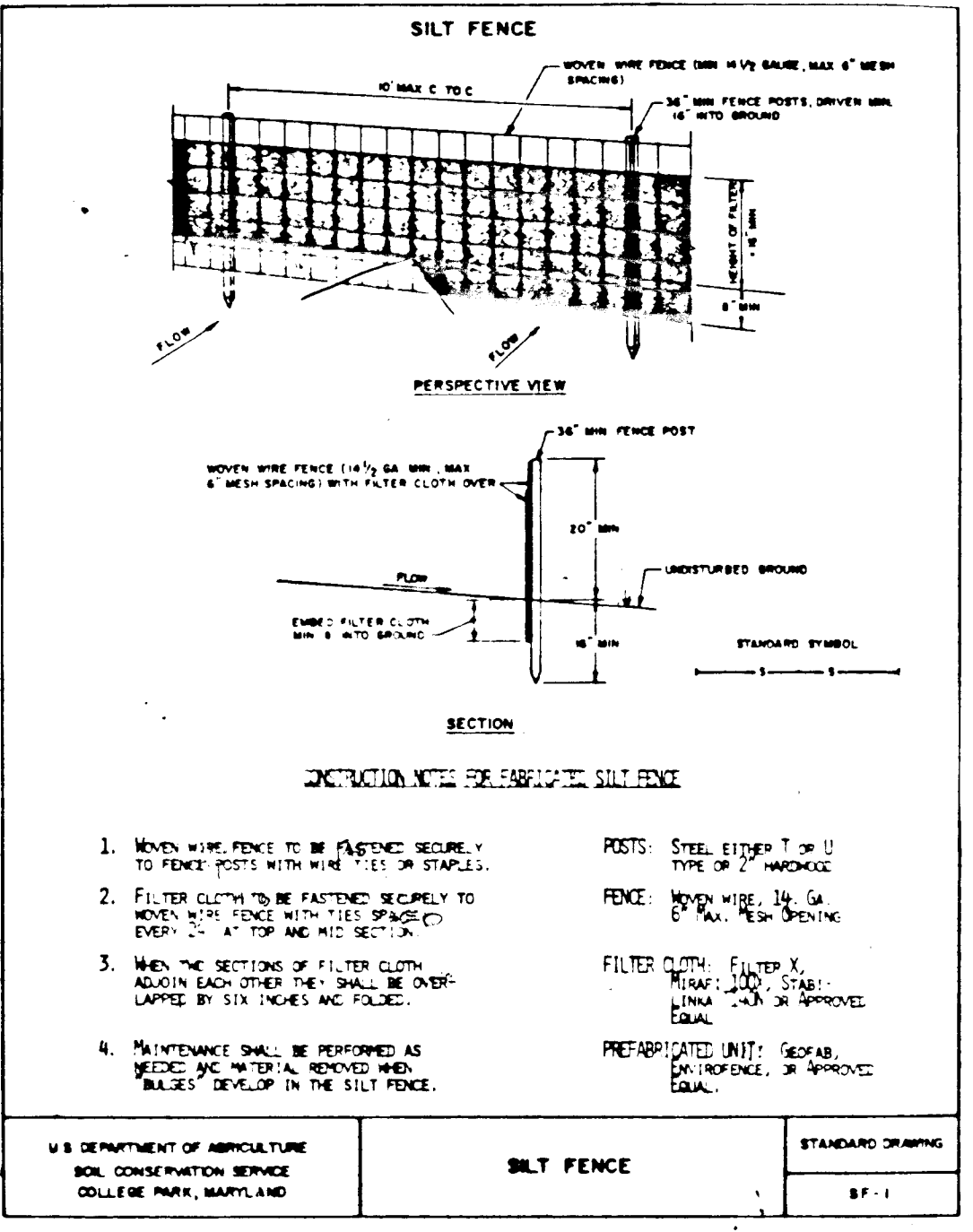
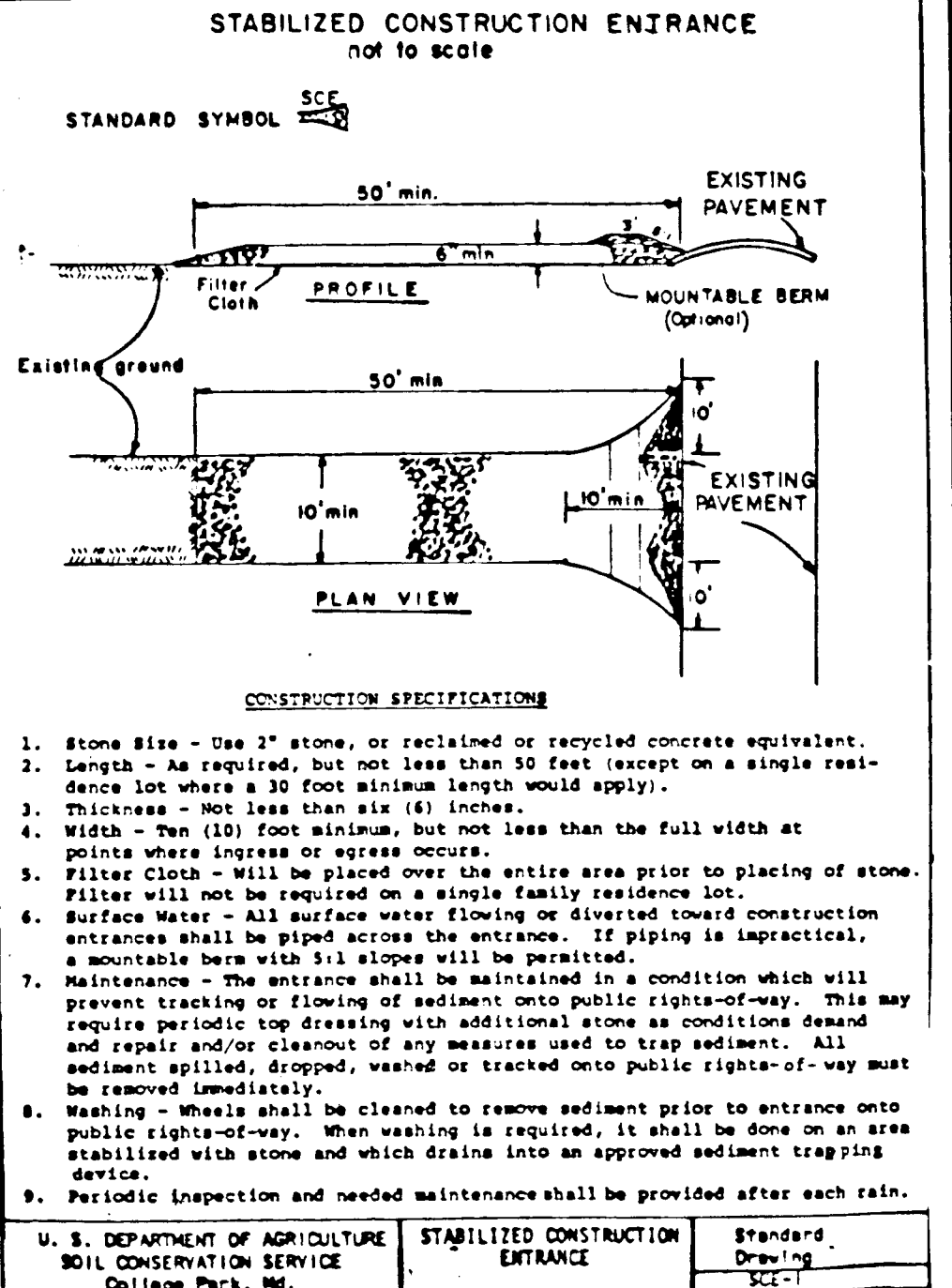
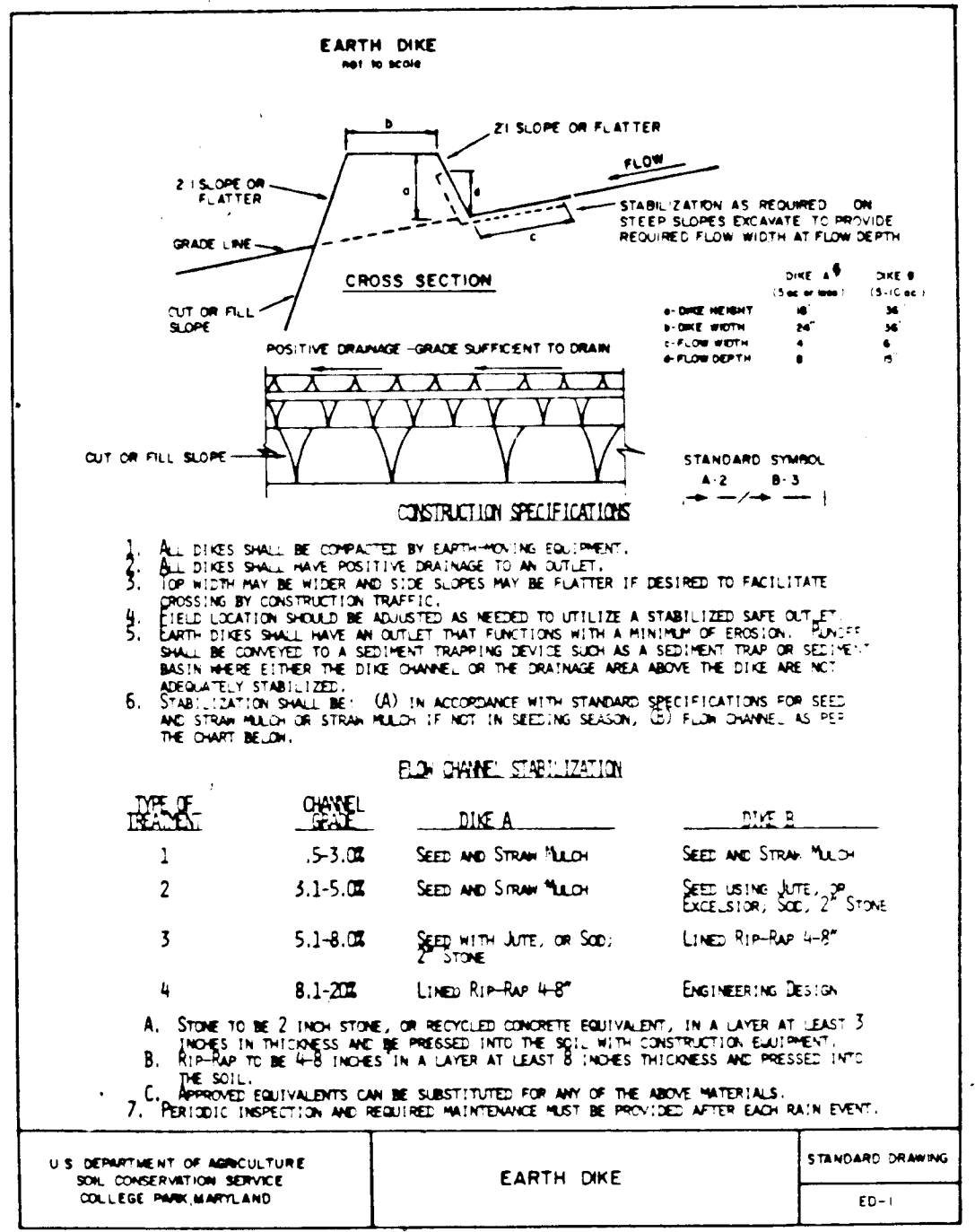
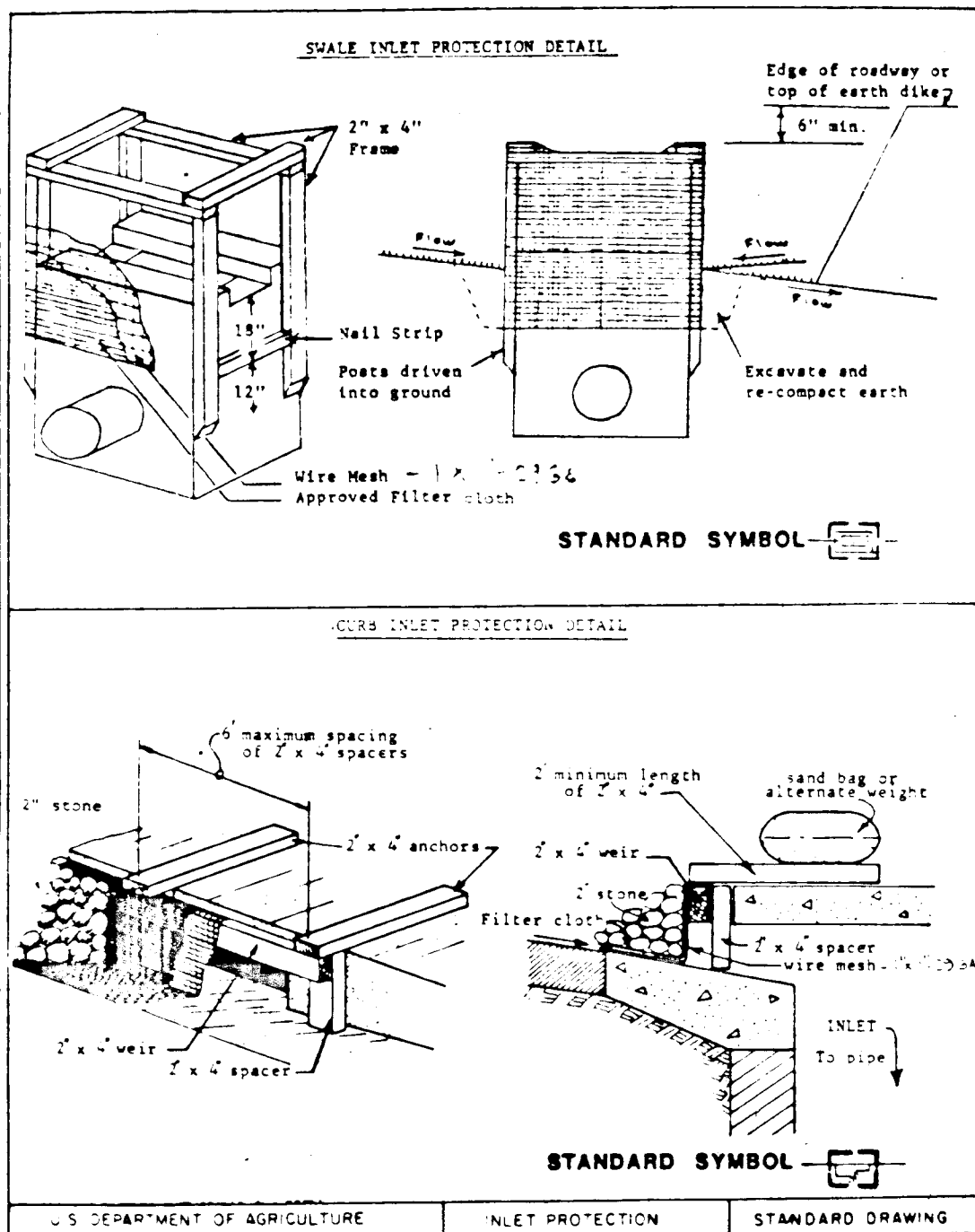
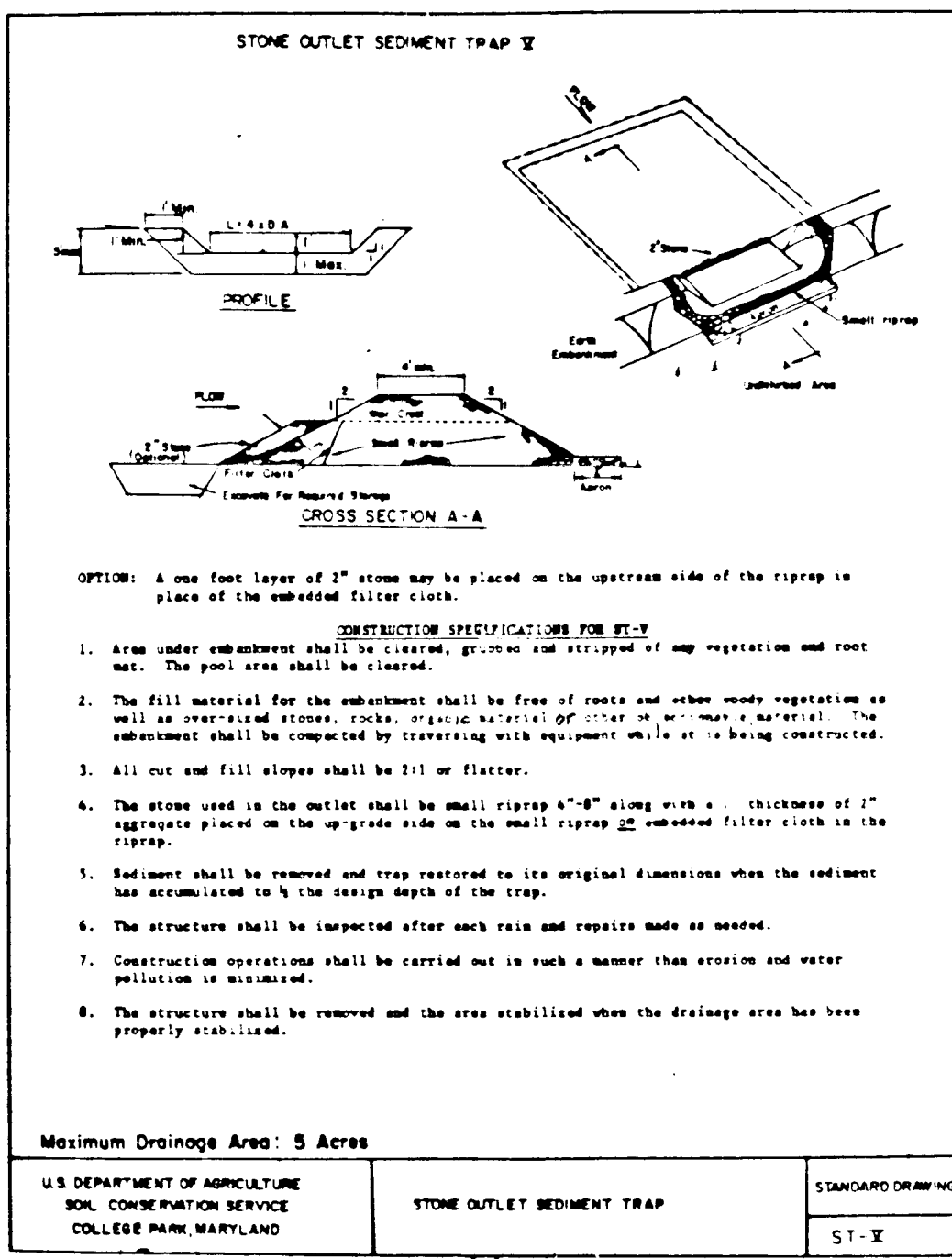
Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 24 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

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

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

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, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) 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 = 2.04 Acres
Area Disturbed = 2.04 Acres
Area to be roofed or paved = 0.00 Acres
Area to be vegetatively stabilized = 2.04 Acres
Total Cut = 888 Cu. yds
Total Fill = 888 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 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.



STANDARD AND SPECIFICATIONS FOR SILT FENCE

Maryland SCS/MSA April 1983

Definition:

A temporary barrier of geotextile fabric (filter cloth) used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose:

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used.

Conditions Where Practice Applies:

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence are listed in the table below:

Slope Steepness	Maximum Slope Length (Ft)
2:1	50
3:1	75
4:1	125
5:1	175
Flatter than 5:1	200

2. Maximum drainage area for overland flow to a silt fence shall not exceed 1 acre per 100 feet of fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier.

Design Criteria:

Design computations are not required. All silt fences shall be placed as close to the contour as possible, and the area below the fence must be undisturbed or stabilized.

A detail of the silt fence shall be shown on the plan, and contain the following minimum requirements:

1. The type, size, and spacing of fence posts.

12.01

Criteria for Silt Fence Materials

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Wullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Slurry Flow Rate (gal/min/ft)	0.3	Virginia DOT VTM-51
Equivalent Opening Size	40-80	US Std Sieve 20-02215
Ultraviolet Radiation Stability I	90	ASTM-G-26

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard 1" and 1 1/2" section weighing not less than 1.00 pound per linear foot.
3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14# gage with a maximum 6" mesh opening, or as approved.
4. Prefabricated Units: Emwifence or approved equal may be used in lieu of the above method providing the unit is installed per manufacturer's instructions.

12.02

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. 2 WEEKS.
2. CLEAR AND GRUBB FOR THE INSTALLATION OF PERIMETER CONTROLS.
3. INSTALL SEDIMENT CONTROL MEASURES.
4. CLEAR AND GRUBB REMAINDER OF SITE.
5. ROUGH GRADE SITE. STABILIZE AS REQUIRED.
6. INSTALL UTILITIES.
7. CONSTRUCT BUILDING.
8. INSTALL SUB BASE PAVEMENT.
9. INSTALL PAVEMENT SURFACE COURSE AND CURB.
10. FINE GRADE SITE AND STABILIZE AS REQUIRED.
11. CONVERT SEDIMENT BASIN TO BECOME STORM WATER FACILITY.
12. AFTER FINAL INSPECTION, STABILIZE SITE AS REQUIRED. REMOVE SEDIMENT CONTROL MEASURES AFTER PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

() Provide the following certification blocks on sediment control plans:

() By the Developer:

"I/We certify that all development and construction will be done according to this plan, and that any 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 on-site inspection by the Howard Soil Conservation District."

[Signature] 6-10-92 Date

Print name below signature:
BRUCE A. COWDRICK

"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 Soil Conservation District."

[Signature] 6/1/92 Date

Print name below signature:
JOHN L. SCHNEIDER

() Reviewed for HOWARD S.C.D. and meets Technical Requirements

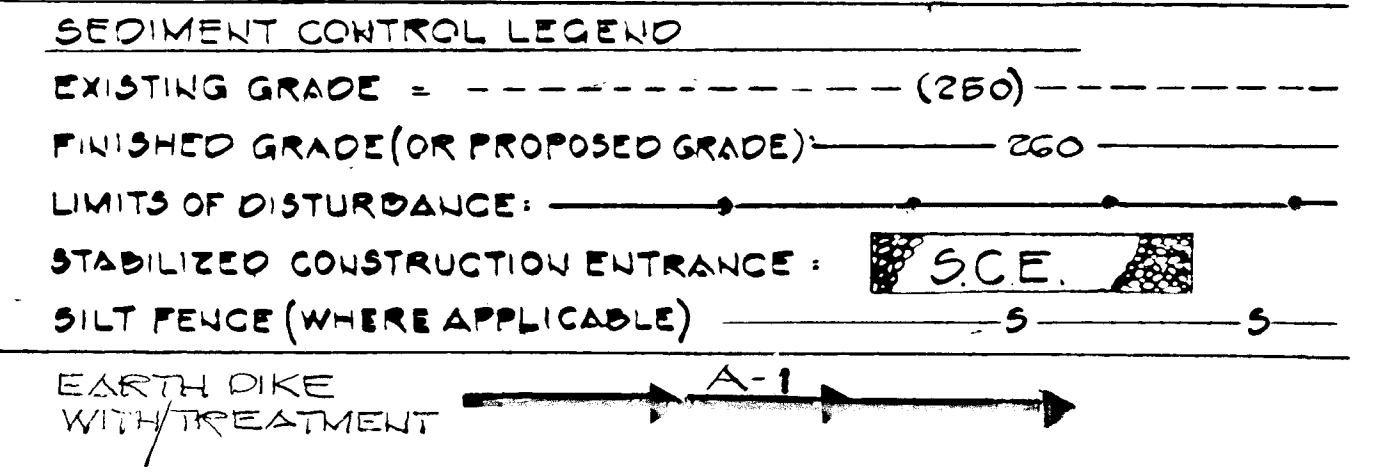
[Signature] 6/1/93 Date

U.S. SOIL CONSERVATION SERVICE

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

[Signature] 6/1/93 Date

HOWARD S.C.D.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 6/1/93 DATE

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] 6/24/93 DATE

CHIEF, LAND DEVELOPMENT DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] 6/24/93 DATE

CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] 6/24/93 DATE

CHIEF, BUREAU OF ENGINEERING

SEDIMENT CONTROL DETAILS AND SPECIFICATIONS

SHANTHA COURT

LOTS 1 THRU 11

TAX MAP 47 PAR 487, 6TH DISTRICT HQ, CO, MD

DATE: 6-5-92

OWNER: DR. E. GHANARAJ MOSES

C/O BRUCE A. COWDRICK

818 MAIN ST

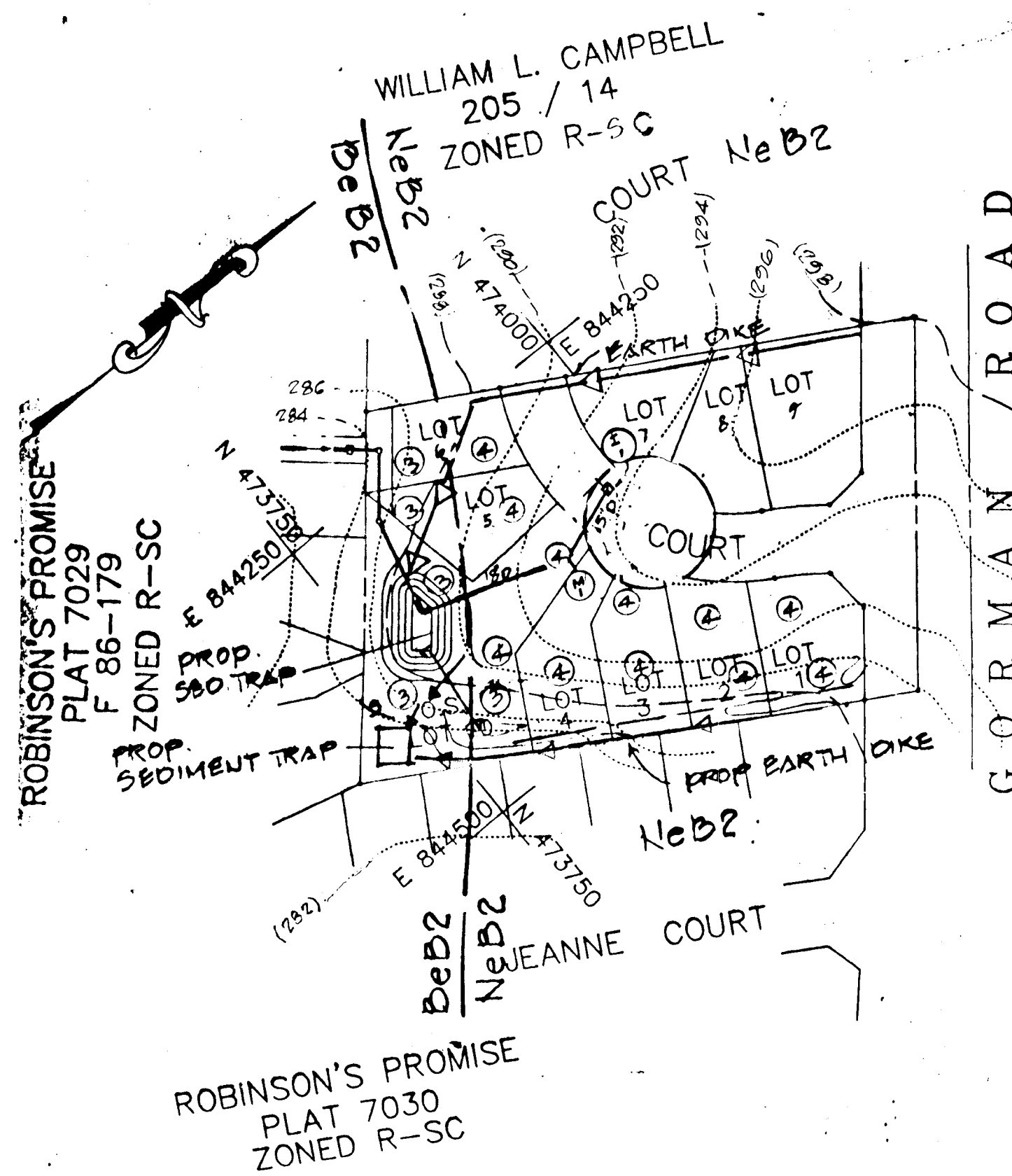
ELICOTT CITY, MD. 21043

750-0663

LAND DEVELOPMENT CONSULTANTS, INC.

10 BRIARLEAF CT., BALTO, MD, 21223

(301)-788-1723



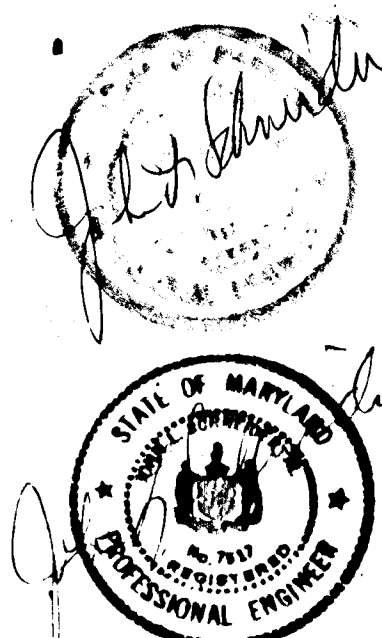
SOILS MAP
SCALE: 1"=100'
SOILS MAP NO. 33

- EXISTING VEGETATION: GRASS
- WET LAND INVESTIGATION FEB. 15, 1990
NUMEROUS HOLES DUG ON SITE, WITH THE FOLLOWING RESULTS:

HUE	VALUE	CHROMA	SOIL COLOR NAMES	KEY
2.5	3.4	2	3/2 - DUSKY RED	⊙
			4/2 - WEAK RED	⊙
- NeB2 - NESHAMINY SILT LOAM 3 TO 5% SLOPES, MODERATELY ERODED - SOIL GROUP B
DeB2 - BELTSVILLE SILT LOAM 1 TO 5% SLOPES, MODERATELY ERODED - SOIL GROUP C

APPROVED: HOWARD COUNTY DEPARTMENT
PLANNING AND ZONING
[Signature] 7/1/93
CHIEF, DIVISION OF COMMUNITY
PLANNING AND LAND DEVELOPMENT

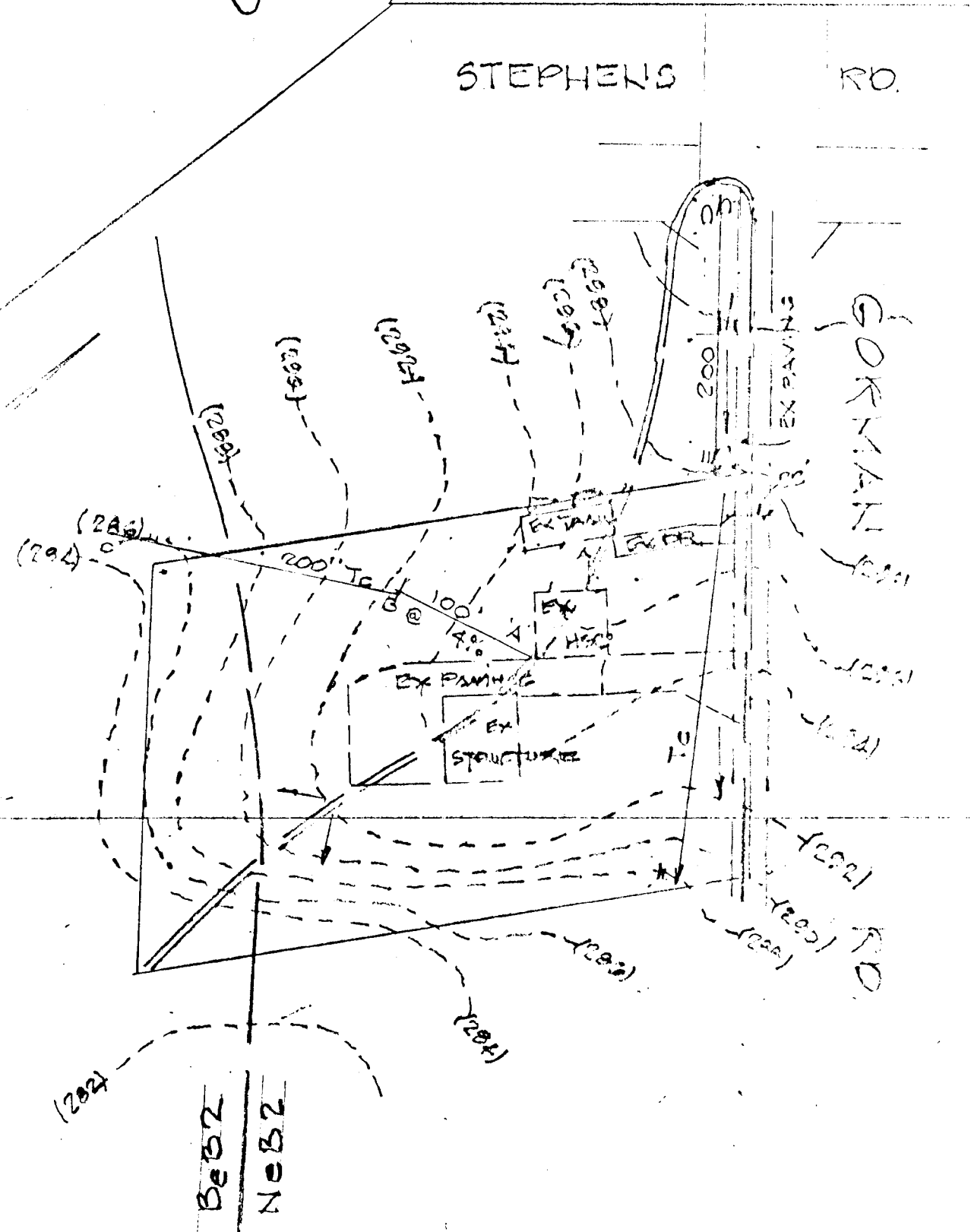
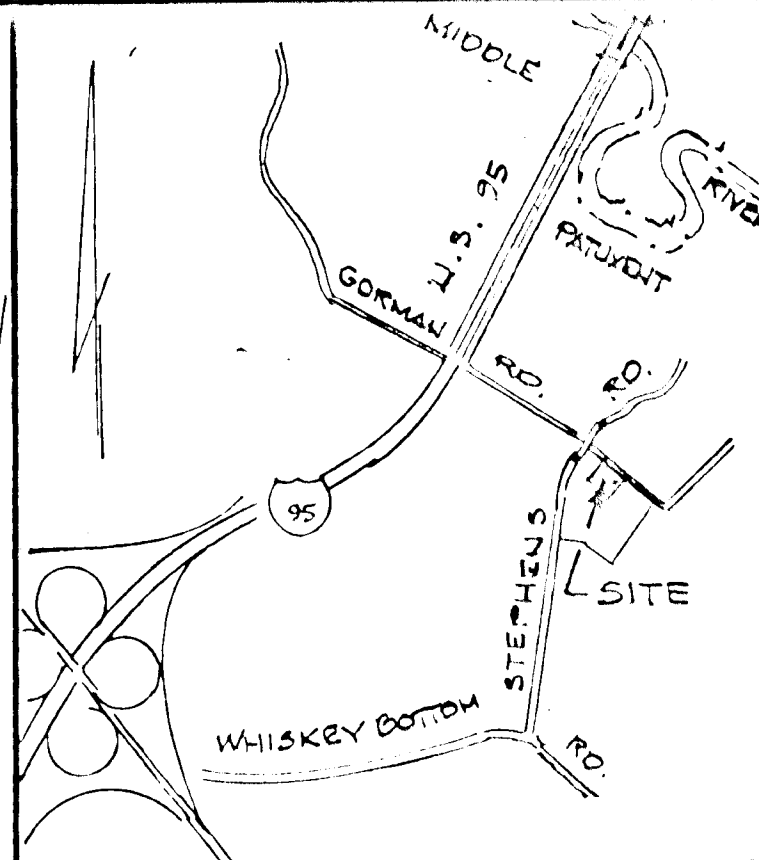
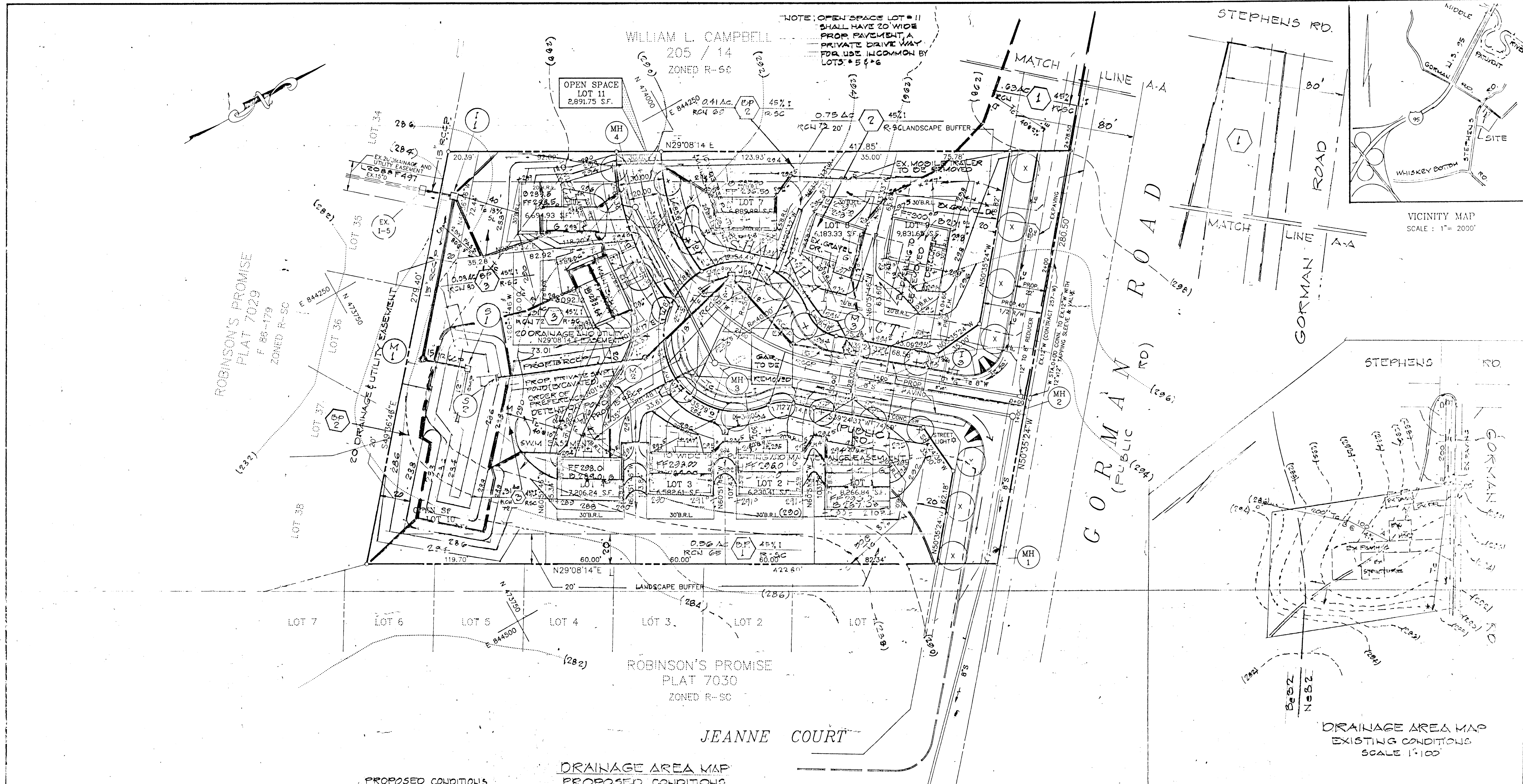
APPROVED: HOWARD COUNTY DEPARTMENT
OF PUBLIC WORKS
[Signature] 1/24/93
CHIEF, LAND DEVELOPMENT DIVISION
[Signature] 6/11/93
CHIEF, BUREAU OF HIGHWAYS
[Signature] 6-24-93
CHIEF, BUREAU OF ENGINEERING



OWNER / DEVELOPER		SOILS MAP SHANTHA COURT LOTS 1 THRU 10		TAX MAP : 47 PARCEL : 487 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND.
Dr. E. Gnanaraj Moses c/o Bruce A. Cowdrick 6156 MAIN ST. ELLCOTT CITY, MD. 21043 750-2665				
PREPARED BY	SCALE : 1"= 30'	PROJECT :	SHEET	
LAND DEVELOPMENT CONSULTANTS, INC.	DATE : FEB. 1990	JOB :	7	
10 BRIARLEAF COURT BALTIMORE, MD. 21228 788-1733	DRAWN : C.A.D.	DESIGNED : TS	OF 7	
	CHECKED : T.S.	ENGINEER : JS		

2997

1662



PROPOSED CONDITIONS

AREA	DRAINAGE AREA (AC)	T _c	RCH
1	.63	.10	73
2	.75	.10	73
3	.31	.10	72
POND	.12		74
BY PASS AREAS			
BP1	.56	.10	69
BP2	.41	.10	69
BP3	.08	.10	80

DRAINAGE AREA MAP
PROPOSED CONDITIONS
SCALE 1" = 20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Anna Howard 7/1/93
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Alvin... 6/29/93
CHIEF, LAND DEVELOPMENT DIVISION

... 6/10/93
CHIEF, BUREAU OF HIGHWAYS

... 6-24-93
CHIEF, BUREAU OF ENGINEERING

OWNER / DEVELOPER
Dr. E. Gnanaraj Moses
c/o Bruce A. Cowdrick
8156 MAIN ST.
ELLCOTT CITY, MD. 21043
750-2665

PREPARED BY:
LAND DEVELOPMENT CONSULTANTS INC.
10 BRIARLEAF COURT
BALTIMORE, MD. 21228
788-1733

DRAINAGE AREA MAP
SHANTHA COURT
LOTS 1 THRU 11

TAX MAP : 47 PARCEL : 487
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND.

SCALE : 1" = 30'	PROJECT :	SHEET
DATE DEC. 10, 1992	JOB :	2
DRAWN : C.A.D.	DESIGNED :	OF 3
CHECKED : T.S.	ENGINEER :	

