

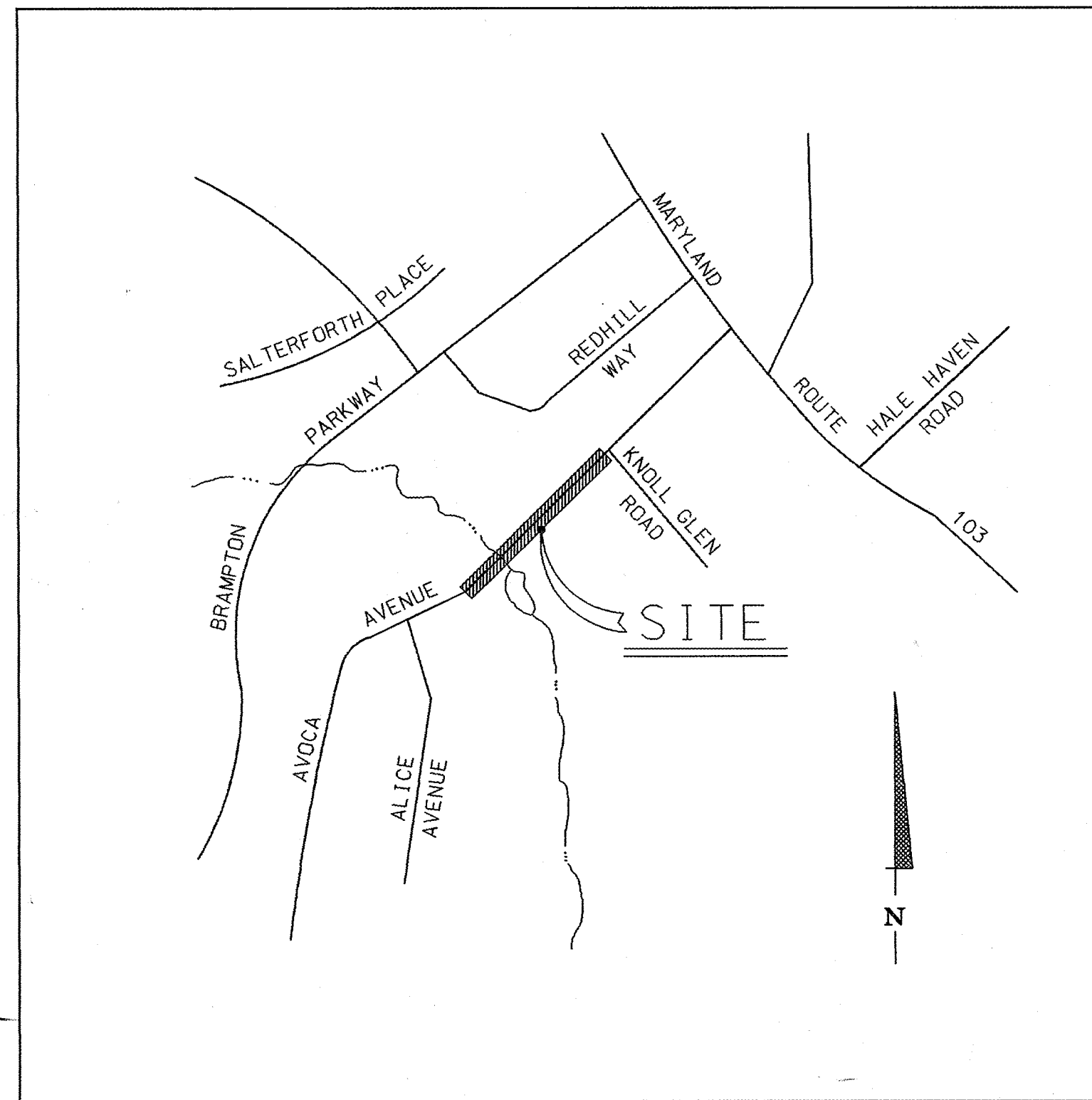
**INDEX OF SHEETS**

1. TITLE SHEET
2. PLAN AND DETAILS - EROSION AND SEDIMENT CONTROL
3. PROFILES
4. PIPE DIVERSION
5. WETLANDS PLAN
6. EROSION AND SEDIMENT CONTROL DETAILS

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 FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN HEREON:  
MISS UTILITY 1-800-257-7777  
BALTIMORE GAS & ELECTRIC CO., UNDERGROUND ELECTRICAL DISTRIBUTION ENGINEERING DAMAGE CONTROL 234-6313  
BALTIMORE GAS & ELECTRIC CO., UNDERGROUND GAS DISTRIBUTION ENGINEERING 234-5533  
CHESAPEAKE AND POTOMAC TELEPHONE CO. 725-9976  
COLONIAL PIPELINE COMPANY 781-4641  
HOWARD COUNTY BUREAU OF UTILITIES 313-4900  
HOWARD COUNTY BUREAU OF CONSTRUCTION INSPECTION 313-1870  
HOWARD COUNTY TRAFFIC DIVISION 313-2430  
HOWARD COUNTY SURVEYING AND DRAFTING DIVISION 313-2417
3. 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.
4. SURVEY OF THE SITE WAS PERFORMED BY EBA ENGINEERING IN JUNE, 1991.
5. COORDINATES AND ELEVATIONS ARE BASED ON HOWARD COUNTY CONTROL STATION NOS. 2139003, 2139004 AND 2139005.
6. WETLANDS WERE DELINEATED BY HUMAN & RODHE, INC. ON JUNE 28, 1993.
7. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 FOR UNDERGROUND UTILITY LOCATIONS AT LEAST FIVE (5) DAYS PRIOR TO COMMENCING WORK SHOWN ON THE PLANS.
8. ALL TOP ELEVATIONS FOR THE PROPOSED INLETS AND MANHOLES ARE APPROXIMATE AND ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND THE ENGINEER. WHERE THE PROPOSED STORM DRAINS CROSS VEGETATED AREAS, POSITIVE DRAINAGE SHALL BE MAINTAINED AND THE TOP ELEVATIONS ADJUSTED AS DIRECTED BY THE ENGINEER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ALL EXISTING DRIVEWAYS DAMAGED DURING CONSTRUCTION.
10. TREES ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES LOCATED OUTSIDE THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
11. THE EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ON THESE PLANS ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO HIS OWN SATISFACTION BEFORE STORM CONSTRUCTION. NEITHER THE ENGINEER NOR THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS WARRANT OR GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE INFORMATION SHOWN.
12. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES. ANY DAMAGE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. CLEAR ALL UTILITIES BY A MINIMUM OF 6 INCHES.
13. TEST PITS SHALL BE DUG AT ALL UTILITY CROSSINGS TO DETERMINE EXISTING HORIZONTAL AND VERTICAL ALIGNMENT OF UTILITIES. TEST PITS SHALL BE DUG A SUFFICIENT AMOUNT OF TIME IN ADVANCE OF THE CONSTRUCTION OR TRENCHING OPERATION TO ALLOW FOR NECESSARY ADJUSTMENTS.
14. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL  THE RESULTS TEST PITS ARE INCLUDED ON THE STORM DRAIN PROFILES.
15. ALL UTILITY POLES MUST BE CLEARED BY FIVE (5) FEET. IF THE STORM DRAIN PIPING OR STRUCTURE WORK IS WITHIN FIVE (5) FEET OF A UTILITY POLE, THE POLE IS TO BE BRACED OR RELOCATED. RELOCATION OR BRACING OF UTILITY POLES WILL BE DONE BY OTHERS.
16. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
17. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION AS DIRECTED BY THE ENGINEER. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR FURNISHING AND LAYING STORM DRAIN PIPE.
18. EXISTING WATER HOUSE SERVICES THAT ARE IN CONFLICT WITH THE PROPOSED STORM DRAINAGE FACILITIES SHALL BE ADJUSTED BY THE CONTRACTOR.
19. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, THE CONTRACTOR SHALL ABIDE BY THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" AND THE SPECIAL PROVISIONS. IN THE EVENT OF ANY DISCREPANCY BETWEEN THESE TWO SOURCES, THE LATTER SHALL GOVERN.
20. EXISTING FENCES, MAILBOXES, SIGNS AND SHRUBS DISTURBED BY THE WORK SHALL BE RECONSTRUCTED OR REPLACED IN KIND.
21. ALL SLOPES AND/OR DISTURBED AREAS SHALL RECEIVE TWO (2) INCH DEPTH OF TOPSOIL AND SODDING EXCEPT WHERE OTHERWISE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
22. LOCATION POINTS FOR INLETS, MANHOLES AND STRUCTURES:  

ITEM	HORIZONTAL LOCATION	VERTICAL LOCATION
CURB TYPE INLETS	CENTER FACE OF CURB	TOP OF CURB
GRATE TYPE INLETS	CENTER OF GRATE	TOP OF GRATE
MANHOLES	CENTER OF COVER	TOP OF COVER
ENDWALLS	CENTER OF WALL	TOP OF WALL
23. THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS IN VICINITY OF UTILITIES. COST SHALL BE INCLUDED IN THE UNIT PRICES BID FOR STORM DRAIN ITEMS.
24. ALL INVERTS SHALL BE FULLY DEVELOPED.
25. LENGTHS OF DISTURBANCE SHALL BE LIMITED TO A MAXIMUM OF 100 FT. AT ANY ONE TIME. AT THE END OF EACH WORKING DAY, PROVIDE STABILIZATION ACCORDING WITH PLANS.
26. THERE IS A POSSIBILITY THAT HIGH GROUNDWATER MAY BE ENCOUNTERED WHEN EXCAVATING FOR INSTALLATION OF THE CLOSED STORM DRAIN SYSTEM. CONTRACTOR TO TAKE PROVISION TO WORK UNDER THOSE CONDITIONS

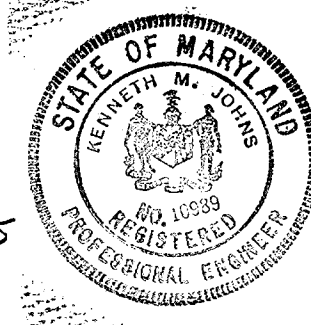


SCALE: 1" = 600'

**DESIGN CERTIFICATE**

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

6/19/95 DATE  
 [Signature] DESIGNER'S SIGNATURE  
 MARYLAND REGISTRATION NO. 10989 Kenneth M. Johns PRINTED NAME  
 (P.E., R.L.S., OR R.L.A.) PROFESSIONAL ENGINEER



**OWNER'S/DEVELOPER'S CERTIFICATION**

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT 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.

8/30/95 DATE  
 [Signature] OWNER/DEVELOPER SIGNATURE  
 Ronald G. Lepson, Chief, Bureau of Engineering PRINTED NAME AND TITLE

QUANTITIES			
ITEM	ESTIMATE	AS-BUILT	MATL. / SUPPLIER
15" RCP CL. IV	680 L.F.		
TYPE D INLET	6 EA.		
CONCRETE END SECTION	1 EA.		

CAPITAL PROJECT No. D - 1078 S.E.  
 AVOCA AVENUE  
 HOWARD COUNTY, MARYLAND  
 DEPARTMENT OF PUBLIC WORKS

WRA LETTER OF AUTHORIZATION NO. 94-NT-0214

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

[Signature] 9/11/95 DATE  
 NATURAL RESOURCES CONSERVATION SERVICE

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

APPROVED: [Signature] 9/11/95 DATE  
 HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND [Signature] 2/20/95 DATE DIRECTOR OF PUBLIC WORKS [Signature] 2-15-95 DATE CHIEF, BUREAU OF HIGHWAYS	EBA ENGINEERING, INC. 5800 METRO DRIVE BALTIMORE, MARYLAND 21215 (410) 358-7171 [Signature] 2/13/95 DATE CHIEF, BUREAU OF ENGINEERING [Signature] 9/18/95 DATE CHIEF, TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT	STATE OF MARYLAND PROFESSIONAL ENGINEER [Signature]	DES: L.C. DRN: JDP CHK: L.C. DATE: 06/06/1995 BY NO. REVISION DATE	TITLE SHEET 600' SCALE MAP NO. BLOCK NO.	DRAINAGE SYSTEM IMPROVEMENT PROGRAM CAPITAL PROJECT No. D-1078 S.E. HOWARD COUNTY, MARYLAND CONTRACT No. ELECTION DISTRICT No. 6 NO. SCALE SHEET 1 OF 6
--	---	---	--	---	--

C 2802 Z P 1 D0280-01



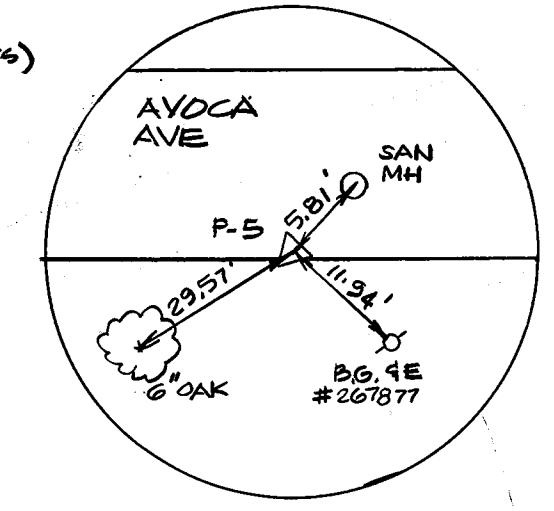
REMOVE AND RESET EX. TRAFFIC BARRIER FROM STA. 1+40 TO STA. 1+70 (E) LT., AND FROM STA. 1+20 TO STA. 1+70 (E) RT.

NOTE:

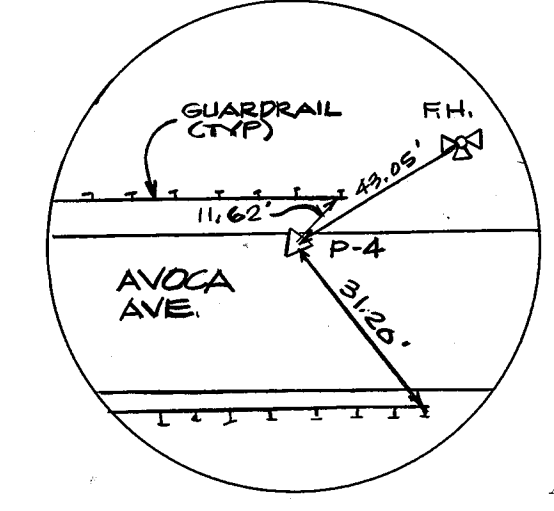
**SEQUENCE OF CONSTRUCTION**

1. OBTAIN GRADING PERMIT FROM HOWARD CO. DEPARTMENT OF LICENSES AND PERMITS. (3 DAYS)
2. INSTALL SEDIMENT CONTROL MEASURES. (1 DAY)
3. REPAIR EX. HEADWALLS, FOR FLOW DIVERSION SEE SHEET 4 OF 6 (2 DAYS)
4. CONSTRUCT SODDED DITCH (LT. OF B) PROVIDE POSITIVE DRAINAGE TO SEDIMENT TRAP (2 DAYS)
5. REMOVE EX. 15" CMP FROM S-1 (E) TO I-4 (E) INSTALL 15" RCP AND I-4 TEMPORARILY CONNECT REMAINING EX. 15" CMP TO NEW SYSTEM. REPEAT THIS PROCEDURE FOR INSTALLATION OF PROPOSED 15" RCP AND INLETS I-3, I-2 AND I-1. INSTALL INLETS I-5 AND I-6, INSTALL CONNECTING 15" RCP. (15 DAYS)
6. CONSTRUCT SODDED DITCH (RT. OF B) (2 DAYS)
7. PROVIDE PERMANENT STABILIZATION TO ALL DISTURBED AREAS, (SOODING, SEEDING, ETC) (2 DAYS)
8. UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE EROSION & SEDIMENT CONTROL DEVICES, GRADE SEDIMENT TRAP AREA TO ITS ORIGINAL GRADING, PROVIDE PERMANENT STABILIZATION. (SOODING) (1 DAY)

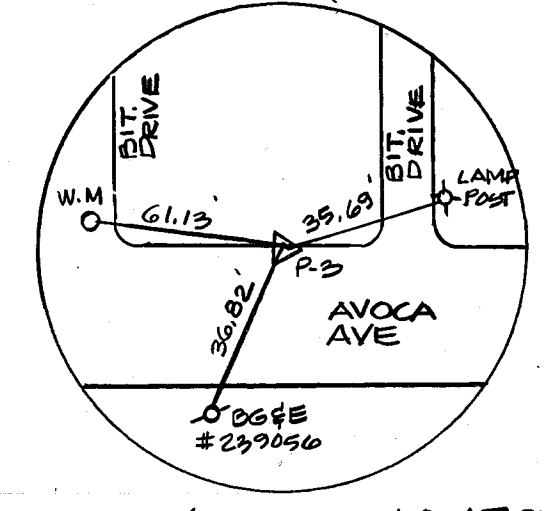
TRAP No.	TRAP TYPE	DRAIN AREA (AC)	VOLUME REQ'D (C.F.)	TOP (FT.)		BOTTOM (FT.)		DEPTH (FT.)	CREST WIDTH (FT.)	CREST ELEV.	BOTT. ELEV.	CLEAN-OUT ELEV.	TOP OF EMBANK.	VOLUME PROV'D (C.F.)
				L	W	L	W							
1	S.O.S.T.	0.73	1,314	33	33	30	30	1.5	30	418.0	416.5	417.80	-	1,492



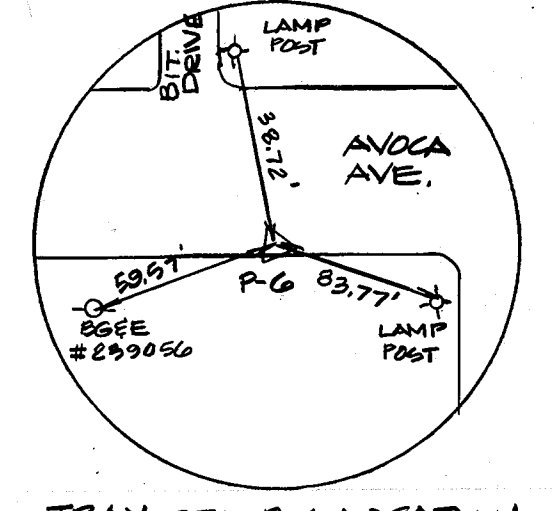
TRAV. P-5 LOCATION



TRAV. STA P-4 LOCATION



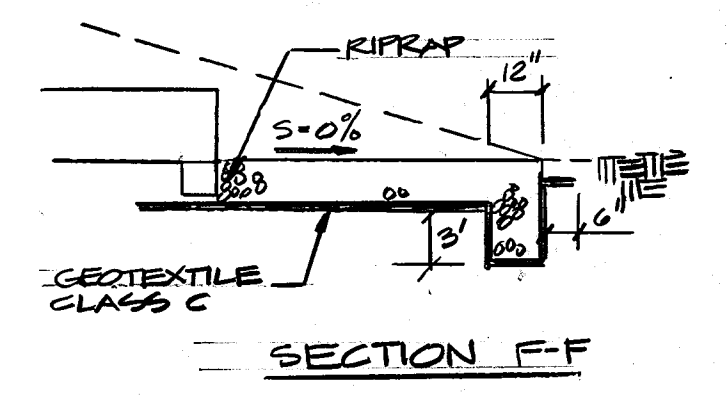
TRAV. STA P-3 LOCATION



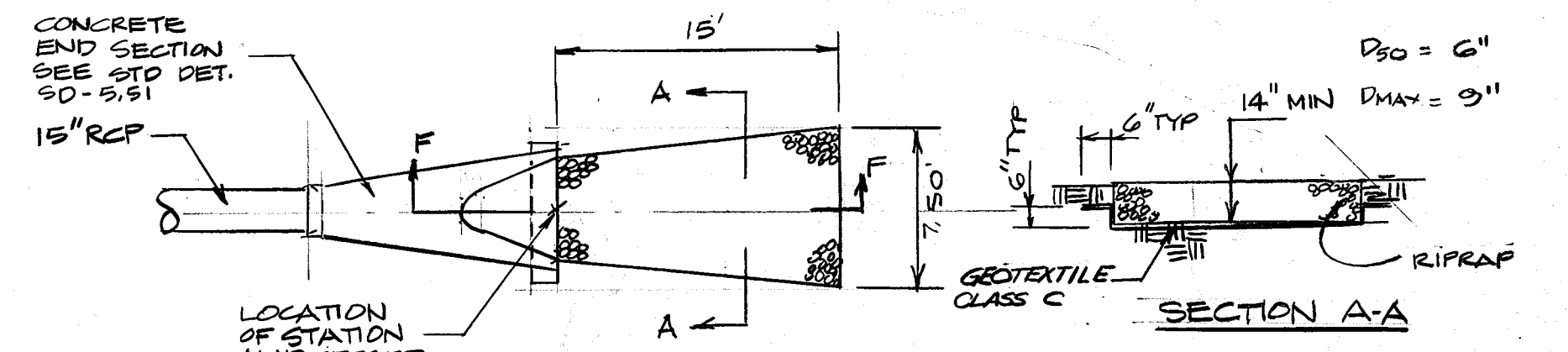
TRAV. STA P-6 LOCATION

**COORDINATE TABLE**

POINT	COORDINATES		ELEVATION	REMARKS
	NORTH	EAST		
STA 0+00	511074.363	854884.355	-	
P-3	511451.931	855280.674	422.13	STA 5+46.95
P-4	511243.491	855062.214	420.88	STA 2+45
P-5	511096.920	854937.647	417.50	
P-6	511460.411	855321.914	-	

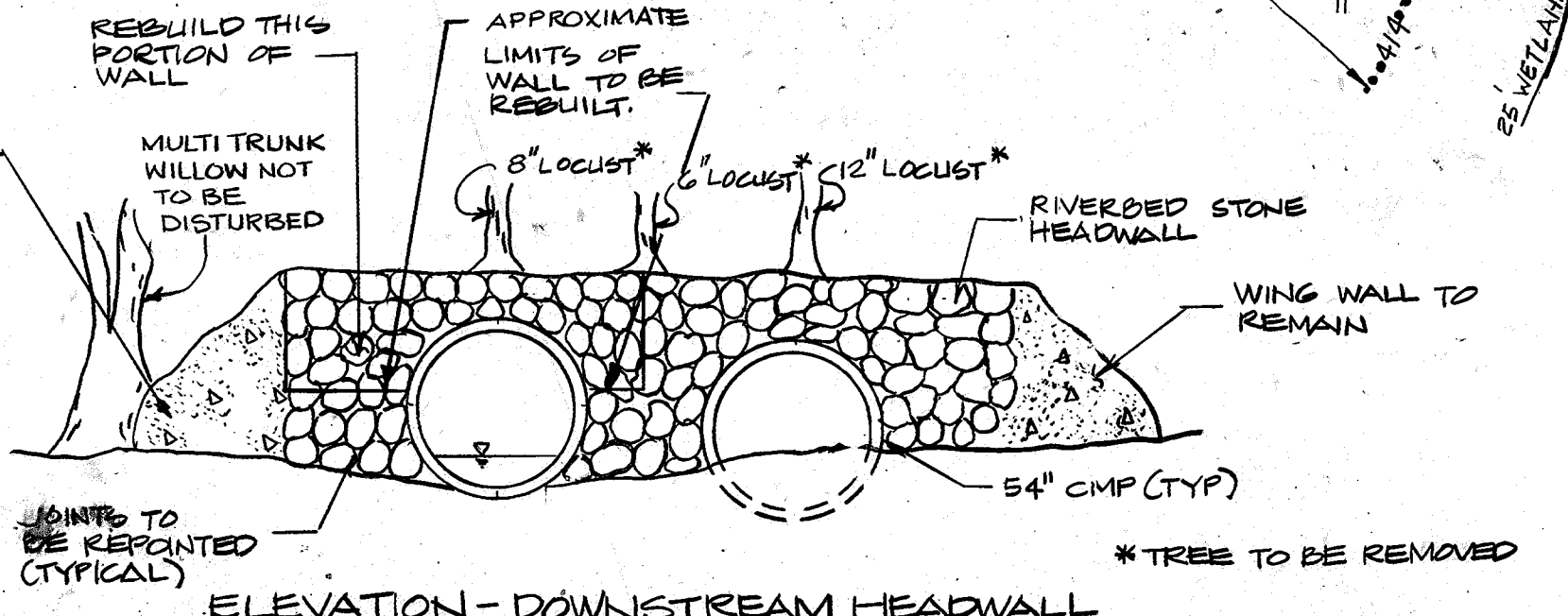
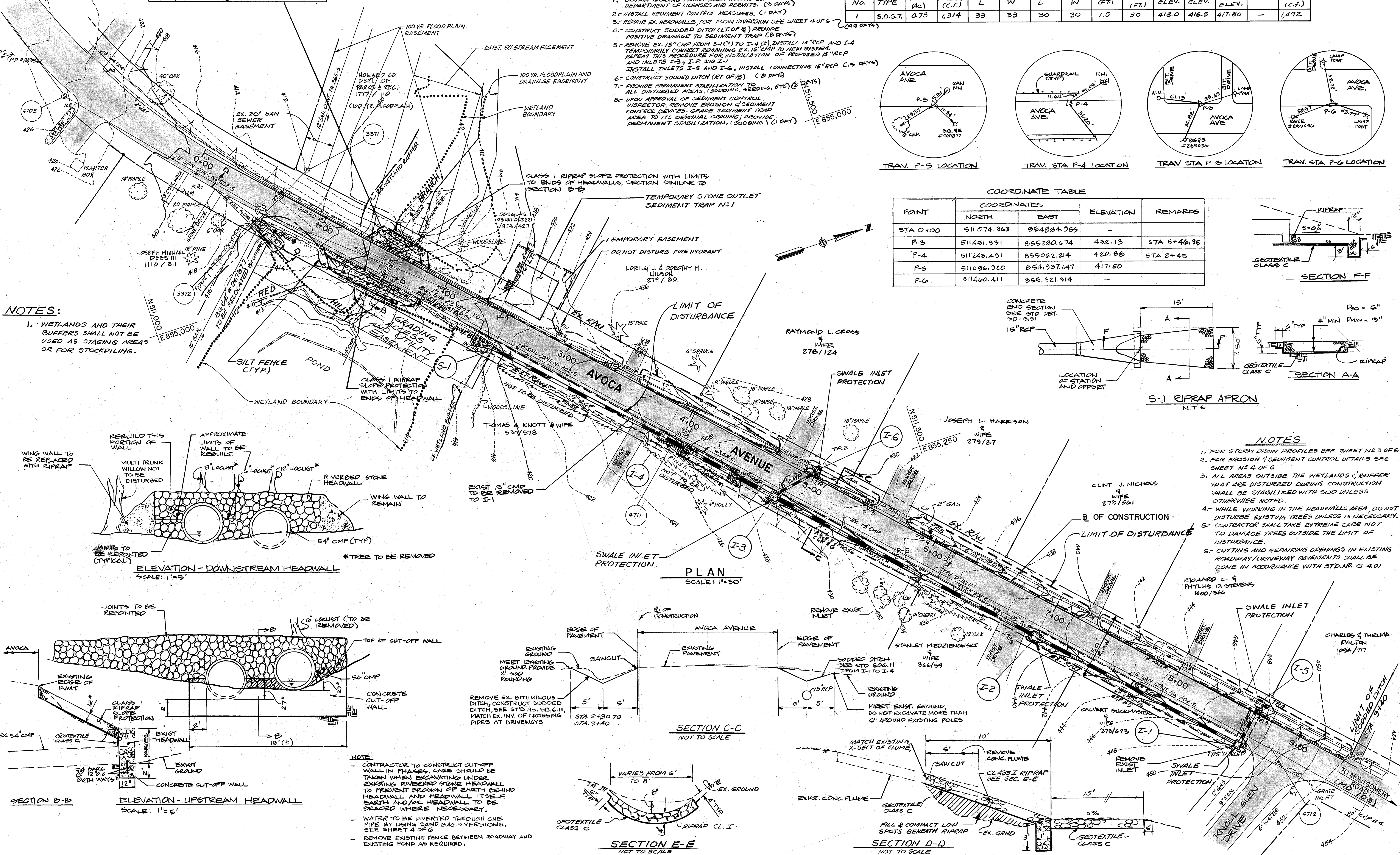


SECTION F-F

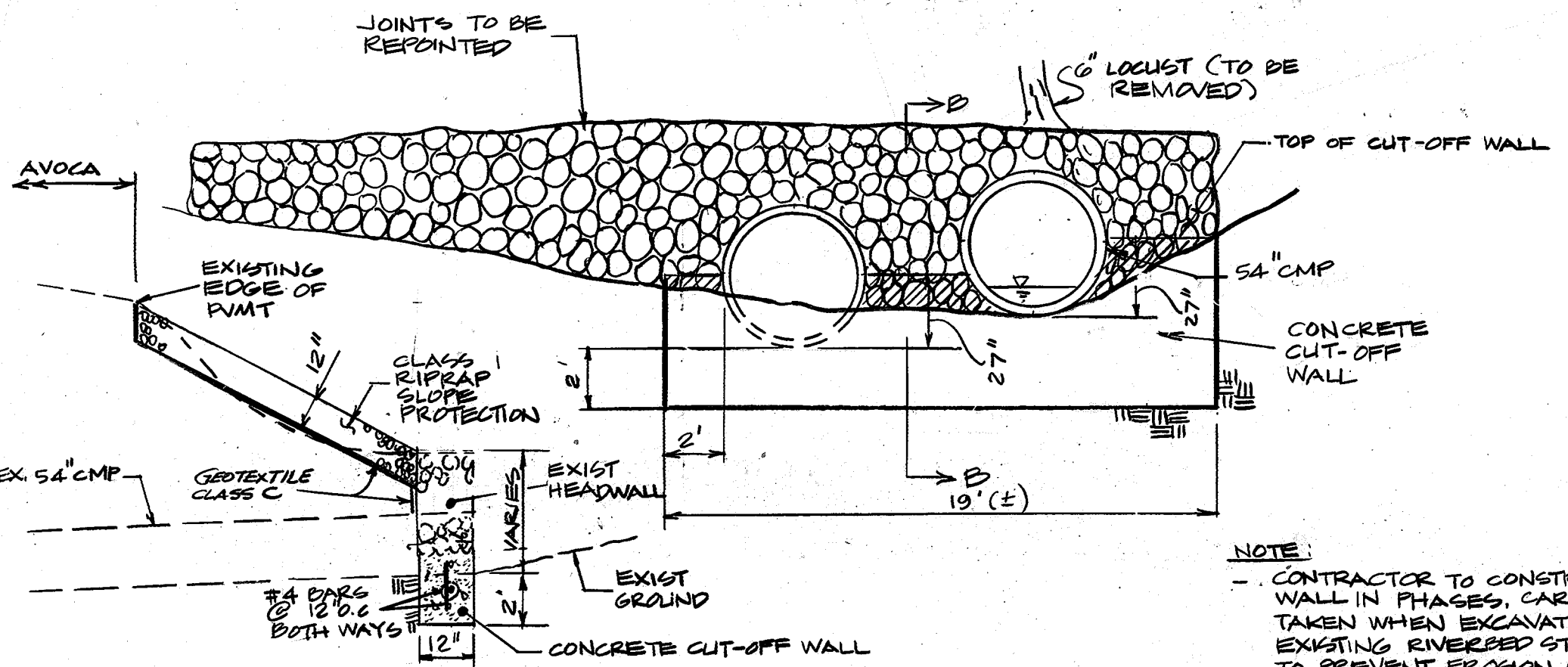


SECTION A-A

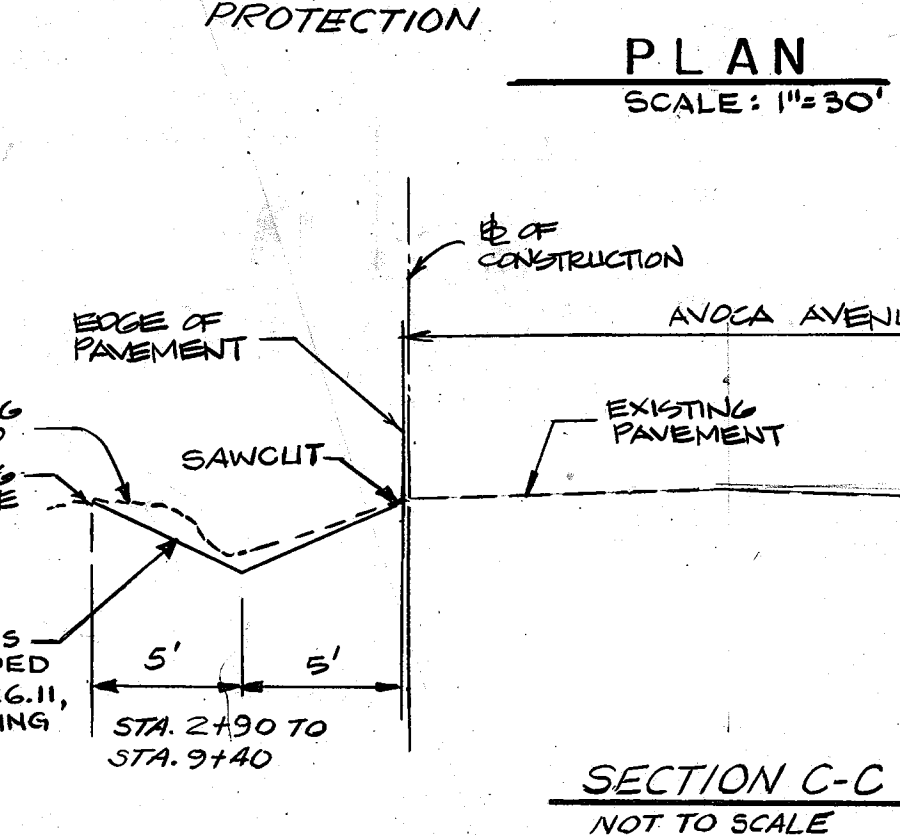
- NOTES:**
1. WETLANDS AND THEIR BUFFERS SHALL NOT BE USED AS STAGING AREAS OR FOR STOCKPILING.



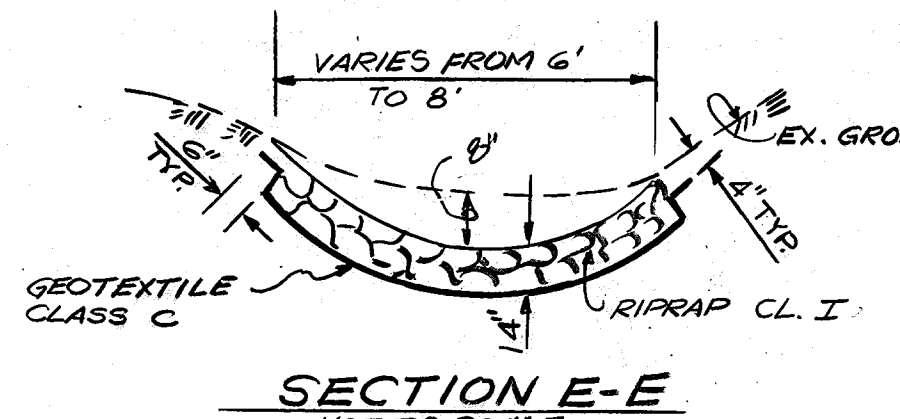
ELEVATION - DOWNSTREAM HEADWALL



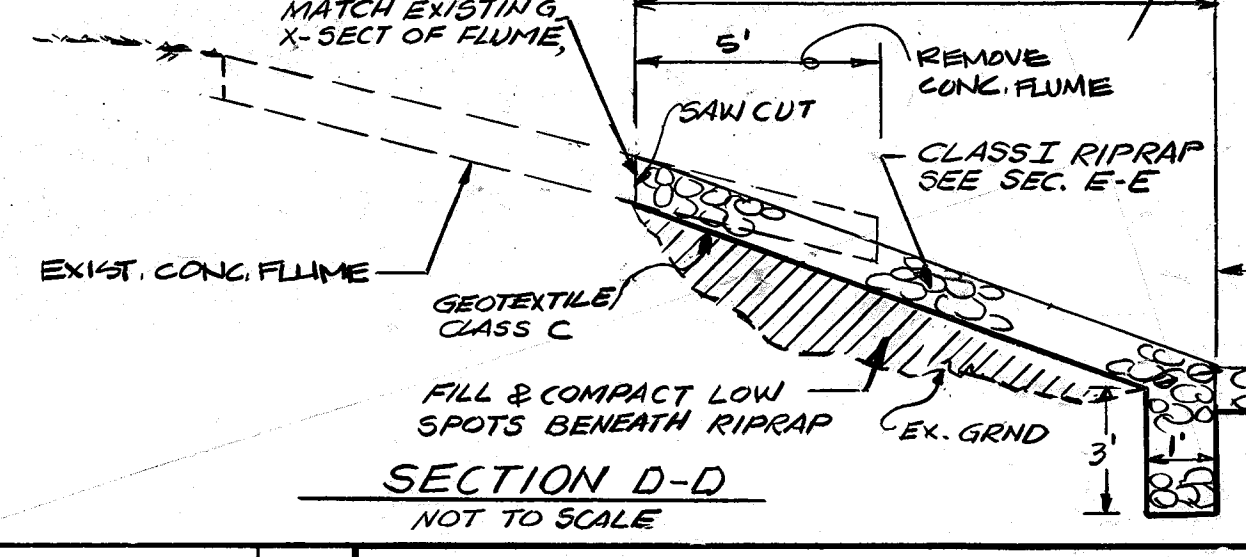
ELEVATION - UPSTREAM HEADWALL



SECTION C-C



SECTION E-E



SECTION D-D

- NOTE:**
1. CONTRACTOR TO CONSTRUCT CUT-OFF WALL IN PHASES, CARE SHOULD BE TAKEN WHEN EXCAVATING UNDER EXISTING RIVERBED STONE HEADWALL TO PREVENT EROSION OF EARTH BEHIND HEADWALL AND HEADWALL ITSELF. EARTH AND/OR HEADWALL TO BE BRACED WHERE NECESSARY.
  2. WATER TO BE DIVERTED THROUGH ONE PIPE BY USING BAND BAG DIVERSIONS, SEE SHEET 4 OF 6.
  3. REMOVE EXISTING FENCE BETWEEN ROADWAY AND EXISTING POND, AS REQUIRED.

**DEPARTMENT OF PUBLIC WORKS**  
 HOWARD COUNTY, MARYLAND

*James A. Lewis* 9/2/95  
 DIRECTOR OF PUBLIC WORKS DATE

*Richard Egan* 9/13/95  
 CHIEF, BUREAU OF ENGINEERING DATE

*Charles M. Andrews* 9-15-95  
 CHIEF, BUREAU OF HIGHWAYS DATE

*Samuel D. Adams* 9/19/95  
 CHIEF, DIVISION OF TRANSPORTATION PROJ. AND WATERSHED MANAGEMENT DATE

**EBA ENGINEERING, INC.**

5800 METRO DRIVE  
 BALTIMORE, MARYLAND 21215  
 (301) 358-7171

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER

DES: G.F.					
DRN: G.F.					
CHK: L.C.					
DATE: 6/10/95	BY NO.	REVISION	DATE	600' SCALE MAP NO.	BLOCK NO.

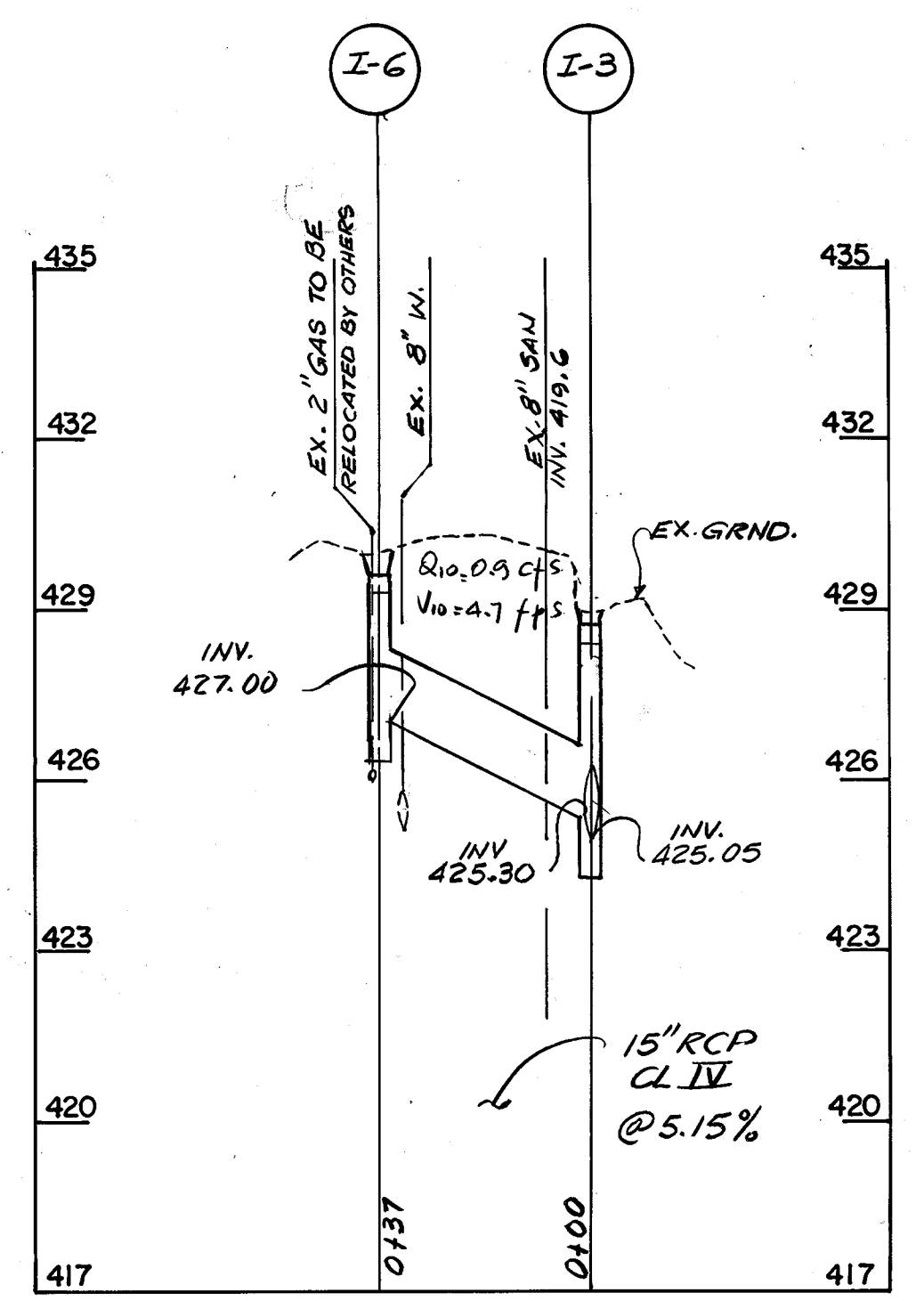
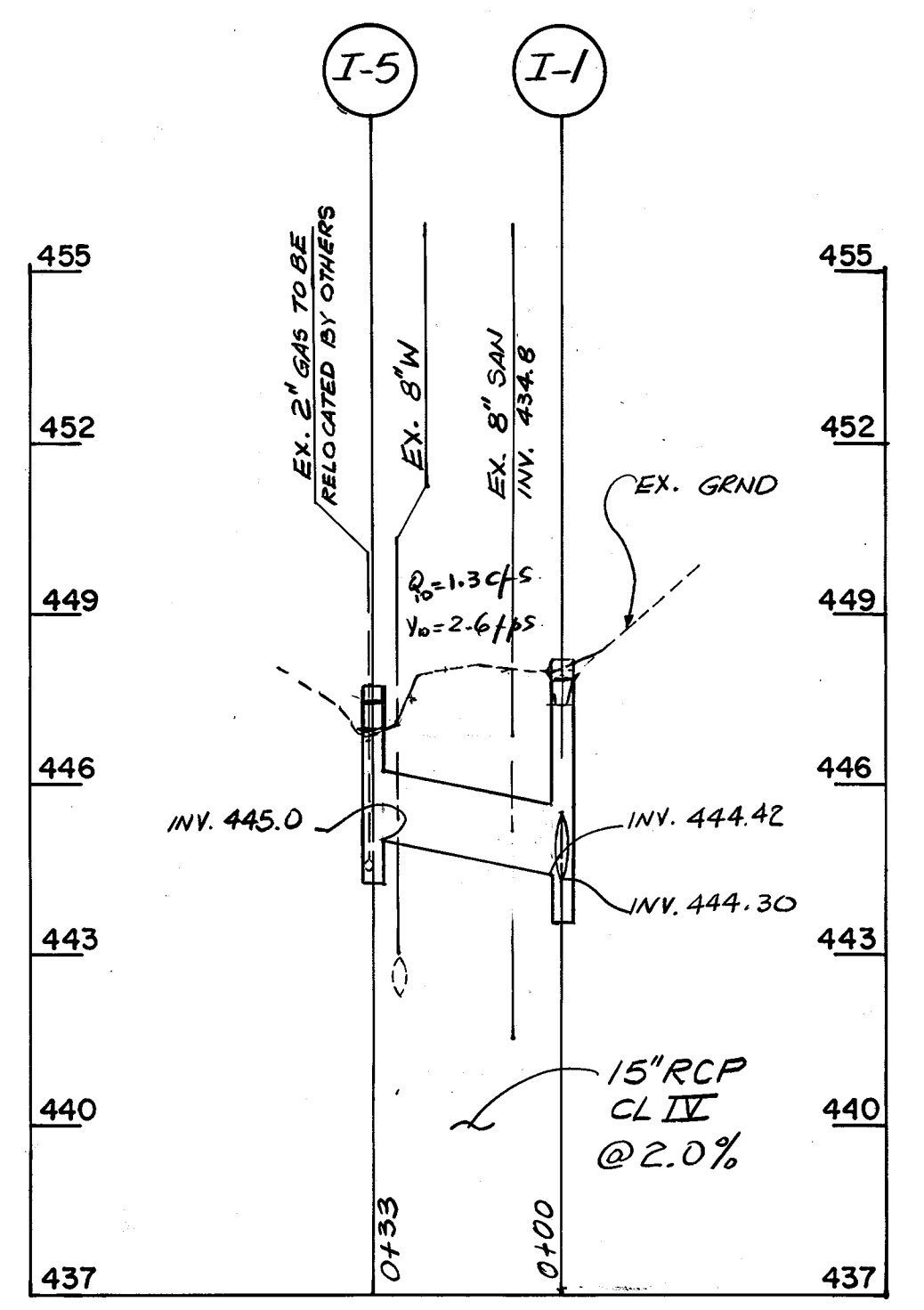
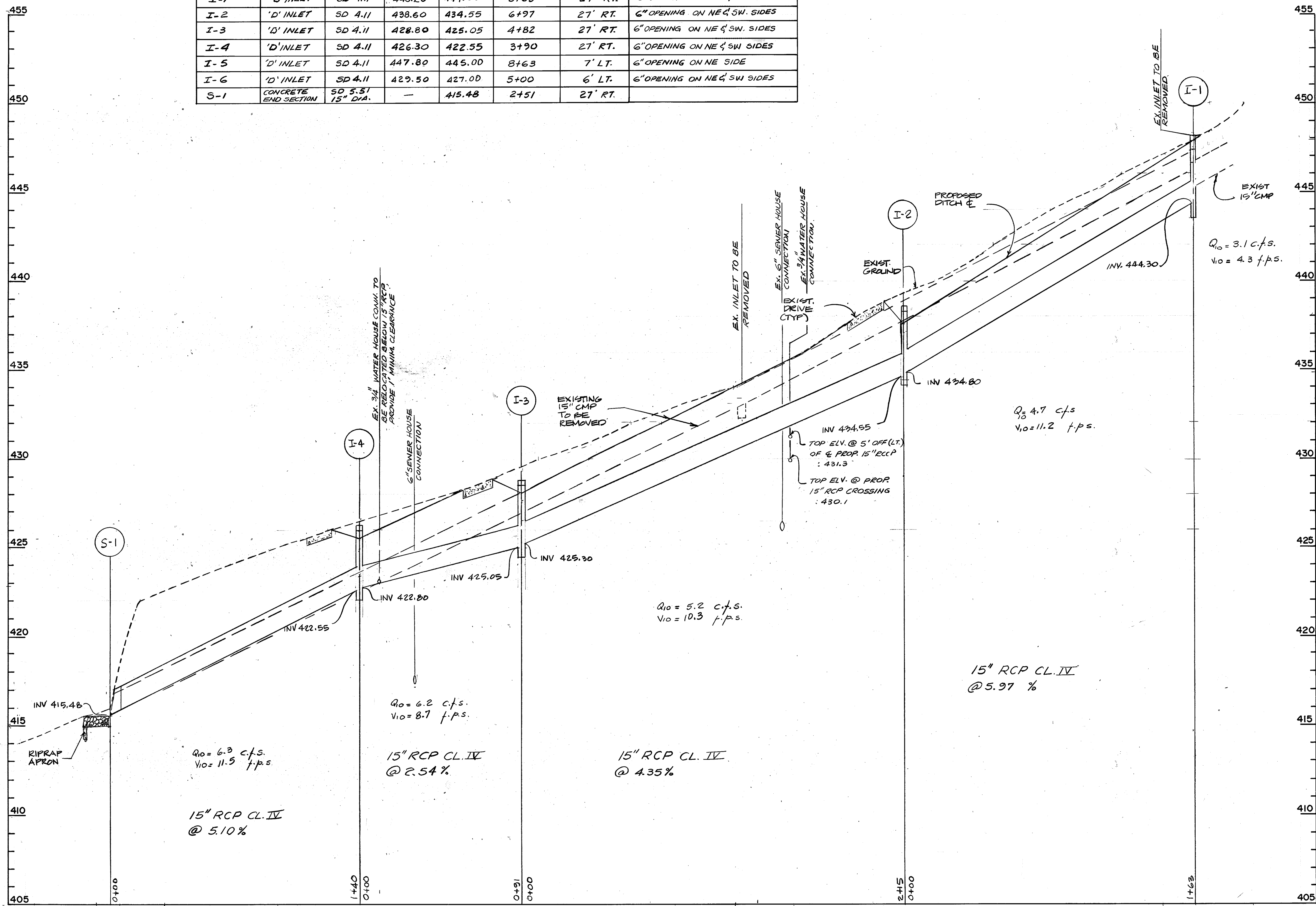
**PLAN AND DETAILS / EROSION & SEDIMENT CONTROL**  
**AVOCA AVENUE**

**DRAINAGE SYSTEM IMPROVEMENT PROGRAM**  
 CAPITAL PROJECT NO. D-1078 S.E.  
 HOWARD COUNTY, MARYLAND  
 CONTRACT NO. ELECTION DISTRICT 6

SCALE AS SHOWN  
 SHEET 2 OF 6

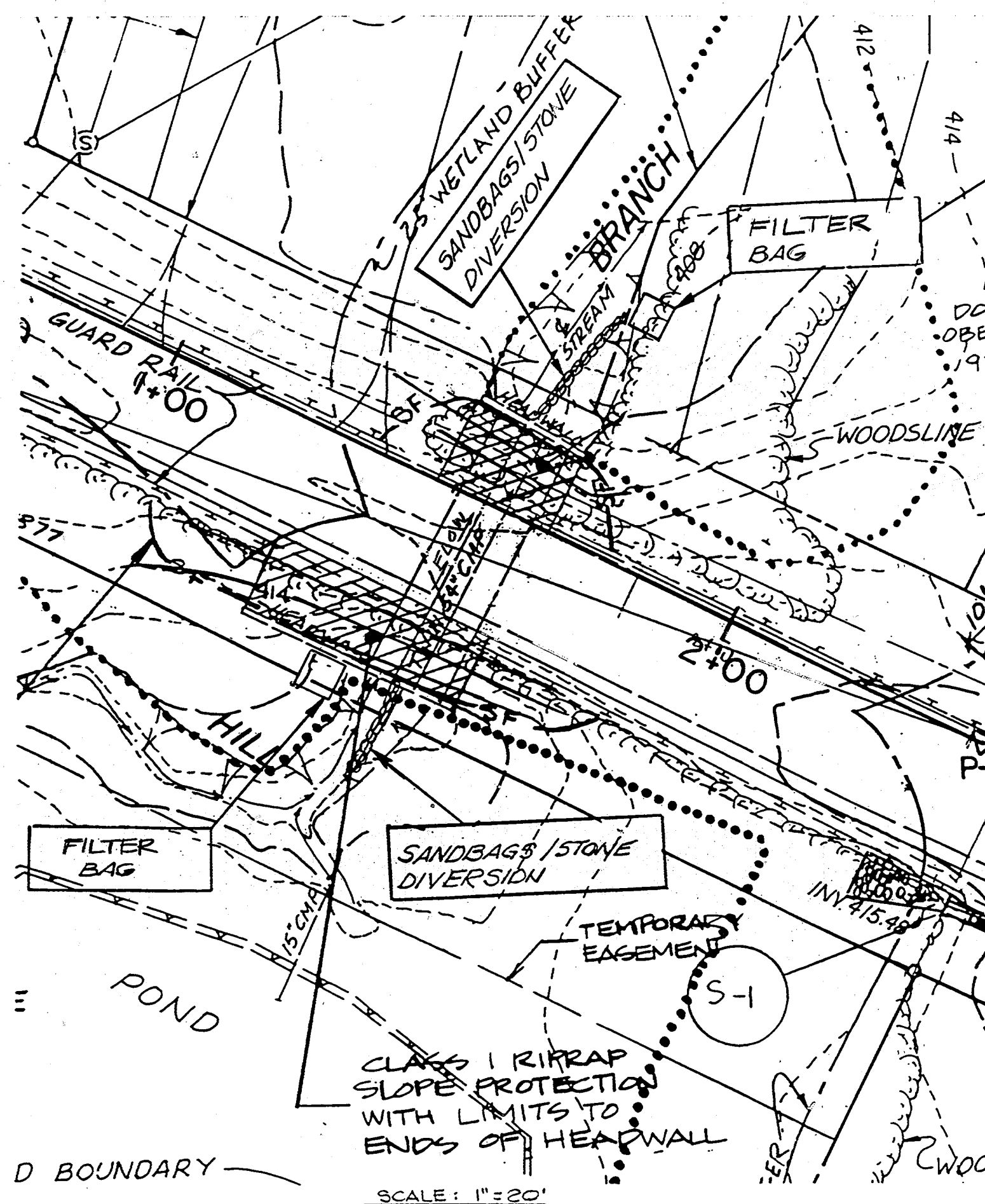


STRUCTURE NO.	TYPE	STANDARD DETAIL	TOP OF COVER	INVERT OUT	LOCATION		REMARKS
					STATION	OFFSET	
I-1	'D' INLET	SD 4.11	448.20	444.30	8+63	27' RT.	6" OPENING ON NE & SE SIDES
I-2	'D' INLET	SD 4.11	438.60	434.55	6+97	27' RT.	6" OPENING ON NE & SW SIDES
I-3	'D' INLET	SD 4.11	428.80	425.05	4+82	27' RT.	6" OPENING ON NE & SW SIDES
I-4	'D' INLET	SD 4.11	426.30	422.55	3+90	27' RT.	6" OPENING ON NE & SW SIDES
I-5	'D' INLET	SD 4.11	447.80	445.00	8+63	7' LT.	6" OPENING ON NE SIDE
I-6	'D' INLET	SD 4.11	429.50	427.00	5+00	6' LT.	6" OPENING ON NE & SW SIDES
S-1	CONCRETE END SECTION	SD 5.31 15" DIA.	-	415.48	2+51	27' RT.	



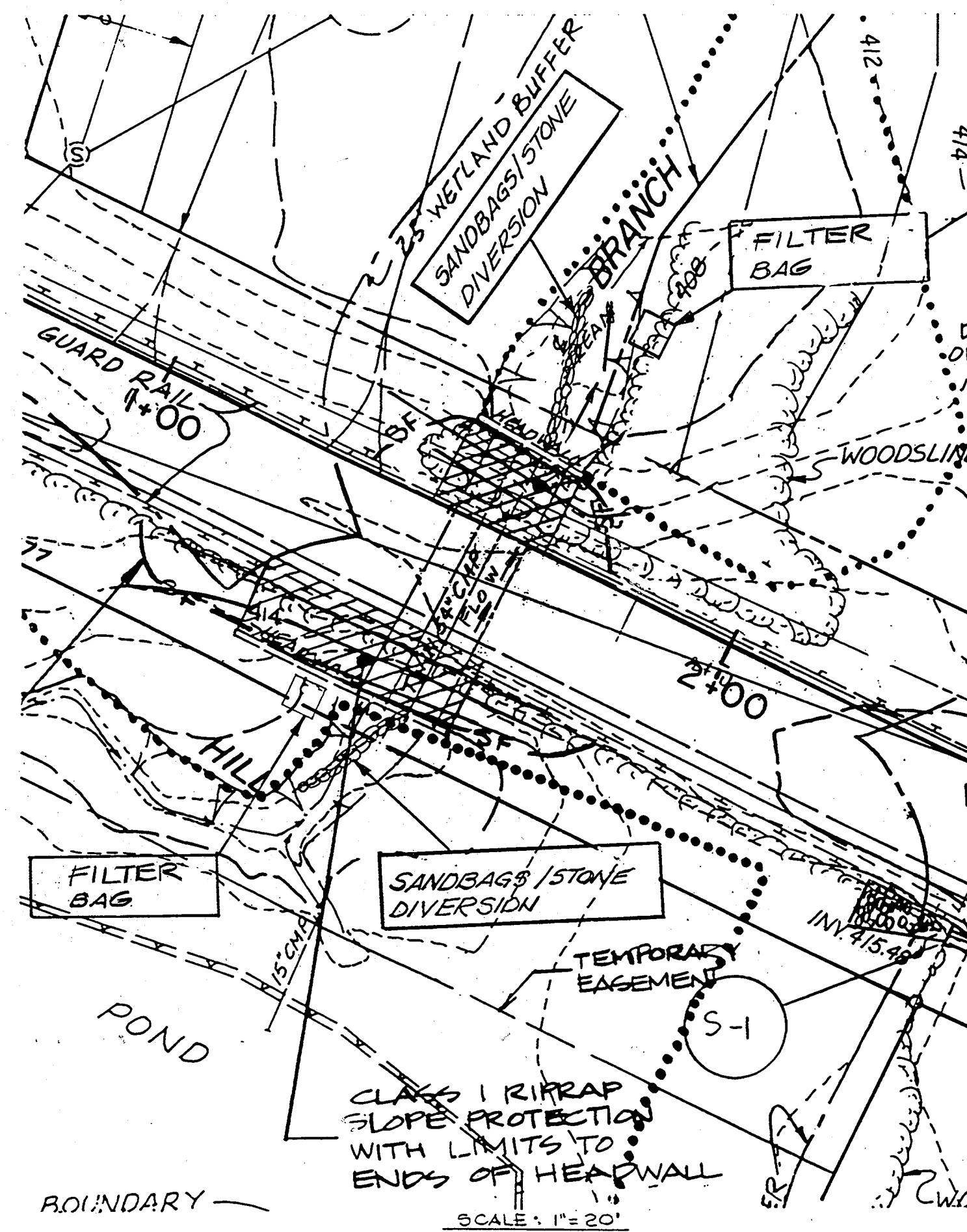
STORM DRAIN PROFILES  
SCALE: HOR. 1"=30'  
VER. 1"=3'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>[Signature]</i> 9/20/95 Chief, Bureau of Highways: <i>[Signature]</i> 9-15-95	EBA ENGINEERING, INC. 5800 METRO DRIVE BALTIMORE, MARYLAND 21215 (301) 358-7171		DES: GF			PROFILE AVOCA AVENUE	DRAINAGE SYSTEM IMPROVEMENT PROGRAM CAPITAL PROJECT NO. D-1078 S.E. HOWARD COUNTY, MARYLAND CONTRACT NO. ELECTION DISTRICT 6	SCALE AS SHOWN	
			DRN: AQS					SHEET 3 OF 6	
			CHK: L.C.						
			DATE: 6/06/95	BY: _____	NO. _____	REVISION _____	DATE _____	600' SCALE MAP NO. _____	BLOCK NO. _____



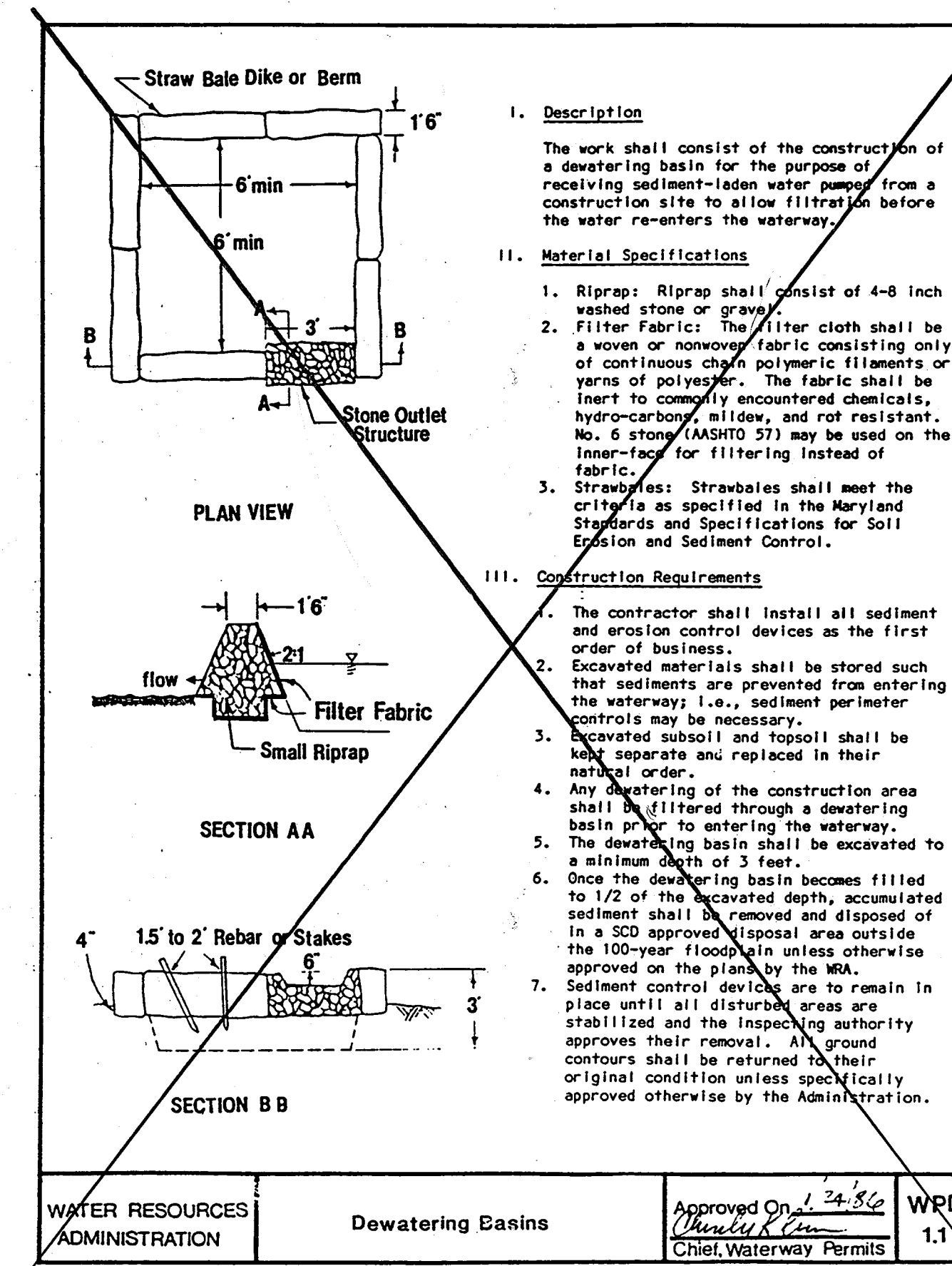
**FLOW DIVERSION - PHASE I**

1. Install Sandbags/stone diversion and dewatering basin according to plan and details on this sheet. Obtain approval from Erosion/Sediment Control Inspector.
2. Perform all proposed work on the headwalls and side slopes at the right side of the sandbag/stone diversion according to plan and details on sheet 2 of 6.



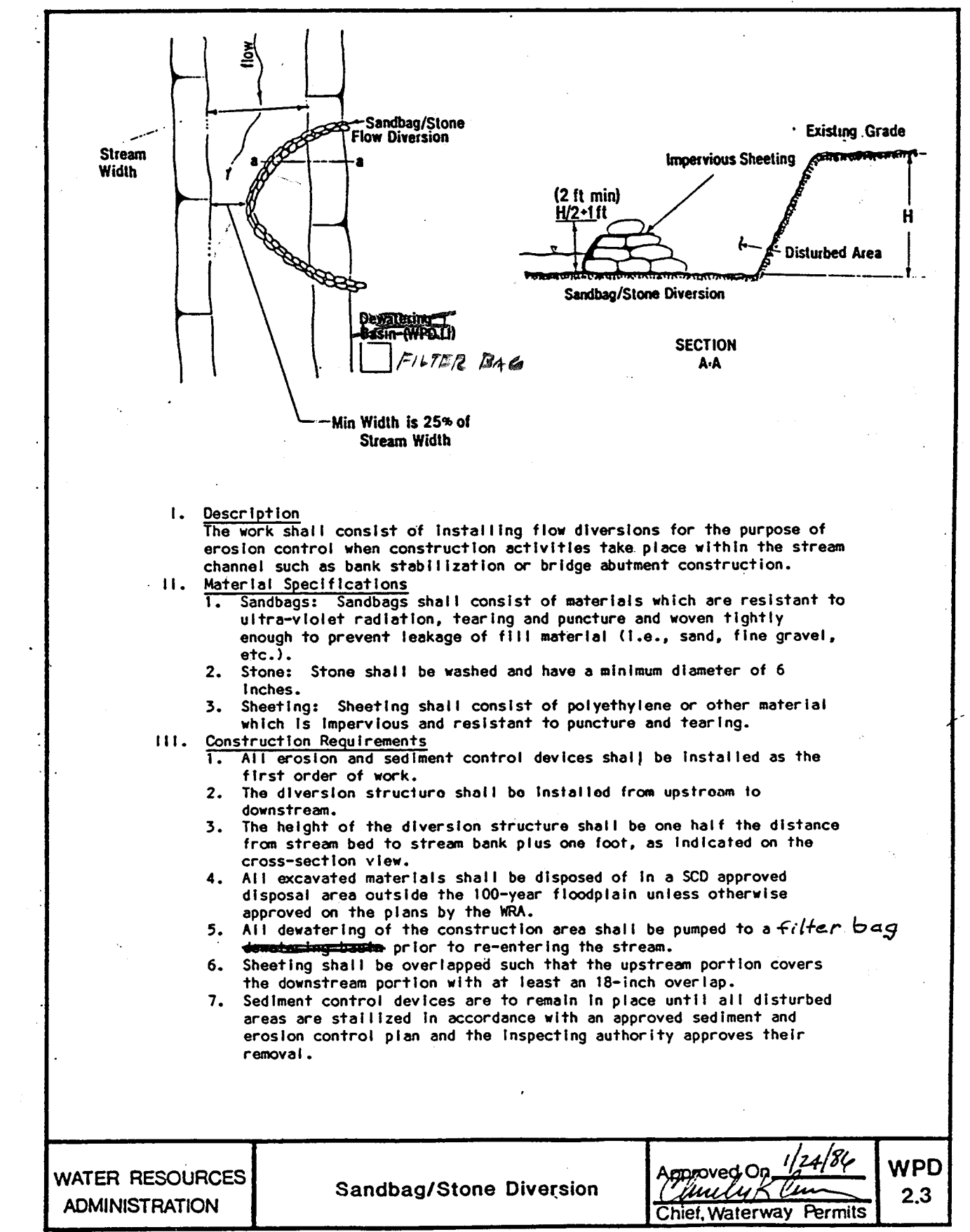
**FLOW DIVERSION - PHASE II**

1. Install Sandbags/stone diversion and dewatering basin according to plan and details on this sheet. Obtain approval from Erosion/Sediment Control Inspector.
2. Perform all proposed work on the headwalls at left side of sandbags/stone diversion according to plan and details on sheet 2 of 6.
3. At end of work and with the inspector's permission, remove sandbag/stone diversion and dewatering basin, regrade to meet original ground.



- I. Description**  
The work shall consist of the construction of a dewatering basin for the purpose of receiving sediment-laden water pumped from a construction site to allow filtration before the water re-enters the waterway.
- II. Material Specifications**
1. Riprap: Riprap shall consist of 4-8 inch washed stone or gravel.
  2. Filter Fabric: The filter cloth shall be a woven or nonwoven fabric consisting of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, and rot resistant. No. 5 stone (MSHTD 57) may be used on the inner-face for filtering instead of fabric.
  3. Strawbales: Strawbales shall meet the criteria as specified in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- III. Construction Requirements**
1. The contractor shall install all sediment and erosion control devices as the first order of business.
  2. Excavated materials shall be stored such that sediments are prevented from entering the waterway; i.e., sediment perimeter controls may be necessary.
  3. Excavated subsoil and topsoil shall be kept separate and replaced in their natural order.
  4. Any dewatering of the construction area shall be filtered through a dewatering basin prior to entering the waterway.
  5. The dewatering basin shall be excavated to a minimum depth of 3 feet.
  6. Once the dewatering basin becomes filled to 1/2 of the excavated depth, accumulated sediment shall be removed and disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MDA.
  7. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal. All ground contours shall be returned to their original condition unless specifically approved otherwise by the Administration.

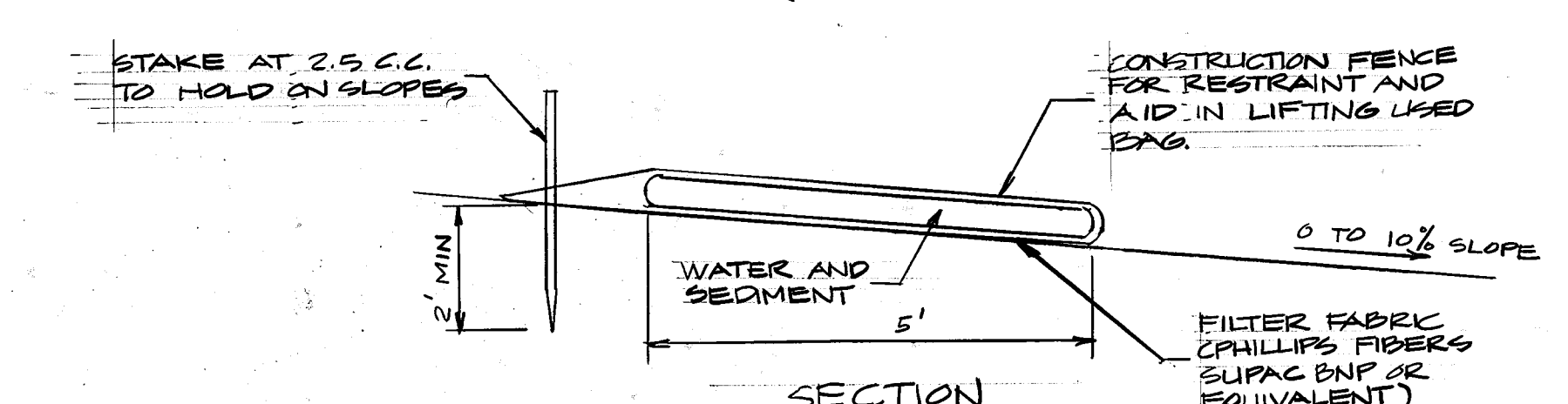
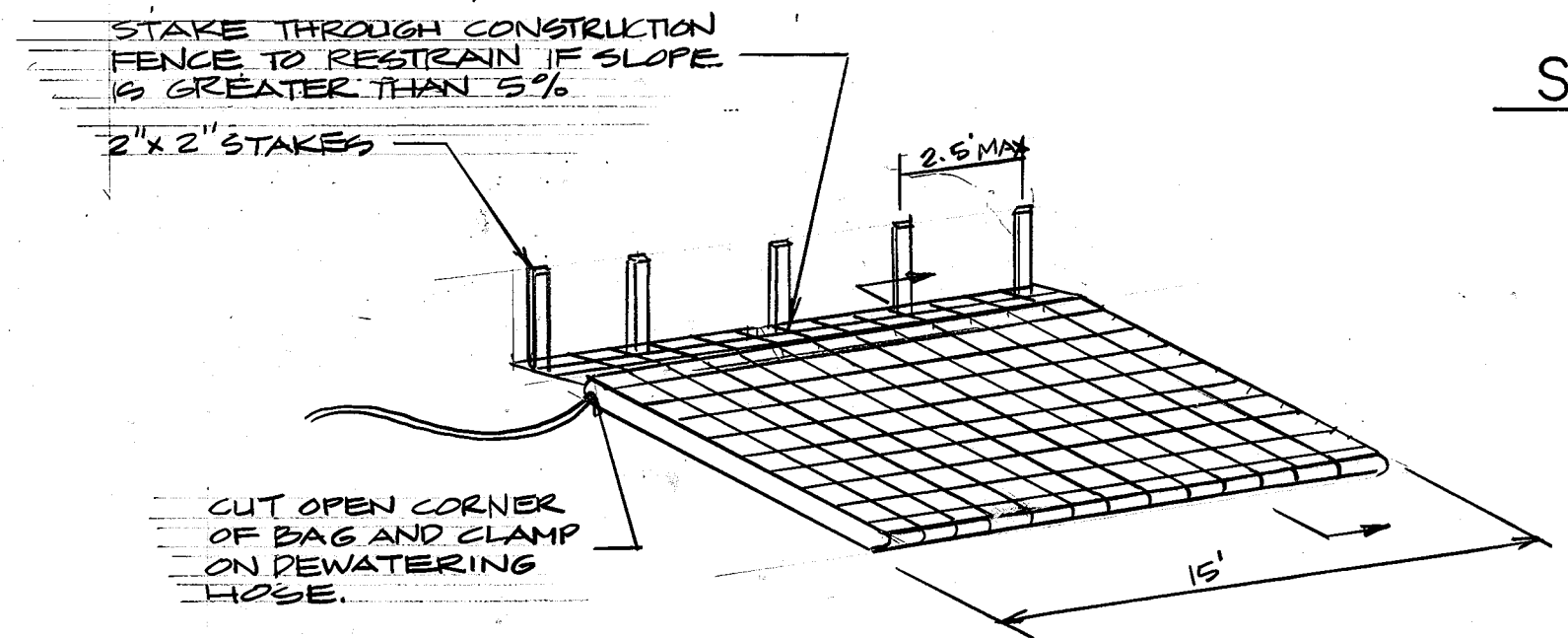
WATER RESOURCES ADMINISTRATION	Dewatering Basins	Approved On: 12/24/86 Chief, Waterway Permits	WPD 1.1
--------------------------------	-------------------	--	---------



- I. Description**  
The work shall consist of installing flow diversions for the purpose of erosion control when construction activities take place within the stream channel such as bank stabilization or bridge abutment construction.
- II. Material Specifications**
1. Sandbags: Sandbags shall consist of materials which are resistant to ultra-violet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
  2. Stone: Stone shall be washed and have a minimum diameter of 6 inches.
  3. Sheetting: Sheetting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
- III. Construction Requirements**
1. All erosion and sediment control devices shall be installed as the first order of work.
  2. The diversion structure shall be installed from upstream to downstream.
  3. The height of the diversion structure shall be one half the distance from stream bed to stream bank plus one foot, as indicated on the cross-section view.
  4. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MDA.
  5. All dewatering of the construction area shall be pumped to a filter bag prior to re-entering the stream.
  6. Sheetting shall be overlapped such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
  7. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION	Sandbag/Stone Diversion	Approved On: 1/24/86 Chief, Waterway Permits	WPD 2.3
--------------------------------	-------------------------	---	---------

**SANDBAGS/STONE DIVERSION DETAIL**



- NOTES:**
1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
  2. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
  3. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
  4. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.
- MINIMUM PUMP CAPACITY: 25 GPM

**FILTER BAG**

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

James J. [Signature] 9/20/95  
DIRECTOR OF PUBLIC WORKS DATE

Andrew M. [Signature] 9-15-95  
CHIEF, BUREAU OF HIGHWAYS DATE

[Signature] 9/13/95  
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 9/13/95  
CHIEF, DIVISION OF TRANSPORTATION PROJ. AND WATERSHED MANAGEMENT DATE

EBA ENGINEERING, INC.  
5800 METRO DRIVE  
BALTIMORE, MARYLAND 21215  
(410) 358-7171

STATE OF MARYLAND  
PROFESSIONAL ENGINEER

DES: L.C.					
DRN: JDP					
CHK: L.C.					
DATE: 6/06/95	BY NO.	REVISION	DATE	600' SCALE MAP NO.	BLOCK NO.

AVOCA AVENUE

DRAINAGE SYSTEM IMPROVEMENT PROGRAM  
CAPITAL PROJECT No. D-1078 S.E.  
HOWARD COUNTY, MARYLAND  
CONTRACT No.  
ELECTION DISTRICT No. 6

NO SCALE  
SHEET 4 OF 6

D0280-04



**NOTES**

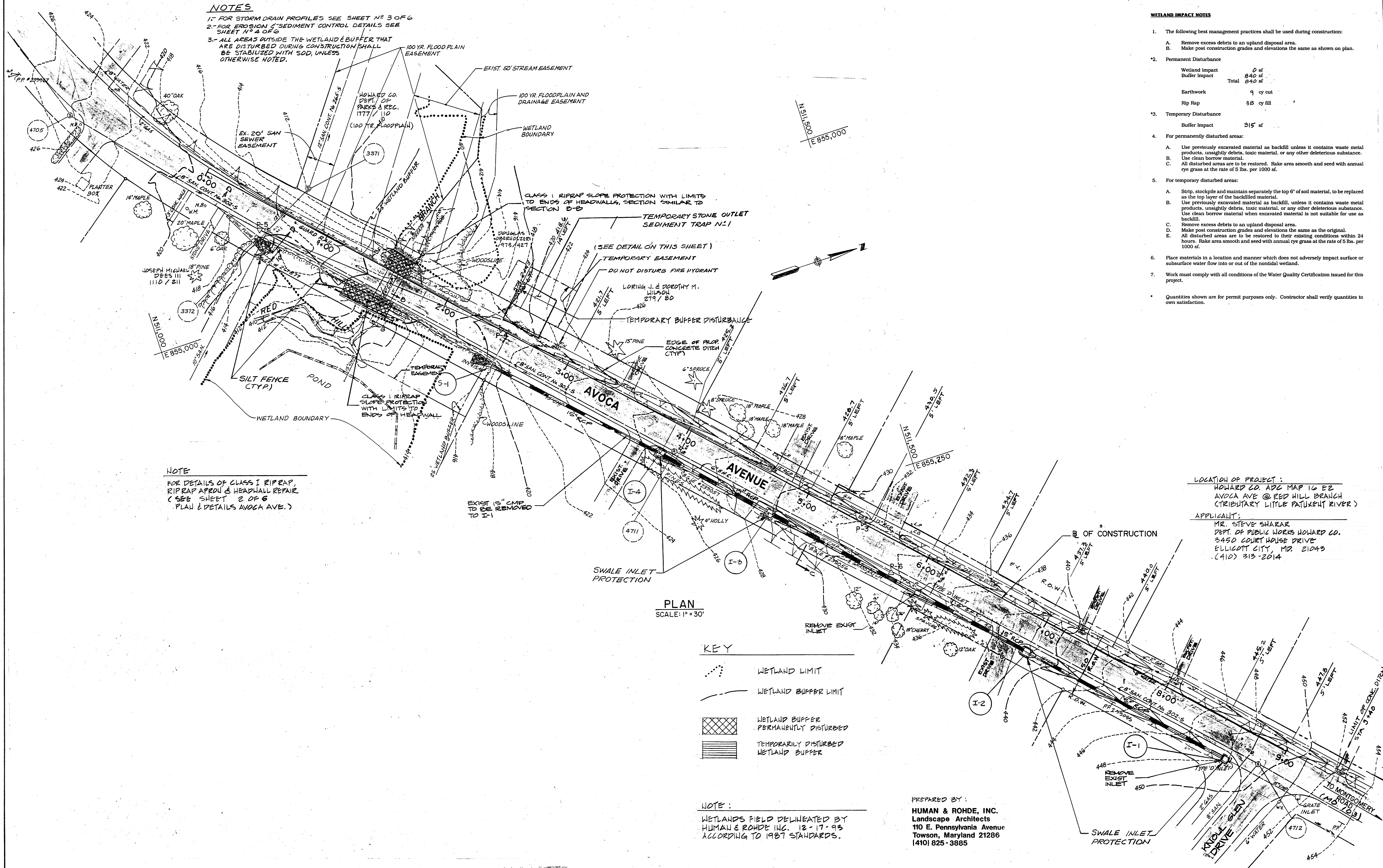
1. FOR STORM DRAIN PROFILES SEE SHEET NO. 3 OF 6
2. FOR EROSION & SEDIMENT CONTROL DETAILS SEE SHEET NO. 4 OF 6
3. ALL AREAS OUTSIDE THE WETLAND & BUFFER THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED WITH SOD, UNLESS OTHERWISE NOTED.

**WETLAND IMPACT NOTES**

1. The following best management practices shall be used during construction:
    - A. Remove excess debris to an upland disposal area.
    - B. Make post construction grades and elevations the same as shown on plan.
  2. Permanent Disturbance
 

Wetland Impact	0 sf
Buffer Impact	840 sf
<b>Total</b>	<b>840 sf</b>
Earthwork	9 cy cut
Rip Rap	38 cy fill
  3. Temporary Disturbance
 

Buffer Impact	315 sf
---------------	--------
  4. For permanently disturbed areas:
    - A. Use previously excavated material as backfill unless it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance.
    - B. Use clean borrow material.
    - C. All disturbed areas are to be restored. Rake area smooth and seed with annual rye grass at the rate of 5 lbs. per 1000 sf.
  5. For temporary disturbed areas:
    - A. Strip, stockpile and maintain separately the top 6" of soil material, to be replaced as the top layer of the backfilled material.
    - B. Use previously excavated material as backfill, unless it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. Use clean borrow material when excavated material is not suitable for use as backfill.
    - C. Remove excess debris to an upland disposal area.
    - D. Make post construction grades and elevations the same as the original.
    - E. All disturbed areas are to be restored to their existing conditions within 24 hours. Rake area smooth and seed with annual rye grass at the rate of 5 lbs. per 1000 sf.
  6. Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of the non tidal wetland.
  7. Work must comply with all conditions of the Water Quality Certification issued for this project.
- \* Quantities shown are for permit purposes only. Contractor shall verify quantities to own satisfaction.

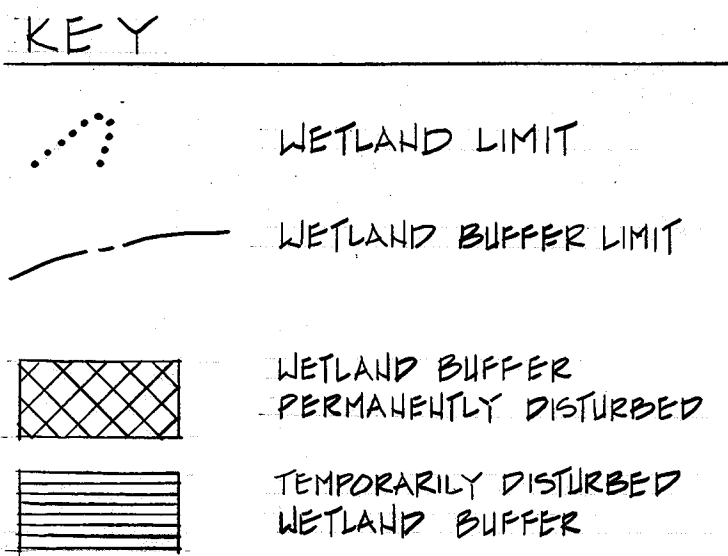


**NOTE**  
 FOR DETAILS OF CLASS I RIPRAP, RIPRAP APPROX & HEADWALL REPAIR (SEE SHEET 2 OF 6 PLAN & DETAILS AVOCA AVE.)

**LOCATION OF PROJECT:**  
 HOWARD CO. APC MAP 16 E2  
 AVOCA AVE @ RED HILL BRANCH  
 (TRIBUTARY LITTLE PATUXENT RIVER)

**APPLICANT:**  
 MR. STEVE SHARAR  
 DEPT. OF PUBLIC WORKS HOWARD CO.  
 3450 COURT HOUSE DRIVE  
 ELLICOTT CITY, MD 21043  
 (410) 313-2014

**PLAN**  
 SCALE: 1" = 30'



**NOTE:**  
 WETLANDS FIELD DELINEATED BY HUMAN & ROHDE INC. 12-17-93 ACCORDING TO 1987 STANDARDS.

PREPARED BY:  
**HUMAN & ROHDE, INC.**  
 Landscape Architects  
 110 E. Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 825-3885

**DEPARTMENT OF PUBLIC WORKS**  
 HOWARD COUNTY, MARYLAND

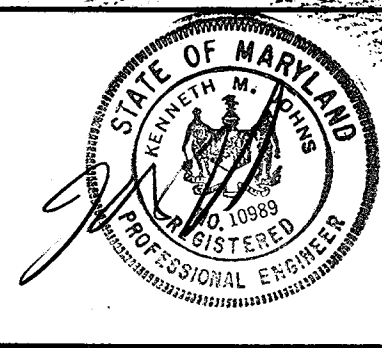
*James P. ...* 9/20/95  
 DIRECTOR OF PUBLIC WORKS DATE

*...* 9/15/95  
 CHIEF, BUREAU OF HIGHWAYS DATE

*...* 9/13/95  
 CHIEF, BUREAU OF ENGINEERING DATE

*...* 9/13/95  
 CHIEF, DIVISION OF TRANSPORTATION  
 PROJ. AND WATERSHED MANAGEMENT DATE

**EBA ENGINEERING, INC.**  
 5800 METRO DRIVE  
 BALTIMORE, MARYLAND 21215  
 (301) 358-7171



DES: G.F.				
DRN: G.F.				
CHK: L.C.				
DATE: 6/06/95	BY:	NO.	REVISION	DATE

**WETLAND IMPACTS PLAN**  
 DATE 2-21-94  
**AVOCA AVENUE**

600' SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

**DRAINAGE SYSTEM IMPROVEMENT PROGRAM**  
 CAPITAL PROJECT NO. D-1078 S.E.  
 HOWARD COUNTY, MARYLAND  
 CONTRACT NO. \_\_\_\_\_  
 ELECTION DISTRICT 6

SCALE AS SHOWN

SHEET 5 OF 6



**GENERAL NOTES FOR SEDIMENT & EROSION CONTROL**

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (313-1855).
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 MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
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 CONTROL 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 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (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: ( FOR EROSION AND SEDIMENT CONTROL ONLY, NOT FOR BIDDING )
 

TOTAL AREA OF SITE	1.0 AC.
AREA DISTURBED	0.42 AC.
AREA TO BE ROOFED OR PAVED	0.04 AC.
AREA TO BE VEGETATIVELY STABILIZED	0.36 AC.
TOTAL CUT	400 CU. YDS.
TOTAL FILL	400 CU. YDS.

 OFFSITE WASTE/BORROW AREA LOCATION \_\_\_\_\_ TO BE DETERMINED BY THE CONTRACTOR AND Location shall have an active Grading Permit
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY 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. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**TEMPORARY SEEDING SPECIFICATIONS**

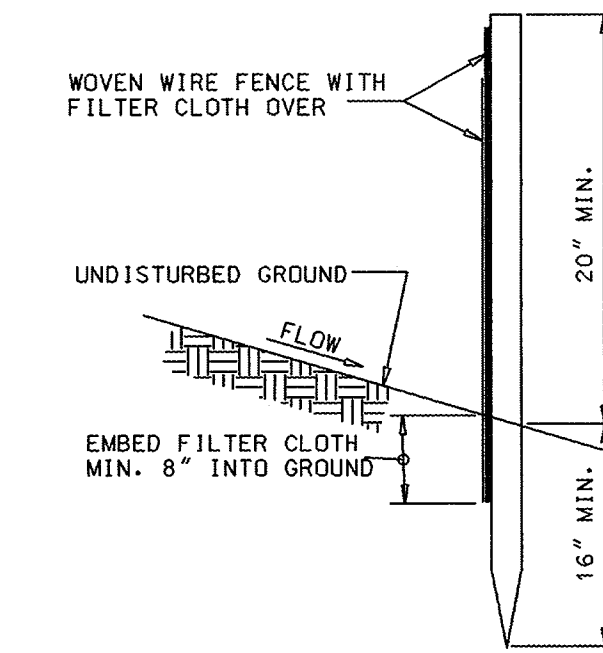
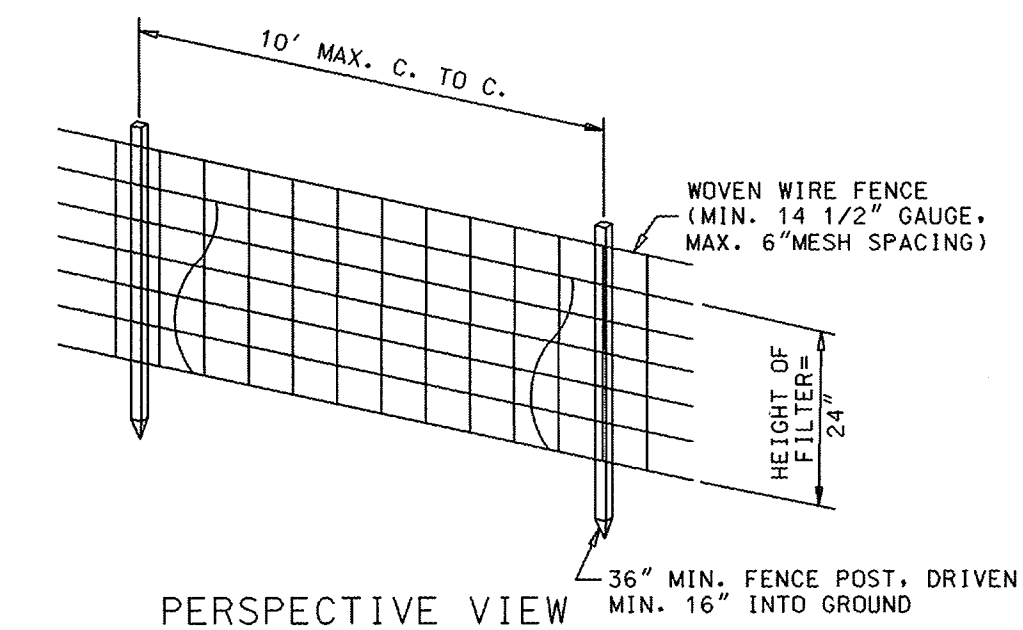
1. ALL DISTURBED AREAS - SHALL BE SEEDDED AND MULCHED
2. SEEDDED BED PREPARATION - THE TOP LAYER OF SOIL SHALL BE LOOSENEED BY DISCING OR RAKING (SHALL BE DONE ON CONTOUR) TO A DEPTH OF AT LEAST 3" BEFORE SEEDING OCCURS. APPLY TWO (2) TON PER ACRE OF LIME AND 1000 LBS. PER ACRE OF 10-10-10 FERTILIZER OR EQUIVALENT. THOROUGHLY MIX INTO SOIL TO A MINIMUM OF 3". APPLY 2" OF TOPSOIL.
3. SEEDING METHOD OF APPLICATION - APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
4. SEEDING - FOR THE PERIOD 2/1 - 4/30 AND 8/15 - 11/30 USE ITALIAN OR PERENNIAL RYEGRASS 40 LBS./ACRE OR .92 LBS./1000 SQ. FT. DURING THE PERIOD 5/1 - 8/14 USE MILLET 40 LBS./ACRE OR .92 LBS./1000 SQ. FT.
5. MULCHING - USE CLEAN, UNWEATHERED, UNCHOPPED SMALL GRAIN STRAW AT THE RATE OF 1 1/2 TO 2 TONS PER ACRE ANCHORED DOWN WITH CUTBACK ASPHALT AT THE RATE OF 5-8 GALLONS PER 1000 SQ. FT.
6. DISCING AND HARROWING - SHALL BE DONE ON CONTOUR.

**PERMANENT SEEDING SPECIFICATIONS**

1. ALL DISTURBED AREAS - SHALL BE SEEDDED AND MULCHED
2. SEEDDED BED PREPARATION - THE TOP LAYER OF SOIL SHALL BE LOOSENEED BY DISCING OR RAKING (SHALL BE DONE ON CONTOUR) TO A DEPTH OF AT LEAST 3" BEFORE SEEDING OCCURS. APPLY TWO (2) TON PER ACRE OF LIME AND 1000 LBS. PER ACRE OF 10-10-10 FERTILIZER OR EQUIVALENT. THOROUGHLY MIX INTO SOIL TO A MINIMUM OF 3".
3. SEEDING METHOD OF APPLICATION - APPLY SEED UNIFORMLY WITH A CYCLONE SEED DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
4. SEEDING - USE 50% KENTUCKY BLUEGRASS, 40% PENNLAWN CREEPING RED FESCUE AND 10% OF RED TOP AT THE RATE OF 90 LBS. PER ACRE. PERMANENT SEEDING TO BE DONE ONLY DURING THE PERIOD OF 2/1 TO 4/30 AND 8/15 TO 10/31.
5. MULCHING - USE CLEAN, UNWEATHERED, UNCHOPPED SMALL GRAIN STRAW AT THE RATE OF 1 1/2 TO 2 TONS PER ACRE ANCHORED DOWN WITH CUTBACK ASPHALT AT THE RATE OF 5-8 GALLONS PER 1000 SQ. FT.

**SODDING**

CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED, OR MARYLAND OR VIRGINIA STATE APPROVED SOD. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD SHALL BE LAID ON SOIL PREPARED IN ACCORDANCE WITH NOTE 2 PERMANENT SEEDING. SOD IS TO BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR WITH STAGGERED JOINTS WITH ALL ENDS TIGHTLY ABUTTING AND NOT OVERLAPPING. SOD SHALL BE ROLLED AND THOROUGHLY WATERED WITHIN EIGHT HOURS OF INSTALLATION. DAILY WATERING TO MAINTAIN 4 INCH DEPTH OF MOISTURE FOR THE FIRST WEEK IS REQUIRED IN THE ABSENCE OF RAINFALL. SOD IS NOT TO BE APPLIED ON FROZEN GROUND.

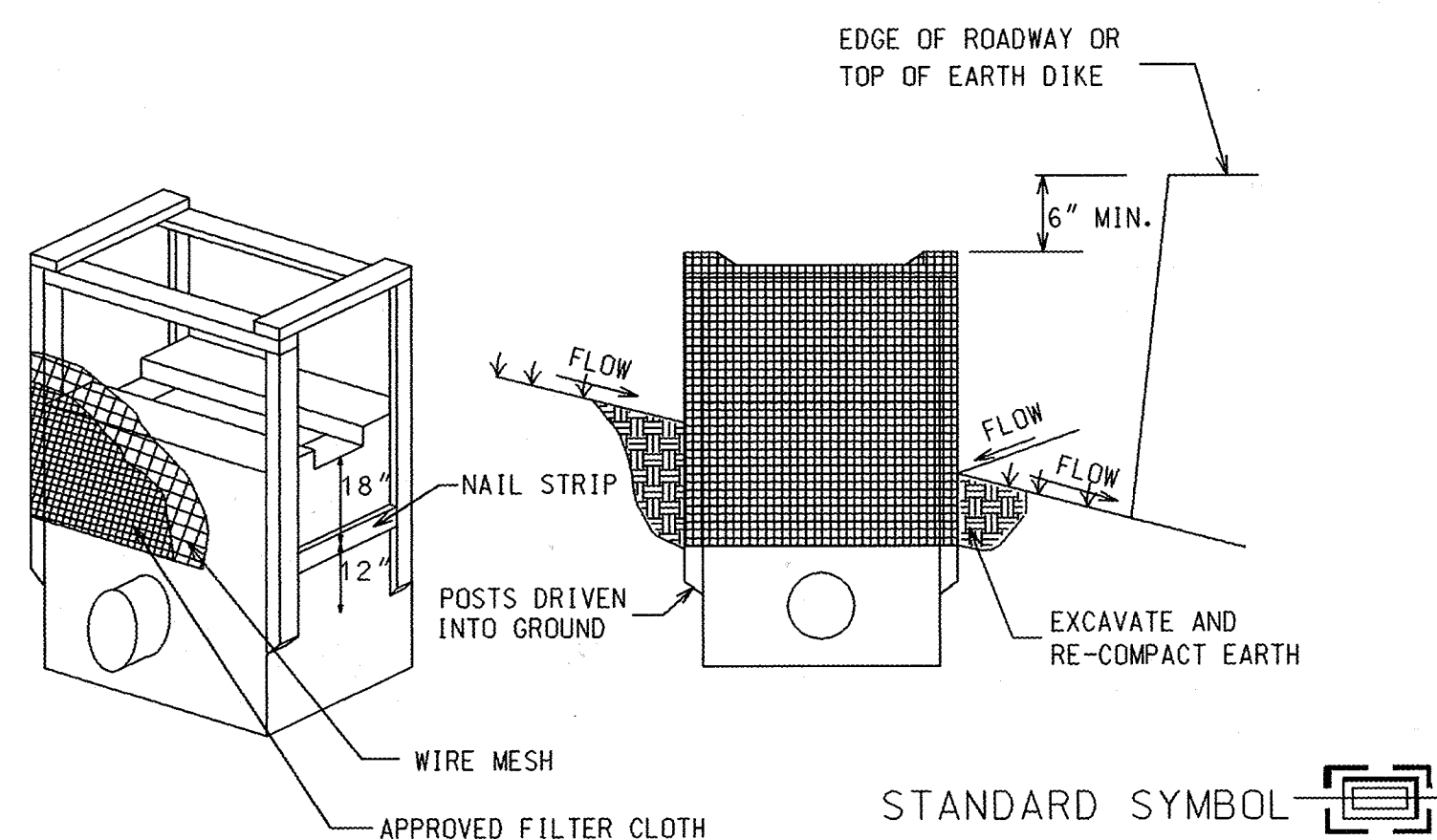


**CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND BOTTOM.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

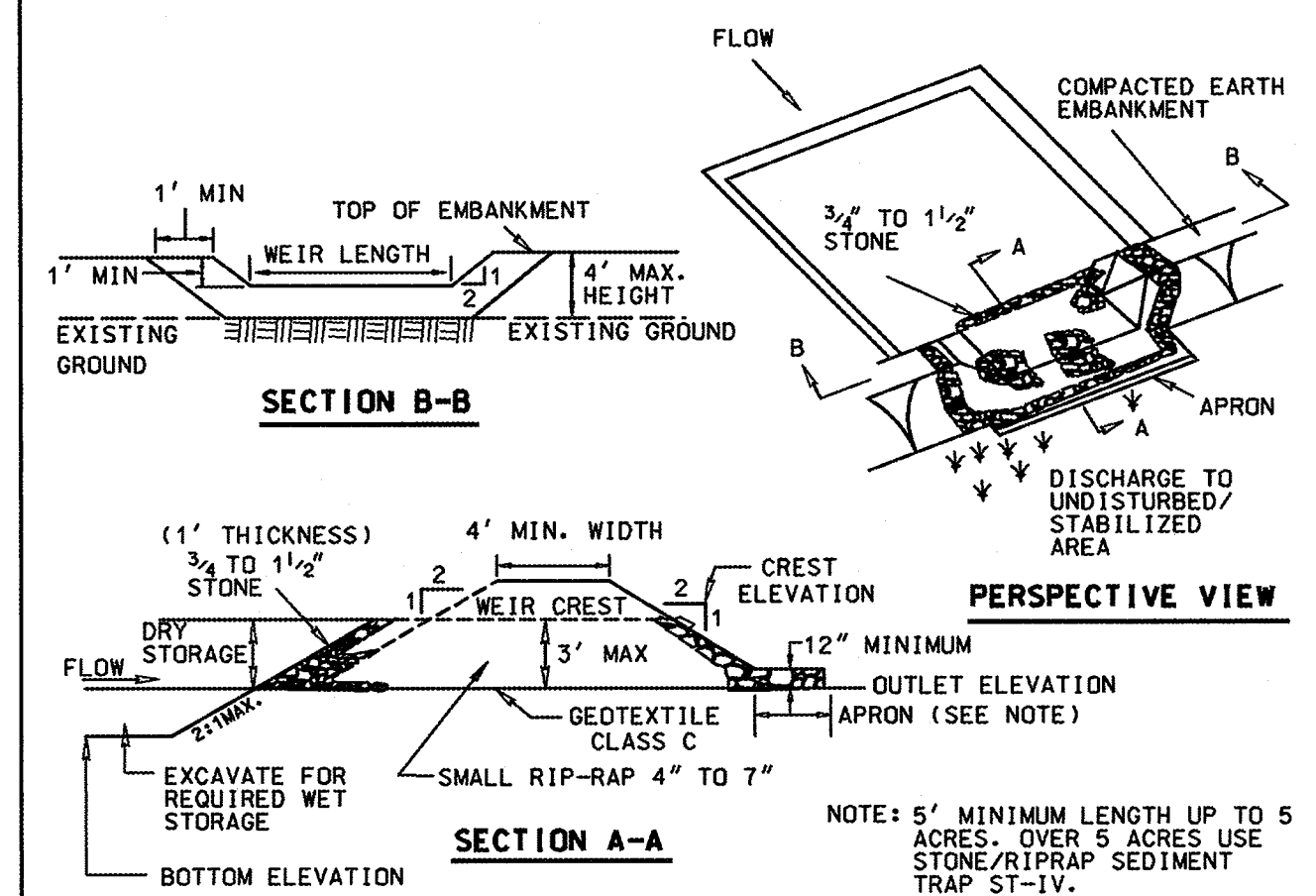
POSTS: STEEL (EITHER T OR U TYPE) OR 2" HARDWOOD  
 FENCE: WOVEN WIRE, 14 1/2 GAUGE, 6" MAX. MESH OPENING  
 FILTER CLOTH: FILTER X, MIRAF 100X, STABILINKA T140N OR APPROVED EQUAL  
 PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

**SILT FENCE**



**INLET PROTECTION**

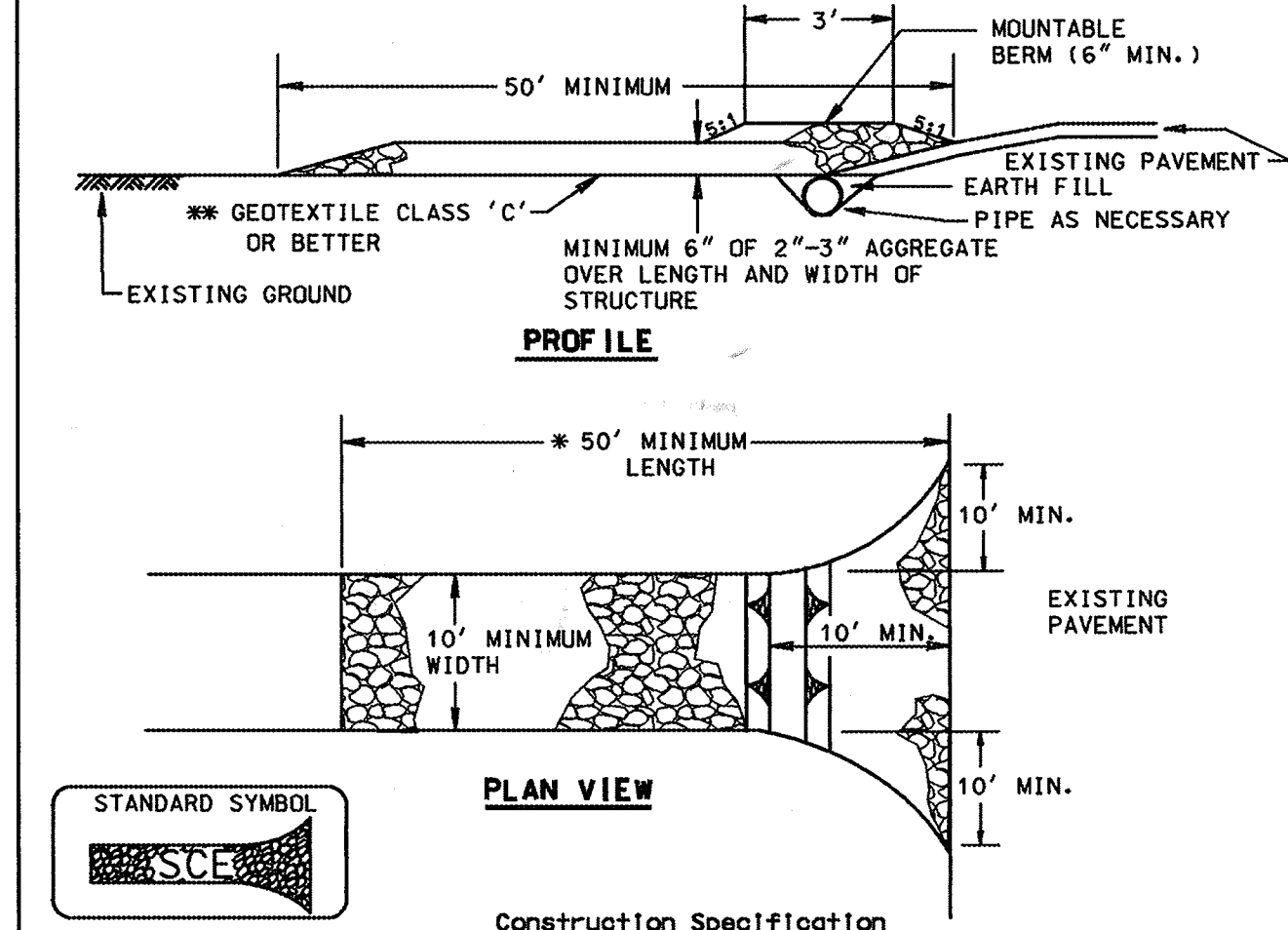
**DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST 11**



- Construction Specifications**
1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
  2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
  3. All out and fill slopes shall be 2:1 or flatter.
  4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 1 1/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
  5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C - 9 - 10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE**



- Construction Specification**
1. Length - minimum of 50' (#30' for single residence lot).
  2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.
  3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
  4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
  5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
  6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

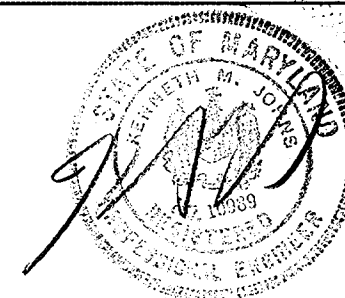
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F - 17 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

Director of Public Works  
 Date: 9/20/95  
 Chief, Bureau of Highways  
 Date: 9-15-95

Chief, Bureau of Engineering  
 Date: 9/13/95  
 Chief, Transportation Projects and Watershed Management  
 Date: 9/13/95

EBA ENGINEERING, INC.  
 5800 METRO DRIVE  
 BALTIMORE, MARYLAND 21215  
 (410) 358-7171



DES:	L.C.				
DRN:	AQS				
CHK:	L.C.				
DATE:	06/08/95	BY	NO.	REVISION	DATE

AVOCA AVENUE  
 EROSION AND SEDIMENT  
 CONTROL DETAILS

DRAINAGE SYSTEM IMPROVEMENT PROGRAM  
 CAPITAL PROJECT NO. D-1078 S.E.  
 HOWARD COUNTY, MARYLAND  
 CONTRACT NO.  
 ELECTION DISTRICT NO. 6

NO SCALE  
 SHEET 6 OF 6