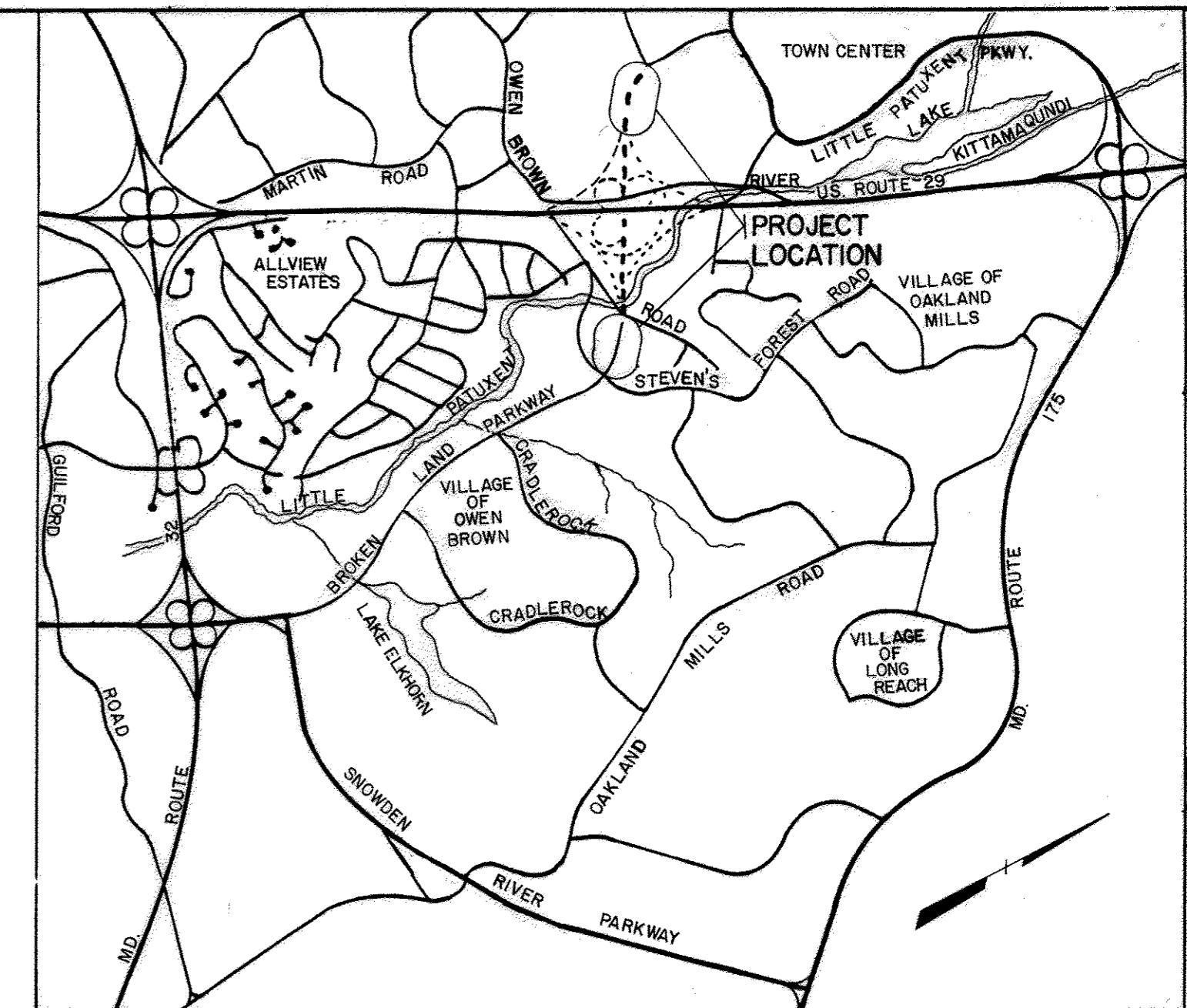


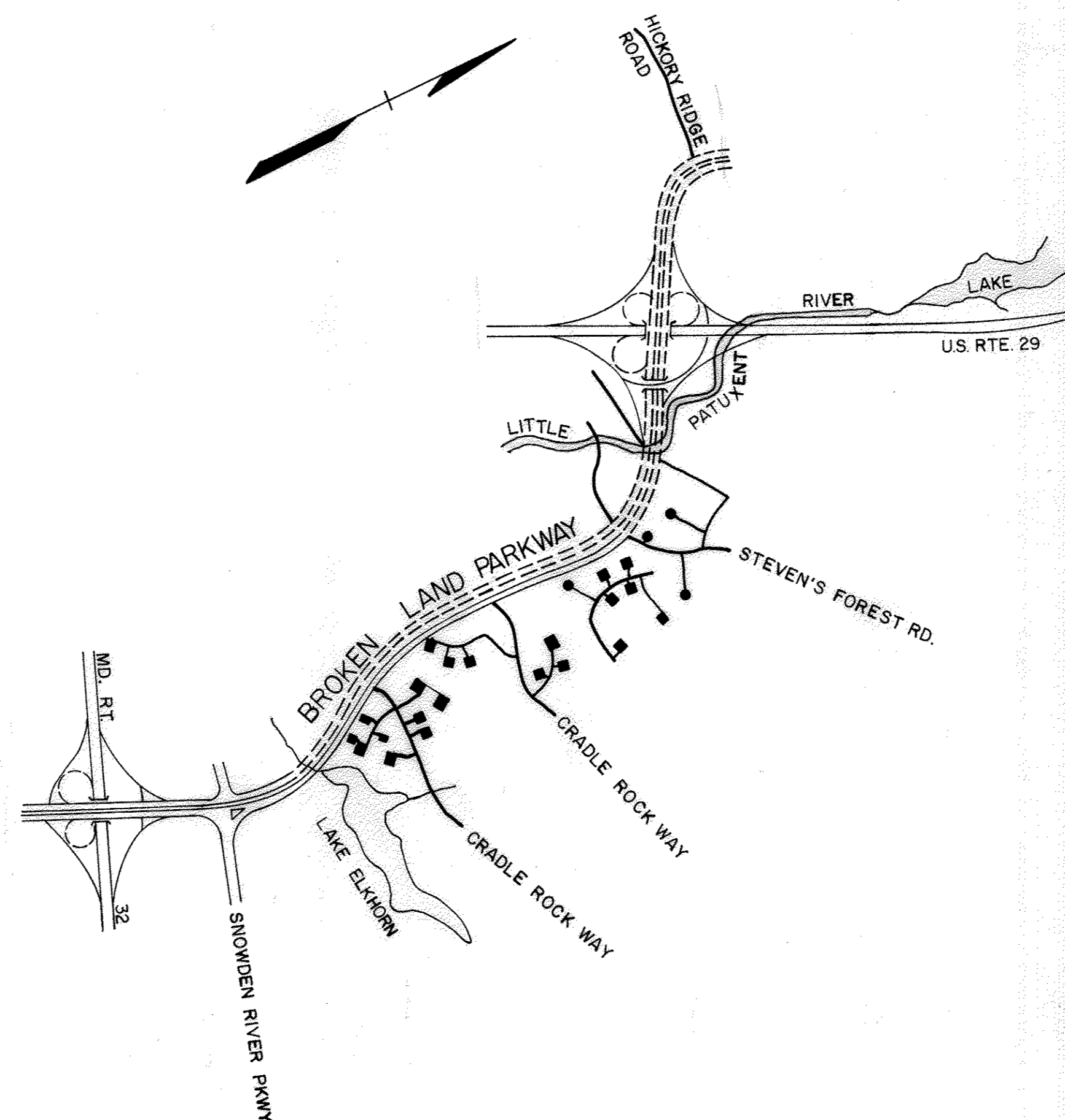
# BROKEN LAND PARKWAY

## 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3	TYPICAL SECTIONS AND DETAILS
4	ROADWAY PLAN AND PROFILE
5	ROADWAY PLAN AND PROFILE
6	STORM DRAIN PROFILES
7	STORM DRAIN PROFILES AND DETAILS
8	SEDIMENT CONTROL DETAILS
9	SEDIMENT CONTROL DETAILS
10	SEDIMENT CONTROL DETAILS
11	EROSION AND SEDIMENT CONTROL PLAN
12	EROSION AND SEDIMENT CONTROL PLAN
13	TEMPORARY STREAM DIVERSION
14	DRAINAGE AREA MAP
15	DRAINAGE AREA MAP
16	DRAINAGE AREA MAP
17	SIGNAL MODIFICATION PLAN BROKEN LAND PKWY/HICKORY RIDGE RD.
18	SIGNAL MODIFICATION PLAN BROKEN LAND PKWY/HICKORY RIDGE RD.



LOCATION PLAN

### GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV, "STANDARD DETAILS AND SPECIFICATIONS FOR CONSTRUCTION".
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES, WHERE DIRECTED BY THE ENGINEER, A MINIMUM OF TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS.
- CONTRACTOR TO NOTIFY "MISS UTILITY" PHONE (1) 539-0100 AT LEAST THREE (3) DAYS BEFORE STARTING WORK SHOWN ON THIS/THESE DRAWING (S).
- INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES 1988 REVISED EDITION.
- DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III STANDARDS. 50 MPH.
- ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM 1929.
- ALL COORDINATES BASED ON MARYLAND STATE GRID SYSTEM.
- CONTRACTOR TO RESTORE ALL EXISTING PAVING, SIDEWALKS OR LAWNS AFFECTED BY THE CONSTRUCTION SHOWN HEREON TO A CONDITION COMPARABLE TO THAT EXISTING PRIOR TO CONSTRUCTION.
- THE LOCATION AND LENGTHS OF ALL PROPOSED STORM DRAINS SHALL BE VERIFIED BY THE CONTRACTOR BEFORE ORDERING PIPE.
- STORM DRAIN PIPE BEDDING SHALL BE AS SHOWN ON HOWARD COUNTY STD. G-2.01.
- EXISTING TRAFFIC SIGNS THAT ARE REMOVED UNDER THIS CONTRACT SHALL BE SALVAGED AND TURNED OVER TO HOWARD COUNTY.
- THE LIMIT OF CLEARING AND GRUBBING FOR THIS CONTRACT WILL BE THE LIMITS OF THE EXCAVATION OR EMBANKMENT AS SHOWN ON THE PLANS OR THE LIMITS OF ANY DIKES, SWALES, SEDIMENT TRAPS ETC. REQUIRED FOR SEDIMENT CONTROL. THE CONTRACTOR SHALL NOT CUT ANY TREES BEYOND THESE LIMITS UNLESS APPROVED BY THE ENGINEER.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS PROVIDED BY FACILITIES CONSTRUCTED WITH S.H.A. CONTRACT NO. 630-501-770 AND WITH F-85-131.
- IT HAS BEEN DETERMINED THAT THE BROKEN LAND PARKWAY EXTENSIONS ON BOTH SIDES OF U.S. 29 ARE ESSENTIAL ROAD CROSSINGS OF THE EXISTING WETLANDS AND STREAM SYSTEMS AS SHOWN ON THESE PLANS. HOWEVER, THE DEVELOPER AND THEIR CONTRACTORS SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT AND SAFEGUARD THE EXISTING STREAMS, WETLANDS AND WOODLANDS THROUGH ALL PHASES OF GRADING, TREE REMOVAL AND ROAD CONSTRUCTION OF THE PROJECT.
- THE FOLLOWING PERMITS HAVE BEEN OBTAINED FOR THIS PROJECT:  
WATERWAY CONSTRUCTION PERMIT - NO. 90-WC-0908  
WATER QUALITY CERTIFICATION - NO. 90-WQ-0557  
U.S. CORPS OF ENGINEERS - REF. NO. 90-1564-3

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Alan M. Sangaman* 3/26/91  
CHIEF, LAND DEVELOPMENT DIVISION 00 DATE  
*Lawrence W. Welsch* 3/19/91  
CHIEF, BUREAU OF HIGHWAYS DATE  
*William E. Rahn* 3-26-91  
CHIEF, BUREAU OF ENGINEERING DATE

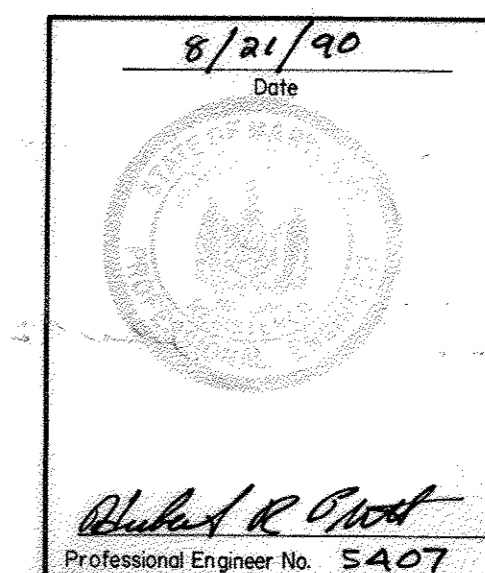
APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Frank J. J. ...* 7/1/91  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

PHOENIX ENGINEERING, INC.  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA BROKEN LAND PARKWAY

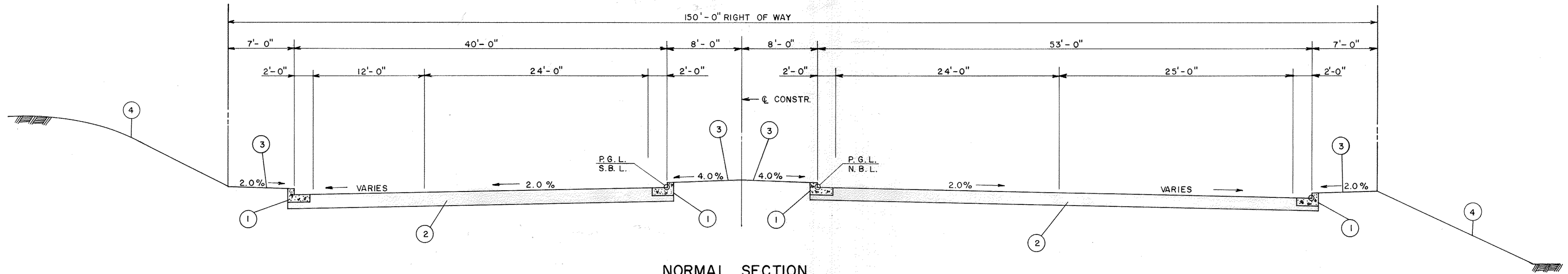
TITLE TITLE SHEET

Des By H.R.P.	Scale	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No.
Chk By S.P.	Approved	1 OF 12



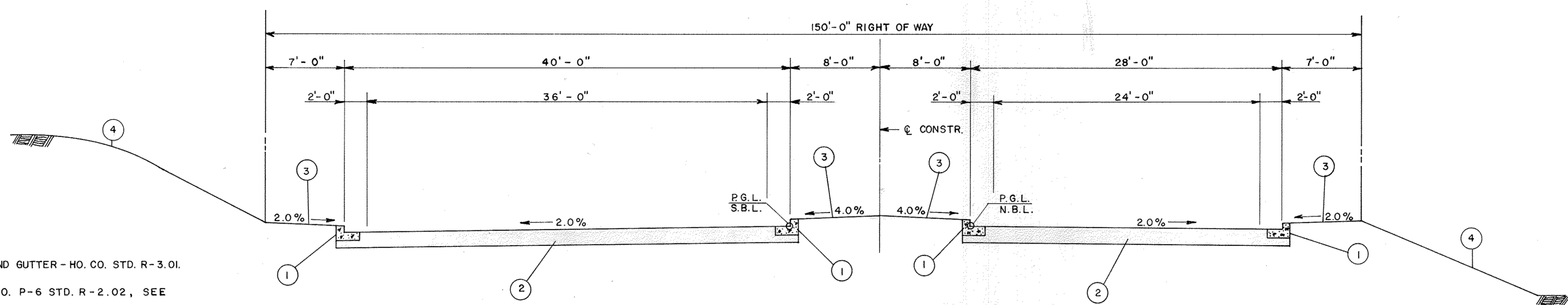
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DATE	BY	APP'R	REVISION
2-27-2017	gt	DEV.	Revised sheet Index
	BY	APP'R	



**NORMAL SECTION**

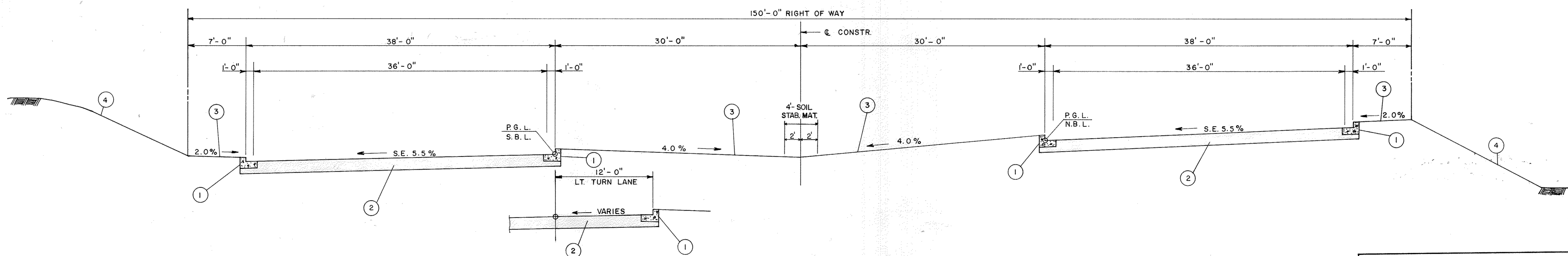
STA. 131+  
NOT TO SCALE



**NORMAL SECTION**

STA. 194+  
NOT TO SCALE

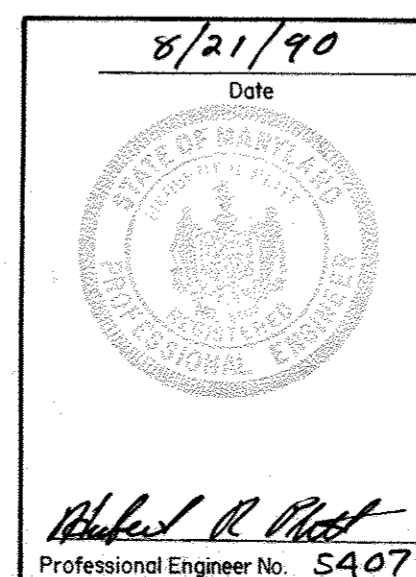
- LEGEND**
- ① - STANDARD 7" COMBINATION CURB AND GUTTER - HO. CO. STD. R-3.01.
  - ② - ROADWAY PAVING - HO. CO. SECTION NO. P-6 STD. R-2.02, SEE DETAIL - SHEET NO. 3
  - ③ - 4" TOPSOIL, SEEDING AND MULCHING.
  - ④ - 2" TOPSOIL, SEEDING AND MULCHING.
  - ⑤ - GUARD RAIL W BEAM - HO. CO. STD. R-7.01



**SUPERELEVATED SECTION**

STA. 187+  
NOT TO SCALE

TABLE 1		TABLE 2	
HEIGHT OF EMBANKMENT 'H'	SLOPE RATIO	DEPTH OF CUT 'D'	SLOPE RATIO
<5'	4:1	<5'	4:1
5' TO 10'	3:1	5' TO 10'	3:1
>10'	2:1	>10'	2:1



APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Chad M. Tangeman* 3/26/91  
CHIEF, LAND DEVELOPMENT DIVISION DATE  
*Dawnelle W. Welton* 3/19/91  
CHIEF, BUREAU OF HIGHWAYS DATE  
*Robert R. Platt* 3-26-91  
CHIEF, BUREAU OF ENGINEERING DATE  
APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Robert R. Platt* 4/1/91  
CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

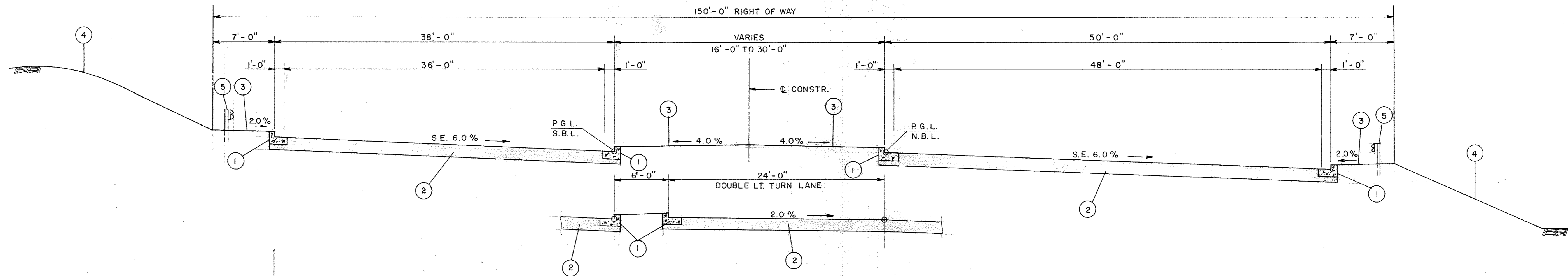
**PHOENIX ENGINEERING, INC.**  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA: **BROKEN LAND PARKWAY**

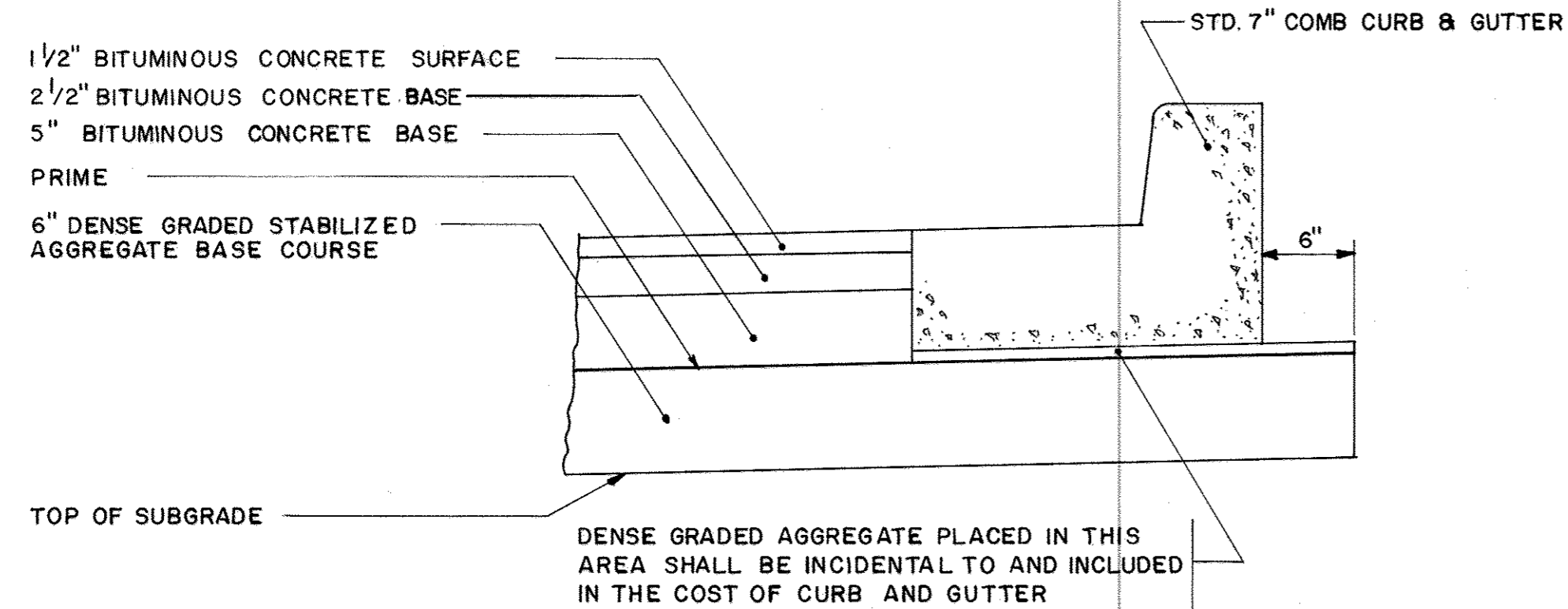
TITLE: **TYPICAL SECTIONS**

Des By: H.R.P.	Scale: AS SHOWN	Proj. No.: 89-0040
Drn By: J.W.B.	Date: JULY 1990	Drawing No.: 2 OF 12
Chk By: S.P.	Approved:	

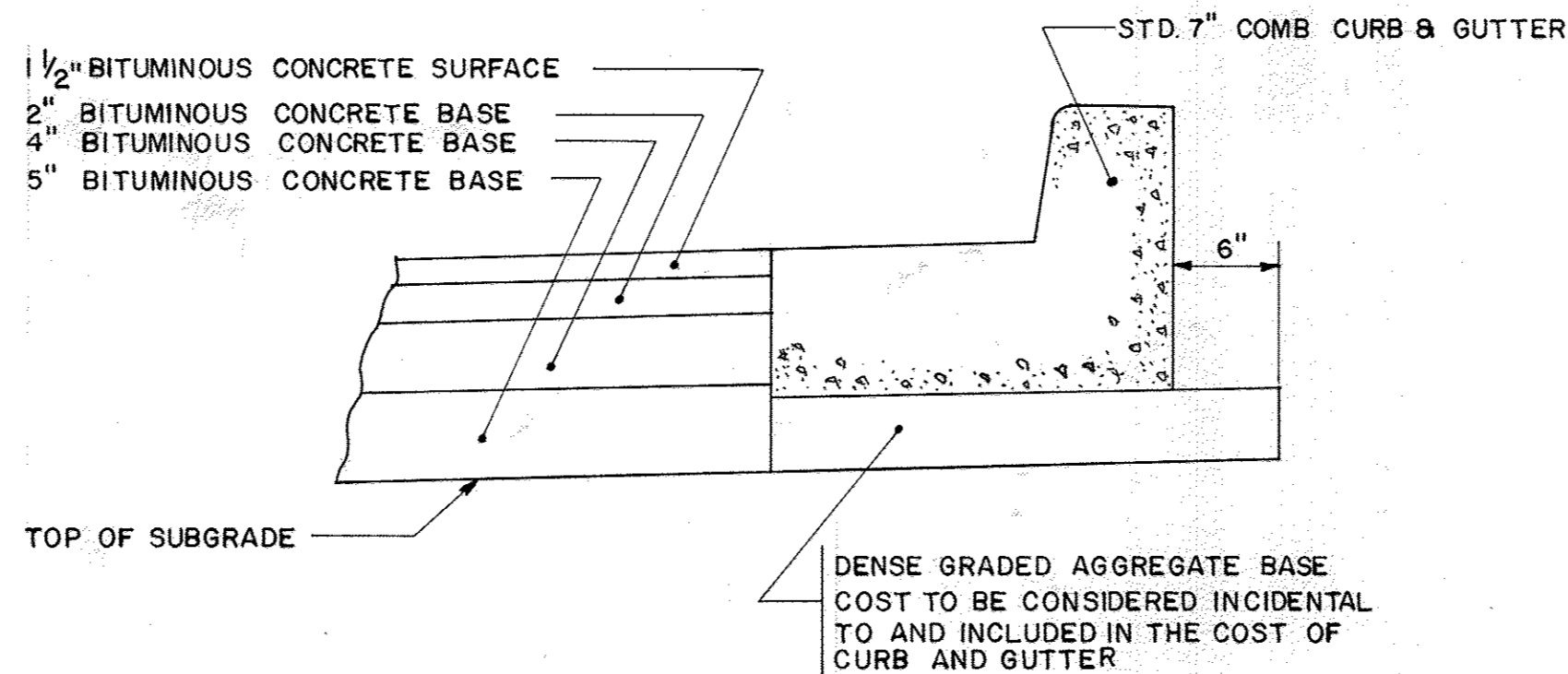
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**SUPERELEVATED SECTION**  
STA. 136 +  
NOT TO SCALE

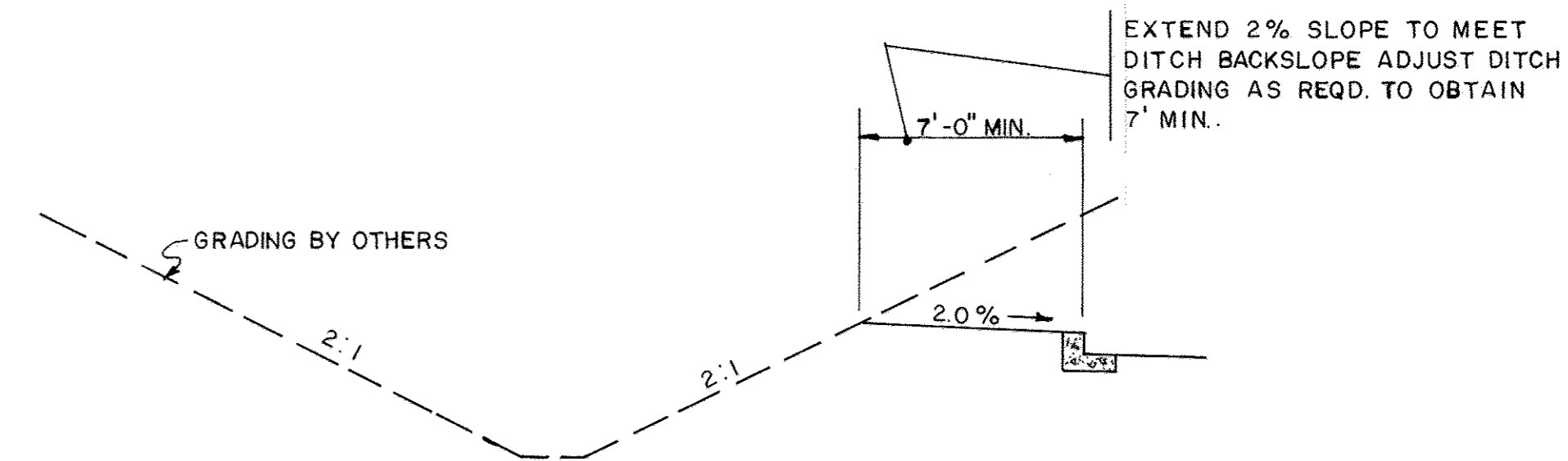


**ALTERNATE A**

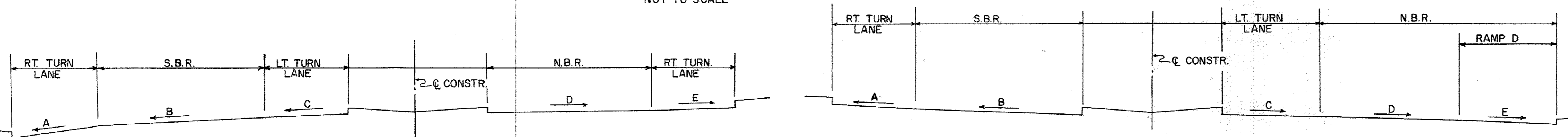


**ALTERNATE B**

**ROADWAY PAVING DETAIL**  
HO. CO. STD. R-2.02  
NOT TO SCALE



**GRADING SECTION LEFT**  
STA. 133 + TO 135 +  
NOT TO SCALE



**SUPERELEVATION TRANSITION TABLE**

STATION	CROSS SLOPE					REMARKS
	A	B	C	D	E	
187 + 00	-0.055	-0.055	-	-	-	FULL S.E.
187 + 25	-0.055	-0.055	0.000	-	-	LEVEL, BEGIN TRANSITION C LANE
187 + 29.69	-	-	-	+0.055	0.000	BEGIN PROFILE GRADE N.B.R. FULL S.E.
187 + 50	-0.055	-0.055	+0.005	+0.055	0.000	END LEVEL, BEGIN TRANSITION E LANE
190 + 00	-0.055	-0.055	+0.055	+0.055	+0.050	END TRANSITION, BEGIN FULL S.E. C LANE
190 + 25	-0.055	-0.055	+0.055	+0.055	+0.055	END TRANSITION, BEGIN FULL S.E. E LANE
192 + 26.15	-0.055	-0.055	+0.055	+0.055	+0.055	END FULL, S.E. BEGIN TRANSITION - ALL LANES
193 + 00	-0.0402	-0.0402	-	+0.0402	+0.055	END C LANE
193 + 75	-0.0252	-0.0252	-	+0.0252	-	END E LANE
194 + 01.15	-0.020	-0.020	-	+0.020	-	END TRANSITION - S.B.L.
195 + 01.15	-0.020	-0.020	-	-0.000	-	LEVEL - N.B.R.
195 + 26.15	-0.020	-0.020	-	-0.005	-	END PAVING

STATION	CROSS SLOPE					REMARKS
	A	B	C	D	E	
131 + 30.49	-	+0.0129	-	-0.020	-0.044	BEGIN PAVING
132 + 01.49	-	+0.020	-	-0.020	-0.040	END N.C., BEGIN TRANSITION LANE D
133 + 34.82	-	+0.0333	-	-0.0333	-0.040	END RAMP D MATCH N.B.R. CROSS SLOPE
135 + 50	+0.060	+0.0574	-	-0.0574	-	BEGIN A LANE
136 + 01.49	+0.060	+0.060	-	-0.060	-	END TRANSITION, BEGIN FULL S.E.
136 + 61.20	+0.060	+0.060	+0.020	-0.060	-	BEGIN C LANE
139 + 00.00	+0.060	+0.060	+0.020	-0.060	-	END FULL S.E., BEGIN TRANSITION LANE A
141 + 00.00	-	+0.060	+0.020	-0.060	-	END N.C. BEGIN TRANSITION TO LEVEL - LANE C
141 + 01.90	-0.020	-	-	-	-	BEGIN TOP CURB PROFILE - LANE A
141 + 38.60	-0.020	+0.060	+0.0123	-0.060	-	END FULL S.E. BEGIN TRANSITION
142 + 00.00	-	+0.0462	-0.000	-0.0462	-	END C LANE

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Alan M. Tangeman* 3/19/91  
CHIEF, LAND DEVELOPMENT DIVISION DATE  
*Francis W. Welstead* 3/19/91  
CHIEF, BUREAU OF HIGHWAYS DATE  
*William E. R. [Signature]* 3-20-91  
CHIEF, BUREAU OF ENGINEERING DATE

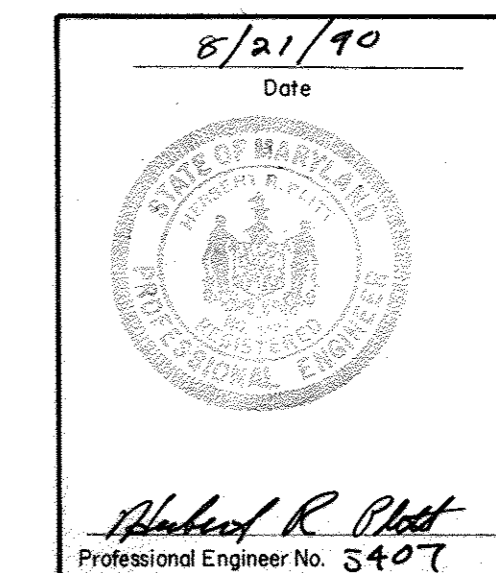
APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Robert V. [Signature]* 4/1/91  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

**PHOENIX ENGINEERING, INC.**  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA **BROKEN LAND PARKWAY**

TITLE **TYPICAL SECTION AND DETAILS**

Des By H.R.P. Scale AS SHOWN Proj. No. 89-0040  
Dwn By J.W.B. Date JULY 1990 Drawing No. 3 OF 16  
Chk By S.P. Approved



STA. 188+30-LT.  
25 L.F. RIPRAP OUTLET  
DITCH W=2', D=1', d50=6"

STA. 188+50 TO E-1-LT.  
SIDE DITCH IN CUT. SEE  
DETAIL, SHEET NO.9  
SOIL STAB. MAT.

STA. 187+00 68'-LT.  
STA. 187+15 68'-RT.  
TIE C&G TO EXIST. C&G  
TRANSITION CURB HEIGHT  
TO MATCH EXIST. CURB.

CURVE DATA  
Δ = 65° 41'-05"  
D = 4° 30'-00"  
R = 1273.24'  
T = 821.97'  
L = 1459.78'  
E = 242.27'  
S.E. = 0.055'/FT.

SHA CONTRACT  
HO-630-501-770  
LIMIT OF PAVING

STA. 187+25 TO 194+58  
MEDIAN TAPERS 60' TO 16' PGL'S TAPER  
3':100' RT. AND LT. OF C.

STA. 194+25 LT.  
CONSTRUCT OUTLET DITCH FROM E-2 TO  
STREAM BANK 80 L.F. RIPRAP W=2', D=1'  
d50=6".

RESET STREET LIGHTS SALVAGED  
FROM ADJACENT CONTRACT F-91-42  
250 WATT MERCURY VAPOR LAMP -  
PENDENT MOUNTED ON 30 FT.  
BRONZE POLE.  
STA. 191+00 RT. AND LT.  
STA. 195+26.15 RT. AND LT.

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Howard M. Tangen* 3/26/91  
CHIEF, LAND DEVELOPMENT DIVISION DATE  
*Donna W. Welton* 3/19/91  
CHIEF, BUREAU OF HIGHWAYS DATE  
*John S. ...* 3-26-91  
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND  
ZONING  
*Mark J. ...* 7/1/91  
CHIEF, DIVISION OF COMMUNITY PLANNING  
AND LAND DEVELOPMENT DATE

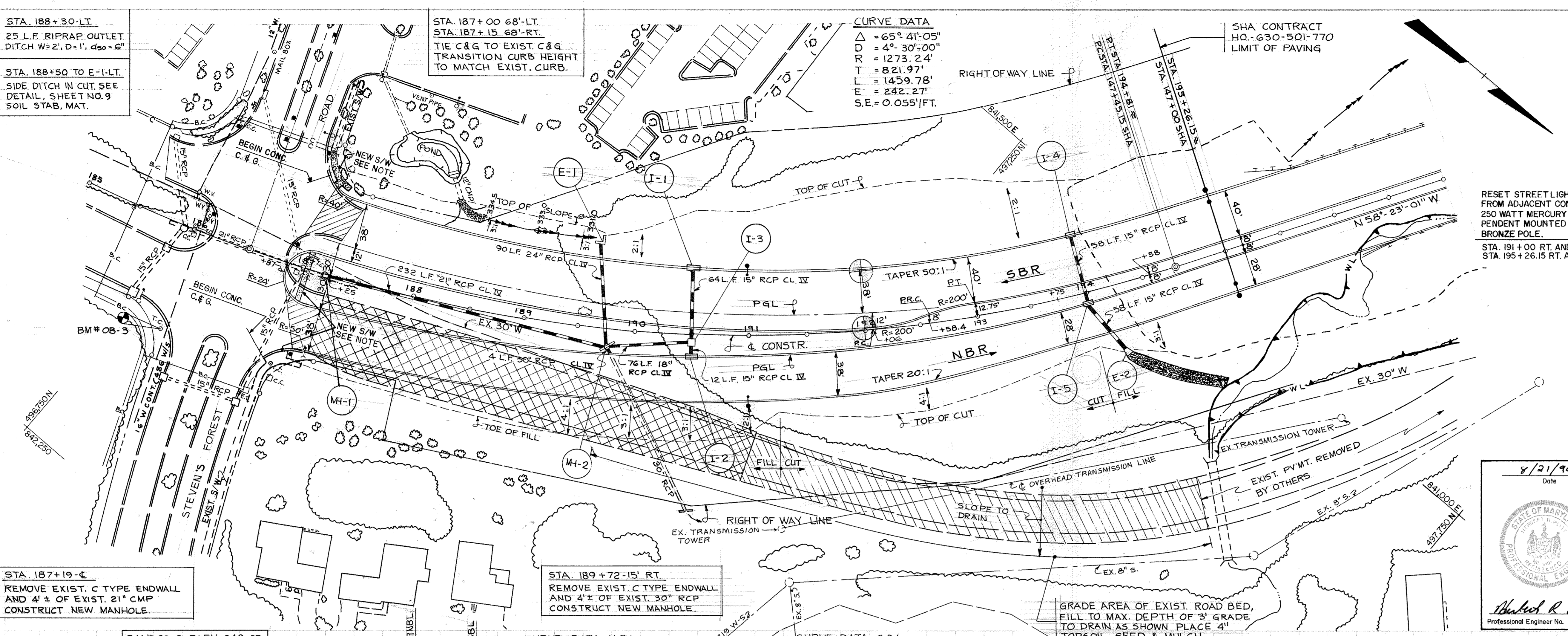
PHOENIX ENGINEERING, INC.  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA  
BROKEN LAND PARKWAY

TITLE  
ROADWAY PLAN AND PROFILE

Des By H.R.P. Scale 1" = 50' Proj. No. 89-0040  
Dwn By J.W.B. Date JULY 1990 Drawing No. 4 OF 12  
Chk By S.P. Approved

8/21/90  
Date  
Professional Engineer No. 5407



STA. 187+19-L  
REMOVE EXIST. C TYPE ENDWALL  
AND 4' ± OF EXIST. 21" CMP  
CONSTRUCT NEW MANHOLE.

STA. 189+72-15' RT.  
REMOVE EXIST. C TYPE ENDWALL  
AND 4' ± OF EXIST. 30" RCP  
CONSTRUCT NEW MANHOLE.

GRADE AREA OF EXIST. ROAD BED,  
FILL TO MAX. DEPTH OF 3' GRADE  
TO DRAIN AS SHOWN. PLACE 4"  
TOPSOIL, SEED & MULCH.

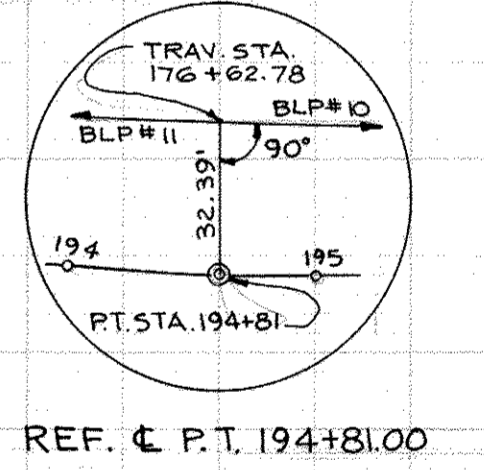
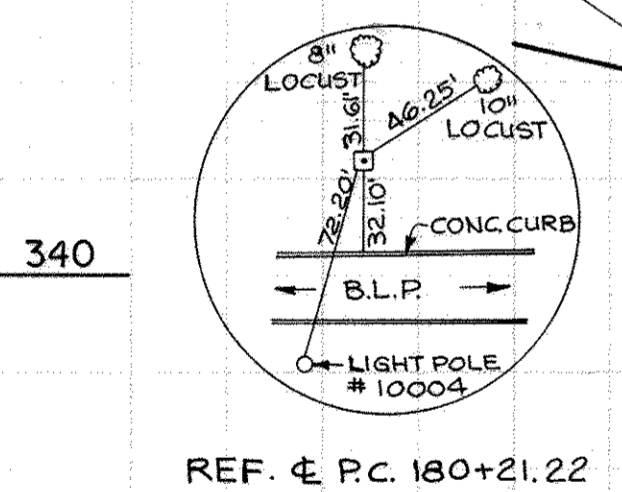
BM.# 08-3. ELEV. 348.25  
X CUT ON BOLT @ BASE OF  
TRAFFIC SIGNAL POLE.

CURVE DATA N.B.L.  
P.V.I. STA. 189+29.69  
ELEV. = 337.08  
V.C. = 400'  
CORR. = -1.00'  
S.S.D. = 750 MPH.

CURVE DATA S.B.L.  
P.V.I. STA. 189+83.10  
ELEV. = 334.63  
V.C. = 400'  
CORR. = -1.13'  
S.S.D. = 750 MPH.

CURVE DATA  
P.V.I. STA. 196+01.15 (BACK) =  
P.V.I. STA. 146+25.00 (AHEAD) SHA  
ELEV. = 306.35  
V.C. = 750'  
CORR. = 5.96'

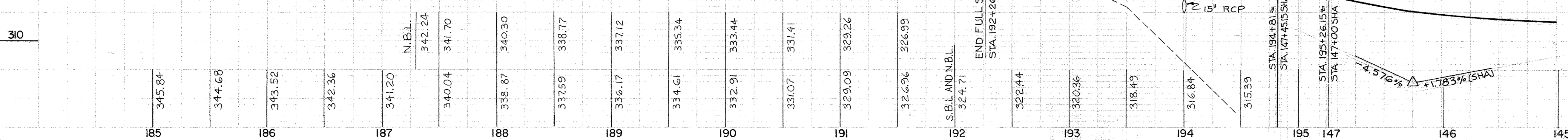
REMOVE EXIST. PAVEMENT.  
SCARIFY EXIST. PAVEMENT.



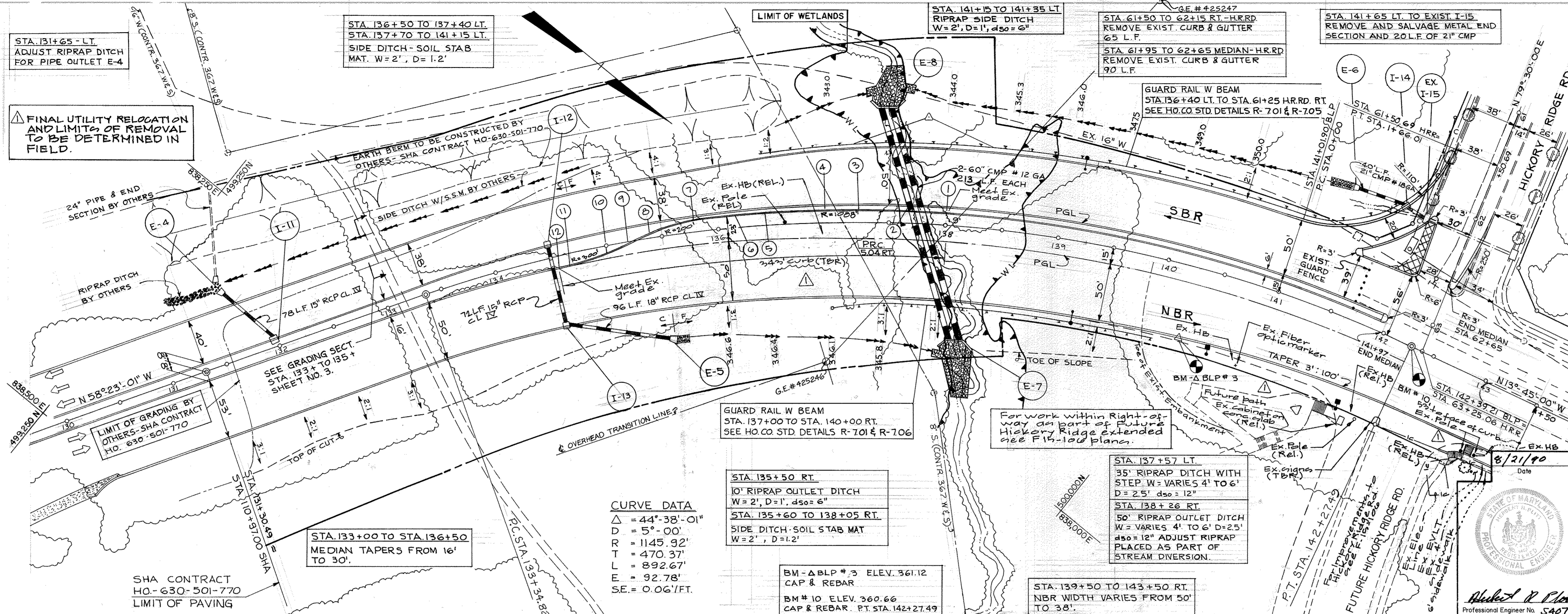
STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP EL.	REMARKS
I-1	A-10 INLET	STA. 190+50-58.25' LT.	-	326.16	329.58	HO. CO. STD. SD 4.02
I-2	A-10 INLET	STA. 190+50-20.25' RT.	-	326.50	332.01	HO. CO. STD. SD 4.02
I-3	S INLET	STA. 190+50-5.5' RT.	325.50	325.20	331.00	HO. CO. STD. SD 4.22
MH-1	STD. P.C. MH	STA. 187+20 C	336.00	335.70	341.80	HO. CO. STD. G 5.12
MH-2	STD. P.C. MH	STA. 189+74-15' RT.	323.60	322.60	335.00	HO. CO. STD. G 5.12
E-1	'E' H'DWALL	STA. 189+63-74' LT.	-	329.00	331.75	HO. CO. STD. SD 5.31
I-4	A-10 INLET	STA. 194+00-49.75' LT.	-	312.90	316.62	HO. CO. STD. SD 4.02
I-5	A-10 INLET	STA. 194+00-9.75' RT.	312.30	312.10	317.44	HO. CO. STD. SD 4.02
E-2	CONC. ENDS.	STA. 194+25-61' RT.	-	311.50	-	HO. CO. STD. SD 5.52

SOILS TEST DATA			
NO.	LL	P.I.	M.C.
1	36	NP	15.3

NEW SIDEWALKS  
3.5 WIDE HO. CO. STD. 3.05  
STA. 187+00 LT. - CONSTRUCT 30 L.F.  
SIDEWALK AND RAMP TIE INTO AND  
MATCH LOCATION OF EXISTING S/W.  
STA. 187+05 MEDIAN - CONSTRUCT 48  
L.F. SIDEWALK CURB TO CURB ACROSS  
MEDIAN, DEPRESS CURBS AND RAMP  
SIDEWALK AT MAX. 8% AND TEXTURE  
PER STANDARDS.  
STA. 187+00 RT. - CONSTRUCT 20 L.F.  
SIDEWALK AND RAMP. TIE INTO EXIST.  
S/W.  
NOTE: SEE DETAIL SHEET NO.7 FOR HANDICAP  
RAMP.



65



STA. 131+65 - LT. ADJUST RIPRAP DITCH FOR PIPE OUTLET E-4

STA. 136+50 TO 137+40 LT. STA. 137+70 TO 141+15 LT. SIDE DITCH - SOIL STAB MAT. W=2', D=1.2'

STA. 141+15 TO 141+35 LT. RIPRAP SIDE DITCH W=2', D=1', dso=6"

STA. 61+50 TO 62+15 RT - HRRD. REMOVE EXIST. CURB & GUTTER 65' L.F.

STA. 61+95 TO 62+65 MEDIAN - HRRD. REMOVE EXIST. CURB & GUTTER 90' L.F.

STA. 141+65 LT. TO EXIST I-15. REMOVE AND SALVAGE METAL END SECTION AND 20'L.F. OF 21" CMP

EXIST I-15 - REMOVE AND SALVAGE TOP SLAB AND SIDEWALK FRAME COVER. REMOVE INLET WALLS TO APPROX. ELEV. 361.2. CONSTRUCT 10" REINFC. SLAB AND MANHOLE. FRAME AND COVER AS SHOWN ON HO. CO. STD. G. 5.05 (SHALLOW BRICK MANHOLE). SET MANHOLE TO CLEAR PROPOSED ISLAND CURB.

I-14 - TYPE A-5 INLET. SEE STRUCT. SCHEDULE. USE SALVAGED SLAB AND FRAME COVER.

I-14 TO EX. I-15 - RELAY. SALVAGED 21" CMP.

RESET STREET LIGHTS SALVAGED FROM ADJACENT CONTRACT F-91-42 250 WATT MERCURY VAPOR LAMP - PENDENT MOUNTED ON 30 FT. BRONE POLE. STA. 139+25 RT. AND LT.

For Improvements north of centerline Sta. 141+50, see F-91-86

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William J. Sargent* 3/26/91  
 CHIEF, LAND DEVELOPMENT DIVISION DATE

*William W. Welwood* 3/19/91  
 CHIEF, BUREAU OF HIGHWAYS DATE

*William J. Sargent* 3-26-91  
 CHIEF, BUREAU OF ENGINEERING DATE

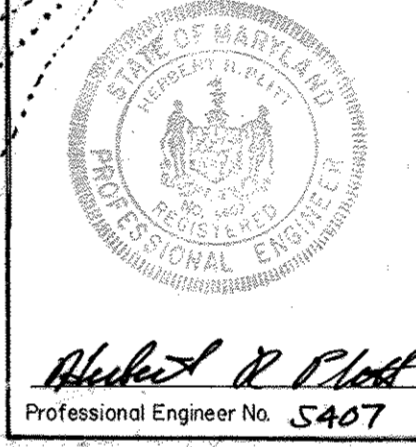
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*William J. Sargent* 4/1/91  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

PHOENIX ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 BALTIMORE, MARYLAND 21228

AREA: BROKEN LAND PARKWAY

TITLE: ROADWAY PLAN AND PROFILE

Des By H.R.P. Scale 1" = 50' Proj.No. 89-0040  
 Dwn By J.W.B. Date JULY 1990 Drawing No. 5 OF 12  
 Chk By S.P. Approved



#	Sta.	Dist.	Elev.	Desc.
1	131+98.7	108'L	358.12	FL/POC
2	131+79.9	108'L	357.80	FL/POC
3	131+41.4	104'L	357.40	FL/POC
4	136+16.2	102'L	357.20	FL/POC
5	135+19.7	98'L	356.46	FL/PRC
6	135+31.6	4.4'L	355.34	FL/POC
7	134+14.8	2.2'R	354.69	PRC
8	134+99.1	5.9'R	353.96	FL/POC
9	134+64.6	10.2'R	353.06	FL/POC
10	134+54.1	10.4'R	EX.	END/PT

**CURVE DATA**  
 P.V.I. STA. 112+00.584(BACK)  
 P.V.I. STA. 130+27.49 (AHEAD)  
 ELEV. = 343.43  
 V.C. = 600'  
 CORR. = +2.28'

Prop. Curb from Point 1 thru 11 will be salvaged curb & gutter per Howard County Detail R-3.01

**CURVE DATA**  
 P.V.I. STA. 135+27.49  
 ELEV. = 355.43  
 V.C. = 400'  
 CORR. = -0.64'

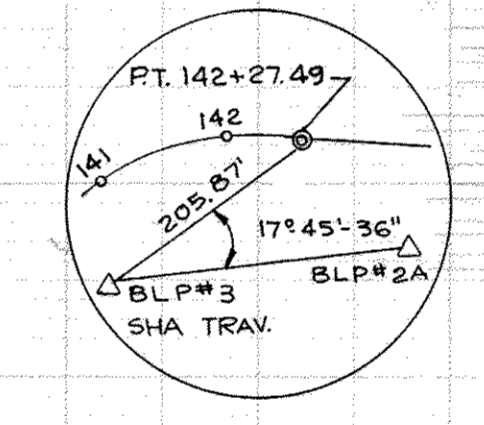
Note: See F-15-106 for maintenance of traffic during construction of the Lane Modification.

**LEGEND**

- EVLT Electric Vault
- HB Hand Box
- F Pole
- (TBR) To be removed
- (REL) To be relocated
- Ex. Post to fixture Light Pole
- Ex. Color fixture Light Pole
- Ex. Tree
- Ex. sign
- Ex. Interconnect

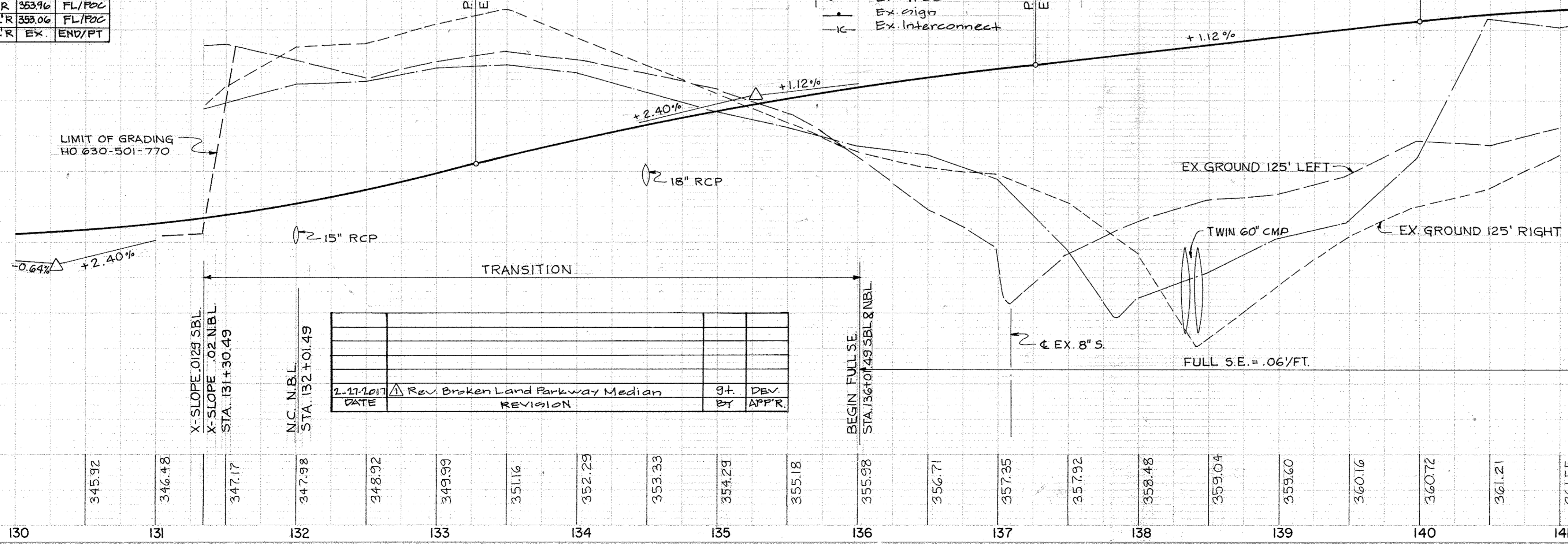
STA. 141+50 TO 142+10 LT. REMOVE EXIST. PVMT. CONSTRUCT ISLAND USING STD. CURB & GUTTER ELEV. OF C&G ALONG B.L.P. TO BE SET TO RECEIVE 1/2" SURFACE COURSE UNDER NEXT CONTRACT PLACE 4" TOPSOIL. SEEDS & MULCH ISLAND

STA. 141+65 LT. REMOVE EXISTING GUARD RAIL BARRIER



STA. 61+95 TO 62+65 MEDIAN HRRD. CONSTRUCT NEW CURB & GUTTER AND PAVE AS SHOWN. ELEV. OF C&G AT NOSE SHOULD BE SET TO RECEIVE 1/2" SURFACE COURSE ON BLP UNDER NEXT CONTRACT

**CURVE DATA**  
 P.V.I. STA. 144+00  
 ELEV. = 365.20  
 V.C. = 800'  
 CORR. = -4.62'

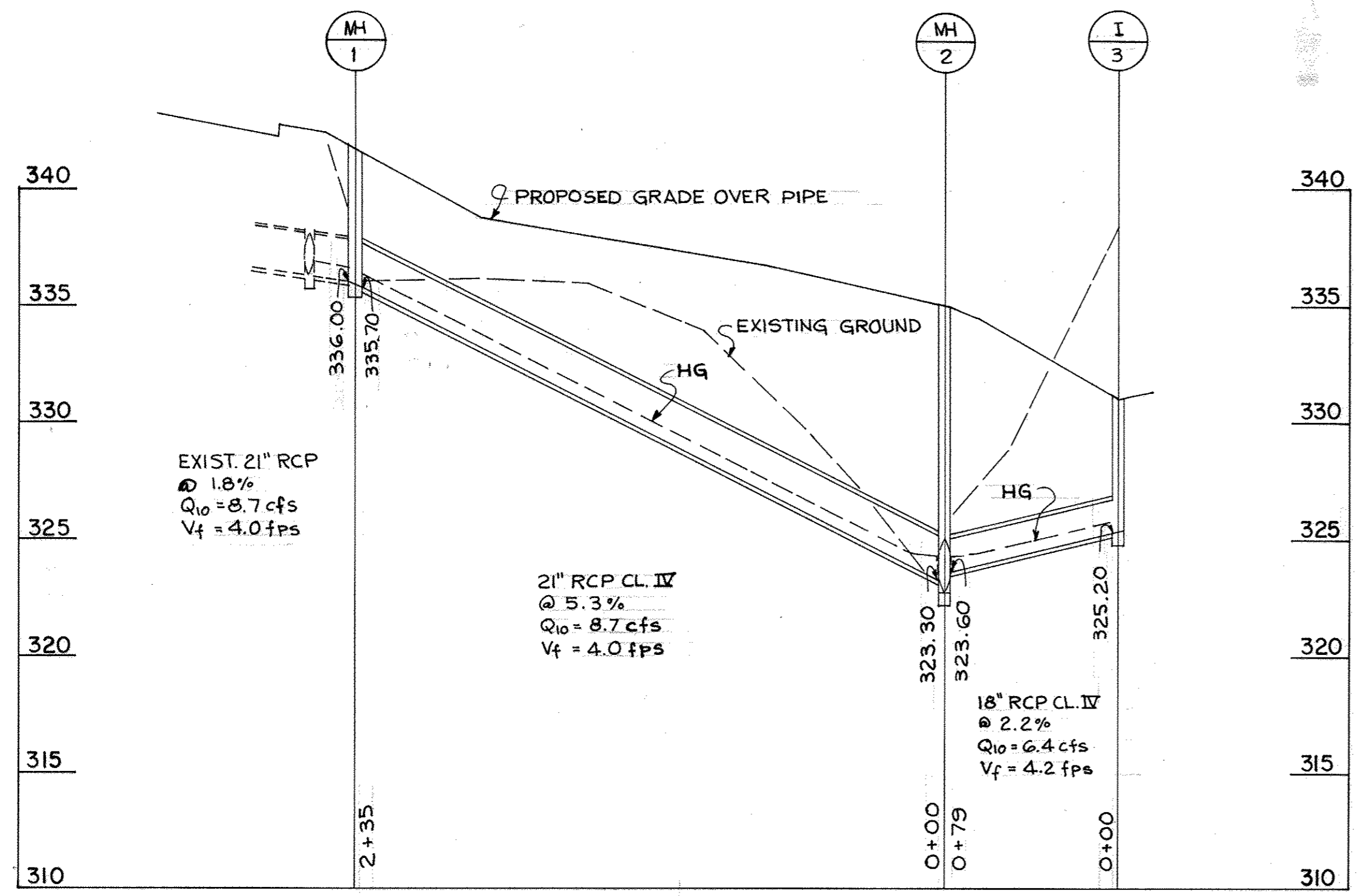


NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP EL.	REMARKS
I-11	A-10 INLET	STA. 132+00-8' LT	-	344.80	348.58	HO. CO. STD. SD 4.02
E-4	CONC. ENDS.	STA. 131+65-65' LT.	-	344.00	-	HO. CO. STD. SD 5.52
I-12	A-10 INLET	STA. 134+50-11' LT.	-	350.20	353.93	HO. CO. STD. SD 4.02
I-13	CONC. ENDS.	STA. 134+50-61' RT.	348.00	347.80	351.69	MD 714.21
E-5	CONC. END S.	STA. 135+50-91' RT.	-	346.80	-	HO. CO. STD. SD 5.52
E-6	MT'LEND SECT	STA. 141+34-110' LT.	-	352.00	-	REUSE SALVAGED END SECT.
I-14	A-5 INLET	STA. 62+14 HRRD 61' RT.	358.40	358.20	363.71	HO. CO. STD. SD 4.01
I-15	EXIST A-5 INLET	STA. 62+15 HRRD 38' RT.	-	358.81	363.24	CONVERT EXIST. INLET TO MH - SEE NOTES.
E-7	MODIFIED 'A' H'DWALL	STA. 138+15-100' RT.	-	337.20	-	SEE DETAIL, SHT. NO. 7
E-8	MODIFIED 'A' H'DWALL	STA. 137+45-101' LT.	-	340.50	-	SEE DETAIL, SHT. NO. 7

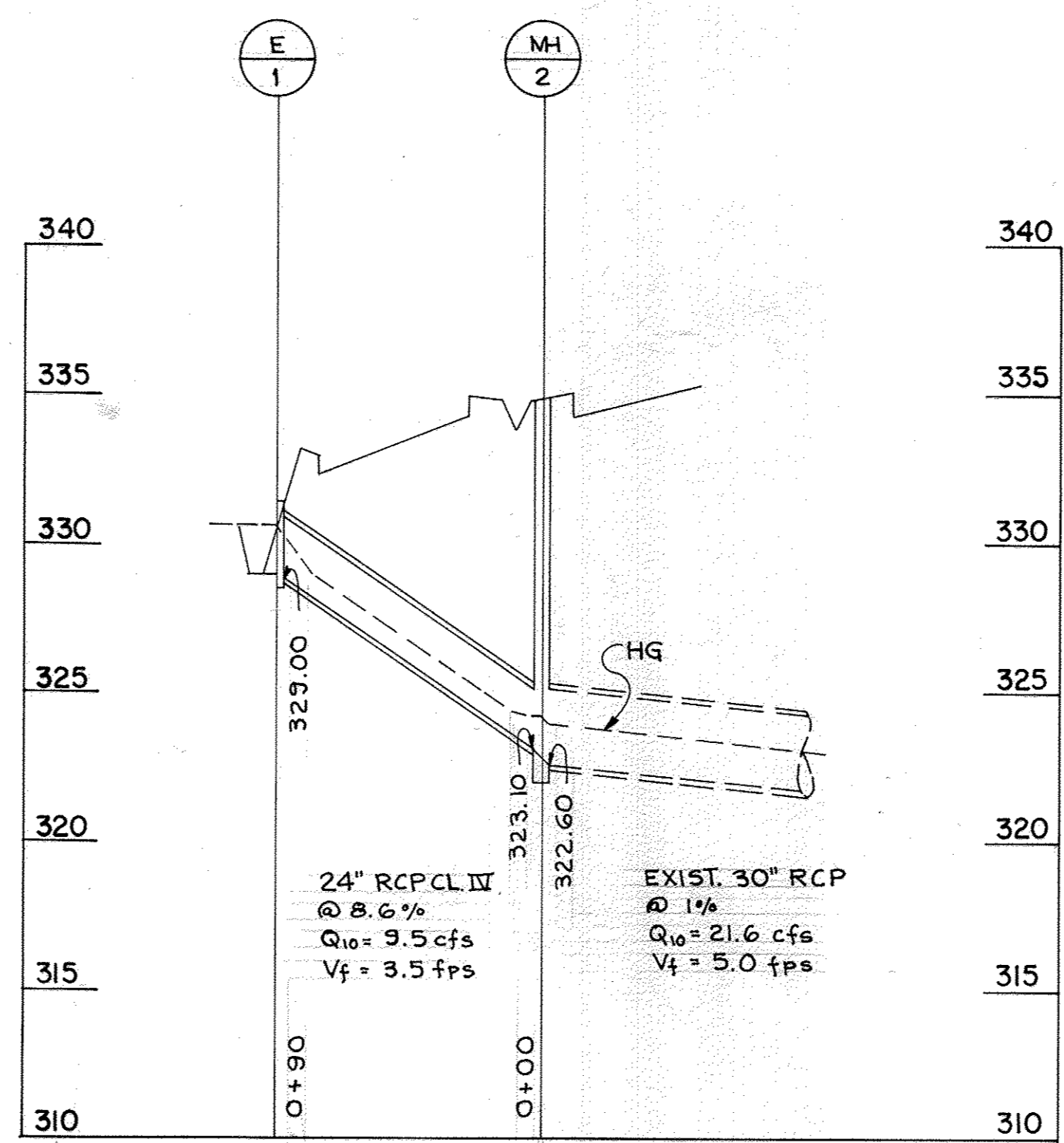
DATE	BY	APP'R.	DEV.
2-17-2017			

Rev. Broken Land Parkway Median REVISION

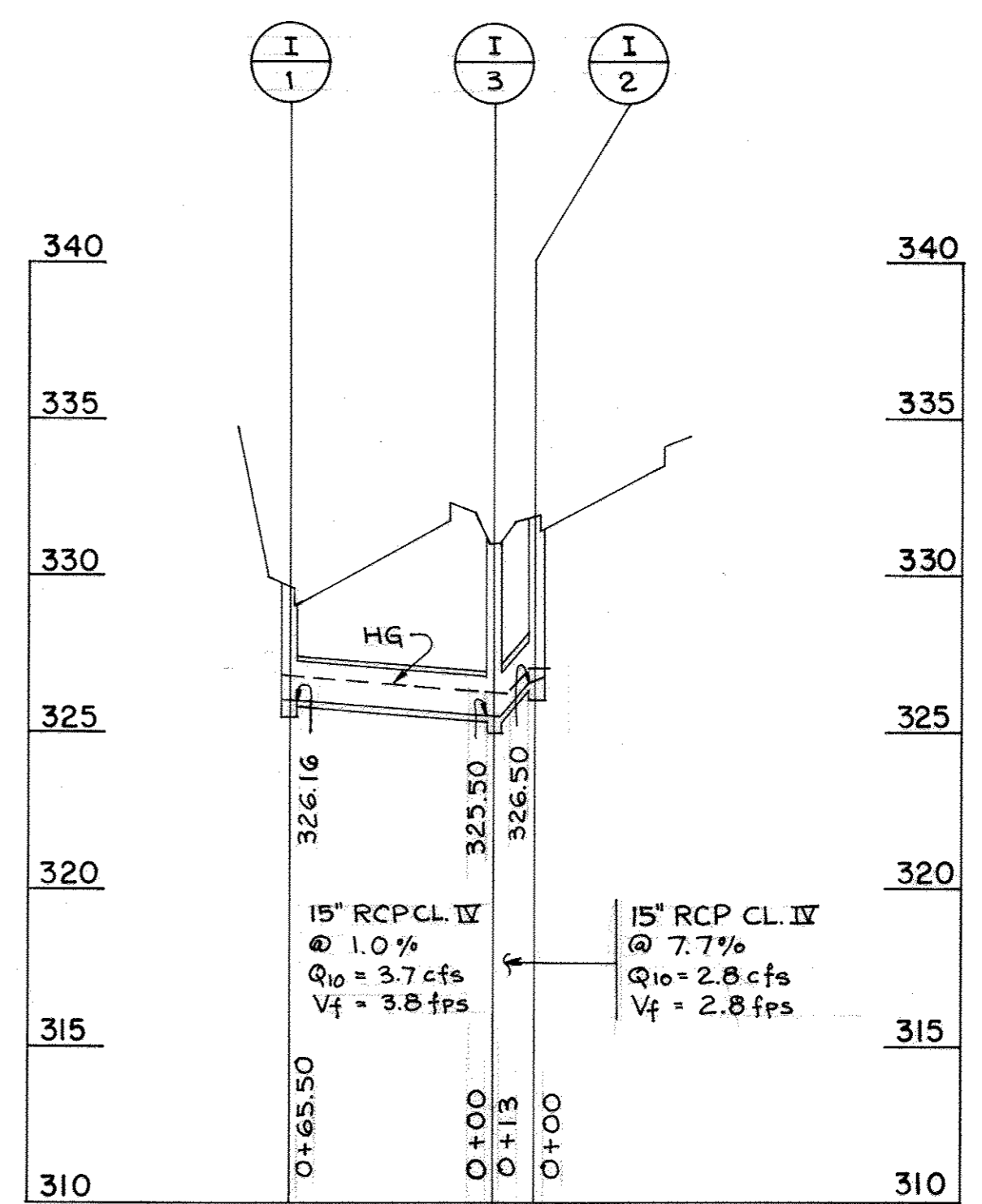
65



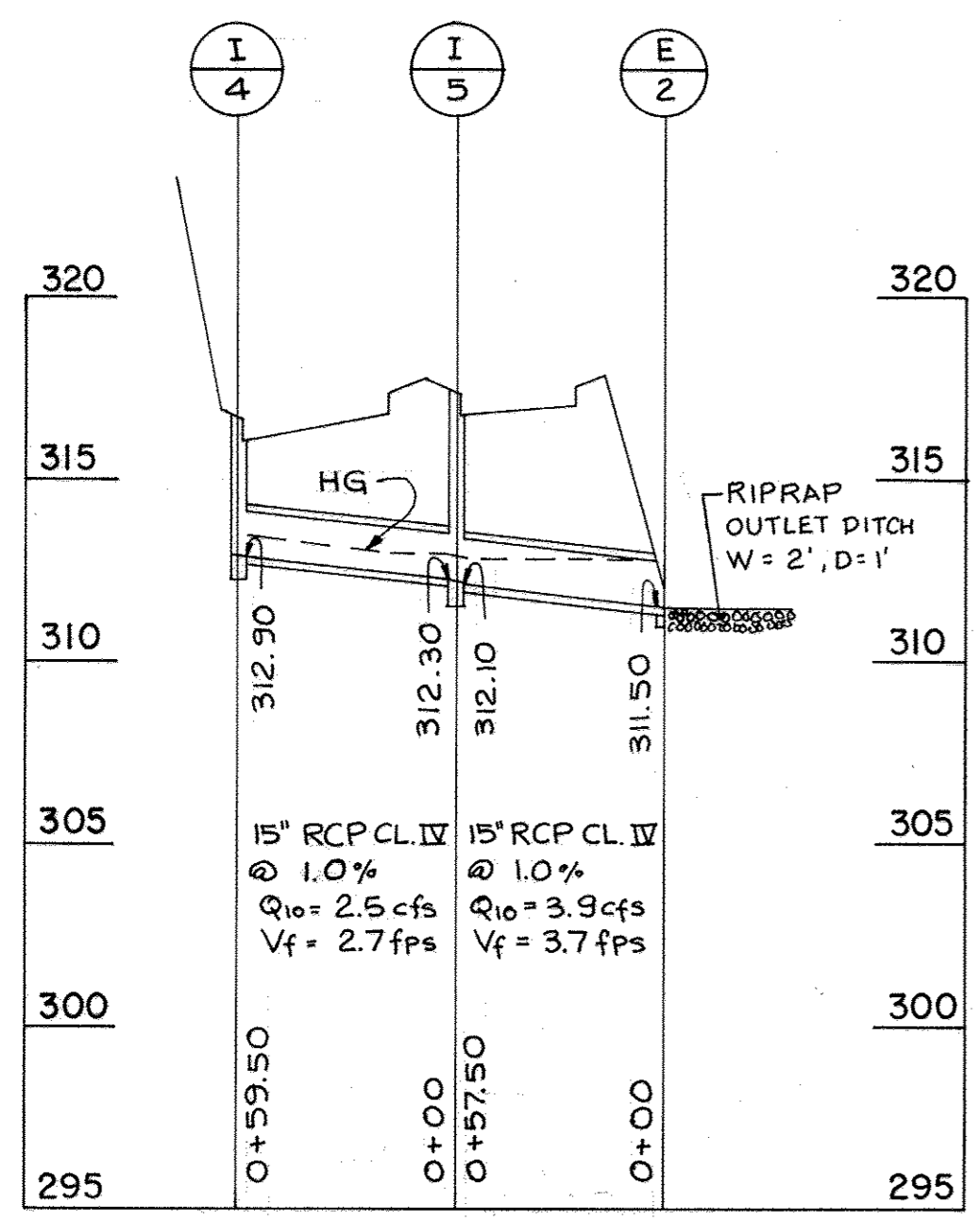
**STA. 187+**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'



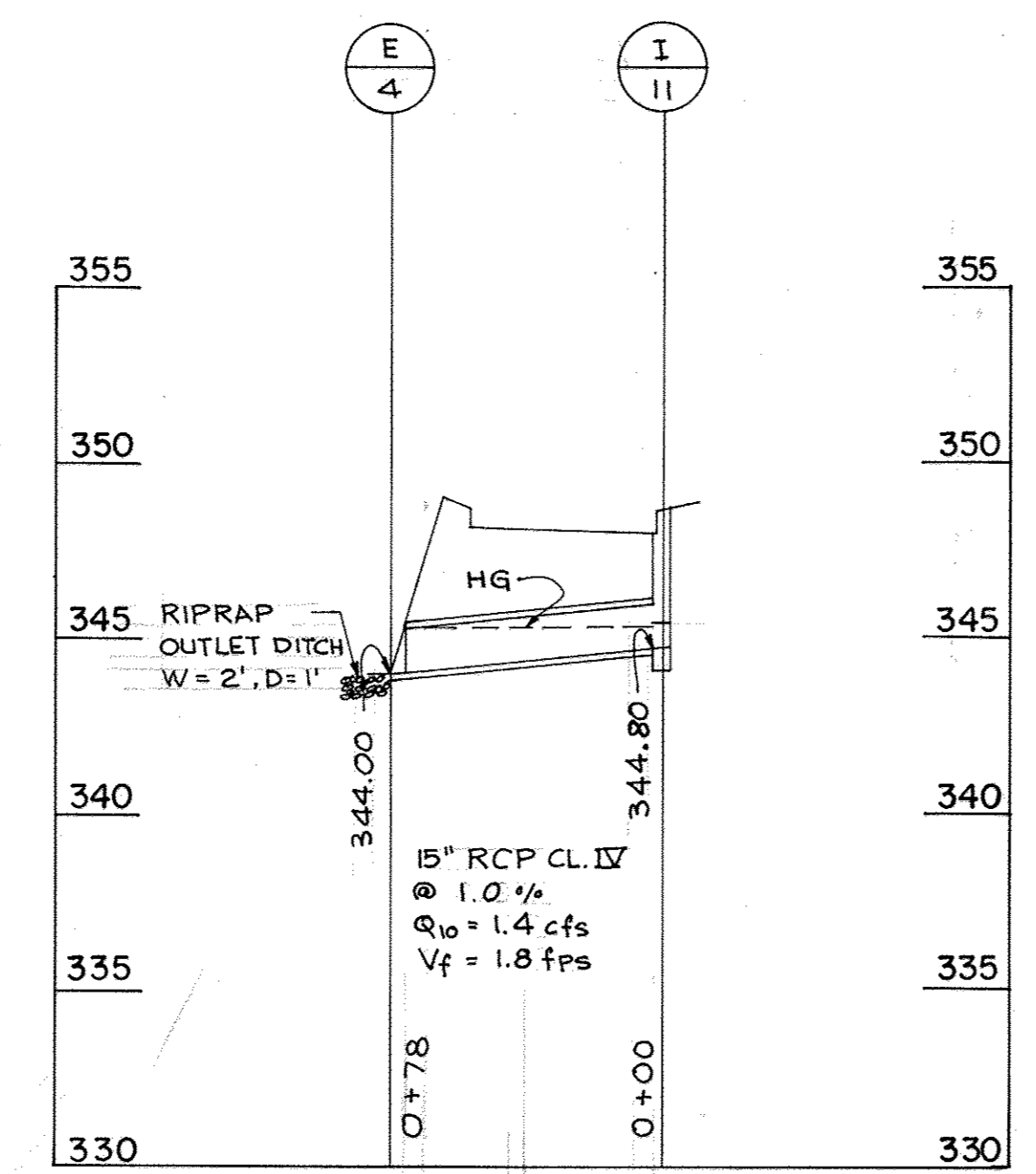
**STA. 189+**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'



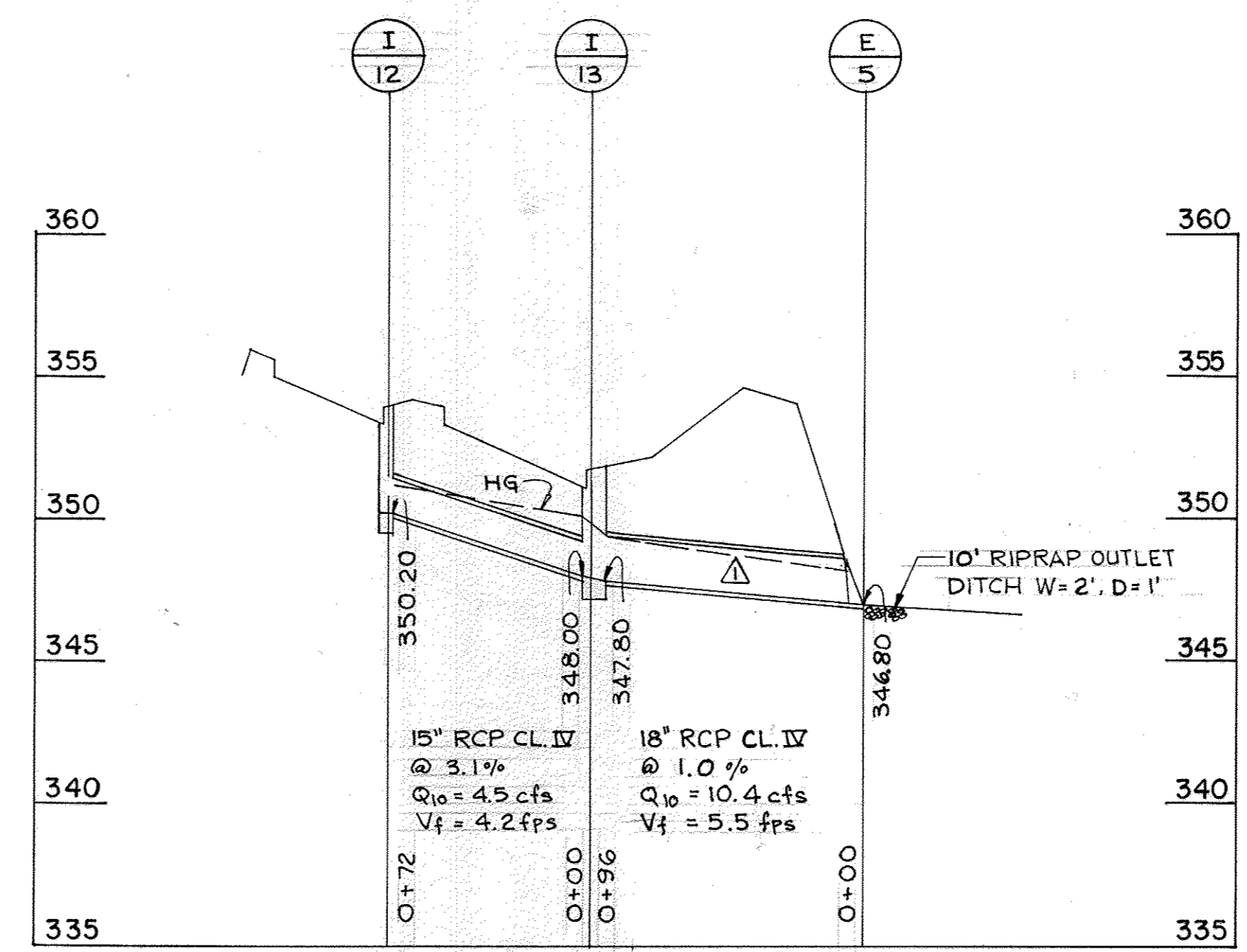
**STA. 190+**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'



**STA. 194**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'



**STA. 132**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'

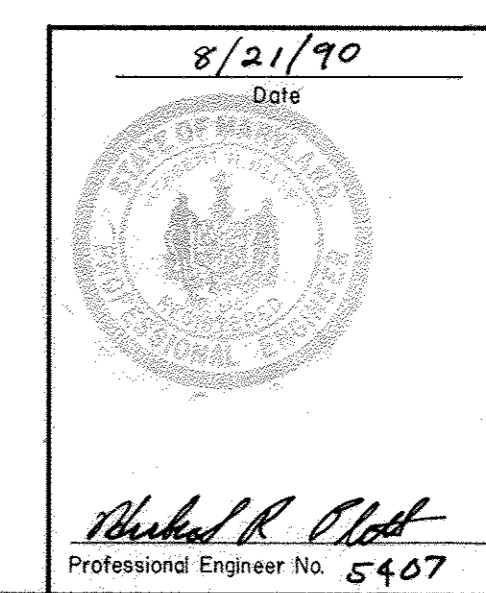


**STA. 134+**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'

1-18-17	Rev. E9-5 to I-12 H&L	31	DEV.
Date	Revision	By	App'd

APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Alan M. Tamm* 3/26/91  
 CHIEF, LAND DEVELOPMENT DIVISION DATE  
*David W. Welstead* 3/19/91  
 CHIEF, BUREAU OF HIGHWAYS DATE  
*William S. Ryan* 3-26-91  
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Paul V. DeLong* 3/15/91  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

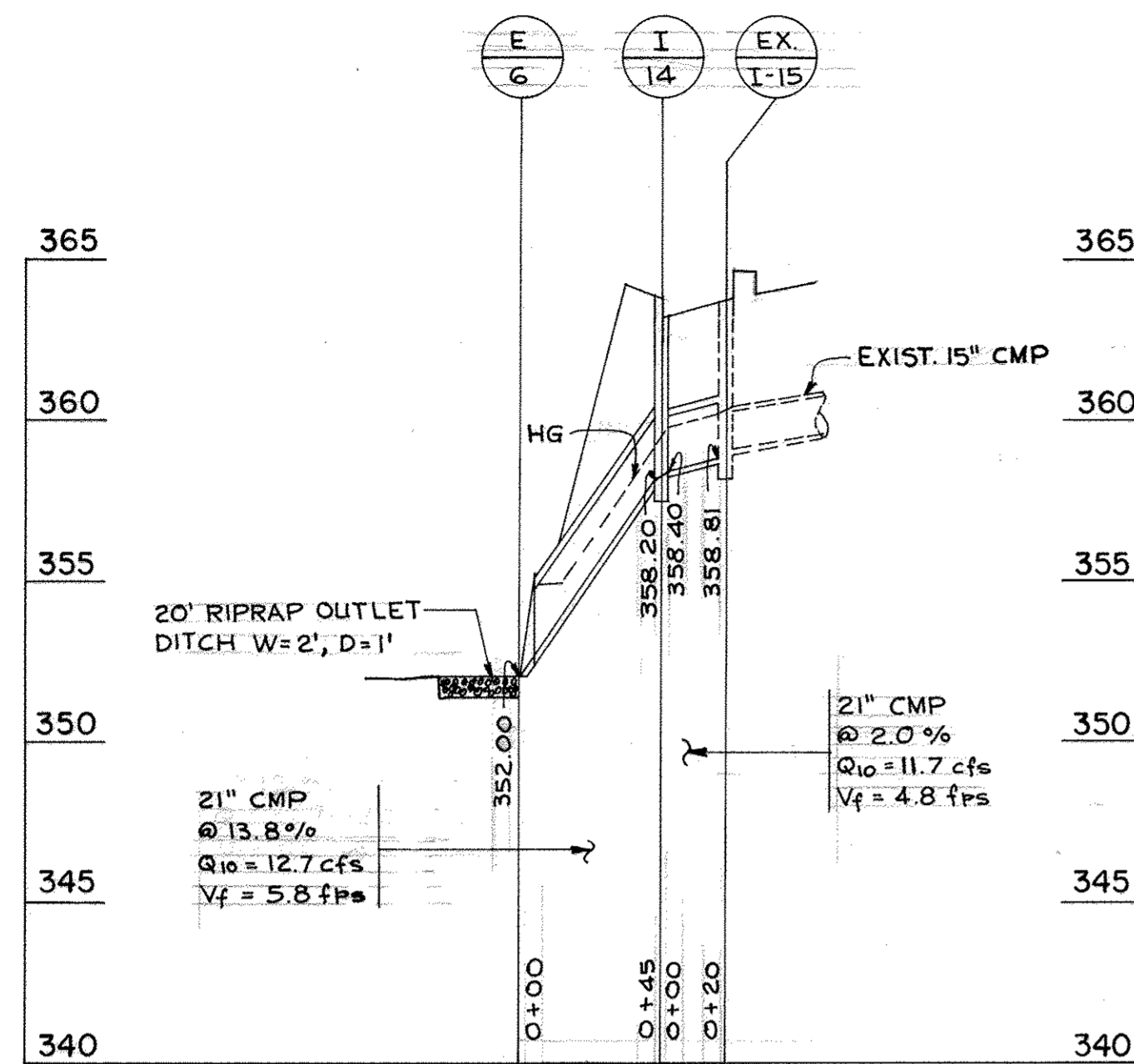


**PHOENIX ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 BALTIMORE, MARYLAND 21228

AREA: BROKEN LAND PARKWAY

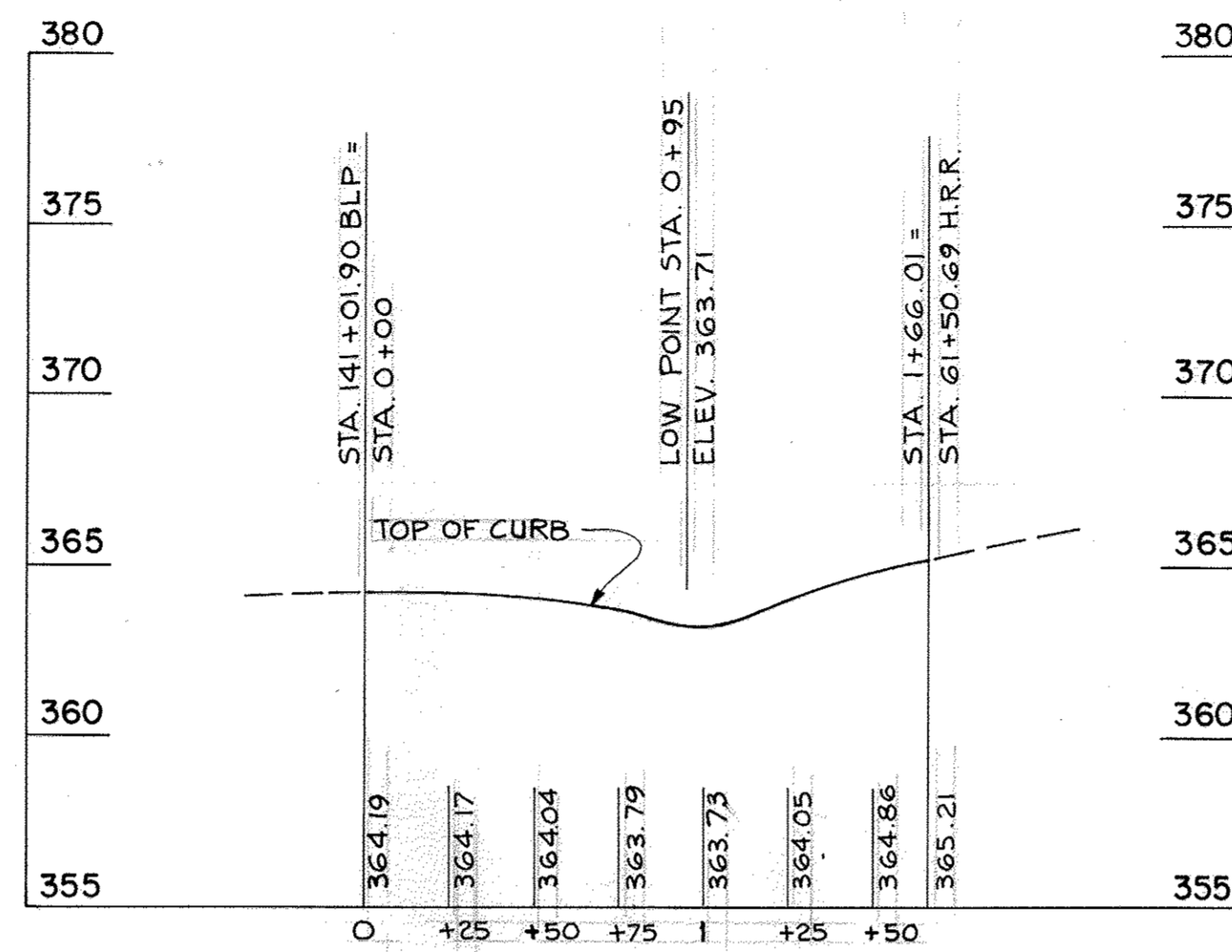
TITLE: STORM DRAIN PROFILES

Des By H.R.P.	Scale AS SHOWN	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 6 OF 18
Chk By S.P.	Approved	



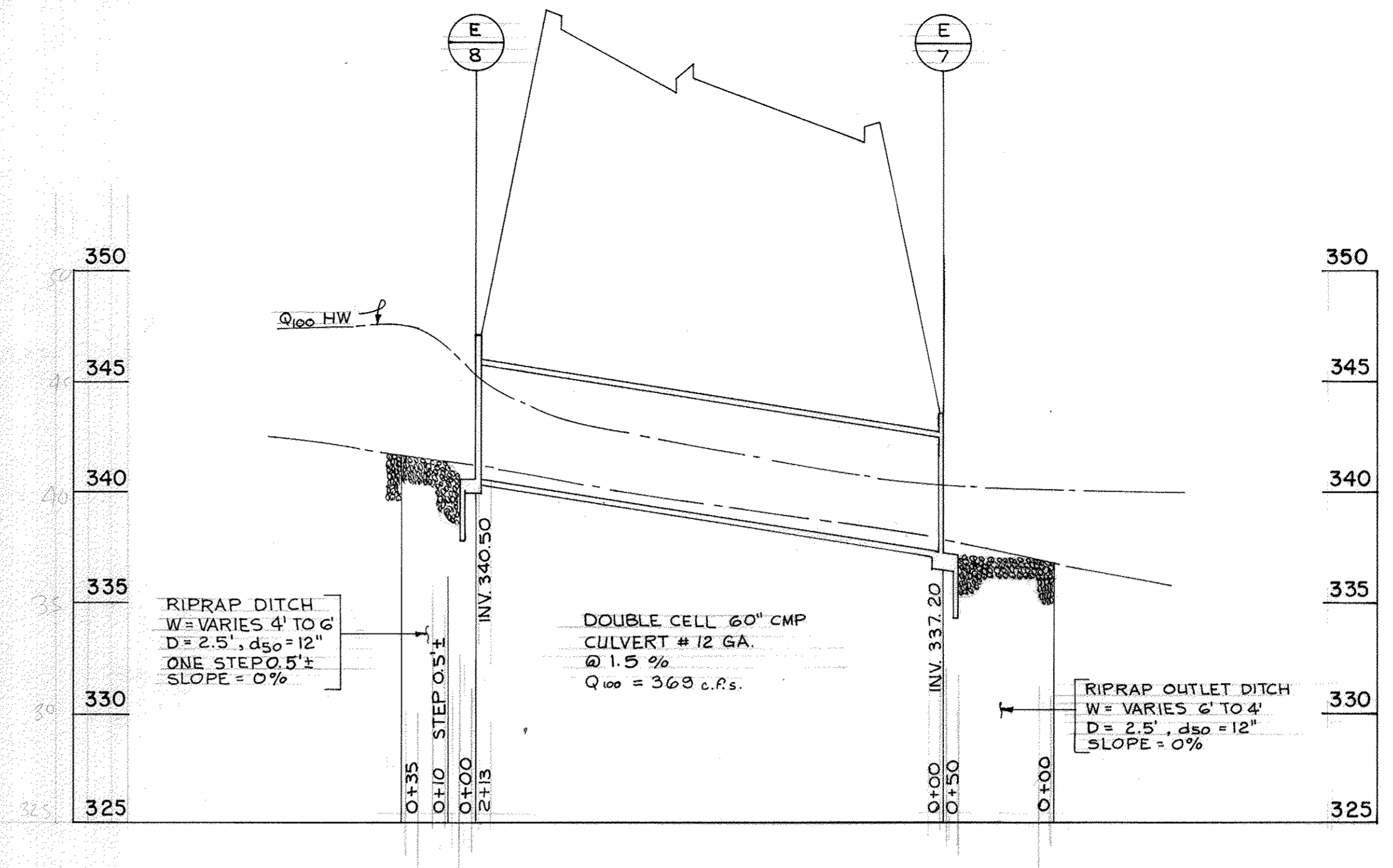
**STA. 141 + LT.**  
**HICKORY RIDGE RD. INTERSECTION**

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



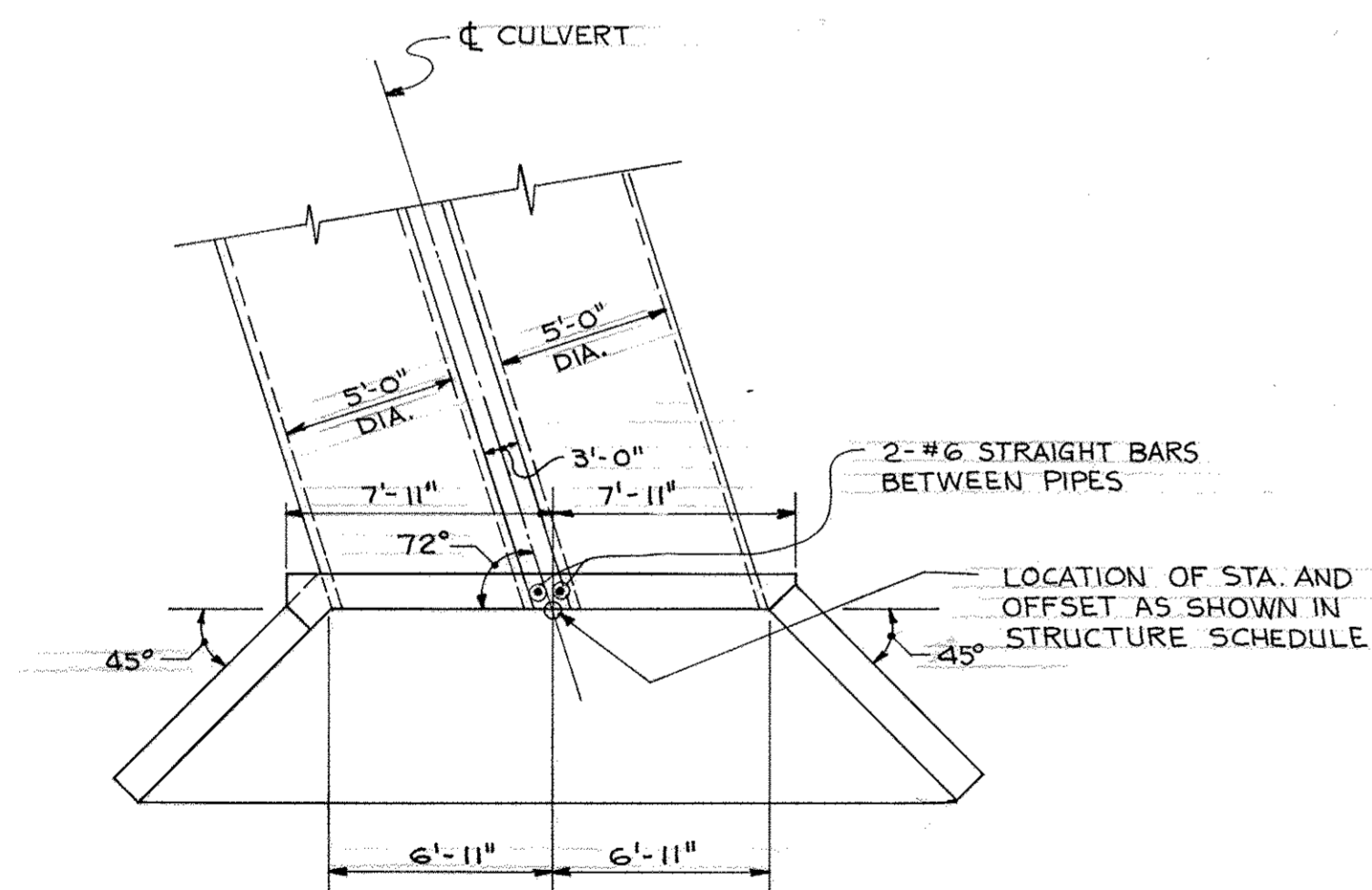
**PROFILE-TOP OF CURB**  
**RIGHT TURN LANE AT HICKORY RIDGE RD.**

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

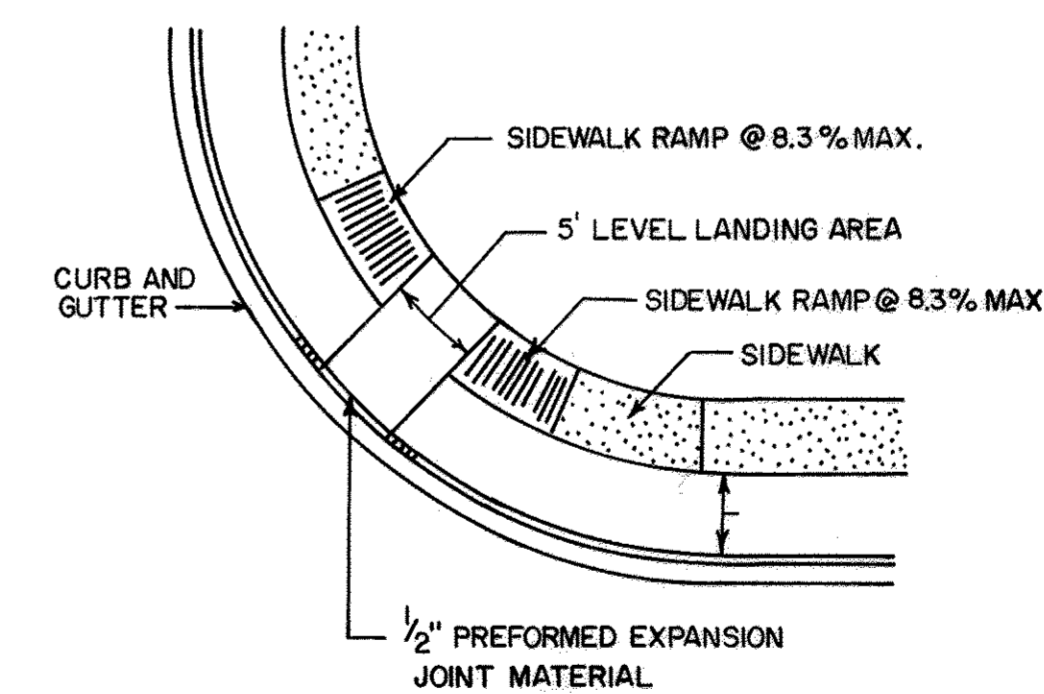


**CULVERT AT STA. 137 +**

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

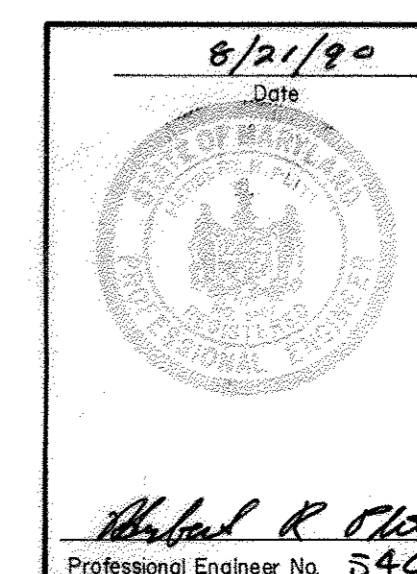


**STRUCTURES E-7 & E-8**  
**MODIFIED TYPE 'A' HEADWALL**  
HO. CO. STD. SD-5.11  
NOT TO SCALE



**HANDICAP RAMP**  
NO SCALE

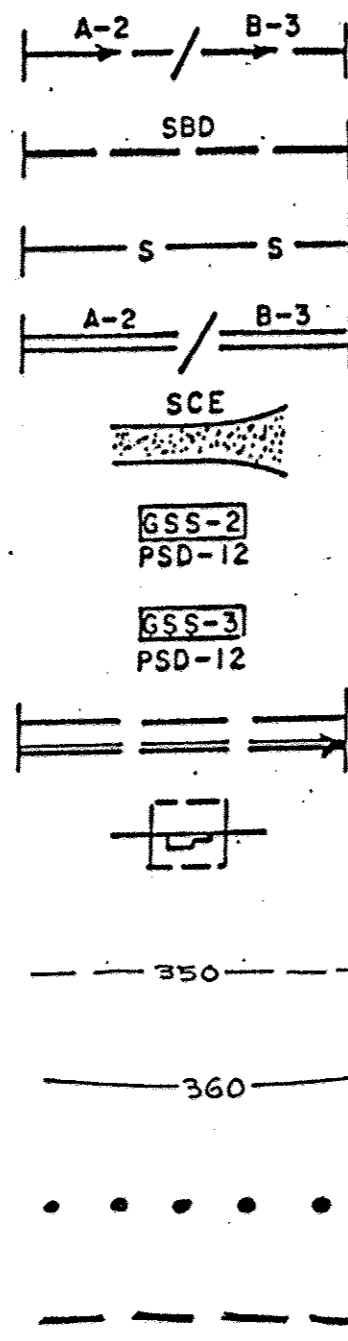
APPROVED:	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
<i>John M. Simpson</i>	3/26/91
CHIEF, LAND DEVELOPMENT DIVISION	DATE
<i>Drumville W. Weland</i>	3/19/91
CHIEF, BUREAU OF HIGHWAYS	DATE
<i>2/5 [Signature]</i>	3-26-91
CHIEF, BUREAU OF ENGINEERING	DATE
APPROVED:	HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
<i>Mark C. [Signature]</i>	3/1/91
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE



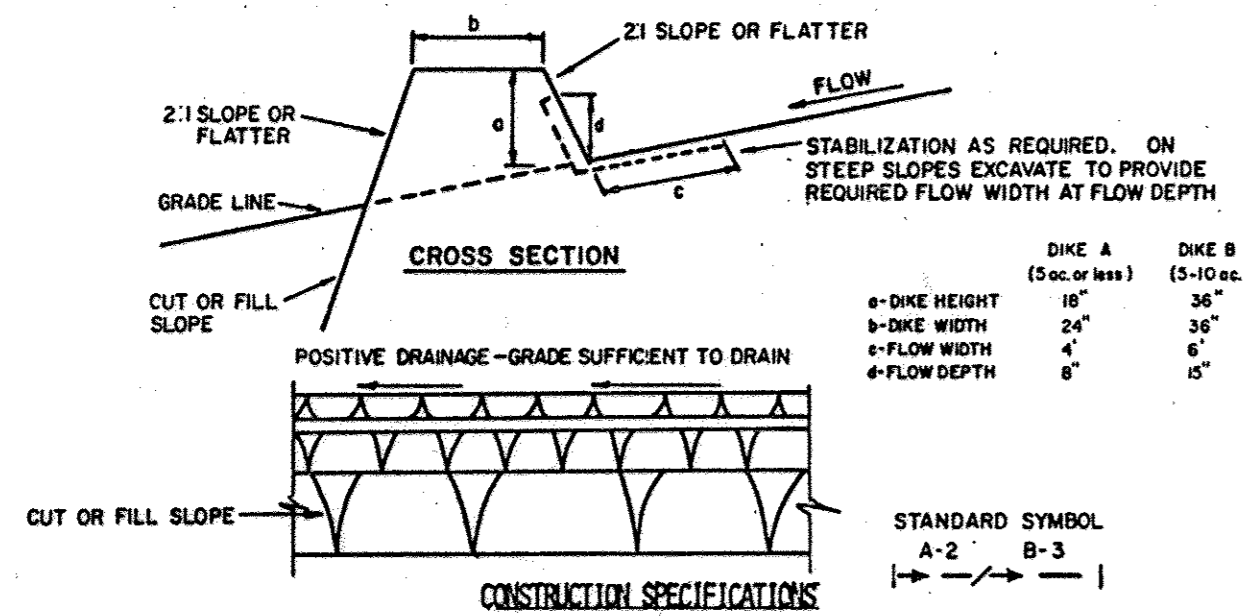
PHOENIX ENGINEERING, INC. CONSULTING ENGINEERS BALTIMORE, MARYLAND 21228		
AREA	BROKEN LAND PARKWAY	
TITLE	STORM DRAIN PROFILES AND DETAILS	
Des By	H.R.P.	Scale AS SHOWN
Drn By	J.W.B.	Date JULY 1990
Chk By	S.P.	Approved
Proj. No.	89-0040	Drawing No.
		7 OF 18

65

Earth Dike  
 Straw Bale Dike  
 Silt Fence  
 Temporary Swale  
 Stabilized Construction Entrance  
 Grade Stabilization Structure  
 Pipe Slope Drain  
 Perimeter Dike/Swale  
 Inlet Protection  
 Existing Contours  
 Proposed Contours  
 Limit of Disturbance  
 Limit of Drainage Area



STANDARD SYMBOLS  
 NO SCALE

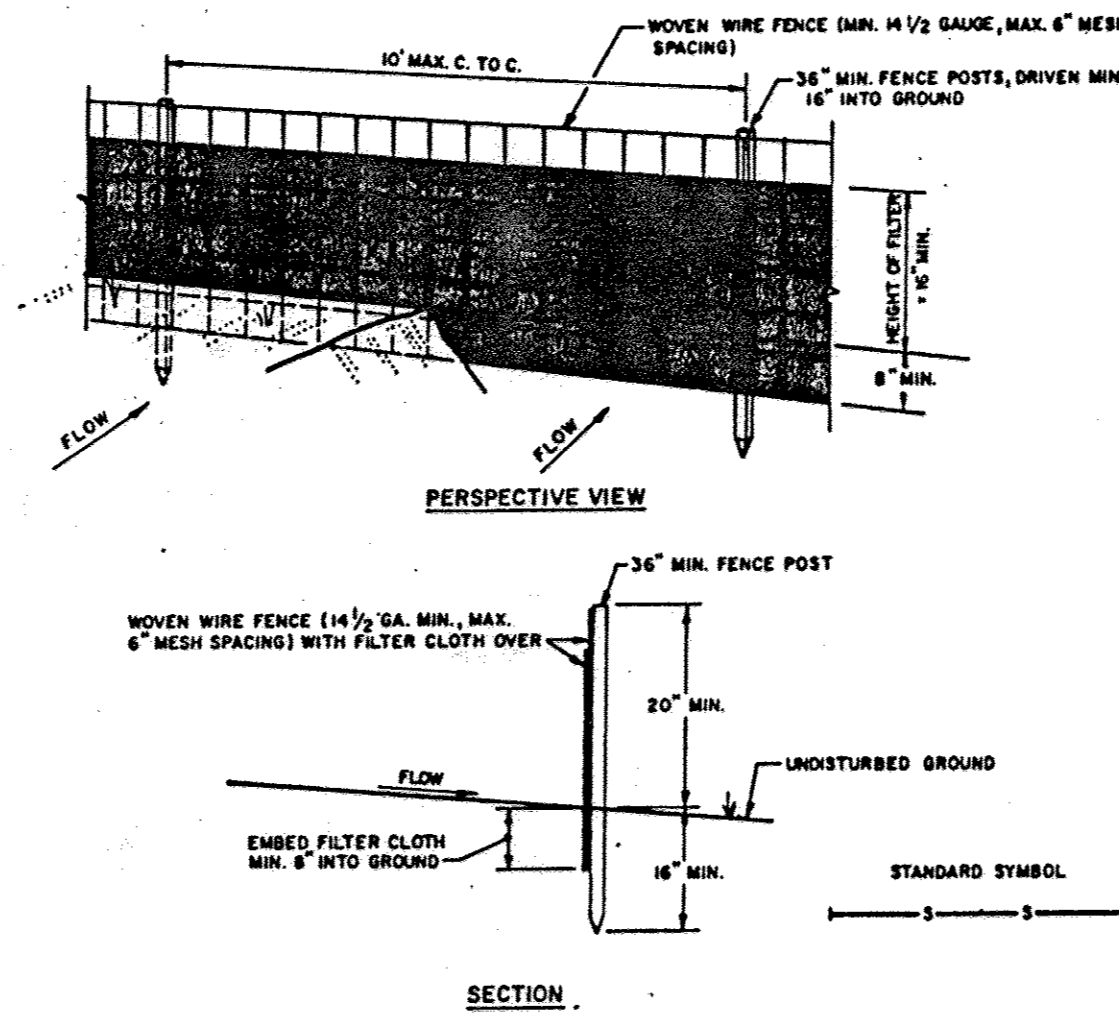


CONSTRUCTION SPECIFICATIONS

TYPE OF TREATMENT	FLOW CHANNEL STABILIZATION	
	CHANNEL GRADE	DIKE
1	5-3.0%	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH
3	5.1-8.0%	SEED WITH JUTE, OR SOY; STONE
4	8.1-20%	LINED RIP-RAP 4-8"

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.

EARTH DIKE  
 NO SCALE



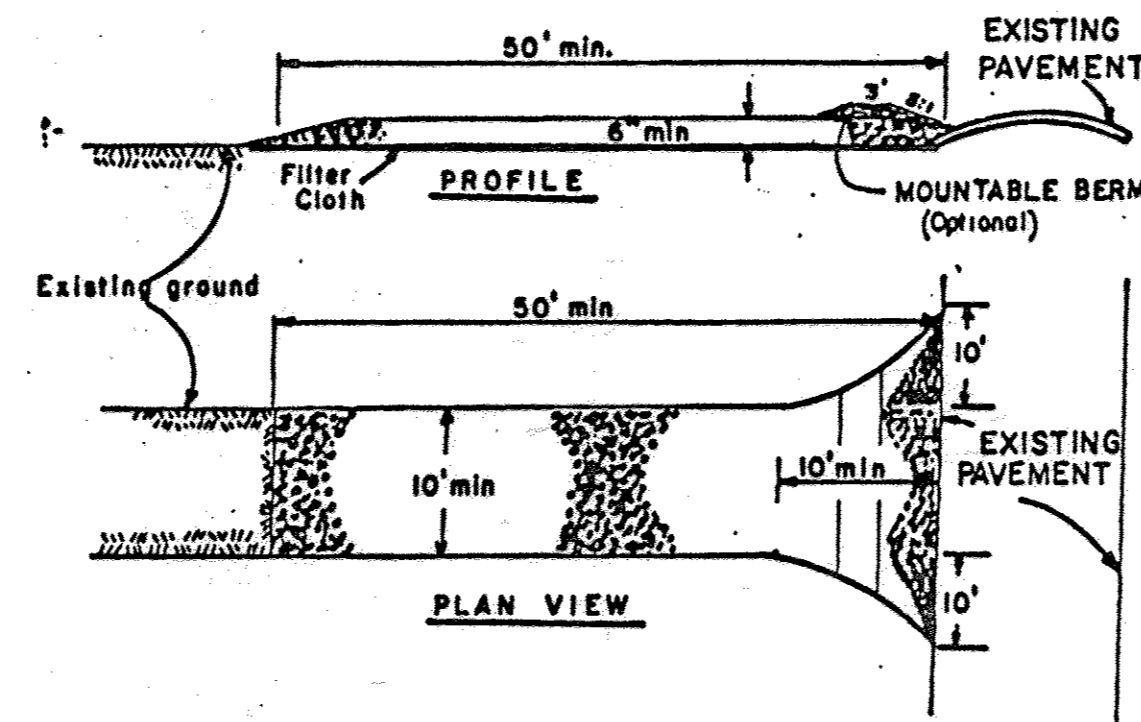
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
- 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 GA. 6" MAX. MESH OPENING  
 FILTER CLOTH: FILTER X, MTRAF-100, STABILINKA LITHON OR APPROVED EQUAL  
 PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

PLAN SYMBOL  
 S-S-S-S

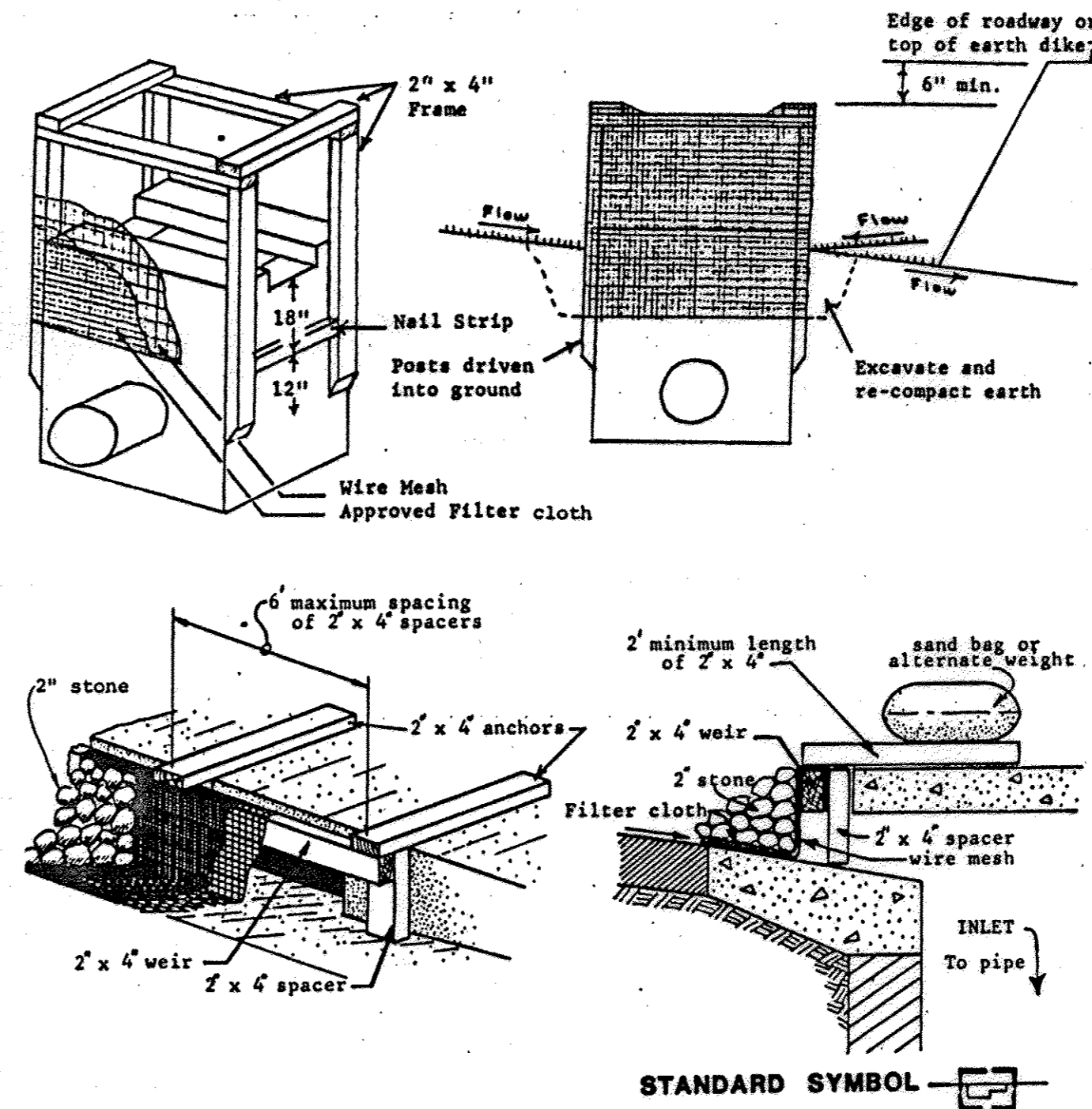
SILT FENCE  
 NO SCALE



CONSTRUCTION SPECIFICATIONS

- Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
- Thickness - Not less than six (6) inches.
- Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
- 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.
- 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.
- 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.
- 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.
- Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE  
 NO SCALE



CONSTRUCTION SPECIFICATIONS

I. Materials

- Wooden frame is to be constructed of 2" x 4" construction grade lumber.
- Wire mesh must be of sufficient strength to support filter fabric, and stone for curb inlets, with water fully impounded against it.
- Filter cloth must be of a type approved for this purpose; resistant to sunlight with sieve size, E08, 40-85, to allow sufficient passage of water and removal of sediment.
- Stone is to be 2" in size and clean, since fines would clog the cloth.

II. Procedure

- A swale, ditchline or yard inlet protection.
  - Excavate completely around inlet to a depth of 18" below notch elevation.
  - 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.
  - Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
  - 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.
  - Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
  - 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).
  - This structure must be inspected frequently and the filter fabric replaced when clogged.

INLET PROTECTION  
 NO SCALE

CERTIFICATION BY THE DEVELOPER:

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT AND PLANS 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 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*John H. [Signature]*  
 Signature of Developer  
 8/23/90  
 Date

CERTIFICATION BY THE ENGINEER:

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.

*Richard R. [Signature]*  
 Signature of Engineer  
 8/29/90  
 Date

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

*James M. [Signature]*  
 U.S. Soil Conservation Service  
 3/11/91  
 Date

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

*Stephen D. [Signature]*  
 Howard Soil Conservation District  
 3/11/91  
 Date

APPROVED:

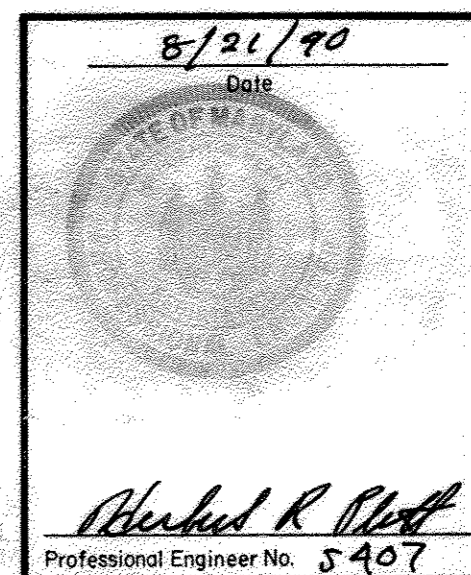
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*John M. [Signature]*  
 CHIEF, LAND DEVELOPMENT DIVISION  
 7/22/91  
 DATE  
*Lawrence W. [Signature]*  
 CHIEF, BUREAU OF HIGHWAYS  
 3/19/91  
 DATE  
*Richard B. [Signature]*  
 CHIEF, BUREAU OF ENGINEERING  
 3-21-91  
 DATE

APPROVED:

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Richard J. [Signature]*  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT  
 7/11/91  
 DATE

PHOENIX ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 BALTIMORE, MARYLAND 21228

AREA	BROKEN LAND PARKWAY	
TITLE	SEDIMENT CONTROL DETAILS	
Des By	H.R.R.	Scale AS SHOWN
Drn By	J.W.B.	Date JULY 1990
Proj.No.	89-0040	Drawing No.
Chk By	S.P.	Approved
	8	OF 12

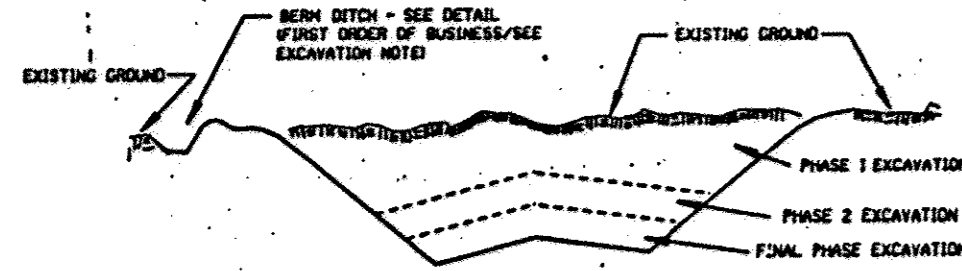




**EXCAVATION**

IF BERM DITCHES ARE TO BE USED IN A CUT SECTION, THEY WILL BE EXCAVATED AND STABILIZED AS THE FIRST ORDER OF BUSINESS AS DIRECTED BY THE ENGINEER.

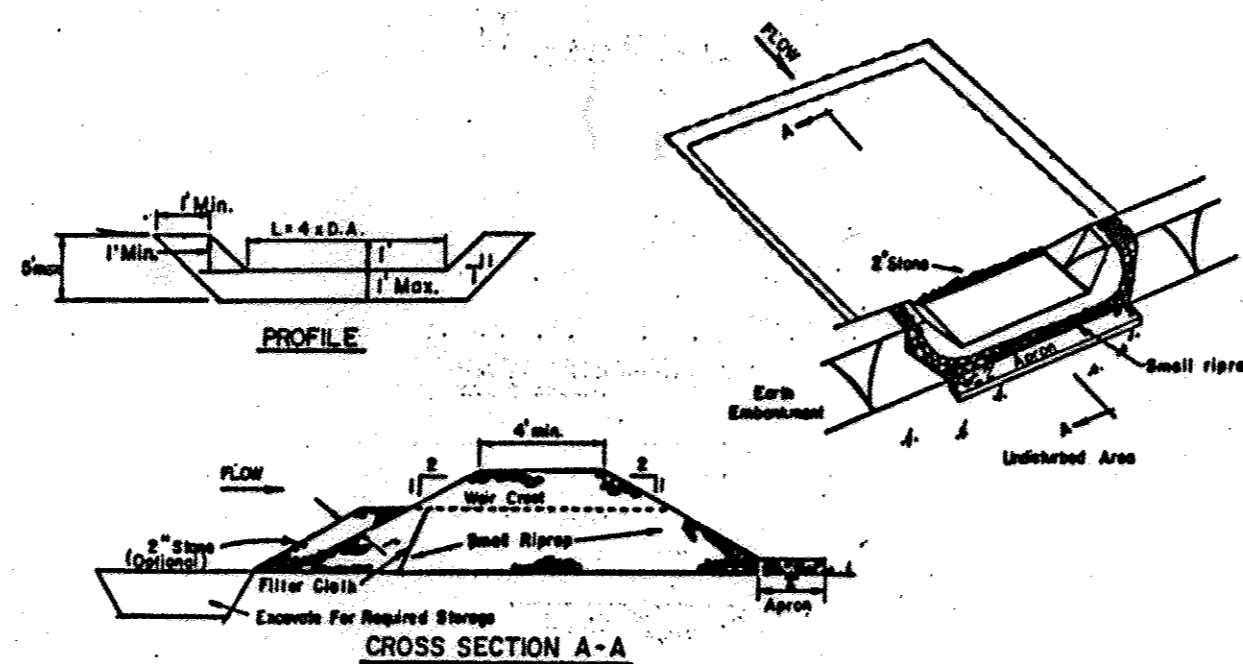
ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15 FEET.



- CONSTRUCTION SEQUENCE: 1) EXCAVATE AND STABILIZE BERM, SIDE AND OUTLET DITCHES.  
 2) PERFORM PHASE 1 EXCAVATION, DRESS, SEED & MULCH SLOPES WITH PERMANENT SEED & MULCH.  
 3) PERFORM PHASE 2 EXCAVATION, DRESS, SEED & MULCH SLOPES WITH PERMANENT SEED & MULCH. OVERSEED PHASE 1 SLOPES, IF REQUIRED.  
 4) PERFORM FINAL PHASE EXCAVATION, DRESS, SEED & MULCH SLOPES WITH PERMANENT SEED & MULCH. STABILIZE SURFACE DRAIN DITCHES, OVERSEED PHASE 1 & 2 SLOPES, IF REQUIRED, AS DETERMINED BY THE ENGINEER.

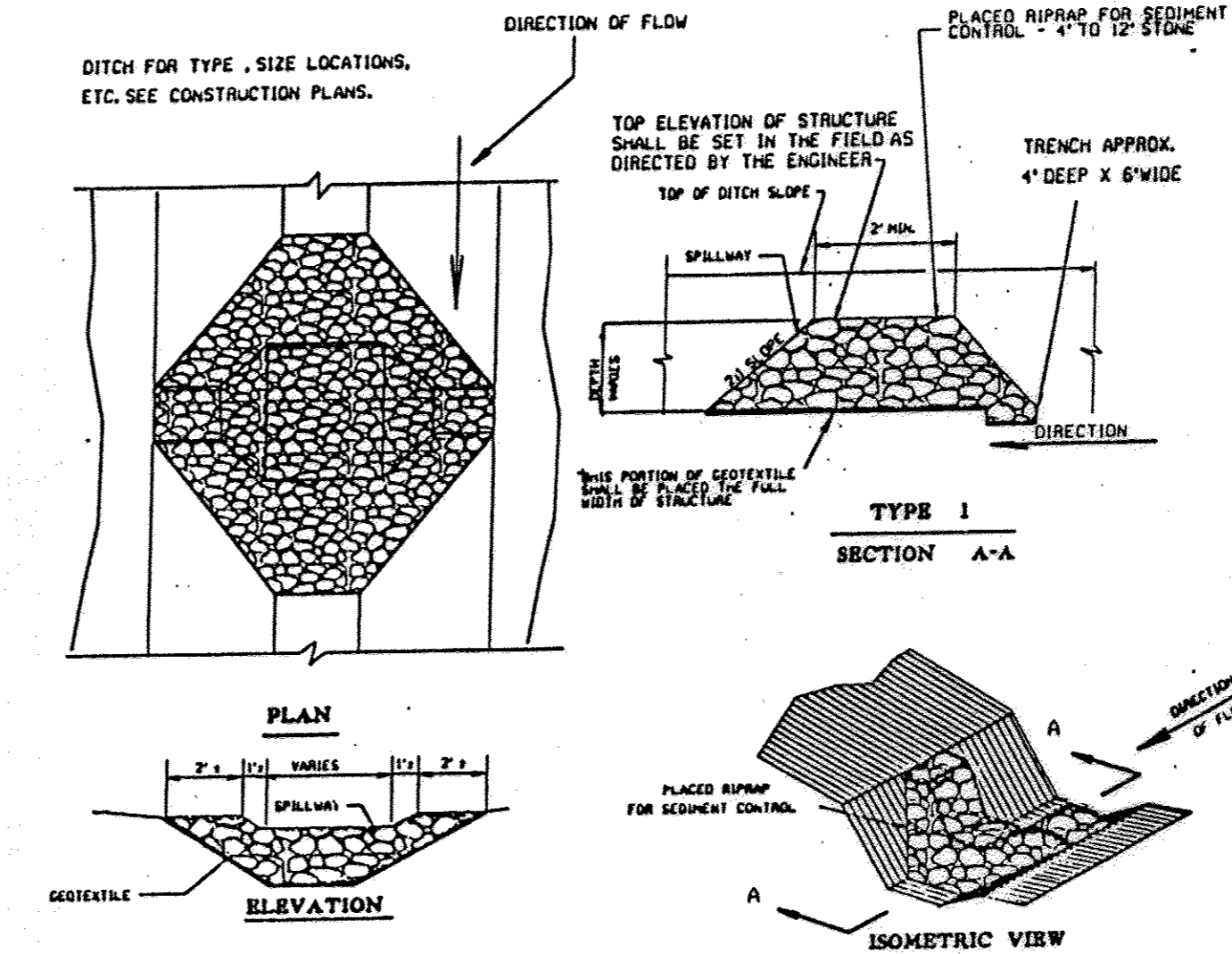
**PHASING PLAN-CUT SECTION**

NOTE: ONCE THE EXCAVATION WITHIN A SPECIFIC AREA HAS BEGUN, THE OPERATION SHALL BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF THE GRADING AND PLACEMENT OF PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF 14 DAYS OR MORE MUST BE APPROVED BY THE ENGINEER. ANY VIOLATION OF THIS REQUIREMENT WILL RESULT IN THE CONTRACTOR ASSUMING THE RESPONSIBILITY OF PLACING TEMPORARY STABILIZATION AT HIS OWN COST AND EXPENSE.



- OPTION: A one foot layer of 2" stone may be placed on the upstream side of the riprap in place of the embedded filter cloth.
- CONSTRUCTION SPECIFICATIONS FOR ST-7
- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
  - 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.
  - All cut and fill slopes shall be 2:1 or flatter.
  - The stone used in the outlet shall be small riprap 4"-8" along with a 1' thickness of 2" aggregate placed on the up-grade side on the small riprap on embedded filter cloth in the riprap.
  - Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap.
  - The structure shall be inspected after each rain and repairs made as needed.
  - Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
  - The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

STONE OUTLET SEDIMENT TRAP  
NO SCALE



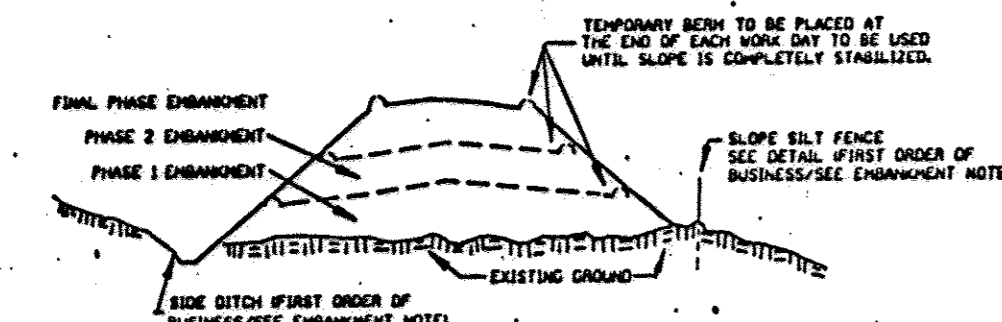
- INTENDED FOR USE IN EXISTING, PROPOSED AND TEMPORARY DITCHES OF ALL TYPES AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
- FOR LOCATIONS OF OUTLET STRUCTURES REFER TO CONSTRUCTION PLANS
- THE OUTLET STRUCTURES SHALL BE INSPECTED AFTER EACH RAIN, AND THE STONE SHALL BE REPLACED WHEN THE OUTLET STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, SILT ACCUMULATION AMONG THE STONE, ETC. HOWEVER, IN ANY CASE THE SILT SHALL BE CLEANED OUT WHEN IT REACHES 50% OF THE HEIGHT OF THE STRUCTURE.
- TEMPORARY STONE OUTLET STRUCTURES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE. IN CUT AREAS IT SHALL ALWAYS BE REMOVED, SHALLOW FILLS LESS THAN 20 FEET AS DIRECTED BY THE ENGINEER. IT WILL NOT BE REMOVED IN STEEPER THAN 20 FOOT FILLS.
- GEOTEXTILE TO MEET THE REQUIREMENTS OF CLASS C... SEE GENERAL NOTE 16
- THIS DEVICE IS TO BE USED ONLY AS A VELOCITY CHECK. IT IS NOT INTENDED TO TRAP SEDIMENT RUNOFF.

TEMPORARY STONE OUTLET STRUCTURE  
NO SCALE

**EMBANKMENT**

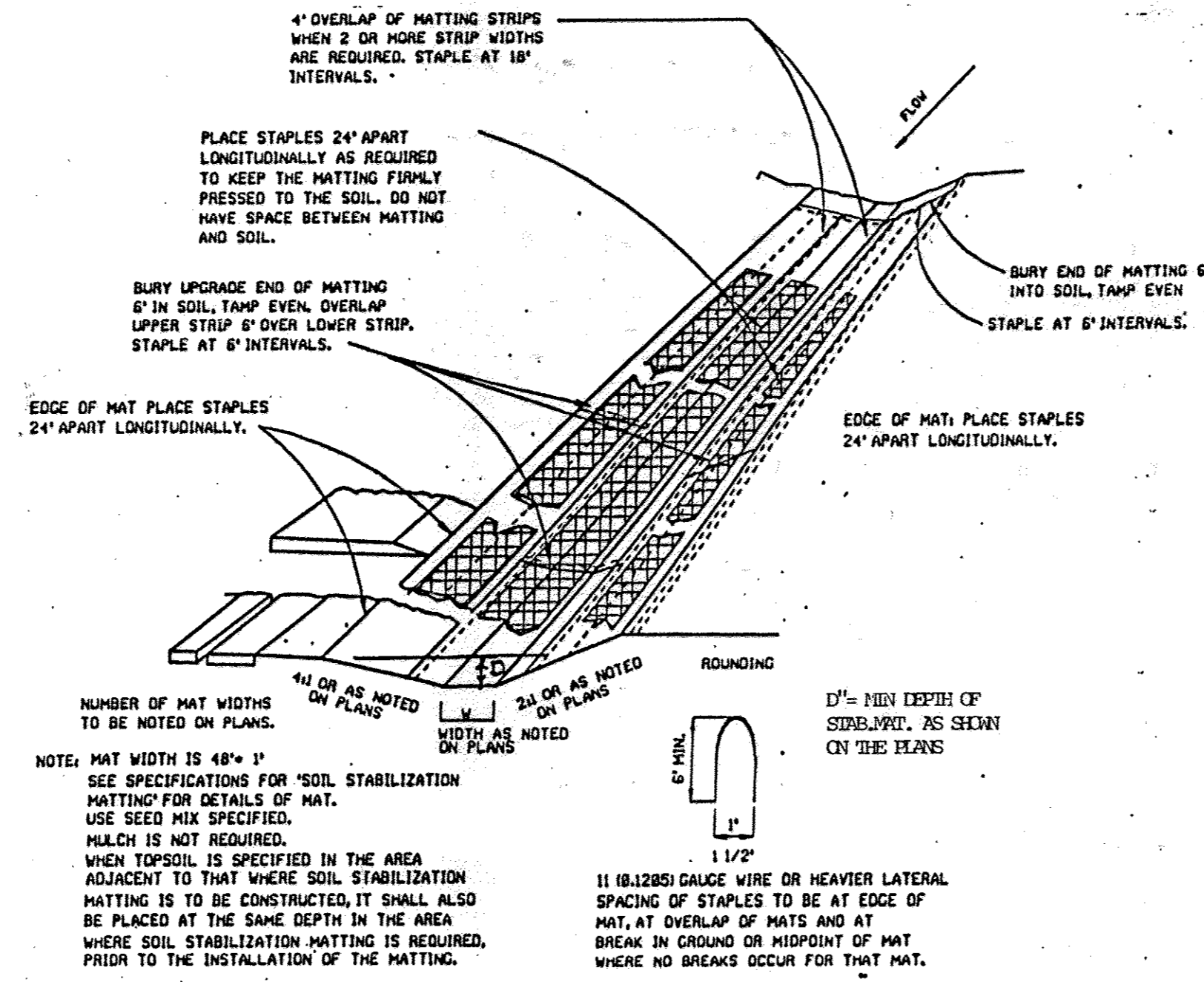
THE FIRST ORDER OF BUSINESS WILL BE THE EXCAVATION AND STABILIZATION OF SIDE DITCHES AND PLACEMENT OF PERIMETER CONTROLS (SILT FENCE, ETC.). THE EMBANKMENT WILL BE MADE IN LIFTS MEETING THE SAME HEIGHT REQUIREMENTS AS PREVIOUSLY STATED FOR CUT SECTIONS. THE SLOPES WILL BE STABILIZED IMMEDIATELY FOLLOWING THE COMPLETION OF THE INTERMEDIATE STAGES.

AT THE END OF EACH WORK DAY TEMPORARY BERMS (EARTH) AND SLOPE DRAINS WILL BE CONSTRUCTED ALONG THE TOP EDGES OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF.



- CONSTRUCTION SEQUENCE: 1) EXCAVATE AND STABILIZE SIDE DITCH AND/OR INSTALL PROPOSED CONTROLS AT THE TOE OF SLOPE.  
 2) PLACE PHASE 1 EMBANKMENT, PROVIDE TEMPORARY SEEDING OR STRAW MULCH.  
 3) PLACE PHASE 2 EMBANKMENT, DRESS PROVIDE TEMPORARY SEEDING OR STRAW MULCH.  
 4) PLACE FINAL PHASE EMBANKMENT, DRESS PREPARE & PLACE PERMANENT SEED & MULCH ON THE ENTIRE SLOPE.

**PHASING PLAN-FILL SECTION**

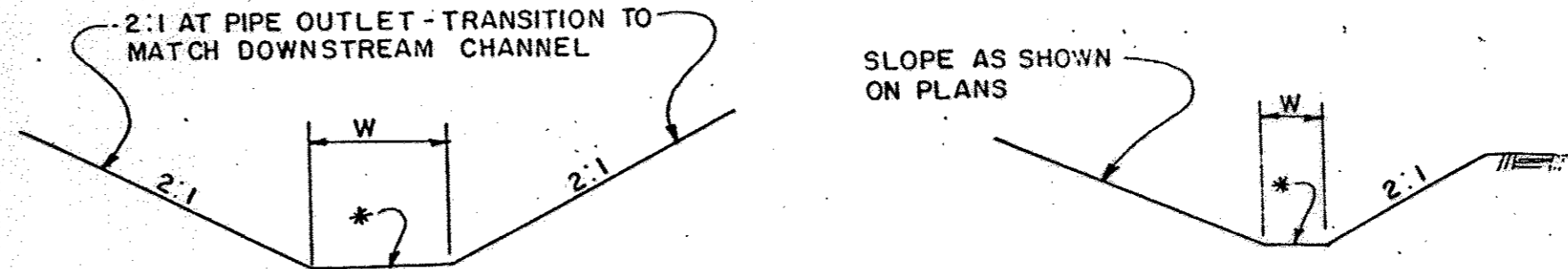


NOTE: MAT WIDTH IS 48" ± 1" SEE SPECIFICATIONS FOR SOIL STABILIZATION MATTING FOR DETAILS OF MAT. USE SEED MIX SPECIFIED. MULCH IS NOT REQUIRED. WHEN TOPSOIL IS SPECIFIED IN THE AREA ADJACENT TO THAT WHERE SOIL STABILIZATION MATTING IS TO BE CONSTRUCTED, IT SHALL ALSO BE PLACED AT THE SAME DEPTH IN THE AREA WHERE SOIL STABILIZATION MATTING IS REQUIRED, PRIOR TO THE INSTALLATION OF THE MATTING.

11 (18.25) GAUGE WIRE OR HEAVIER LATERAL SPACING OF STAPLES TO BE AT EDGE OF MAT, AT OVERLAP OF MATS AND AT BREAK IN GROUND OR MIDPOINT OF MAT WHERE NO BREAKS OCCUR FOR THAT MAT.

THE CONTRACTOR HAS THE OPTION OF SUPPLYING EITHER JUTE OR EXCELSIOR MATTING HOWEVER JUTE WILL ONLY BE ALLOWED IN DITCHES HAVING A GRADE OF 2% OR LESS. THERE ARE NO RESTRICTIONS FOR EXCELSIOR MATTING.

SOIL STABILIZATION MATTING PLACEMENT  
NO SCALE



OUTLET DITCH  
NOT TO SCALE

SIDE DITCH  
NOT TO SCALE

\* EROSION PROTECTION AS INDICATED ON PLANS. SEE DETAILS, SHEET NO. 9 AND 10

**CERTIFICATION BY THE DEVELOPER:**

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT AND PLANS 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 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Signature of Developer: *[Signature]* Date: 8/23/90

**CERTIFICATION BY THE ENGINEER:**

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 of Engineer: *[Signature]* Date: 8/29/90

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

Signature: *[Signature]* Date: 3/11/91  
U.S. Soil Conservation Service

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

Signature: *[Signature]* Date: 3/14/91  
Howard Soil Conservation District

**APPROVED:**

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 CHIEF, LAND DEVELOPMENT DIVISION 9/26/91  
 CHIEF, BUREAU OF HIGHWAYS 3/19/91  
 CHIEF, BUREAU OF ENGINEERING 3-26-91

**APPROVED:**

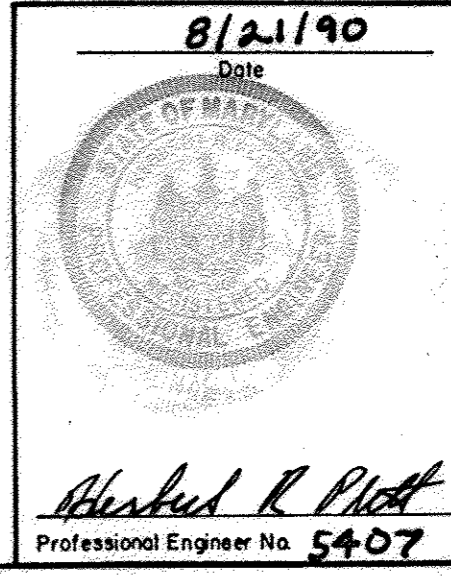
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT 9/1/91

PHOENIX ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 BALTIMORE, MARYLAND 21228

AREA: BROKEN LAND PARKWAY

TITLE: SEDIMENT CONTROL DETAILS

Des By H.R.P.	Scale AS SHOWN	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 9 OF 12
Chk By S.P.	Approved	



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PERMANENT SEEDING NOTE

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS: USE ONE OF THE FOLLOWING SCHEDULES.

- 1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS 1000 SQUARE FT) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. 1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS. PER 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. ACRES KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS ACRES OF 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

SEEDBED PREPARATION: LOOSEN UPPER 3 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 MACH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BU. 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 APPLY 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) SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GRATER 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	11.80	ACRES
AREA DISTURBED	8.1	ACRES
AREA TO BE ROOFED OR PAVED	4.2	ACRES
AREA TO BE VEGETATIVELY STABILIZED	4.4	ACRES
TOTAL CUT	392.00	CU. YDS.
TOTAL FILL	251.40	CU. YDS.
- 8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 9) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.
- 10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

SEQUENCE OF CONSTRUCTION

THE FOLLOWING DESCRIBES A SEQUENCE OF CONSTRUCTION FOR EACH SECTION OF THIS PROJECT:

- A. STEVENS FOREST ROAD TO THE SHA LIMIT OF WORK (STA. 187+ TO 194+) AND, B. SHA LIMIT OF WORK TO HICKORY RIDGE ROAD (STA. 131+ TO 142+00).

IT SHOULD BE NOTED THAT CERTAIN SEDIMENT AND EROSION CONTROL DEVICES IN THE CONSTRUCTION AREA ARE BEING INSTALLED BY OTHERS UNDER SHA CONTRACT HO-630-501-770 AND THAT WORK UNDER THIS CONTRACT NEEDS TO BE COORDINATED WITH THE WORK BEING DONE UNDER THE SHA CONTRACT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK BEING DONE UNDER THIS CONTRACT WITH WORK BEING DONE BY OTHERS TO INSURE THAT THE SEDIMENT CONTROL PLAN WILL FUNCTION DURING THE VARIOUS STAGES OF CONSTRUCTION.

A. STEVENS FOREST ROAD TO SHA LIMIT OF WORK

1. OBTAIN A GRADING PERMIT.
  2. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
  3. CONSTRUCT PART OF DRAINAGE SYSTEM TO INCLUDE:
    - a. MANHOLE 1, MANHOLE 2, ENDWALL E-1 AND D CONNECTING PIPES.
    - b. CONSTRUCT TSOS LT. STA. 189+60 AND RIPRAP OUTLET DITCH AND SIDE DITCH WITH SOIL STABILIZATION MAT ON LT. FROM STA. 188+30 TO TSOS.
- NOTE: THESE DRAINAGE ITEMS ARE TO BE COMPLETE AND STABILIZED BEFORE STARTING ANY GRADING IN THE AREA FROM STA. 187+00 TO 192+00.
4. INSTALL SILT FENCE ON RT. FROM 187+10 TO 194+35 AND CONSTRUCT STONE OUTLET SEDIMENT TRAP NO. 1.
  5. CONSTRUCT DIVERSION BERM STA. 194+ TO TRAP NO. 1. AN A-4 TYPE BERM HAS BEEN CONSTRUCTED IN THIS AREA UNDER THE SHA CONTRACT. THE PROPOSED BERM SHOULD CONNECT TO THE SHA BERM AT APPROX. 60 FT. RT. OF STA. 194+20 AND CONNECT TO TRAP NO. 1. THIS BERM WILL HAVE TO BE REBUILT TO A LOWER ELEVATION WITHIN THE LIMITS OF GRADING AS THE ROADBED IS GRADED TO SUBGRADE ELEVATION.
  6. REMOVE EXISTING SILT FENCES WITHIN THE ROADBED AREA AND BEGIN GRADING AND REMOVAL AND SCARIFYING EXISTING PAVEMENT.
  7. CONTINUE CONSTRUCTION OF STORM DRAIN SYSTEMS AND INSTALL INLET PROTECTION DEVICES WHEN INLETS ARE CAPABLE OF RECEIVING SEDIMENTS.
  8. COMPLETE ROADWAY GRADING AND STABILIZE THE AREA.
  9. COMPLETE GRADING OF AREAS OUTSIDE OF THE ROADWAY; (AREAS OF THE EXISTING ROADBED) AND STABILIZE THIS AREA. THE TEMPORARY STONE OUTLET SEDIMENT TRAP NO. 1 IS TO REMAIN IN PLACE UNTIL ALL UPLAND AREAS HAVE BEEN STABILIZED.

UPON COMPLETION OF ALL GRADING OPERATIONS AND WITH THE APPROVAL OF THE HOWARD COUNTY DPW SEDIMENT INSPECTOR ALL REMAINING SEDIMENT CONTROL DEVICES WILL BE REMOVED AND THE DISTURBED AREAS STABILIZED IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.

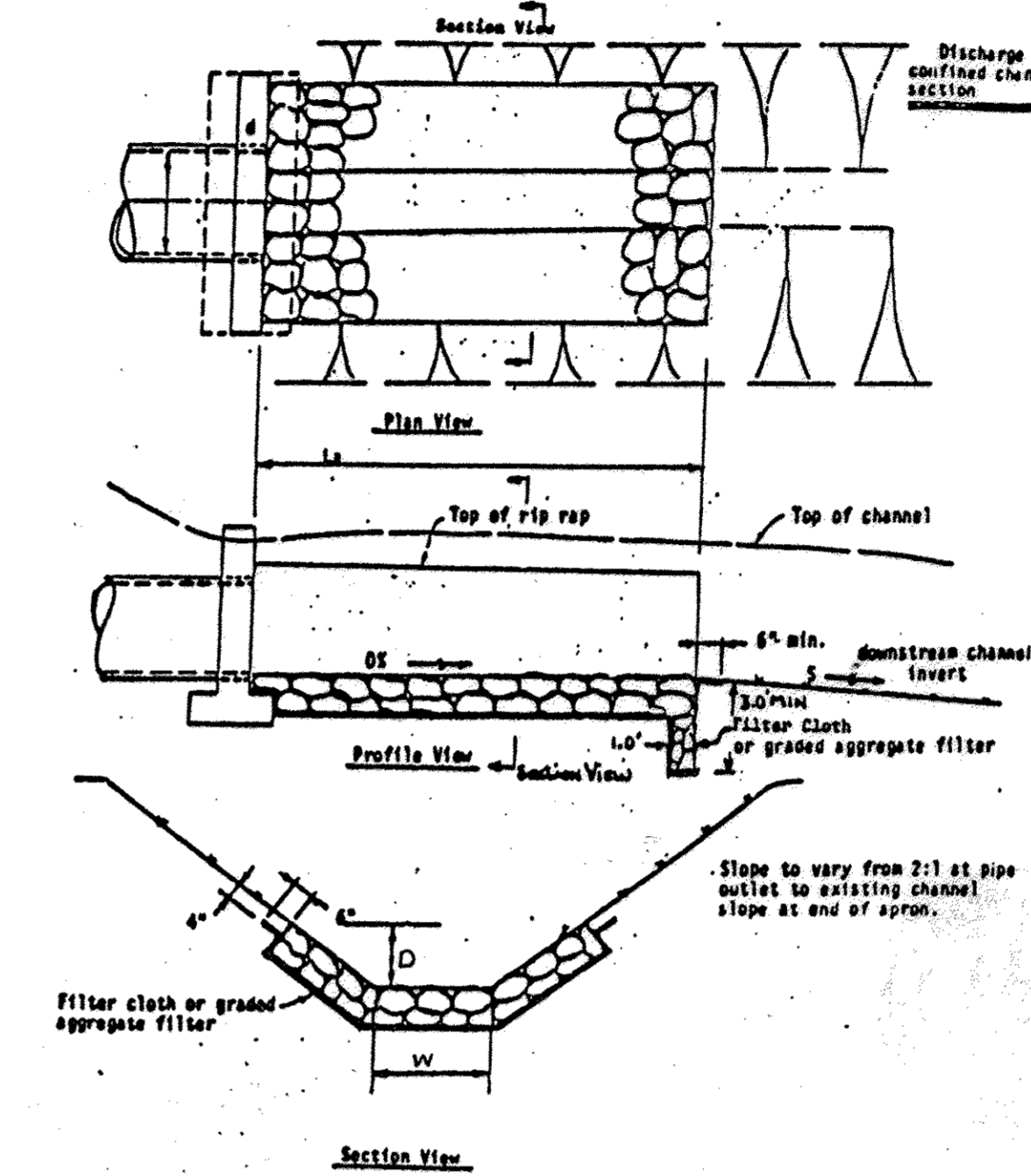
B. SHA LIMIT OF WORK TO HICKORY RIDGE ROAD

THE TEMPORARY STREAM DIVERSION AND WORK RELATED TO THE CULVERT CONSTRUCTION IS ONE OF THE FIRST ITEMS OF WORK TO BE COMPLETED. A SEQUENCE OF CONSTRUCTION FOR THE STREAM DIVERSION IS INCLUDED ON THE STREAM DIVERSION PLAN SHEET.

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CONSTRUCT THE TEMPORARY STONE OUTLET STRUCTURE SEDIMENT TRAP NO.2, PERMANENT SIDE DITCH ON RIGHT FROM STA. 136+75 TO TSOS AND EARTH DIKE TO EXISTING STREAM.
3. FOLLOWING COMPLETION OF THE TEMPORARY STREAM DIVERSION CONSTRUCT THE TWIN 60" CULVERT, HEADWALLS AND, INLET AND OUTLET DITCHES.
4. CONSTRUCT PORTION OF PERMANENT SIDE DITCHES: LEFT FROM STA. 136+50 TO CULVERT INLET DITCH AND FROM CULVERT INLET DITCH TO STA. 141+100. REMOVE EARTH DIKE FROM TSOS RIGHT OF STA. 137+95 TO EXISTING STREAM AND CONSTRUCT PERMANENT SIDE DITCH TO CULVERT OUTLET DITCH.
5. INSTALL ALL SILT FENCES, CLEAR AND GRUBB, REMOVE TEMPORARY STREAM DIVERSION AND PLACE FILL OVER CULVERT.
6. GRADE THE ROADWAY (CONSTRUCT CUT AND FILL) AND INSTALL DRAINAGE STRUCTURES.
7. WHEN ROADBED REACHES SUBGRADE ELEVATION AND IS STABILIZED, REMOVE SEDIMENT TRAP NO. 2 AND CONSTRUCT REMAINING PORTIONS OF PERMANENT SIDE DITCHES. INSTALL INLET PROTECTION DEVICES WHEN INLETS ARE CAPABLE FOR RECEIVING SEDIMENTS.

UPON COMPLETION OF ALL GRADING OPERATIONS AND WITH THE APPROVAL OF THE HOWARD COUNTY DPW SEDIMENT INSPECTOR ALL REMAINING SEDIMENT CONTROL DEVICES WILL BE REMOVED AND DISTURBED AREAS STABILIZED IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.

EARTHWORK BALANCE - THE GRADING WILL BE COORDINATED WITH THE ADJACENT SHA PROJECT. ANY WASTE OR BORROW WILL BE INCLUDED IN THE OVERALL BALANCE OF THAT PROJECT



ROCK RIPRAP SIZES AND THICKNESS

d50 (inches)	dmax (inches)	Min Blanket Thickness (inches)
4	6	9
6	9	14
9	14	20
12	18	27
15	22	32
18	27	32
21	32	38
24	36	43

Stone Quality. Stone for riprap shall consist of field stone or rough unheun quarry stone. The stone shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual stones shall be at least 2.5.

Filter. A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap. Riprap shall have a filter placed under it in all cases.

A filter can be of two general forms: A gravel layer or a plastic filter cloth. The plastic filter cloth can be woven or non-woven monofilament yarns, and shall meet these base requirements: thickness 20-60 mils, grab strength 90-120 lbs; and shall conform to ASTM D-1777 and ASTM D-1682.

Gravel filter blanket when used shall be designed by comparing particle sizes of the overlying material and the base material. Design criteria is available in any soils or civil engineering reference or from the Soil Conservation Service.

RIP RAP OUTLET PROTECTION-II  
NO SCALE

PLAN SYMBOL

8/21/90  
Date

Herbert R. Pitt  
Professional Engineer No. 5407

CERTIFICATION BY THE DEVELOPER:

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT AND PLANS 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 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*J.H. N.H.*  
Signature of Developer  
8/23/90  
Date

CERTIFICATION BY THE ENGINEER:

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.

*Herbert R. Pitt*  
Signature of Engineer  
8/29/90  
Date

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

*James M. Halar*  
U.S. Soil Conservation Service  
8/11/91  
Date

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

*Jeff W. Stahly*  
Howard Soil Conservation District  
8/1/91  
Date

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*James M. Halar*  
CHIEF LAND DEVELOPMENT DIVISION  
8/26/91  
DATE

*James W. Weiland*  
CHIEF BUREAU OF HIGHWAYS  
8/19/91  
DATE

*James W. Weiland*  
CHIEF BUREAU OF ENGINEERING  
8-26-91  
DATE

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Herbert R. Pitt*  
CHIEF DIVISION OF COMMUNITY PLANNING  
8/1/91  
DATE

AND LAND DEVELOPMENT

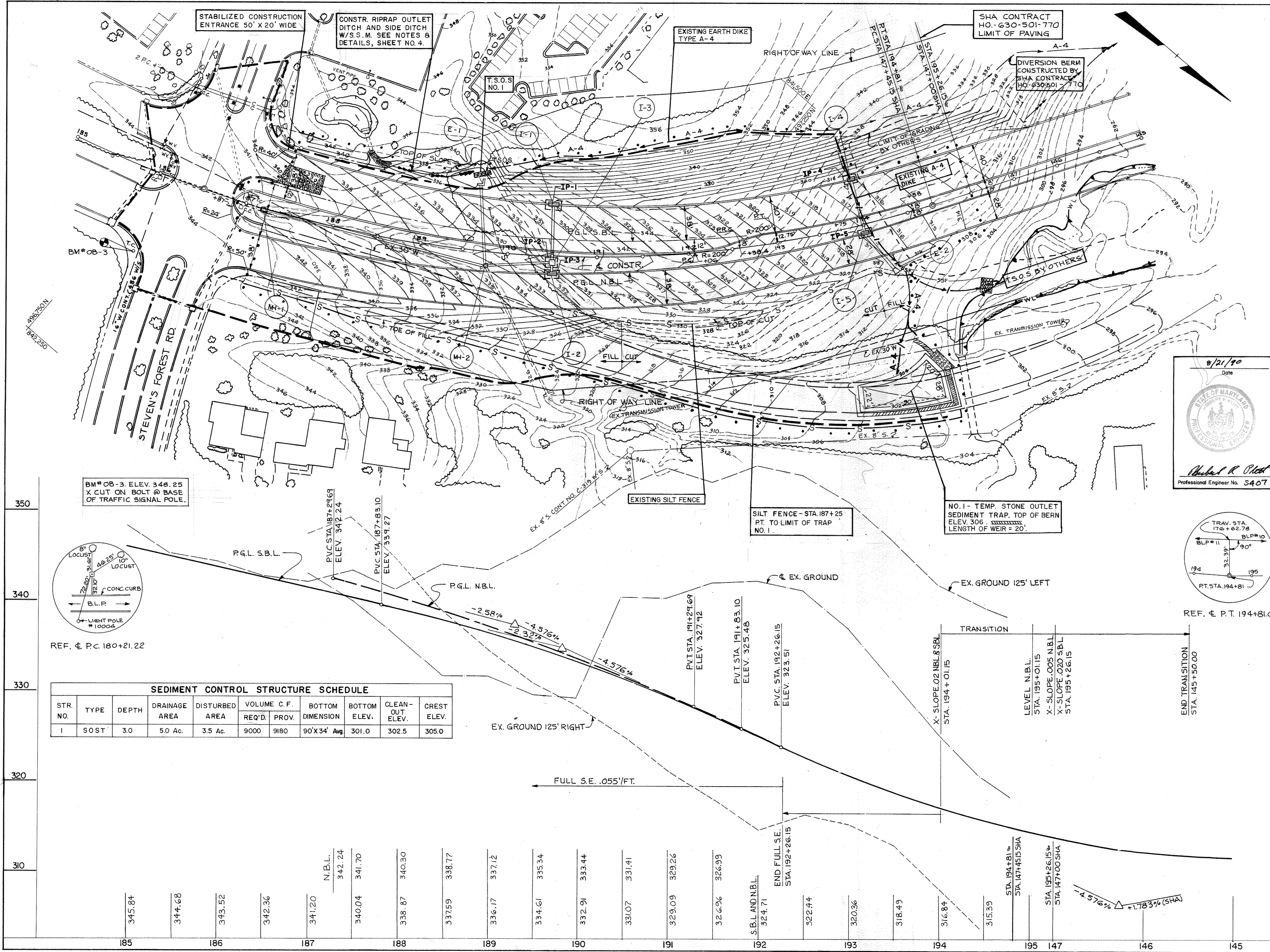
PHOENIX ENGINEERING, INC.  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA  
BROKEN LAND PARKWAY

TITLE  
SEDIMENT CONTROL DETAILS

Des By H.R.P.	Scale AS SHOWN	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 10 OF 12
Chk By S.P.	Approved	

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APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*John M. [Signature]* 3/4/91 DATE  
 CHIEF, LAND DEVELOPMENT DIVISION  
*Lawrence W. Weiland* 3/19/91 DATE  
 CHIEF, BUREAU OF HIGHWAYS  
*[Signature]* 3-26-91 DATE  
 CHIEF, BUREAU OF ENGINEERING

APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 4/1/91 DATE  
 CHIEF DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

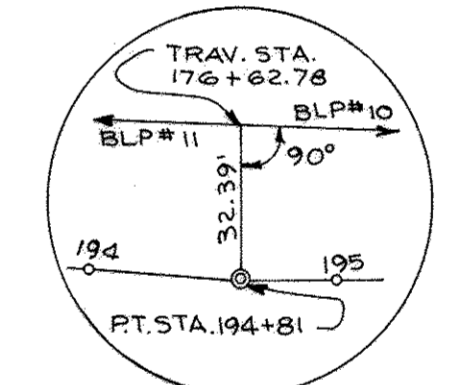
PHOENIX ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 BALTIMORE, MARYLAND 21228

AREA  
 BROKEN LAND PARKWAY

TITLE  
 EROSION AND SEDIMENT CONTROL

Des By H.R.P.	Scale 1" = 50'	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No.
Chk By S.P.	Approved	11 OF 12

8/21/90 Date  
 Professional Engineer No. 5407  
*Michael R. Platt*



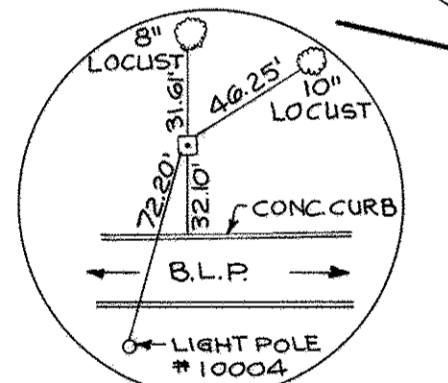
CERTIFICATION BY THE DEVELOPER:  
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*[Signature]* 8/23/90 Date  
 Signature of Developer

CERTIFICATION BY THE ENGINEER:  
 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.  
*Michael R. Platt* 8/24/90 Date  
 Signature of Engineer

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.  
*[Signature]* 3/11/91 Date  
 U.S. Soil Conservation Service

THESE PLANS FOR EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*[Signature]* 3/11/91 Date  
 Howard Soil Conservation District

BM# OB-3. ELEV. 348.25  
 X CUT ON BOLT @ BASE  
 OF TRAFFIC SIGNAL POLE.



REF. & P.C. 180+21.22

STR. NO.	TYPE	DEPTH	DRAINAGE AREA	DISTURBED AREA	VOLUME C.F.		BOTTOM DIMENSION	BOTTOM ELEV.	CLEAN-OUT ELEV.	CREST ELEV.
					REQ'D.	PROV.				
1	SOST	3.0	5.0 Ac.	3.5 Ac.	9000	9180	90'X34' Avg	301.0	302.5	305.0

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SEDIMENT CONTROL STRUCTURE SCHEDULE											
STR. NO.	TYPE	DEPTH	DRAINAGE AREA	DISTURBED AREA	VOLUMN C.F. REQ'D	VOLUMN C.F. PROV.	BOTTOM DIMENSION	BOTTOM ELEV.	CLEAN-OUT ELEV.	CREST ELEV.	
2	SOST	3.5'	3.0 Ac.	2.6 Ac.	5400	5512	70'X22.5' Avg.	347.0	348.8	351.5	

8/21/90  
Date  
Professional Engineer No. 3407

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*John M. Tangeman* 3/14/91  
CHIEF, LAND DEVELOPMENT DIVISION  
DATE  
*Draville W. Webeand* 3/19/91  
CHIEF, BUREAU OF HIGHWAYS  
DATE  
*James R. Reed* 3-26-91  
CHIEF, BUREAU OF ENGINEERING  
DATE  
APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Debra S. Langford* 4/1/91  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT  
DATE  
3/15

PHOENIX ENGINEERING, INC.  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA BROKEN LAND PARKWAY

TITLE EROSION AND SEDIMENT CONTROL

Des By H.R.P.	Scale 1" = 50'	Proj. No. 89-0040
Drn By J.W.B.	Date July 1990	Drawing No. 12 OF 18
Chk By S.P.	Approved	

CERTIFICATION BY THE DEVELOPER:  
I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT AND PLANS 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 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*James R. Reed* 8/23/90  
Signature of Developer Date

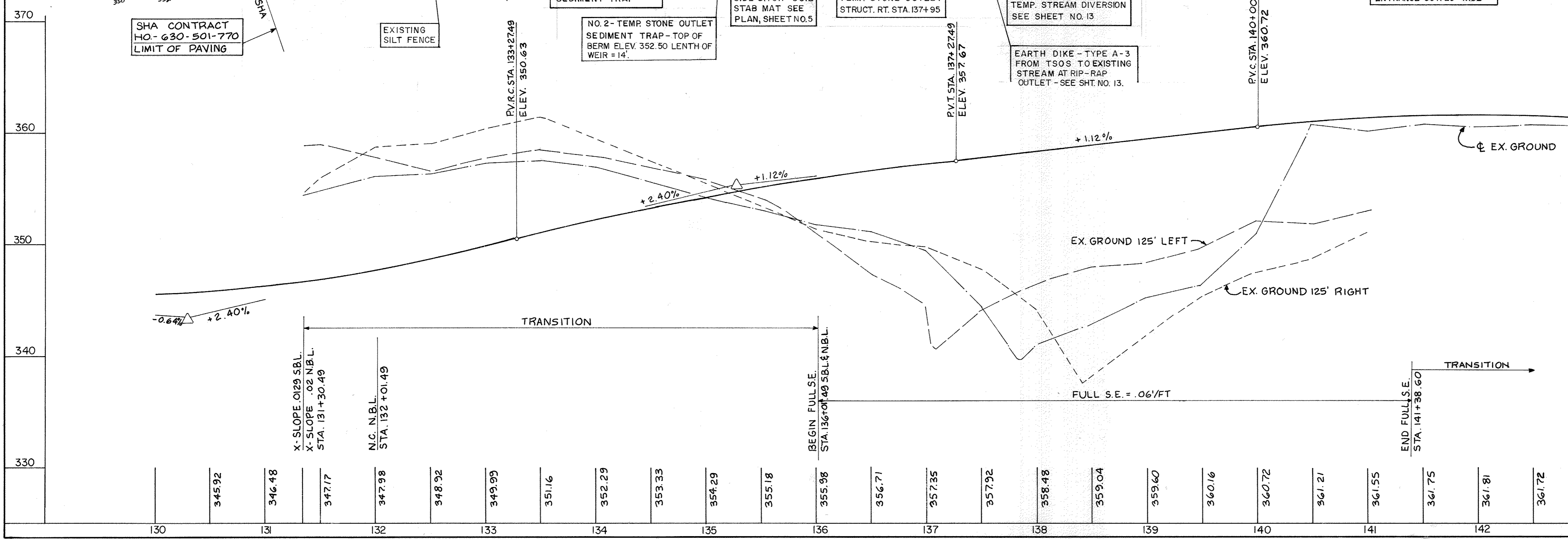
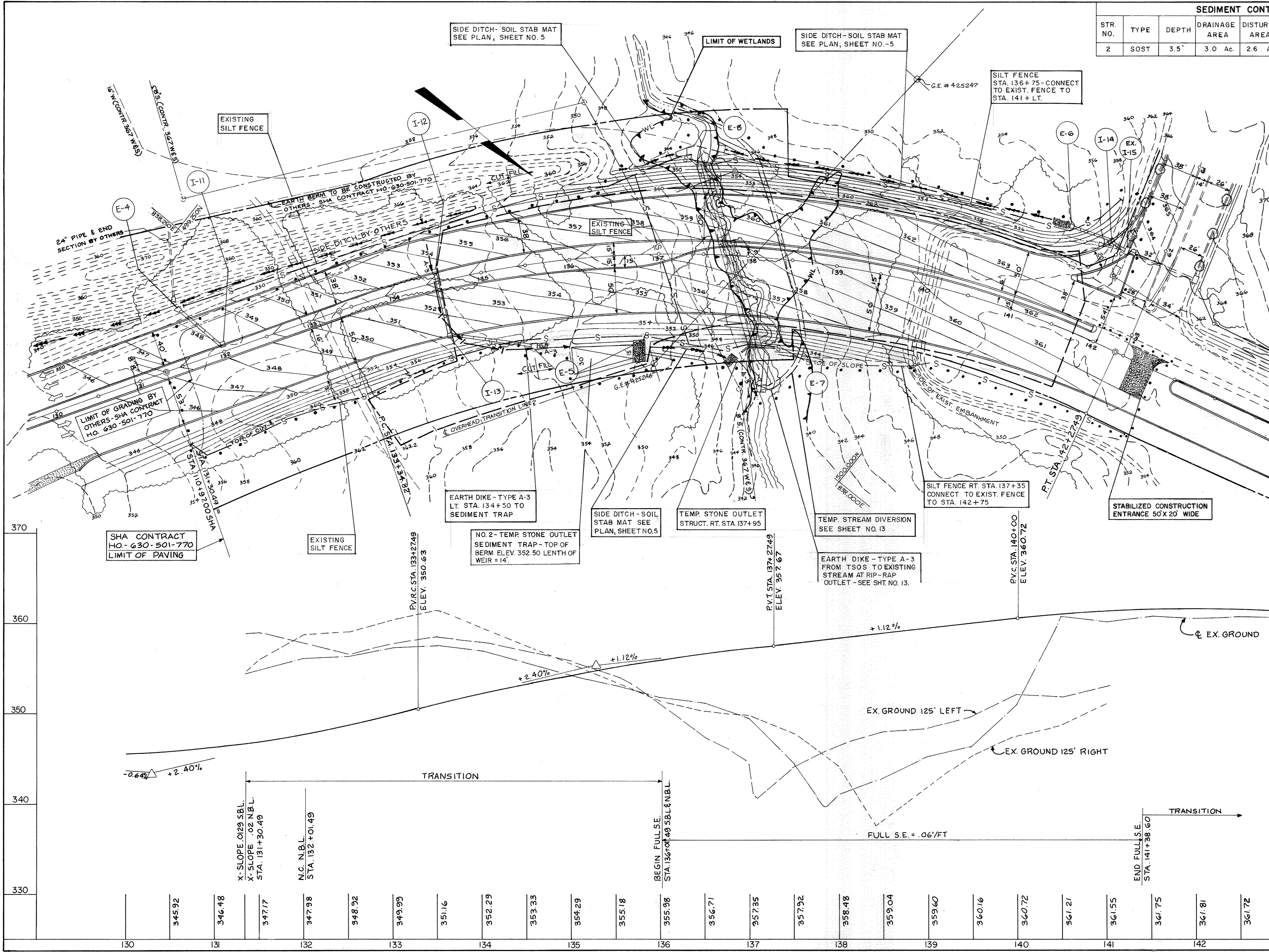
CERTIFICATION BY THE ENGINEER:  
"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*Michael R. Platt* 8/24/90  
Signature of Engineer Date

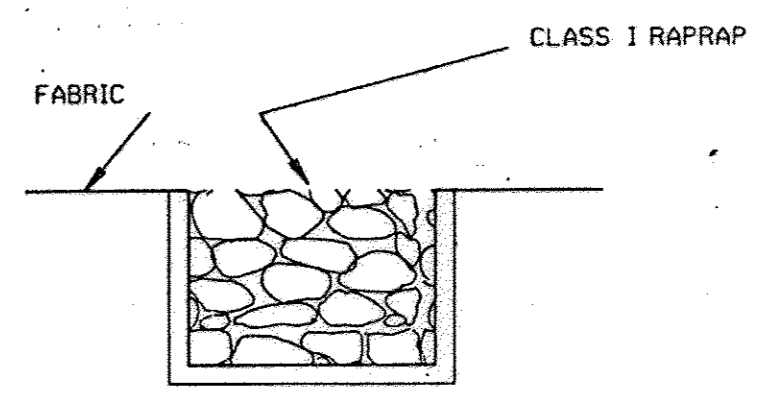
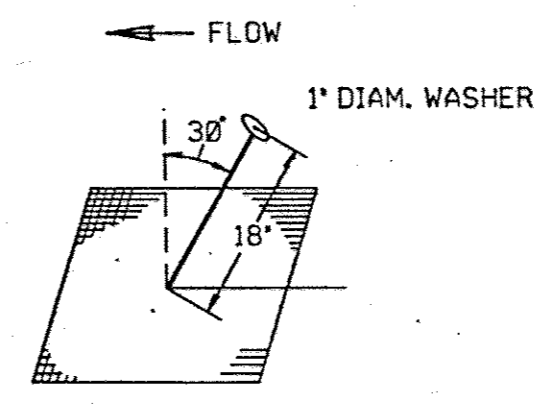
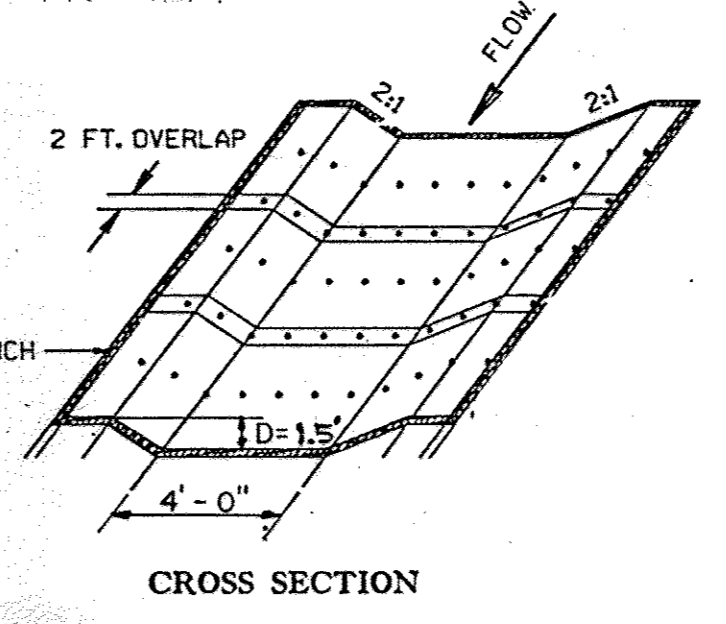
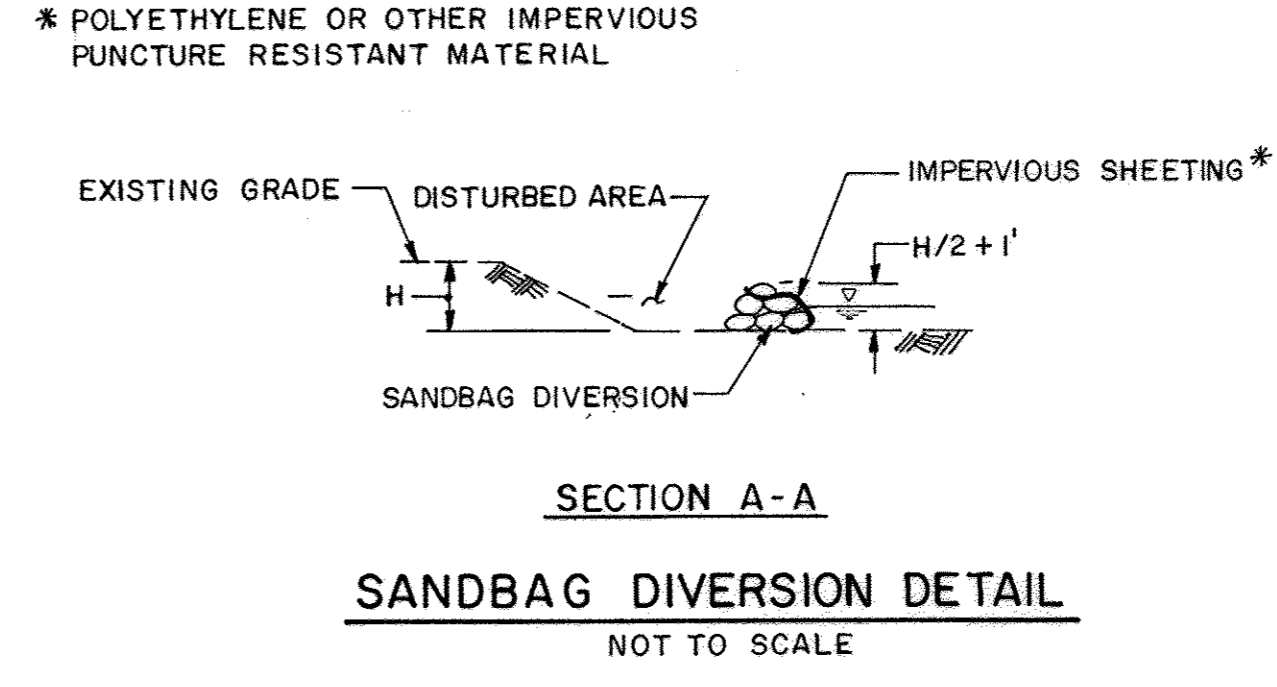
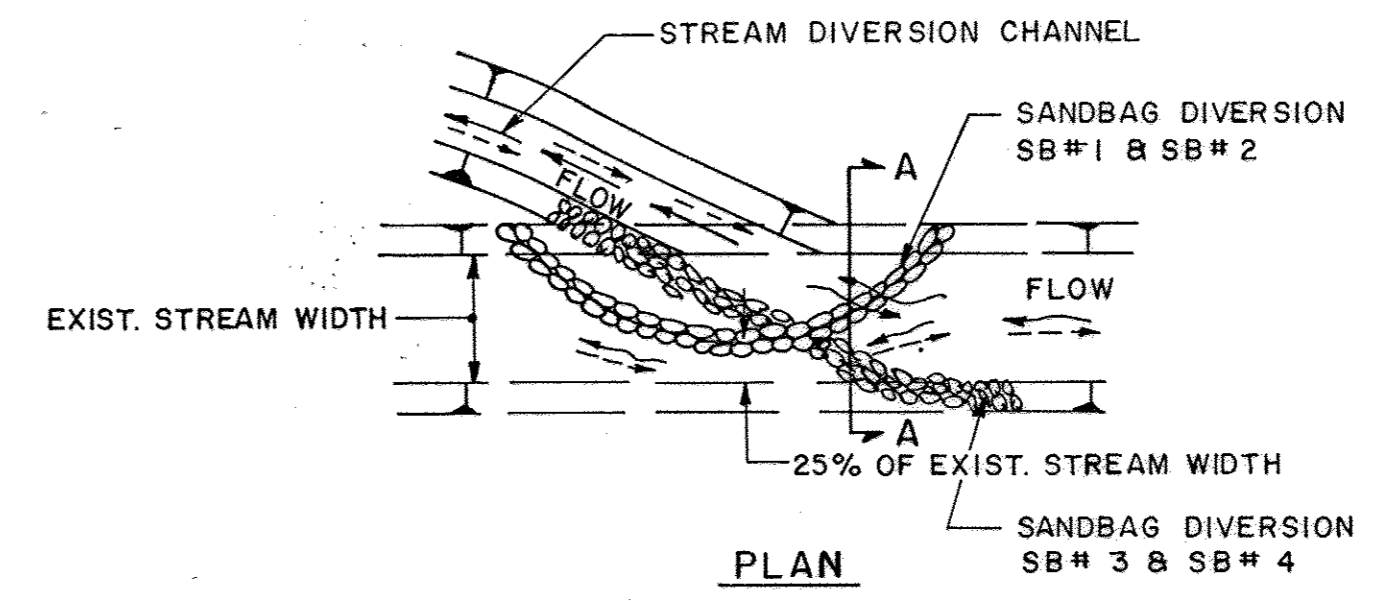
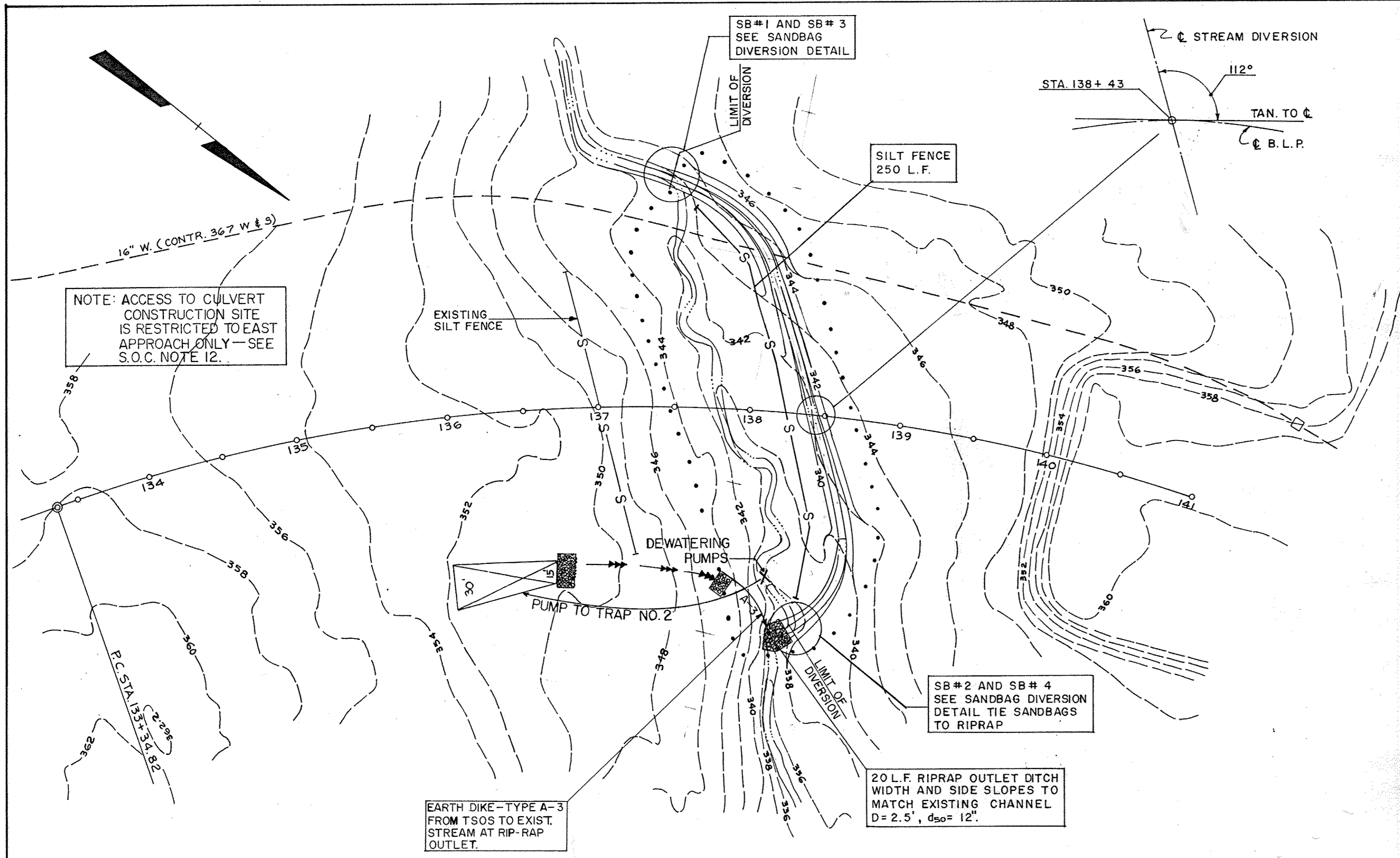
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*James H. Webeand* 3/11/91  
U.S. Soil Conservation Service Date

THESE PLANS FOR EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*John F. Schjerve* 3/11/91  
Howard Soil Conservation District Date



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**STREAM DIVERSION AND FABRIC LINING DETAIL**

NOTE: ACCESS TO CULVERT CONSTRUCTION SITE IS RESTRICTED TO EAST APPROACH ONLY - SEE S.O.C. NOTE 12.

EARTH DIKE - TYPE A-3 FROM TSOS TO EXIST. STREAM AT RIP-RAP OUTLET.

SB#2 AND SB#4 SEE SANDBAG DIVERSION DETAIL TIE SANDBAGS TO RIPRAP

20 L.F. RIPRAP OUTLET DITCH WIDTH AND SIDE SLOPES TO MATCH EXISTING CHANNEL D=2.5', d<sub>50</sub>=12\"/>

SCALE: 1" = 50'

**GENERAL NOTES**

- THESE STREAM MAINTENANCE DETAILS ARE SUGGESTED METHODS OF CONSTRUCTION ONLY. THE CONTRACTOR HAS THE OPTION OF SUBMITTING A PLAN OF HIS OWN DESIGN TO THE ENGINEER, THE HOWARD COUNTY SOIL CONSERVATION DISTRICT (HSCD) AND W.R.A. FOR APPROVAL. EROSION AND SEDIMENT CONTROL DETAILS ARE ESSENTIAL FOR THESE CONSTRUCTION OPERATIONS.
- ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN AN A SCS APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE W.R.A. AND THE HSCD.
- ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN PRIOR TO REENTERING THE STREAM.
- 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.
- ALL CONSTRUCTION SHALL REMAIN WITHIN THE SHA'S RIGHT-OF-WAY LINE AND EASEMENT AREA.
- IN THE EVENT IT IS NECESSARY TO CROSS ANY STREAM DURING THE CONSTRUCTION PROCESS, THE CROSSING SHALL BE VIA TEMPORARY CROSSING AS OUTLINED IN THE '1983 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN MARYLAND.' THE CONTRACTOR SHALL OBTAIN A TEMPORARY WATERWAY CROSSING PERMIT FROM W.R.A. BY CONTRACTING 'WATERWAY PERMITS DIVISION' (301-974-2265). THE CONTRACTOR MUST RECEIVE APPROVAL FROM THE ENGINEER AND THE HSCD PRIOR TO SUBMITTING THE PERMIT APPLICATION.
- SINCE THE LITTLE PATUXENT TRIBUTARY IS CLASSIFIED AS CLASS I WATERS, NO IN-STREAM CONSTRUCTION WILL BE ALLOWED FROM MARCH 1 THROUGH JUNE 15, INCLUSIVE, OF ANY YEAR.

**SEQUENCE OF CONSTRUCTION**

- OBTAIN A GRADING PERMIT.
- INSTALL SILT FENCES AS SHOWN ON PLAN.
- PERFORM ANY CLEARING AND GRUBBING BETWEEN SILT FENCES IN CHANNEL DIVERSION AREA ONLY.
- INSTALL SANDBAG DIVERSIONS SB#1 AND SB#2 AND THE DOWNSTREAM RIPRAP CHANNEL.
- CONSTRUCT TEMPORARY STREAM DIVERSION FROM DOWNSTREAM END TO UPSTREAM END. SEE DETAIL THIS SHEET FOR CROSS SECTION AND LINING. STABILIZE DISTURBED AREA OF OVERBANK WITH TEMPORARY SEEDING.
- CONSTRUCT TEMPORARY STONE OUTLET SEDIMENT TRAP RIGHT OF STA. 136+ (SEE SHEET NO. 12). PLACE DEWATERING PUMP IN DOWNSTREAM END OF CULVERT WORK AREA. DEWATERING PUMPS TO PROVIDE MIN. CAPACITY OF 120 GPM AT 15 FT. HEAD WITH OUTLET HOSE SUFFICIENT TO PUMP TO THE SEDIMENT TRAP.
- REMOVE SB#1 AND SB#2 AND INSTALL SANDBAG DIVERSION SB#3 AND SB#4.
- THE TEMPORARY STREAM DIVERSION SHALL BE MAINTAINED UNTIL NEW CULVERT IS COMPLETE. ANY DAMAGE OR EROSION TO THE TEMPORARY CHANNEL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. SEDIMENT CONTROLS SHALL NOT BE REMOVED WITHOUT CONSENT OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- CONSTRUCT TWIN 60" CMP CULVERT, ENDWALLS AND INLET AND OUTLET CHANNELS.
- REMOVE SAND BAG DIVERSIONS AND ADJUST RIPRAP TO TIE INTO EXISTING STREAM.
- PLACE FILL OVER CULVERT AND FILL DIVERSION CHANNEL. STABILIZE ALL DISTURBED AREAS BEYOND TOE OF EMBANKMENT.
- DURING THE TIME THE STREAM DIVERSION IS IN PLACE, ACCESS TO THE CULVERT CONSTRUCTION SITE WILL BE FROM THE EAST SIDE ONLY.

- A. CHANNEL EXCAVATION**
- EXCAVATION OF THE CHANNEL SHALL BEGIN AT THE DOWNSTREAM END AND PROCEED UPSTREAM. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED OUTSIDE OF THE FLOODPLAIN AND TEMPORARILY STABILIZED TO PREVENT RE-ENTRY INTO THE STREAM CHANNEL.
  - THE PROCESS OF EXCAVATION AND STABILIZATION WITH FABRIC SHALL BE A CONTINUOUS (UNINTERRUPTED) OPERATION. ALL MATERIALS SHALL BE ON-SITE PRIOR TO CHANNEL CONSTRUCTION.
  - ALL DEBRIS (ROCKS, STICKS, ETC.) SHALL BE REMOVED AND THE CHANNEL SURFACES MADE SMOOTH TO THAT THE FABRIC WILL REST FLUSH WITH THE CHANNEL SIDES AND BOTTOM.
- B. STABILIZATION WITH GEOTEXTILE FABRIC**
- THE FABRIC SHALL HAVE A MINIMUM WIDTH SUCH THAT IT IS KEYED IN AND ANCHORED AT THE TOP OF STREAM BANK.
  - FABRIC SHALL BE PLACED SUCH THAT ONE PIECE WILL LINE THE ENTIRE CHANNEL. IF THIS IS NOT POSSIBLE, FABRIC SHALL BE PLACED SO THAT TRANSVERSE OVERLAPPING OCCURS IN ACCORDANCE WITH THE DETAIL. LONGITUDINAL OVERLAPS SHALL NOT BE ALLOWED. UPSTREAM SECTIONS SHALL OVERLAP DOWNSTREAM SECTION. OVERLAP WIDTH SHALL EQUAL 2 FT. MINIMUM.

- THE FABRIC SHALL BE KEYED INTO 2 X 2 FEET TRENCHES LOCATED AT THE UPSTREAM EDGE AND AT 50 FT. INTERVALS (THE OVERLAP NEAREST TO EACH 50 FT. INCREMENT). THE KEY IN SHALL BE FROM TOP OF CHANNEL TO TOP OF CHANNEL. CLASS I RIPRAP SHALL BE CAREFULLY PLACED INTO THE TRENCH (ZERO DROP HEIGHT).
  - THE FABRIC SECTIONS SHALL BE SECURED WITH HOLDDOWN PINS (1/8 INCH MIN.) AND WASHER (DIA. = 1.0 INCH MIN.). OVERLAPS SHALL BE PINNED ALONG TRANSVERSE AND LONGITUDINAL AXES WITH SPACING EQUAL TO 3 FT. MAXIMUM.
- C. ALTERNATE DESIGNS**
- THE ABOVE DESIGN MAY BE MODIFIED TO ALLOW SEWING OF THE GEOTEXTILE FABRIC SEWING OF THE GEOTEXTILE FABRIC, RATHER THAN OVERLAPPING, WOULD ELIMINATE THE REQUIREMENTS FOR TRANSVERSE PLACEMENT OF THE FABRIC. EITHER TRANSVERSE OR LONGITUDINAL PLACEMENT SHOULD WORK EQUALLY WELL.
  - THE SPACING OF THE PINS COULD BE EITHER LARGER OR SMALLER DEPENDING ON THE ANTICIPATED VELOCITIES AND THICKNESS AND TYPE OF GEOTEXTILE FABRIC.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Alan M. Pennington* 3/26/91  
 CHIEF, LAND DEVELOPMENT DIVISION DATE  
*Lawrence W. Wehland* 3/19/91  
 CHIEF, BUREAU OF HIGHWAYS DATE  
*William S. Kelly* 3-26-91  
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Barbara J. Landis* 4/1/91  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

PHOENIX ENGINEERING, INC. CONSULTING ENGINEERS BALTIMORE, MARYLAND 21228		
AREA	BROKEN LAND PARKWAY	
TITLE	TEMPORARY STREAM DIVERSION	
Des By	H.R.P.	Scale AS SHOWN
Drn By	J.W.B.	Date JULY 1990
Chk By	S.P.	Approved
Proj. No.	89-0040	
Drawing No.	13 OF 13	

CERTIFICATION BY THE DEVELOPER:

I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT AND PLANS 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 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*John H. Niboy* 8/23/90  
 Signature of Developer Date

CERTIFICATION BY THE ENGINEER:

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.

*Herbert R. Plest* 8/24/90  
 Signature of Engineer Date

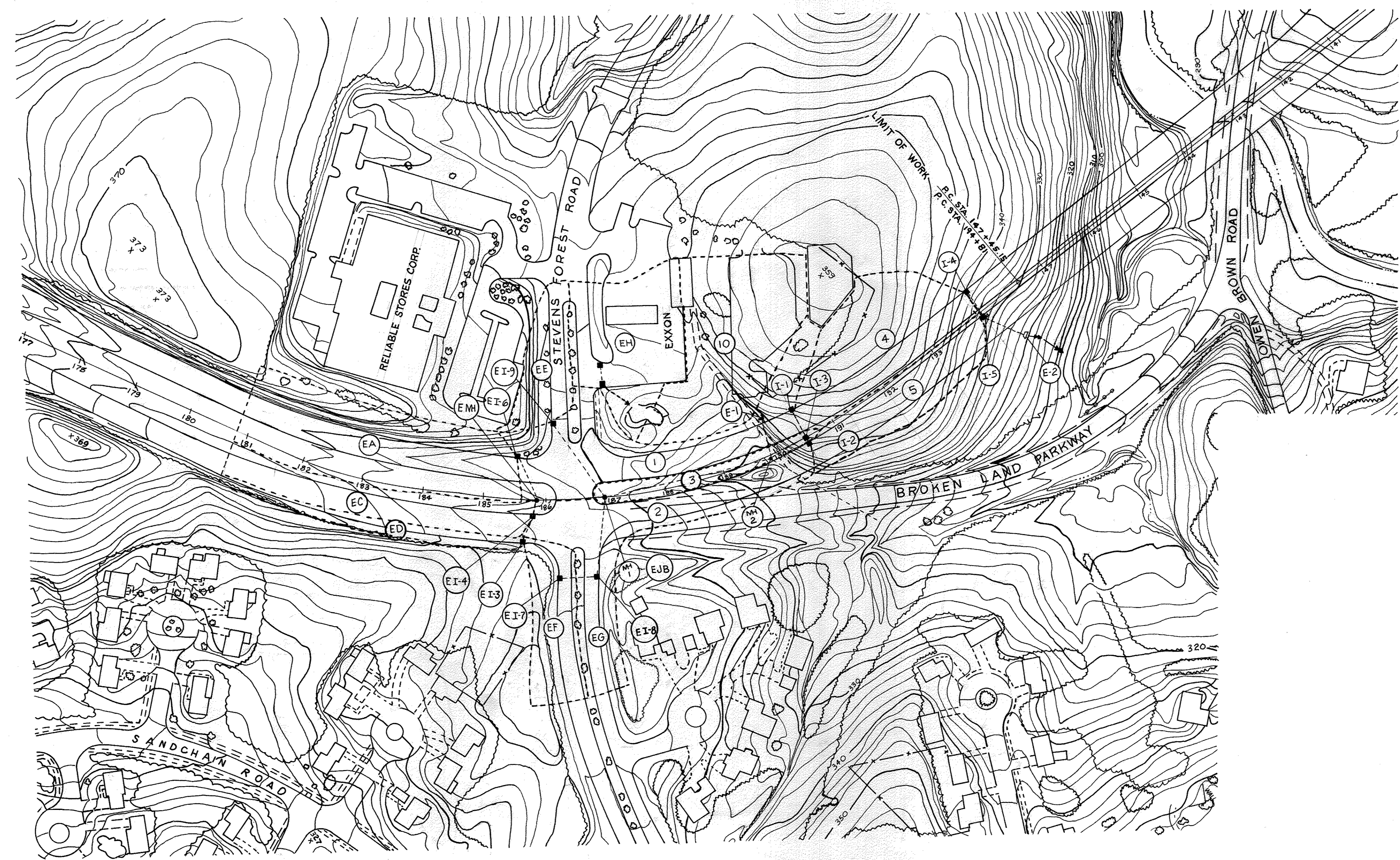
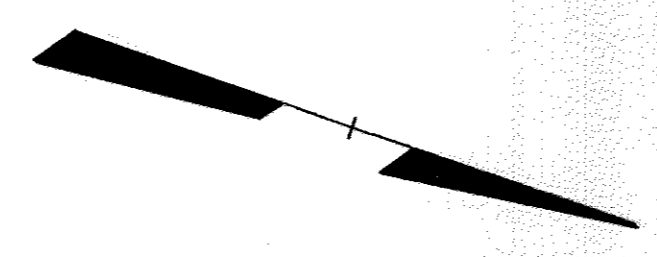
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*James H. Stelm* 3/11/91  
 U.S. Soil Conservation Service Date

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

*Shirley W. Stelm* 3/11/91  
 Howard Soil Conservation District Date

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APPROVED:  
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Carl M. Taylor* 3/26/91  
CHIEF, LAND DEVELOPMENT DIVISION DATE  
*Lawrence W. Welton* 3/19/91  
CHIEF, BUREAU OF HIGHWAYS DATE  
*Robert R. O'Neil* 3-26-91  
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:  
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*David C. D. Wylie* 4/1/91  
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

PHOENIX ENGINEERING, INC.  
CONSULTING ENGINEERS  
BALTIMORE, MARYLAND 21228

AREA BROKEN LAND PARKWAY

TITLE DRAINAGE AREA MAP

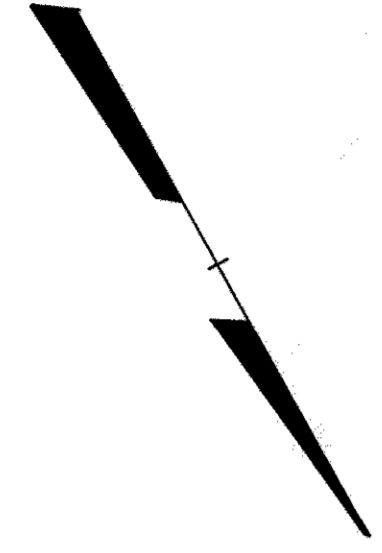
Des By H.R.P.	Scale 1" = 100	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No.
Chk By S.P.	Approved	14 OF 18

8/21/90  
Date

*Robert R. O'Neil*  
Professional Engineer No. 5407

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MATCH LINE "A-A" SEE SHEET NO 16 OF 18



APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 3/19/91  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

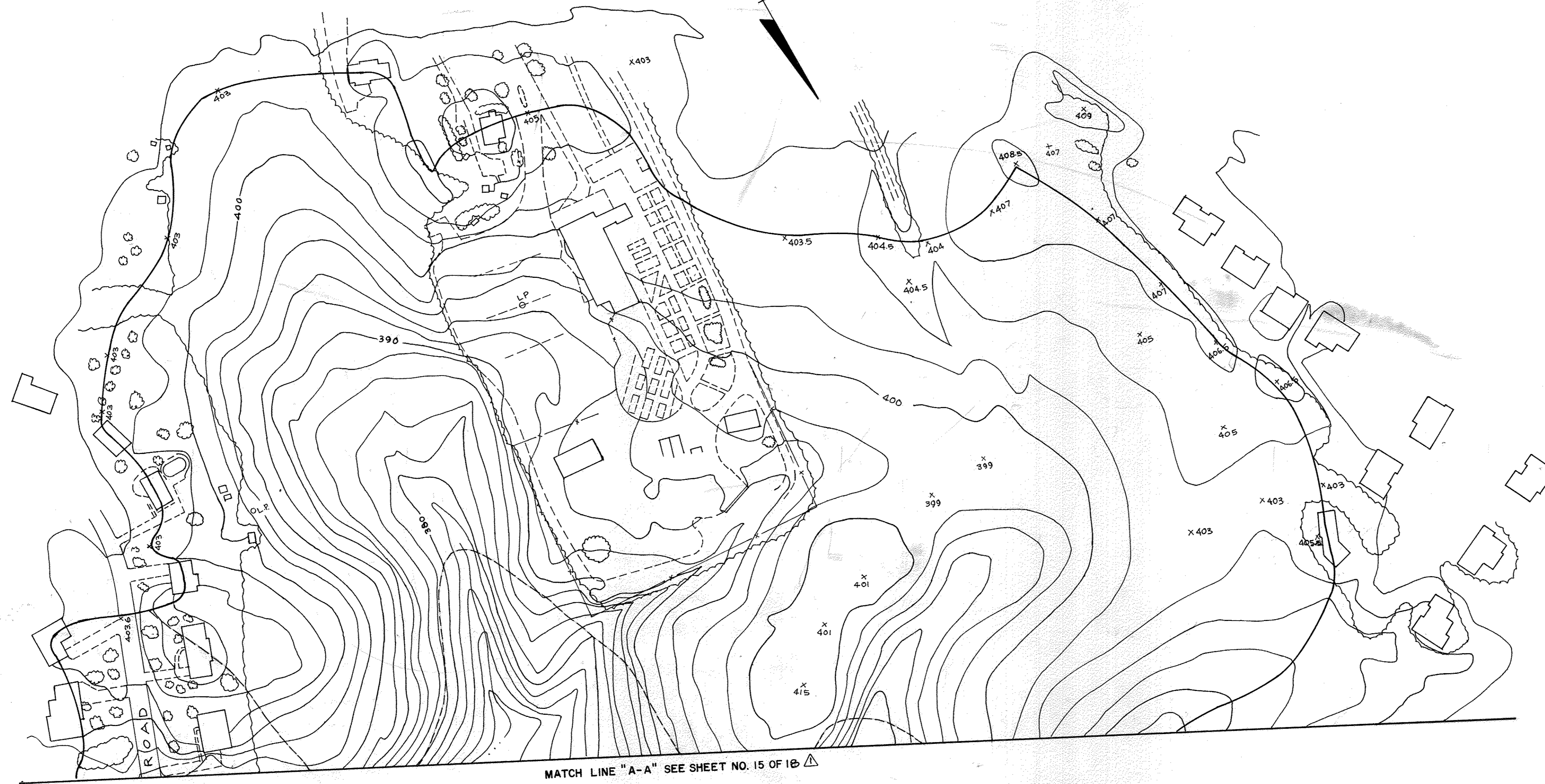
PHOENIX ENGINEERING, INC. CONSULTING ENGINEERS BALTIMORE, MARYLAND 21228		
AREA	BROKEN LAND PARKWAY	
TITLE	DRAINAGE AREA MAP	
Des. By	H.R.P.	Scale 1" = 100
Drn. By	S.P.	Date JULY 1990
Chk. By	J.W.B.	Approved
Proj. No.	89-0040	
Drawing No.	15 OF 18	

8/21/90  
Date

*[Signature]*  
Professional Engineer No. 5407

2-28-17	Rev. Broken Land Pkwy. median: I-19 Drainage Area	3+	Dev.
Date	Revision	By	APP'd

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APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*John M. Panger* 3/26/91  
 CHIEF, LAND DEVELOPMENT DIVISION DATE  
*Granville W. Welstead* 3/19/91  
 CHIEF, BUREAU OF HIGHWAYS DATE  
*James E. Remy* 3-26-91  
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:  
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Frank C. Taylor* 4/1/91  
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

PHOENIX ENGINEERING, INC.  
 CONSULTING ENGINEERS  
 BALTIMORE, MARYLAND 21228

AREA BROKEN LAND PARKWAY

TITLE DRAINAGE AREA MAP

8/21/90  
 Date  
  
*Robert R. Platt*  
 Professional Engineer No. 5407

Des By H.R.P.	Scale 1" = 100'	Proj. No. 89-0040
Drn By S.P.	Date JULY 1990	Drawing No 16 OF 18
Chk By J.W.B.	Approved	