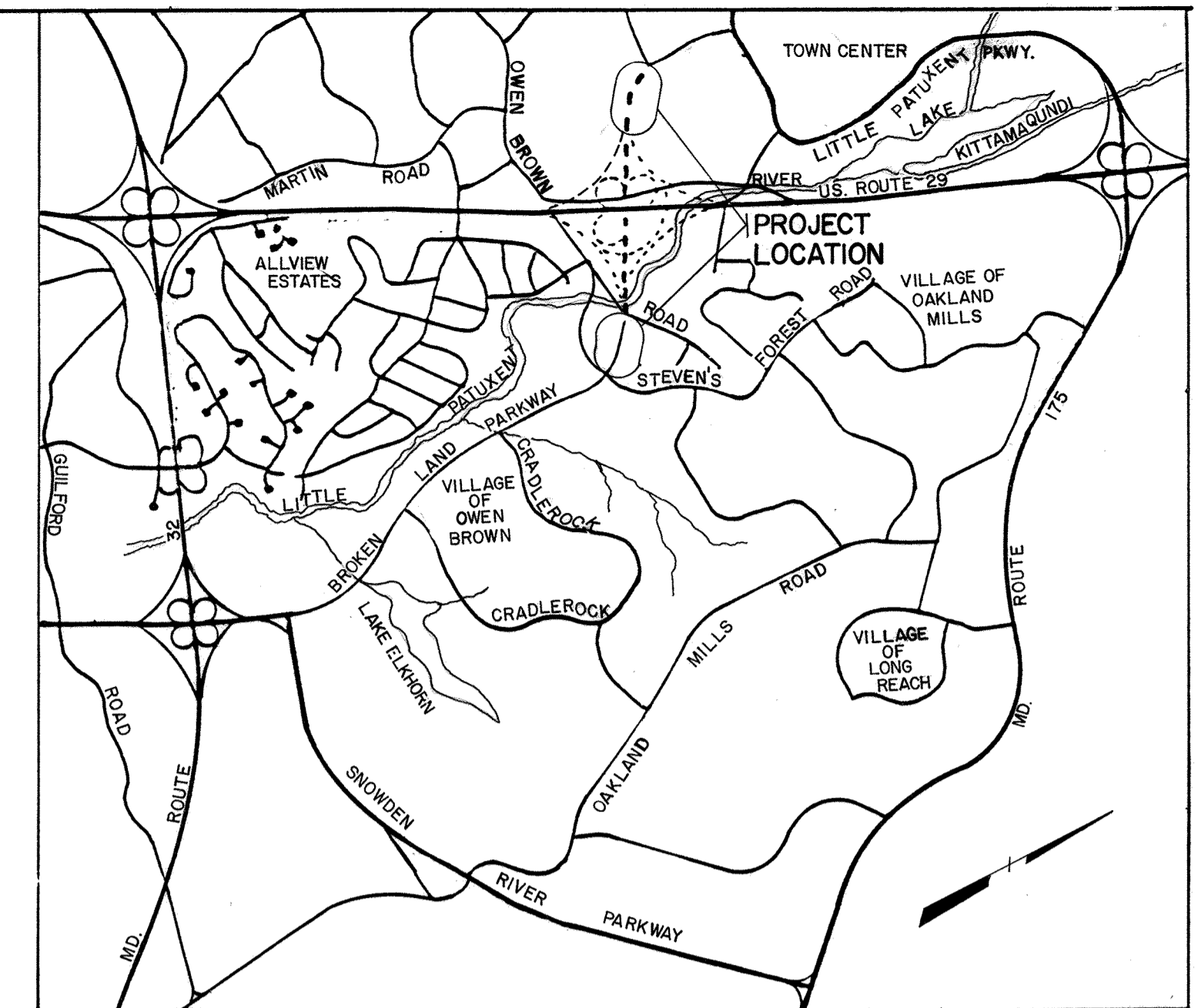


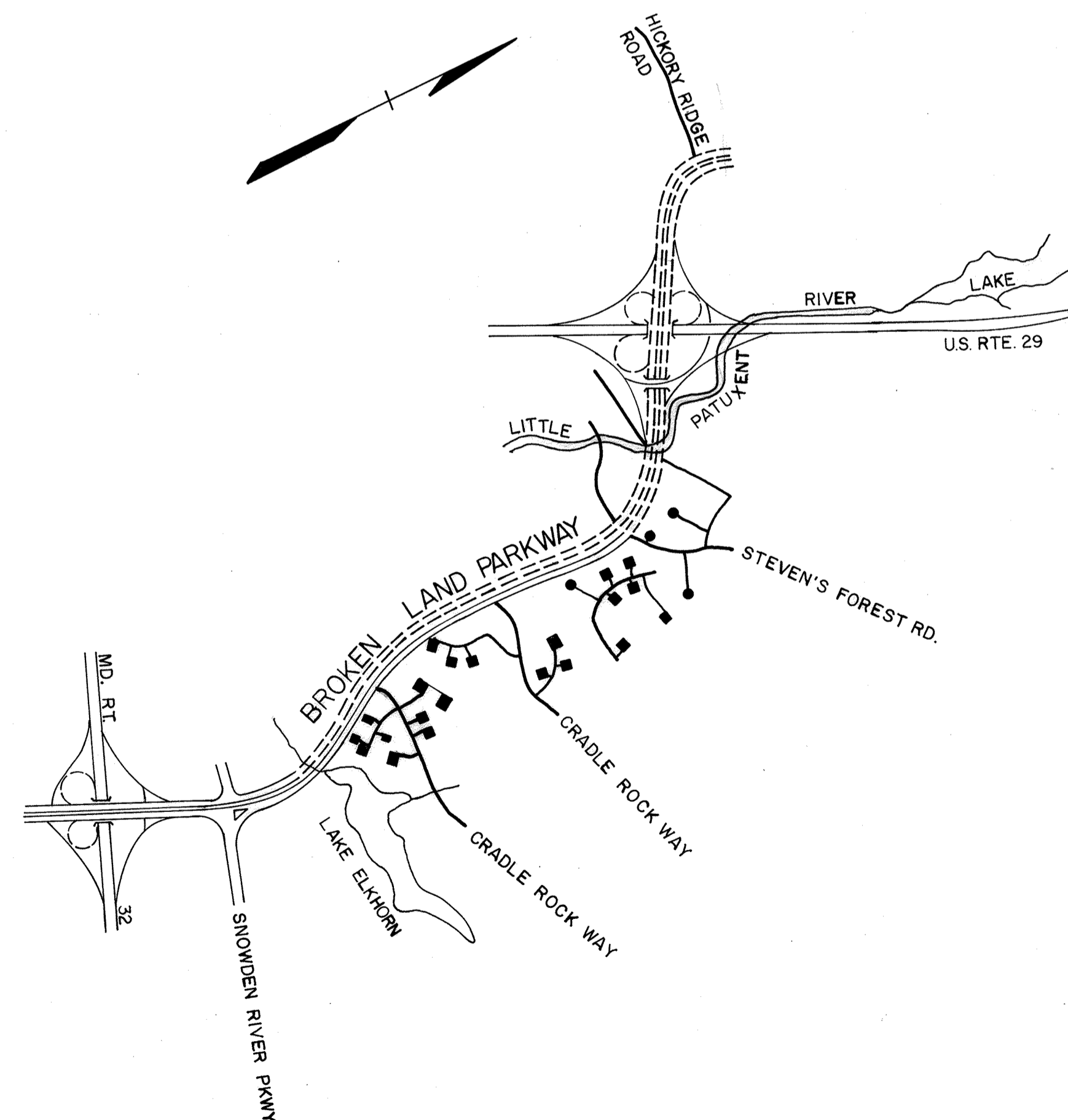
BROKEN LAND PARKWAY

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

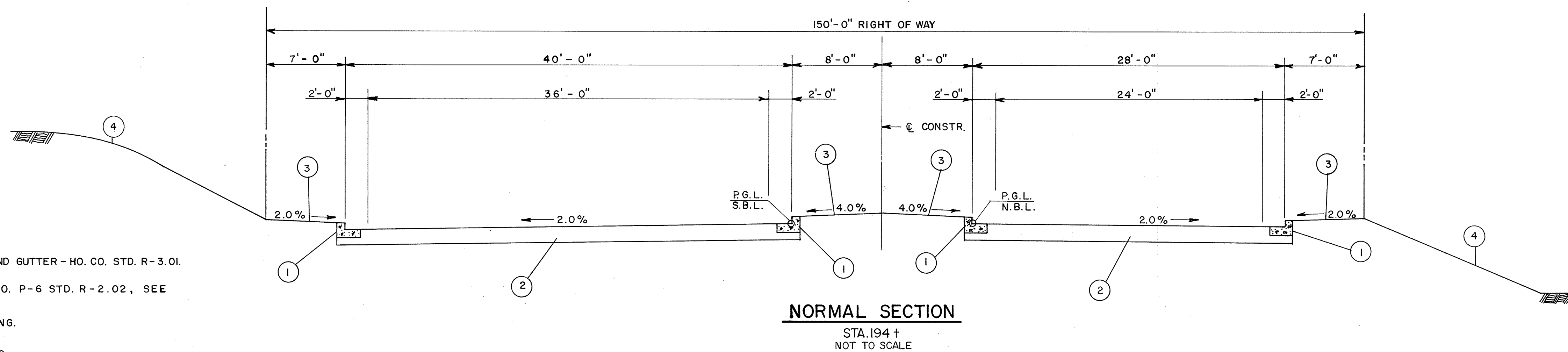
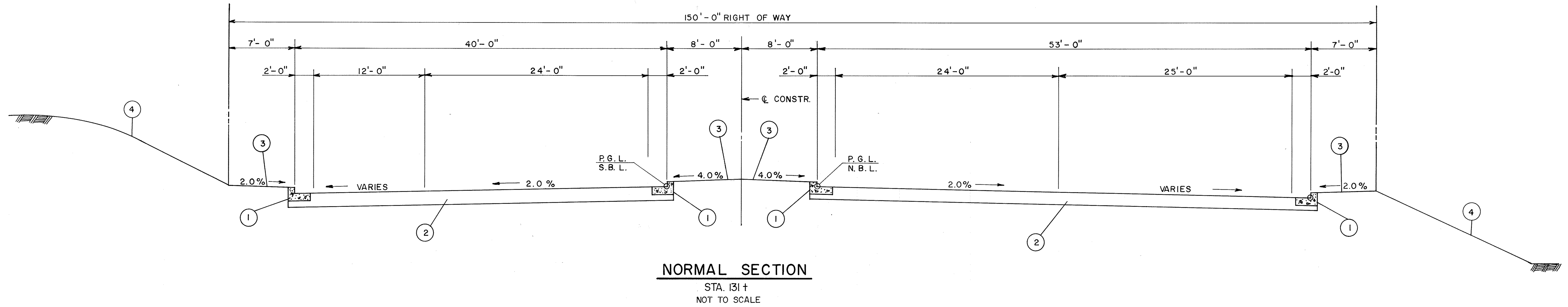
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Oliver M. Ferguson</i>	3/24/91
CHIEF, LAND DEVELOPMENT DIVISION	DATE
<i>Lawrence W. Westland</i>	3/19/91
CHIEF, BUREAU OF HIGHWAYS	DATE
<i>Richard S. Riden</i>	3-24-91
CHIEF, BUREAU OF ENGINEERING	DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Frank J. J. J. J.</i>	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	TITLE SHEET	
Des By	H.R.P.	Scale
Drn By	J.W.B.	Date
Chk By	S.P.	Approved
Proj. No.	89-0040	
Drawing No.	1 OF 12	

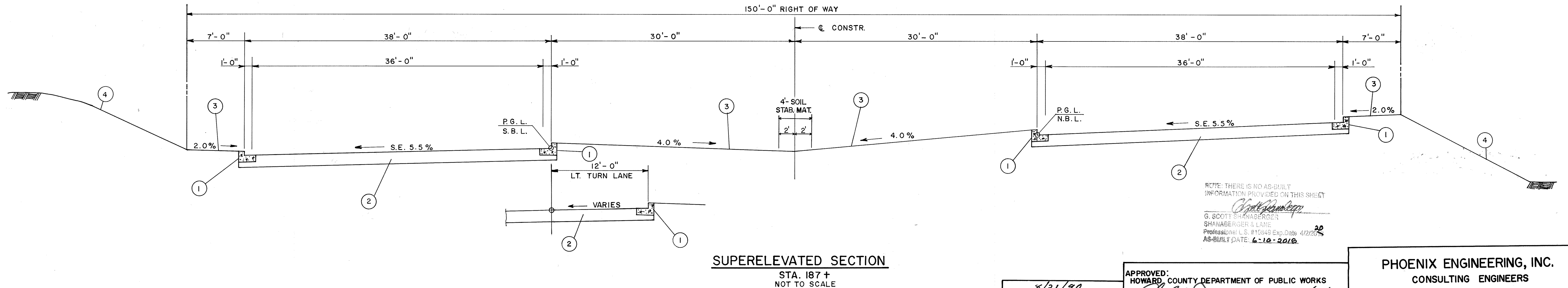
8/21/90
Date
Richard R. Groat
Professional Engineer No. 5A07

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

65



- 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



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

G. Scott Shanaberger
 G. SCOTT SHANABERGER
 SHANABERGER & LANE
 Professional L.S. #10648 Exp. Date 4/22/05
 AS-BUILT DATE 6-10-2010

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

8/21/90
 Date

Robert R. Platt
 Professional Engineer No. 5407

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Howard M. [Signature] 3/21/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

Draville W. [Signature] 3/19/91
 CHIEF, BUREAU OF HIGHWAYS DATE

William E. [Signature] 3-26-91
 CHIEF, BUREAU OF ENGINEERING DATE

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

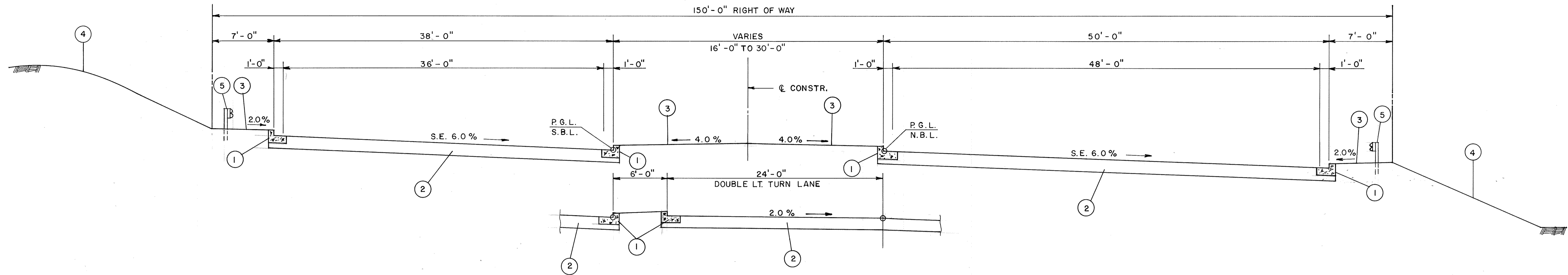
PHOENIX ENGINEERING, INC.
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND 21228

AREA: BROKEN LAND PARKWAY

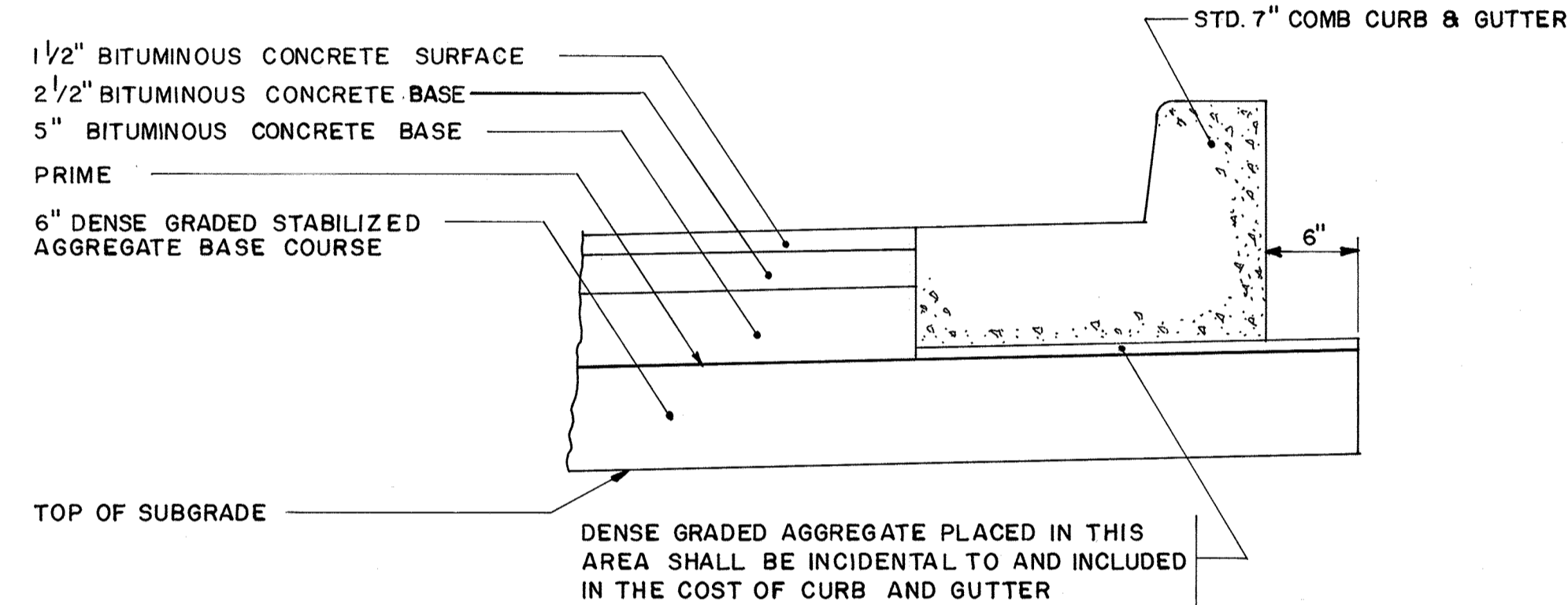
TITLE: TYPICAL SECTIONS

Des By H.R.P.	Scale AS SHOWN	Proj.No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 2 OF 16
Chk By S.P.	Approved	

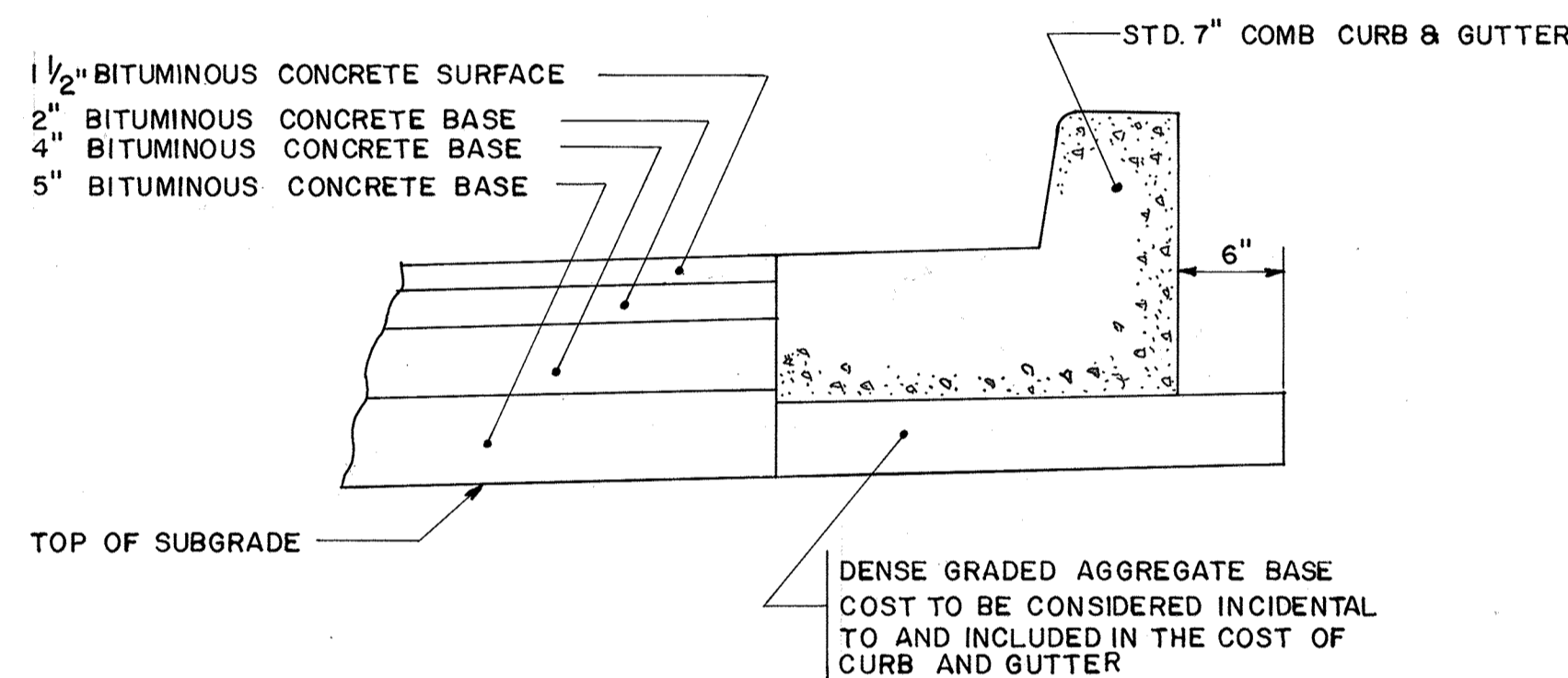
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SUPERELEVATED SECTION
STA. 136 +
NOT TO SCALE

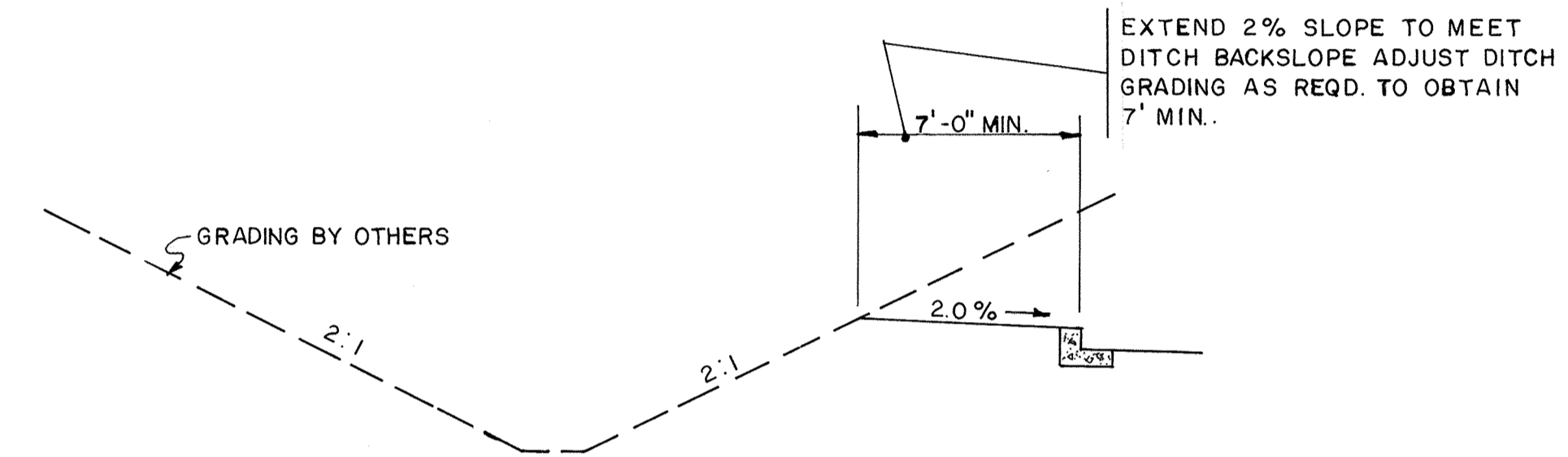


ALTERNATE A

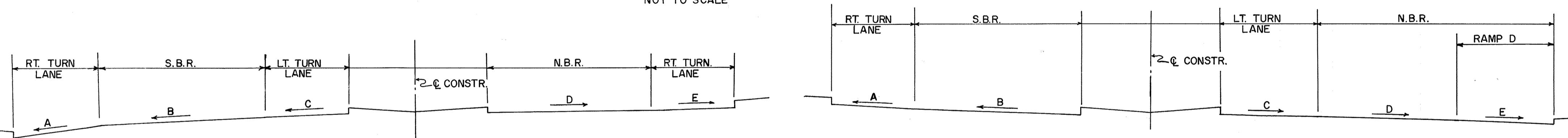


ALTERNATE B

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

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. SCOTT SHANABERGER
 SHANABERGER & LANE
 Professional L.S. #10349 Exp. Date 4/2/20
 AS-BUILT DATE: 6-12-2018

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Alan M. Tamm 3/16/91 DATE
 CHIEF, LAND DEVELOPMENT DIVISION
Francis W. Wileand 3/19/91 DATE
 CHIEF, BUREAU OF HIGHWAYS
William E. Raley 3-26-91 DATE
 CHIEF, BUREAU OF ENGINEERING

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert V. J. Conley 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: **TYPICAL SECTION AND DETAILS**

Des By: H.R.P. Scale: AS SHOWN Proj. No. 89-0040
 Drn By: J.W.B. Date: JULY 1990 Drawing No. 3 OF 12
 Chk By: S.P. Approved

8/21/90
 Date

Robert R. Platt
 Professional Engineer No. 5407

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 STREETLIGHTS 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. Tangeman 3/26/91
CHIEF, LAND DEVELOPMENT DIVISION DATE
Donna W. Welwood 3/19/91
CHIEF, BUREAU OF HIGHWAYS DATE
Richard S. Ryan 3-26-91
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING AND
ZONING
Mark S. Campbell 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
Drn By J.W.B.	Date JULY 1990	Drawing No. 4 OF 18
Chk By S.P.	Approved	

8/21/90
Date

Howard R. Platt
Professional Engineer No. 5407

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

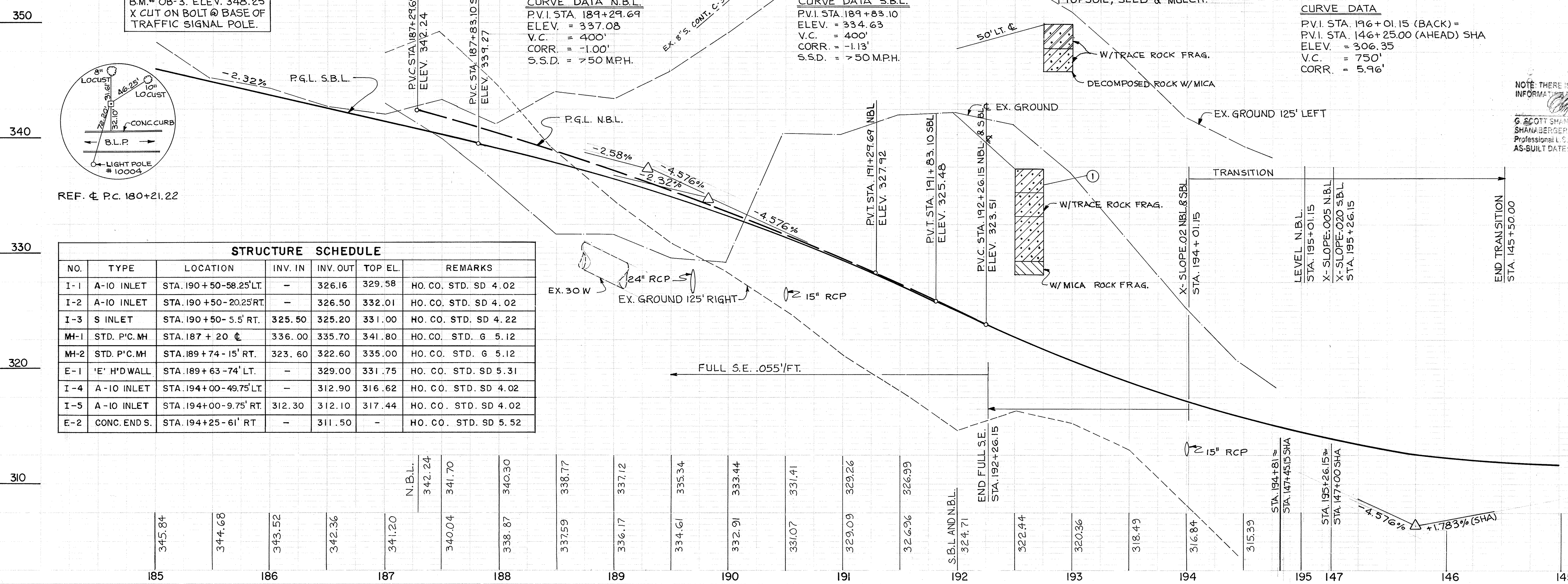
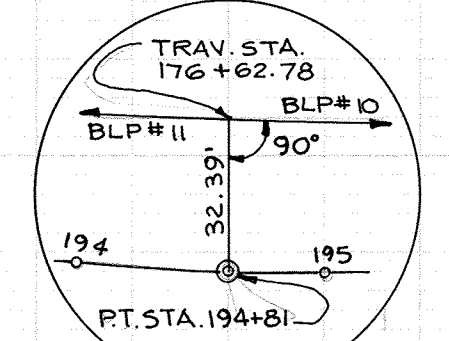
STA. 189+72.15' RT.
REMOVE EXIST. C TYPE ENDWALL
AND 4" ± OF EXIST. 30" RCP
CONSTRUCT NEW MANHOLE.

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

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.

NOTE: THERE IS NO AS-BUILT
INFORMATION PROVIDED ON THIS SHEET
Scott Shanberger
SCOTT SHANBERGER
SHANBERGER & LANE
Professional L.S. #10849 Exp. Date 4/2/2004
AS-BUILT DATE: 4-10-2012



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'D WALL	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. END S.	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.

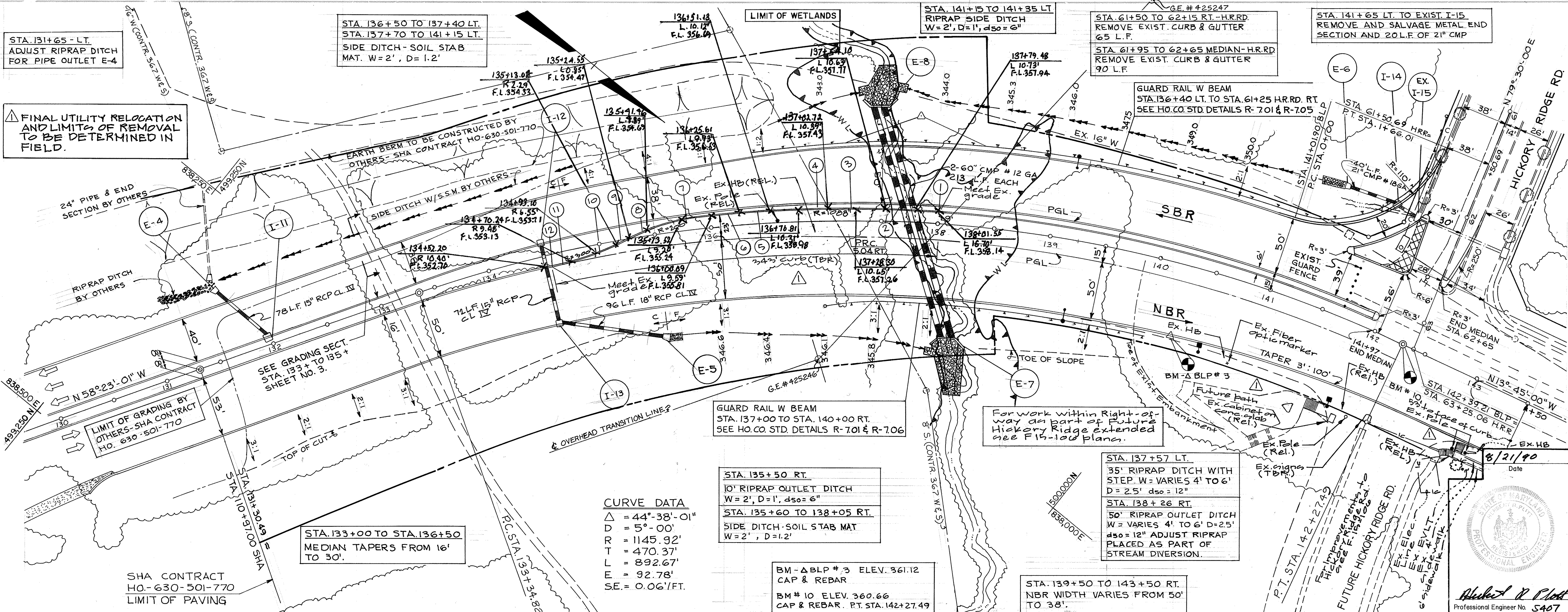
STA. 187+00 RT. - CONSTRUCT 20 L.F.
SIDEWALK AND RAMP TIE INTO EXIST.
S/W.

NOTE: SEE DETAIL SHEET NO. 7 FOR HANDICAP
RAMP.

PLAN
NOTE BOOK
NO.

PROFILE
NOTE BOOK
NO.

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', d50=6"

STA. 61+50 TO 62+15 RT. -HRRD. REMOVE EXIST. CURB & GUTTER 6.5 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.

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. BRONZE 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. W. Weis 3/26/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

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

William W. Weis 3-26-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
William W. Weis 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

CURVE DATA
 $\Delta = 44^\circ - 38' - 01''$
 $D = 5^\circ - 00'$
 $R = 1145.92'$
 $T = 470.37'$
 $L = 892.67'$
 $E = 92.78'$
 $S.E. = 0.06'/FT.$

STA. 135+50 RT. 10' RIPRAP OUTLET DITCH W=2', D=1', d50=6"

STA. 135+60 TO 138+05 RT. SIDE DITCH - SOIL STAB MAT W=2', D=1.2'

BM - Δ BLP # 3 ELEV. 361.12 CAP & REBAR
 BM # 10 ELEV. 360.66 CAP & REBAR. P.T. STA. 142+27.49

For work within Right-of-way as part of Future Hickory Ridge extended see F-15-100 plans.

STA. 137+57 LT. 35' RIPRAP DITCH WITH STEP. W=VARIES 4' TO 6' D=2.5' d50=12"

STA. 138+26 RT. 50' RIPRAP OUTLET DITCH W=VARIES 4' TO 6' D=2.5' d50=12" ADJUST RIPRAP PLACED AS PART OF STREAM DIVERSION.

STA. 139+50 TO 143+50 RT. NBR WIDTH VARIES FROM 50' TO 38'

Curb Flow Line Elev.

#	Sta.	Ch.	Elev.	Desc.
1	137+40.7	10.8'L	358.22	FL/PRC
2	137+65.2	10.8'L	357.95	FL/PRC
3	137+79.4	10.8'L	357.80	FL/PRC
4	136+79.4	10.7'L	357.65	FL/PRC
5	136+41.9	10.4'L	357.40	FL/PRC
6	136+16.2	10.2'L	357.20	FL/PRC
7	135+79.7	9.8'L	356.46	FL/PRC
8	135+39.6	4.4'L	355.34	FL/PRC
9	135+14.8	2.7'R	354.65	PRC
10	134+99.1	5.9'R	353.96	FL/PRC
11	134+64.6	10.2'R	353.06	FL/PRC
12	134+54.1	10.4'R	EX.	END/PT

CURVE DATA
 P.V.I. STA. 112+00 - SHA (BACK)
 P.V.I. STA. 130+27.49 (AHEAD)
 ELEV. = 343.43
 V.C. = 600'
 CORR. = +2.28'

Note: Prop. Curb from Point to 1 thru 11 will be reversed curb & gutter per Howard County Detail R-30.1

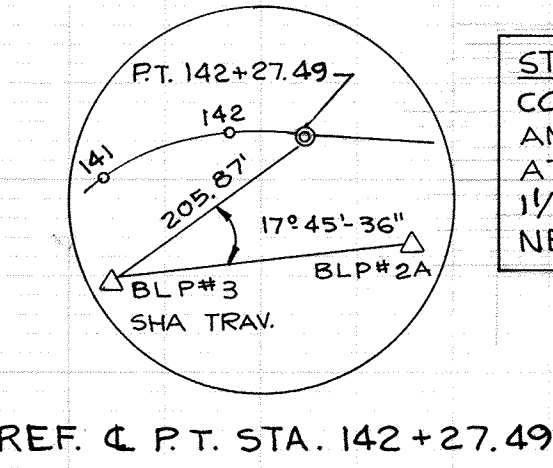
CURVE DATA
 P.V.I. STA. 135+27.49
 ELEV. = 355.43
 V.C. = 400'
 CORR. = -0.64'

Note: See F-15-100 for maintenance of traffic during construction of the Lane Modification.

LEGEND
 EVLT Electric Vault
 HB Hand Box
 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

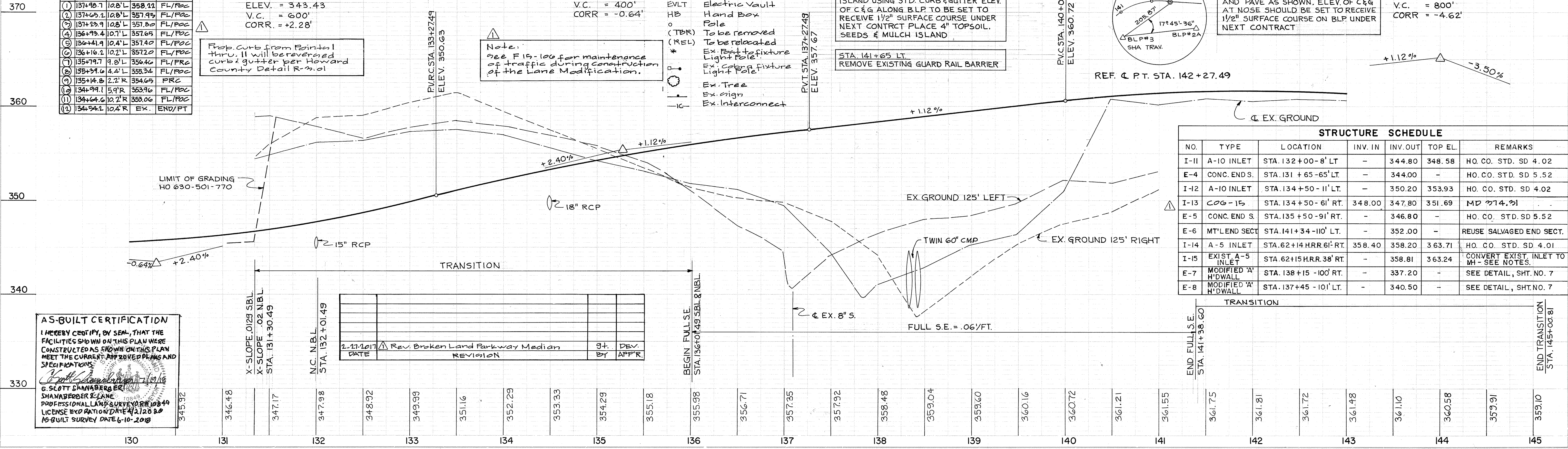
STA. 141+50 TO 142+10 LT. REMOVE EXIST. PVMT. CONSTRURT ISLAND USING STD. CURB & GUTTER ELEV. OF C&G ALONG B.L.P. TO BE SET TO RECEIVE 1/2" SURFACE COURSE UNDER NEXT CONTRCT PLACE 4" TOPSOIL. SEEDS & MULCH ISLAND

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



STA. 61+95 TO 62+65 MEDIAN H.R.R.D. 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'

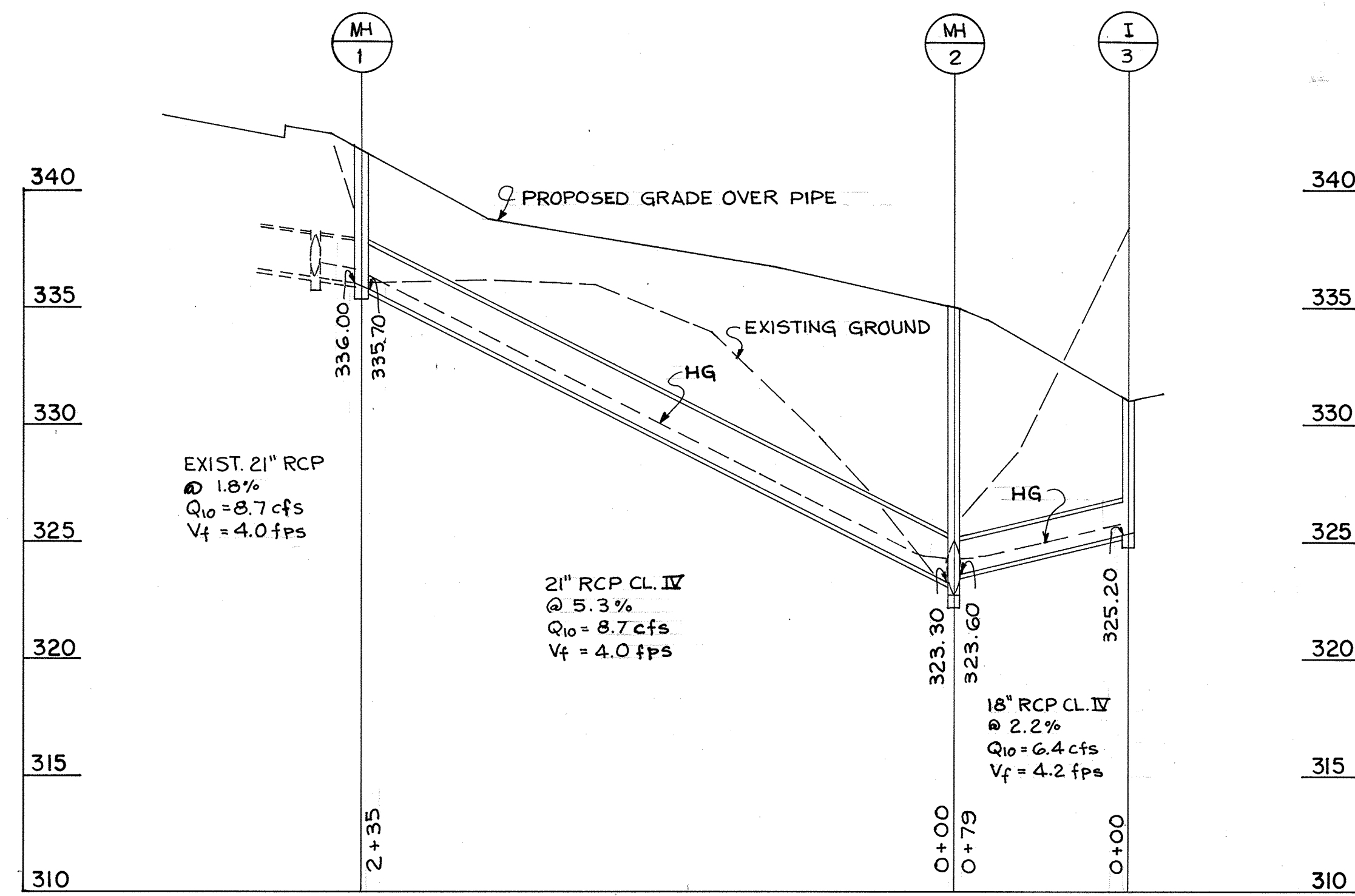


STRUCTURE SCHEDULE

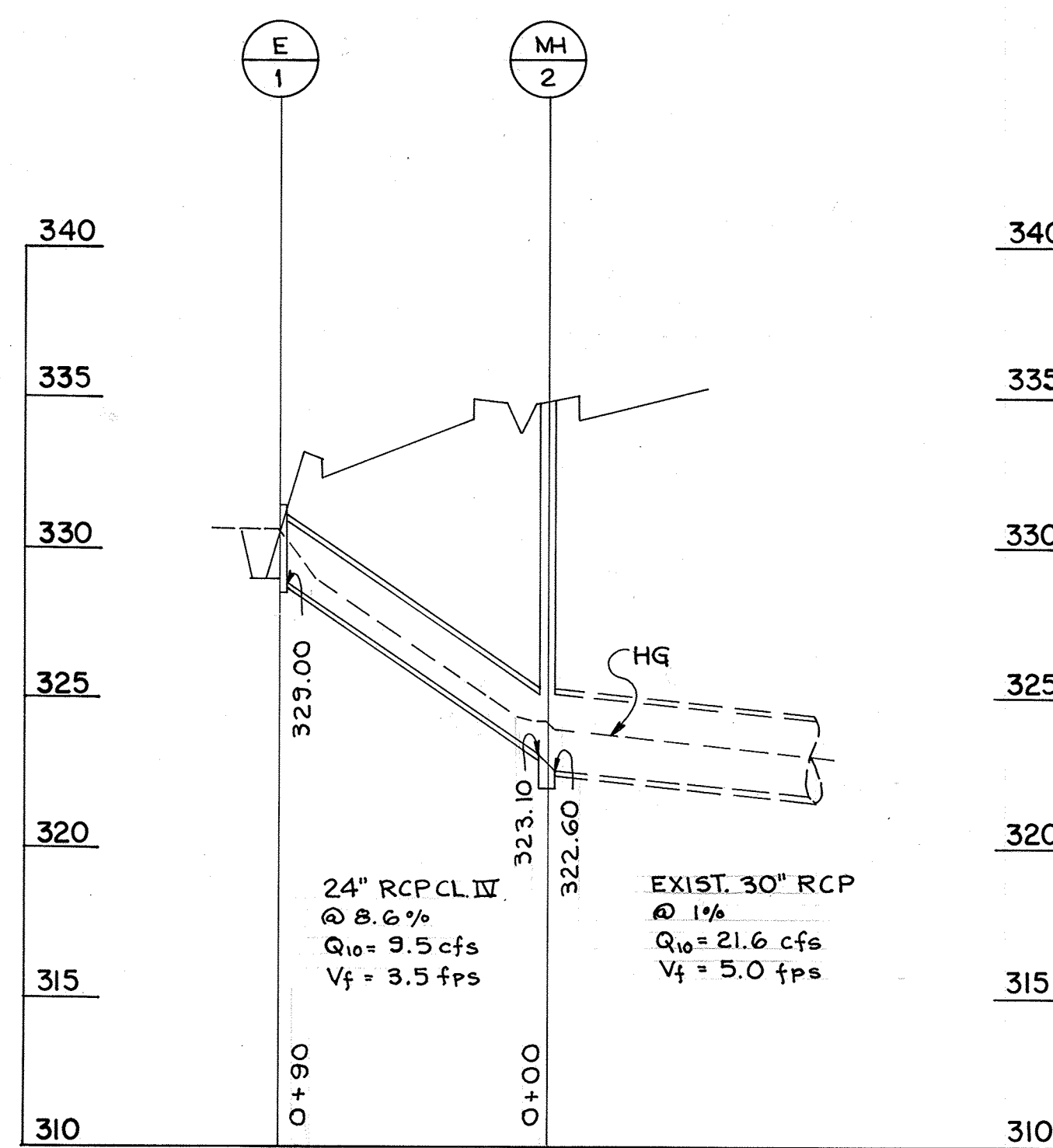
NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP EL.	REMARKS
I-11	A-10 INLET	STA. 132+00 - 8' LT.	-	344.80	348.58	HO. CO. STD. SD 4.02
E-4	CONC. END S.	STA. 131 + 65 - 65' LT.	-	344.00	-	HO. CO. STD. SD 5.52
I-12	A-10 INLET	STA. 134 + 50 - 11' LT.	-	350.20	353.93	HO. CO. STD. SD 4.02
I-13	COG - 15	STA. 134 + 50 - 61' RT.	348.00	347.80	351.69	MD 274.21
E-5	CONC. END S.	STA. 135 + 50 - 91' RT.	-	346.80	-	HO. CO. STD. SD 5.52
E-6	MT/END SECT	STA. 141+34 - 110' LT.	-	352.00	-	REUSE SALVAGED END SECT.
I-14	A-5 INLET	STA. 62+14 HRR. 61' RT.	358.40	358.20	363.71	HO. CO. STD. SD 4.01
I-15	EXIST. A-5 INLET	STA. 62+15 HRR. 38' RT.	-	358.81	363.24	CONVERT EXIST. INLET TO MH - SEE NOTES.
E-7	MODIFIED 'A' H'D WALL	STA. 138 + 15 - 100' RT.	-	337.20	-	SEE DETAIL, SHT. NO. 7
E-8	MODIFIED 'A' H'D WALL	STA. 137+45 - 101' LT.	-	340.50	-	SEE DETAIL, SHT. NO. 7

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS PLAN MEET THE CURRENT APPROVED PLANS AND SPECIFICATIONS.

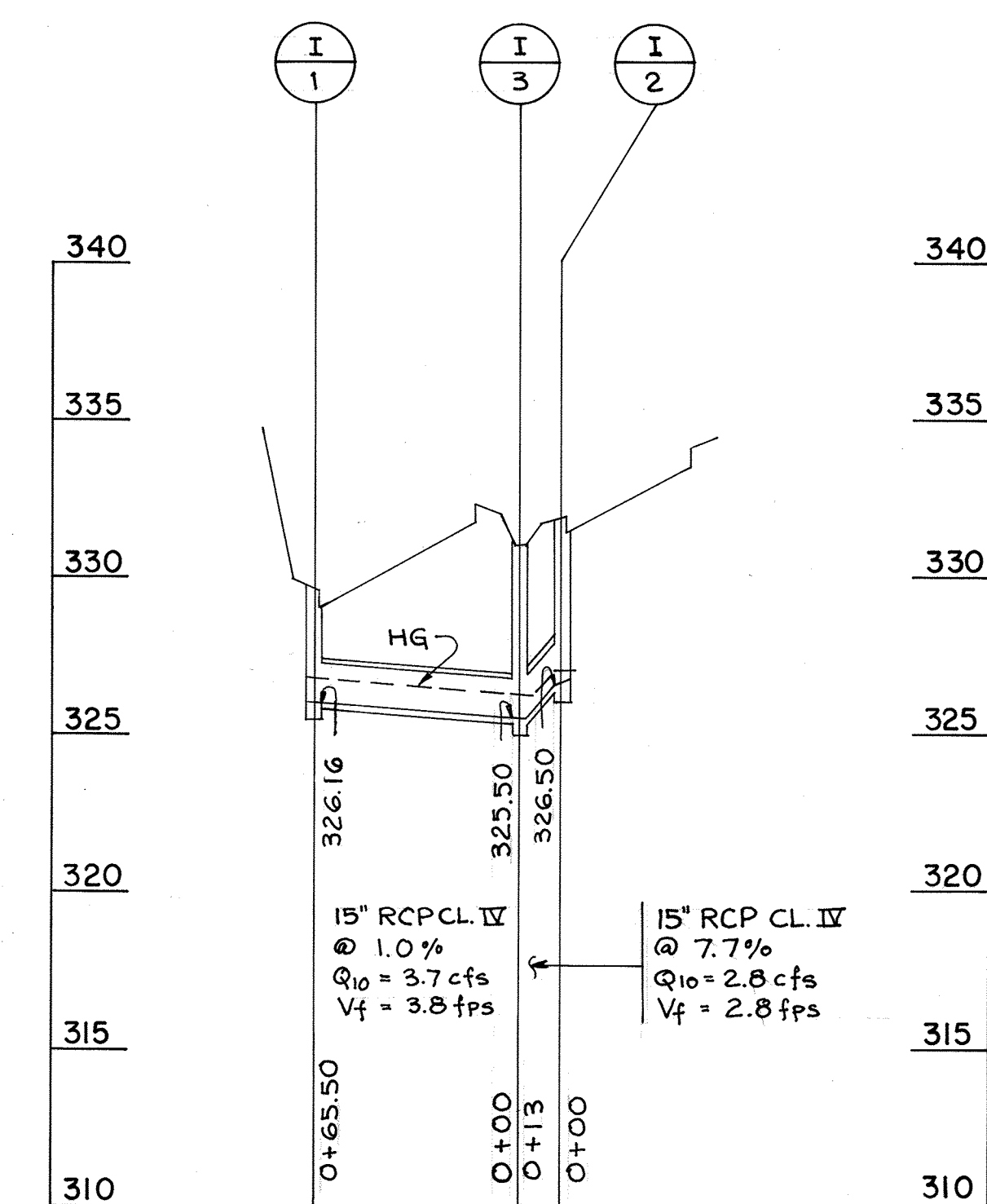
Scott Shanabarger 11/19/16
 G. SCOTT SHANABARGER
 SHANABARGER & LANE
 PROFESSIONAL LAND SURVEYORS
 LICENSE NO. 10849
 LICENSE EXP. DATE 12/28/20
 AS-BUILT SURVEY DATE 6-10-2018



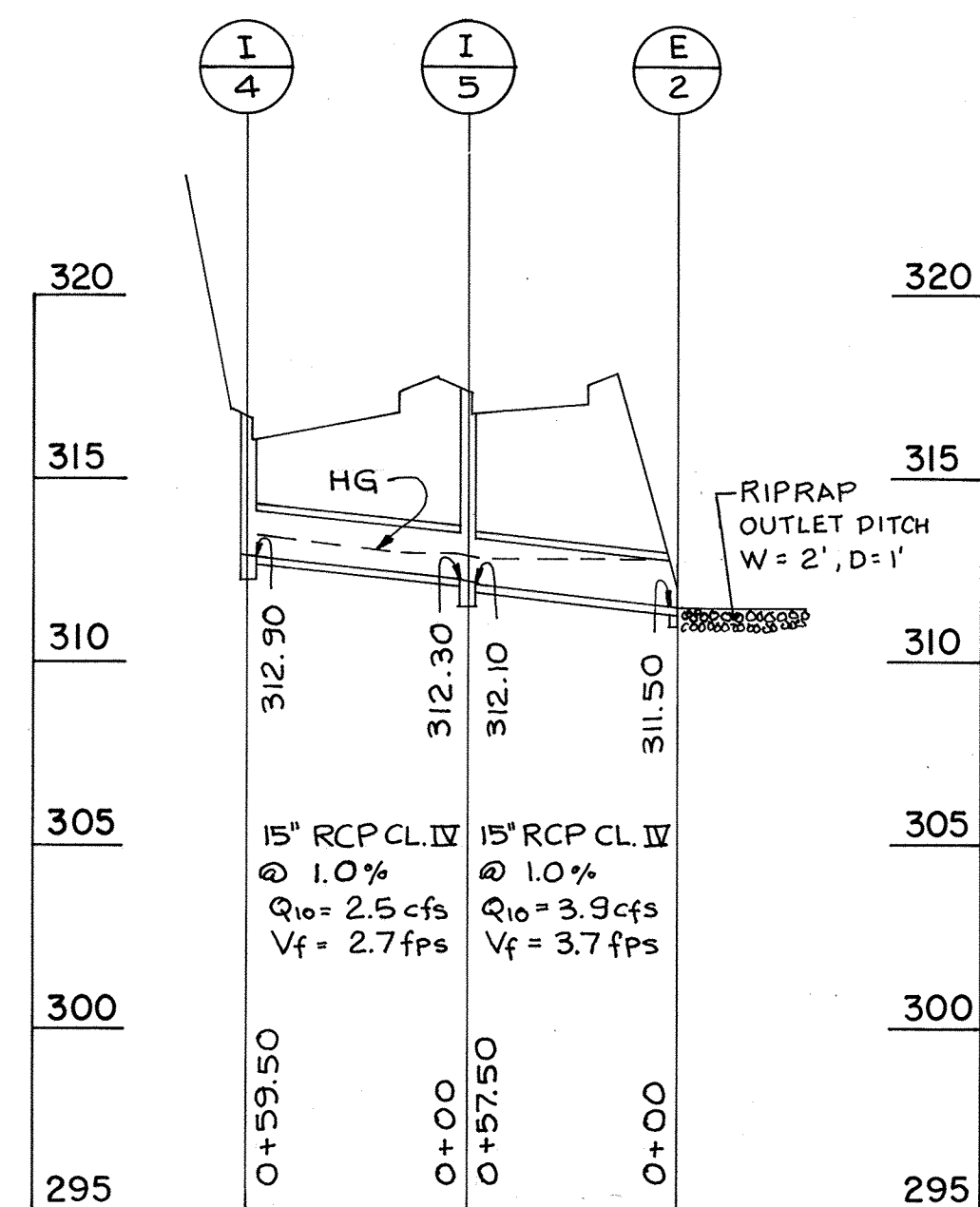
STA. 187+
 SCALE: HOR. 1" = 50'
 VER. 1" = 5'



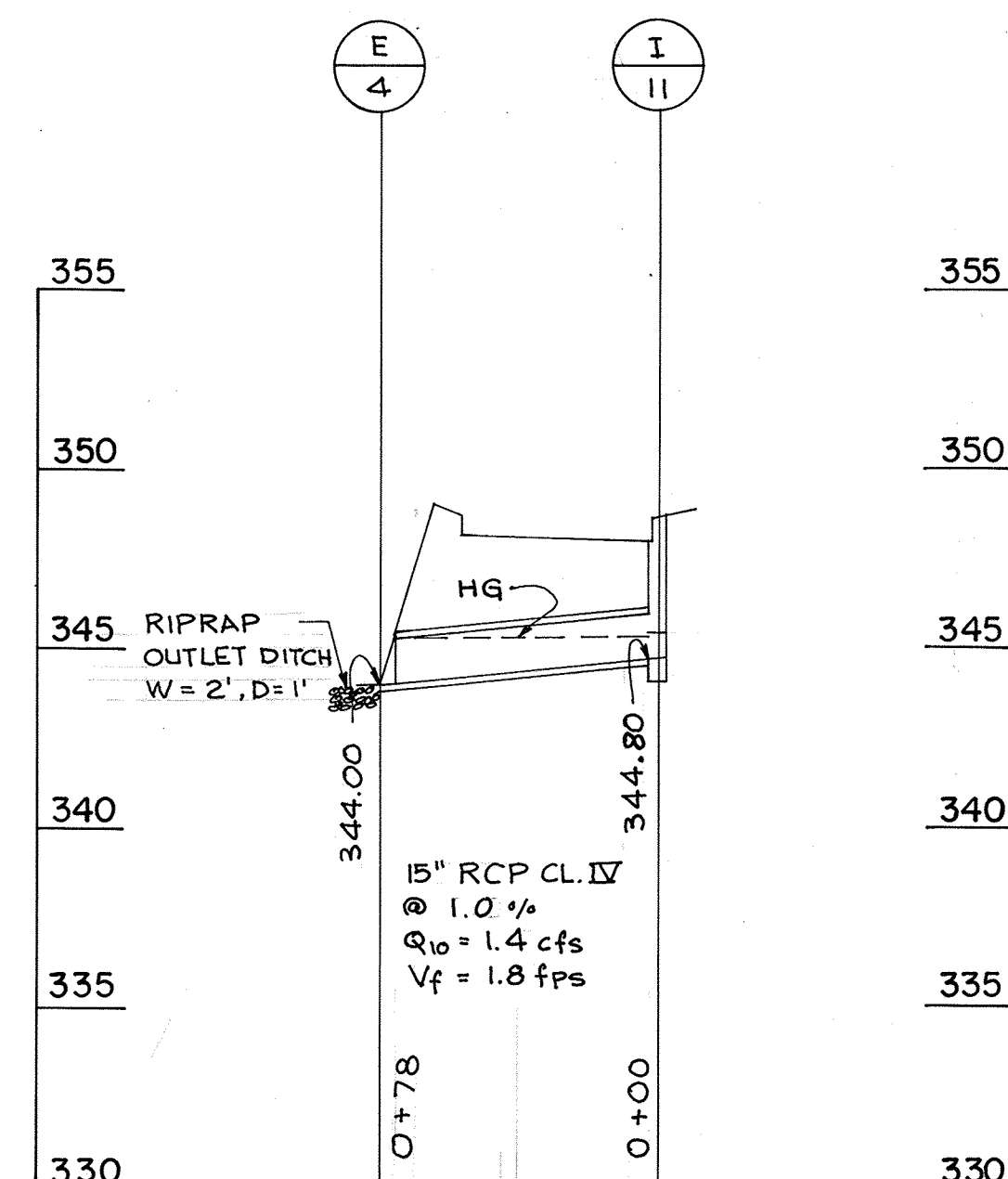
STA. 189+
 SCALE: HOR. 1" = 50'
 VER. 1" = 5'



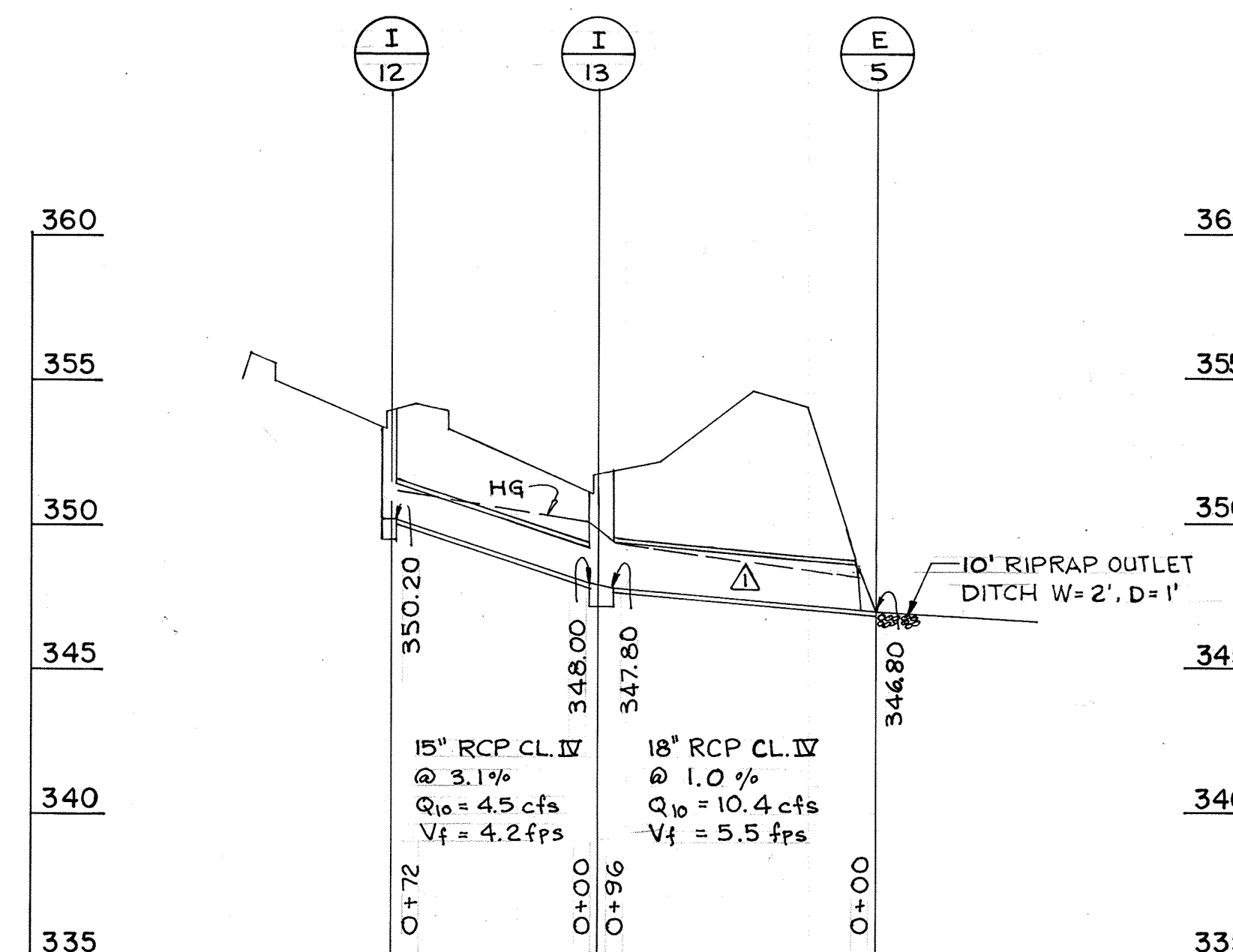
STA. 190+
 SCALE: HOR. 1" = 50'
 VER. 1" = 5'



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'

Date	Rev.	Description	By	App'd
1-28-17	1	Rev. E9-5 to I-12 HGL		

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.

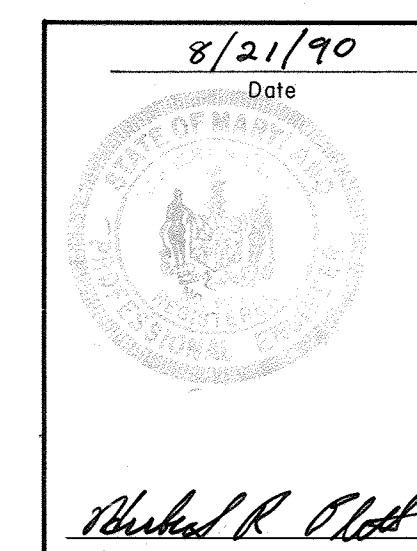
G. SCOTT SHANBERGER
 SHANBERGER & LANE
 Professional L.S. #10849 Exp. Date 4/2/20
 AS-BUILT DATE: 6-10-2018

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John M. Ferguson 3/26/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE

Drewille W. Weikand 3/19/91
 CHIEF, BUREAU OF HIGHWAYS DATE

Drewille W. Weikand 2-26-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Paul J. DeAngelis 2/1/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

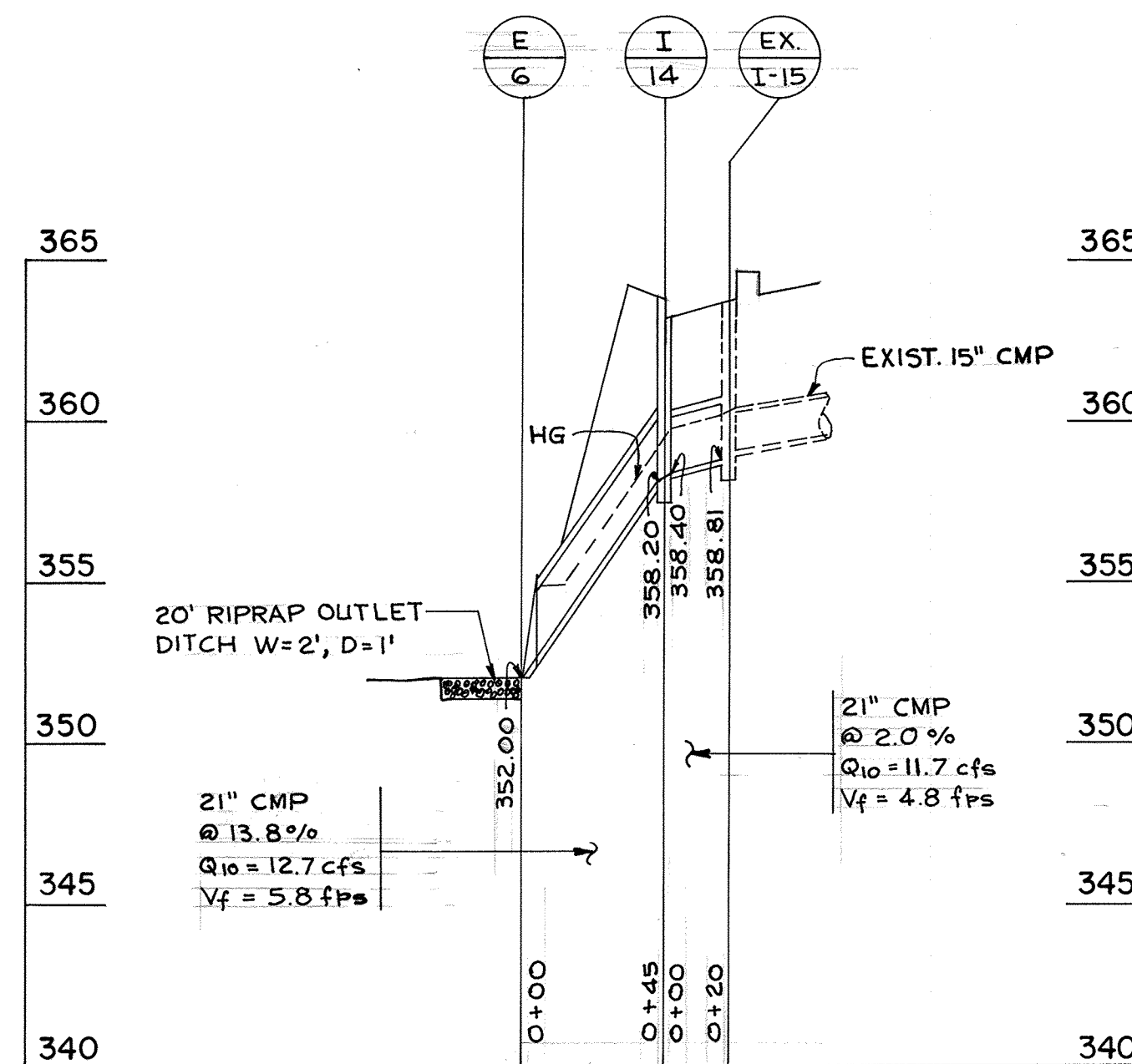


PHOENIX ENGINEERING, INC.
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND 21228

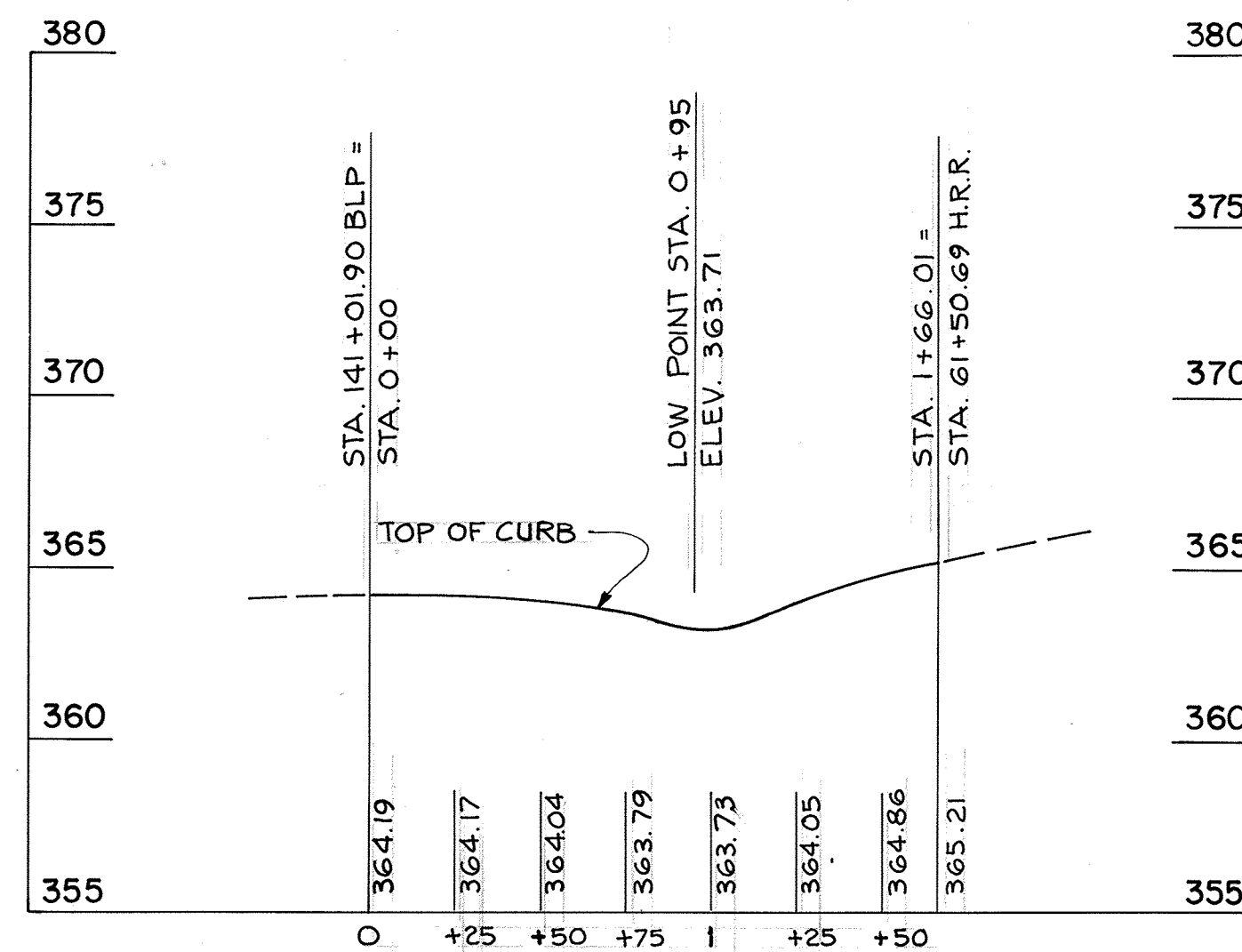
AREA: BROKEN LAND PARKWAY

TITLE: STORM DRAIN PROFILES

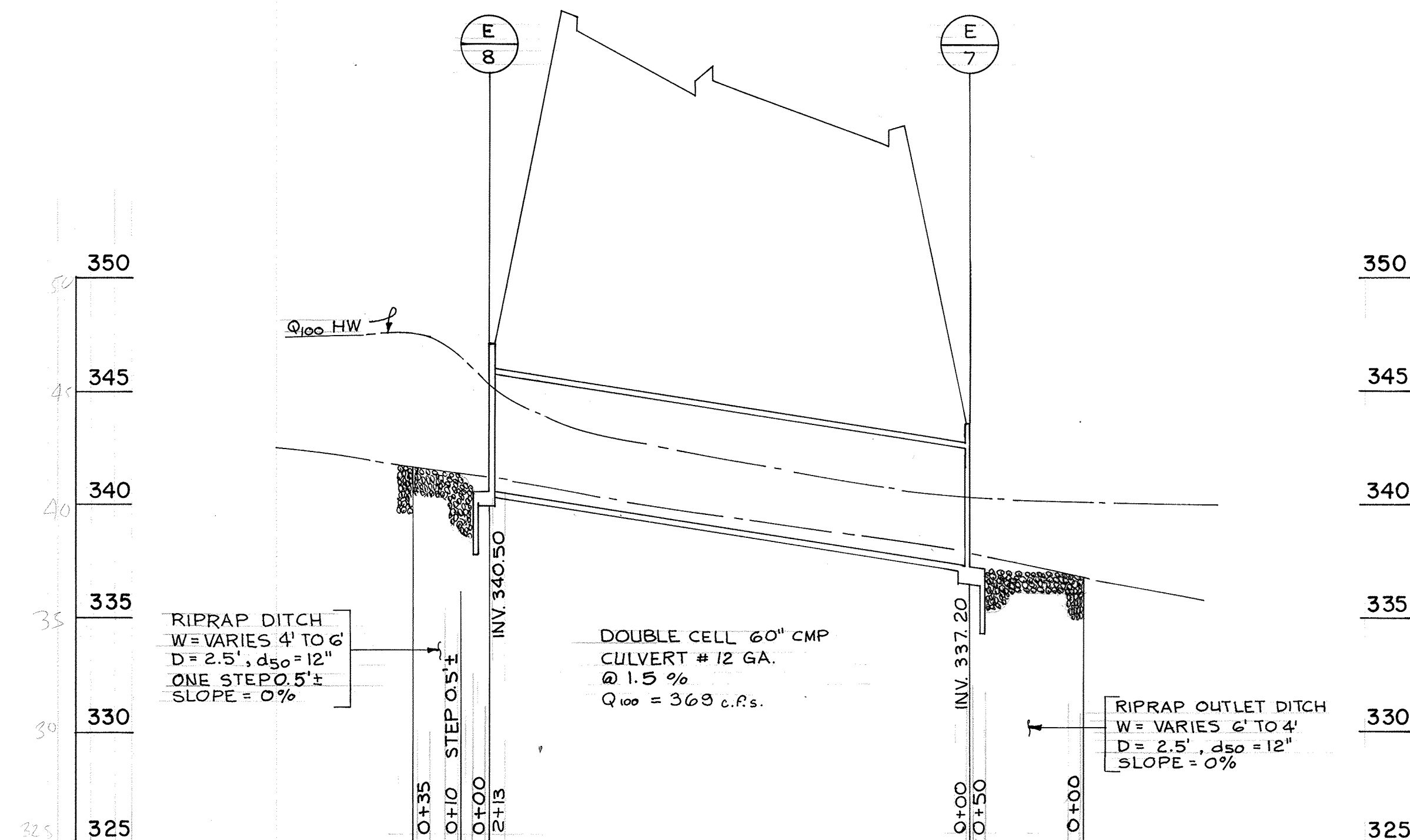
Des By H.R.P.	Scale AS SHOWN	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 6 OF 18
Chk By S.P.	Approved	



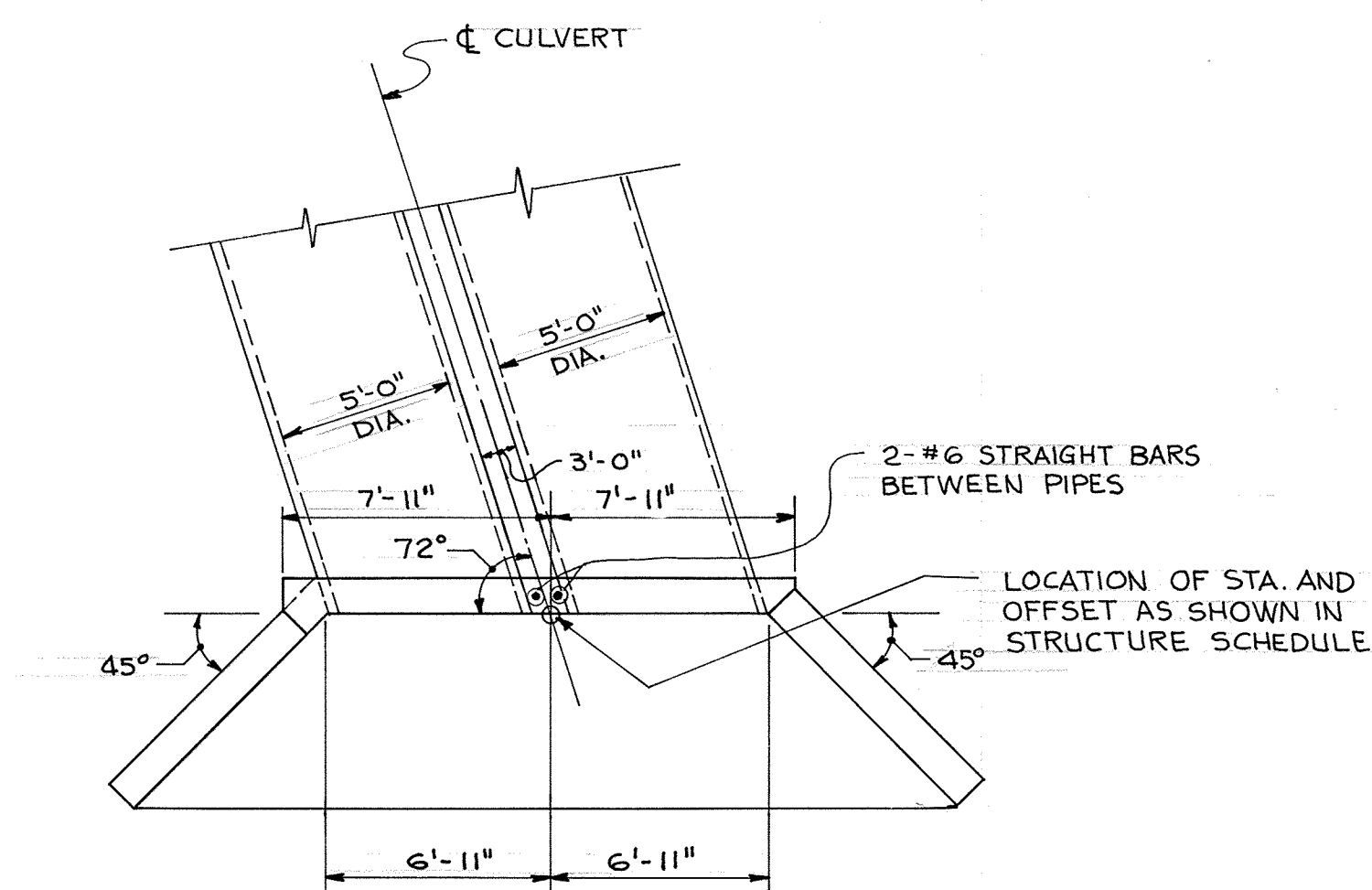
**STA. 141 + LT.
HICKORY RIDGE RD. INTERSECTION**
SCALE: HOR. 1" = 50'
VER. 1" = 5'



**PROFILE - TOP OF CURB
RIGHT TURN LANE AT HICKORY RIDGE RD.**
SCALE: HOR. 1" = 50'
VER. 1" = 5'

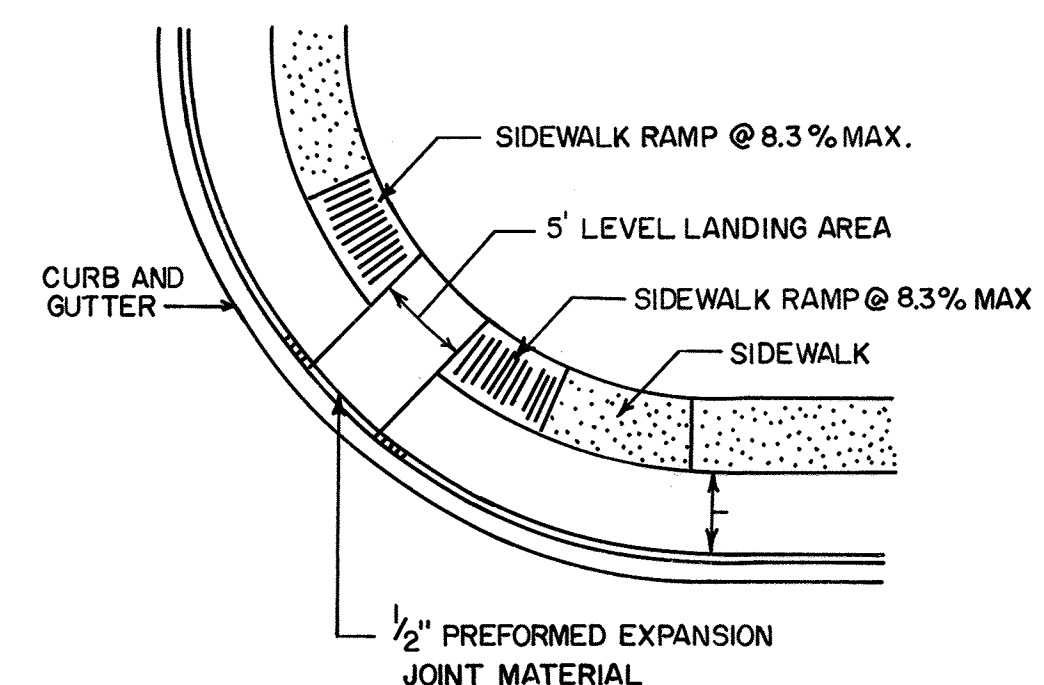


CULVERT AT STA. 137 +
SCALE: HOR. 1" = 50'
VER. 1" = 5'



NOTE: REFER TO HO. CO. STD. SD-5.11 FOR OTHER DIMENSIONS AND REINFORCING.

**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
John M. Penson 3/26/91
CHIEF, LAND DEVELOPMENT DIVISION DATE
Drayville W. Wallace 3/19/91
CHIEF, BUREAU OF HIGHWAYS DATE
W.S. [Signature] 3-26-91
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:
HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Mark W. [Signature] 3/1/91
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

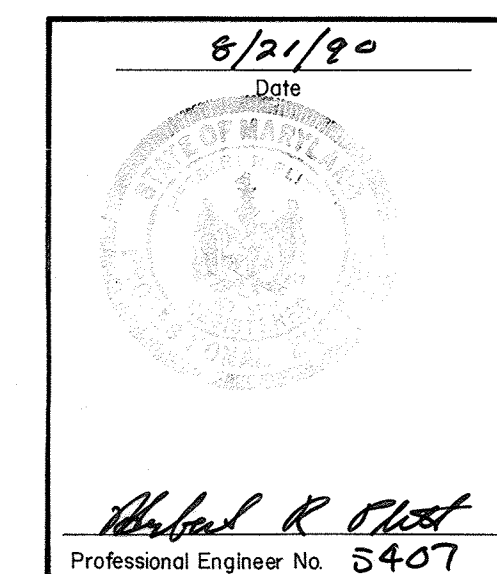
PHOENIX ENGINEERING, INC.
CONSULTING ENGINEERS
BALTIMORE, MARYLAND 21228

AREA BROKEN LAND PARKWAY

TITLE STORM DRAIN PROFILES AND DETAILS

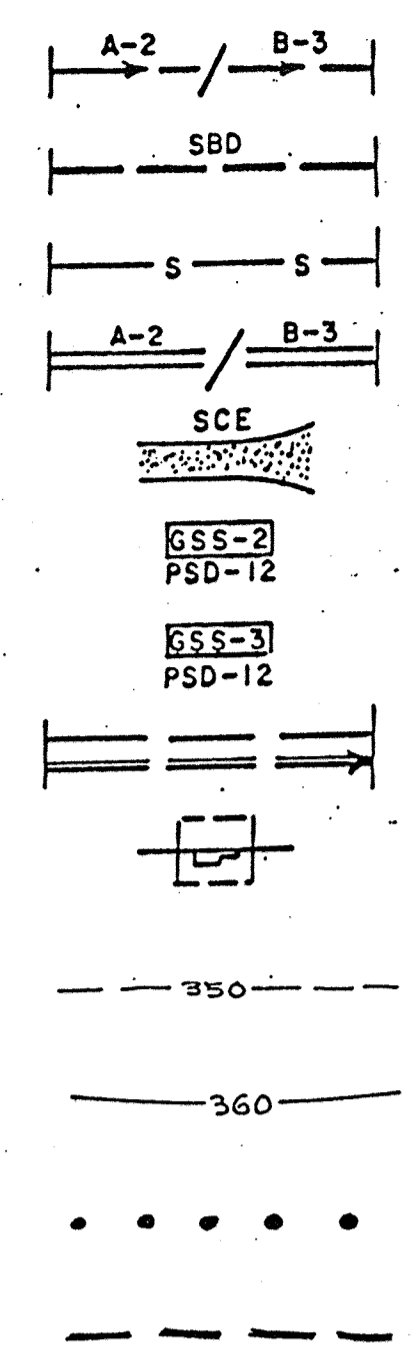
Des By H.R.P.	Scale AS SHOWN	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 7 OF 12
Chk By S.P.	Approved	

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.
Scott Shanaberger
C. SCOTT SHANABERGER, PE
SHANABERGER & LANE
Professional E.S. #10899 Exp. Date 4/22/20
AS-BUILT DATE: 6-10-2013

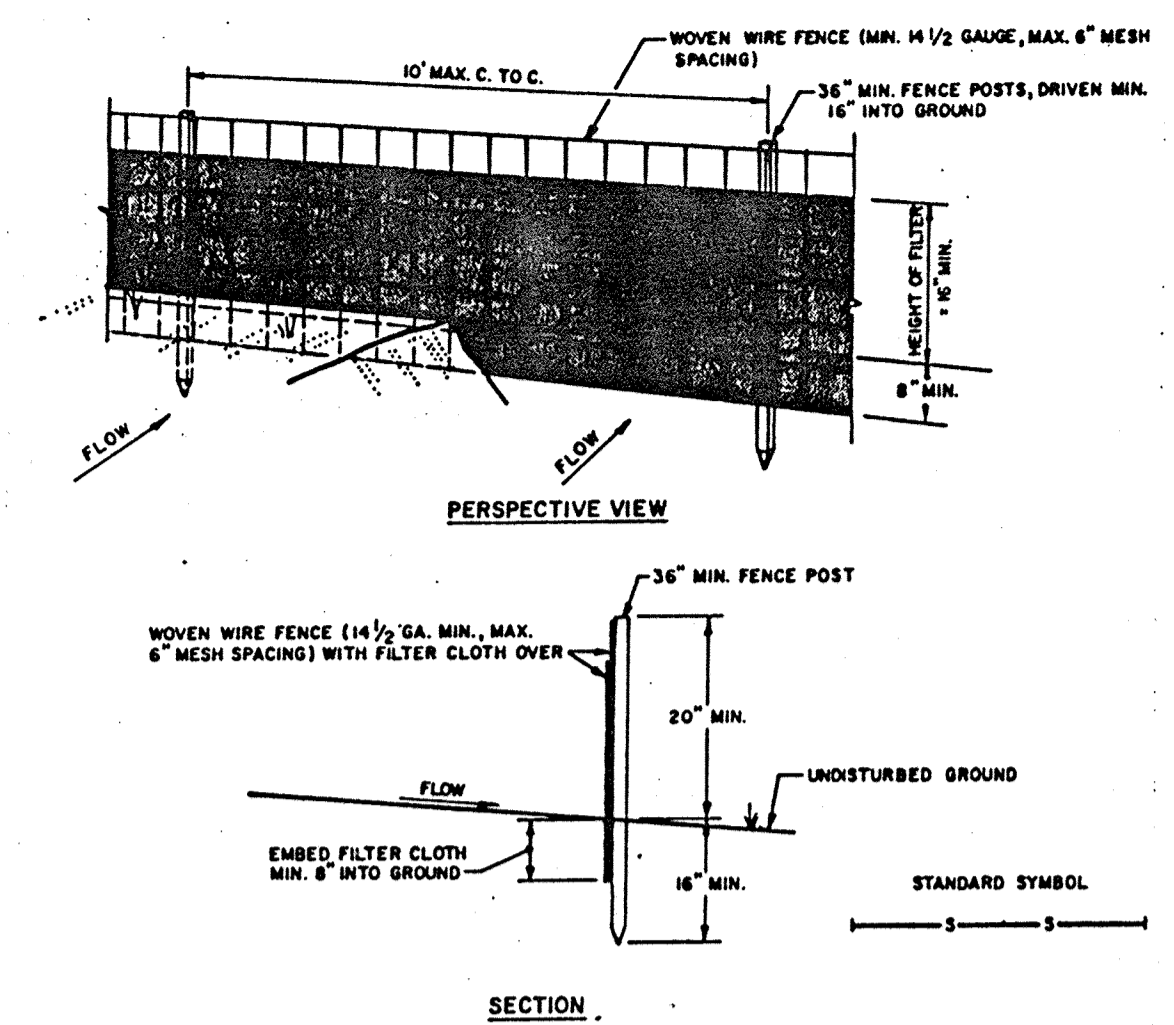


65

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 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\"/>
- POSTS: STEEL EITHER T OR U TYPE OR 2\"/>

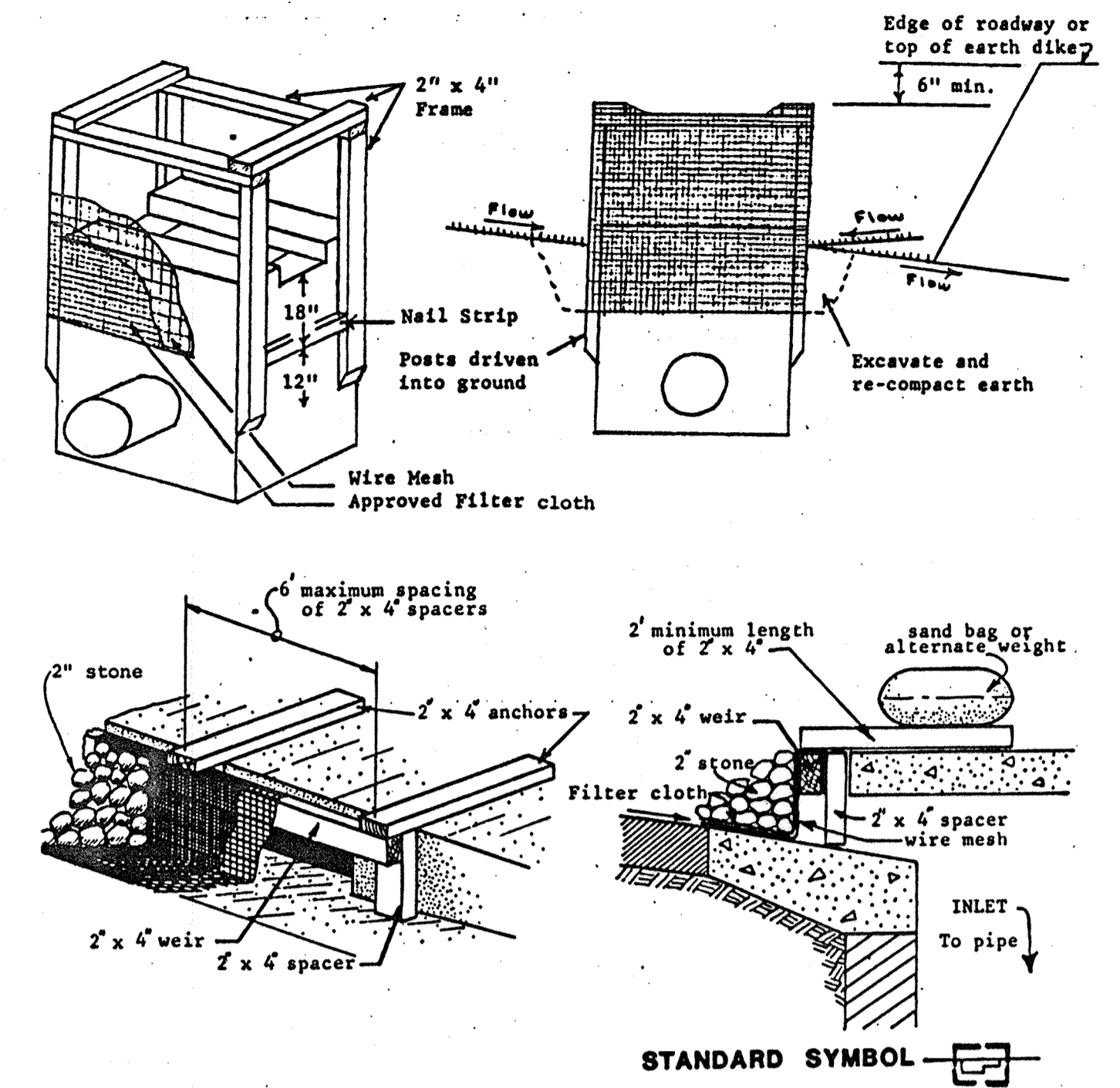
FENCE: WOVEN WIRE, 1/4\"/>

FILTER CLOTH: FILTER X, MIRAFIL 100, STABILINKA 1100N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

PLAN SYMBOL
 — S — S — S — S —

SILT FENCE
 NO SCALE



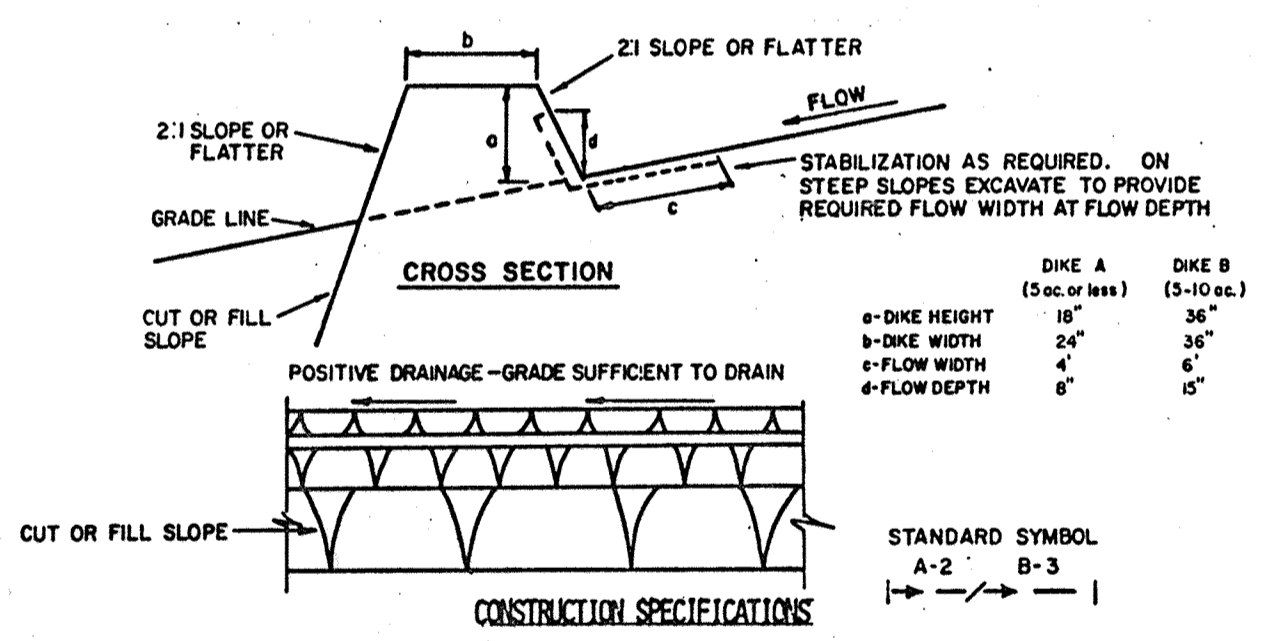
Construction Specifications

- I. Materials
- A. Wooden frame is to be constructed of 2\"/>
 - B. Wire mesh must be of sufficient strength to support filter fabric, and stone for curb inlets, with water fully impounded against it.
 - C. Filter cloth must be of a type approved for this purpose; resistant to sunlight with sieve size, KOS, 40-85, to allow sufficient passage of water and removal of sediment.
 - D. Stone is to be 2\"/>

II. Procedure

- A. A swale, ditchline or yard inlet protection.
 1. Excavate completely around inlet to a depth of 18\"/>
 - 2. Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6\"/>
 - 3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
 - 4. Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18\"/>
 - 5. Backfill around inlet in compacted 6\"/>
 - 6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6\"/>
 - 7. This structure must be inspected frequently and the filter fabric replaced when clogged.

INLET PROTECTION
 NO SCALE



CONSTRUCTION SPECIFICATIONS

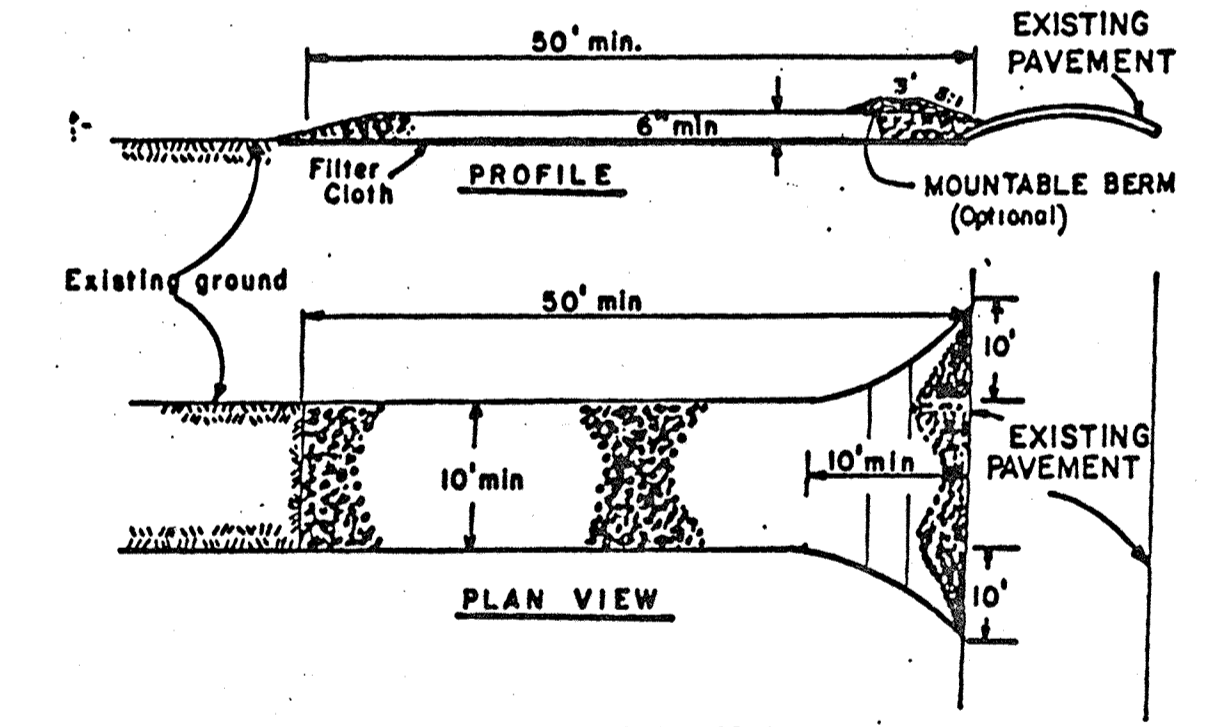
1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSTOR; SOD; 2\"/>
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2\"/>	
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



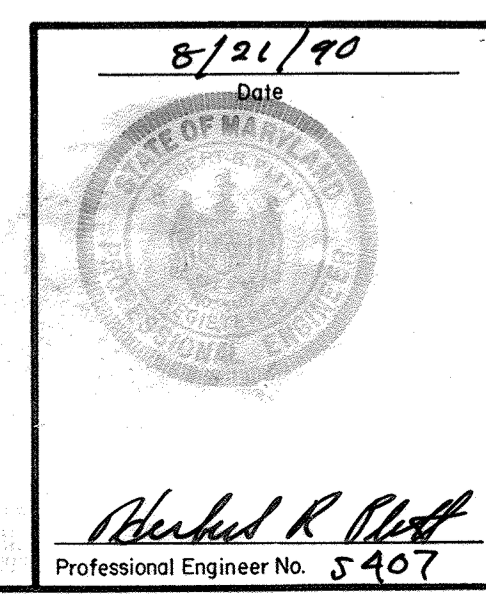
CONSTRUCTION SPECIFICATIONS

1. Stone Size - Use 2\"/>
- 2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
- 3. Thickness - Not less than six (6) inches.
- 4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
- 5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
- 6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
- 7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- 8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- 9. Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE
 NO SCALE

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

G. SCOTT SHANABERGER
 SHANABERGER & LANE
 PROFESSIONAL L.S. #10348 Exp. Date 4/2/2015
 AS-BUILT DATE: 6-10-2015



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: *Richard R. Bluff* 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: *Richard R. Bluff* Date: 8/23/90

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

Signature: *James M. Heltzer* 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: *Sherry D. Schaefer* Date: 3/11/91
 Howard Soil Conservation District

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Land Development Division: *John M. ...* Date: 3/26/91
 Chief, Bureau of Highways: *Lawrence W. Wallace* Date: 3/19/91
 Chief, Bureau of Engineering: *...* Date: 3-21-91

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Community Planning and Land Development: *...* Date: 8/23/90

PHOENIX ENGINEERING, INC.
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND 21228

AREA: BROKEN LAND PARKWAY

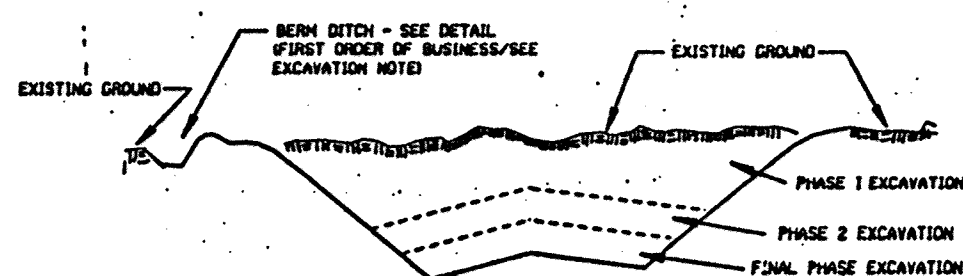
TITLE: SEDIMENT CONTROL DETAILS

Des By H.R.P.	Scale AS SHOWN	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No. 8 OF 12
Chk By S.P.	Approved	

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.

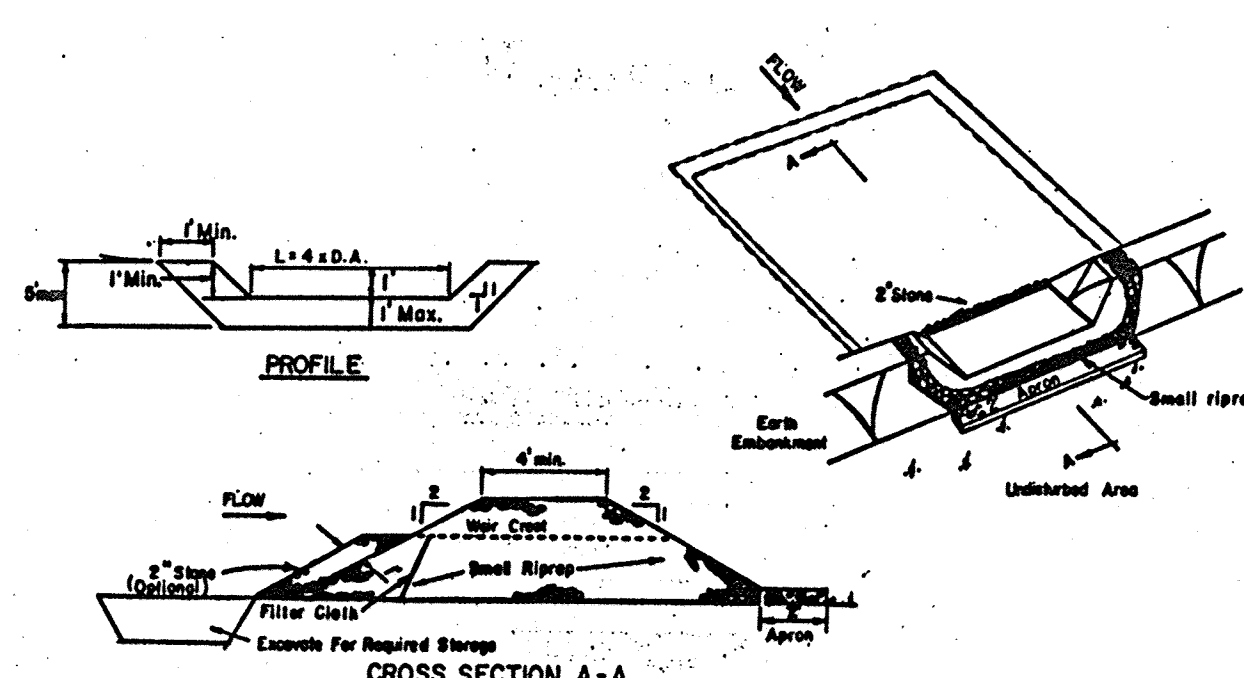
ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15 FEET.



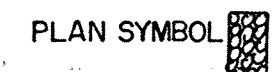
- CONSTRUCTION SEQUENCE: 1) EXCAVATE AND STABILIZE BERM, SIDE AND OUTLET DITCHES.
 2) PERFORM PHASE 1 EXCAVATION, DRESS, SEED & MULCH SLOPES WITH PERMANENT SEED & MULCH.
 3) PERFORM PHASE 2 EXCAVATION, DRESS, SEED & MULCH SLOPES WITH PERMANENT SEED & MULCH, OVERSEED PHASE 1 SLOPES, IF REQUIRED.
 4) PERFORM 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

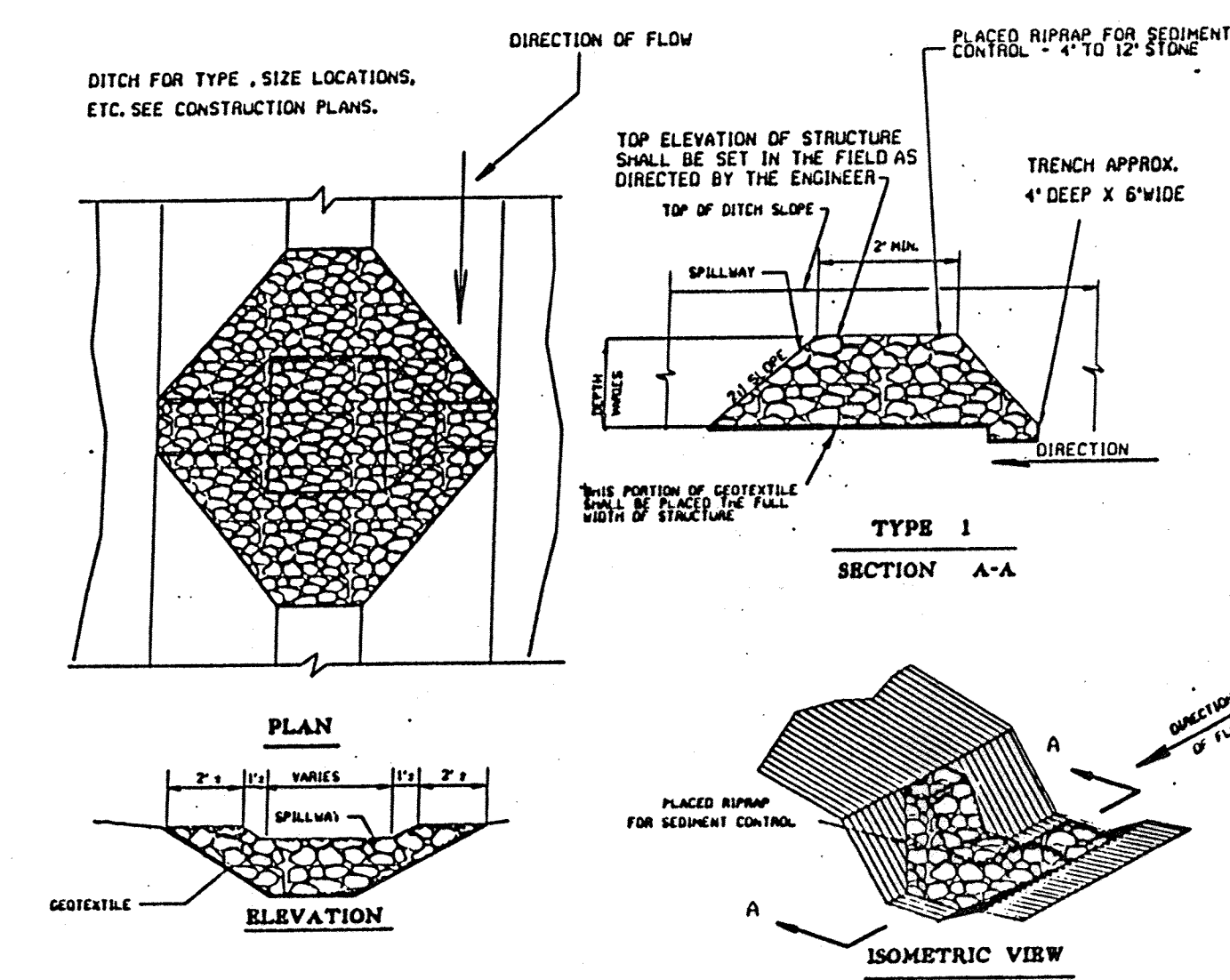
NOTE: ONCE THE EXCAVATION WITHIN A SPECIFIC AREA HAS BEGUN, THE OPERATION SHALL BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF THE GRADING AND PLACEMENT OF PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF 14 DAYS OR MORE MUST BE APPROVED BY THE ENGINEER. ANY VIOLATION OF THIS REQUIREMENT 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-Y
- 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 oversized 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



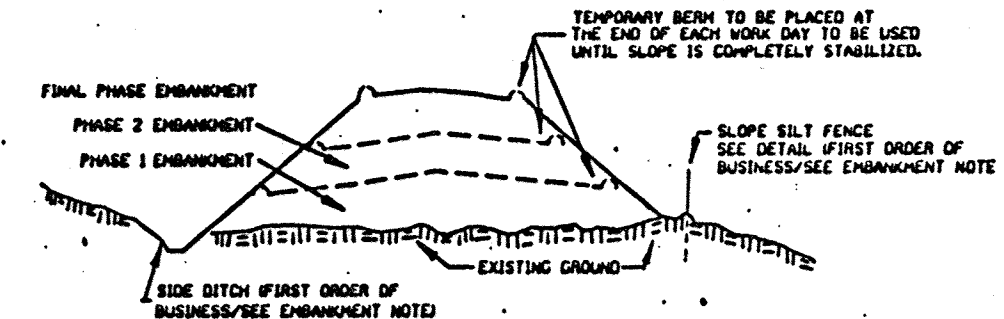
- INTENDED FOR USE IN EXISTING, PROPOSED AND TEMPORARY DITCHES OF ALL TYPES AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
- FOR LOCATIONS OF OUTLET STRUCTURES REFER TO CONSTRUCTION PLANS
- THE OUTLET STRUCTURES SHALL BE INSPECTED AFTER EACH RAIN, AND THE STONE SHALL BE REPLACED WHEN THE OUTLET STRUCTURE 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 2:1 SLOPE FILLS.
- GEOTEXTILE TO MEET THE REQUIREMENTS OF CLASS C, SEE GENERAL NOTE 16.
PLAN VIEW SYMBOL: $\frac{TSOS}{\square}$
- 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

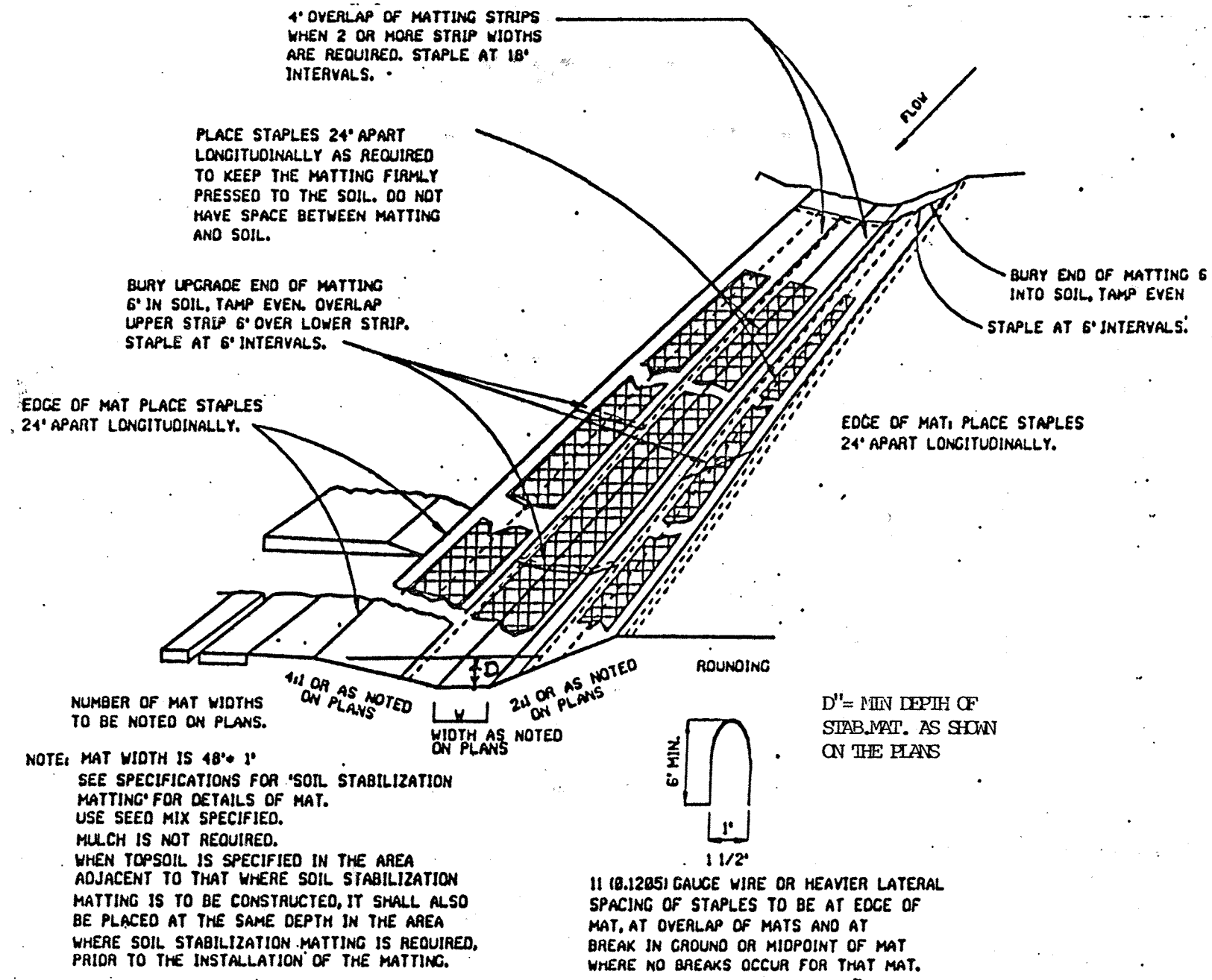
THE FIRST ORDER OF BUSINESS WILL BE THE EXCAVATION AND STABILIZATION OF SIDE DITCHES AND PLACEMENT OF PERIMETER CONTROLS (SILT FENCE, ETC.). THE EMBANKMENT WILL BE MADE IN LIFTS MEETING THE SAME HEIGHT REQUIREMENTS AS PREVIOUSLY STATED FOR CUT SECTIONS. THE SLOPES WILL BE STABILIZED IMMEDIATELY FOLLOWING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

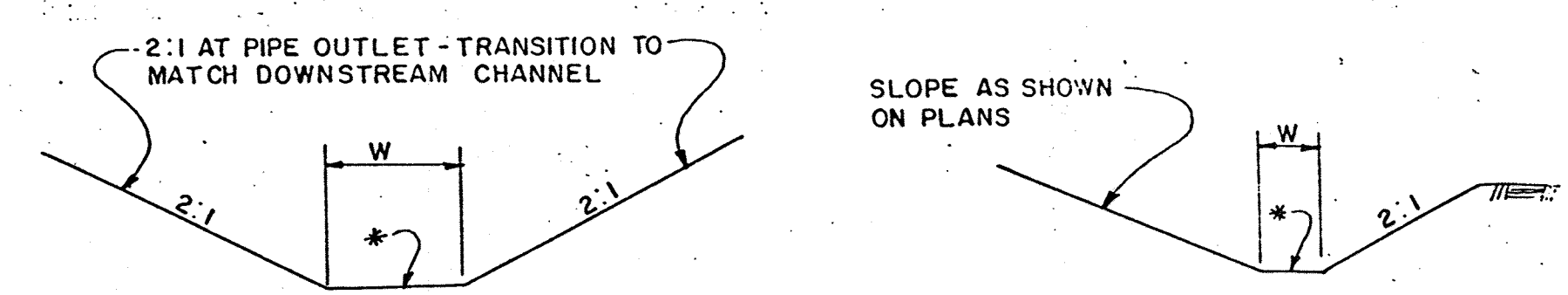
PHASING PLAN-FILL SECTION



- 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 18.125" 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

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
 G. SCOTT SHANBERGER
 SHANBERGER & LANE
 PROFESSIONAL L.S. #10848 Exp. Date 4/2/2014
 AS-BUILT DATE: 6-10-2018

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 S. J... 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. 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. Hahn 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.

Jeff W. Adams 3/11/91
 Howard Soil Conservation District Date

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 3/21/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Danville W. Welleand 3/19/91
 CHIEF, BUREAU OF HIGHWAYS DATE
William E. Cady 3-24-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Harold R. Platt 8/10/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

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	

8/21/90
 Date

Herbert R. Platt
 Professional Engineer No. 5407

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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 SQ.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 (14 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 GREATER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- 5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 7) SITE ANALYSIS:

TOTAL AREA OF SITE	11.80	ACRES
AREA DISTURBED	8.1	ACRES
AREA TO BE ROOFED OR PAVED	4.3	ACRES
AREA TO BE VEGETATIVELY STABILIZED	4.4	ACRES
TOTAL CUT	392.00	CU. YDS.
TOTAL FILL	357.40	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.

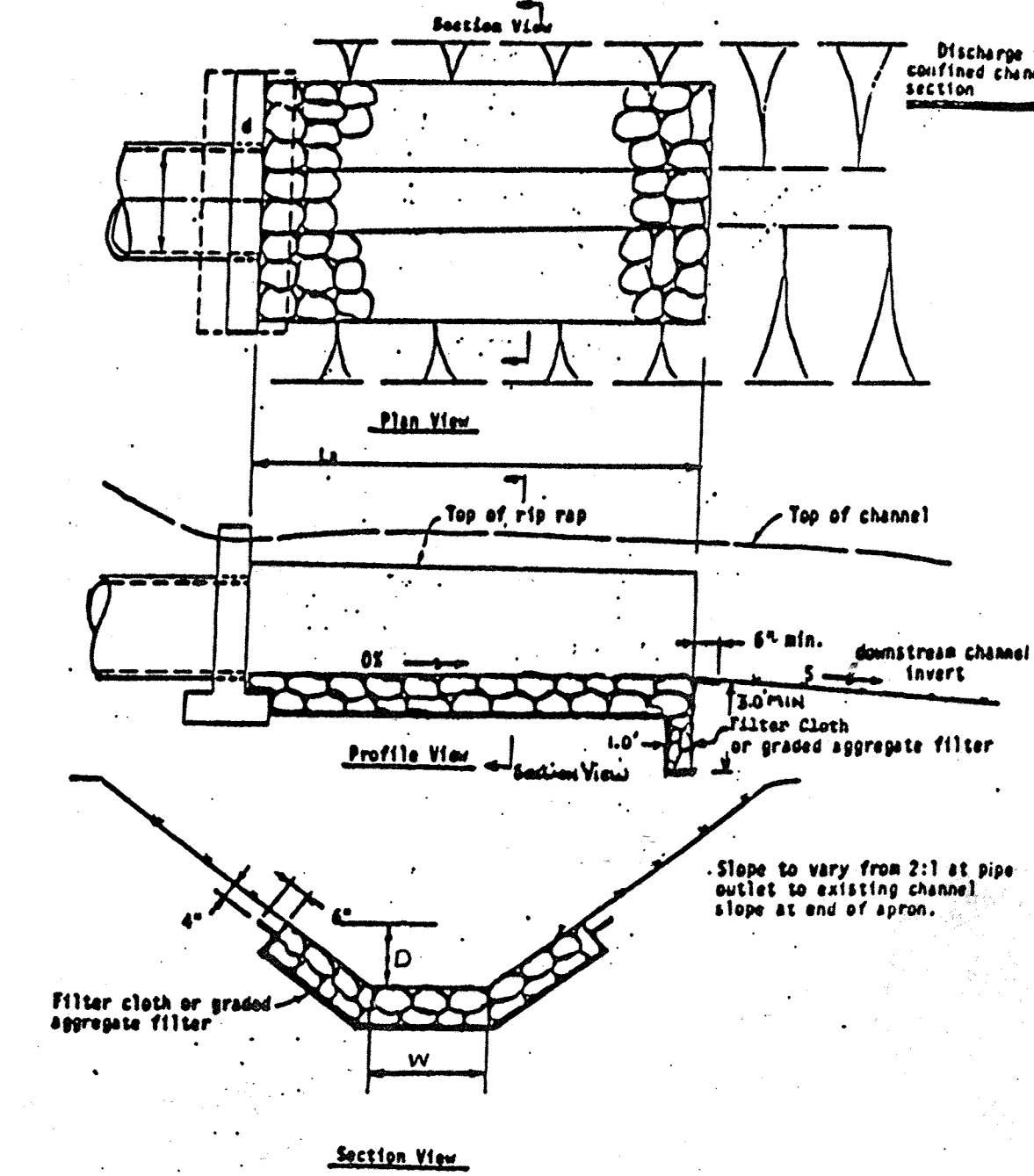
B. SHA LIMIT OF WORK TO HICKORY RIDGE ROAD

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	36
21	32	38
24	36	43

Stone Quality. Stone for riprap shall consist of field stone or rough uneven 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

NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
G. SCOTT SHANBERGER
SHANBERGER & LANE
Professional L.S. #10849 Exp. Date 4/27/28
AS-BUILT DATE: 4-10-2018

PLAN SYMBOL
8/21/90
Date
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.
Signature of Developer: J.H. N.H. 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: Michael R. Pitt 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 of U.S. Soil Conservation Service: James M. Halar Date: 8/11/91

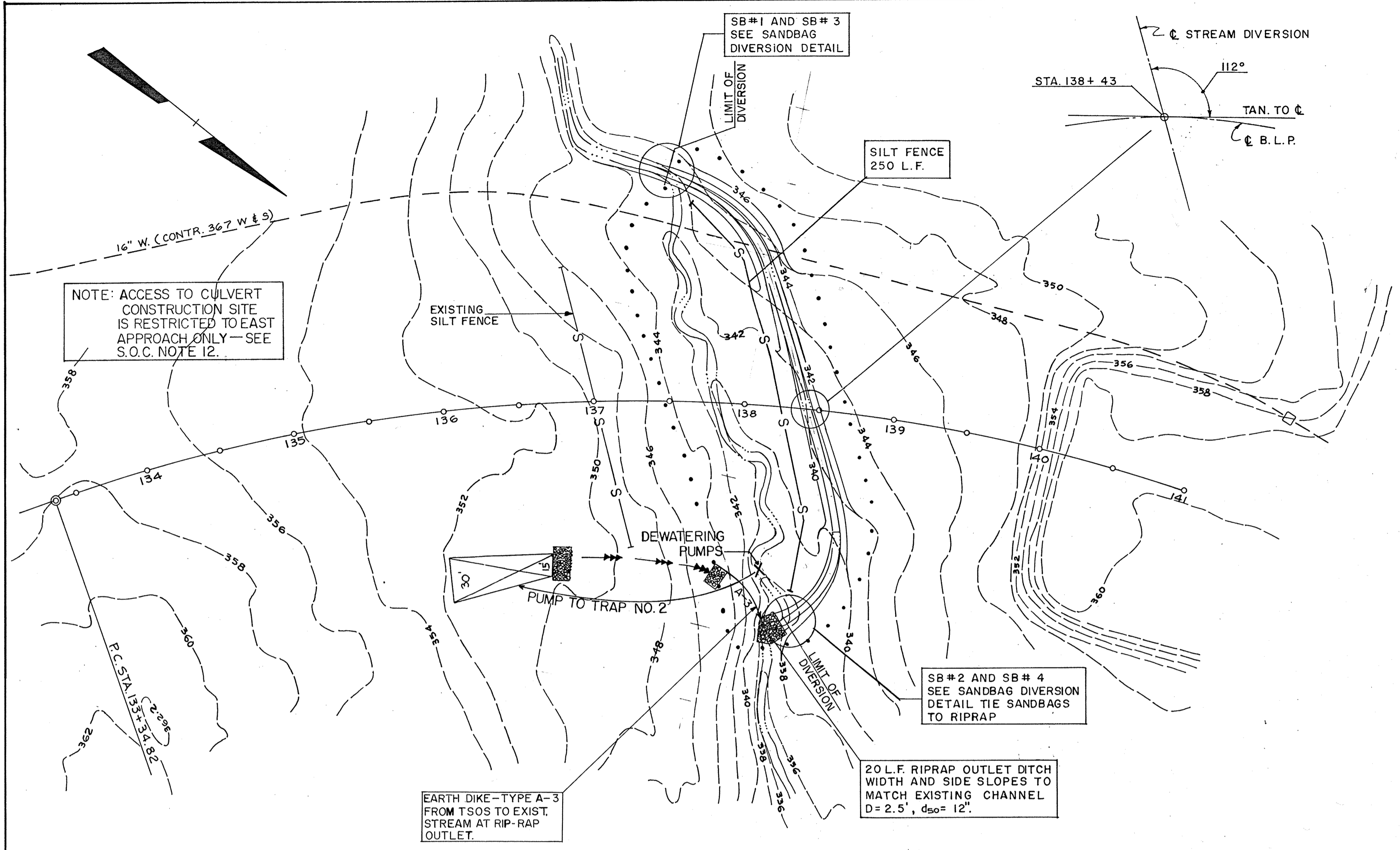
THESE PLANS FOR EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Signature of Howard Soil Conservation District: Jeff W. Stirling Date: 8/11/91

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION: [Signature] DATE: 7/26/91
CHIEF, BUREAU OF HIGHWAYS: [Signature] DATE: 3/19/91
CHIEF, BUREAU OF ENGINEERING: [Signature] DATE: 3-26-91

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

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
Dwn By: J.W.B. Date: JULY 1990 Drawing No.: 10 OF 12
Chk By: S.P. Approved

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

EARTH DIKE - TYPE A-3 FROM T.SOS 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', d₅₀=12"

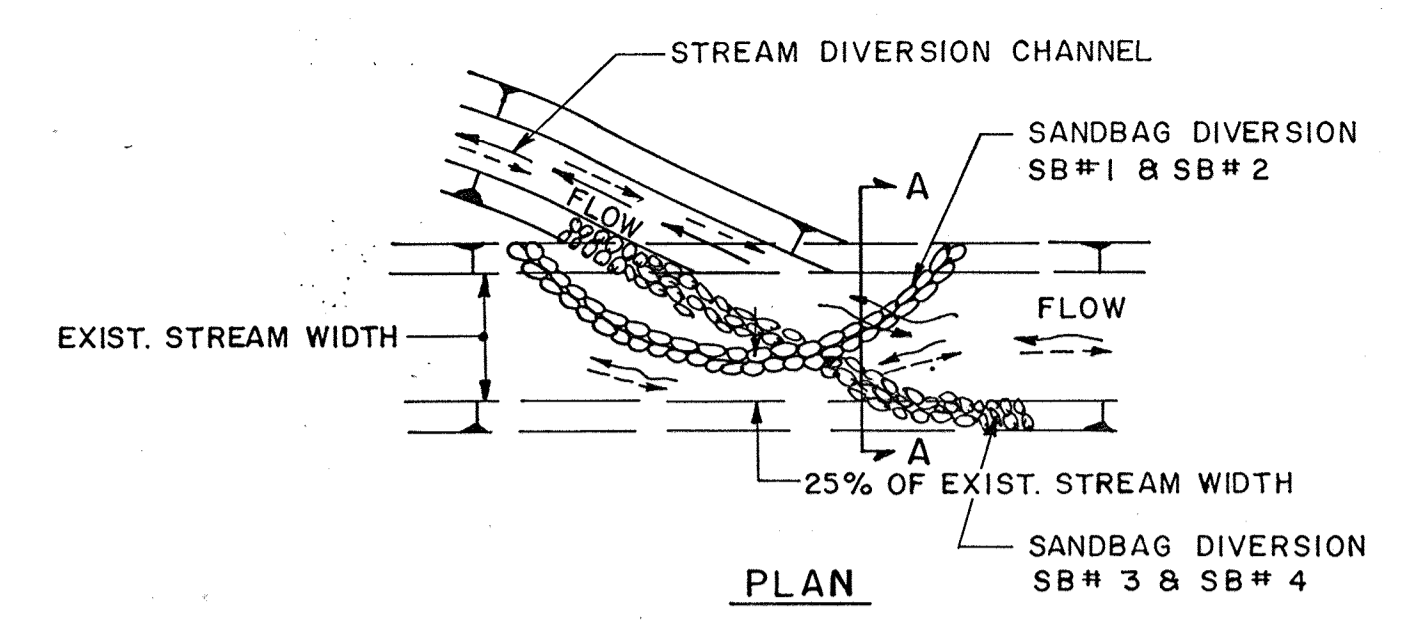
SCALE: 1" = 50'

GENERAL NOTES

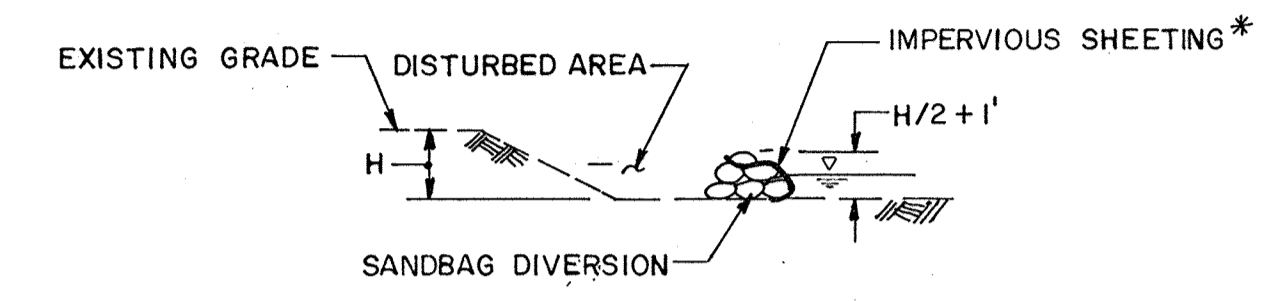
- THESE STREAM MAINTENANCE DETAILS ARE SUGGESTED METHODS OF CONSTRUCTION ONLY. THE CONTRACTOR HAS THE OPTION OF SUBMITTING A PLAN OF HIS OWN DESIGN TO THE ENGINEER, THE HOWARD COUNTY SOIL CONSERVATION DISTRICT (HSCD) AND W.R.A. FOR APPROVAL. EROSION AND SEDIMENT CONTROL DETAILS ARE ESSENTIAL FOR THESE 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

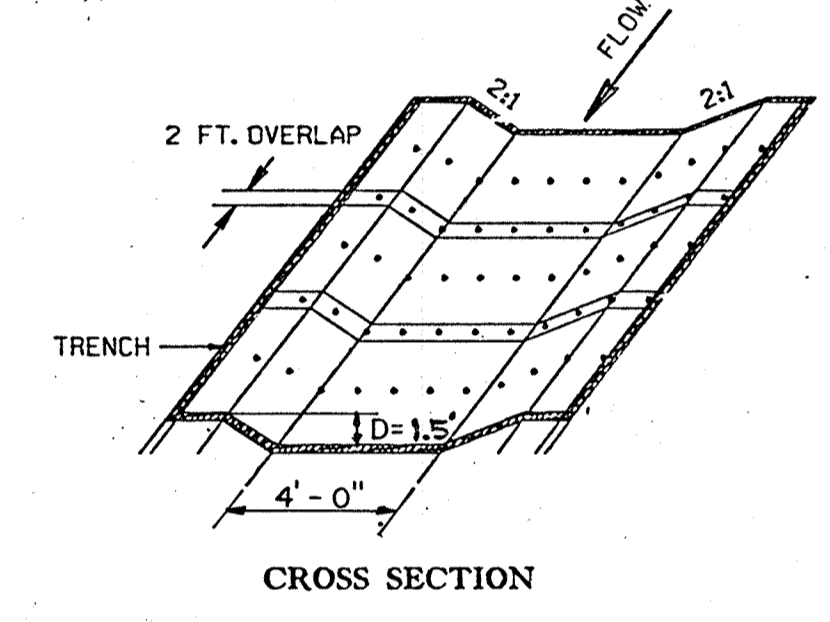
- OBTAIN A GRADING PERMIT.
- INSTALL SILT FENCES AS SHOWN ON PLAN.
- PERFORM ANY CLEARING AND GRUBBING BETWEEN SILT FENCES IN CHANNEL DIVERSION AREA ONLY.
- INSTALL SANDBAG DIVERSIONS SB#1 AND SB#2 AND THE DOWNSTREAM RIPRAP CHANNEL.
- CONSTRUCT TEMPORARY STREAM DIVERSION FROM DOWNSTREAM END TO UPSTREAM 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.



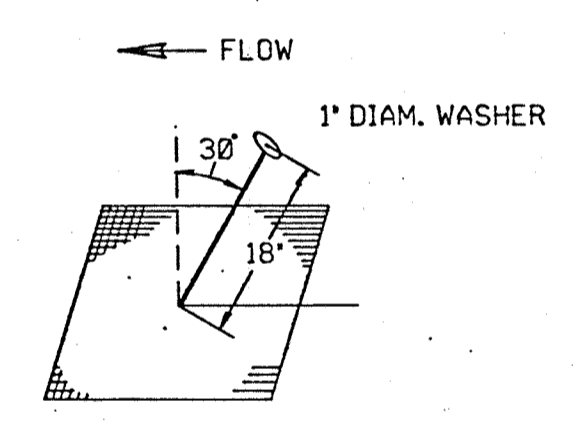
* POLYETHYLENE OR OTHER IMPERVIOUS PUNCTURE RESISTANT MATERIAL



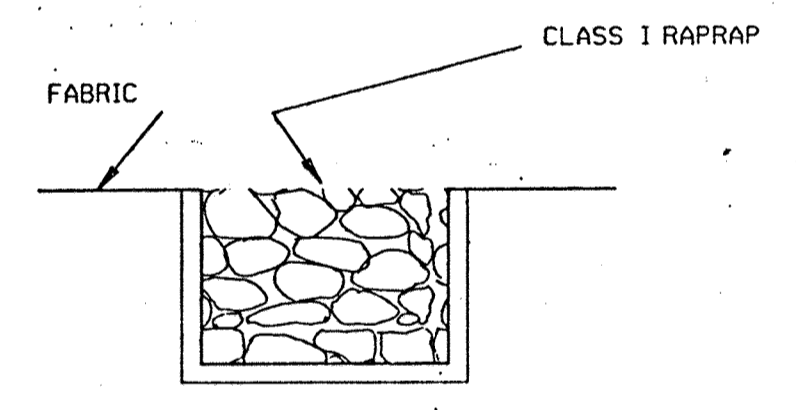
SECTION A-A
SANDBAG DIVERSION DETAIL
NOT TO SCALE



CROSS SECTION



FASTENING DETAIL



TRENCHING DETAIL

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

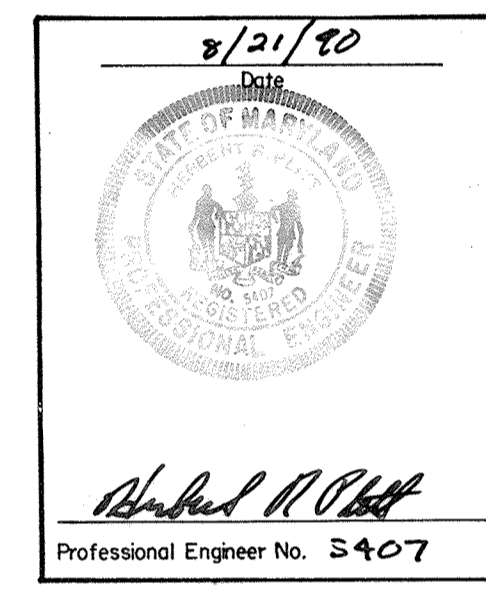
- THE FABRIC SHALL HAVE A MINIMUM WIDTH SUCH THAT IT IS KEED IN AND ANCHORED AT THE TOP OF STREAM BANK.
- FABRIC SHALL BE PLACED SUCH THAT ONE PIECE WILL LINE THE ENTIRE CHANNEL. IF THIS IS NOT POSSIBLE, FABRIC SHALL BE PLACED SO THAT TRANSVERSE OVERLAPPING OCCURS IN ACCORDANCE WITH THE DETAIL. LONGITUDINAL OVERLAPS SHALL NOT BE ALLOWED. UPSTREAM SECTIONS SHALL OVERLAP DOWNSTREAM SECTION. OVERLAP WIDTH SHALL EQUAL 2 FT. MINIMUM.

3.

- THE FABRIC SHALL BE KEED 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 1 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.



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET
B. SCOTT SHANABERGER
SHANABERGER & LANE
Professional L.S. #10843 Exp. Date: 4/22/20
AS-BUILT DATE: 6-10-2018

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Howard R. Platt</i> CHIEF, LAND DEVELOPMENT DIVISION	3/26/91 DATE
<i>William W. Wehland</i> CHIEF, BUREAU OF HIGHWAYS	3/19/91 DATE
<i>William R. Kelly</i> CHIEF, BUREAU OF ENGINEERING	3-26-91 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Howard R. Platt</i> CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	3/19/91 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	Proj. No. 89-0040
Drn By J.W.B.	Date JULY 1990	Drawing No.
Chk By S.P.	Approved	13 OF 12

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.

Howard R. Platt
Signature of Developer
3/23/91
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.

Howard R. Platt
Signature of Engineer
3/24/90
Date

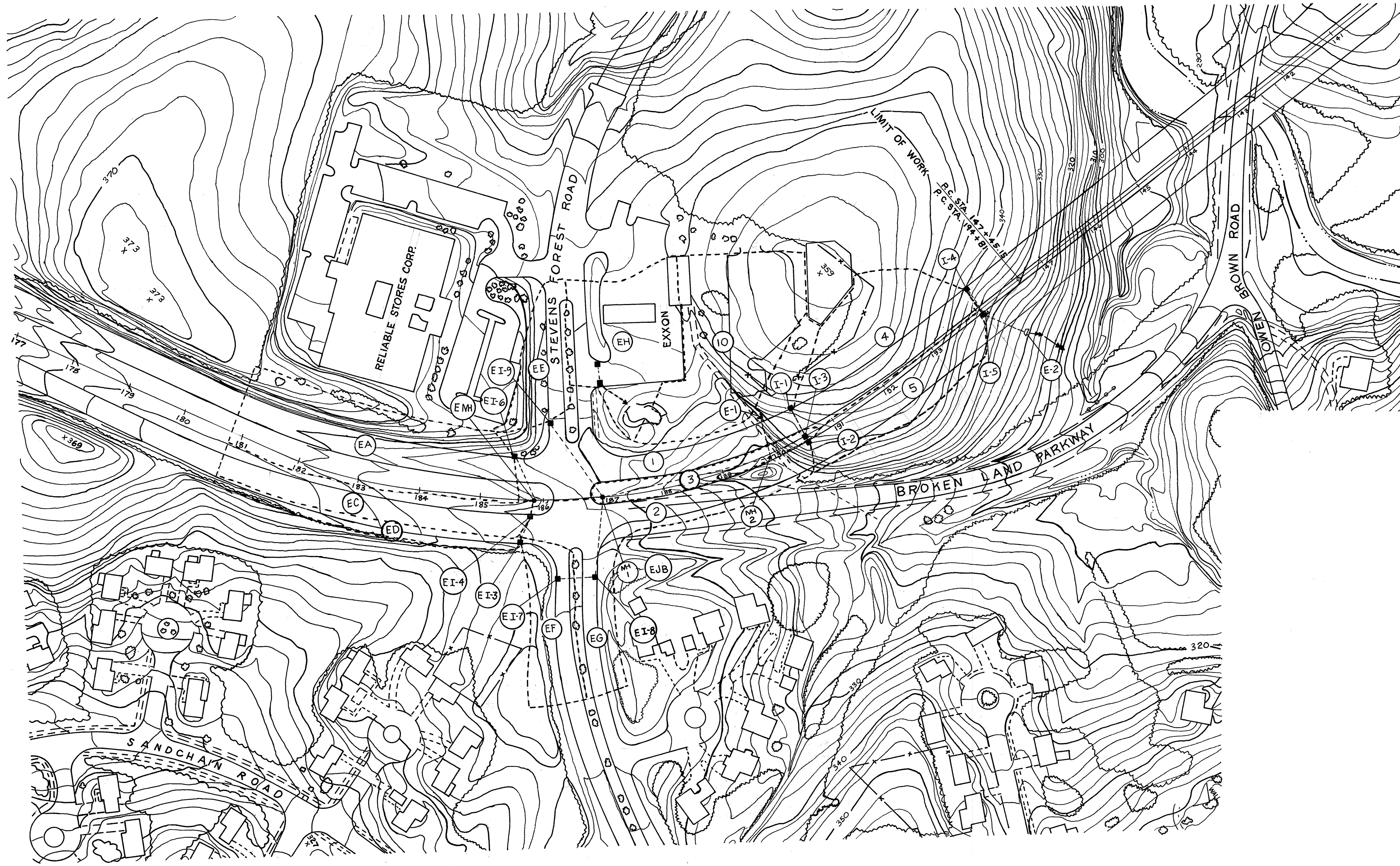
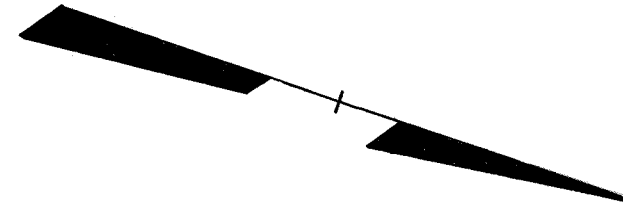
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Howard R. Platt
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.

Howard R. Platt
Howard Soil Conservation District
3/11/91
Date

STREAM DIVERSION AND FABRIC LINING DETAIL



6-10-2018

APPROVED:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 3/24/91
CHIEF, LAND DEVELOPMENT DIVISION DATE

[Signature] 3/19/91
CHIEF, BUREAU OF HIGHWAYS DATE

[Signature] 3-26-91
CHIEF, BUREAU OF ENGINEERING DATE

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

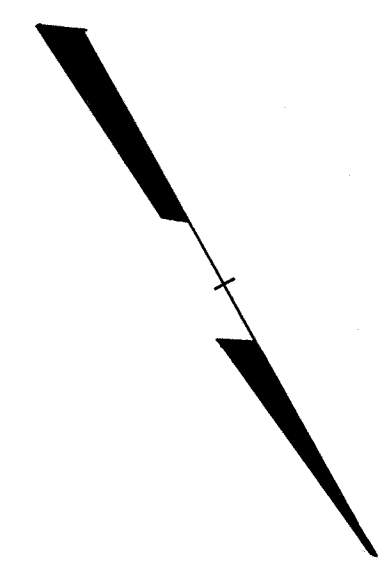
8/21/90
Date

[Signature]
Professional Engineer No. 5407

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	J.W.B.	Date JULY 1990
Chk By	S.P.	Approved
Proj. No.	89-0040	
Drawing No.	14 OF 18	

65

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



APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John M. Simpson 3/26/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Dravella W. Chelcand 3/19/91
 CHIEF, BUREAU OF HIGHWAYS DATE
J.S. Adams 3-26-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Paul W. Wynn 3/19/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

8/21/90
 Date

Richard R. Platt
 Professional Engineer No. 5407

PHOENIX ENGINEERING, INC.
 CONSULTING ENGINEERS
 BALTIMORE, MARYLAND 21228

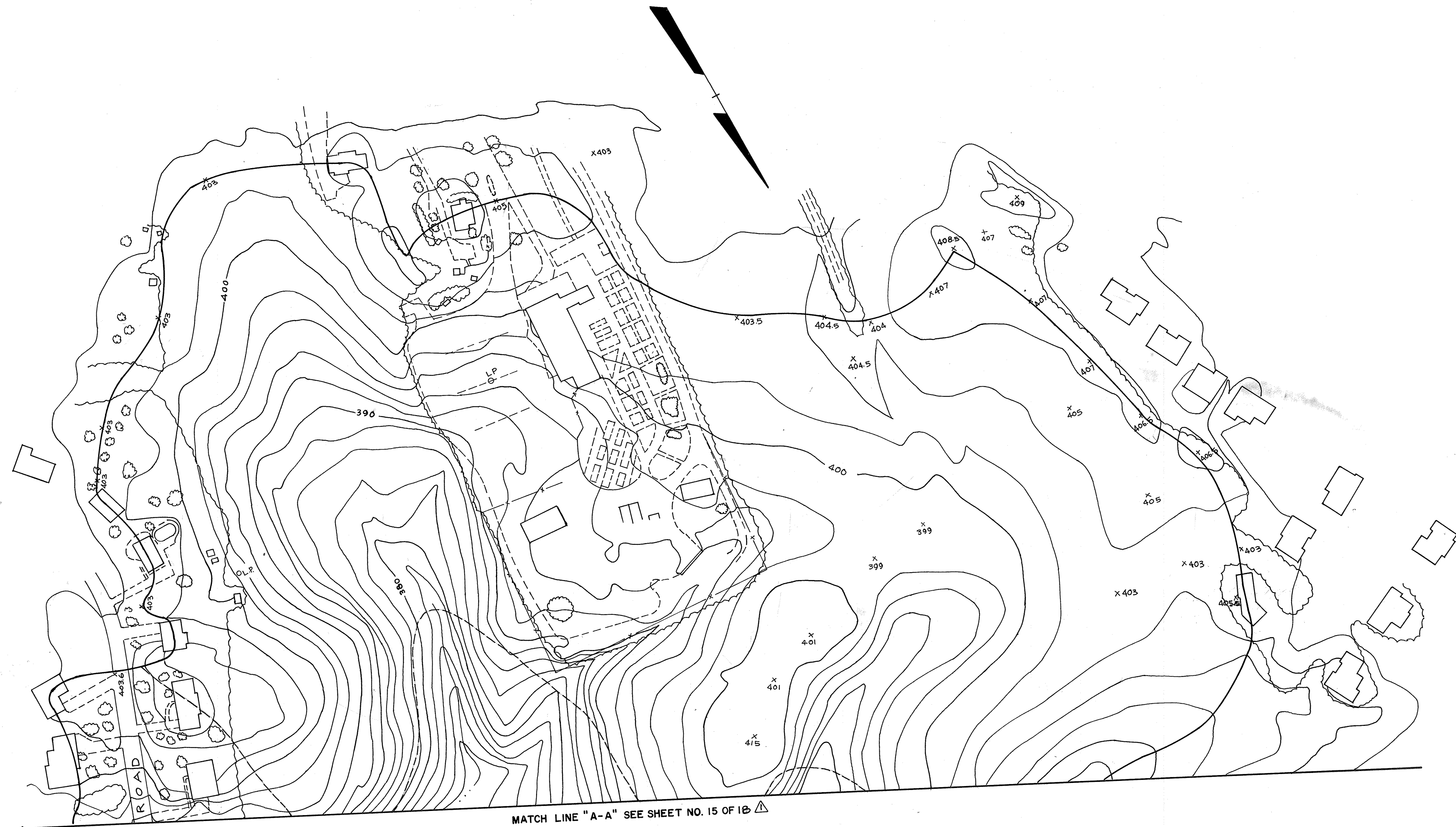
AREA: BROKEN LAND PARKWAY

TITLE: DRAINAGE AREA MAP

Des By: H.R.P.	Scale: 1" = 100'	Proj. No. 89-0040
Drn By: S.P.	Date: JULY 1990	Drawing No. 15 OF 18
Chk By: J.W.B.	Approved:	

2-18-17	Rev. Broken Land Pkwy median: I-15 Drainage Area	gt.	DEV.
Date	Revision	By	App'd

65



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.
G. Scott Shanaberger
 G. SCOTT SHANABERGER
 SHANABERGER & LANE
 Professional L.S. #10849 Exp. Date 12/2004
 AS-BUILT DATE: 4-10-2018

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John M. Panger 7/25/91
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Donville W. Wehland 3/19/91
 CHIEF, BUREAU OF HIGHWAYS DATE
James E. Ray 3-26-91
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:
 HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert C. Taylor 7/19/91
 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
Proj.No.	89-0040	Drawing No.
16	OF	18
Chk By	J.W.B.	Approved

8/21/90
 Date

Robert R. Platt
 Professional Engineer No. 5407

F-91-42

65

PROJECT DESCRIPTION

- I. GENERAL
THIS PROJECT INVOLVES THE INSTALLATION OF A NEW CONTROLLER, NEW TRAFFIC SIGNAL POLES AND EQUIPMENT, AND PEDESTRIAN POLES IN CONJUNCTION WITH THE REALIGNMENT OF THE EAST LEG OF THE HICKORY RIDGE ROAD AT BROKEN LAND PARKWAY INTERSECTION IN HOWARD COUNTY, MARYLAND.
- II. INTERSECTION OPERATION
THE INTERSECTION WILL OPERATE IN NEMA, SIX PHASE FULLY ACTUATED MODE. THE NORTHBOUND AND SOUTHBOUND THROUGH MOVEMENTS WILL OPERATE CONCURRENTLY, THE NORTHBOUND AND SOUTHBOUND EXCLUSIVE LEFT TURNS (LEAD PHASE) WILL OPERATE CONCURRENTLY. THE SIDE STREET APPROACHES WILL CONTINUE TO BE SPLIT PHASED. APS PUSHBUTTONS WILL BE INSTALLED TO SERVE BOTH PEDESTRIAN CROSSINGS. THE PEDESTRIAN PHASE TO CROSS THE NORTH SIDE OF BROKEN LAND PARKWAY WILL RUN WITH THE WESTBOUND SIDE STREET APPROACH. THE PEDESTRIAN PHASE TO CROSS THE EAST LEG OF HICKORY RIDGE ROAD WILL RUN CONCURRENTLY WITH THE NORTHBOUND APPROACH.
- III. SPECIAL NOTES
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLES TO THE APPROPRIATE TERMINALS AND SHALL PROPERLY LABEL EACH CABLE.
2. CONTACT JENNIFER BIDDLE AT (410) 313-5753 TO SET UP A PRE-CONSTRUCTION MEETING IN THE FIELD.
3. ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY (1-800-257-7777) PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.

BROKEN LAND PKWY IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

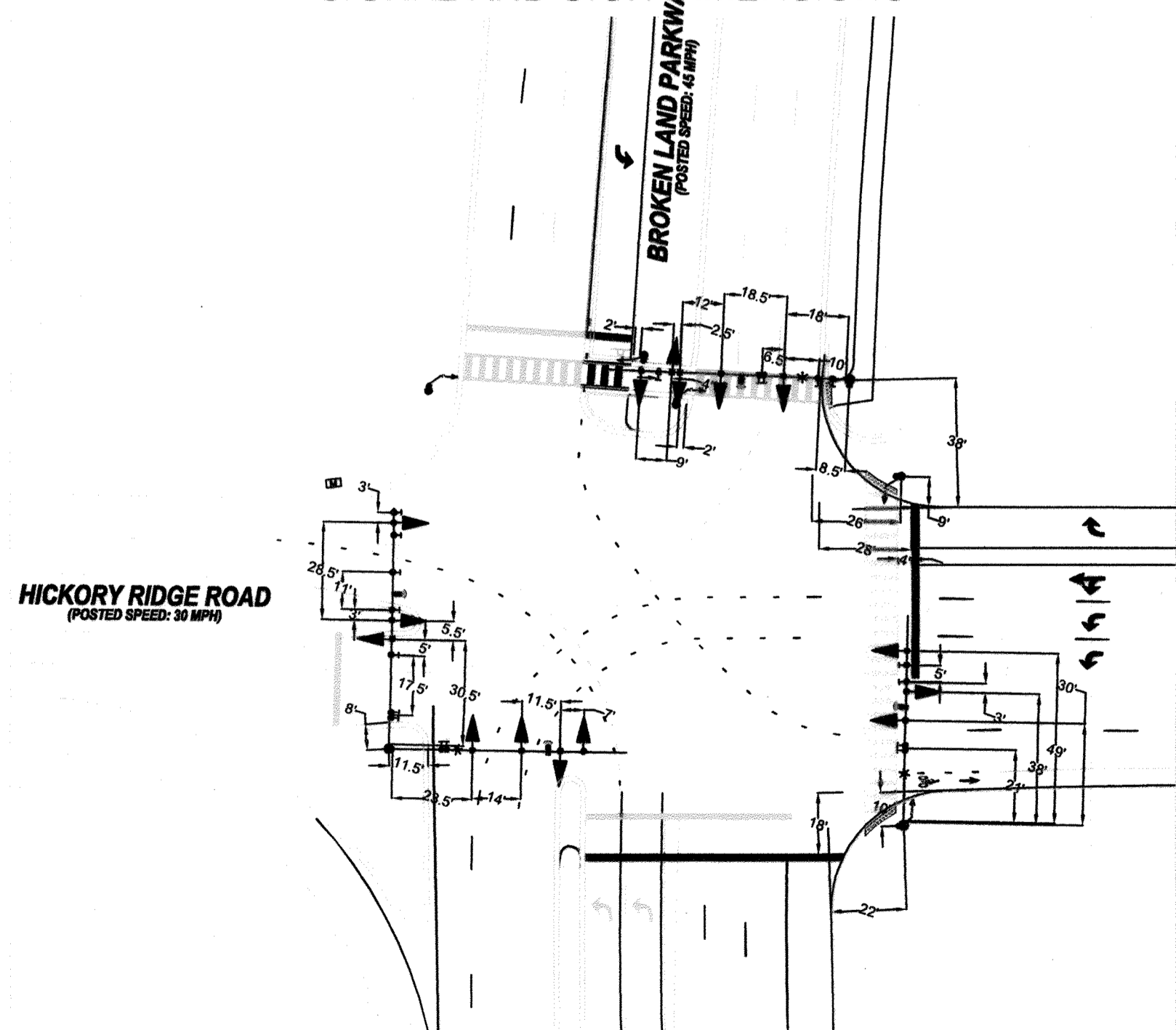
GENERAL NOTES (CONTINUED)

10. PUSHBUTTON ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN WHEELCHAIR REACHING LESS THAN 16" FROM A 60"X60" LEVEL LANDING AREA WITH A SLOPE OF EQUAL TO 2%.
11. PUSHBUTTON ARROWS TO BE PARALLEL TO THE CROSSING IN WHICH THEY ARE INTENDED FOR.
12. THE 10' FT SEPERATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM THE FACE OF PUSHBUTTON TO THE FACE OF PUSHBUTTON, NOT FROM CENTER OF POLE TO CENTER OF POLE.
13. LOCATION OF ACCESSIBLE PEDESTRIAN PUSHBUTTONS MUST MEET LOCATION REQUIREMENT OF MUTCD SEC. 4E.08 AND FIG.4E-3 AND 4E-4 AND THE NCHRP PUBLICATION PEDESTRIAN ACCESSIBLE SIGNALS: GUIDE TO BEST PRACTICE.
14. EXISTING HANDBOXES TO BE USED NEED TO BE BROUGHT TO GRADE AND COLLARED.

MESSAGES FOR ACCESSIBLE PEDESTRIAN SIGNAL

LEG	WAIT MESSAGE	WALK MESSAGE
EAST	"WAIT TO CROSS HICKORY RIDGE AT BROKEN LAND WAIT"	RAPID TICK
NORTH	"WAIT TO CROSS BROKEN LAND AT HICKORY RIDGE WAIT"	RAPID TICK

SIGNAL AND SIGN DIMENSIONS



EQUIPMENT LIST A

EQUIPMENT TO BE PROVIDED BY THE COUNTY WHEN REIMBURSED BY THE DEVELOPER AND INSTALLED BY THE TRAFFIC SIGNAL CONTRACTOR

DESCRIPTION	UNITS	QUANTITY
EAGLE EIGHT-PHASE, FULL-TRAFFIC ACTUATED CONTROLLER HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET PER HOWARD COUNTY SPECIFICATIONS	EA	1
UPS SYSTEM BATTERY BACK-UP SYSTEM	EA	1
VIDEO DETECTION CAMERA KIT	EA	2
TRAFFIC SIGNAL, TWO POSITION VIDEO RACK	EA	2
SURGE PROTECTOR	EA	2
VIDEO DETECTION CAMERA	EA	4
4 - SECTIONAL SIGNAL	EA	11
3 - SECTIONAL SIGNAL	EA	5
12" GREEN ARROW LED SIGNAL	EA	10
12" YELLOW ARROW LED SIGNAL	EA	10
12" GREEN BALL LED SIGNAL	EA	10
12" GREEN BALL LED SIGNAL	EA	10
12" YELLOW BALL LED SIGNAL	EA	10
12" RED BALL LED SIGNAL	EA	10
12" 3-SECTION POLY SIGNAL HEAD	EA	17
16 INCH PEDESTRIAN SIGNAL HEAD (LED SYMBOLIC WALK/DON'T WALK & COUNTDOWN)	EA	4
PEDESTRIAN SIGNAL ONE WAY POST - TOP	EA	2
SIGNAL POLE MOUNTED - POLE LEFT OF MESSAGE	EA	1
VIDEO DETECTION CAMERA CABLE 1000FT ROLL	EA	6
TRAFFIC SIGNAL, POLARA 2 WIRE PUSHBUTTON	EA	1
TRAFFIC SIGNAL, POLARA CENTRAL CONTROL UNIT	EA	1
LED - 250 COBRA FIXTURE	EA	3

EQUIPMENT LIST B

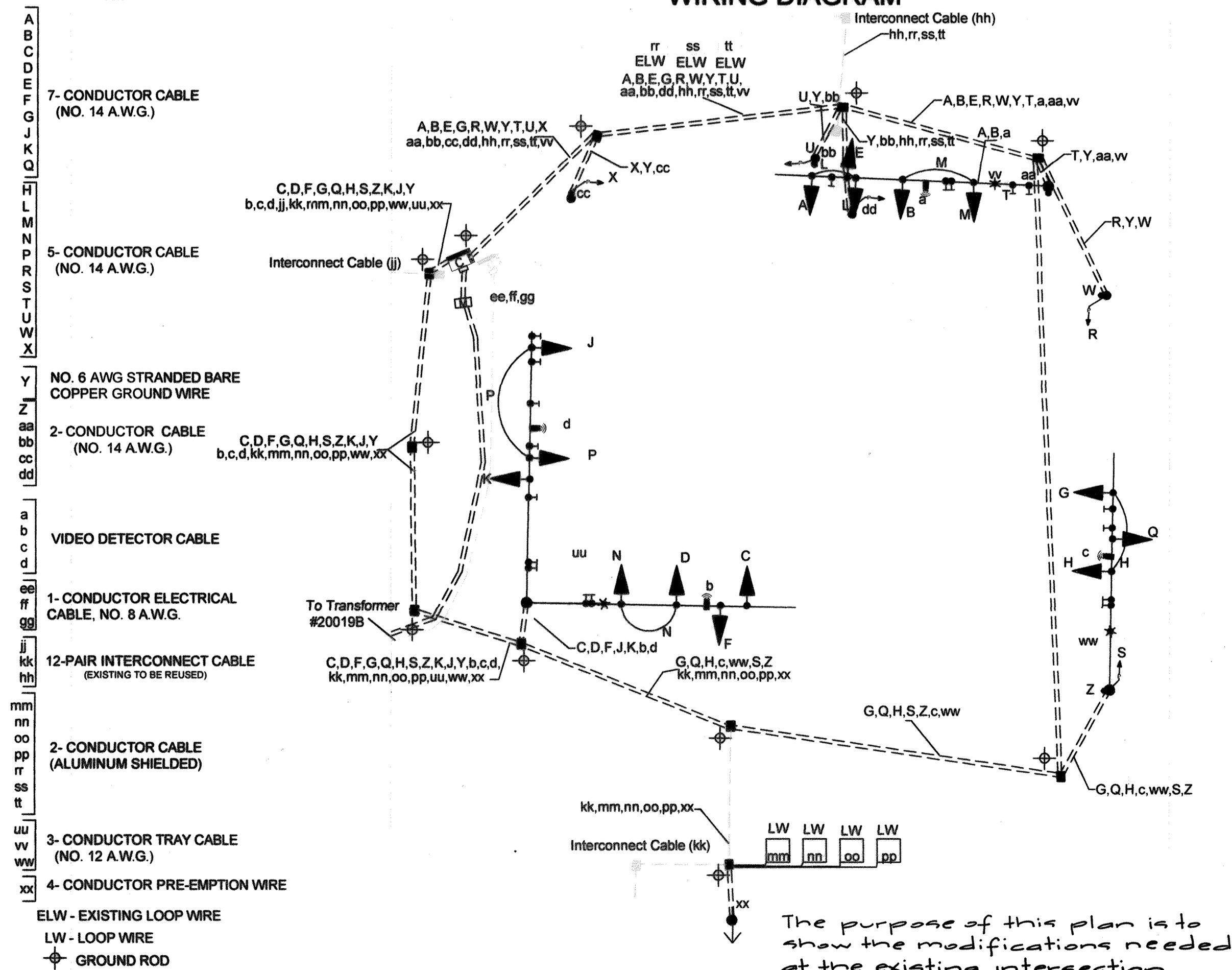
FURNISHED AND INSTALLED BY THE CONTRACTOR

DESCRIPTION	UNITS	QUANTITY
MAINTENANCE OF TRAFFIC	LS	1
MOBILIZATION	LS	1
TEST PIT EXCAVATION	CY	5
CONCRETE FOR SIGNAL FOUNDATION	CY	16
SIGNAL POLE WITH SINGLE 60' MAST ARM (PAINTED FEDERAL BROWN)	EA	1
SIGNAL POLE WITH SINGLE 70' MAST ARM (PAINTED FEDERAL BROWN)	EA	1
SIGNAL POLE WITH TWIN 70' MAST ARM (PAINTED FEDERAL BROWN)	EA	1
SHEET ALUMINUM SIGN	EA	125
5 EA. R3-5L (30"X36") OVERHEAD LEFT TURN ONLY		
2 EA. R3-6L (30"X36") OVERHEAD THROUGH AND LEFT ONLY		
2 EA. R3-5R (30"X36") OVERHEAD RIGHT TURN ONLY		
2 EA. D3-2 (89"X16") OVERHEAD STREET NAME SIGN (Broken Land Pkwy)		
2 EA. D3-2 (91"X16") OVERHEAD STREET NAME SIGN (Hickory Ridge Rd)		
6 EA. R10-3e (9"X12") PUSH BUTTON TO CROSS (WITH INSTRUCTIONS)		
2 EA. R10-15(1) (24"X30") OVERHEAD TURNING VEHICLES YIELD TO PEDS		
LIGHTING ARM	EA	1
2 EA. 15-FT ARM	EA	20-FT ARM
3" SCHEDULE 80 PVC RIGID CONDUIT - TRENCHED	LF	950
4" SCHEDULE 80 RIGID PVC CONDUIT - BORED	LF	675
4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	250
FURNISH AND INSTALL HANDBOX WITH CONCRETE COLLAR	EA	10
METER SERVICE PEDESTAL (ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240 VOLTS 60 AMPS)	LS	1
NO. 6 AWG STRANDED BARE COPPER GROUND WIRE	LF	750
ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	3000
ELECTRICAL CABLE - 1 CONDUCTOR (NO. 8 AWG)	LF	15
ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)	LF	1300
ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)	LF	2600
ELECTRICAL CABLE - 4 CONDUCTOR (NO. 14 AWG) (PRE-EMPTION)	LF	750
TRAY CABLE - 3 CONDUCTOR (NO. 12 AWG)	LF	1000
8' BREAKAWAY PEDESTAL POLE (PAINTED FEDERAL BROWN) WITH A BREAKAWAY COUPLING BASE	EA	4
20' BREAKAWAY PEDESTAL POLE (PAINTED FEDERAL BROWN) WITH A BREAKAWAY COUPLING BASE	EA	1
ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	1300
LOOP DETECTOR WIRE	LF	450
1" GALVANIZED STEEL ELECTRICAL CONDUIT FOR LOOP DETECTOR	LF	45
GROUND ROD 3/4 IN. DIAMETER X 10 FT. LENGTH	EA	3
12 PAIR DISCONNECT, PULL BACK AND REROUTE CABLE (DISCONNECT/RECONNECT)	LF	1000
RELOCATE PREEMTION DEVICE ON THE PEDESTAL	LS	1
24" THERMOPLASTIC WHITE PAVEMENT MARKING (STOPLINE)	LF	145

PHASE AND SEQUENCE DIAGRAM	SIGNAL HEADS																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
PHASE 1+5	G	G	R	R	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 1+6 CHANGE	G	G	R	R	Y	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 1+6	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PED CLEAR	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 1+6 CHANGE	Y	Y	Y	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 2+5	R	R	R	R	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 2+5 CHANGE	R	R	R	R	Y	Y	Y	Y	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 2+6	R	R	G	G	R	R	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R
PED CLEAR	R	R	G	G	R	R	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 2+6 CHANGE	R	R	Y	Y	R	R	Y	Y	R	R	R	R	R	R	R	R	R	R	R	R	R
PHASE 3	R	R	R	R	R	R	R	R	R	R	R	G	G	G	R	R	R	R	R	R	R
PED CLEAR	R	R	R	R	R	R	R	R	R	R	R	G	G	G	R	R	R	R	R	R	R
PHASE 3 CHANGE	R	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	R	R	R	R	R	R	R
PHASE 4	R	R	R	R	R	R	R	R	R	R	R	G	G	G	R	R	R	R	R	R	R
PED CLEAR	R	R	R	R	R	R	R	R	R	R	R	G	G	G	R	R	R	R	R	R	R
PHASE 4 CHANGE	R	R	R	R	R	R	R	R	R	R	R	Y	Y	Y	R	R	R	R	R	R	R
FLASH OPER.	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL
FIREHOUSE PRE-EMPTION	G	G	G	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

KEY

WIRING DIAGRAM



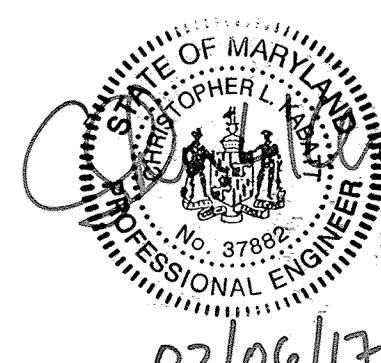
NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET.
G. SCOTT SHANBERGER
SHANBERGER & LAINE
Professional L.S. #10849 Exp. Date 4/2/2020
AS-BUILT DATE: 6-10-2018

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
3-22-17
Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
3/9/2017
Date
3/16/17
Date
3/17/2017
Date

WELLS + ASSOCIATES, INC
1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102
Phone: 703/917-6620 Facsimile: 703/917-0739
210 Wirt Street, SW, Suite 85, Leesburg, Virginia 20175
Phone: 703/443-1442 Facsimile: 703/443-1225

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37892
EXPIRATION DATE: 10/16/2017



W+A	1	MODIFY SIGNAL FOR NEW WB APPROACH	12.16.16
SCALE:	1" = 20'		
DATE:	February 06, 2017		
DESIGNED BY:	LES		
DRAWN BY:	SZ		
CHECKED BY:	LES		
PROJECT NO:	6489		
BY	NO.	REVISIONS:	DATE

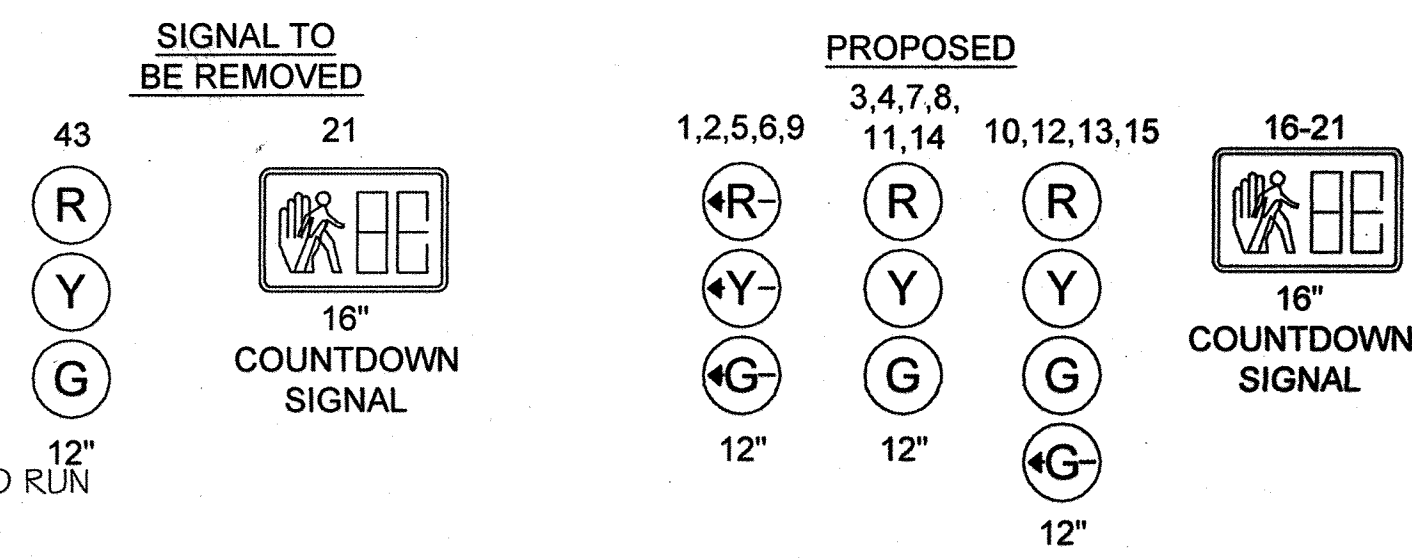
TITLE:
Signal Modification Plan
Broken Land Pkwy/
Hickory Ridge Rd
LOCATION/DESCRIPTION:
Howard County, Maryland
SHEET:
17 OF 18

GENERAL NOTES (CONTINUED)

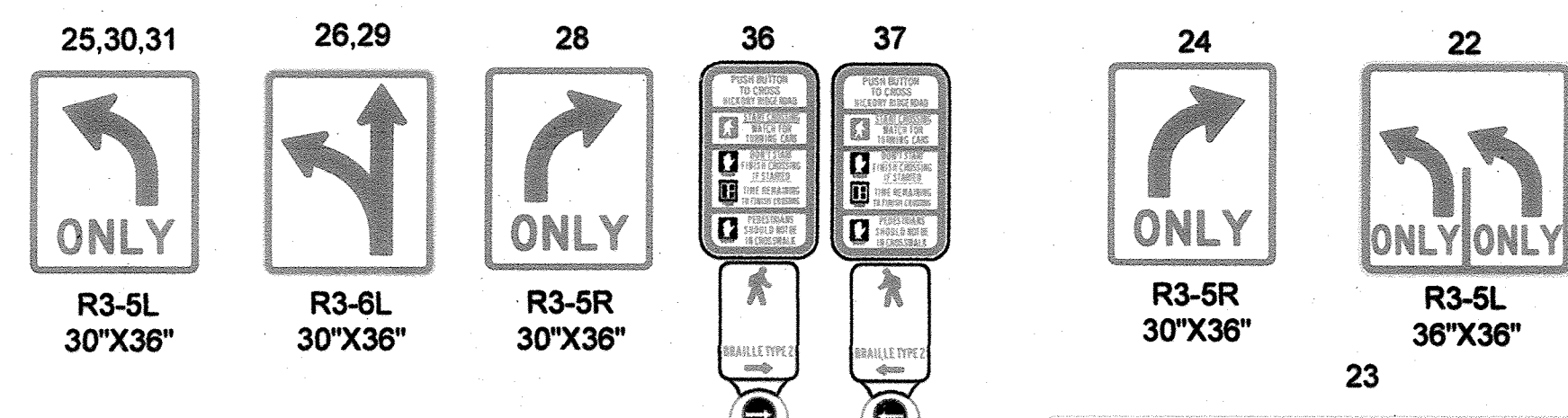
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE STARTING CONSTRUCTION AND HAND EXCAVATE OR TEST PILL ALL UTILITIES CROSSINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES ARE MARKED. IF THERE ARE ANY PERCEIVED CONFLICT BETWEEN UTILITIES AND PROPOSED TRAFFIC SIGNAL EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE PROJECT ENGINEER IMMEDIATELY.
- CONTRACTOR MUST VERIFY ALL PROPOSED TRAFFIC SIGNAL EQUIPMENT LOCATIONS WITH HOWARD COUNTY'S TRAFFIC SIGNAL ENGINEER PRIOR INSTALLATION. CONTRACTOR SHALL CONTACT JENNIFER BIDDLE AT (410) 313-5753 TO SET UP A PRE-CONSTRUCTION MEETING IN THE FIELD.
- ALL ABANDONED CONDUIT/CABLE SHALL BE PROPERLY TERMINATED AND REMOVED BY CONTRACTOR.
- PAINT SIGNAL AND PEDESTAL POLES "FEDERAL BROWN."
- THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL TRAFFIC ENFORCEMENT TO MAKE PRIOR ARRANGEMENTS WITH HOWARD COUNTY POLICE DEPARTMENT TO DIRECT TRAFFIC ON THE DAY OF THE TRAFFIC SIGNAL TURN-ON WHEN THE EXISTING TRAFFIC SIGNAL WILL BE DARK.
- CONTRACTOR SHALL CONTACT HOWARD COUNTY'S UNDERGROUND UTILITY PERMIT DIVISION AT (410) 313-4207 AT LEAST 5 BUSINESS DAYS PRIOR TO STARTING WORK WITHIN THE PUBLIC RIGHT OF WAY.
- SEE SHEET 60 ON F15-106 ROAD PLANS FOR SIGNING AND STRIPING DETAILS.
- VIDEO CAMERA LOCATION/ALIGNMENT SHALL BE COORDINATED WITH HOWARD COUNTY'S TRAFFIC SIGNAL ENGINEER.

NOTE: SEE SHEETS 6 AND 8 ON F15-106 ROAD PLANS FOR ADA RAMP DETAILS.

SIGNALS



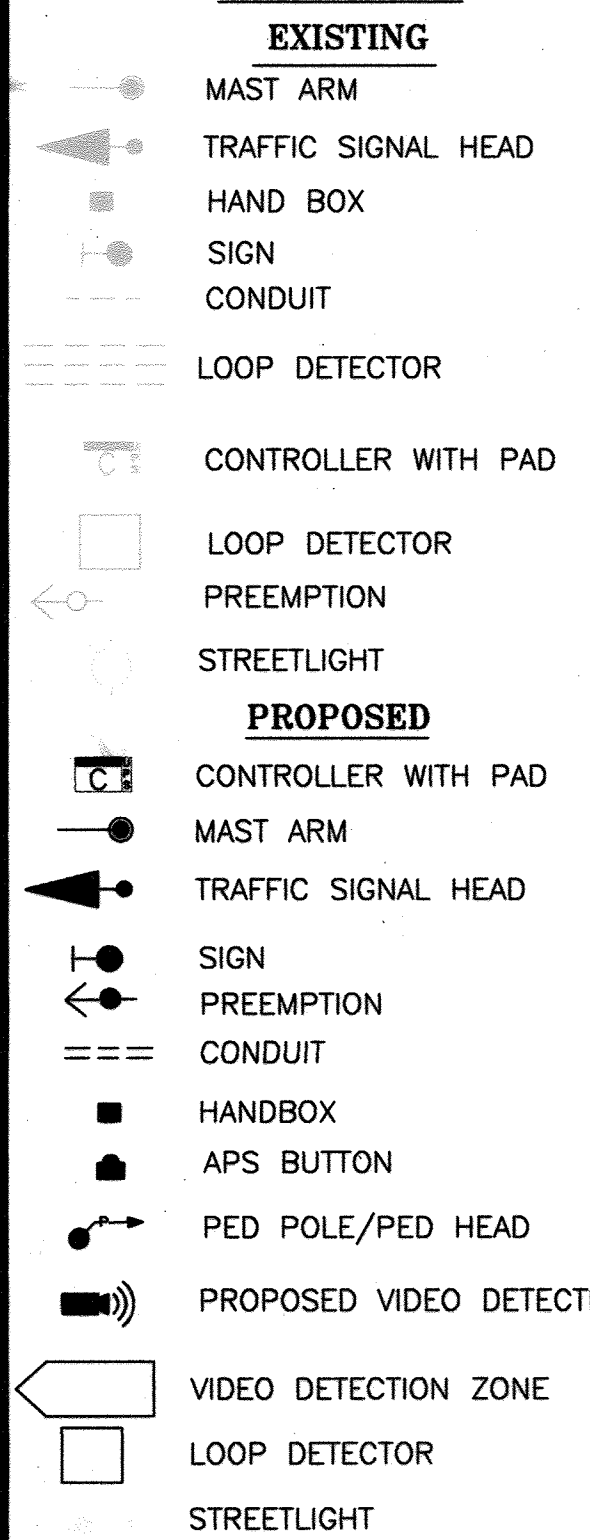
PROPOSED SIGNS



CONSTRUCTION DETAILS

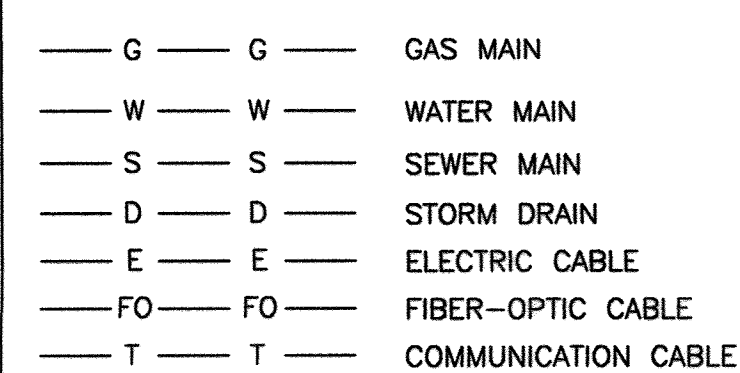
- INSTALL BASE MOUNTED CABINET AND CONTROLLER, UPS CABINET, CONCRETE FOUNDATION, GROUND RODS AND ALL NECESSARY EQUIPMENT FOR AN ELECTRICAL SERVICE. (NOTE: TWO 4" P.V.C. SCHEDULE 80 CONDUIT BENDS AND TWO 2" BENDS).
- INSTALL CONCRETE FOUNDATION WITH 27" STEEL TRAFFIC SIGNAL TWIN POLE PAINTED FEDERAL BROWN WITH 70' MAST ARMS, TRAFFIC SIGNAL HEADS, 20' LIGHTNING ARM, LED-250 COBRA FIXTURES, AND SIGNS. INSTALL VIDEO DETECTION CAMERAS.
- INSTALL CONCRETE FOUNDATION WITH 27" STEEL TRAFFIC SIGNAL POLE PAINTED FEDERAL BROWN WITH 60' MAST ARM, PEDESTRIAN PUSHBUTTON, PEDESTRIAN SIGNAL HEAD, TRAFFIC SIGNAL HEADS AND SIGN. INSTALL VIDEO DETECTION CAMERA, 15' LIGHTNING ARM, LED-250 COBRA FIXTURES.
- INSTALL CONCRETE FOUNDATION WITH 27" STEEL TRAFFIC SIGNAL POLE PAINTED FEDERAL BROWN WITH 70' MAST ARM, PEDESTRIAN PUSHBUTTON, PEDESTRIAN SIGNAL HEAD, TRAFFIC SIGNAL HEADS AND SIGN. INSTALL VIDEO DETECTION CAMERA, 15' LIGHTNING ARM, LED-250 COBRA FIXTURES.
- INSTALL 4" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (BORED).
- INSTALL 3" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED).
- INSTALL HANDBOX WITH CONCRETE COLLAR.
- PULL THE EXISTING INTERCONNECT CABLE FROM THE EXISTING CONTROLLER BACK TO THE NEXT NEAREST HANDBOX AWAY FROM THE INTERSECTION. THEN REROUTE THE EXISTING INTERCONNECT CABLE BACK THROUGH THE NEW PROPOSED HANDBOX AND CONDUIT TO THE NEW PROPOSED CONTROLLER CABINET.
- REMOVE TRAFFIC SIGNAL HEADS, SIGNS, MAST ARM, POLE, AND FOUNDATION 12 INCHES BELOW GRADE AND BACKFILL WITH COUNTY APPROVED PROPER MATERIALS.
- INSTALL NEW HANDBOX WITH CONCRETE COLLAR. CONNECT EXISTING CONDUIT TO PROPOSED HANDBOX.
- INSTALL TWO (2) 4" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED).
- INSTALL EMBEDDED METERED SERVICE PEDESTAL WITH 2-30 AMP BREAKERS FOR 100 A SERVICE. AND INSTALL NEW WIRE FROM BGE POWER SOURCE TO NEW CONTROLLER.
- CONNECT PROPOSED CONDUIT TO EXISTING HANDBOX.

LEGEND



- INSTALL 8" PEDESTAL POLE PAINTED FEDERAL BROWN COMPLETE WITH FOUNDATION, PEDESTRIAN SIGNAL HEAD, APS BUTTON AND SIGN.
- INSTALL 6' X 6' VEHICLE LOOP DETECTOR (4-TURNS).
- ABANDON LOOP DETECTORS.
- REMOVE EXISTING HANDBOX. CAP AND ABANDON EXISTING CONDUITS.
- REMOVE EXISTING PEDESTRIAN SIGNAL POLE, PUSH BUTTON, AND SIGN.
- EXISTING ISLAND TO BE REVISED PER F 91-86.
- INSTALL FOUR (4) 1" LIQUID TIGHT FLEXIBLE ELECTRICAL CONDUIT (DETECTOR WIRE SLEEVE).
- SPARE CONDUIT WITH PULL STRING FOR FUTURE USE.
- RELOCATE EXISTING PRE-EMPTION DEVICE, TO NEW POLE AND FOUNDATION, LOCATED APPROXIMATELY 800' FROM EXISTING STOP BAR, REMOVE EXISTING POLE AND FOUNDATION.
- REMOVE EXISTING CABINET, FOUNDATION AND BACKFILL TO GRADE WITH COUNTY APPROVED PROPER MATERIALS.
- NEW UNDERGROUND STREET LIGHT POLE AND ASSOCIATED CONDUIT, WIRING AND POWER CONNECTION TO BE INSTALLED BY OTHERS.
- EXISTING UNDERGROUND STREET LIGHT - TO BE REMOVED BY OTHERS.
- EXISTING UNDERGROUND STREET LIGHT - TO BE UPGRADED BY OTHERS.
- REMOVE EXISTING STOP BAR.
- INSTALL 24" WHITE THERMOPLASTIC PAVEMENT MARKING (STOPLINE).
- INSTALL 5" WHITE PAVEMENT MARKING (3' SKIP, 9' SPACING) BY OTHERS.
- INSTALL 4" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED) / (BORED) PARALLEL AND NEXT TO EXISTING ELECTRIC SERVICE CONDUIT.

UTILITY LEGEND



NOTE: THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

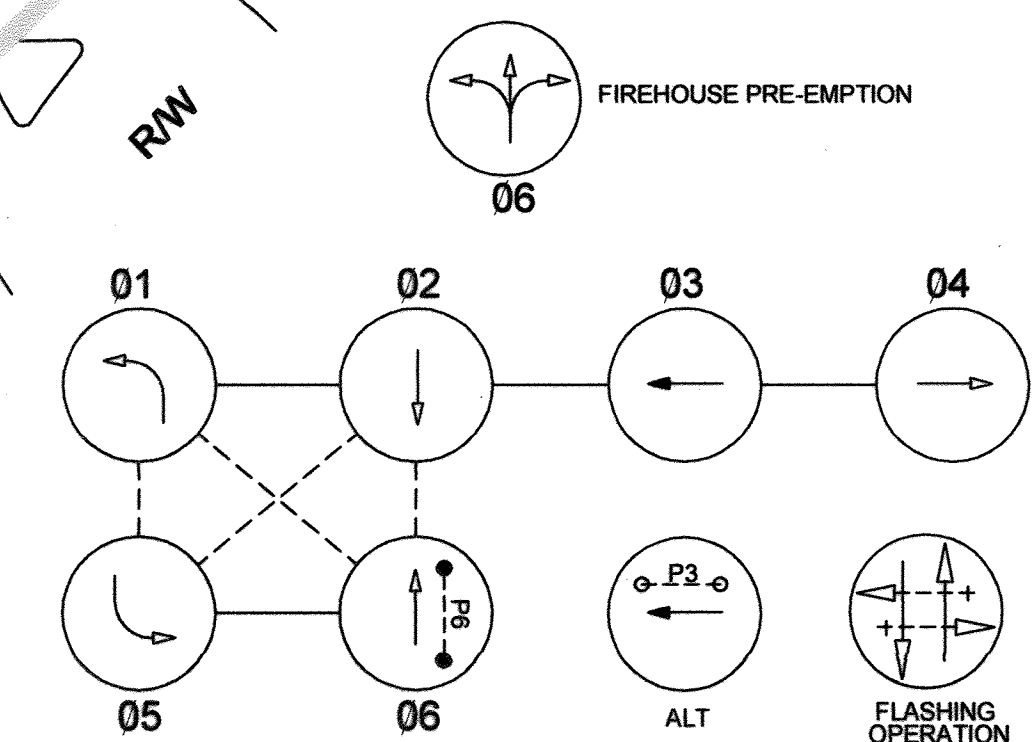
SCOTT SHANABERGER
SHANABERGER & LANE
Professional L.S. #10849 Exp. Date 4/2/2024
AS-BUILT DATE: 6-10-2018

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center

CALL TOLL FREE 1-800-257-7777

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.

NEMA PHASING



PHASING NOTES:
1. PHASES ASSOCIATED BY A LINE WILL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.

The purpose of this plan is to show the modifications needed at the existing intersection.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Date: 3-22-17
Chief, Division of Land Development

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Date: 3/9/2017
Chief, Bureau of Highways

Date: 2/17/17
Director of Public Works

Date: 3/17/2017
Chief, Traffic Division

WELLS + ASSOCIATES, INC

1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102
Phone: 703/917-6620 Facsimile: 703/917-0739

210 Wirt Street, SW, Suite 85, Leesburg, Virginia 20175
Phone: 703/443-1442 Facsimile: 703/443-1225

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 378822
EXPIRATION DATE: 10/16/2017

02/06/17

0	20'	40'	W-A-1	MODIFY SIGNAL FOR NEW WB APPROACH	12.20.16
SCALE: 1" = 20'					
DATE: February 06, 2017					
DESIGNED BY: LES					
DRAWN BY: SZ					
CHECKED BY: LES					
PROJECT NO: 6489					
BY	NO.	REVISIONS:	DATE		

TITLE:
Signal Modification Plan
Broken Land Pkwy/
Hickory Ridge Rd
F91-42

LOCATION/DESCRIPTION:
Howard County, Maryland

SHEET:
18 OF 18