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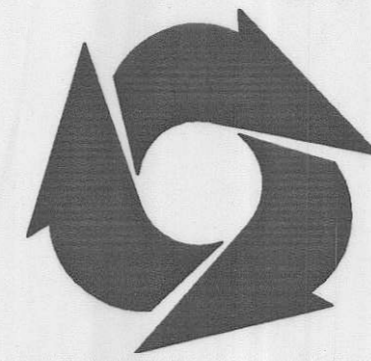
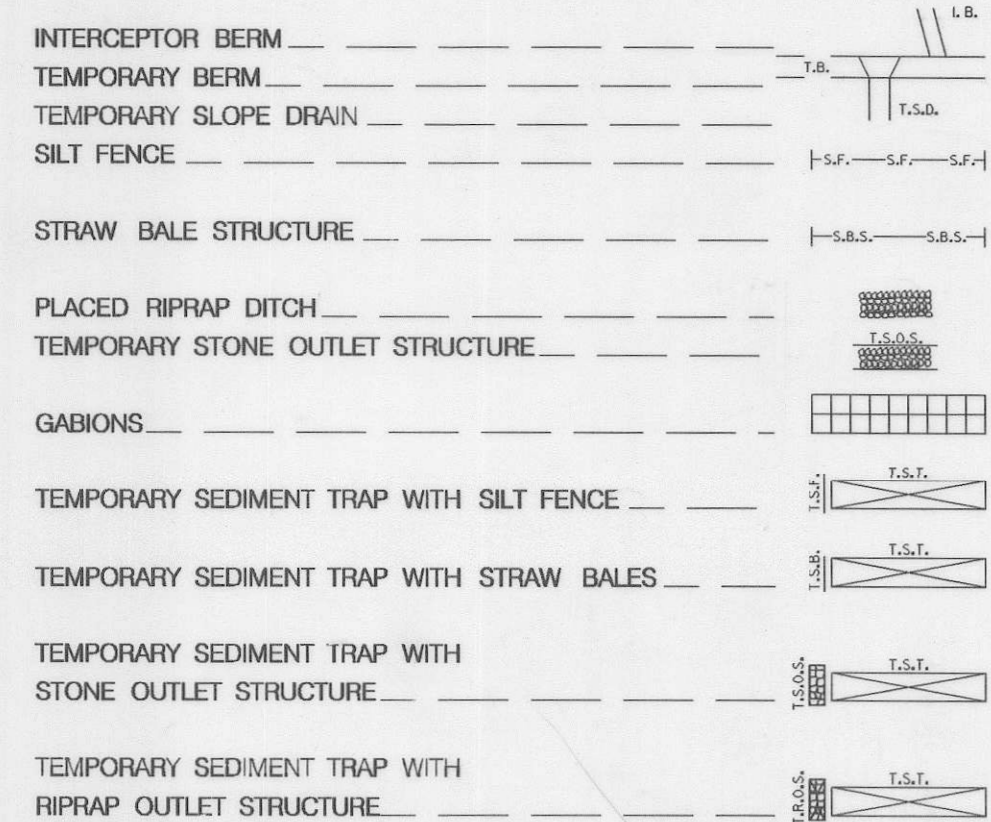
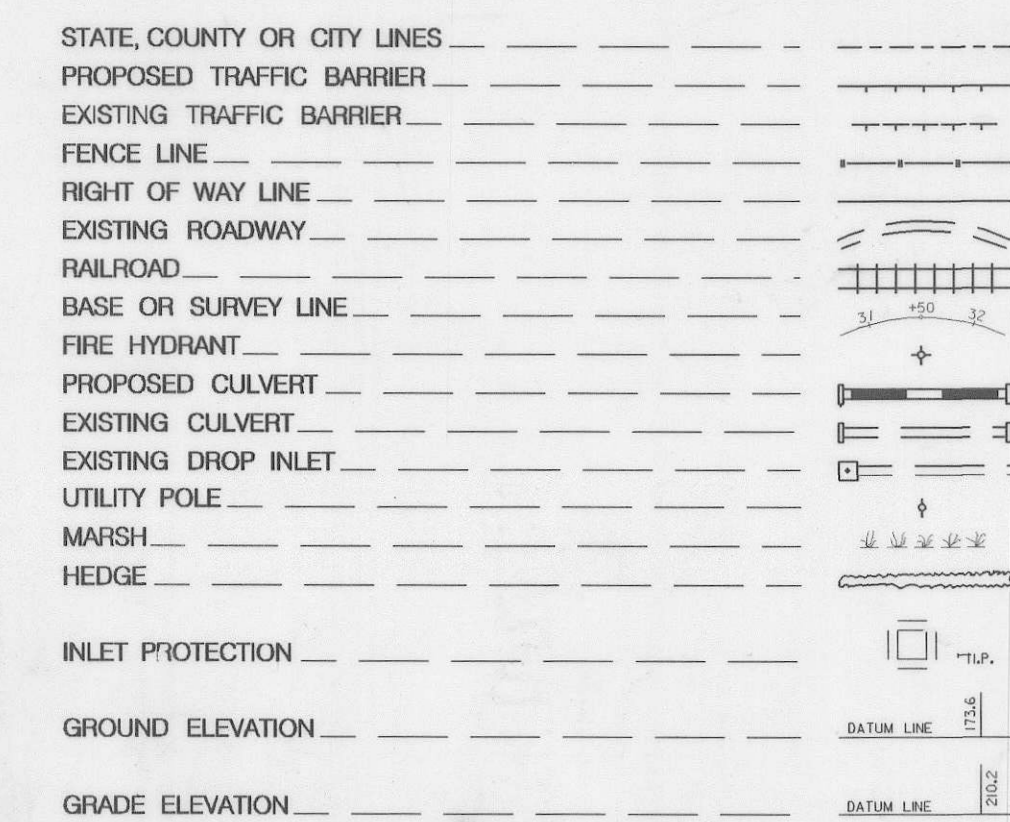
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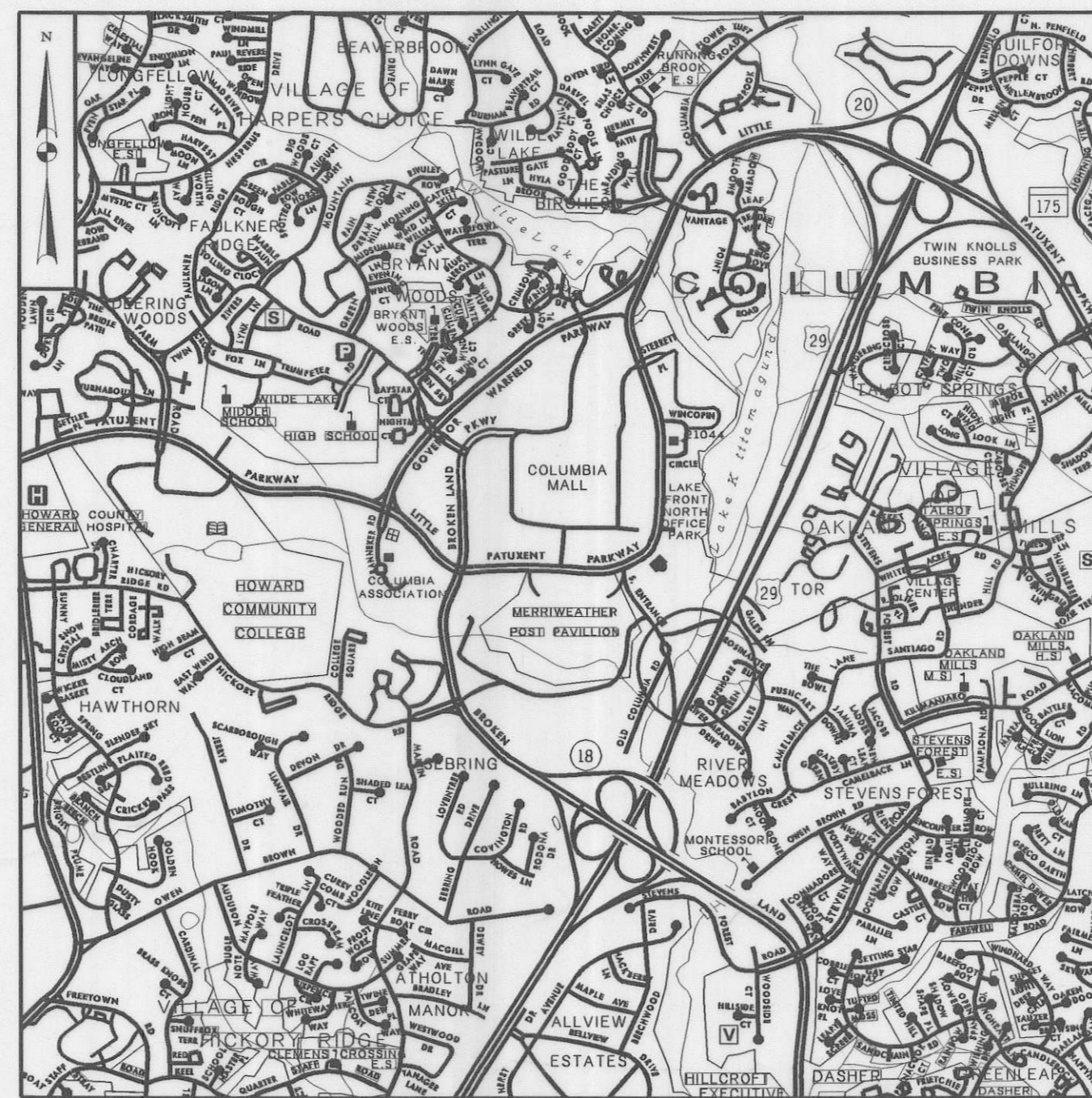


Maryland Department of Transportation

STATE HIGHWAY ADMINISTRATION

TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 1314300
ON MD 968K (SOUTH ENTRANCE ROAD)
OVER LITTLE PATUXENT RIVER
AND INTERCHANGE RECONSTRUCTION

S.H.A. CONTRACT NO.: HO8395175



PROJECT LOCATION
STRUCTURE NO. 1314300
ON SOUTH ENTRANCE ROAD
OVER LITTLE PATUXENT RIVER

HOWARD COUNTY

LOCATION MAP

SCALE : 1" = 2000'

HORIZONTAL DATUM	NAD 83/91
VERTICAL DATUM	NAVD 88

DESIGN TRAFFIC DATA

A.D.T.	2000	20 20 (EST.)
D.H.V.	4,200	6,750
DIRECTIONAL DISTRIBUTION	9%	9%
PERCENT TRUCKS-A.D.T.	57%	62%
PERCENT TRUCKS-D.H.V.	5%	5%
DESIGN SPEED	3%	3%
	25 MPH	25 MPH

ALL WORK ON THIS PROJECT SHALL CONFORM TO THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION'S SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JANUARY 2001 AND THE COMPANION MANUAL ENTITLED GENERAL PROVISIONS FOR CONSTRUCTION CONTRACTS REVISION THEREOF OR ADDITIONS THERETO; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATION'S BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY, NO GUARANTEE IS MADE AS TO THE ACCURACY OF SAID LOCATIONS.

SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION.

OWNERS / DEVELOPERS CERTIFICATION :
I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS.

STANDARD STABILIZATION NOTE:
FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

ALL STORMWATER MANAGEMENT FACILITIES CONSTRUCTED FOR THIS CONTRACT SHALL BE INSPECTED BIANNUALLY WITH MAINTENANCE PROVIDED WHEN REQUIRED.

THE STATE HIGHWAY ADMINISTRATION SHALL ONLY BE RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED DIRECTLY FROM THE STATE HIGHWAY ADMINISTRATION CASHIER'S OFFICE. FAILURE TO ATTACH ADDENDA MAY CAUSE THE BID TO BE IRREGULAR.

RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT OF WAY AND EASEMENT INFORMATION, SEE APPROPRIATE RIGHT OF WAY PLAN.

MDE #01-SF-0411

REVIEWED AND APPROVAL RECOMMENDED

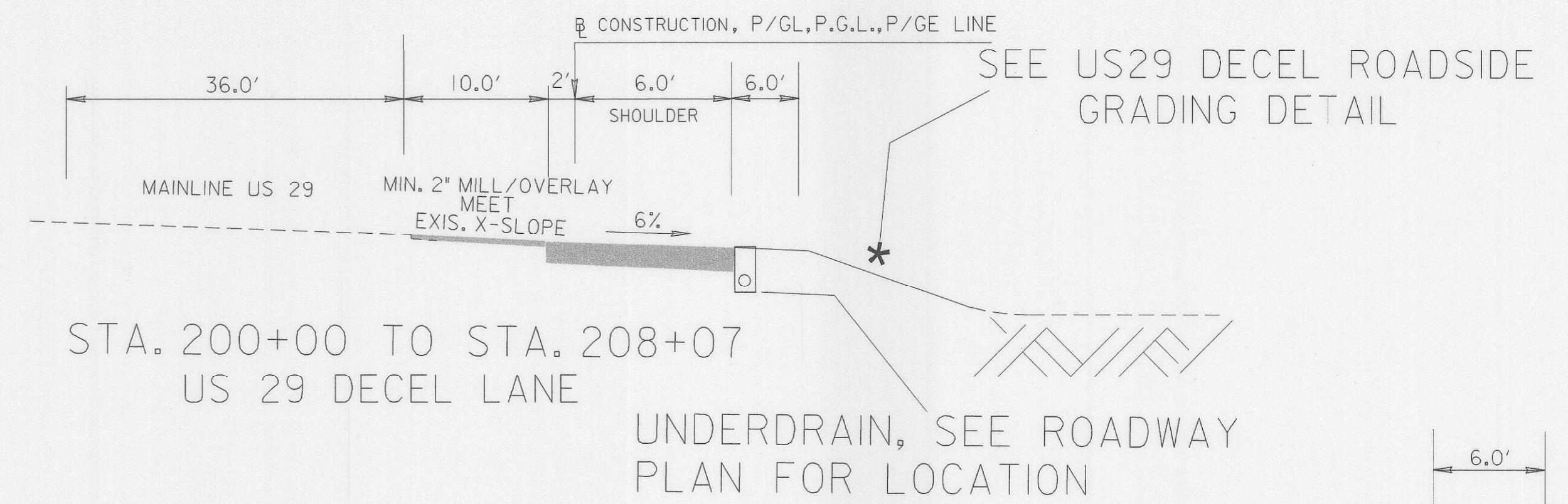
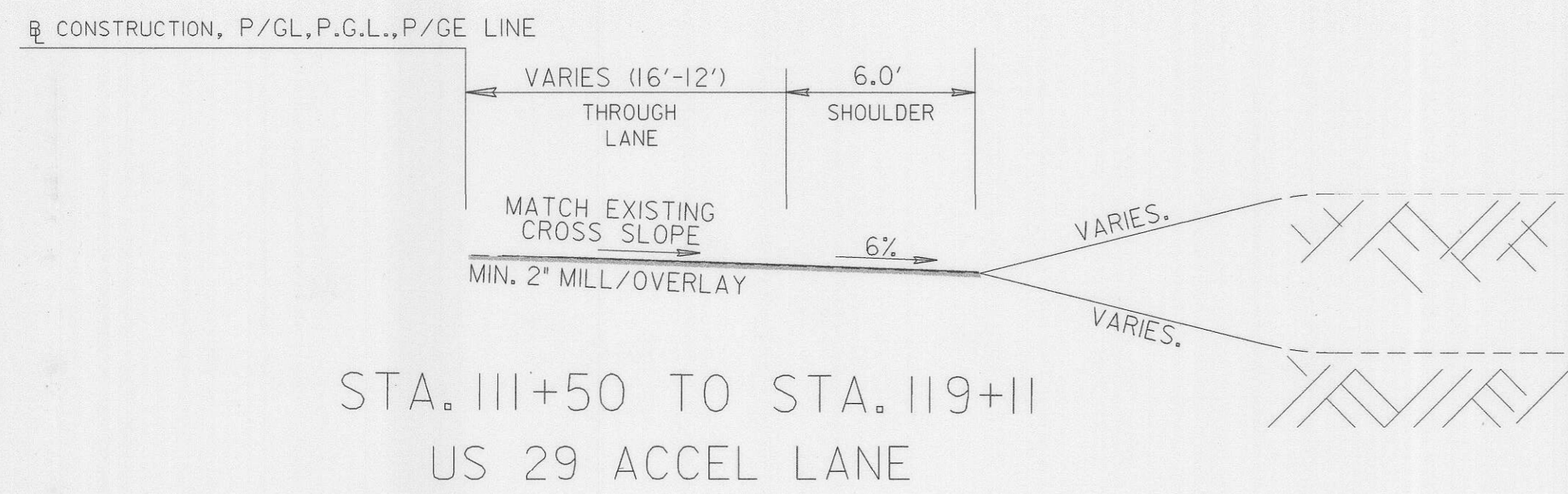
[Signature] 8/2/02
CHIEF, BRIDGE DESIGN DIVISION

APPROVAL RECOMMENDED

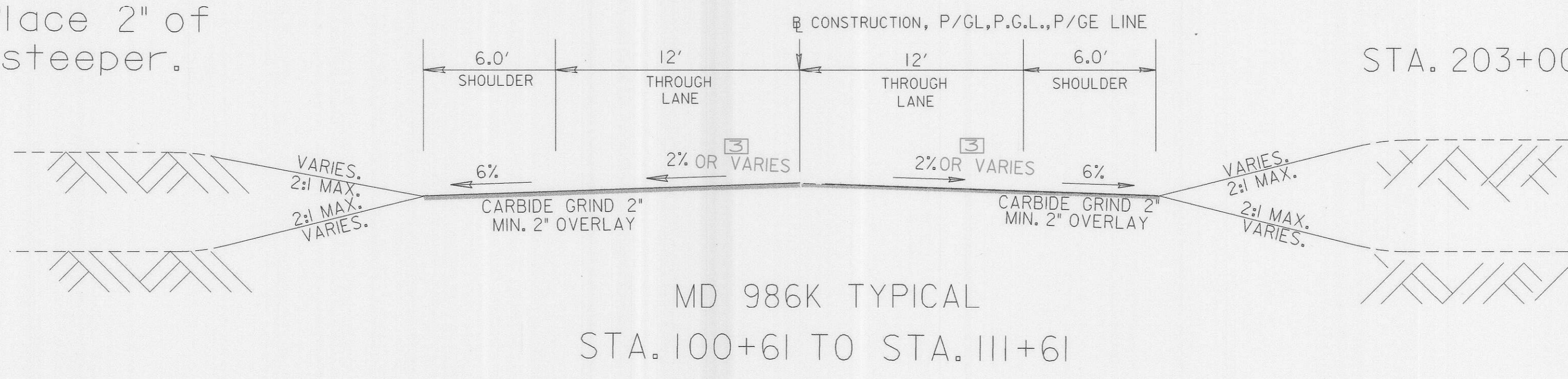
[Signature] 8/2/02
DIRECTOR, OFFICE OF BRIDGE DEVELOPMENT

APPROVED

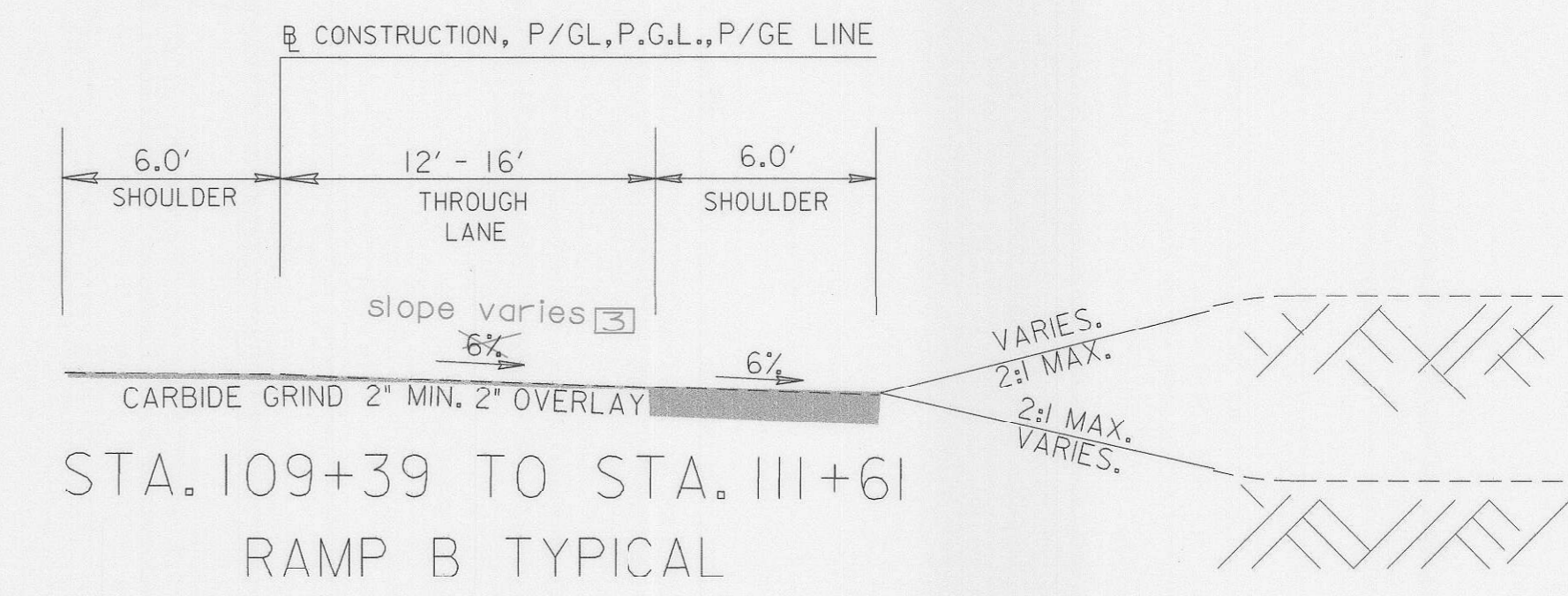
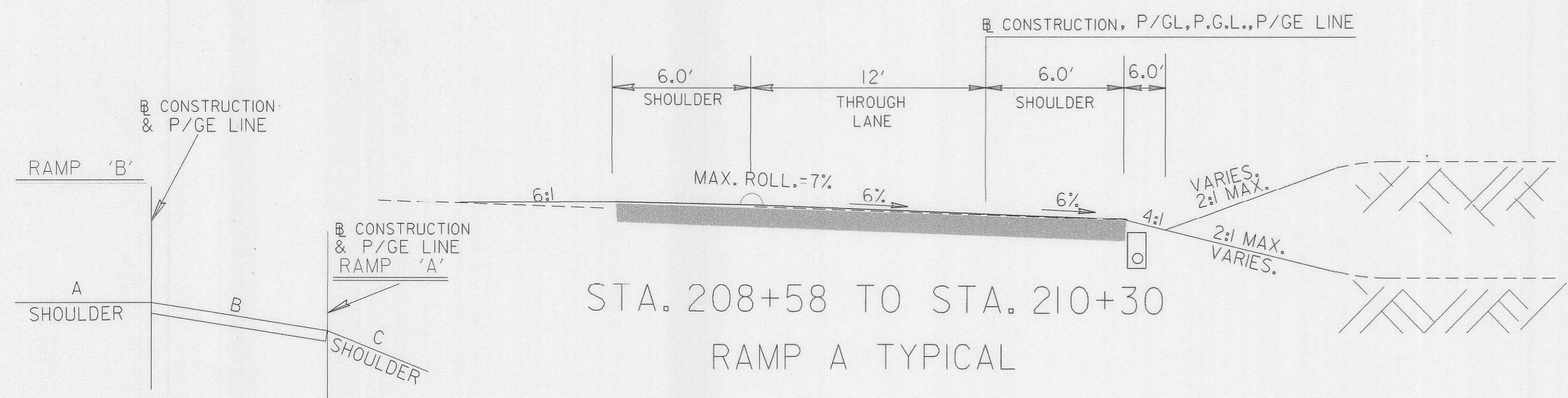
[Signature] 8/2/02
DEPUTY ADMINISTRATOR - PLANNING AND ENGINEERING



NOTE:
ROADSIDE SLOPE STABILIZATION
Place 4" of Topsoil, Seed and Mulch on all disturbed slope areas flatter than 2:1. Place 2" of Topsoil, Seed, and Mulch on slopes 2:1 or steeper.



STA. 203+00 TO STA. 208+50 STA. 200+00 TO STA. 202+50
US 29 DECEL ROADSIDE GRADING DETAIL

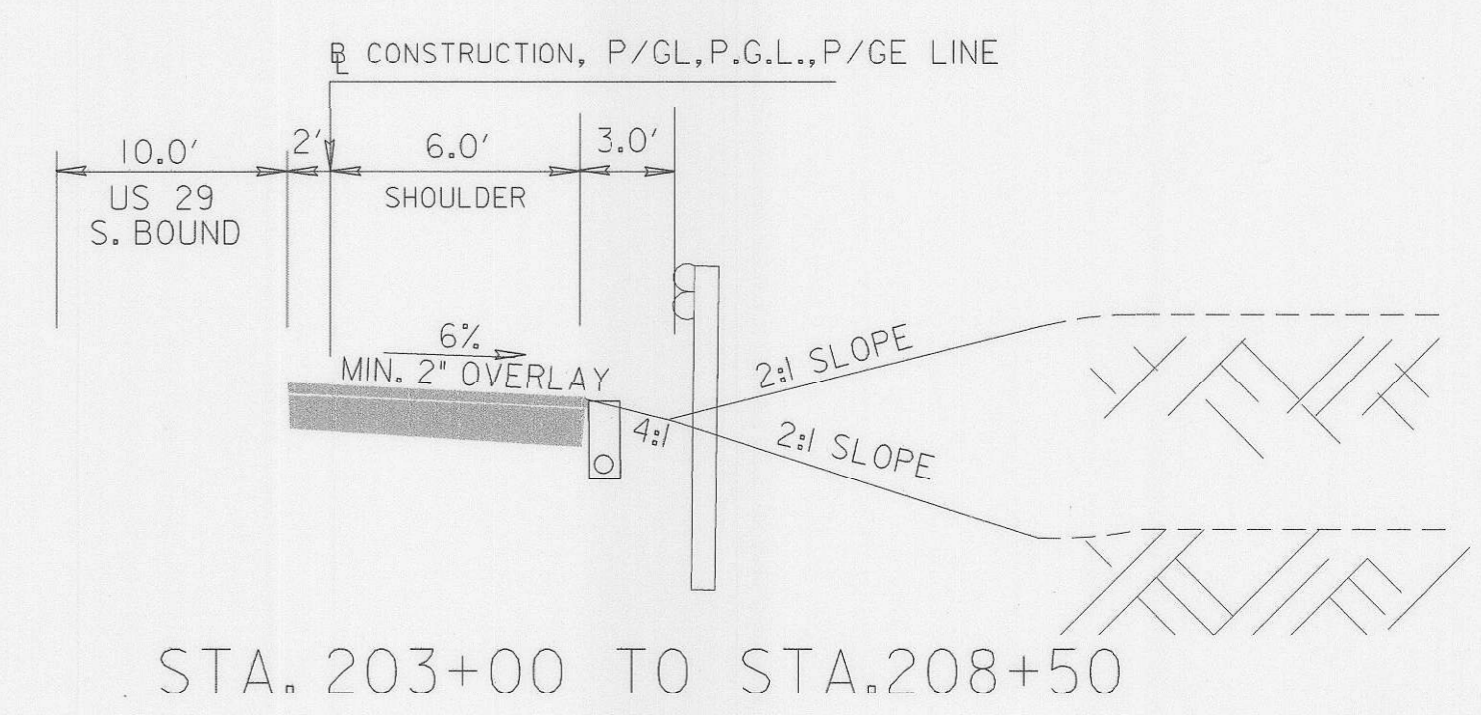


RAMP A SUPER ELEVATION

STATION	A	B	C	REMARKS
STA. 207+57.21		-0.02		LAST NORMAL
STA. 208+57.21	-0.01	-0.06	-0.06	FIRST FULL SUPER
STA. 210+27.20	-0.01	-0.06	-0.06	LAST FULL SUPER
STA. 211+27.20		-0.03 -0.02		FIRST NORMAL

RAMP B SUPER ELEVATION

STATION	A	B	C	REMARKS
STA. 108+50.25		-0.02		LAST NORMAL
STA. 109+83.25	-0.01	-0.06	-0.06	FIRST FULL SUPER
STA. 111+17.45	-0.01	-0.06	-0.06	LAST FULL SUPER
STA. 112+50.45		-0.02		FIRST NORMAL



NOT TO SCALE

REVISIONS

3	RED LINE	12/9/03
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STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION
REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K
(SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER.
CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 2 OF 54
PREL. TRAC. BY _____ FINAL TRAC. BY _____

THIS IS WHERE YOUR FILENAME WILL PLOT
THIS IS THE SPACE FOR THE DATE

TS 01

PAVEMENT DETAIL SECTION

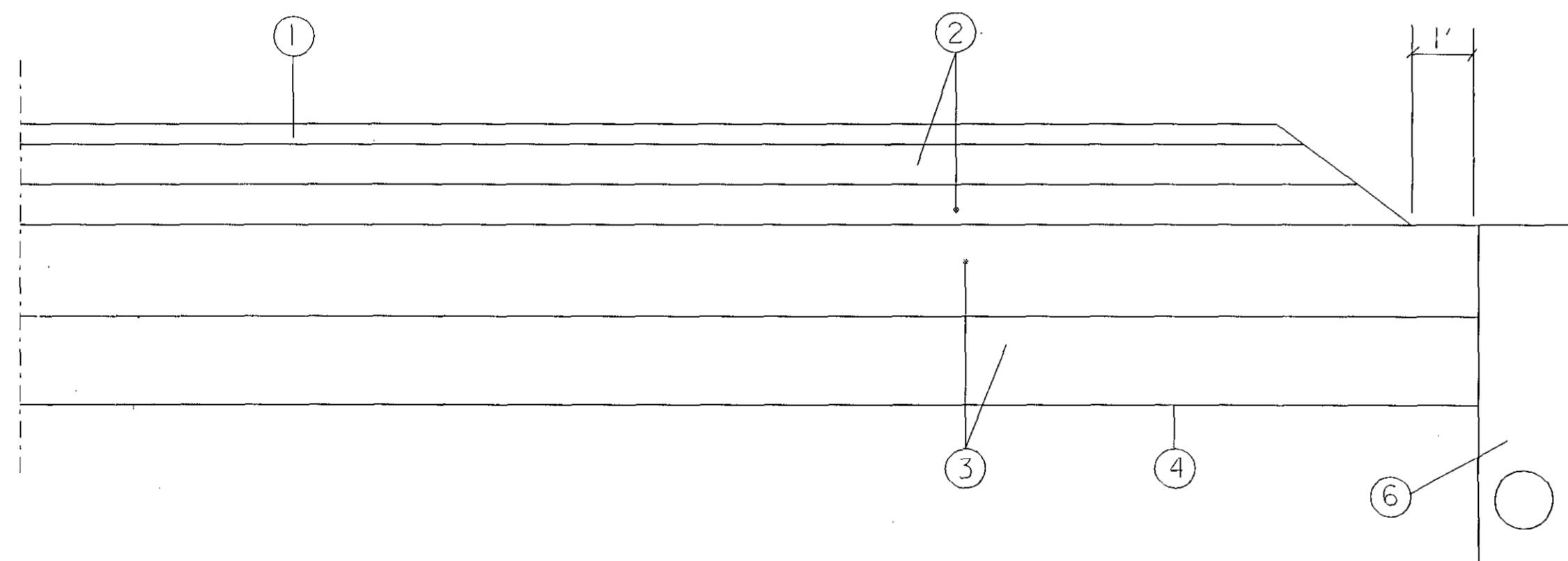
PAVEMENT LEGEND

- ① 2.0 in. HOT MIX ASPHALT SUPERPAVE 12.5 mm FOR SURFACE, PG 64-22, LEVEL-2
- ② 3.0 in. HOT MIX ASPHALT SUPERPAVE 19.0 mm FOR BASE - PG 64-22, Level-2
- ③ 4.0 in GRADED AGGREGATE BASE COURSE
- ④ TOP OF SUBGRADE & LIMIT OF CLASS 2 EXCAVATION
- ⑤ EXISTING SURFACE AFTER GRINDING 2.0 in
- ⑥ LONGITUDINAL UNDERDRAIN (See SP 306 and STANDARD NO. MD-387.II FOR PLACEMENT) (SEE NOTE 2)
- ⑦ Top of Subgrade & Limit of Class I Excavation
- ⑧ HOT MIX ASPHALT SUPERPAVE FOR wedge / level (see note 1)

NOTE 1: IF NECESSARY USE THE FOLLOWING ITEM FOR WEDGE/LEVEL, AS DIRECTED BY THE ENGINEER; VARIABLE DEPTH HOT MIX ASPHALT SUPERPAVE 9.5 MM FOR WEDGE/LEVEL, PG 64-22, Level 2 (1.5 IN. MAXIMUM LIFT)

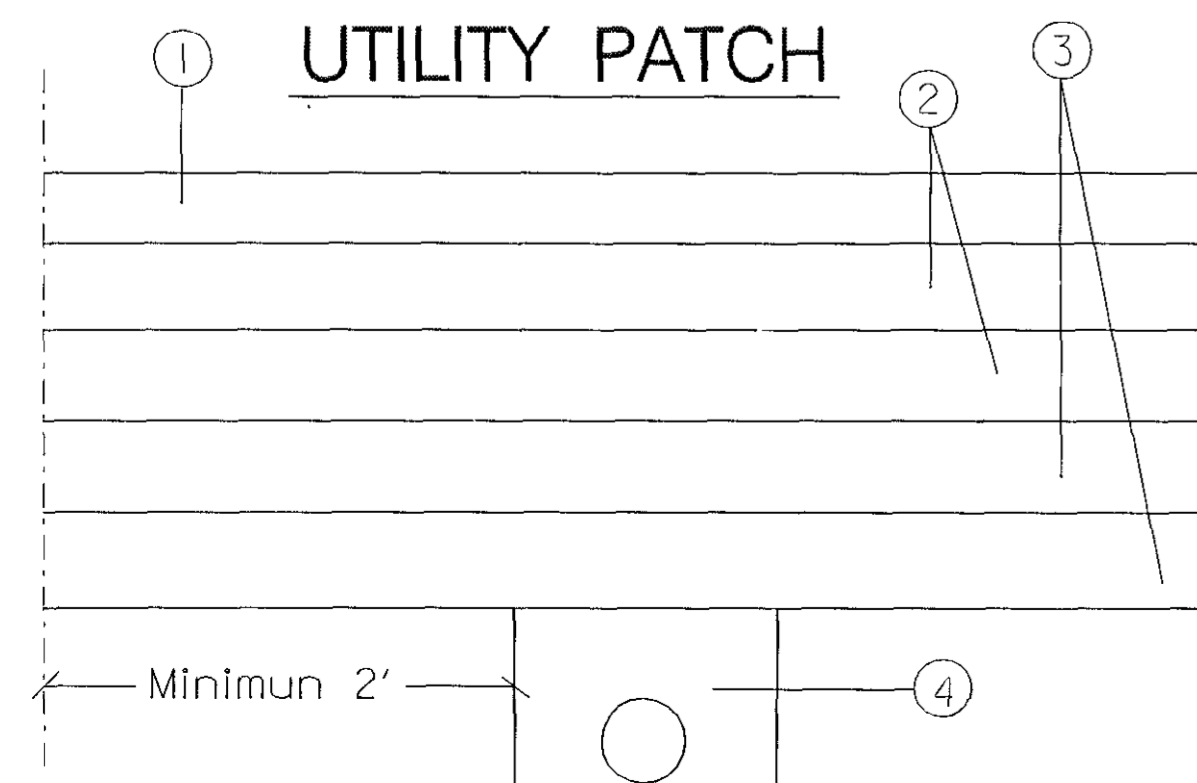
NOTE 2: Class SD Type II Geotextile shall be used to wrap the underdrain trench

Ramp A New Construction



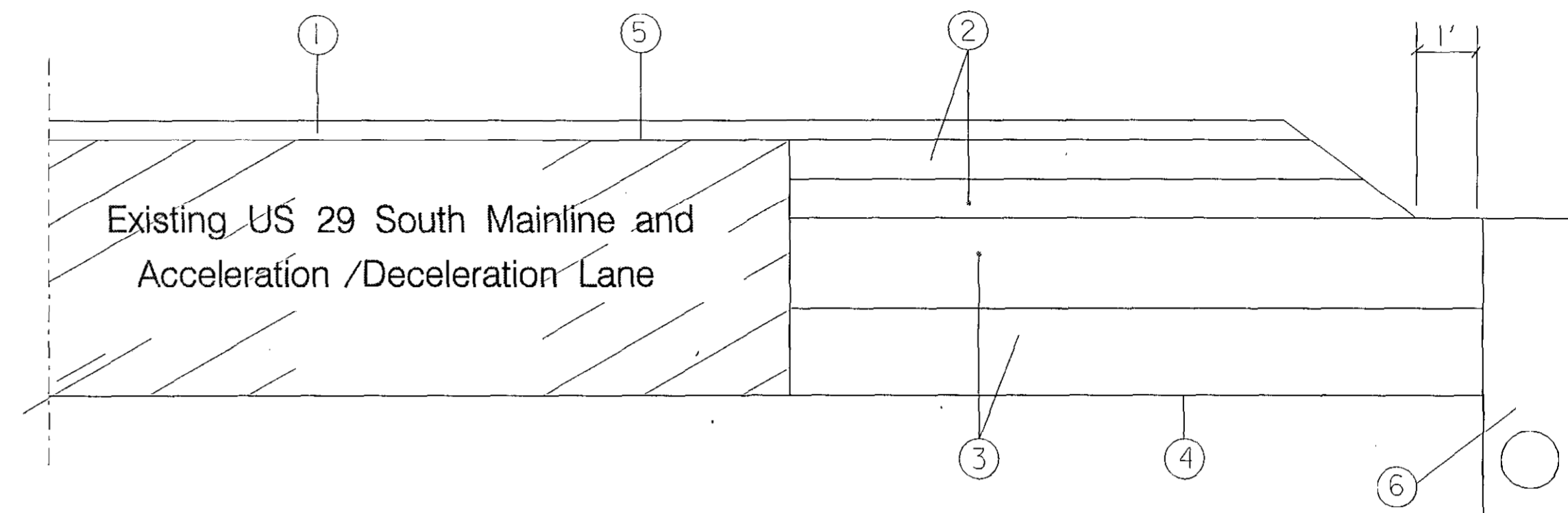
PAVEMENT LEGEND: UTILITY PATCH

- ① 2.0 in. HOT MIX ASPHALT SUPERPAVE 12.5mm, PG 64-22, LEVEL-2
- ② 3.0 in. HOT MIX ASPHALT SUPERPAVE 19.0mm, PG 64-22, Level-2
- ③ 4.0 in BASE COURSE USING GRADED AGGREGATE
- ④ BACKFILL MATERIAL AS PER SECTION 303 OF THE 2001 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.

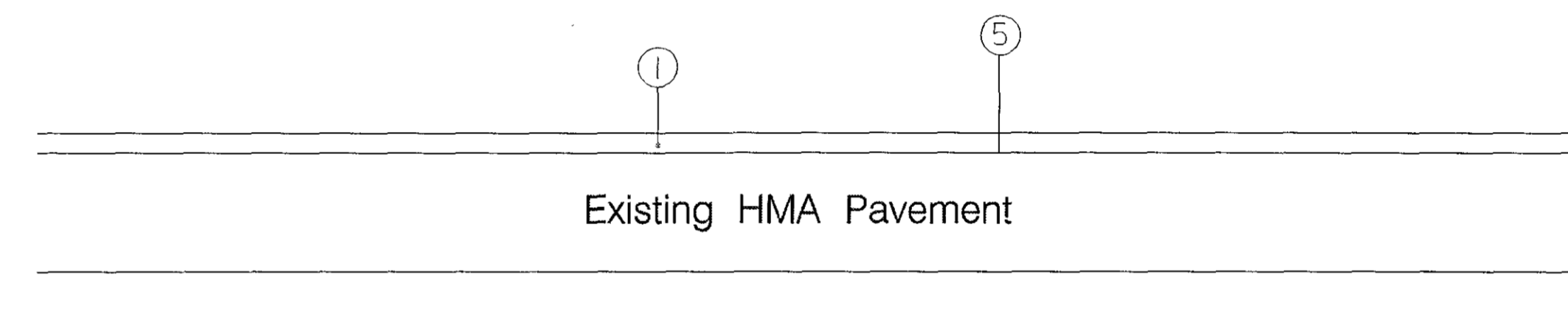


NOT TO SCALE

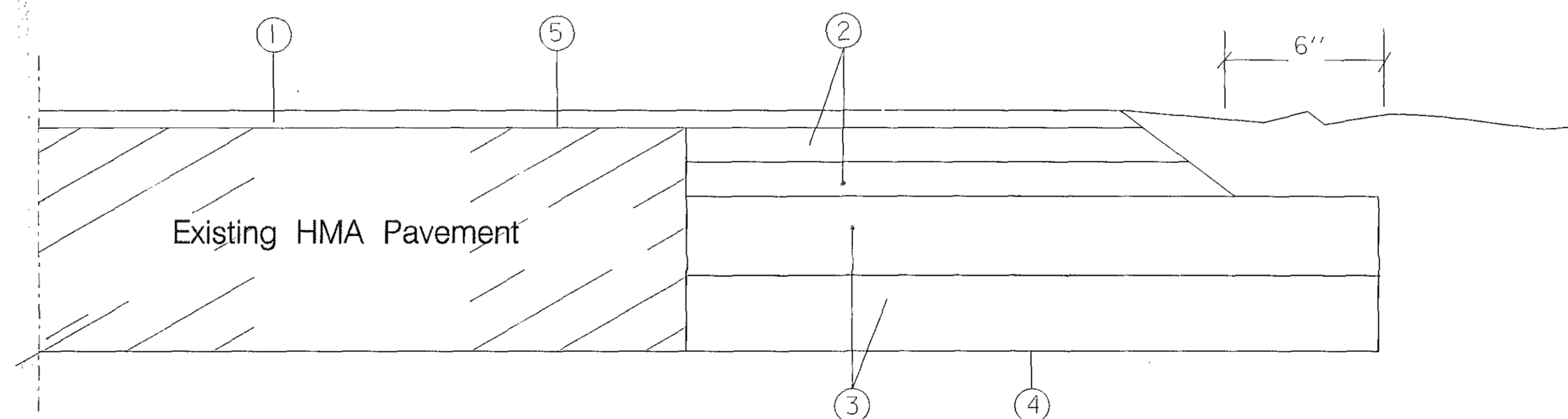
US 29 (South) Base Widening and Resurfacing



MD 986 K and Ramp B Resurfacing



MD 986K Resurfacing and Base Widening



REVISIONS		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH SIDE) OVER LITTLE PATUXENT RIVER	
CONT. NO.	H08395175	F.A.P. NO.	SEE TITLE SHEET
PREL. TRAC. BY		FINAL TRAC. BY	
		SHEET NO.	3
			59

THIS \$IS\$ WHERE \$YOUR\$ FILENAME \$WILL\$ PLOT
THIS \$SPACE\$ IS \$FOR\$ THE \$DATE\$

CURVE C-1
$\Delta=8^{\circ}16'58.4117''$ RT.
D= $11^{\circ}03'01.0620''$
T= 37.5436
L= 74.9563
R= 518.5000
E= 1.3575

CURVE C-3
$\Delta=46^{\circ}38'03.9186''$ RT.
D= $20^{\circ}59'14.8741''$
T= 117.6696
L= 222.2013
R= 273.0000
E= 24.2796

CURVE C-4
$\Delta=133^{\circ}24'05.3211''$
D= $49^{\circ}23'34.4881''$
T= 269.3586
L= 270.0822
R= 116.0000
E= 177.2747

CURVE C-2
$\Delta=8^{\circ}45'34.8084''$ RT.
D= $11^{\circ}03'01.0620''$
T= 39.7128
L= 79.2709
R= 518.5000
E= 1.5186

	STATION	NORTH	EAST	
CURVE C-1	PC	103+32.83	561714.0450	1352657.2602
	PI	103+70.37	561684.8485	1352680.8629
	PT	104+07.78	561652.5564	1352700.0133
CURVE C-2	PC	105+45.26	561534.3074	1352770.1393
	PI	105+84.98	561500.1494	1352790.3962
	PT	106+24.54	561463.3049	1352805.2149
CURVE C-3	PC	109+39.24	561171.3256	1352922.6480
	PI	110+56.91	561062.1550	1352966.5560
	PT	111+61.45	560955.2723	1352917.3398
CURVE C-4	PC	208+07.21	561337.1684	1353079.8212
	PI	210+76.57	561092.4316	1352967.3138
	PT	210+77.30	561342.3348	1352866.8031

CADD / SURVEY REF. INFO.			
POINT	NORTH	EAST	ELEV.
1	561116.5167	1352946.6281	303.35
2	561389.1670	1352821.4809	298.34
3	561480.0504	1352779.7652	299.55
4	561748.4159	1352656.5858	313.10
5	561888.8087	1353145.1780	297.72
6	561723.0624	1353155.4717	295.19
7	561556.0065	1353107.7619	295.24
8	561660.0047	1353219.0431	301.65
9	562084.8000	1353549.1830	305.69
10	561252.4420	1352884.0550	300.21
11	561525.4920	1352758.9070	300.54

SEE MATCH LINE
THIS SHEET

MATCH LINE THIS SHEET

GEOMETRIC LAYOUT

SCALE: 1" = 50'

SURVEY BOOK: 18532

GS01

REVISIONS

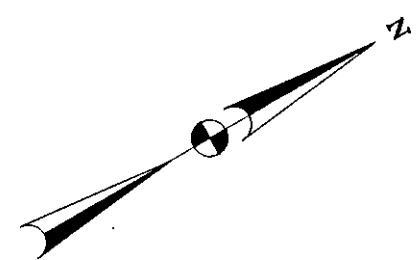
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER		
CONT. NO. H08395175	F.A.P. NO. SEE TITLE SHEET	SHEET NO. 4 OF 54
PREL. TRAC. BY	FINAL TRAC. BY	

C:\dgn\md986k\gsm986k.dgn
05-AUG-2002 11:16

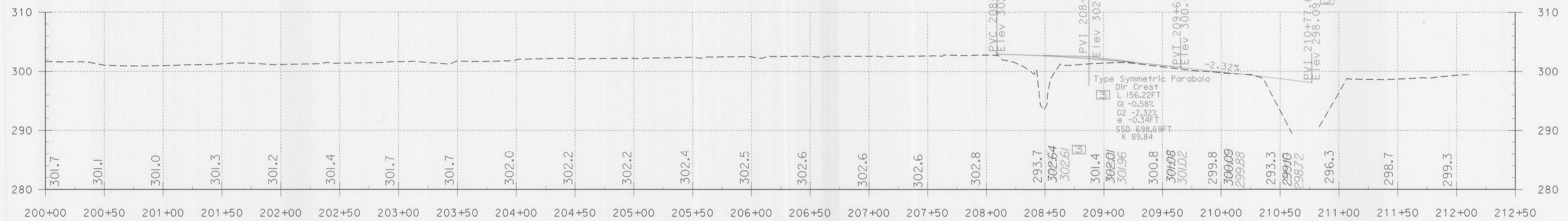
TO WASHINGTON

TO BALTIMORE

NAD 83/91



RAMP "A" PROFILE DECEL



LINE	SURFACE	OFFSET
---	3m986k	0.0000
Scaled 5.0000 Times Ver. Scaled 1.0000 Times Hor.		

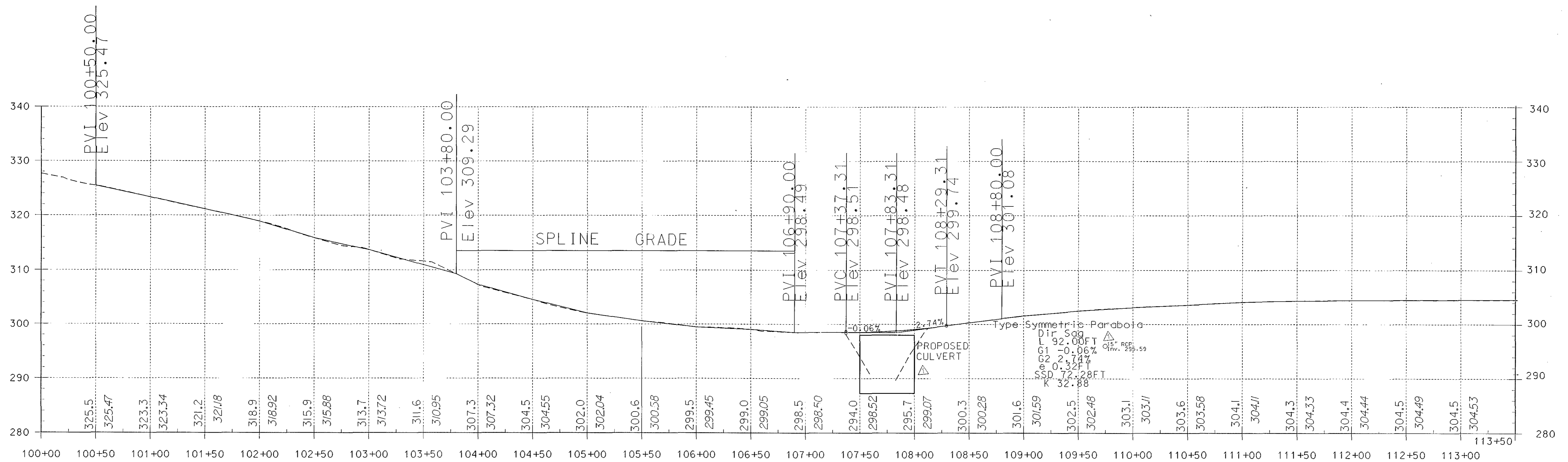
SCALE
 • HOR. 1 IN = 50FT.
 • VERT. 1 IN = 10FT.

REVISIONS
3 RED LINE 12/9/03

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER	
CONT. NO. H08395175	F.A.P. NO. SEE TITLE SHEET SHEET NO. 5 OF 54
PREL. TRAC. BY	FINAL TRAC. BY

THIS IS WHERE YOUR FILENAME WILL PLOT
 THIS SPACE IS FOR THE DATE

MD 986K PROFILE RAMP B (Accel)



LINE	SURFACE	OFFSET
---	---	---
---	---	0.0000

Scale: 4000 Times Ver.
Scale: 4000 Times Hor.

SCALE { HOR. 1 IN. = 50 FT.
VERT. 1 IN. = 10 FT.

PROF FROM STA. 100+00 TO STA. 113+50

REVISIONS		STATE OF MARYLAND	
Δ-ADDENDUM No. 1	8/30/02	DEPARTMENT	TRANSPORTATION
	9/5/02	STATE HIGHWAY	ADMINISTRATION
		HIGHWAY DIVISION	
		REPLACEMENT OF BOX CULVERT OVER LITTLE PAT RIVER	4300 ON MD 986K (SOUTH ENTRANCE)
CONT. NO. H08395175	F.A.P. No.	SEF TITLE SHEET	SHEET NO. 6 OF 54
PREL. TRAC. BY		FINAL TRAC. BY	

THIS IS WHERE YOUR FILENAME WILL BE
THIS IS SPACE FOR THE DATE

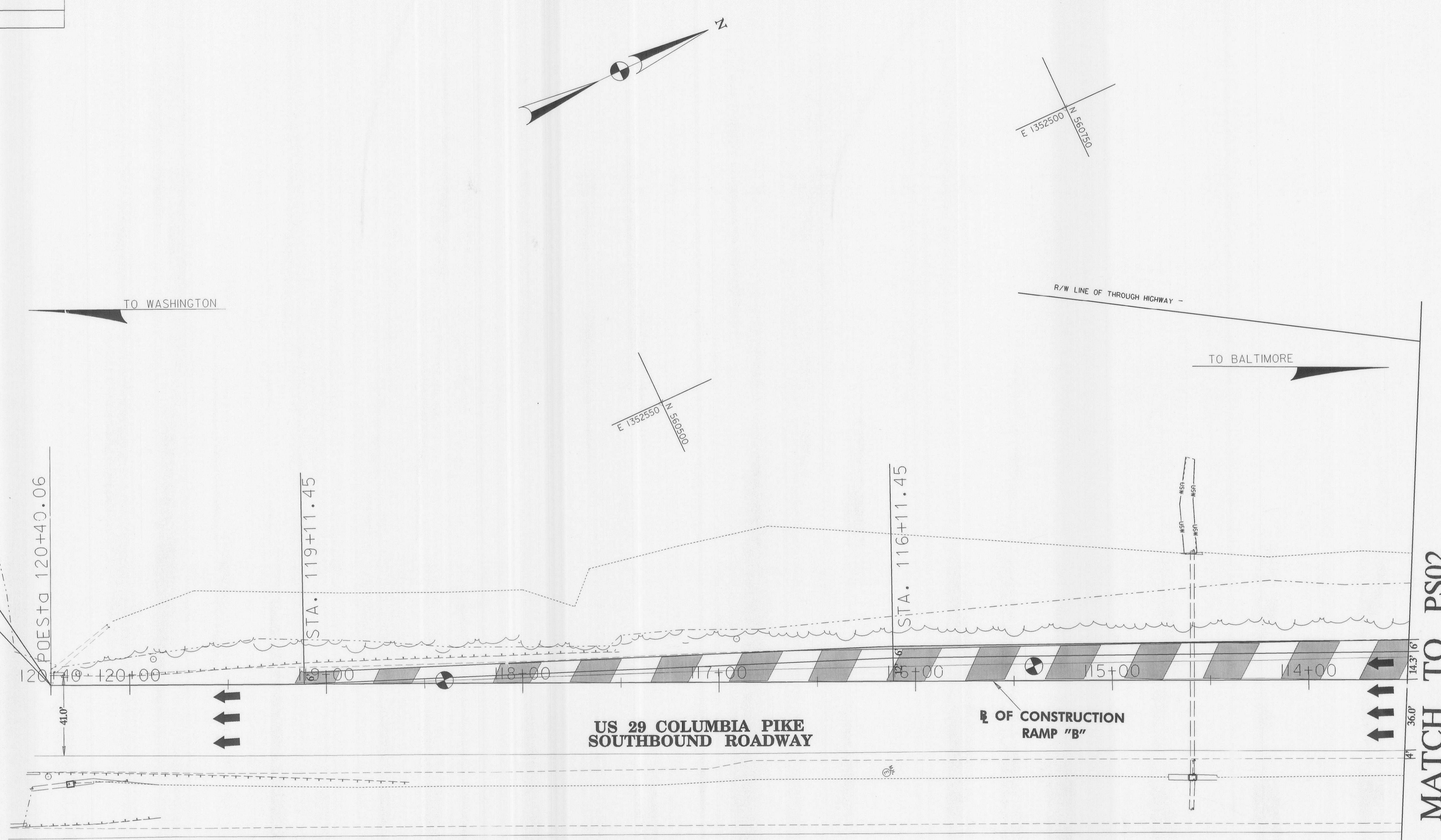
NOTE 1: SOIL BORING LOG SUMMARY SHEETS ARE INCLUDED IN THE INVITATION FOR BIDS.
 NOTE 2: SHOULDER RUMBLE STRIPS SHALL BE ADDED TO THE FINAL SURFACE ALONG THE PROPOSED ACCELERATION LANE.

REMOVE AND RESET EXISTING W-BEAM END TREATMENT MD STD. 605.21
 284 LF.- FROM STA. 117+50 RT TO STA. 120+34 RT.
 182 LF.- FROM STA. 118+58 LT TO STA. 120+40 LT.

TYPE "C" TRAFFIC BARRIER END TREATMENT MD STD. 605.03
 STA. 117+50, 40FR RT, STA. 118+58, 50FT LT.

TYPE "I" TRAFFIC BARRIER END TREATMENT MD STD. 605.41-01
 STA. 120+34, 5FR RT, STA. 120+40, 44FT LT.

LIMIT OF WORK
 CONTRACT NO. H08395175
 STA. 120+40



- LEGEND
- FULL DEPTH PAVING
 - REMOVAL OF EXISTING PAVEMENT
 - GRIND AND RESURFACE 2" DEPTH
 - SOIL BORING

SCALE: 1" = 30'

CROSS REFERENCES	SHEET
TYPICAL SECTIONS	
PAVEMENT DETAILS	
GEOMETRIC SHEET	
PROFILES	
DRAINAGE PROFILES	
TRAFFIC CONTROL PLANS	
SEDIMENT AND EROSION CONTROL	
SIGNING & MARKING PLANS	

REVISIONS

FROM STA. 113+50 TO STA. 120+40 PS 01

STATE OF MARYLAND
 DEPARTMENT OF TRANSPORTATION
 STATE HIGHWAY ADMINISTRATION
 HIGHWAY DESIGN DIVISION
 REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
 OVER LITTLE PATUXENT RIVER

CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 7 OF 54
 PREL. TRAC. BY FINAL TRAC. BY

REMOVAL OF EXISTING PAVEMENT
121 C.Y.

REMOVAL OF EXISTING TRAFFIC BARRIER
275 LF.- FROM RAMP 'A' GORE TO
STA. 111+50 RT. ON RAMP 'B'
103 LF.- FROM STA. 207+50, 40FT RT. TO
STA. 208+43, 8.5FT RT.
RAMP 'A'

FULL DEPTH SAW CUT
300 LF.- FROM STA. 205+50 2' LT. TO STA. 208+50 18' LT. RAMP 'A'
246 LF.- FROM STA. 108+16 6' LT. TO STA. 110+62 6' LT. RAMP 'B'
206 LF.- FROM STA. 109+51 18' RT. TO STA. 111+57 15' RT. RAMP 'B'
12 LF.- FROM STA. 106+00 18' RT. TO STA. 106+12 18' RT. RAMP 'B'

NOTE TO CONTRACTOR
CONTRACTOR TO PROTECT ALL EXISTING UTILITIES WHILE
REMOVING THE EXISTING ROADWAY.

INSTALL 6" LONGITUDINAL UNDERDRAIN
503 L.F. FROM STA. 205+50 TO STA. 210+53 RT.

INSTALL TRAFFIC BARRIER W-BEAM MD STD. 605.21
638 LF. FROM STA. 205+50, 9FT RT. TO
STA. 211+88, 8.0 FT RT. RAMP 'A'

TYPE I TRAFFIC BARRIER END TREATMENT MD STD. 605.10
-IEA - STA. 108+98, 27.0FT RT. RAMP 'B'
STA. 211+88, 8.0FT RT. RAMP 'A'

TYPE C TRAFFIC BARRIER END TREATMENT MD STD. 605.03
STA. 106+85, 20.0FT RT. RAMP 'B'

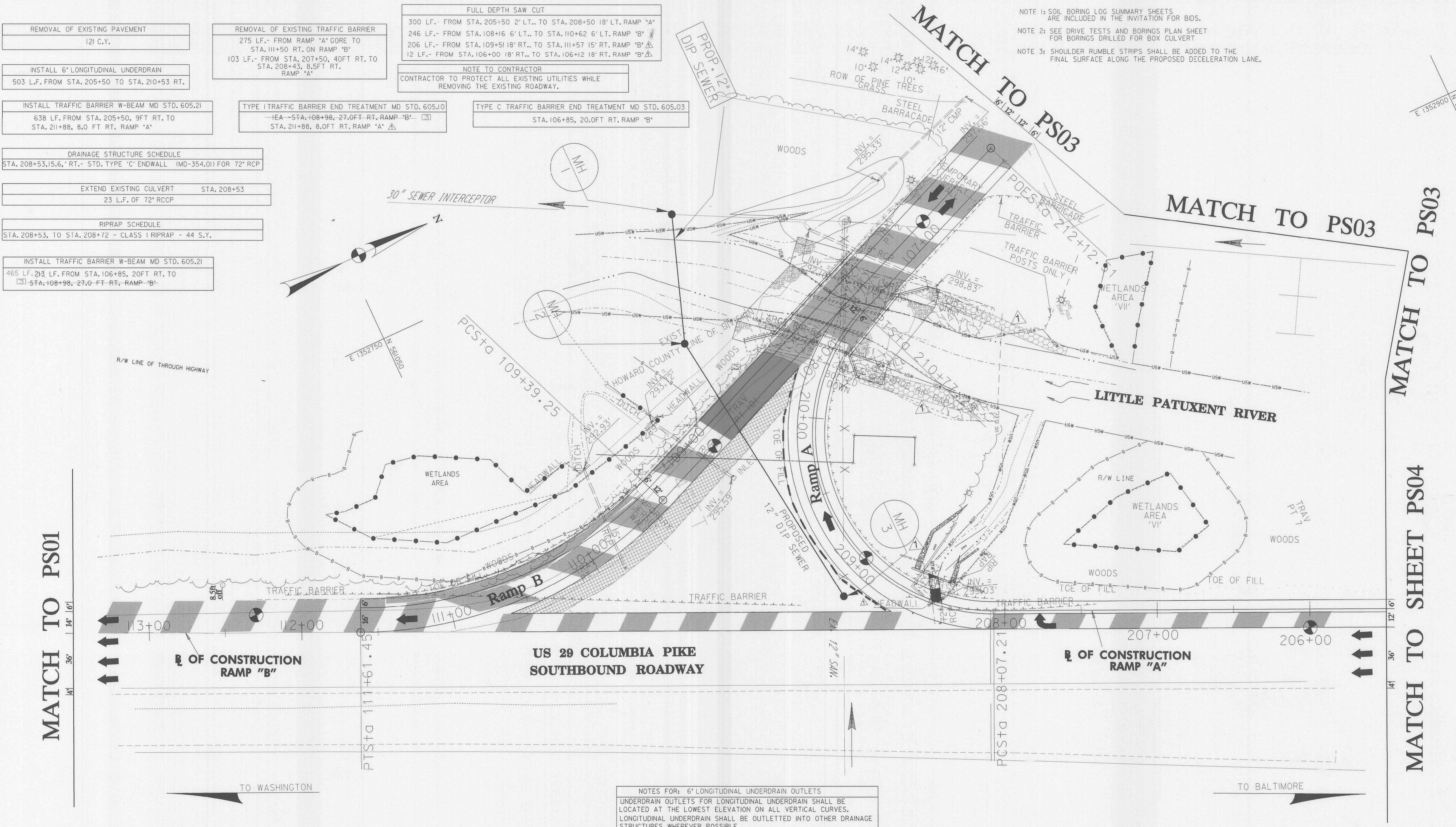
DRAINAGE STRUCTURE SCHEDULE
STA. 208+53, 15.6, 'RT.- STD. TYPE 'C' ENDWALL (MD-354.01) FOR 72" RCP

EXTEND EXISTING CULVERT STA. 208+53
23 L.F. OF 72" RCP

RIPRAP SCHEDULE
STA. 208+53, TO STA. 208+72 - CLASS 1 RIPRAP - 44 S.Y.

INSTALL TRAFFIC BARRIER W-BEAM MD STD. 605.21
465 LF. 213 LF. FROM STA. 106+85, 20FT RT. TO
STA. 108+98, 27.0 FT RT. RAMP 'B'

NOTE 1: SOIL BORING LOG SUMMARY SHEETS
ARE INCLUDED IN THE INVITATION FOR BIDS.
NOTE 2: SEE DRIVE TESTS AND BORINGS PLAN SHEET
FOR BORINGS DRILLED FOR BOX CULVERT
NOTE 3: SHOULDER RUMBLE STRIPS SHALL BE ADDED TO THE
FINAL SURFACE ALONG THE PROPOSED DECELERATION LANE.



MATCH TO PS01

MATCH TO PS03

MATCH TO SHEET PS04

14' 6"
36'
14'

12' 6"
36'
14'

TO WASHINGTON

TO BALTIMORE

**US 29 COLUMBIA PIKE
SOUTHBOUND ROADWAY**

**R/W OF CONSTRUCTION
RAMP "A"**

**R/W OF CONSTRUCTION
RAMP "B"**

NOTES FOR: 6" LONGITUDINAL UNDERDRAIN OUTLETS
UNDERDRAIN OUTLETS FOR LONGITUDINAL UNDERDRAIN SHALL BE
LOCATED AT THE LOWEST ELEVATION ON ALL VERTICAL CURVES.
LONGITUDINAL UNDERDRAIN SHALL BE OUTLETTED INTO OTHER DRAINAGE
STRUCTURES WHEREVER POSSIBLE
OUTLETS SHALL NOT EXCEED 250 FEET MAXIMUM INTERVALS.

- LEGEND**
- FULL DEPTH PAVING
 - GRIND AND RESURFACE 2" DEPTH
 - REMOVAL OF EXISTING PAVEMENT
 - RESURFACE 2" DEPTH
 - SOIL BORING

CROSS REFERENCES	SHEET
TYPICAL SECTIONS	
PAVEMENT DETAILS	
GEOMETRIC SHEET	
PROFILES	
DRAINAGE PROFILES	
TRAFFIC CONTROL PLANS	
SEDIMENT AND EROSION CONTROL	
SIGNING & MARKING PLANS	

SCALE: 1" = 30'

REVISIONS
ADDENDUM No. 1 8/30/02
RED LINE 12/9/03

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION
REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
OVER LITTLE PATUXENT RIVER

CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. **8** OF **54**
PREL. TRAC. BY _____ FINAL TRAC. BY _____

THIS \$IS\$ WHERE \$YOUR\$ FILENAME \$WILL\$ PLOT
THIS \$SPACE\$ IS \$FOR\$ THE \$DATE\$

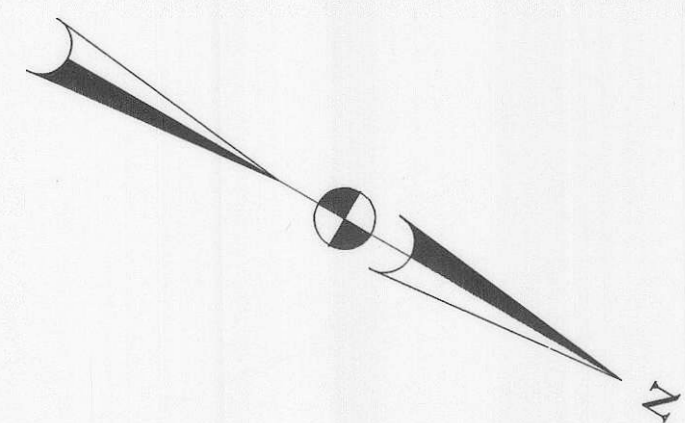
PS 02

NOTE: SOIL BORING LOG SUMMARY SHEETS ARE INCLUDED IN THE INVITATION FOR BIDS.

FULL DEPTH SAW CUT FOR 8 FT. WALKWAY AS SHOWN ON PLANS
700 LF.
410 LF. - FROM STA. 101+90 18' LT. TO STA. 106+00 18' LT. Δ

REMOVAL OF EXISTING PAVEMENT
532 C.Y.

NOTE TO CONTRACTOR
CONTRACTOR TO PROTECT ALL EXISTING UTILITIES WHILE REMOVING THE EXISTING ROADWAY.



TO US 29

TO COLUMBIA



LIMIT OF WORK
CONTR. NO H08395175
STA. 100+61

CROSS REFERENCES	SHEET
TYPICAL SECTIONS	
PAVEMENT DETAILS	
GEOMETRIC SHEET	
PROFILES	
DRAINAGE PROFILES	
TRAFFIC CONTROL PLANS	
SEDIMENT AND EROSION CONTROL	
SIGNING & MARKING PLANS	

- LEGEND
- FULL DEPTH PAVING
 - GRIND AND RESURFACE 2" DEPTH
 - REMOVAL OF EXISTING PAVEMENT
 - SOIL BORING

MATCH TO PS04

SCALE: 1" = 30'

FROM STA. 100+61 TO STA. 106+00

PS 03

REVISIONS
 Δ -ADDENDUM No.1
8/30/02 4/5/02

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION
REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
OVER LITTLE PATUXENT RIVER

CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 9 OF 54
PREL. TRAC. BY FINAL TRAC. BY

THIS IS WHERE YOUR FILENAME WILL PLOT
THIS SPACE IS FOR THE DATE

REMOVAL OF EXISTING PAVEMENT
982 C.Y.

REMOVAL OF EXISTING W-BEAM
47 L.F.- FROM STA. 200+00 RT. TO STA. 200+47 RT.
164 L.F.- FROM STA. 202+08 TO TO STA. 203+72 RT.

FULL DEPTH SAW CUT FOR 8 FT. WALKWAY
520 L.F.

DRAINAGE STRUCTURE SCHEDULE
STA. 203+47, 15.0' RT. - STD. TYPE 'C' ENDWALL (MD-354.01) FOR 72" RCP

INSTALL TRAFFIC BARRIER W-BEAM WITH STD.605.21
285 LF. FROM STA. 202+65, 16FT RT TO STA. 205+50, 9FT RT.

REMOVE EXISTING STRUCTURE No.13142
TRIPLE 72" CMP ---LUMP SUM

FULL DEPTH SAW CUT
550 L.F.- FROM STA. 200+00 2' LT. TO STA. 205+50 2' LT.

EXTEND EXISTING CULVERT
19 L.F. OF 72" RCP

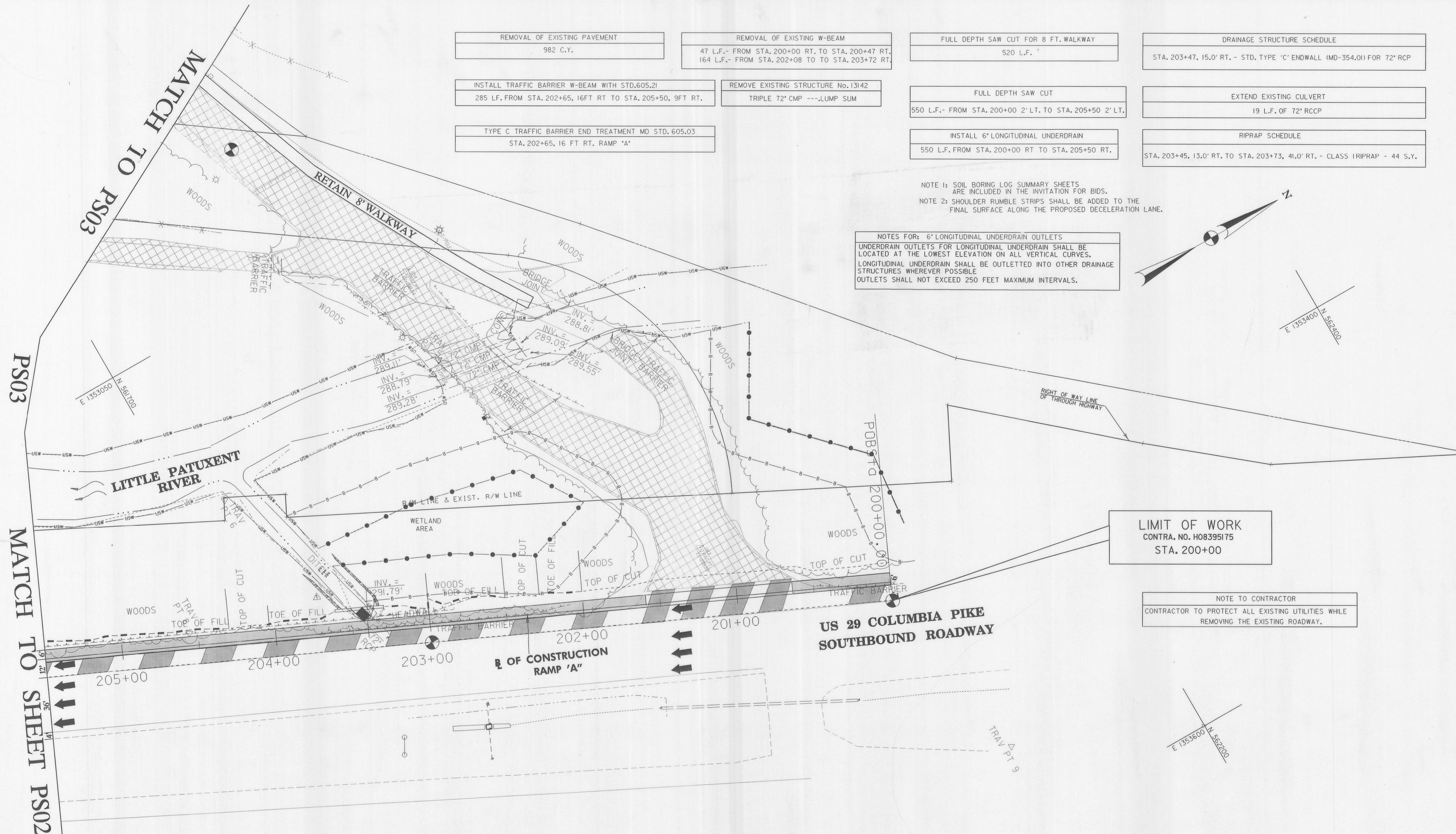
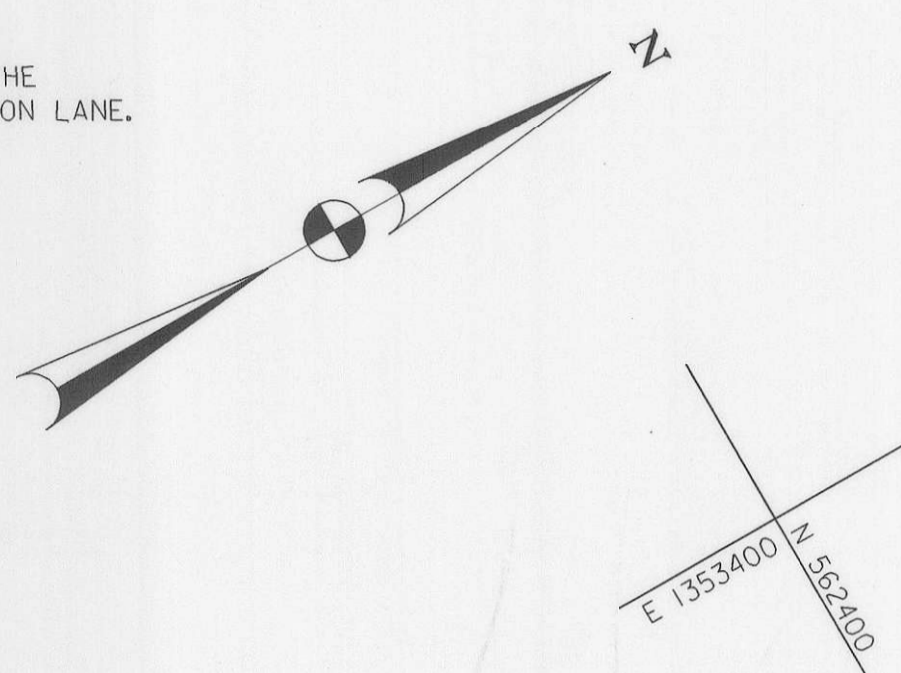
TYPE C TRAFFIC BARRIER END TREATMENT MD STD. 605.03
STA. 202+65, 16 FT RT. RAMP 'A'

INSTALL 6" LONGITUDINAL UNDERDRAIN
550 L.F. FROM STA. 200+00 RT TO STA. 205+50 RT.

RIPRAP SCHEDULE
STA. 203+45, 13.0' RT. TO STA. 203+73, 41.0' RT. - CLASS 1 RIPRAP - 44 S.Y.

NOTE 1: SOIL BORING LOG SUMMARY SHEETS ARE INCLUDED IN THE INVITATION FOR BIDS.
NOTE 2: SHOULDER RUMBLE STRIPS SHALL BE ADDED TO THE FINAL SURFACE ALONG THE PROPOSED DECELERATION LANE.

NOTES FOR: 6" LONGITUDINAL UNDERDRAIN OUTLETS
UNDERDRAIN OUTLETS FOR LONGITUDINAL UNDERDRAIN SHALL BE LOCATED AT THE LOWEST ELEVATION ON ALL VERTICAL CURVES.
LONGITUDINAL UNDERDRAIN SHALL BE OUTLETTED INTO OTHER DRAINAGE STRUCTURES WHEREVER POSSIBLE
OUTLETS SHALL NOT EXCEED 250 FEET MAXIMUM INTERVALS.



LIMIT OF WORK
CONTRA. NO. H08395175
STA. 200+00

NOTE TO CONTRACTOR
CONTRACTOR TO PROTECT ALL EXISTING UTILITIES WHILE REMOVING THE EXISTING ROADWAY.

TO WASHINGTON

TO BALTIMORE

LEGEND

	FULL DEPTH PAVING
	GRIND AND RESURFACE 2" DEPTH
	REMOVAL OF EXISTING PAVEMENT
	RESURFACE 2" DEPTH
	SOIL BORING

SCALE: 1" = 30'

CROSS REFERENCES	SHEET
TYPICAL SECTIONS	
PAVEMENT DETAILS	
GEOMETRIC SHEET	
PROFILES	
DRAINAGE PROFILES	
TRAFFIC CONTROL PLANS	
SEDIMENT AND EROSION CONTROL	
SIGNING & MARKING PLANS	

PS04 FROM 200+00 TO 205+50 PS 04

REVISIONS	
ADDENDUM No. 1	6/30/02 4/5/02

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION
REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
OVER LITTLE PATUXENT RIVER

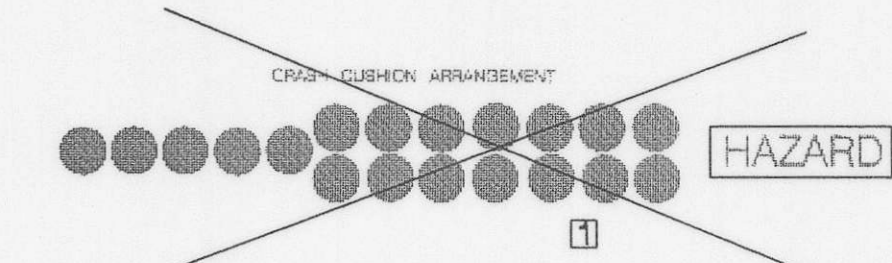
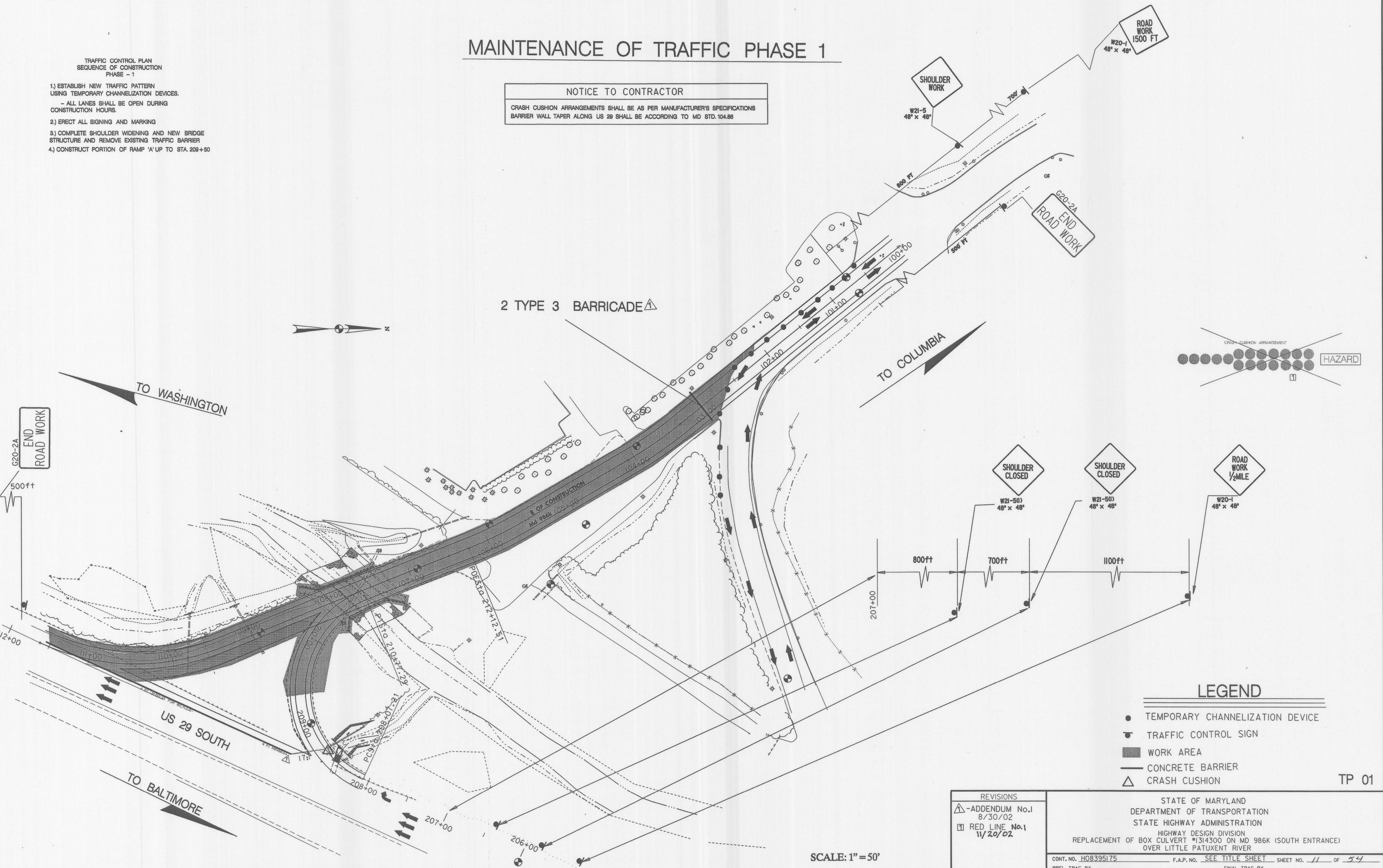
CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 10 OF 54
PREL. TRAC. BY FINAL TRAC. BY

MAINTENANCE OF TRAFFIC PHASE 1

TRAFFIC CONTROL PLAN
SEQUENCE OF CONSTRUCTION
PHASE - 1

- 1) ESTABLISH NEW TRAFFIC PATTERN USING TEMPORARY CHANNELIZATION DEVICES.
- ALL LANES SHALL BE OPEN DURING CONSTRUCTION HOURS.
- 2) ERECT ALL SIGNING AND MARKING
- 3) COMPLETE SHOULDER WIDENING AND NEW BRIDGE STRUCTURE AND REMOVE EXISTING TRAFFIC BARRIER
- 4) CONSTRUCT PORTION OF RAMP 'A' UP TO STA. 209+50

NOTICE TO CONTRACTOR
CRASH CUSHION ARRANGEMENTS SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS
BARRIER WALL TAPER ALONG US 29 SHALL BE ACCORDING TO MD STD. 104.86



LEGEND

- TEMPORARY CHANNELIZATION DEVICE
- ⬮ TRAFFIC CONTROL SIGN
- WORK AREA
- CONCRETE BARRIER
- △ CRASH CUSHION

TP 01

REVISIONS	
△	ADDENDUM No.1 8/30/02
□	RED LINE No.1 11/20/02

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION
REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
OVER LITTLE PATUXENT RIVER

CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 11 OF 54
PREL. TRAC. BY _____ FINAL TRAC. BY _____

SCALE: 1" = 50'

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THIS SPACE IS FOR THE DATE

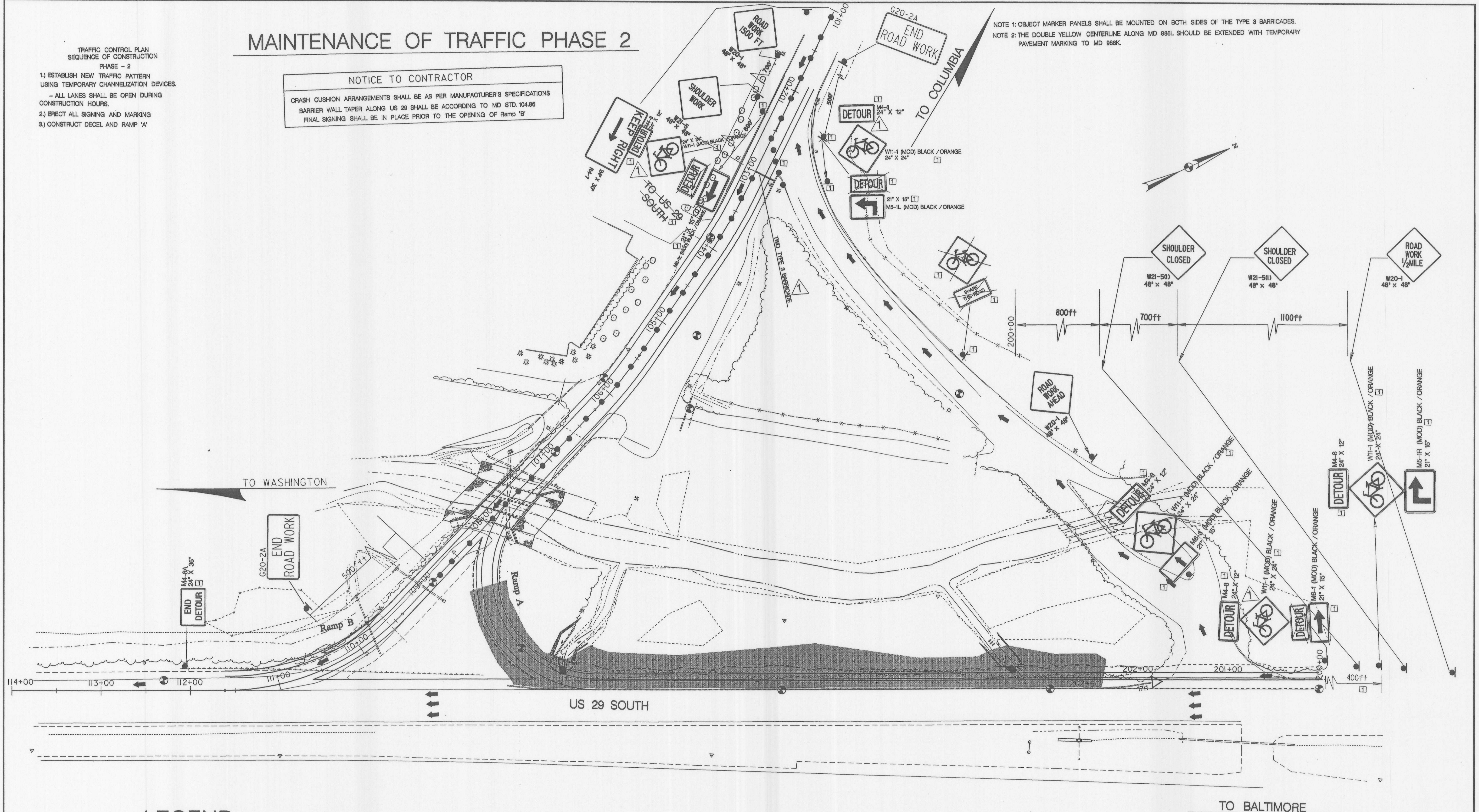
MAINTENANCE OF TRAFFIC PHASE 2

- TRAFFIC CONTROL PLAN
SEQUENCE OF CONSTRUCTION
PHASE - 2
- 1) ESTABLISH NEW TRAFFIC PATTERN USING TEMPORARY CHANNELIZATION DEVICES. - ALL LANES SHALL BE OPEN DURING CONSTRUCTION HOURS.
 - 2) ERECT ALL SIGNING AND MARKING
 - 3) CONSTRUCT DECEL AND RAMP 'A'

NOTICE TO CONTRACTOR

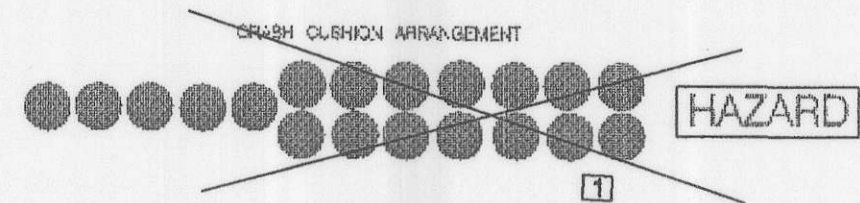
CRASH CUSHION ARRANGEMENTS SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS
BARRIER WALL TAPER ALONG US 29 SHALL BE ACCORDING TO MD STD. 104.86
FINAL SIGNING SHALL BE IN PLACE PRIOR TO THE OPENING OF Ramp 'B'

NOTE 1: OBJECT MARKER PANELS SHALL BE MOUNTED ON BOTH SIDES OF THE TYPE 3 BARRICADES.
NOTE 2: THE DOUBLE YELLOW CENTERLINE ALONG MD 986L SHOULD BE EXTENDED WITH TEMPORARY PAVEMENT MARKING TO MD 986K.



LEGEND

- TEMPORARY CHANNELIZATION DEVICE
- ▣ TRAFFIC CONTROL SIGN
- WORK AREA
- CONCRETE BARRIER
- △ CRASH CUSHION



SCALE: 1" = 50'

REVISIONS	
△-ADDENDUM No.1	8/30/02
□ RED LINE No.1	11/20/02

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION		
HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER		
CONT. NO. 08395175	F.A.P. NO. SEE TITLE SHEET	SHEET NO. 12 OF 54
PREL. TRAC. BY	FINAL TRAC. BY	

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THIS IS SPACE FOR THE DATE

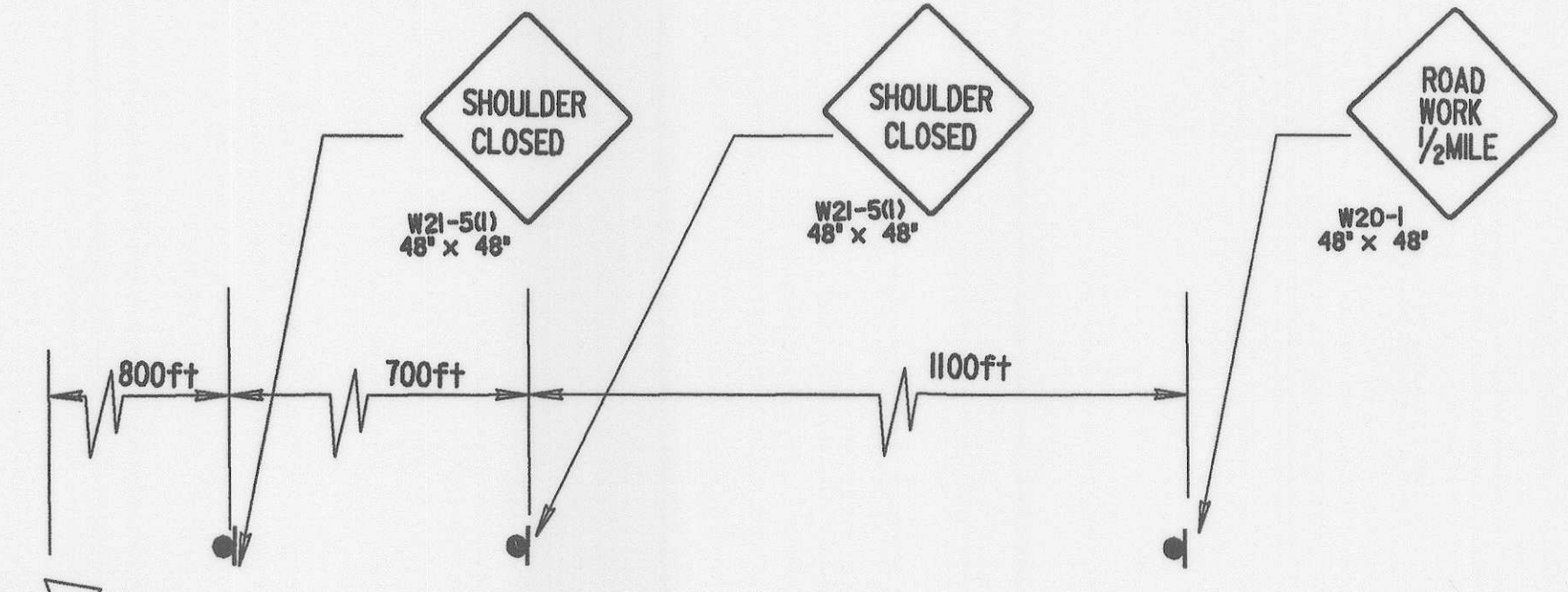
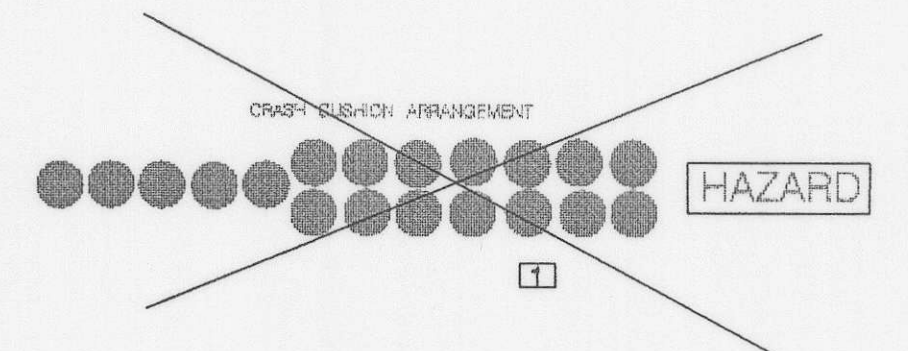
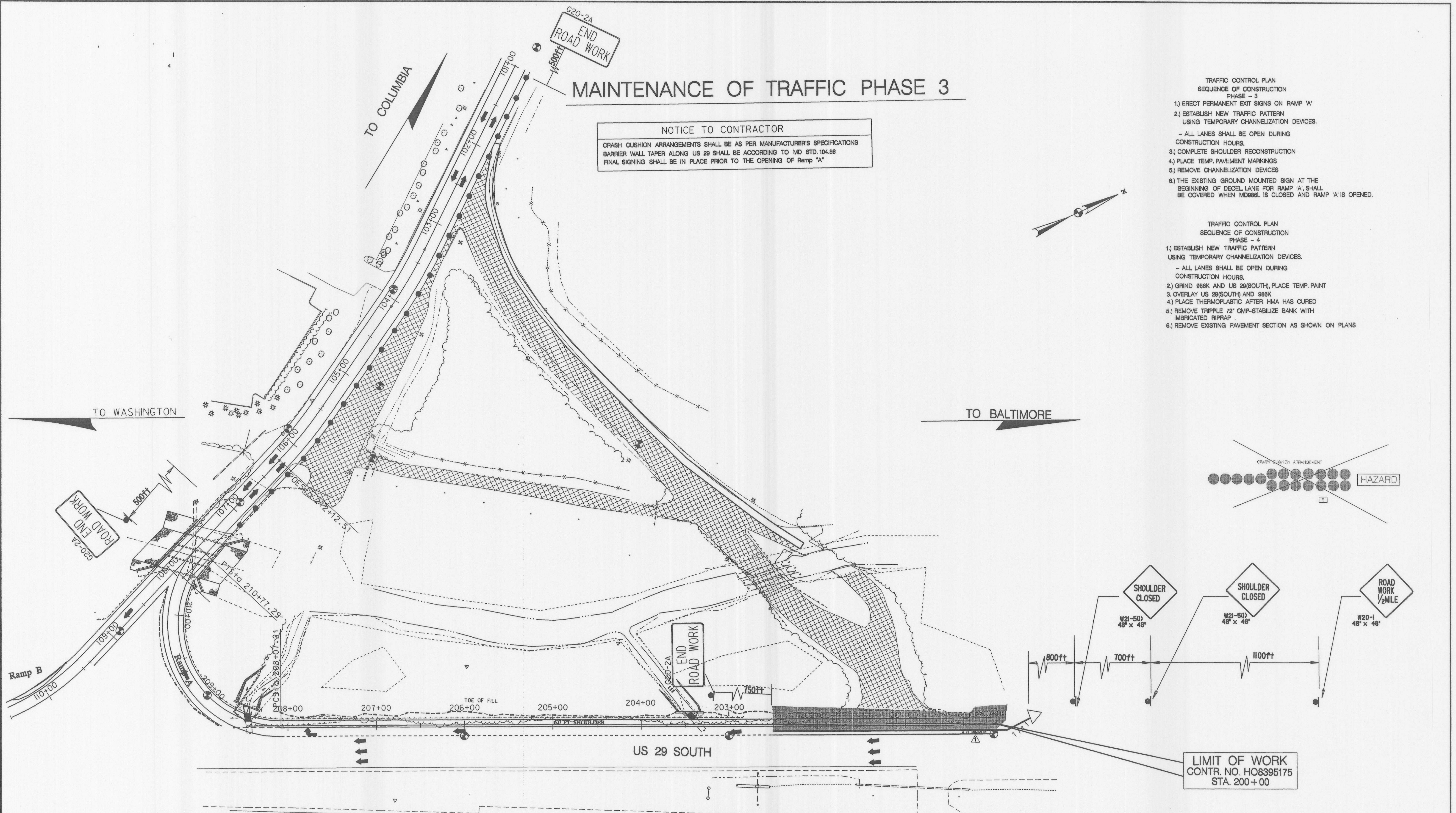
TP 02

MAINTENANCE OF TRAFFIC PHASE 3

NOTICE TO CONTRACTOR
 CRASH CUSHION ARRANGEMENTS SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS
 BARRIER WALL TAPER ALONG US 29 SHALL BE ACCORDING TO MD STD. 104.66
 FINAL SIGNING SHALL BE IN PLACE PRIOR TO THE OPENING OF Ramp "A"

- TRAFFIC CONTROL PLAN
 SEQUENCE OF CONSTRUCTION
 PHASE - 3
- 1) ERECT PERMANENT EXIT SIGNS ON RAMP 'A'
 - 2) ESTABLISH NEW TRAFFIC PATTERN USING TEMPORARY CHANNELIZATION DEVICES.
 - ALL LANES SHALL BE OPEN DURING CONSTRUCTION HOURS.
 - 3) COMPLETE SHOULDER RECONSTRUCTION
 - 4) PLACE TEMP. PAVEMENT MARKINGS
 - 5) REMOVE CHANNELIZATION DEVICES
 - 6) THE EXISTING GROUND MOUNTED SIGN AT THE BEGINNING OF DECEL LANE FOR RAMP 'A' SHALL BE COVERED WHEN MD668L IS CLOSED AND RAMP 'A' IS OPENED.

- TRAFFIC CONTROL PLAN
 SEQUENCE OF CONSTRUCTION
 PHASE - 4
- 1) ESTABLISH NEW TRAFFIC PATTERN USING TEMPORARY CHANNELIZATION DEVICES.
 - ALL LANES SHALL BE OPEN DURING CONSTRUCTION HOURS.
 - 2) GRIND 986K AND US 29(SOUTH), PLACE TEMP. PAINT
 3. OVERLAY US 29(SOUTH) AND 986K
 - 4) PLACE THERMOPLASTIC AFTER HMA HAS CURED
 - 5) REMOVE TRIPPLE 72" CMP-STABILIZE BANK WITH IMBRICATED RIPRAP
 - 6) REMOVE EXISTING PAVEMENT SECTION AS SHOWN ON PLANS



LIMIT OF WORK
 CONTR. NO. H08395175
 STA. 200+00

LEGEND

- TEMPORARY CHANNELIZATION DEVICE
- ▲ TRAFFIC CONTROL SIGN
- WORK AREA
- ▬ CONCRETE BARRIER
- △ CRASH CUSHION

SCALE: 1" = 50'

T.P. 3

REVISIONS ▲-ADDENDUM No.1 8/30/02 □ RED LINE No.1 11/20/02		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER	
CONT. NO. H08395175 PREL. TRAC. BY	F.A.P. NO. SEE TITLE SHEET FINAL TRAC. BY	SHEET NO. 13 OF 45	THIS IS WHERE YOUR FILENAME WILL PLOT THIS SPACE IS FOR THE DATE

EROSION AND SEDIMENT CONTROL - GENERAL NOTES

1. MDE NOTIFICATION

THE CONTRACTOR AND/OR SHA MUST NOTIFY MDE IN WRITING AND/OR BY TELEPHONE (410) 631-3510 AT THE FOLLOWING POINTS:

- PRE-CONSTRUCTION MEETING
- EROSION AND SEDIMENT CONTROL MEETING (MINIMUM 7 WORKING DAYS PRIOR TO COMMENCING EARTH DISTURBING ACTIVITIES)
- FOLLOWING INSTALLATION OF INITIAL SEDIMENT CONTROL MEASURES
- DURING INSTALLATION OF MAJOR SEDIMENT CONTROL BASINS/TRAPS
- PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S)
- PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES
- PRIOR TO FINAL ACCEPTANCE BY SHA

2. STANDARDS AND SPECIFICATIONS

THIS PLAN IS DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MDE EROSION AND SEDIMENT CONTROL GUIDELINES FOR STATE AND FEDERAL PROJECTS DATED JANUARY 1990 AS WELL AS THE STATE HIGHWAY ADMINISTRATIONS (SHA) SPECIFICATIONS TITLED "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" DATED JANUARY 2001 AND ALL REVISIONS THEREOF AND ADDITIONS THERETO INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL HAVE A COPY OF THE 1994 "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ON THE SITE.

3. INGRESS / EGRESS CONTROLS

THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ON PUBLIC ROADS. ALL MATERIALS DEPOSITED ON PUBLIC ROADS SHALL BE MECHANICALLY REMOVED IMMEDIATELY. THE FLUSHING OF ROAD SURFACES IS PROHIBITED.

TYPICALLY, ALL INGRESS AND EGRESS POINTS SHALL BE CONTROLLED THROUGH THE USE OF A "STABILIZED CONSTRUCTION ENTRANCE."

4. INSPECTION

THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES.

5. SHUTDOWNS AND OR PENALTIES

TOTAL COMPLIANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS EXPECTED AT ALL TIMES. IN CASES WHERE THE CONTRACTOR IS FOUND TO BE IN NON-COMPLIANCE SHA MAY TAKE STEPS TO IMPOSE SELECTED OR TOTAL SHUTDOWNS AND IMPOSE PER DAY PENALTIES FOR NON-COMPLIANCE.

THE DISTRICT ENGINEER CAN IMPOSE A TOTAL OR PARTIAL SHUTDOWN IF THE PROJECT MAY ADVERSELY IMPACT THE WATERS OF THE STATE.

6. RECORD KEEPING

THE PROJECTS' APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, APPROVED CHANGE REQUESTS, DAILY LOG BOOKS AND TEST REPORTS WILL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF MDE.

7. EROSION AND SEDIMENT CONTROL EXCAVATION

SILT REMOVED FROM CONTROL DEVICES SHALL BE PLACED IN AN APPROVED WASTE SITE EITHER ON OR OFF THE PROJECT. MATERIAL STORED ON SITE MAY BE REUSED ONCE IT IS DRIED AND IF IT MEETS SHA REQUIREMENTS FOR EMBANKMENT OR ANY UNSPECIFIED NEED.

8. OFF-SITE UTILITY WORK

SEDIMENT CONTROL FOR UTILITY CONSTRUCTION IN AREAS OUTSIDE OF DESIGNED CONTROLS SHALL FOLLOW THESE ADDITIONAL BEST MANAGEMENT PRACTICES:

- (a) CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK
- (b) EXCAVATED MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- (c) TRENCHES FOR UTILITY INSTALLATIONS SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. WHEN THIS IS NOT POSSIBLE, THE AREA SHALL CONFORM TO (d).
- (d) TEMPORARY SILT FENCES SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.

9. SENSITIVE AREAS

NO CONSTRUCTION ACTIVITIES SHALL BE UNDERTAKEN WITHIN SPECIFIED SENSITIVE AREAS OF THE PROJECT WITHOUT PRIOR NOTIFICATION OF THE ENGINEER. ALL WORK IN THESE AREAS SHALL BE MONITORED BY A RESPONSIBLE PARTY DESIGNATED BY THE CONTRACTOR TO ASSURE THAT REASONABLE CARE IS TAKEN IN OR ADJACENT TO THESE AREAS. AREAS CONSIDERED SENSITIVE ARE DEFINED AS: FLOODPLAINS, WETLANDS (TIDAL, NON-TIDAL AND ASSOCIATED BUFFERS) CRITICAL AREAS, FORESTED AREAS, ARCHEOLOGICAL SITES, HISTORIC SITES, PARKLAND AND OPEN WATER.

10. STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS TO ALL SLOPES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND FOURTEEN (14) DAYS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

11. SITE INFORMATION (NOT FOR BIDDING PURPOSES)

TOTAL AREA OF SITE	10.20	ACRES
AREA DISTURBED	3.38	ACRES
TOTAL EXIST PAVEMENT TO BE REMOVED	1.035	ACRES
ADDITIONAL NEW PAVEMENT	0.30	ACRES
NET REDUCTION PAVED AREA	0.735	ACRES
TOTAL CUT	1600	CU. YDS.
TOTAL FILL	920	CU. YDS.
OFFSITE WASTE/BORROW		
AREA LOCATION (IF KNOWN)	UNKNOWN	ACRES

12. INCREMENTAL STABILIZATION

REFER TO THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE INCREMENTAL STABILIZATION OF CUT AND FILLS.

DESIGN CERTIFICATION:

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR CURRENT REVISIONS THEREOF, AND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT REGULATIONS."

8/07/02
DATE

Jamil Pannee
DESIGNER'S SIGNATURE

MD. REGISTRATION NO. 11019
P.E.

JAMIL PANNEE
PRINTED NAME

NOTE:

ALL WORK IS WITHIN THE 100-YEAR FLOODPLAIN AND WITHIN THE SHA AND/OR HOWARD COUNTY RIGHT OF WAY.

STANDARD SYMBOLS


EARTH DIKE	A-2 / B-3
TEMPORARY SWALE	A-2 / B-3
PERIMETER DIKE/SWALE	PD/S-1
STONE CHECK DAM	CD
STONE OUTLET STRUCTURE	TOS
SILT FENCE	SF
SUPER SILT FENCE	SSF
STRAW BALES	SB
STANDARD INLET PROTECTION	SIP
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
MEDIAN INLET PROTECTION	MIP
GABION INFLOW PROTECTION	GM
RIPRAP INFLOW PROTECTION	RRP
SUMP PIT	SP
REMOVABLE PUMPING STATION	RPS
PORTABLE SEDIMENT TANK	PST
INTERCEPTOR BERM	IB
TEMPORARY BERM	TB
PIPE SLOPE DRAIN	PSD
STABILIZED CONSTRUCTION ENTRANCE	SCE
SOIL STABILIZATION MATTING	SSM
PLACED RIPRAP DITCH	PRD
GABIONS	G
CONCRETE GUTTER	CG
STONE OUTLET SEDIMENT TRAP	OST
RIPRAP OUTLET SEDIMENT TRAP	ROST
STONE/RIPRAP OUTLET SEDIMENT TRAP	SRROST
PIPE OUTLET SEDIMENT TRAP	POST
LIMIT OF DISTURBANCE	LOD
EXISTING CONTOURS	100
PROPOSED CONTOURS	100
WETLAND BOUNDARY	WB
WETLAND BUFFER	B
WATERS OF THE U.S.	USW

SEQUENCE OF CONSTRUCTION EROSION AND SEDIMENT CONTROL

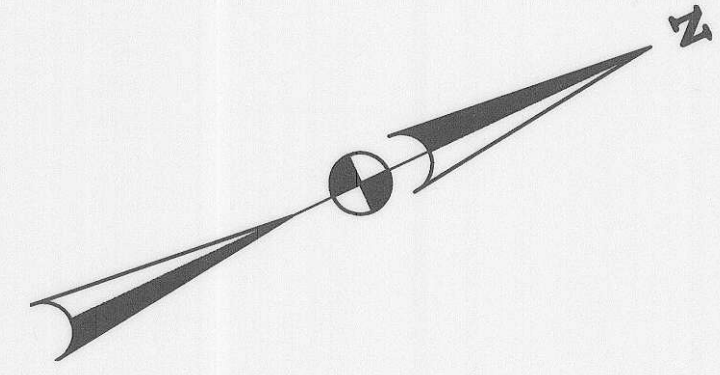
STEP	ACTION
1.	THE CONTRACTOR SHALL NOTIFY SHA AND THE MDE/WMA COMPLIANCE PROGRAM AT (410)631-3510 AT LEAST SEVEN (7) DAYS PRIOR TO INITIATION OF CONSTRUCTION TO ARRANGE A PRE CONSTRUCTION MEETING WITH THE MDE COMPLIANCE DIVISION TO CONSIDER ALL ASPECTS OF THE SITE CONDITIONS WITH REGARD TO EROSION AND SEDIMENT CONTROL.
2.	UTILITIES AND STORM DRAINS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS ARE FOR REFERENCE ONLY. ALL UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE ROADWAY PLANS.
3.	THE EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONING PRIOR TO THE CLEARING. CLEAR AND GRUB FOR EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES ONLY.
4.	THE STAGING AND STOCKPILE AREAS MUST BE WITHIN THE LIMIT OF DISTURBANCE. CONTRACTOR SHALL OBTAIN INSPECTOR'S APPROVAL BEFORE MODIFYING THE LIMIT OF DISTURBANCE AS SHOWN ON PLANS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY ADDITIONAL E/S CONTROLS FOR STAGING AND STOCKPILE AREAS AS REQUIRED BY THE MDE INSPECTOR.
5.	INSTALL PERIMETER CONTROLS SUPER SILT FENCE, SILT FENCE, MIP, SCE AS REQUIRED FOR CONSTRUCTION.
6.	GRADE ALL DISTURBED SLOPES TO DRAIN AS INDICATED ON THE PLANS.
7.	CONSTRUCT TRIPLE BOX CULVERT AND STABILIZE STREAM BANKS WITH RIPRAP. BACKFILL AND STABILIZE DIVERSION CHANNEL WITH TOPSOIL, SEED AND MULCH. PLACE SUPER SILT FENCE AT TOP OF RIPRAP SLOPES WHERE FLOOD PLAIN IS TO BE GRADED. COMPLETE FLOOD PLAIN GRADING AND STOCKPILE FILL AS NEEDED ON THE EAST SIDE OF THE RIVER. STABILIZE GRADED FLOOD PLAIN AREA WITH TOPSOIL, SEED, AND MULCH. CONSTRUCT RAMP A TO STA 209+50 AS SHOWN ON THE TRAFFIC CONTROL PLAN.
8.	REVISE TRAFFIC PATTERN TO M.O.T. PHASE 2. CONSTRUCT PIPE CULVERT EXTENSIONS AND PORTIONS OF RAMP A AND DECELERATION LANE.
9.	REMOVE MULTIPIPE STRUCTURE NO. 1314200 ON MD 986L (OLD COLUMBIA PIKE) AND EXISTING PAVEMENT OF MD 986L AS SHOWN ON THE TRAFFIC CONTROL PLANS, STABILIZING THE DISTURBED AREAS WITH TOPSOIL, SEED AND MULCH WITHIN 24 HOURS AFTER PLACEMENT OF FILL. PLACE PLANTINGS AS SHOWN ON LANDSCAPE SHEET.
10.	AFTER COMPLETING ALL WORK UNDER M.O.T. PHASE 3, STABILIZE AND REVISE TRAFFIC PATTERN TO M.O.T. PHASE 4.
11.	RESURFACE EXISTING PAVEMENT AND PLACE FINAL SURFACE COURSE ON NEWLY CONSTRUCTED PAVEMENT FOR MD 986K.
12.	PLACE TOPSOIL, SEED AND MULCH ON ALL UNPAVED AREAS AS DIRECTED BY THE ENGINEER.
13.	MAINTAIN ALL SEDIMENT CONTROL PRACTICES ACCORDING TO THE MARYLAND 1994 STANDARDS AND COUNTY REGULATIONS UNTIL THE ENTIRE SITE IS STABILIZED.
14.	SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED WITH SEED AND MULCH, PAVEMENT OR RIPRAP AND MDE APPROVES THEIR REMOVAL.
15.	REQUEST MDE APPROVAL FOR THE REMOVAL OF EROSION AND SEDIMENT CONTROL DEVICES.
16.	UPON APPROVAL BY MDE, REMOVE EROSION AND SEDIMENT CONTROL DEVICES. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF THE DEVICES.

EROSION AND SEDIMENT CONTROL GENERAL NOTES

EP-01

 RJM ENGINEERING, INC. CONSULTING ENGINEERS COLUMBIA, MARYLAND	REVISIONS ADDENDUM NO. 1 9/5/02	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER
	CONT. NO. _____ F.A.P. NO. <u>SEE TITLE SHEET</u> SHEET NO. <u>14</u> OF <u>54</u> PREL. TRAC. BY _____ FINAL TRAC. BY _____	THIS IS WHERE YOUR FILENAME WILL PLOT THIS SPACE IS FOR THE DATE

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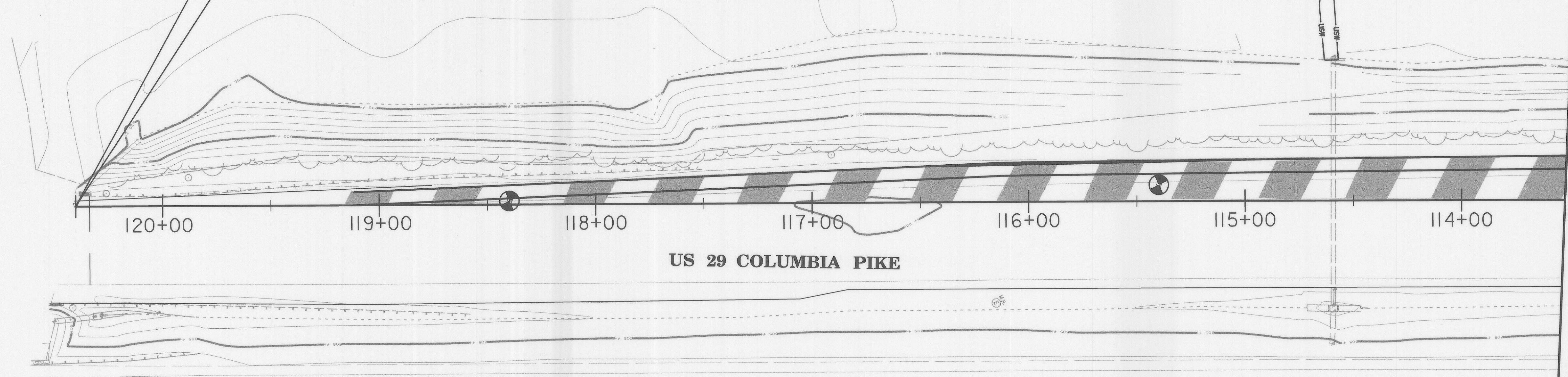
E.L. 1352500
E.L. 500500

LIMIT OF WORK
CONT. NO. H08395180
US 29
STA. 120+40

R/W LINE OF THROUGH HIGHWAY

WATERS OF THE US

MATCH TO EP03



120+00 119+00 118+00 117+00 116+00 115+00 114+00

US 29 COLUMBIA PIKE

TO BALTIMORE

EROSION AND SEDIMENT CONTROL
FROM STA. 113+50 TO STA. 120+40

EP-02

- LEGEND**
- FULL DEPTH PAVING
 - GRIND AND RESURFACE 2' DEPTH
 - REMOVAL OF EXISTING PAVEMENT
 - TOP OF CUT
 - TOE OF FILL
 - LIMIT OF DISTURBANCE
 - WETLAND BOUNDARY
 - WETLAND BUFFER
 - SUPER SILT FENCE
 - MEDIAN INLET PROTECTION
 - STABILIZED CONSTRUCTION ENTRANCE
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - WATERS OF THE U.S.

NOTES:
1. THE PROJECT IS WITHIN 100 YR FLOODPLAIN BOUNDARY.

CROSS REFERENCES	
TYPICAL SECTIONS	2
PAVEMENT DETAILS	3
PROFILES	5-6
TRAFFIC CONTROL PLANS	11-13
SIGNING & MARKING PLANS	48-54
GEOMETRIC SHEET	4

SCALE: 1" = 30'

	REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER
	<p>CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 15 OF 54</p> <p>PREL. TRAC. BY _____ FINAL TRAC. BY _____</p>	<p>FILENAME: m:\MD_986K\MISC\RJM\7_15_02\ep02m986k.dgn</p> <p>08/07/2002 10:47:10 AM</p>

DATE: 16-JUL-02 08:34

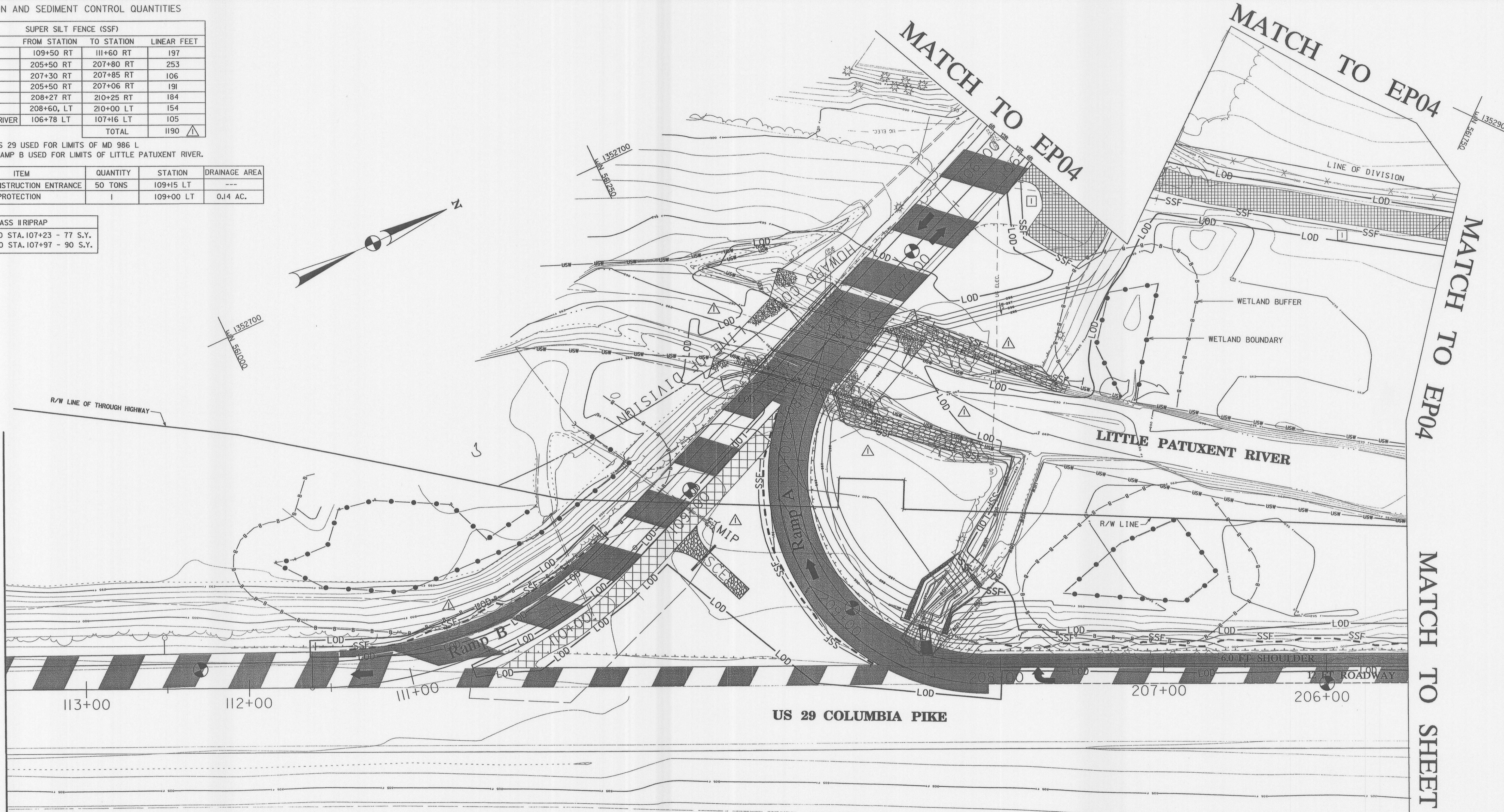
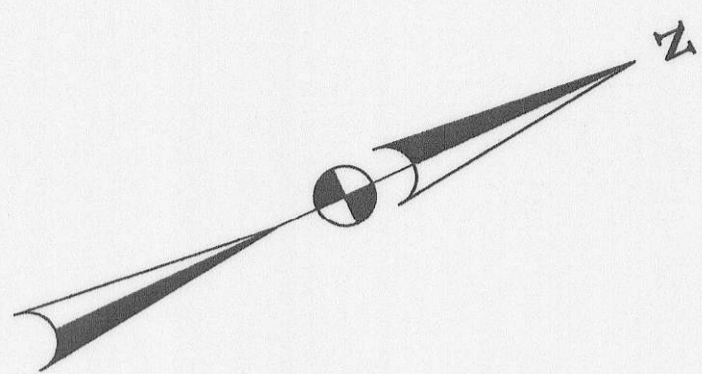
EROSION AND SEDIMENT CONTROL QUANTITIES

SUPER SILT FENCE (SSF)			
ALONG ROUTE	FROM STATION	TO STATION	LINEAR FEET
RAMP B	109+50 RT	111+60 RT	197
US 29	205+50 RT	207+80 RT	253
MD 986 L*	207+30 RT	207+85 RT	106
MD 986 L*	205+50 RT	207+06 RT	191
RAMP A	208+27 RT	210+25 RT	184
RAMP A	208+60, LT	210+00 LT	154
LITTLE PATUXENT RIVER	106+78 LT	107+16 LT	105
TOTAL			1190

BASELINE OF US 29 USED FOR LIMITS OF MD 986 L
 BASELINE OF RAMP B USED FOR LIMITS OF LITTLE PATUXENT RIVER.

ITEM	QUANTITY	STATION	DRAINAGE AREA
STABILIZED CONSTRUCTION ENTRANCE	50 TONS	109+15 LT	---
MEDIAN INLET PROTECTION	1	109+00 LT	0.14 AC.

CLASS II RIPRAP	
STA. 106+85 TO STA. 107+23	77 S.Y.
STA. 107+50 TO STA. 107+97	90 S.Y.



MATCH TO EP02

MATCH TO SHEET EP05

NOTES:

- FOR EROSION AND SEDIMENT CONTROLS FOR THE CONSTRUCTION/REMOVAL OF TRIPLE CELL RCBC SEE SHEET 22 AND FOR PIPE CULVERT EXTENSION SEE DWG. MOF-2.
- THE PROJECT IS WITHIN 100 YR FLOODPLAIN BOUNDARY.

<p>LEGEND</p> <ul style="list-style-type: none"> FULL DEPTH PAVING GRIND AND RESURFACE 2' DEPTH REMOVAL OF EXISTING PAVEMENT TOP OF CUT TOE OF FILL LIMIT OF DISTURBANCE WETLAND BOUNDARY WETLAND BUFFER 	<ul style="list-style-type: none"> CLASS II RIPRAP W/JOINT PLANTINGS SUPER SILT FENCE MEDIAN INLET PROTECTION STABILIZED CONSTRUCTION ENTRANCE EXISTING CONTOURS PROPOSED CONTOURS DRAINAGE BOUNDARY WATERS OF THE U.S.
---	---

CROSS REFERENCES	
TYPICAL SECTIONS	2
PAVEMENT DETAILS	3
PROFILES	5-6
TRAFFIC CONTROL PLANS	11-13
SIGNING & MARKING PLANS	48-54
GEOMETRIC SHEET	4

SCALE: 1" = 30'

EROSION AND SEDIMENT CONTROL PLAN FROM STA. 113+50 TO STA. 205+50

EP-03

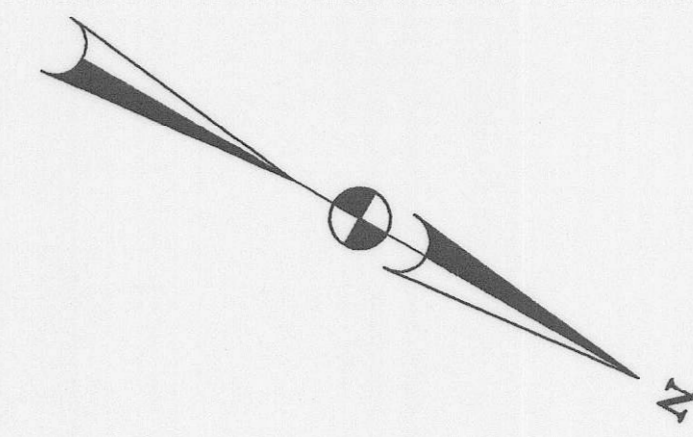
	<p>REVISIONS</p> <p>ADDENDUM NO. 1 9/5/02</p> <p>REDLINE NO. 1 11/20/02</p>	<p>STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE) OVER LITTLE PATUXENT RIVER</p>
	<p>CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 16 OF 54</p> <p>PREL. TRAC. BY _____ FINAL TRAC. BY _____</p>	<p>FILENAME: m:\MD_986K\MISC\RJM\8.27_02\ep03m986k.dgn 09/12/2002 02:45:55 PM</p>

EROSION AND SEDIMENT CONTROL QUANTITIES

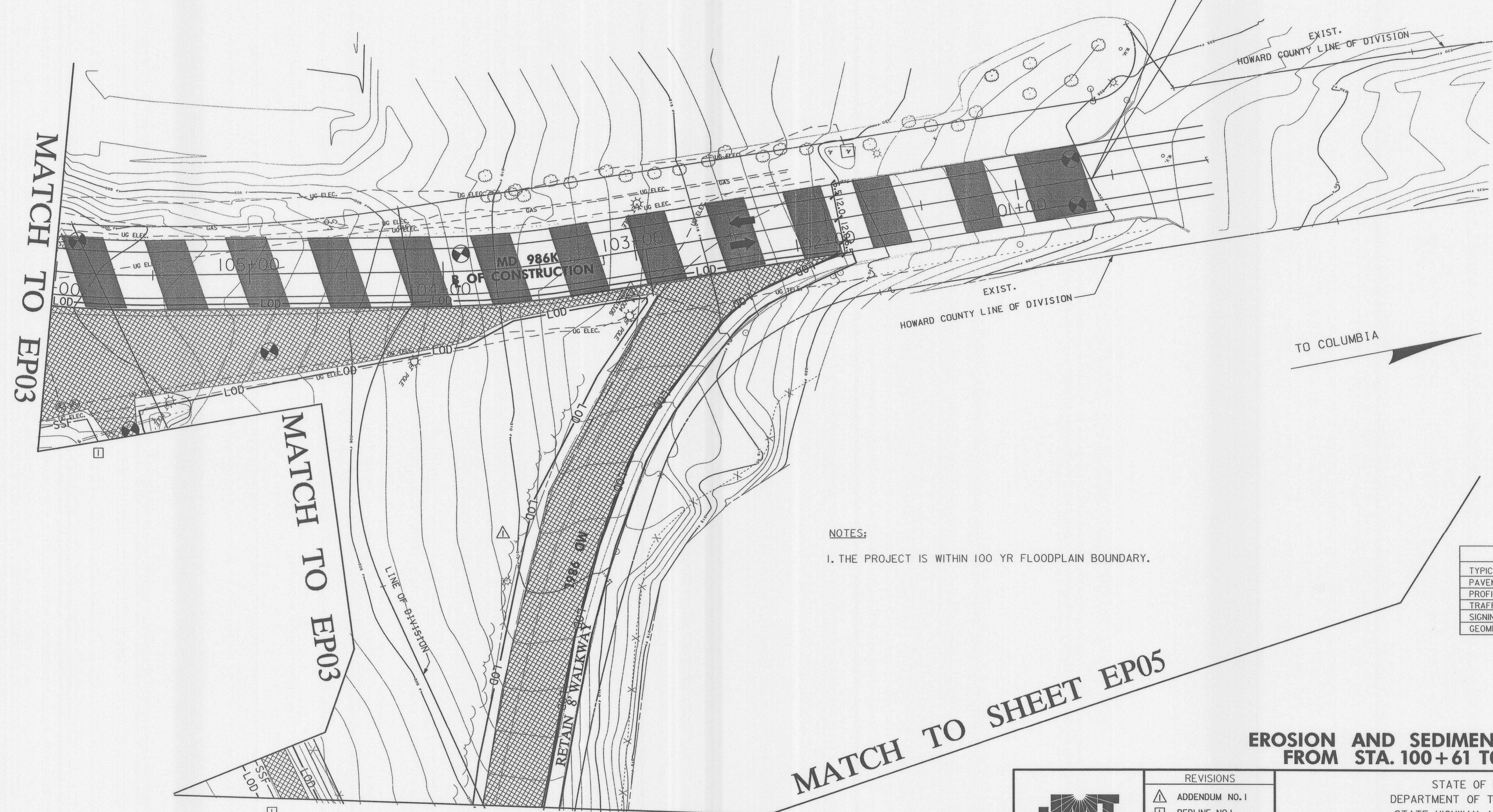
SUPER SILT FENCE (SSF)			
ALONG ROUTE	FROM STATION	TO STATION	LINEAR FEET
MD 986 L*	105+75 LT	106+00 LT	37
MD 986 L*	104+93 LT	105+00 LT	22
	TOTAL		59

* BASELINE OF MD 986 K USED FOR LIMITS OF MD 986 L

LEGEND	
	FULL DEPTH PAVING
	GRIND AND RESURFACE 2' DEPTH
	REMOVAL OF EXISTING PAVEMENT
	TOP OF CUT
	TOE OF FILL
	LIMIT OF DISTURBANCE
	WETLAND BOUNDARY
	WETLAND BUFFER
	SSF
	MIP
	SCE
	100 EXISTING CONTOURS
	100 PROPOSED CONTOURS
	USW WATERS OF THE U.S.



LIMIT OF WORK
CONT. NO. H08395180
MD 986K
STA. 100+61



NOTES:
I. THE PROJECT IS WITHIN 100 YR FLOODPLAIN BOUNDARY.

CROSS REFERENCES	
TYPICAL SECTIONS	2
PAVEMENT DETAILS	3
PROFILES	5-6
TRAFFIC CONTROL PLANS	11-13
SIGNING AND MARKING PLANS	48-54
GEOMETRIC SHEET	4

EROSION AND SEDIMENT CONTROL PLAN
FROM STA. 100+61 TO STA. 106+00 EP-04



REVISIONS	
	ADDENDUM NO. 1
	REDLINE NO. 1
	11/20/02

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION
REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
OVER LITTLE PATUXENT RIVER

CONT. NO.	H08395175	F.A.P. NO.	SEE TITLE SHEET	SHEET NO.	17	OF	54
PREL. TRAC. BY		FINAL TRAC. BY					

FILENAME: m:\MD_986K\MISC\RJM\8_27_02\RLlep04m986k.dgn
09/12/02 01:12:00 PM

MATCH TO SHEET EP05

SCALE: 1" = 30'

FILE: m:\MD_986K\MISC\RJM\8_27_02\lep04m986k.dgn
DATE: 27-AUG-02 13:33

LEGEND

	FULL DEPTH PAVING
	GRIND AND RESURFACE 2' DEPTH
	REMOVAL OF EXISTING PAVEMENT
	TOP OF CUT
	TOE OF FILL
	L.O.D. LIMIT OF DISTURBANCE
	WETLAND BOUNDARY
	WETLAND BUFFER
	SSF SUPER SILT FENCE
	MIP MEDIAN INLET PROTECTION
	SCE STABILIZED CONSTRUCTION ENTRANCE
	100 EXISTING CONTOURS
	100 PROPOSED CONTOURS
	USW WATERS OF THE U.S.
	A-2 EARTH DIKE (TYPE A-2)
	TSOS TEMPORARY STONE OUTLET STRUCTURE

EROSION AND SEDIMENT CONTROL QUANTITIES

SUPER SILT FENCE (SSF)			
ALONG ROUTE	FROM STATION	TO STATION	LINEAR FEET
MD 986 L *	200+00 RT	201+56 RT	260
US 29	202+55 RT	203+30 RT	290
US 29	203+70 RT	205+50 RT	188
MD 986 L *	201+75 RT	202+75 RT	100
MD 986 L *	202+45 RT	203+30 RT	123
MD 986 L *	204+10 RT	205+00 RT	92
		TOTAL	1053

EARTH DIKE (A-2)			
ALONG ROUTE	FROM STATION	TO STATION	LINEAR FEET
MD 986 L *	203+00 RT	203+30 RT	44
MD 986 L *	203+40 RT	204+22 RT	81
		TOTAL	125

TEMPORARY STONE OUTLET STRUCTURE			
ITEM	QUANTITY	STATION	DRAINAGE AREA
TSOS	30 TONS	203+33 RT *	0.3 AC

* BASELINE OF US29 USED FOR LIMITS OF MD986 L

* BASELINE OF US29 USED FOR LIMITS OF MD986 L

* BASELINE OF US29 USED FOR LIMITS OF MD986 L

SEQUENCE:

1. INSTALL E&S DEVICES.
2. ESTABLISH M.O.T PHASE 2.
3. CONSTRUCT CULVERT EXTENSIONS, SEE DWG. MOF-1 FOR MAINTENANCE OF STREAM FLOW.
4. ESTABLISH M.O.T PHASE 3.
5. REMOVE TRIPLE CELL CULVERT IN ACCORDANCE WITH MAINTENANCE OF STREAM FLOW PLAN (DWG. MOF-3) AND STABILIZE STREAM BANKS ACCORDING TO DWG. LS-3
6. REMOVE EXIST. PAVEMENT AS SHOWN GRADE AND STABILIZE WITH TOPSOIL, SEED & MULCH. PLANT ACCORDING TO LANDSCAPE SHEETS.

LIMIT OF WORK
CONT. NO. H08395180
US 29
STA. 200+00

NOTES:

1. CONTRACTOR TO GRADE AREA OF PAVEMENT REMOVAL ALONG MD 986L TO DRAIN AWAY FROM 8' WALKWAY.
2. THE PROJECT IS WITHIN 100 YR FLOODPLAIN BOUNDARY.

CROSS REFERENCES

TYPICAL SECTIONS	2
PAVEMENT DETAILS	3
PROFILES	5-6
TRAFFIC CONTROL PLANS	11-13
SIGNING AND MARKING PLANS	48-54
GEOMETRIC SHEET	4

EROSION AND SEDIMENT CONTROL PLAN
FROM STA. 200+00 TO STA. 205+50

EP-05



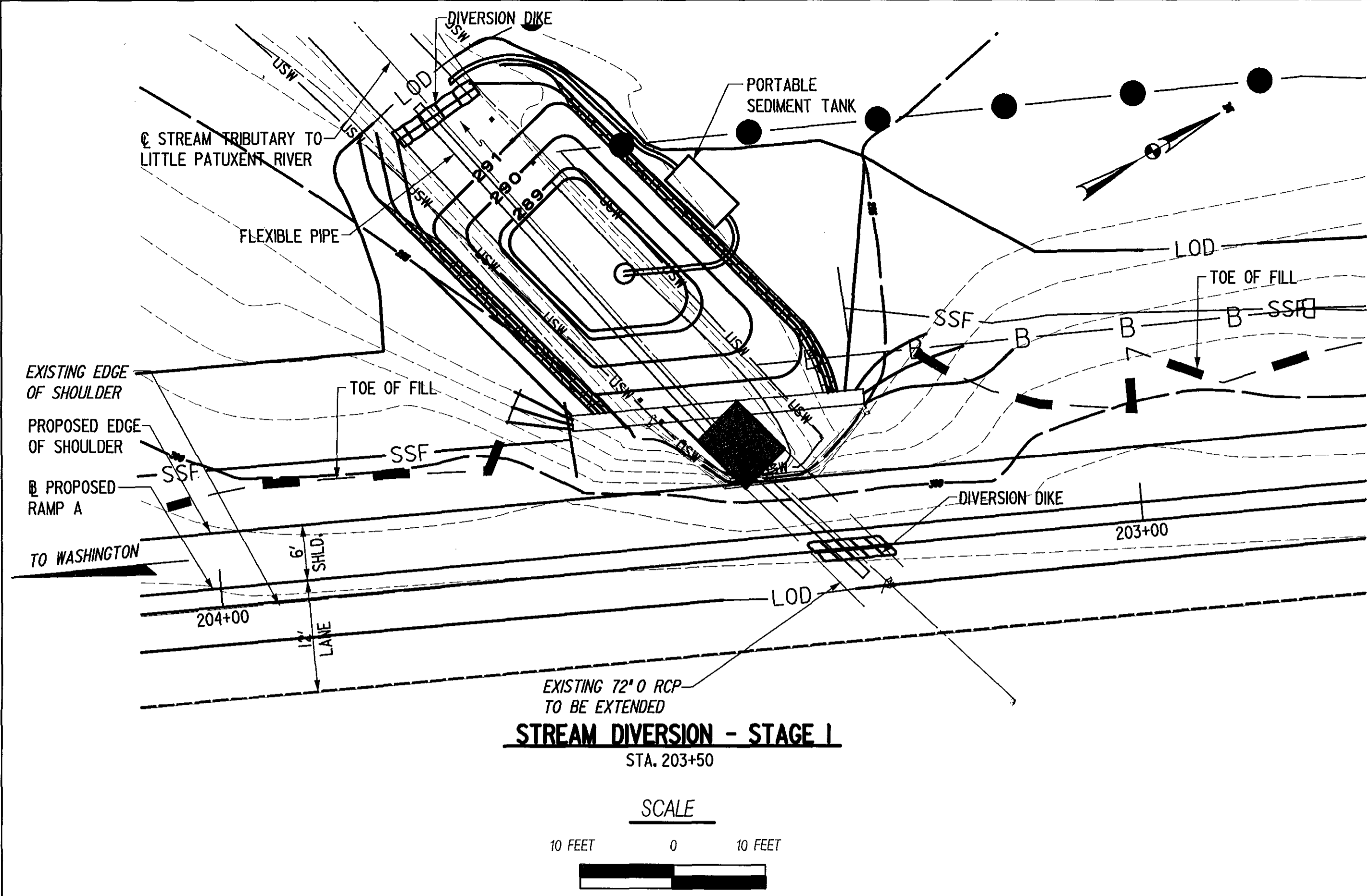
REVISIONS
 ADDENDUM NO. 1
 9/5/02

STATE OF MARYLAND
 DEPARTMENT OF TRANSPORTATION
 STATE HIGHWAY ADMINISTRATION
 HIGHWAY DESIGN DIVISION
 REPLACEMENT OF BOX CULVERT #1314300 ON MD 986K (SOUTH ENTRANCE)
 OVER LITTLE PATUXENT RIVER

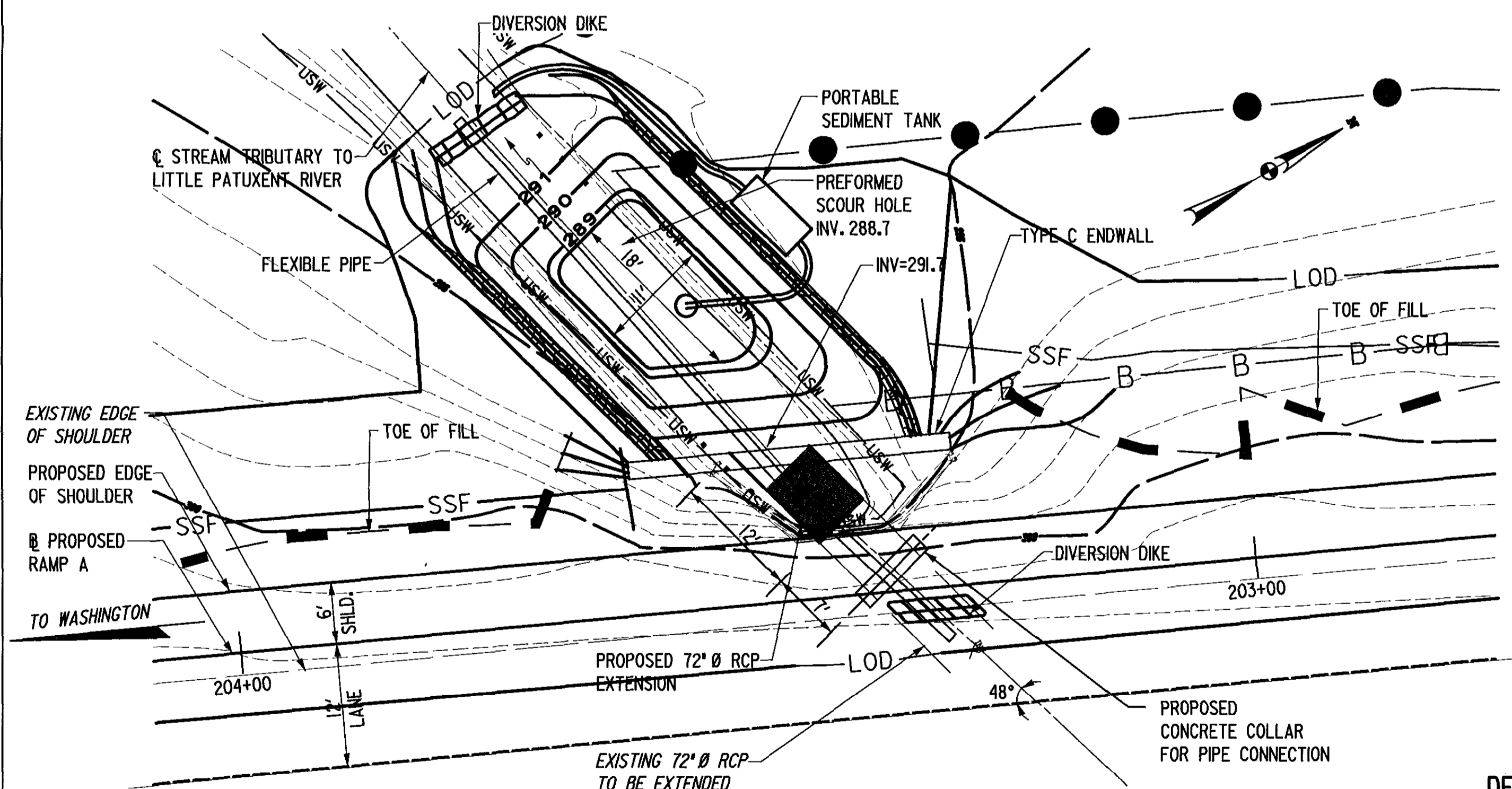
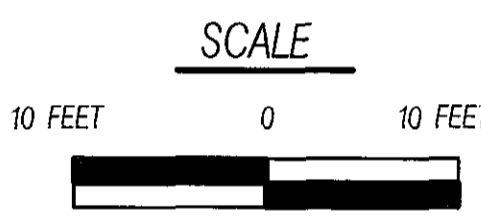
CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 18 OF 54
 PREL. TRAC. BY FINAL TRAC. BY

SCALE: 1" = 30'

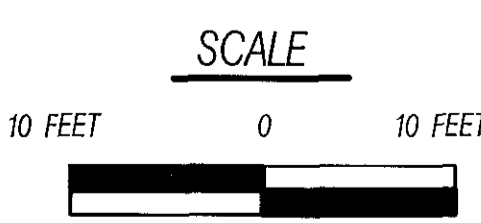
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STREAM DIVERSION - STAGE 1
STA. 203+50



STREAM DIVERSION - STAGE 2
STA. 203+50



SEQUENCE OF CONSTRUCTION

1. CONTRACTOR SHALL NOT INITIATE INSTALLATION OF THE 72" Ø RCP CULVERT EXTENSION IF THE DISCHARGE FROM THE PIPE IS GREATER THAN THE BASE FLOW.
2. INSTALL 24" FLEXIBLE TEMPORARY DIVERSION PIPE TO DIVERT BASE FLOW PAST THE PROPOSED 72" Ø RCP CULVERT EXTENSION WORK AREA. INSTALL DIVERSIONS AS SHOWN ON THE PLANS TO DIVERT BASE FLOW INTO TEMPORARY DIVERSION PIPE. EXTEND TEMPORARY DIVERSION PIPE PAST THE PROPOSED RIPRAP OUTFALL AND CHANNEL GRADING TO THE CENTER OF A STABLE PORTION OF THE EXISTING STREAM. ANCHOR TEMPORARY DIVERSION PIPE AT THE DOWNSTREAM END. INSTALL SUPER SILT FENCE AT THE TOE OF PROPOSED FILL.
3. CONTRACTOR SHALL PUMP ALL SEDIMENT-LADEN WATER IN THE WORK AREA INTO THE PORTABLE SEDIMENT TANKS PRIOR TO DISCHARGING RUNOFF INTO THE STREAM CHANNEL.
4. REMOVE EXISTING HEADWALL, WING WALLS AND THE LAST 4' +/- SECTION OF EXISTING 72" Ø PIPE.

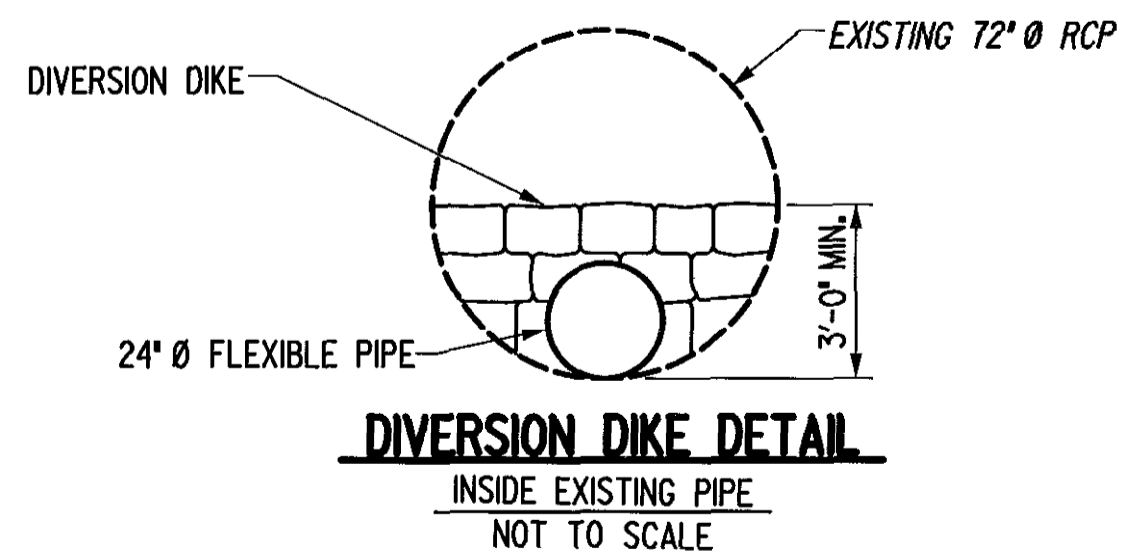
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN THE WETLANDS OR BUFFER.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS OR BUFFER.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS IN EXCESS OF NONTIDAL WETLANDS LOST UNDER THE ORIGINAL STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.) OATS (UNTOLOA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS. THE AREA SHALL BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS OF NONTIDAL WETLANDS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

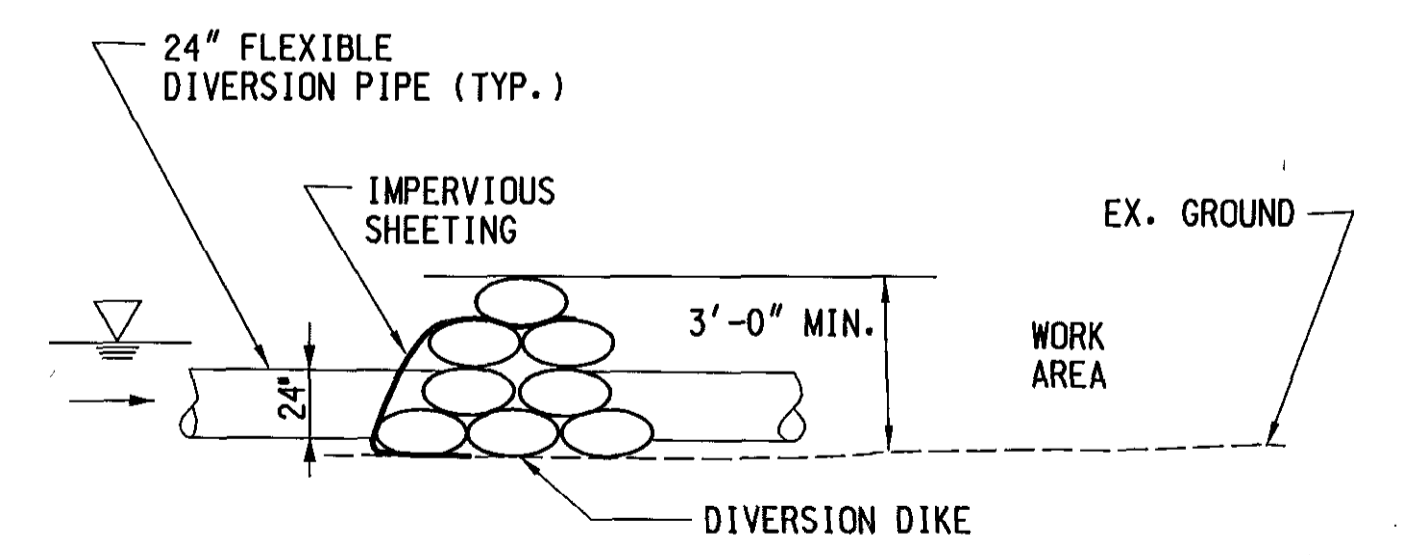
CLASS I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORM WATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

SEQUENCE OF CONSTRUCTION

1. CONSTRUCT PROPOSED 72" Ø RCP CULVERT EXTENSION, ENDWALL, RIPRAP OUTFALL, AND PREFORMED SCOUR HOLE GRADING. MOVE TEMPORARY DIVERSION PIPE AS NEEDED DURING CONSTRUCTION TO ALLOW PLACEMENT OF PIPE SEGMENTS AND RIPRAP OUTFALL.
2. BACKFILL OVER CULVERT EXTENSION AND FINISH GRADING. STABILIZE DISTURBED AREAS WITH SEED AND MULCH AND INSTALL PLANTINGS.
3. REMOVE TEMPORARY DIVERSION PIPE AND DIVERSION.
4. IF A LARGE STORM EVENT IS ANTICIPATED, THE DISTURBED AREA SHALL BE STABILIZED AND THE SANDBAGS AND TEMPORARY PIPE REMOVED TO ALLOW FULL USE OF THE 72" Ø RCP.



DIVERSION DIKE DETAIL
INSIDE EXISTING PIPE
NOT TO SCALE



TYPICAL DIVERSION DIKE
NOT TO SCALE

DESIGN CERTIFICATION

NOTE: THIS DESIGN CERTIFICATION FOR 72" Ø RCP CULVERT EXTENSION MAINTENANCE OF STREAM FLOW PLAN SHOWN ON THIS SHEET ONLY.
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR CURRENT REVISIONS THEREOF, AND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT REGULATIONS.

8/07/02
DATE

Paul F. Clement, P.E.
SIGNATURE

MD. REGISTRATION NO. 15466
(P.E.)

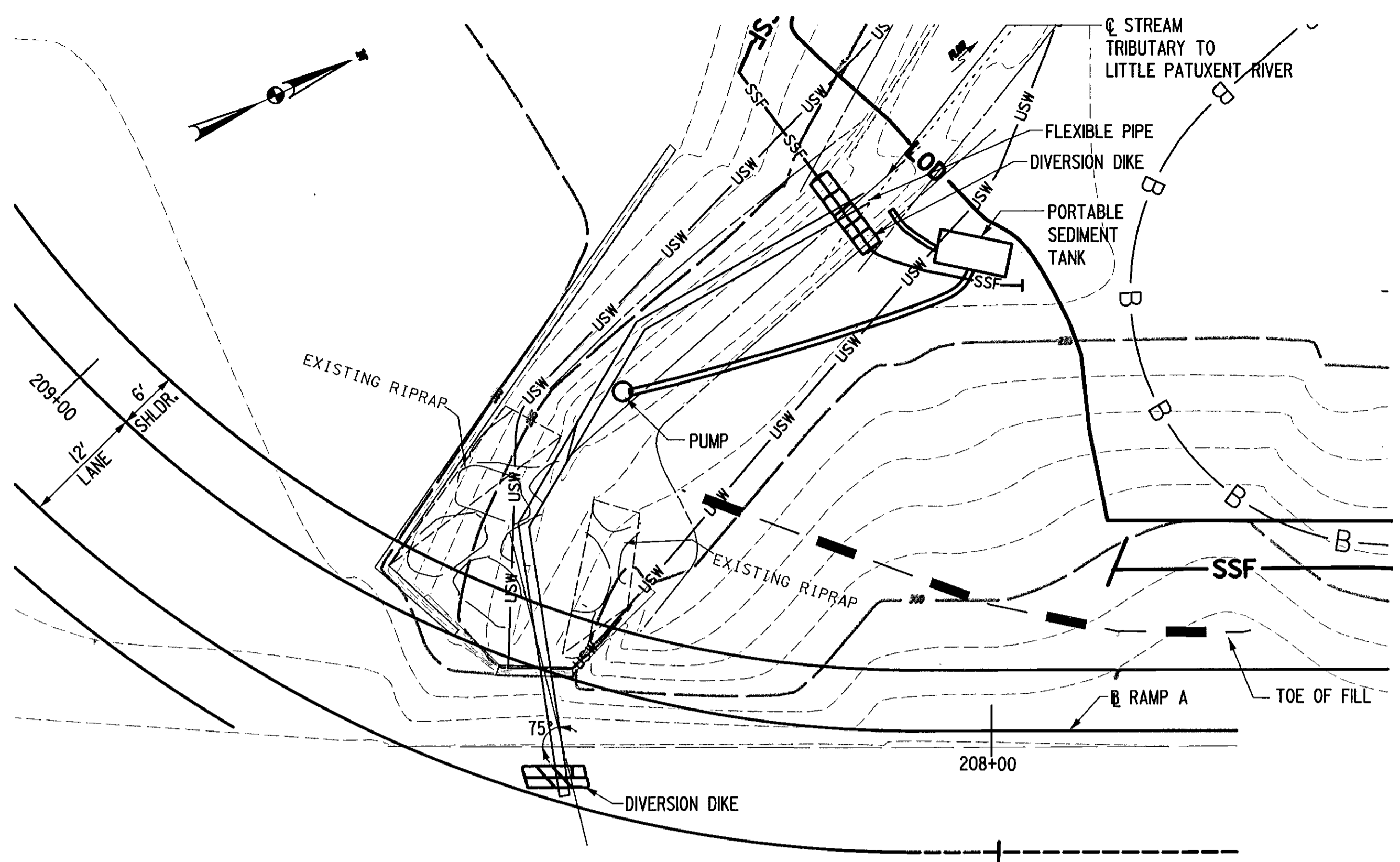
PAUL F. CLEMENT, P.E.
PRINTED NAME



REVISIONS

MAINTENANCE OF STREAM FLOW STA. 203+50		MOF-1
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION EXTENSION OF EXISTING 72" Ø RCP UNDER US 29 (STA. 203+50) MAINTENANCE OF STREAM FLOW		
CONT. NO. H08395175	F.A.P. NO. SEE TITLE SHEET	SHEET NO. 19 OF 54
PREL. TRAC. BY	FINAL TRAC. BY	

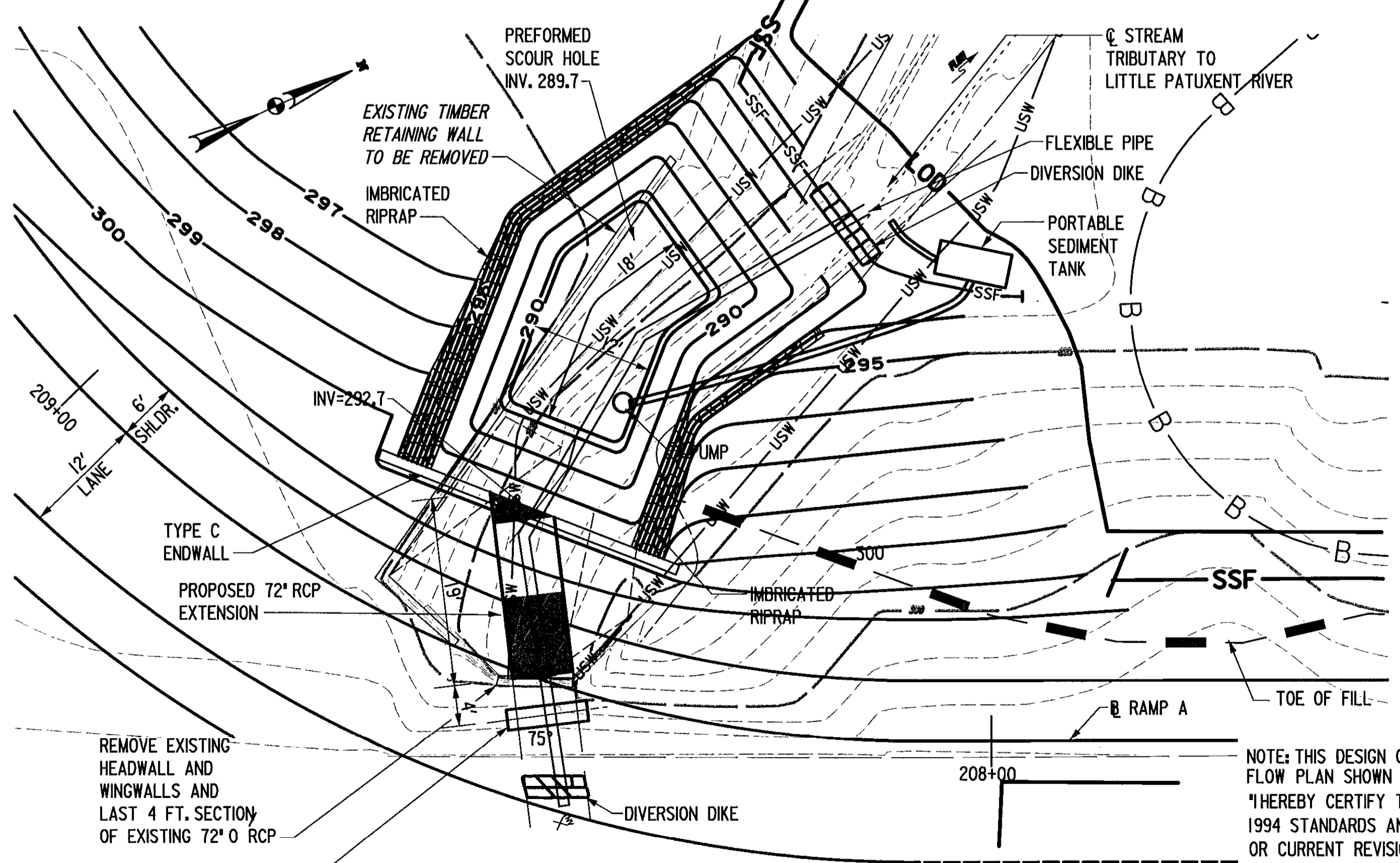
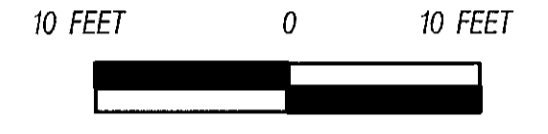
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STREAM DIVERSION - STAGE 1

STA. 208+45

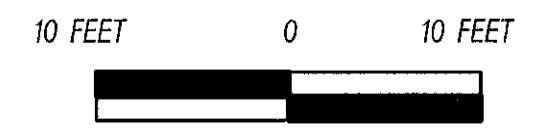
SCALE



STREAM DIVERSION - STAGE 2

STA. 208+45

SCALE



SEQUENCE OF CONSTRUCTION

1. CONTRACTOR SHALL NOT INITIATE INSTALLATION OF THE 72" Ø RCP CULVERT EXTENSION WHEN THERE IS SIGNIFICANT DISCHARGE FROM THE PIPE. CONTRACTOR SHALL FIRST DIVERT THE BASE FLOW.
2. INSTALL 24" FLEXIBLE TEMPORARY DIVERSION PIPE TO DIVERT BASE FLOW PAST THE PROPOSED 72" Ø RCP CULVERT EXTENSION WORK AREA. INSTALL DIVERSION AS SHOWN ON THE PLANS TO DIVERT BASE FLOW INTO TEMPORARY DIVERSION PIPE. EXTEND TEMPORARY DIVERSION PIPE PAST THE PROPOSED RIPRAP OUTFALL AND CHANNEL GRADING TO THE CENTER OF A STABLE PORTION OF THE EXISTING STREAM. ANCHOR TEMPORARY DIVERSION PIPE AT THE DOWNSTREAM END. INSTALL SUPER SILT FENCE AT THE TOE OF PROPOSED FILL.
3. CONTRACTOR SHALL PUMP ALL SEDIMENT-LADEN WATER IN THE WORK AREA INTO THE PORTABLE SEDIMENT TANKS PRIOR TO DISCHARGING RUNOFF INTO THE STREAM CHANNEL.
4. REMOVE EXISTING RIPRAP IN CHANNEL.
5. REMOVE EXISTING TIMBER RETAINING WALL, HEADWALL, WING WALLS AND THE LAST 4' FT. SECTION OF EXISTING 72" Ø PIPE.

SEQUENCE OF CONSTRUCTION

1. CONSTRUCT PROPOSED 72" Ø RCP CULVERT EXTENSION, ENDWALL, RIPRAP OUTFALL, AND GRADING. MOVE TEMPORARY DIVERSION PIPE AS NEEDED DURING CONSTRUCTION TO ALLOW PLACEMENT OF PIPE SEGMENTS AND RIPRAP OUTFALL.
2. BACKFILL OVER CULVERT EXTENSION AND FINISH GRADING. STABILIZE DISTURBED AREAS WITH SEED AND MULCH AND INSTALL PLANTINGS.
3. REMOVE TEMPORARY DIVERSION PIPE AND DIVERSION.
4. IF A LARGE STORM EVENT IS ANTICIPATED, THE DISTURBED AREA SHALL BE STABILIZED AND THE SANDBAGS AND TEMPORARY PIPE REMOVED TO ALLOW FULL USE OF THE 72" Ø RCP.

DESIGN CERTIFICATION

NOTE: THIS DESIGN CERTIFICATION FOR 72" Ø RCP CULVERT EXTENSION MAINTENANCE OF STREAM FLOW PLAN SHOWN ON THIS SHEET ONLY.

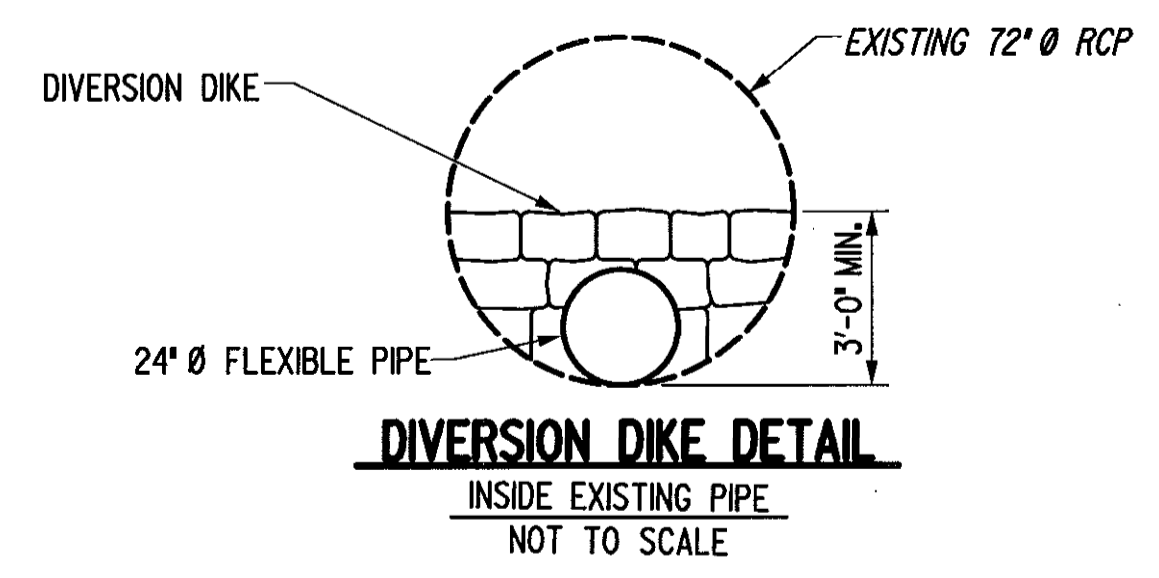
"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR CURRENT REVISIONS THEREOF, AND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT REGULATIONS."

8/07/02
DATE

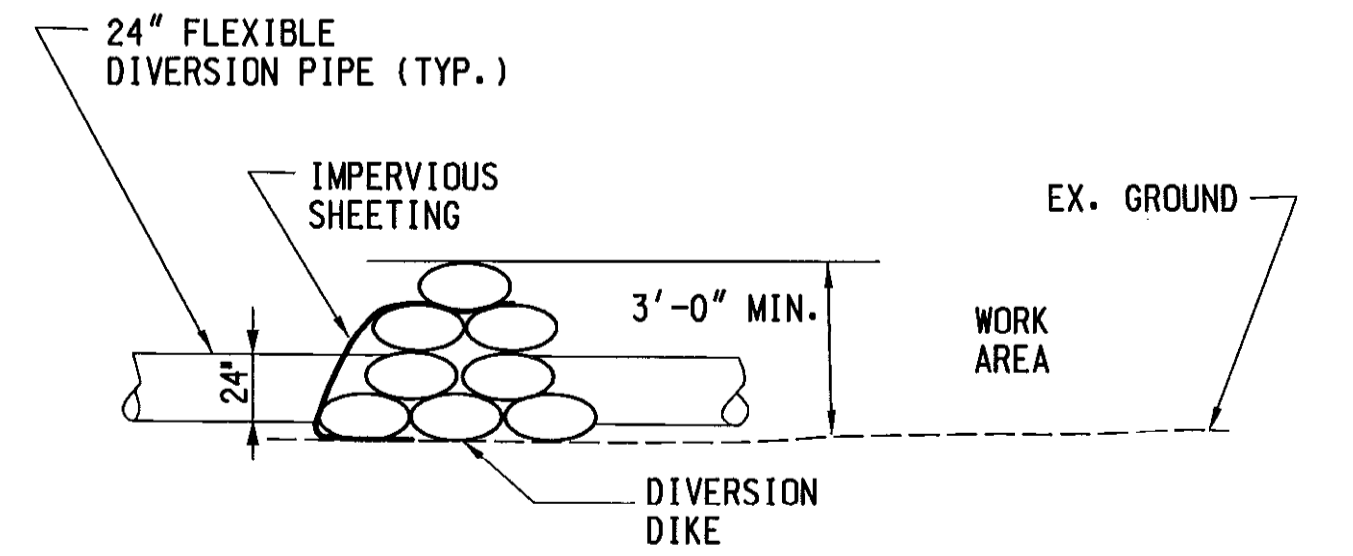
Paul F. Clement P.E.
SIGNATURE

MD. REGISTRATION NO. 15466
(P.E.)

PAUL F. CLEMENT, P.E.
PRINTED NAME



DIVERSION DIKE DETAIL
INSIDE EXISTING PIPE
NOT TO SCALE

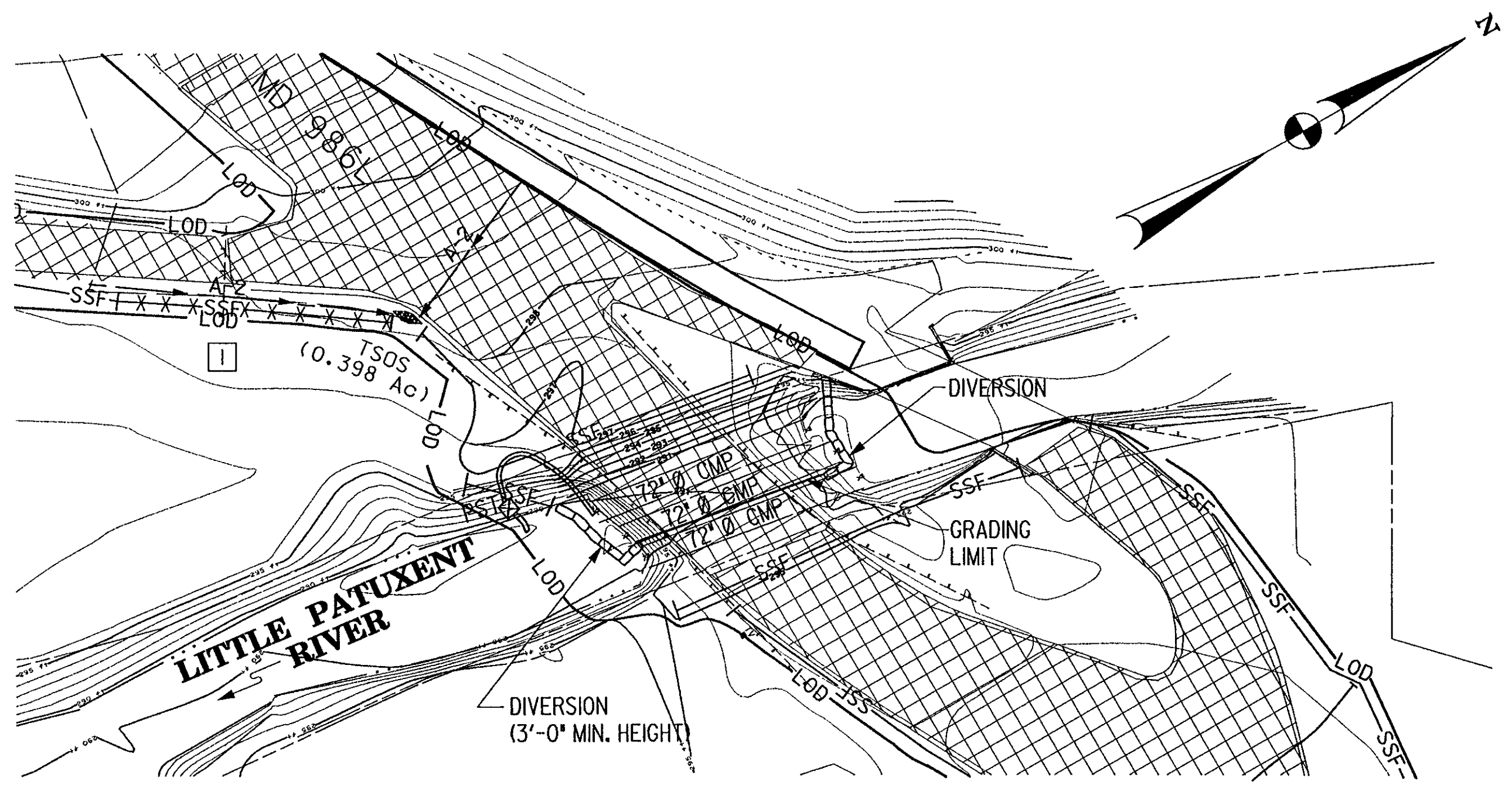


TYPICAL DIVERSION DIKE
NOT TO SCALE

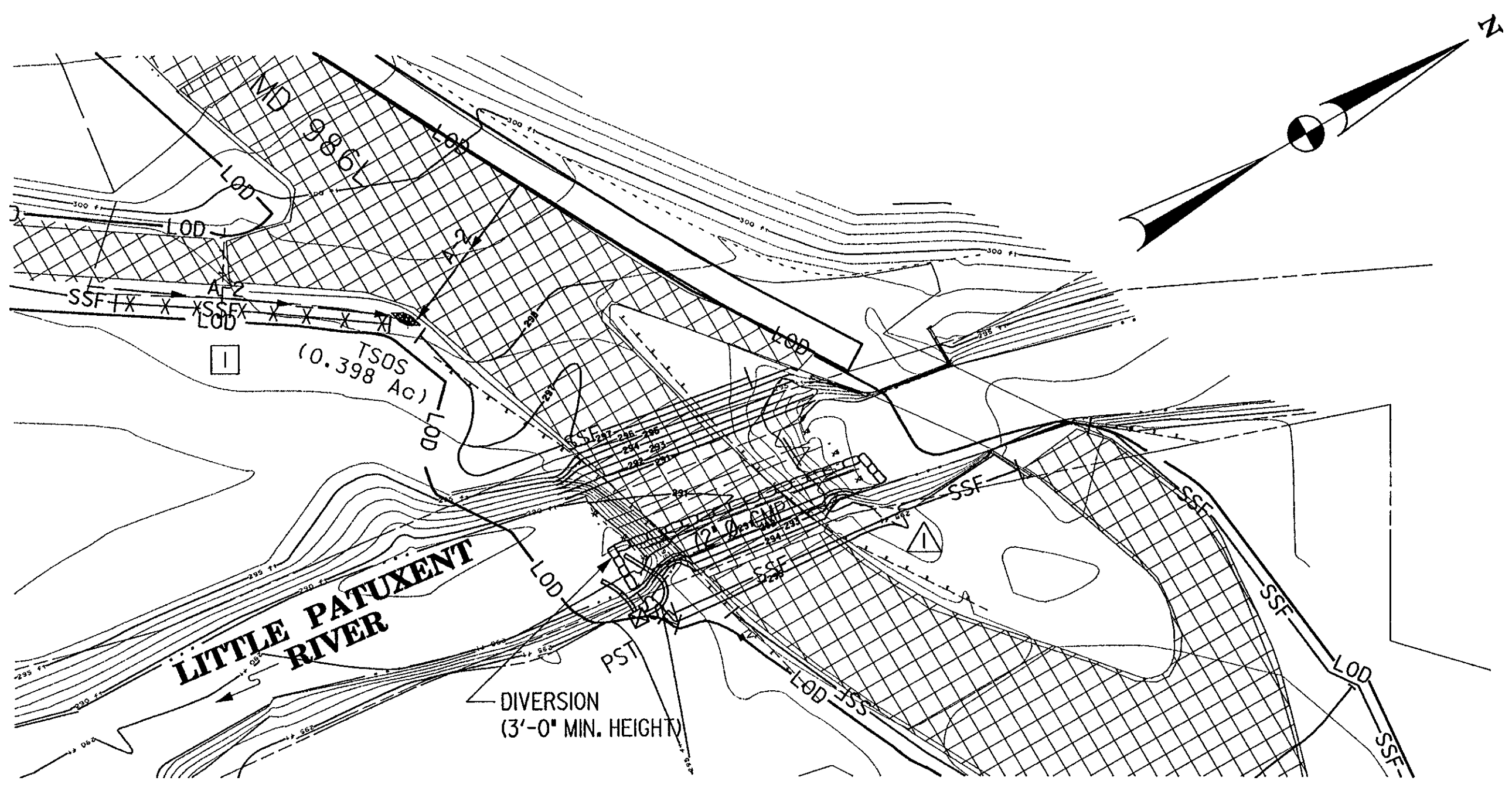
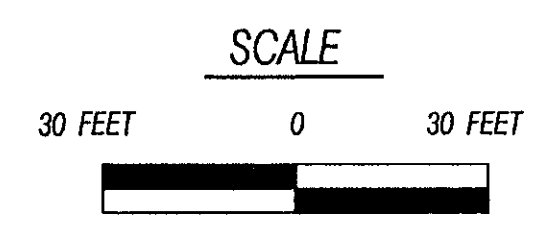
**MAINTENANCE OF STREAM FLOW
STA. 208+45**

MOF-2

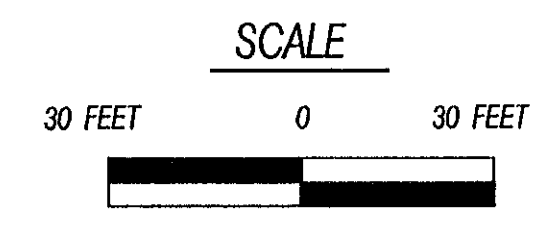
	REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION EXTENSION OF EXISTING 72" Ø RCP UNDER US 29 (STA. 208+45) MAINTENANCE OF STREAM FLOW
	CONT. NO. H08395175 PREL. TRAC. BY: _____ F.A.P. NO. SEE TITLE SHEET SHEET NO. 20 OF 54 FINAL TRAC. BY: _____	



MAINTENANCE OF STREAM FLOW - STAGE 1



MAINTENANCE OF STREAM FLOW - STAGE 2



- LEGEND**
- PAVEMENT REMOVAL
 - PORTABLE SEDIMENT TANK
 - SANDBAGS

**MAINTENANCE OF STREAM FLOW - STAGE 1
SEQUENCE OF CONSTRUCTION**

1. CONTRACTOR SHALL NOT INITIATE REMOVAL OF THE TRIPLE - 72" Ø CMP EXTENSION WHEN THERE IS SIGNIFICANT DISCHARGE FROM THE PIPES. CONTRACTOR SHALL FIRST DIVERT THE BASE FLOW.
2. INSTALL DIVERSION AS SHOWN ON THE PLANS TO DIVERT BASE FLOW TO ONE PIPE AS SHOWN. REMOVE THE TWO - 72" Ø CMP. GRADE THE WEST SIDE OF THE CHANNEL AS SHOWN.
3. CONTRACTOR SHALL PUMP ALL SEDIMENT-LADEN WATER IN THE WORK AREA INTO THE PORTABLE SEDIMENT TANKS PRIOR TO DISCHARGING RUNOFF INTO THE STREAM CHANNEL.
4. REMOVE EXISTING PAVEMENT, CONSTRUCT STABILIZED BANK, STABILIZE REMAINING DISTURBED AREAS WITH SEED AND MULCH, INSTALL PLANTINGS AND REMOVE DIVERSION ON EAST SIDE OF CHANNEL.

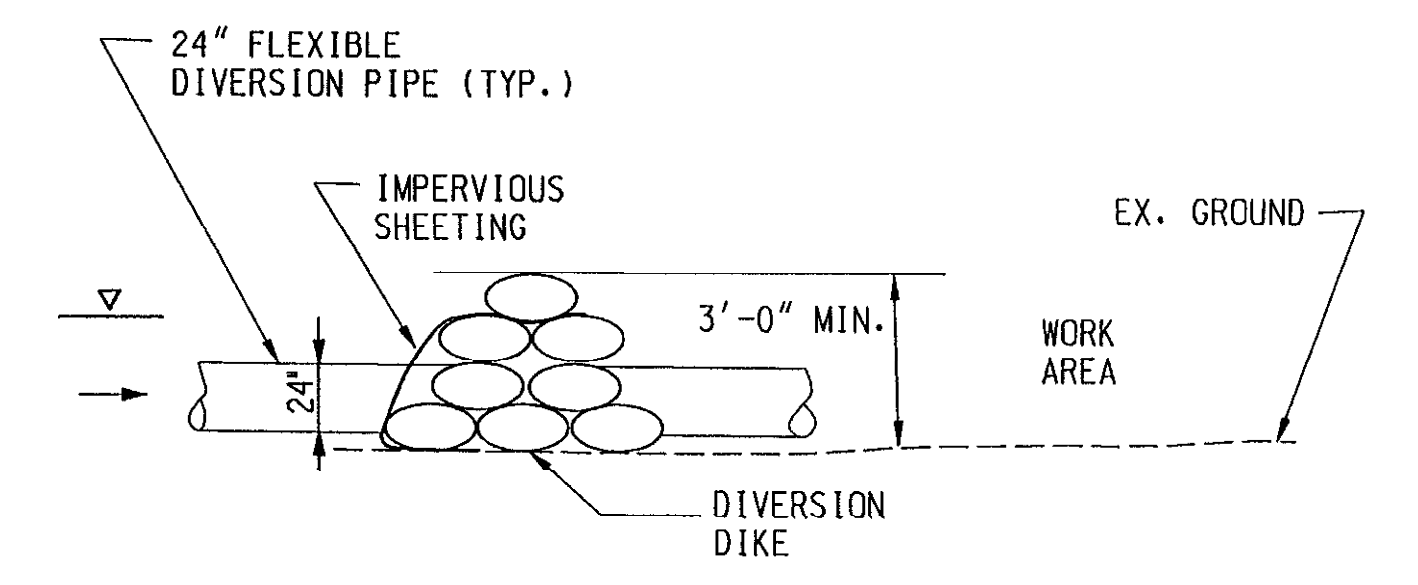
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN THE WETLANDS OR BUFFER.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS OR BUFFER.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS IN EXCESS OF NONTIDAL WETLANDS LOST UNDER THE ORIGINAL STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.) OATS (UNIOLEA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS. THE AREA SHALL BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER REMOVAL HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS OF NONTIDAL WETLANDS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

CLASS 1 WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORM WATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.

**MAINTENANCE OF STREAM FLOW - STAGE 2
SEQUENCE OF CONSTRUCTION**

1. INSTALL DIVERSION AS SHOWN AND DIVERT FLOW TO GRADED CHANNEL. REMOVE THE REMAINING 72" Ø CMP.
2. GRADE EAST SIDE OF THE CHANNEL AS SHOWN.
3. CONTRACTOR SHALL PUMP ALL SEDIMENT-LADEN WATER IN THE WORK AREA INTO THE PORTABLE SEDIMENT TANKS PRIOR TO DISCHARGING RUNOFF INTO THE STREAM CHANNEL.
4. REMOVE EXISTING PAVEMENT, CONSTRUCT STABILIZED BANK, STABILIZE REMAINING DISTURBED AREAS WITH SEED AND MULCH, INSTALL PLANTINGS AND REMOVE DIVERSION ON EAST SIDE OF CHANNEL.



**TYPICAL DIVERSION DIKE
NOT TO SCALE**

DESIGN CERTIFICATION

NOTE: THIS DESIGN CERTIFICATION FOR THE REMOVAL OF THE TRIPLE 72" Ø CMP MAINTENANCE OF STREAM FLOW PLAN SHOWN ON THIS SHEET ONLY.

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR CURRENT REVISIONS THEREOF, AND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT REGULATIONS."

8/07/02
DATE

Paul F. Clement
SIGNATURE

MD. REGISTRATION NO. 15466
(P.E.)

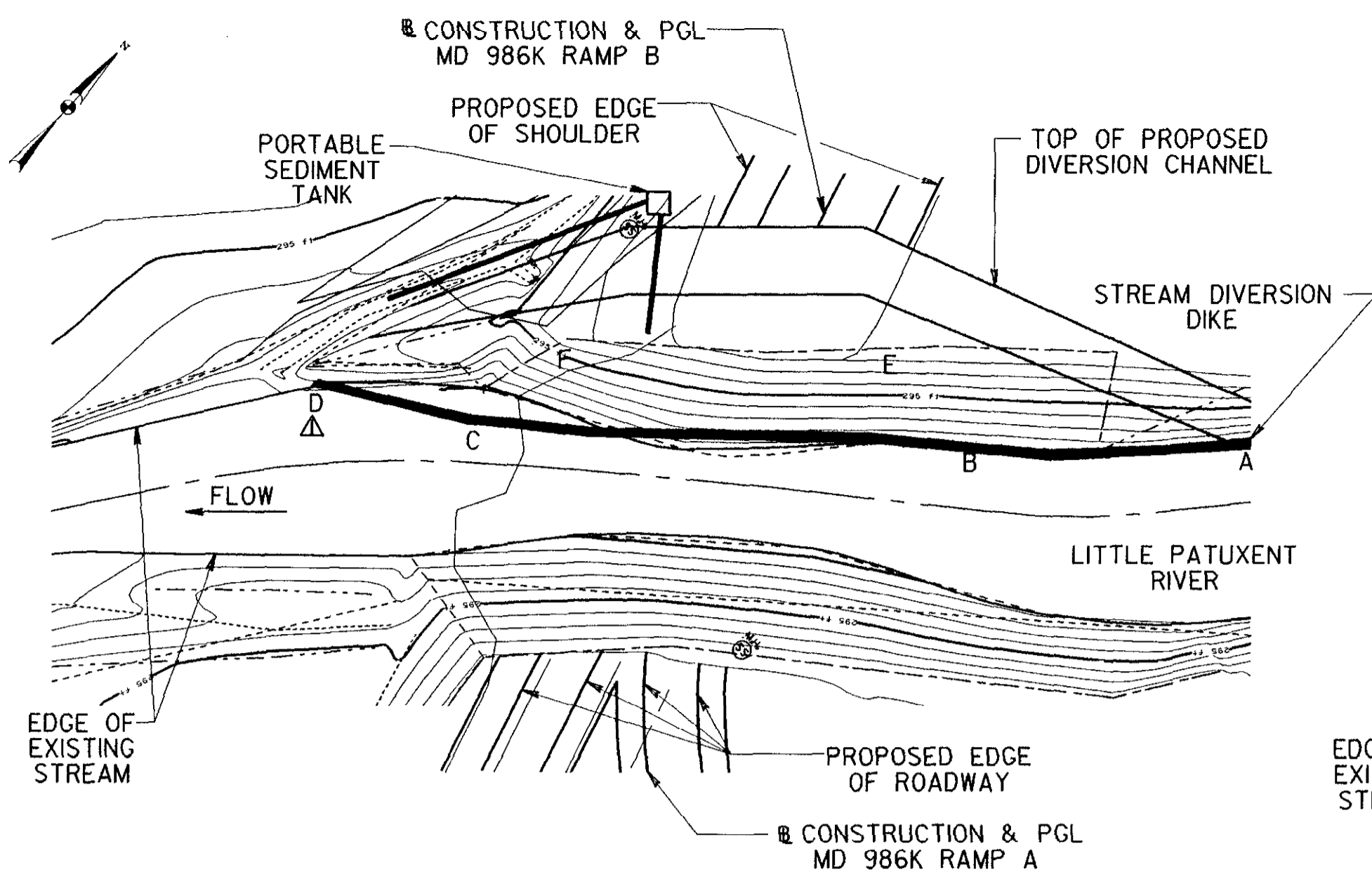
PAUL F. CLEMENT, P.E.
PRINTED NAME



REVISIONS	
	ADDENDUM NO. 1 REDLINE NO. 1 11/20/02

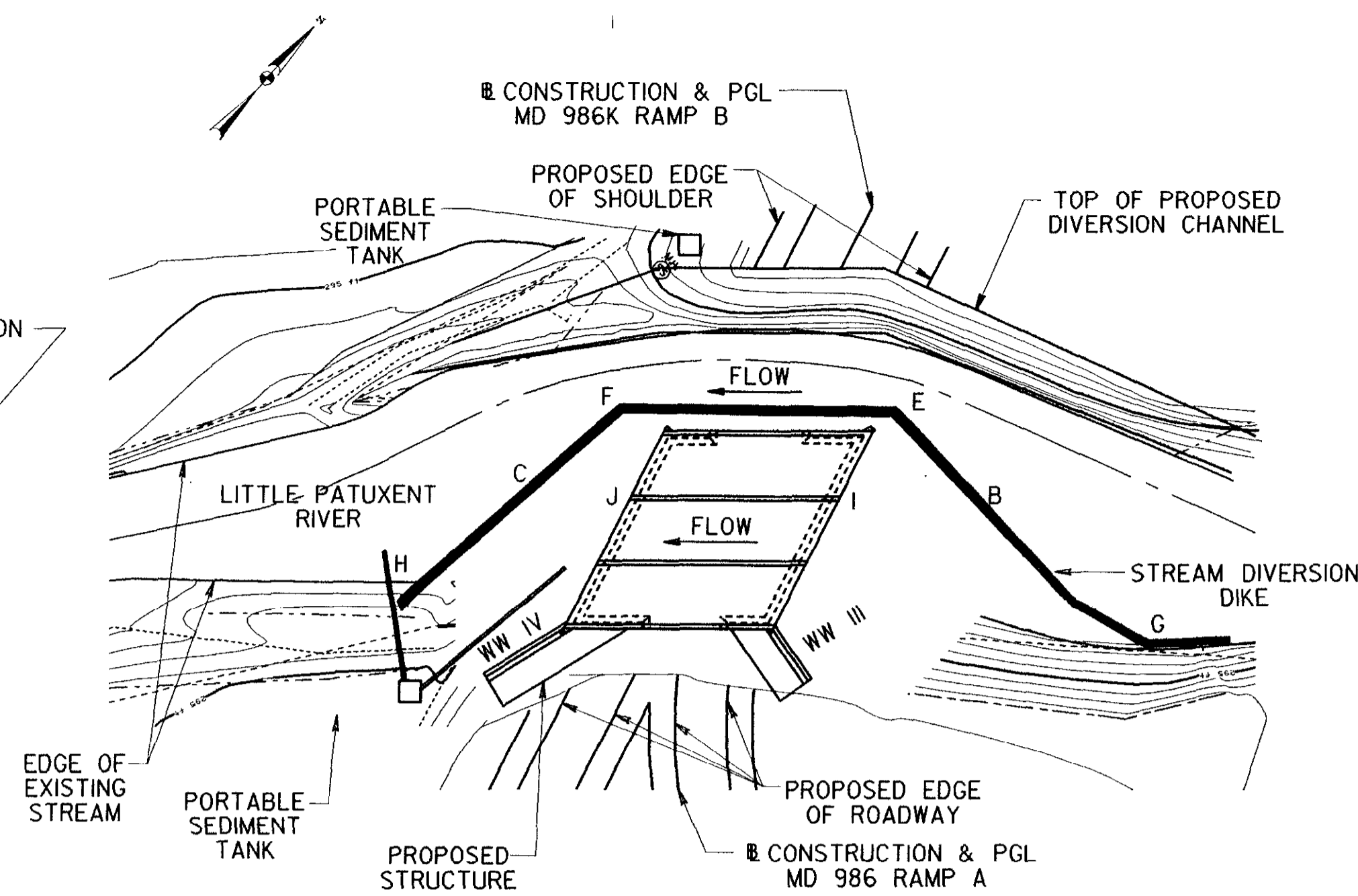
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION REMOVAL OF EXISTING TRIPLE 72" Ø CMP AT LITTLE PATUXENT RIVER MAINTENANCE OF STREAM FLOW	
CONT. NO. H08395175	F.A.P. NO. SEE TITLE SHEET
PREL. TRAC. BY	SHEET NO. 21 OF 54 FINAL TRAC. BY

MOF-3



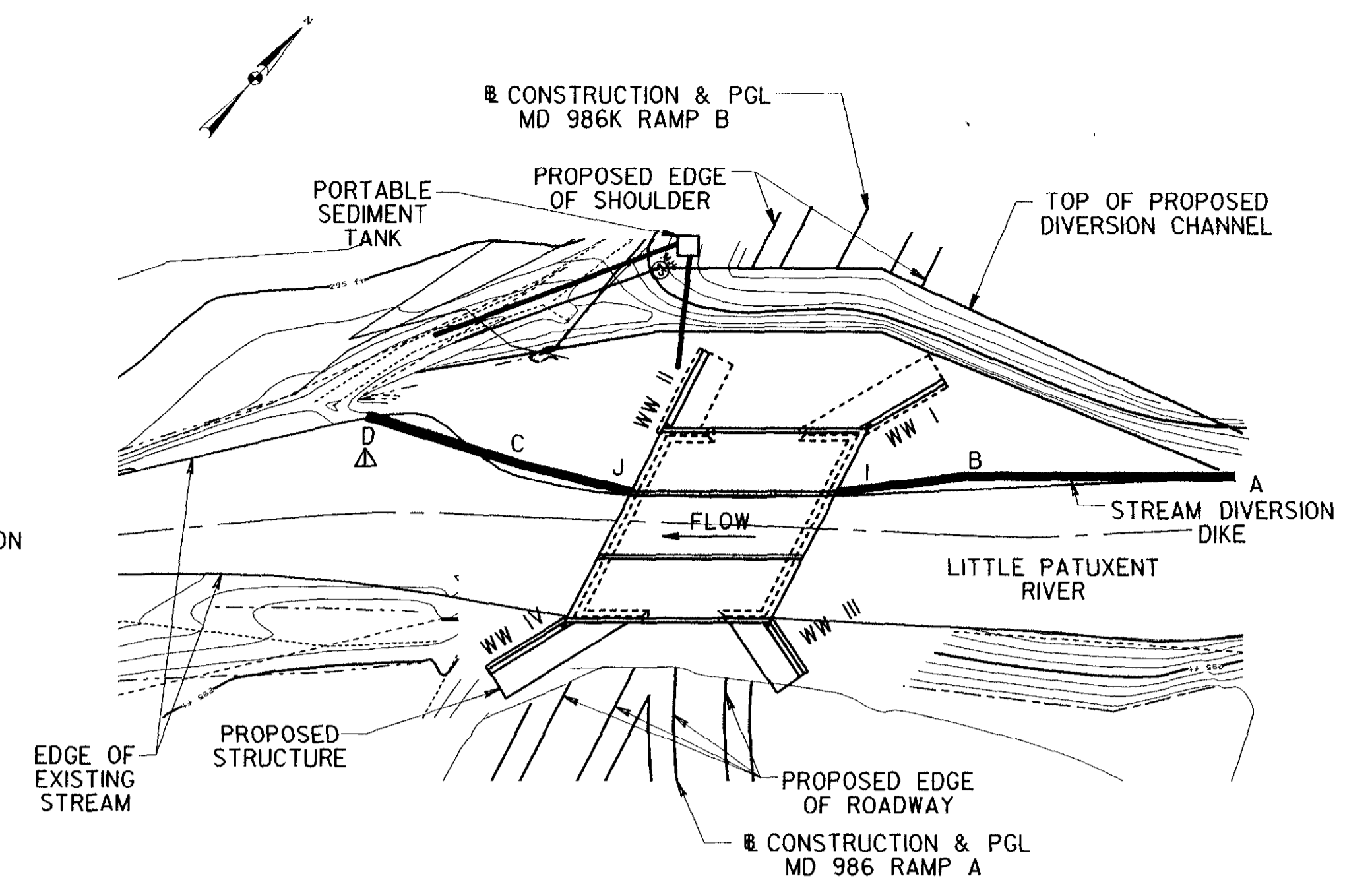
STREAM DIVERSION - STAGE IA (PHASE I)

SCALE: 1" = 30'-0"



STREAM DIVERSION - STAGE I (PHASE I)

SCALE: 1" = 30'-0"



STREAM DIVERSION - STAGE II (PHASE I)

SCALE: 1" = 30'-0"

STAGE IA - SEQUENCE OF CONSTRUCTION

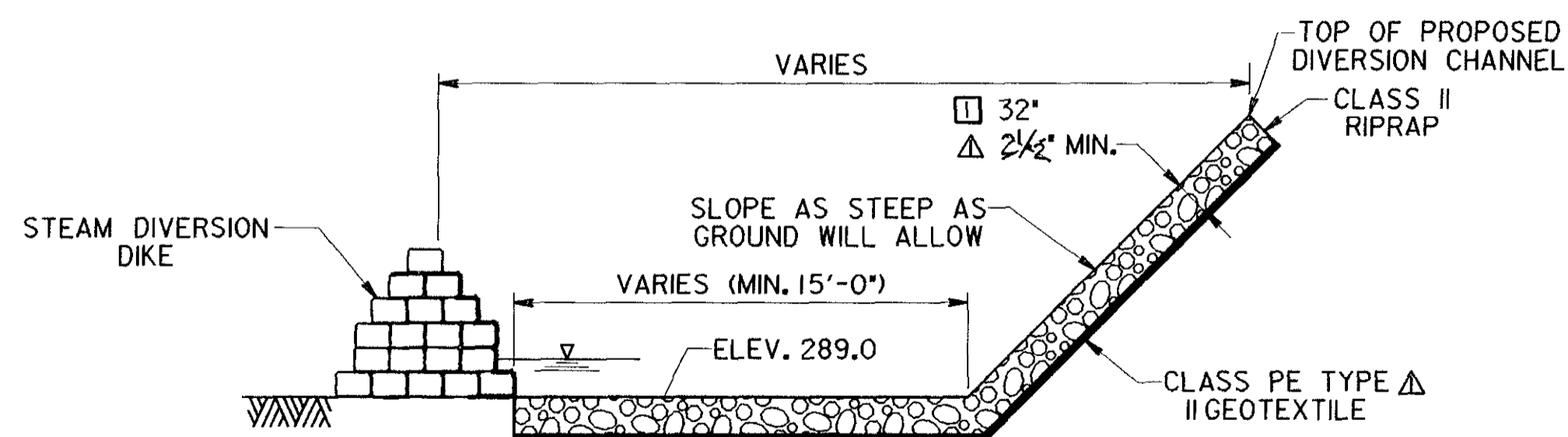
1. INSTALL STREAM DIVERSION FOR THIS STAGE, STARTING AT POINT A AND WORKING TOWARDS POINT D.
2. INSTALL AND MAINTAIN SEDIMENT AND EROSION CONTROL MEASURES NECESSARY DURING CONSTRUCTION OF THIS PHASE, AS SHOWN IN THE EROSION AND SEDIMENT CONTROL PLAN.
3. EXCAVATE DIVERSION CHANNEL.
4. INSTALL SECTIONS B-E, E-F, AND F-C OF THE STREAM DIVERSION DIKE.
5. REMOVE STREAM DIVERSION DIKE FROM D TO A.

STAGE I - SEQUENCE OF CONSTRUCTION

1. INSTALL STREAM DIVERSION SECTION FROM G TO B FOR THIS STAGE TO DIVERT THE STREAM INTO THE DIVERSION CHANNEL, AND THEN CONSTRUCT SECTION FROM C TO H OF THE STREAM DIVERSION, DEWATER THE CONSTRUCTION AREA BEHIND THE STREAM DIVERSION DIKE.
2. INSTALL AND MAINTAIN SEDIMENT AND EROSION CONTROL MEASURES NECESSARY DURING CONSTRUCTION OF THIS STAGE, AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN.
3. CONSTRUCT BOTTOM SLAB, WALLS, AND TOP SLAB FOR PROPOSED CULVERT SHOWN AND WING WALLS III AND IV.
4. INSTALL SECTIONS C-J AND I-B OF THE STREAM DIVERSION AND PLACE RIPRAP IN THE AREAS SOUTH OF H-C-J AND I-B-G AS SHOWN ON THE GENERAL PLAN AND ELEVATION SHEET.
5. REMOVE SECTION H-C OF THE STREAM DIVERSION AND THEN SECTION B-G TO ALLOW THE STREAM TO FLOW THROUGH THE COMPLETED PORTION OF THE CULVERT.

STAGE II - SEQUENCE OF CONSTRUCTION

1. RE-INSTALL STREAM DIVERSION SECTION FROM A TO B AND THEN SECTION FROM C TO D FOR THIS STAGE. DEWATER AREA BEHIND STREAM DIVERSION AND REMOVE SECTIONS C-F, F-E, AND E-B.
2. INSTALL AND MAINTAIN SEDIMENT AND EROSION CONTROL MEASURES NECESSARY DURING CONSTRUCTION OF THIS STAGE, AS SHOWN IN THE EROSION AND SEDIMENT CONTROL PLAN.
3. CONSTRUCT WING WALLS I AND II. REGRADE AND PLACE RIPRAP IN AREAS NORTH OF D-C-J AND I-B-A AND COMPLETE ROADWAY OVER BOX CULVERT.
4. REMOVE STREAM DIVERSION STARTING DOWNSTREAM AND WORKING TOWARDS UPSTREAM. PLACE RIPRAP IN AREA UNDER STREAM DIVERSION.
5. REMOVE SEDIMENT AND EROSION CONTROL MEASURES.

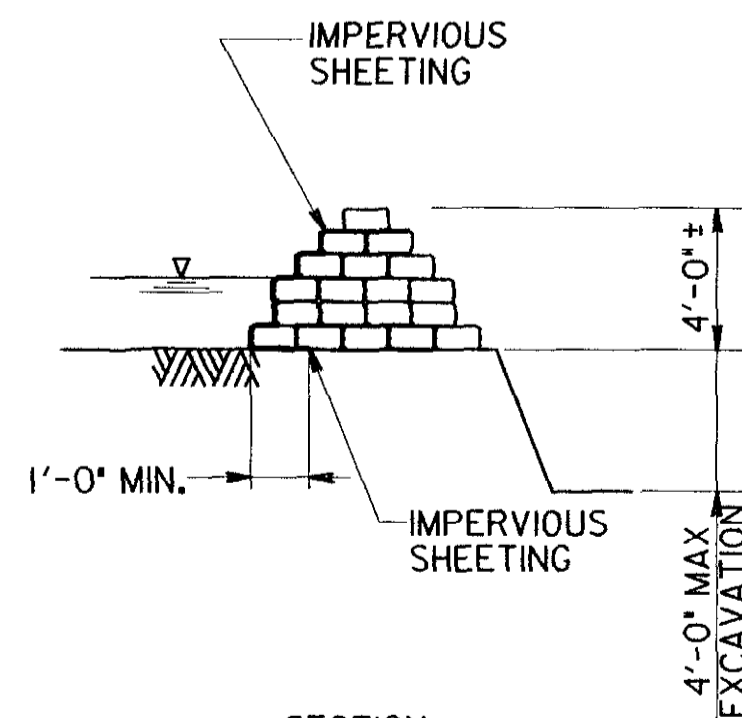


NOTES: EXISTING EMBANKMENT RIPRAP CAN BE USED IN LIEU OF CLASS II.

CLASS II RIPRAP FOR THE STREAM DIVERSION TO BE INCLUDED IN THE MAINTENANCE OF STREAM FLOW LUMP SUM ITEM.

STREAM DIVERSION CHANNEL TYPICAL SECTION

SCALE: 1/4" = 1'-0"



SECTION SANDBAG / DIKE DIVERSION

SCALE: NONE

NOTES:
ALL STAGES OF CONSTRUCTION FOR THIS BOX CULVERT ARE PERFORMED DURING PHASE I OF THE MAINTENANCE OF TRAFFIC AND HIGHWAY CONSTRUCTION.

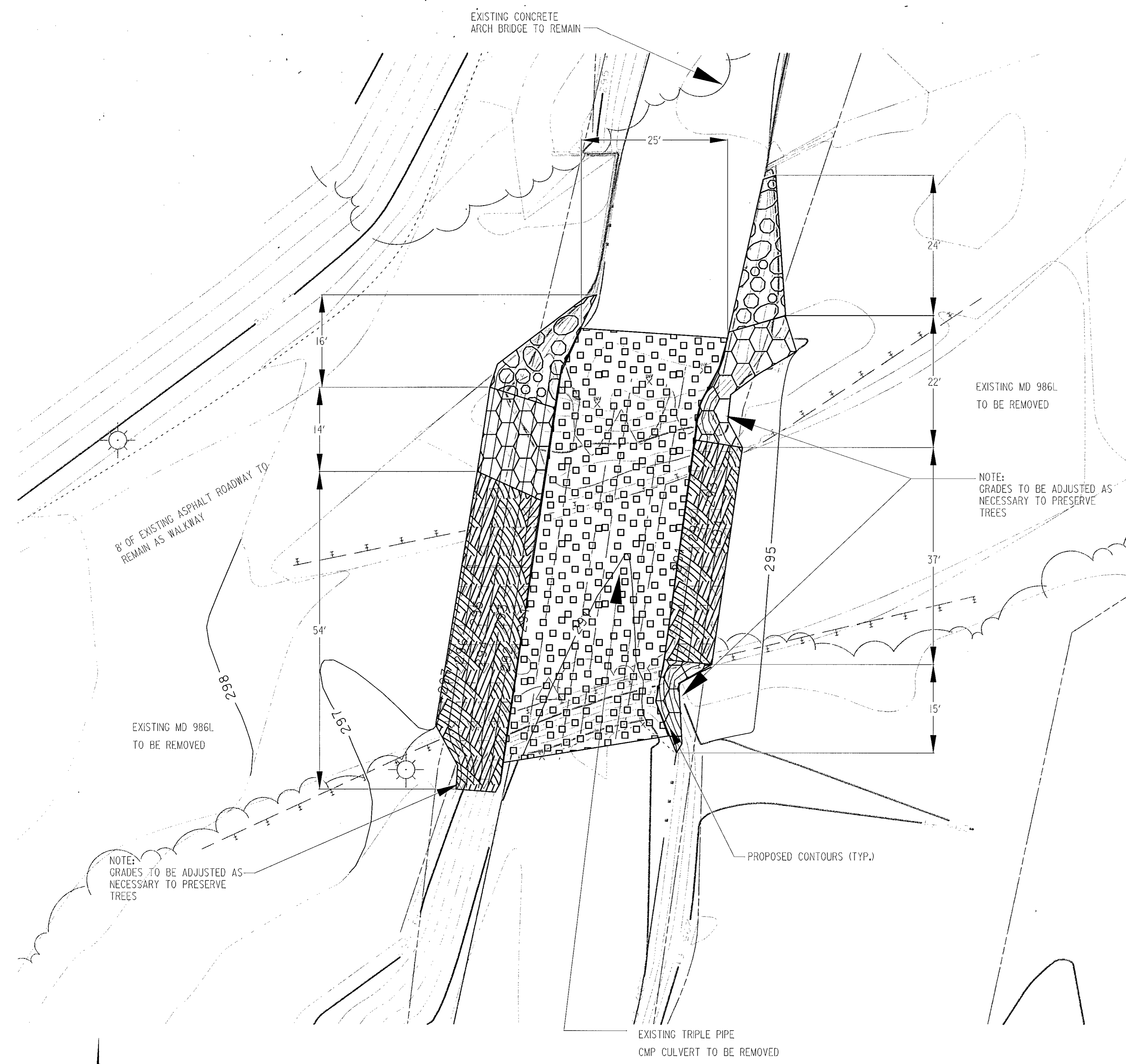
NO IN-STREAM WORK IS PERMITTED FROM MARCH 1 THROUGH JUNE 15 EACH YEAR, INCLUSIVE

TENTATIVE
BUREAU OF BRIDGE DESIGN
07-AUG-2002

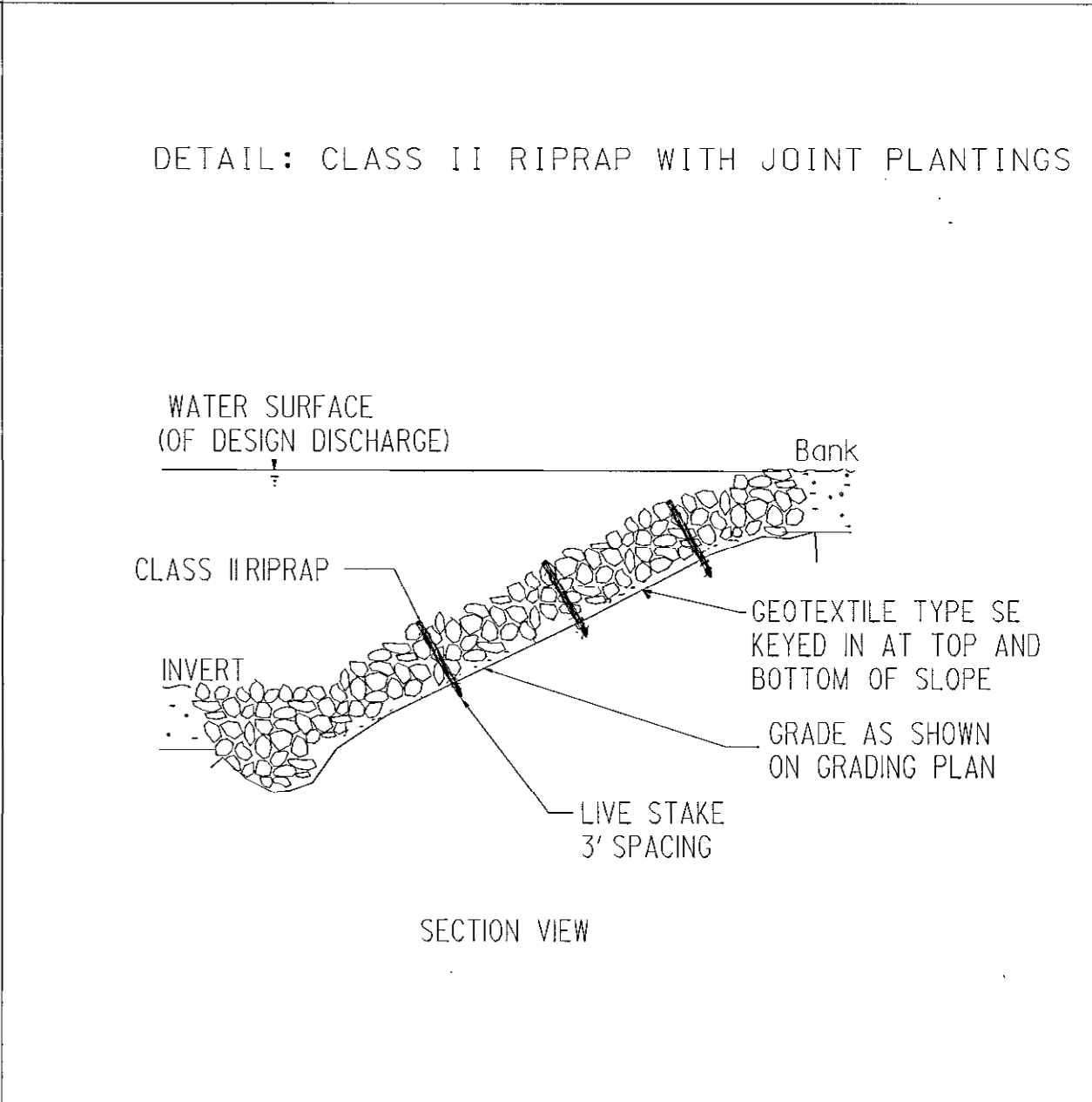
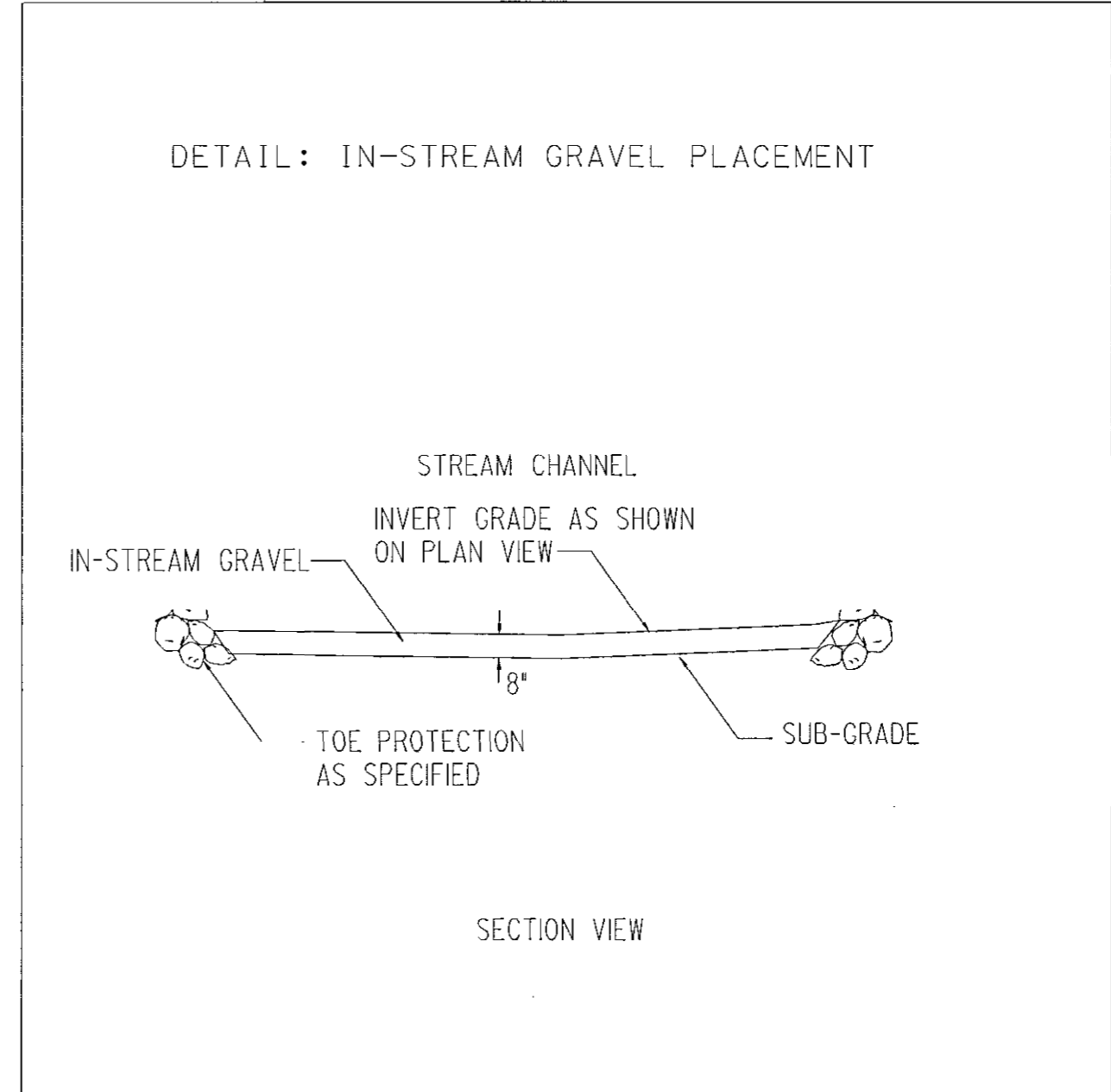
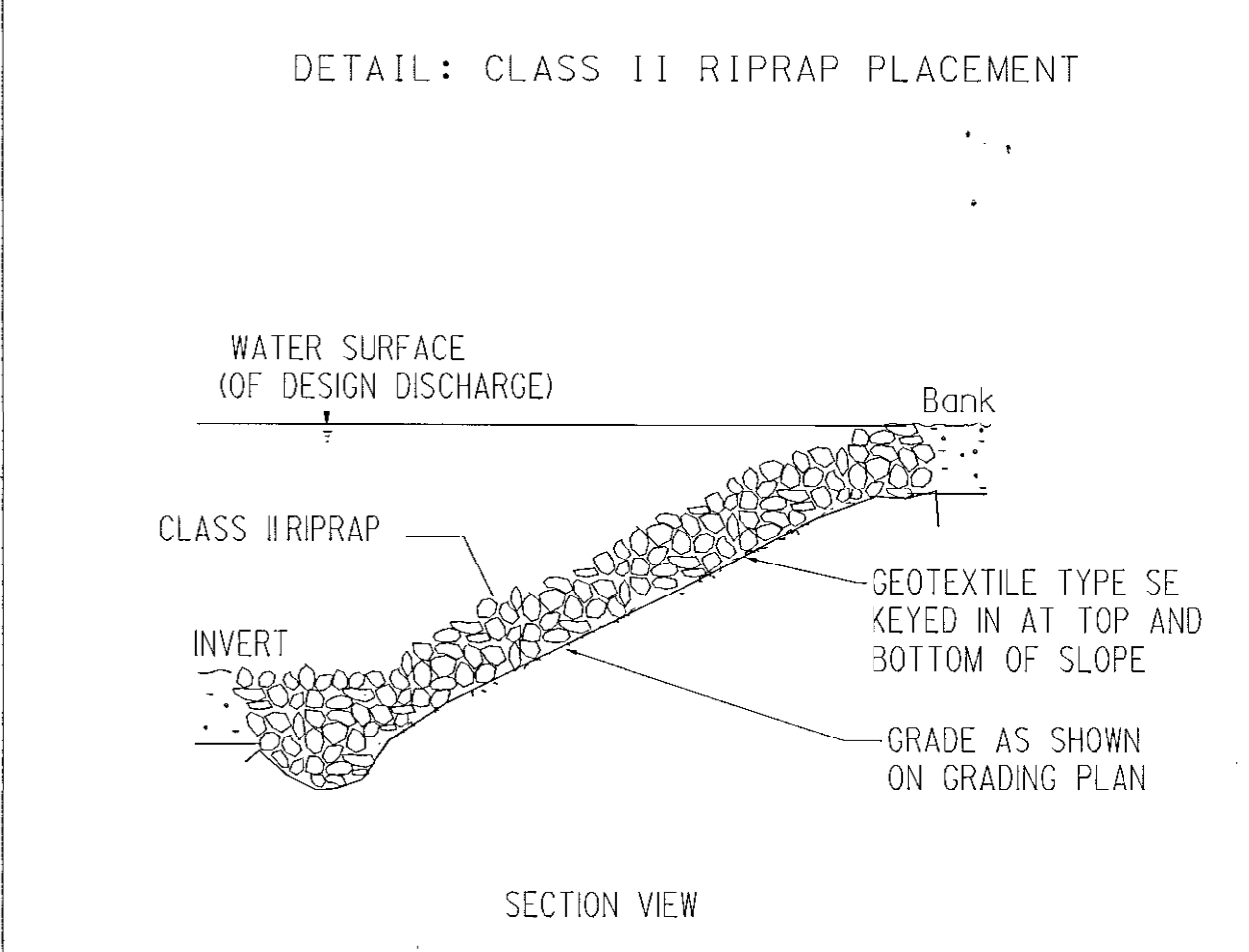
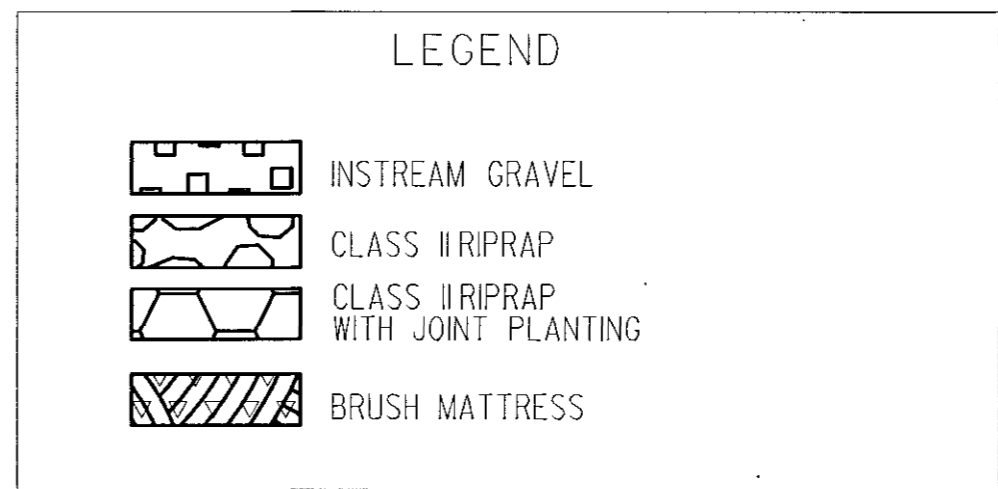
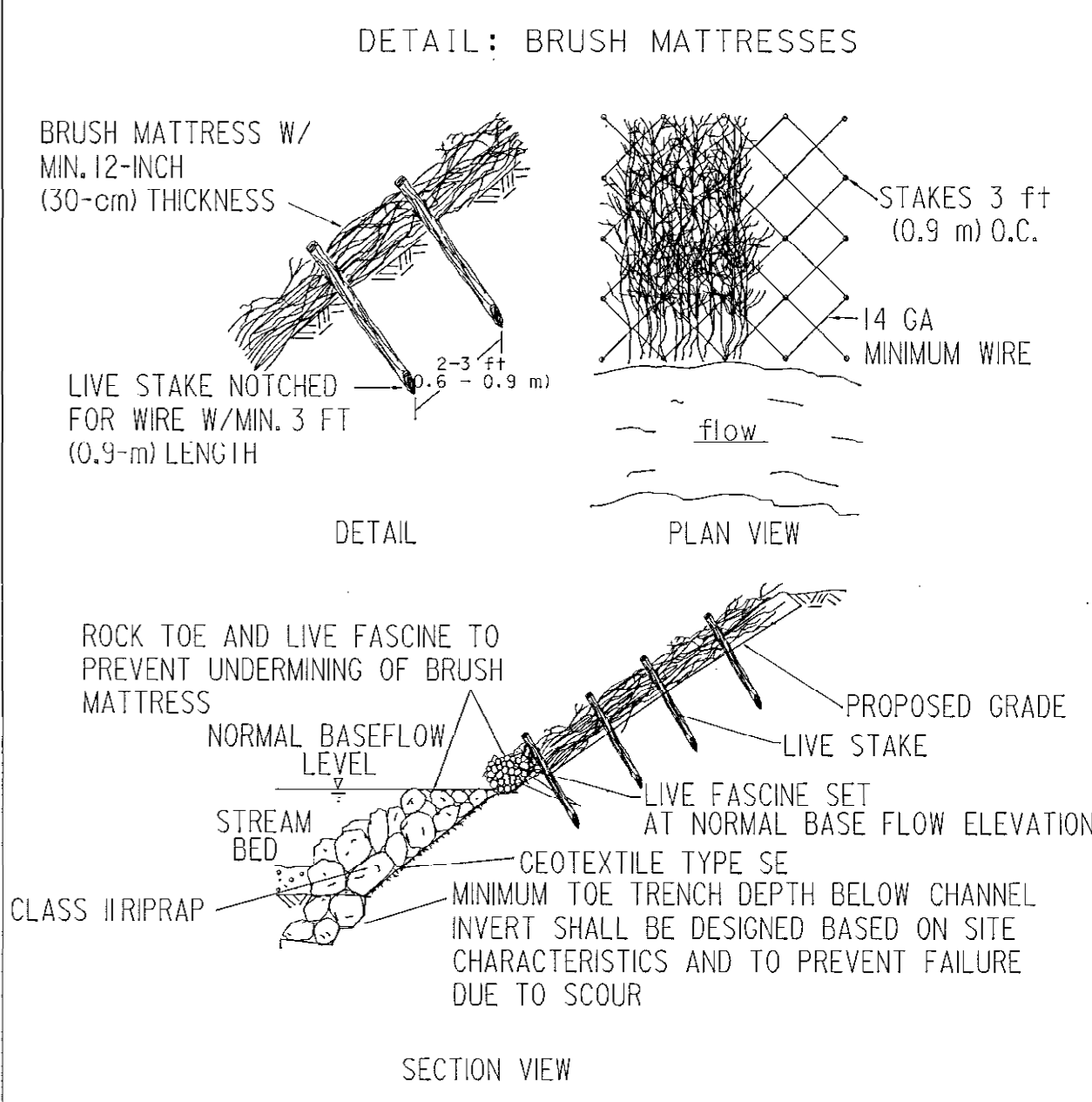
NOT FOR PUBLIC INFORMATION

Chapter 59 of the Acts of 1956, Annotated Code of Maryland provides that this plan may be used for official purposes only

REVISIONS		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER STREAM DIVERSION PLAN	
Δ	ADDENDUM I ADDED GEOTEXTILE, REPOSITIONED POINT D OF DIVERSION DIKE. JDP, 9/5/02	SCALE	AS SHOWN
□	REDLINE NO. 1 CORRECTED RIP RAP DEPTH & CROSSED OUT TENTATIVE NOTE JDP, 11/20/02	DATE	CONTRACT H08395175
		DESIGNED BY	J.D.P.
		DRAWN BY	J.D.P.
		CHECKED BY	E.S.F. AUG 13 2002
		SHEET NO. 22 OF 54	



MATERIALS:
 RIPRAP CLASS II - 135 SY
 IN-STREAM GRAVEL - 39 CY
 FURNISHED TOPSOIL - 72 SY
 LIVE STAKES - 505 EA
 BRUSH MATTRESS - 99 SY
 LIVE FASHINE - 112 LF
 14 GA. WIRE - 470 LF



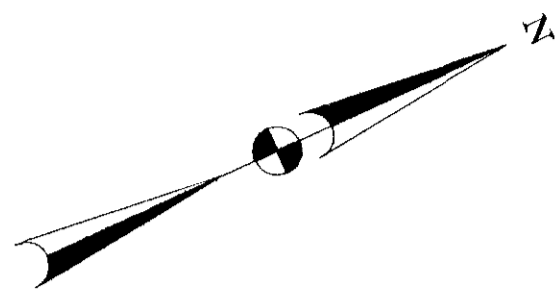
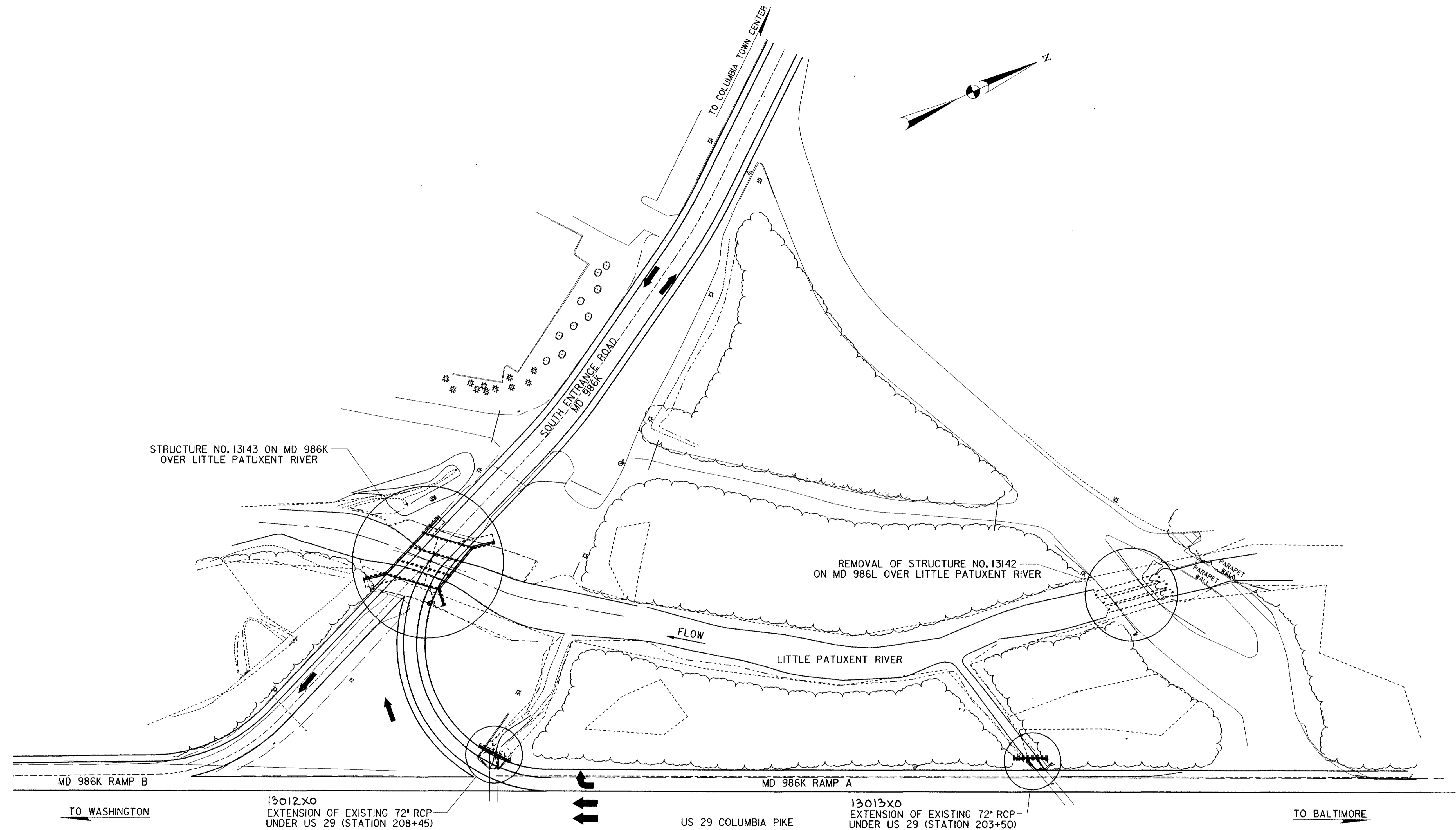
SCALE 1" = 10'



REVISIONS

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER 986L STREAM STABILIZATION PLAN		
CONT. NO. H08395175	F.A.P. NO. SEE TITLE SHEET	SHEET NO. 23 OF 54
PREL. TRAC. BY	FINAL TRAC. BY	

FILENAME: m:\MD_986L\MISC\CEM\detail\sheet.dgn
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PLAN
SCALE 1" = 50'

~~TENTATIVE~~
BUREAU OF BRIDGE DESIGN
07-AUG-2002
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Chapter 59 of the Acts of 1956, Annotated Code of Maryland provides that this print may be used for official purposes only

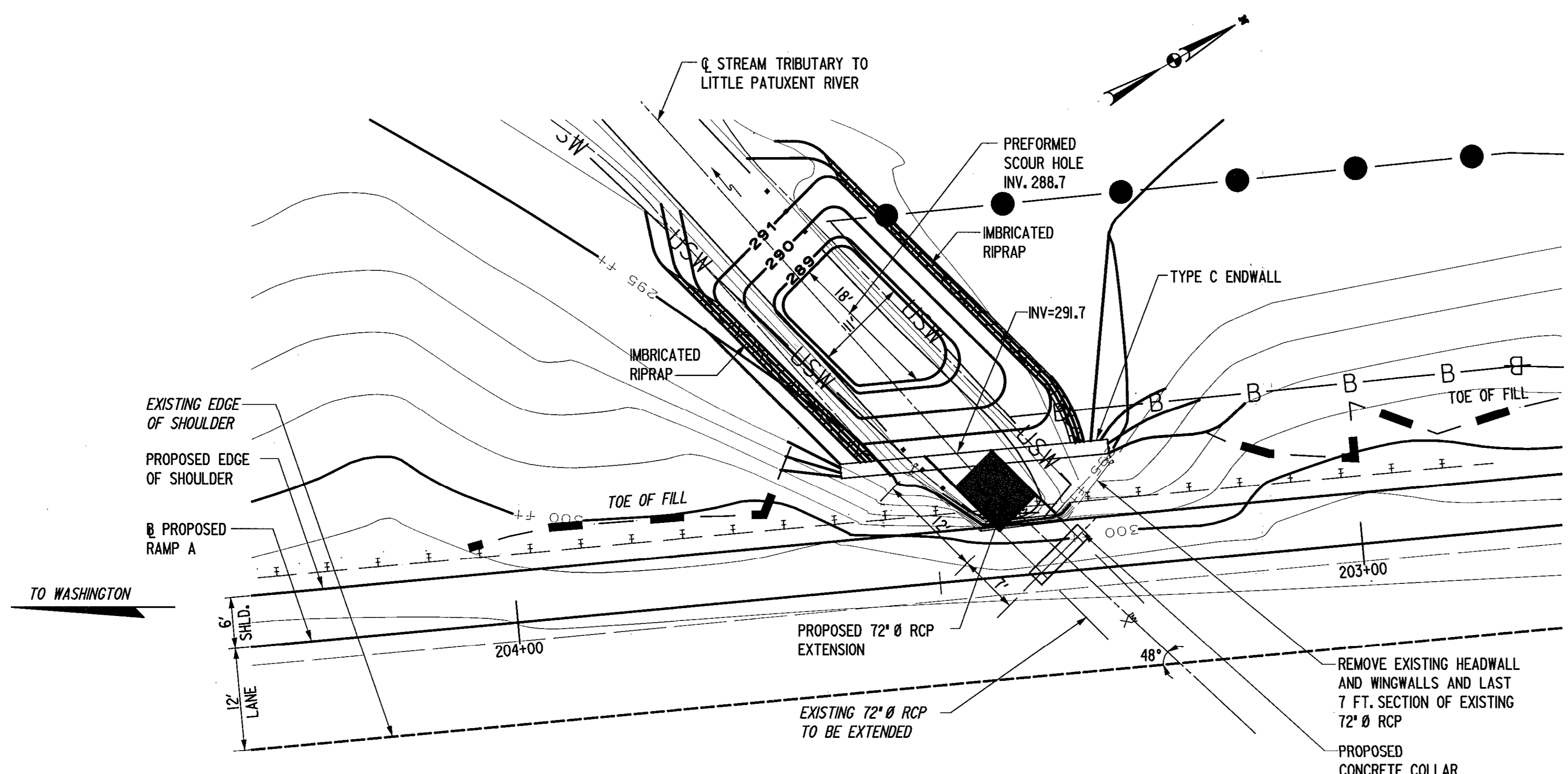
REVISIONS <input type="checkbox"/> REDLINE NO. 1 CROSSED OUT TENTATIVE NOTE. JDP, 11/20/02	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION <small>OFFICE OF BRIDGE DEVELOPMENT</small> TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER KEY PLAN	
	SCALE AS SHOWN DATE	CONTRACT H08395175
DESIGNED BY J.D.P. DRAWN BY J.D.P. CHECKED BY E.S.F. AUG 13 2002	SHEET NO. 24 OF 54 INDEXED	

OTHER CONTRACTS FOR THIS STRUCTURE

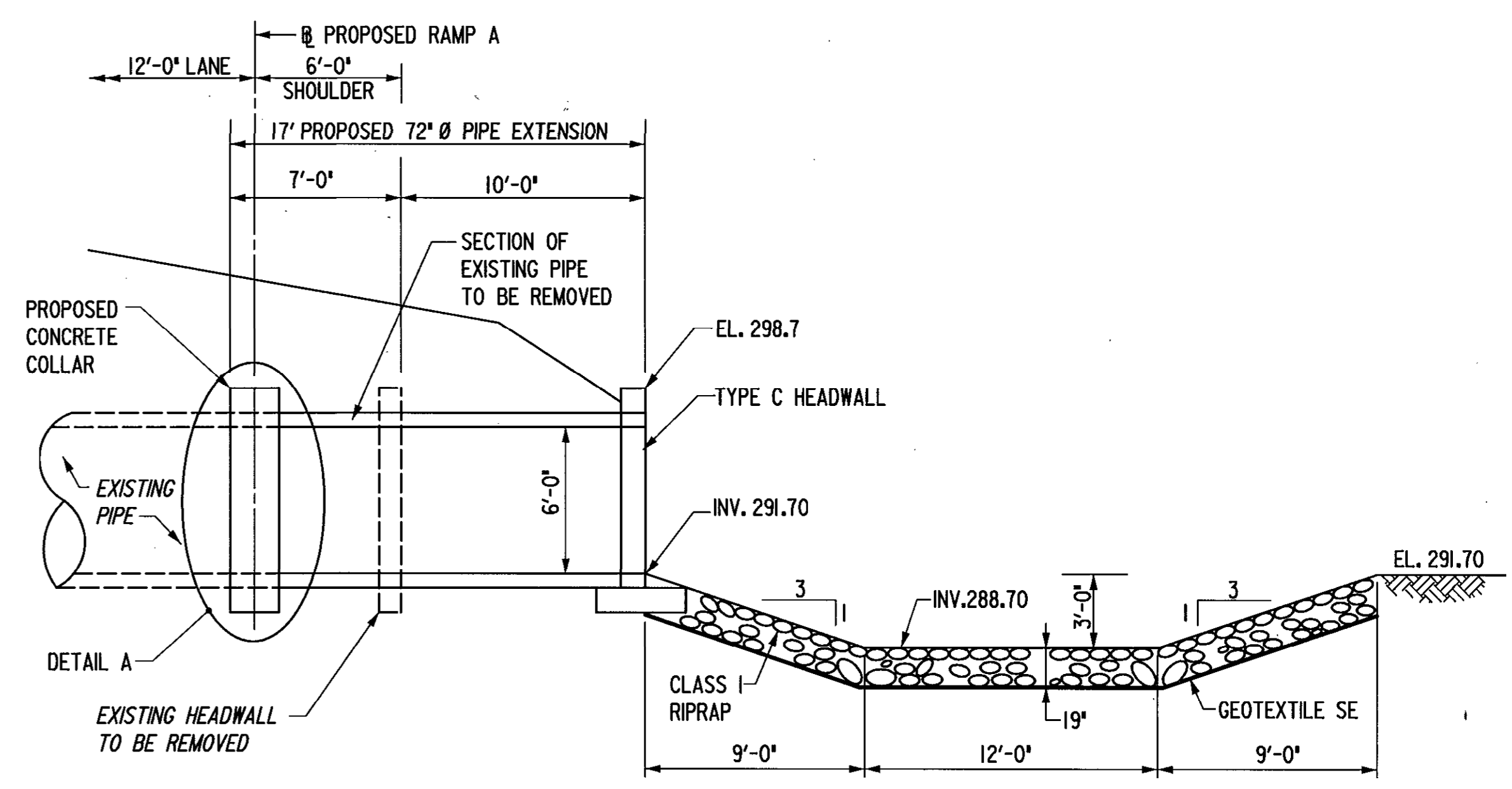
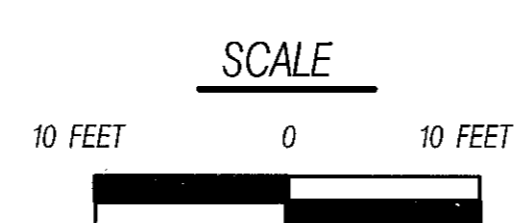
STRUCTURE INVENTORY NO. 1314300

SURVEY BOOK NO. 14235, 15622

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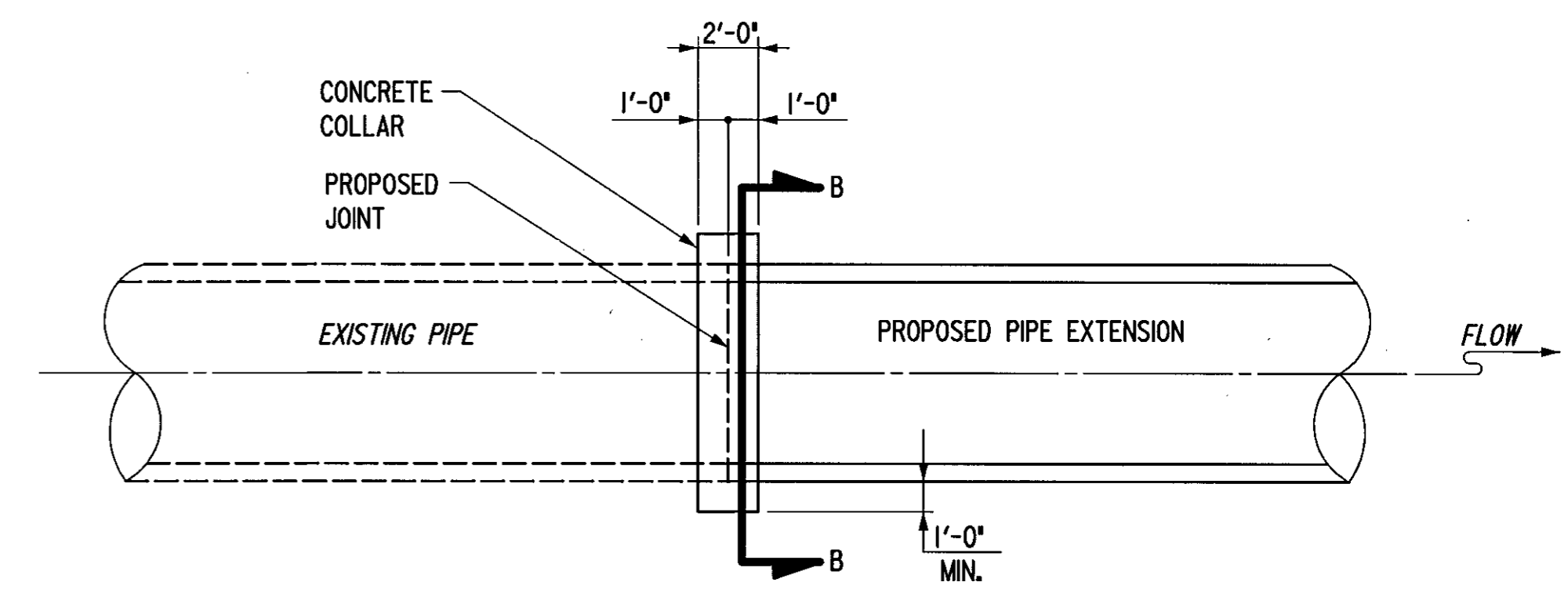


PLAN
72" Ø RCP
STA. 203+50



SECTION ALONG C OF PIPE & SCOUR HOLE

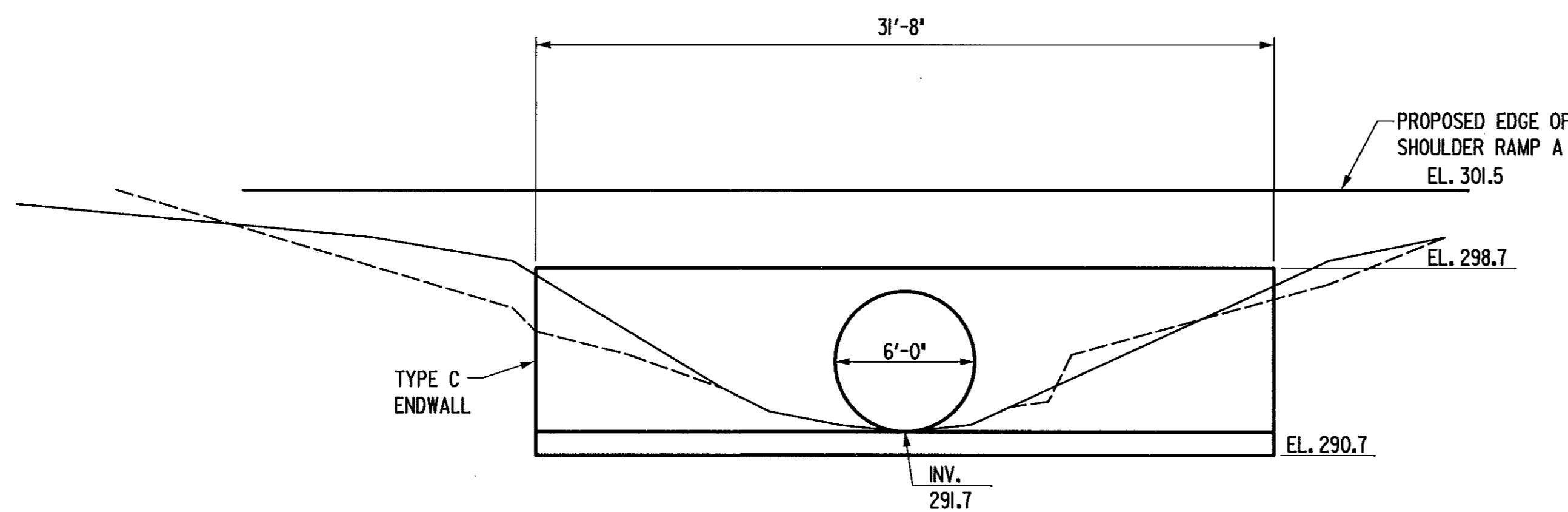
SCALE: 1"=5'



DETAIL A

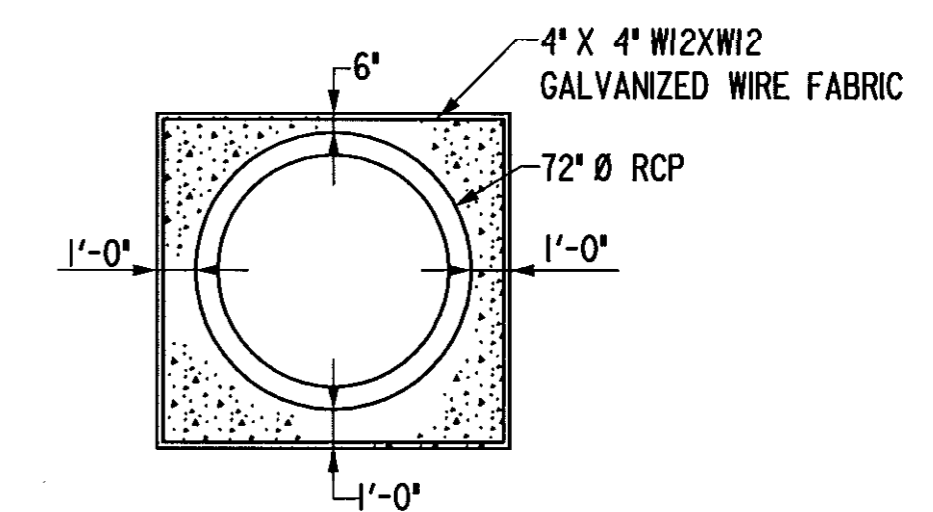
NTS

NOTE:
CONCRETE COLLAR TO BE MEASURED AND PAID FOR UNDER THE ITEM MIX NO. 2 CONCRETE FOR MISCELLANEOUS STRUCTURE.



ELEVATION

STA. 203+50
SCALE: 1"=5'



SECTION B-B

NTS

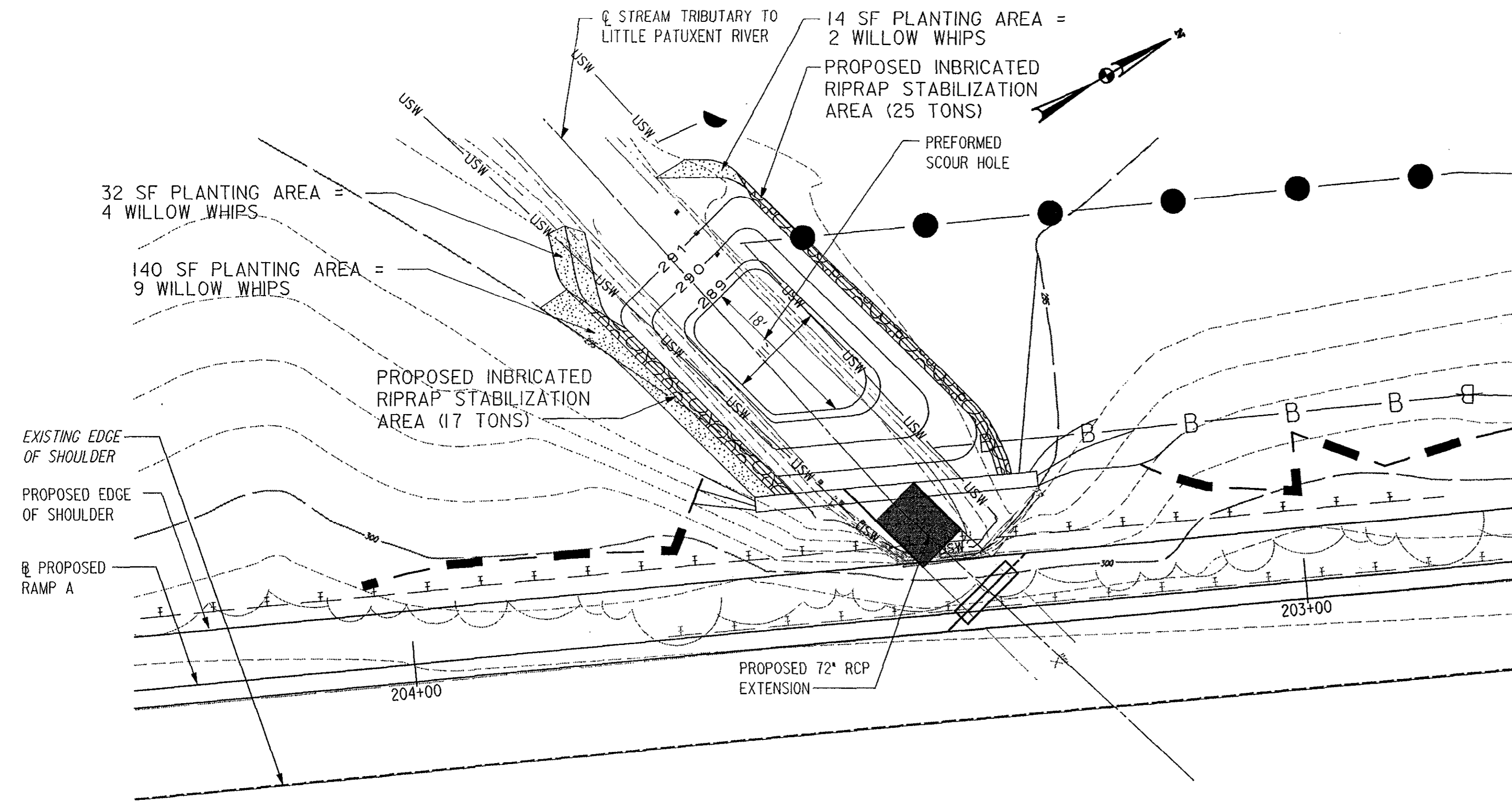
DD-01

	REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY DESIGN DIVISION EXTENSION OF EXISTING 72" Ø RCP UNDER US 29 (STA. 203+50) PLAN, ELEVATION AND DETAILS
	CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 25 OF 54 PREL. TRAC. BY FINAL TRAC. BY	

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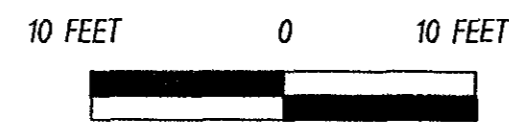
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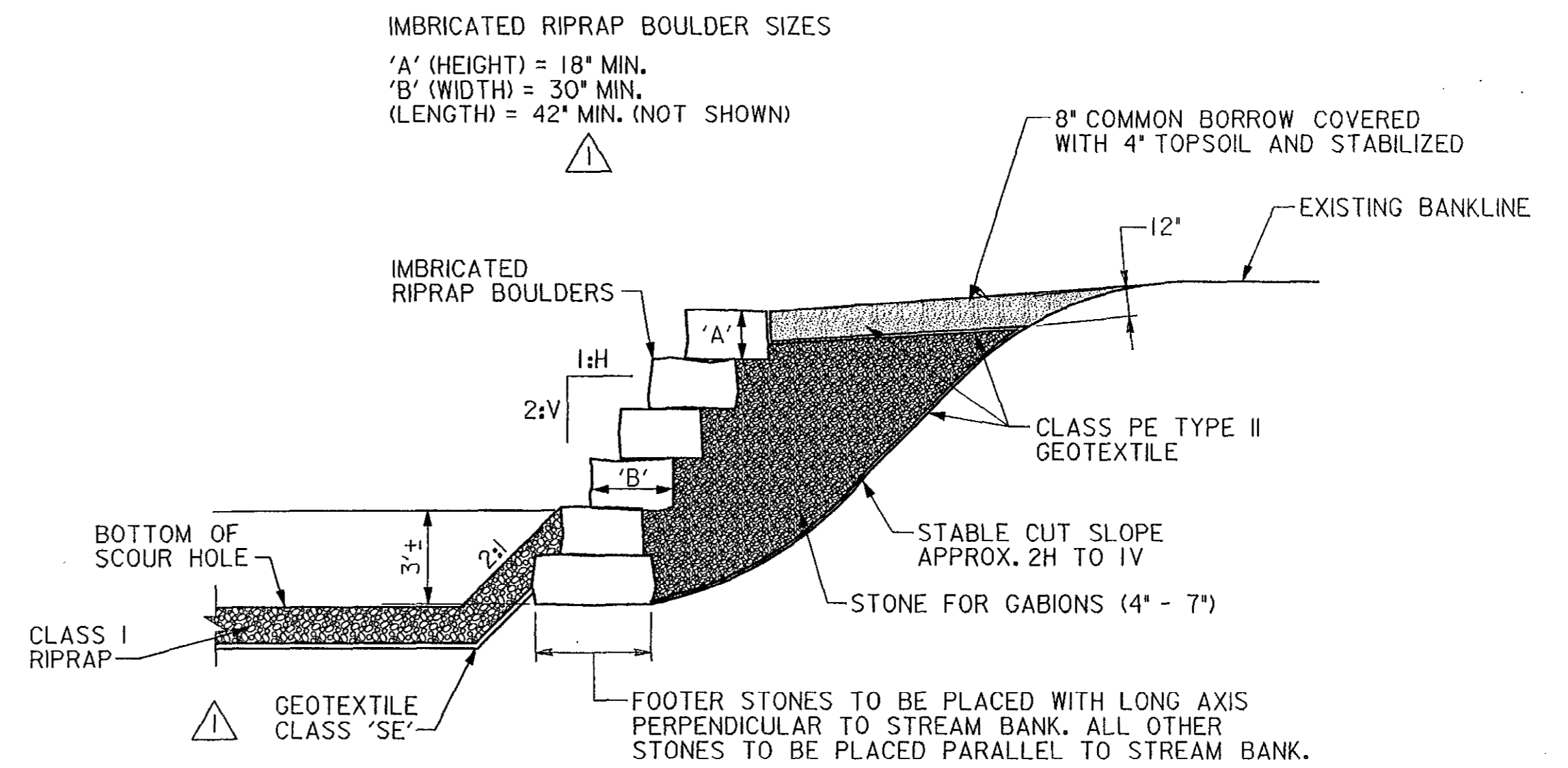
PLAN

72" RCP EXTENSION
STA. 203+50



LEGEND	
WATERS OF THE US	USW
WETLANDS	●
25' WETLAND BUFFER	B
TREE LINE	~
CUT LINE	- - -
FILL LINE	- - -
PLANTING ZONE	▨
CLASS 1 RIPRAP	○

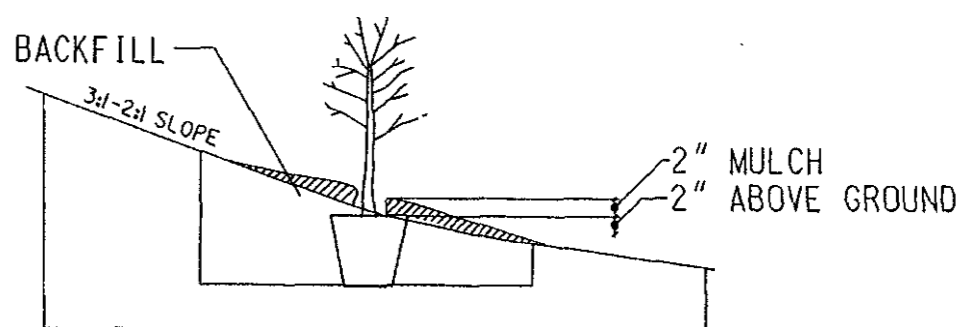
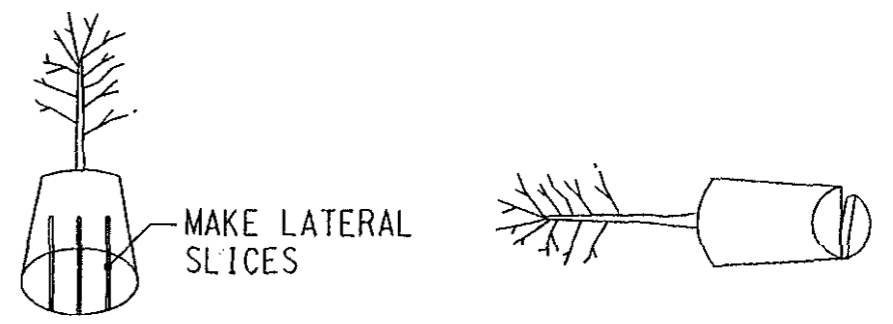
BANK STABILIZATION PLANTING SCHEDULE (THIS SHEET)					
QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
15	SALIX COTTETI	'BANKERS' DWARF WILLOW	2-3'	CONT.	3' O.C.



TYPICAL SECTION

IMBRICATED RIPRAP DETAIL
NOT TO SCALE

WHIP PLANTING DETAIL
CONTAINER



PLANTING PROCEDURES FOR POT BOUND CONTAINER GROWN PLANTS

1. REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER.
2. USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL.
3. PLANT ABOVE THE EXISTING GRADE WHEN HIGH WATER TABLE CONDITIONS EXIST. OTHERWISE PLANT FLUSH WITH EXISTING GRADE.
4. PLANTING HOLE TO BE THREE TIMES THE DIAMETER OF THE CONTAINER.

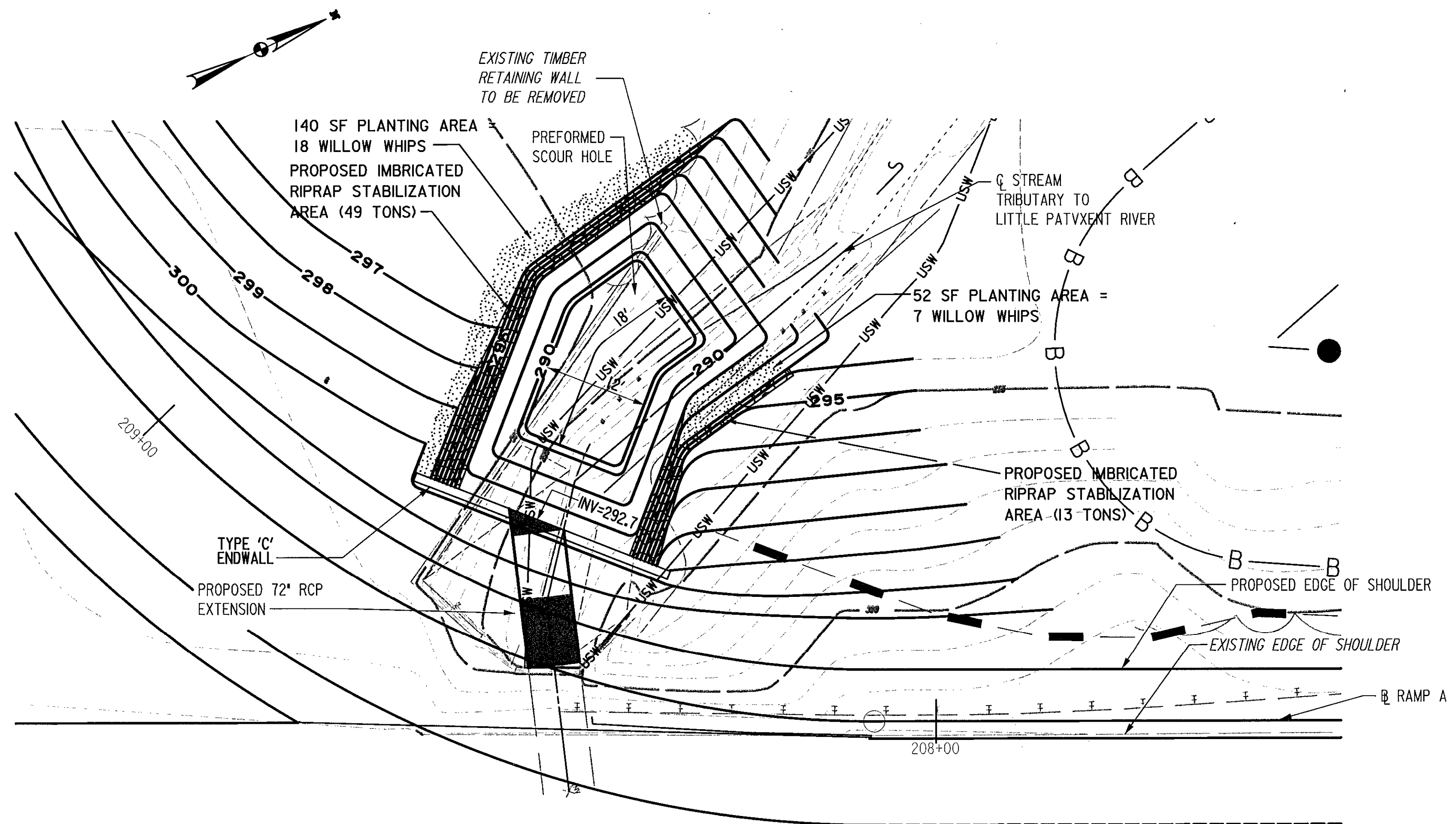
LS-01



REVISIONS
ADDENDUM NO. 1 9/5/02

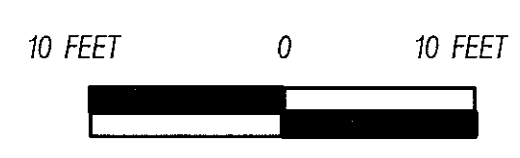
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 26 OF 54
PREL. TRAC. BY FINAL TRAC. BY



PLAN

72" Ø RCP EXTENSION
STA. 208+45



NOTE: SEE DRAWING LS-01 FOR IMBRICATED RIPRAP DETAIL AND WHIP PLANTING DETAIL.

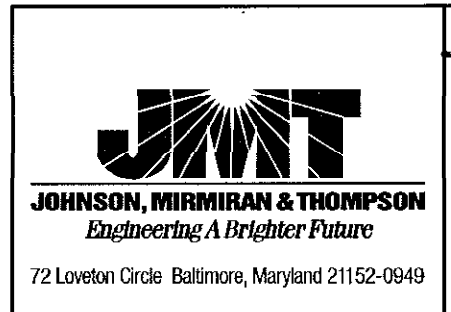
LEGEND	
WATERS OF THE US	— USW —
WETLANDS	● — ●
25' WETLAND BUFFER	— B —
TREE LINE	~ ~ ~
CUT LINE	- - -
FILL LINE	- - -
PLANTING ZONE	[Stippled Area]
IMBRICATED RIPRAP	[Rectangular Pattern]
CLASS 1 RIPRAP	[Circular Pattern]

BANK STABILIZATION PLANTING SCHEDULE (THIS SHEET)

QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
25	SALIX COTTETI	'BANKERS' DWARF WILLOW	2-3'	CONT.	3' O.C.

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LS-02



REVISIONS

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 28 OF 54
PREL. TRAC. BY _____ FINAL TRAC. BY _____

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DATE: 30-Jan-02 12:24

FINAL.dgn

NOTE: WORK IN SHADED AREA IS COVERED BY THE RIGHT OF ENTRY AGREEMENT WITH THE HOWARD COUNTY RESEARCH AND DEVELOPMENT COMPANY

GENERAL NOTES

SPECIFICATIONS:
 -SHA SPECIFICATIONS DATED JANUARY, 2001
 -REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1996 FOR DESIGN INCLUDING ALL INTERIM SPECIFICATIONS THROUGH 2000.

CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD
 $f_c = 1200$ PSI.

REINFORCING STEEL DESIGN: $f_s = 24,000$ PSI

LOADING: HS 27.

CONCRETE: ALL CONCRETE IN TOP SLAB, CURB, AND HEADWALLS SHALL BE MIX NO. 6 (4500 PSI). ALL OTHER CONCRETE SHALL BE MIX NO. 3 (3500 PSI).

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

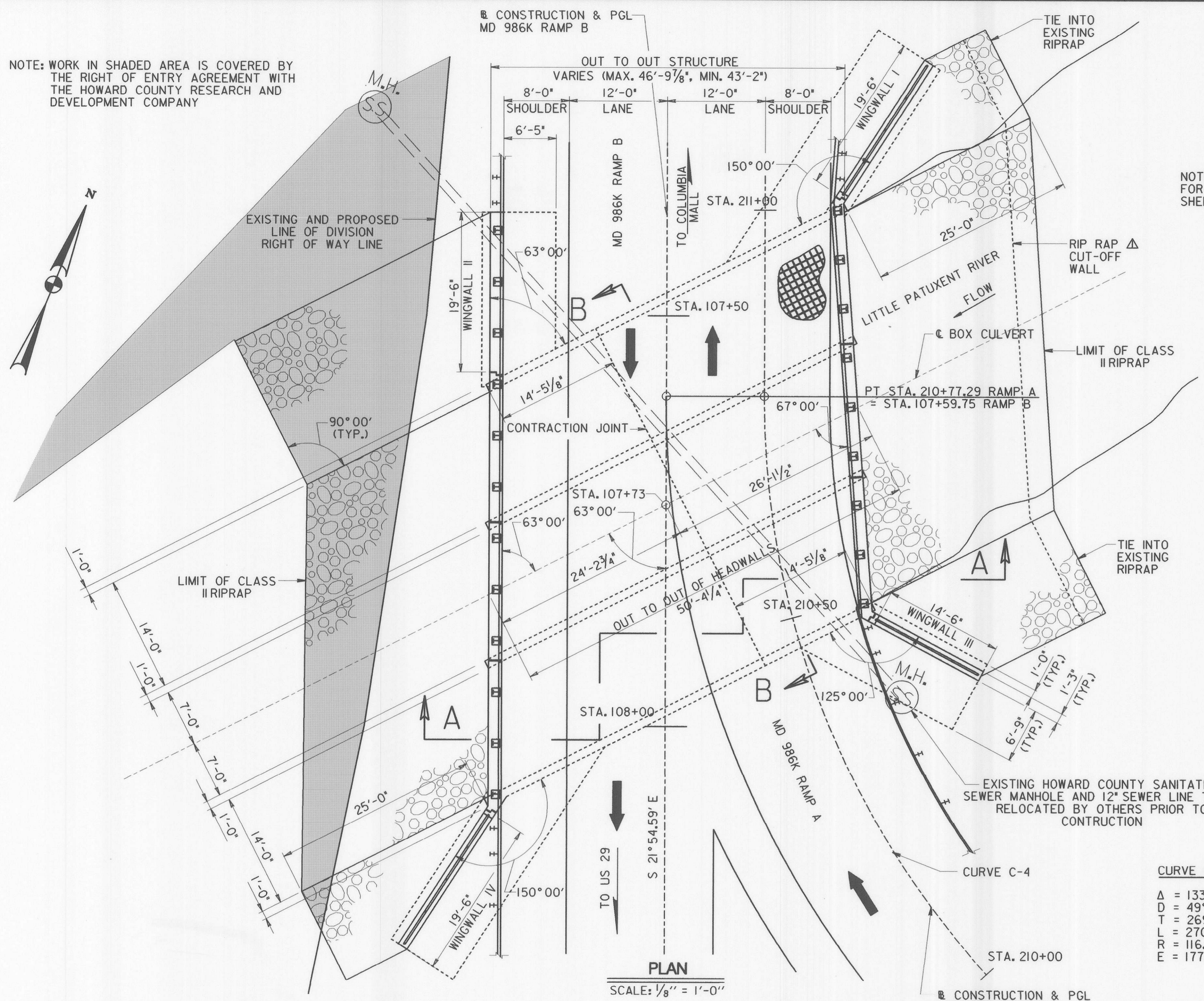
FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

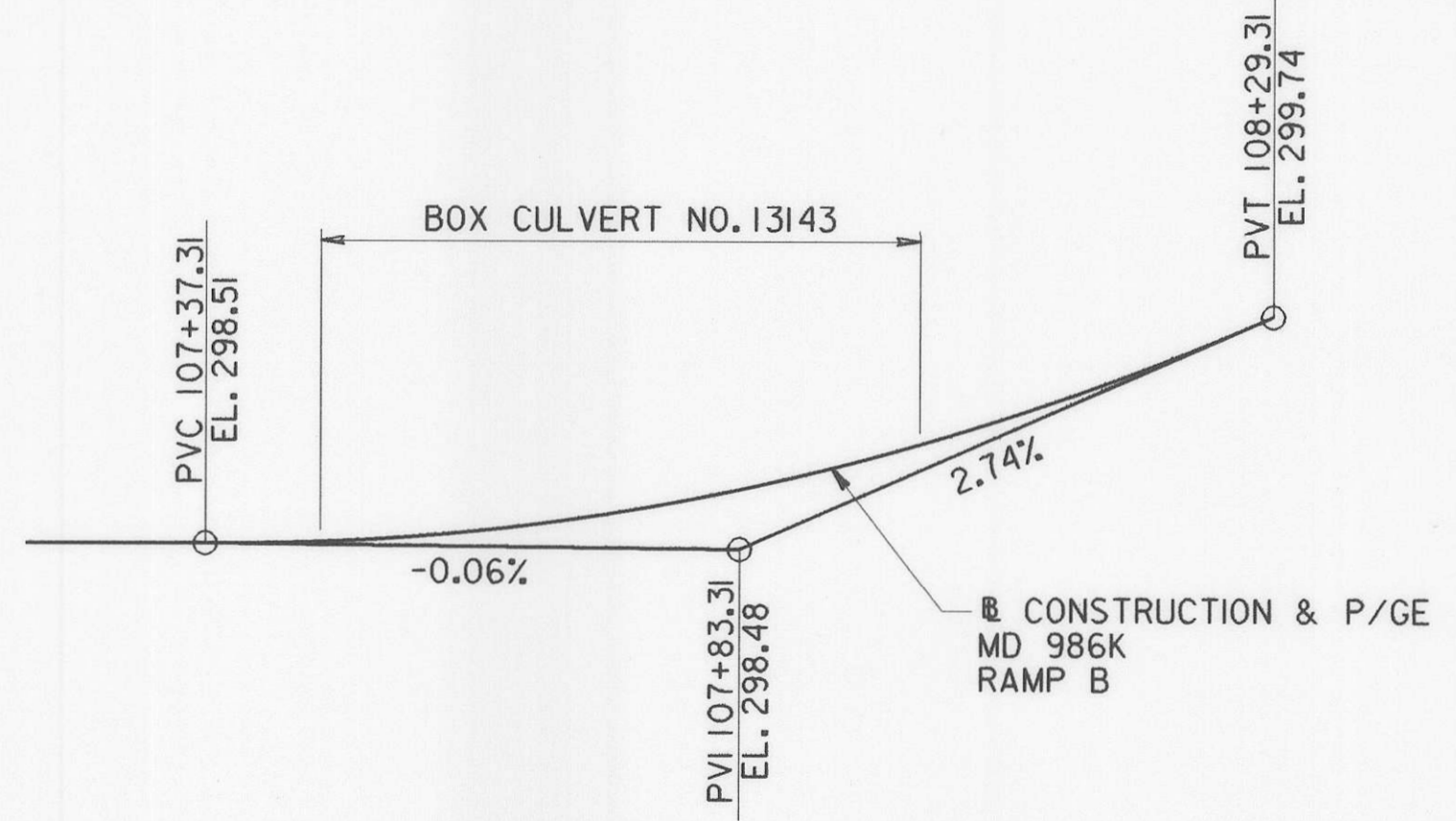
ALL REINFORCING STEEL IN THE HEADWALLS, CURB, AND IN THE TOP OF THE TOP SLAB INCLUDING TRUSS BARS SHALL BE EPOXY COATED.

KEYS: ALL KEYS ARE NOMINAL SIZE.

HYDROLOGICAL & HYDRAULIC DATA: FOR HYDROLOGICAL AND HYDRAULIC DATA, SEE SHEET TITLED HYDROLOGIC AND HYDRAULIC DATA.

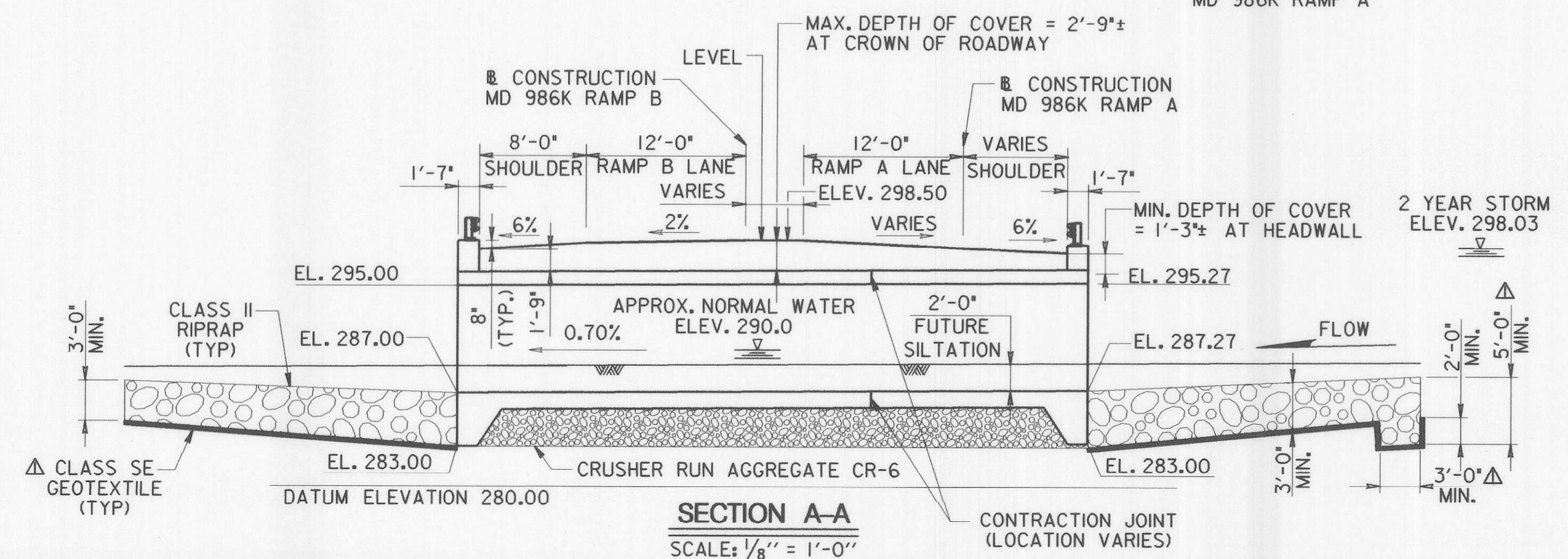


NOTE: FOR SECTION B-B, SEE TYPICAL SECTION ON SHEET NO. SI-4



CURVE C-4
 $\Delta = 133^\circ 24' 05.3211''$
 $D = 49^\circ 23' 34.48881''$
 $T = 269.3586$
 $L = 270.0822$
 $R = 116.0$
 $E = 177.2747$

PROPOSED PROFILE



SECTION A-A
 SCALE: 1/8" = 1'-0"

10 YEAR STORM ELEV. 300.06
 2 YEAR STORM ELEV. 298.03

TENTATIVE
 BUREAU OF BRIDGE DESIGN
 07-AUG-2002
 NOT FOR PUBLIC INFORMATION

REVISIONS ADDENDUM I ADDED GEOTEXTILE AND CUT-OFF WALL JDP, 9/5/02 REDLINE NO. 1 CROSSED OUT TENTATIVE NOTE JDP, 9/5/02		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER GENERAL PLAN AND SECTION	
SCALE	AS SHOWN	DATE	CONTRACT H08395175
DESIGNED BY	J.D.P.	DRAWN BY	J.D.P.
CHECKED BY			
E.S.F. AUG 19 2002		SHEET NO. 29 OF 54	

SHEET SI-1

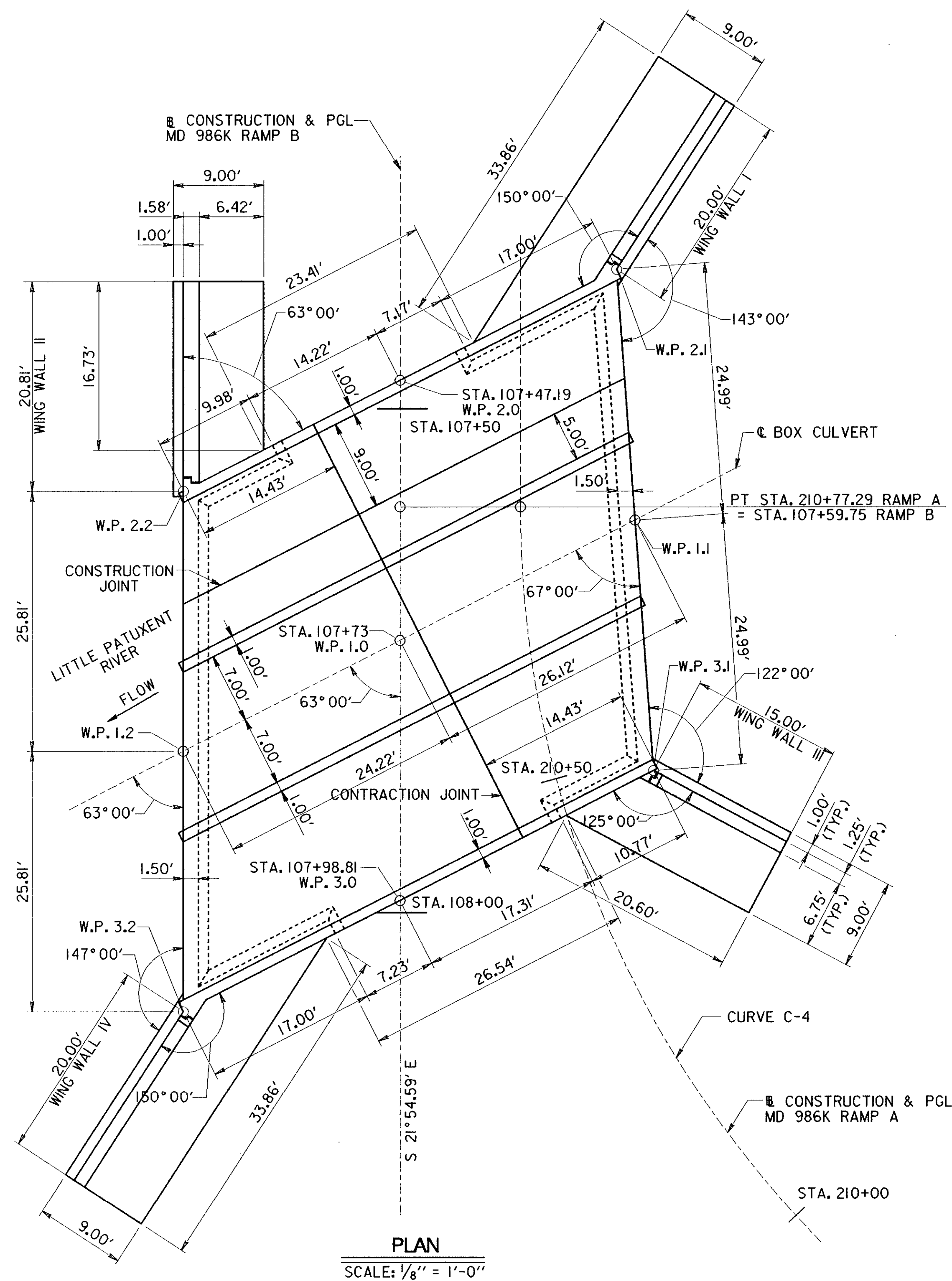
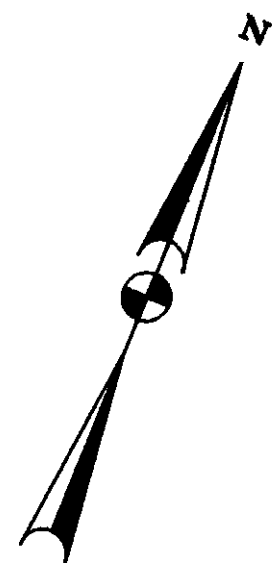
OTHER CONTRACTS FOR THIS STRUCTURE

STRUCTURE INVENTORY NO. 1314300

SURVEY BOOK NO. 14235, 15622

i:\0705300\md986k-1patuxent\13143gpe.dgn

INDEXED



PLAN
SCALE: 1/8" = 1'-0"

WORKING POINTS	NORTHING	EASTING
1.0	561325.5678	1352860.6123
1.1	561345.2560	1352877.7814
1.2	561307.3111	1352844.6915
2.0	561349.5169	1352850.9801
2.1	561367.7307	1352866.8635
2.2	561349.5169	1352850.9801
3.0	561301.6187	1352870.2445
3.1	561322.7812	1352888.6993
3.2	561283.3620	1352854.3237

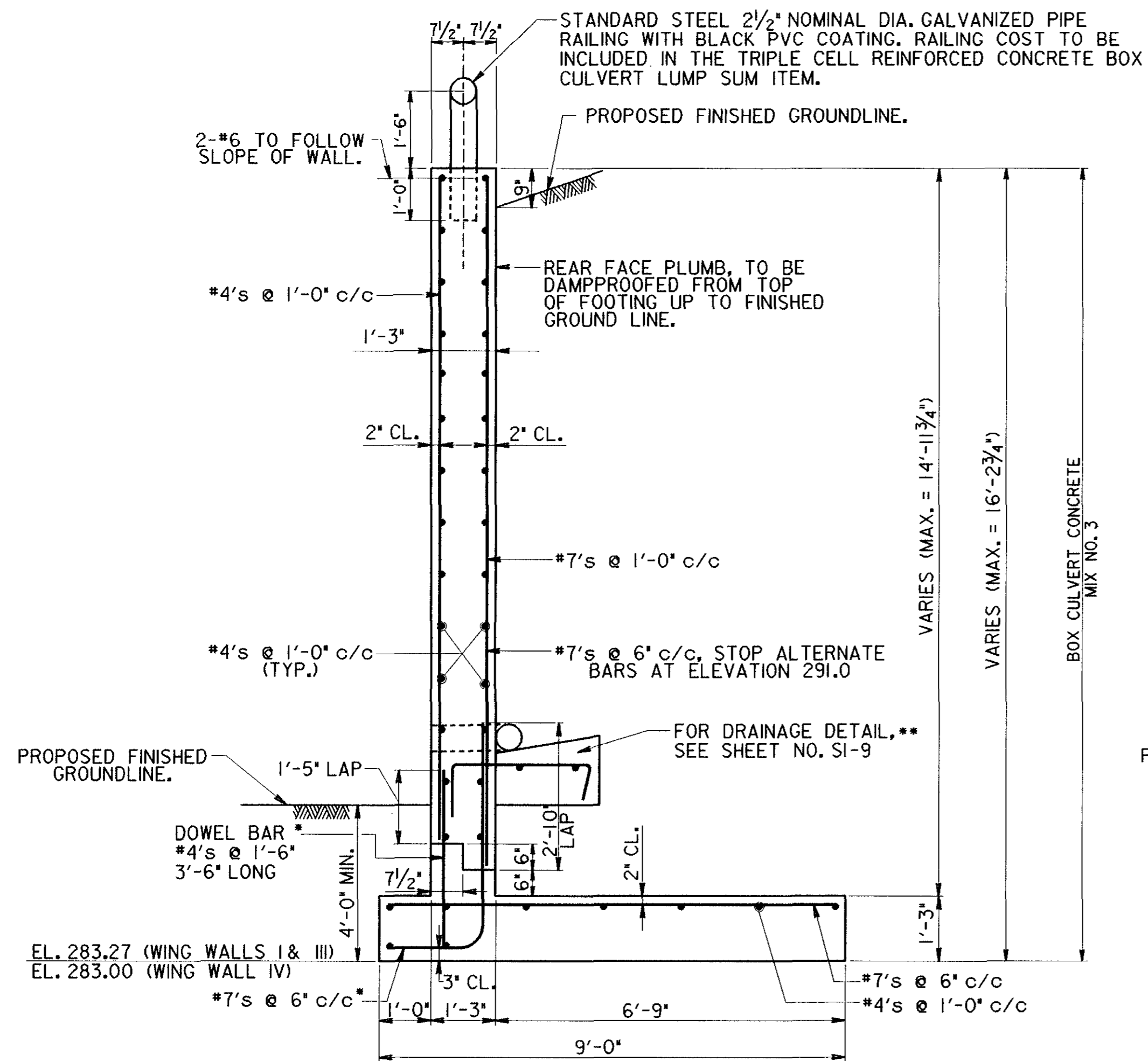
CURVE C-4

Δ = 133° 24' 05.3211"
 D = 49° 23' 34.48881"
 T = 269.3586
 L = 270.0822
 R = 116.0
 E = 177.2747

SHEET SI-3

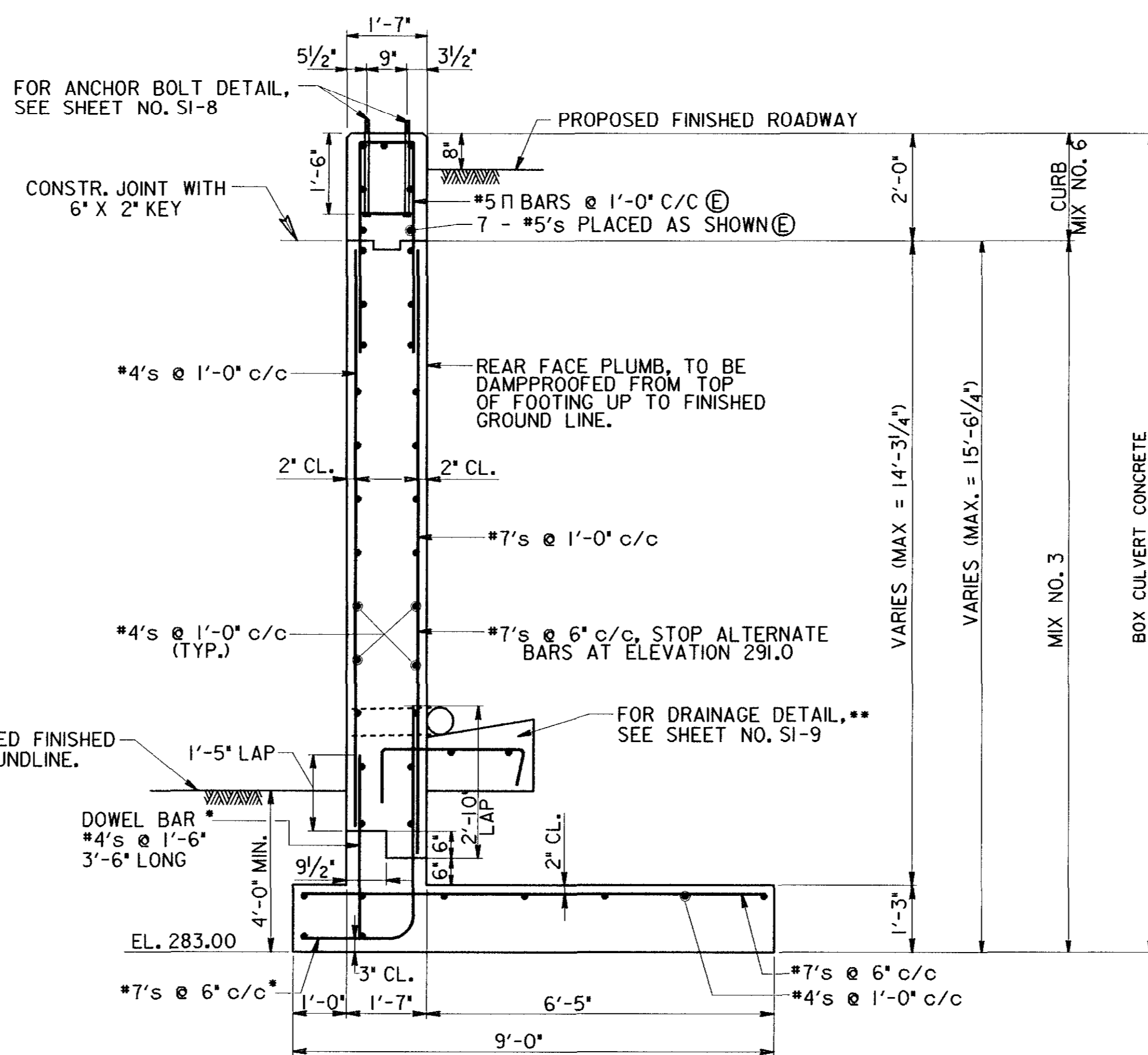
REVISIONS <input type="checkbox"/> REDLINE NO. 1 CROSSED OUT TENTATIVE NOTE. JDP, 11/20/02	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER GEOMETRIC AND FOOTING LAYOUT	
	SCALE AS SHOWN DESIGNED BY J.D.P. DRAWN BY J.D.P. CHECKED BY	DATE CONTRACT H08395175
E.S.F. AUG 13 2002		SHEET NO. 31 OF 54

TENTATIVE
 BUREAU OF BRIDGE DESIGN
 07-AUG-2002
 NOT FOR PUBLIC INFORMATION
Chapter 59 of the Acts of 1956, Annotated Code of Maryland provides that this plan may be used for official purposes only.



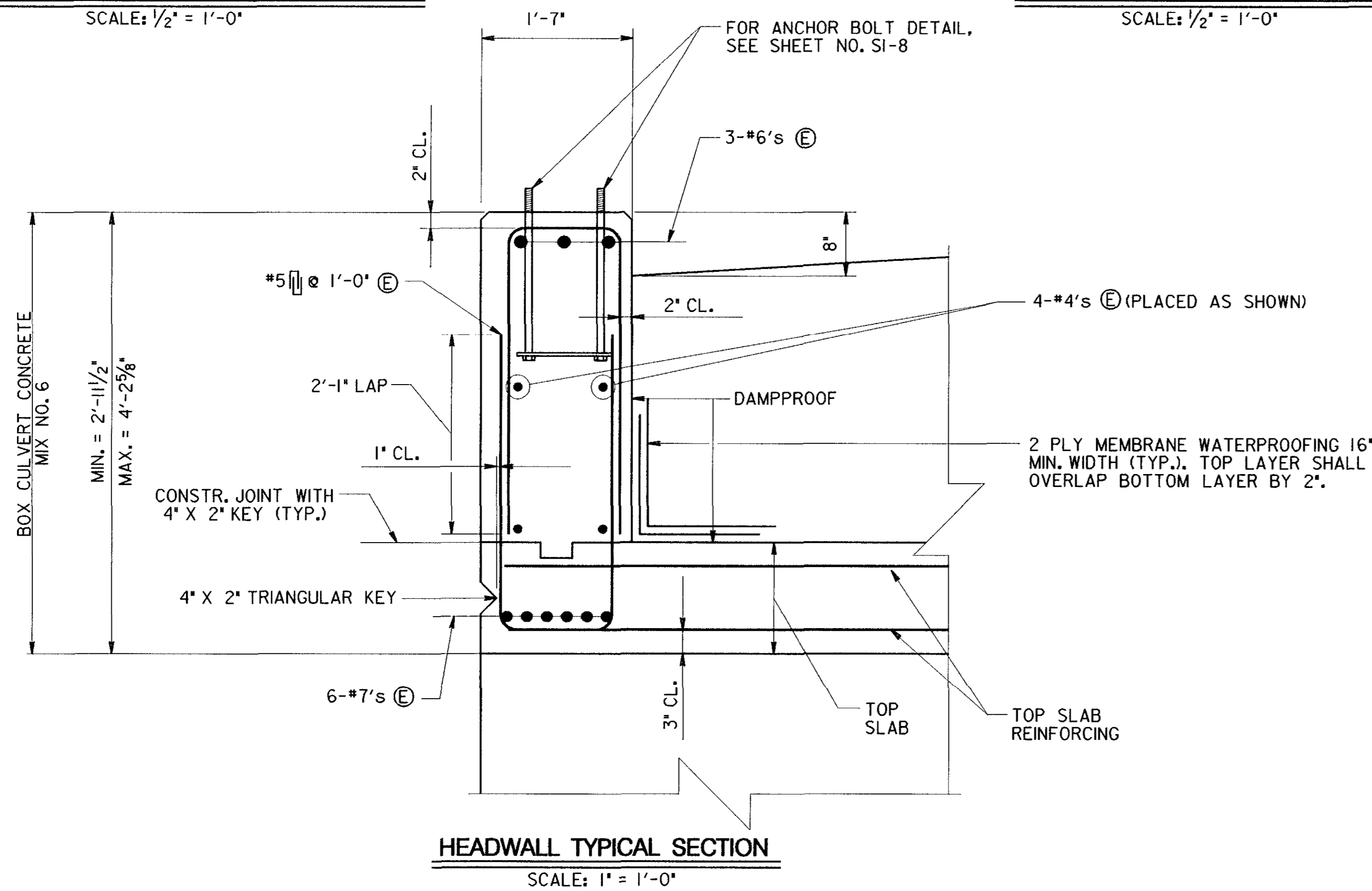
WING WALL I, III, AND IV TYPICAL SECTION

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



WING WALL II TYPICAL SECTION

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



HEADWALL TYPICAL SECTION

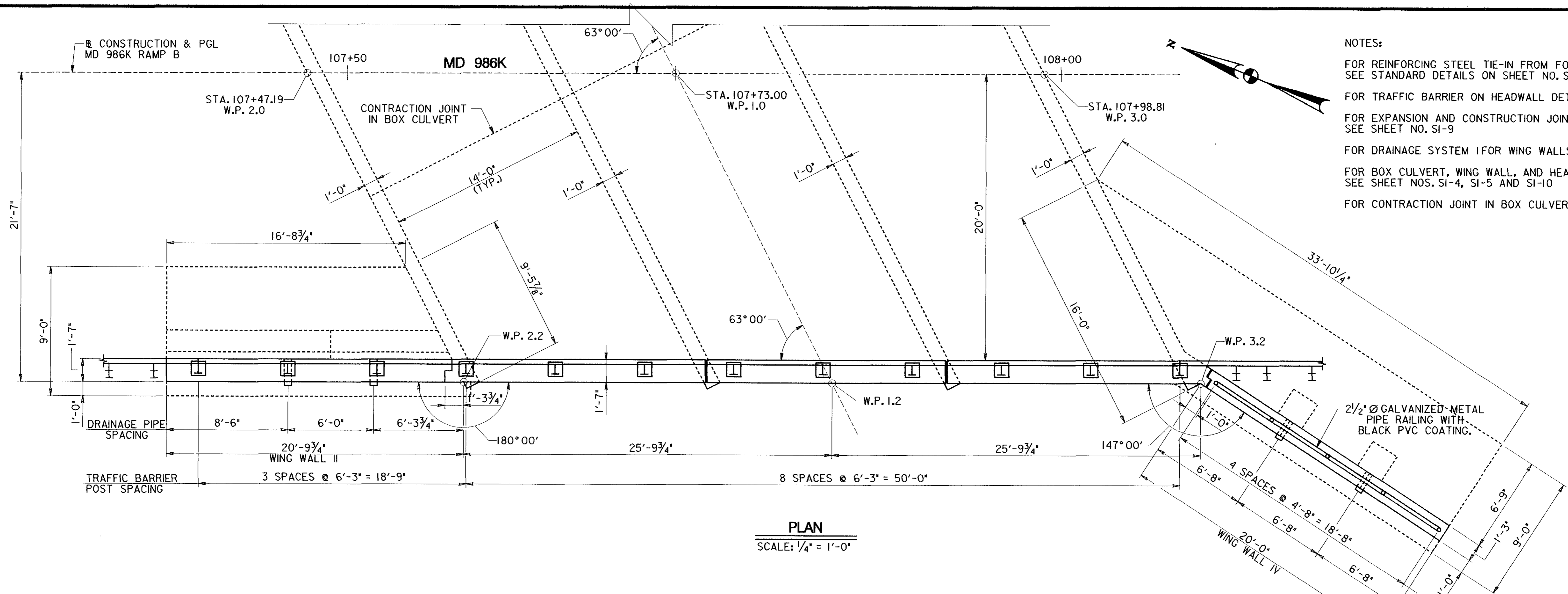
SCALE: 1" = 1'-0"

Ⓔ INDICATES REINFORCING STEEL TO BE EPOXY COATED

- * AT THE CONTRACTORS OPTION THE DOWEL AND STEM BARS MAY BE PLACED AS A CONTINUOUS BAR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THIS OPTION.
- ** IF THE CONCRETE BASE IS POURED TO REST ON TOP OF THE FOOTING, THE REINFORCING MAY BE ELIMINATED. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THIS OPTION.

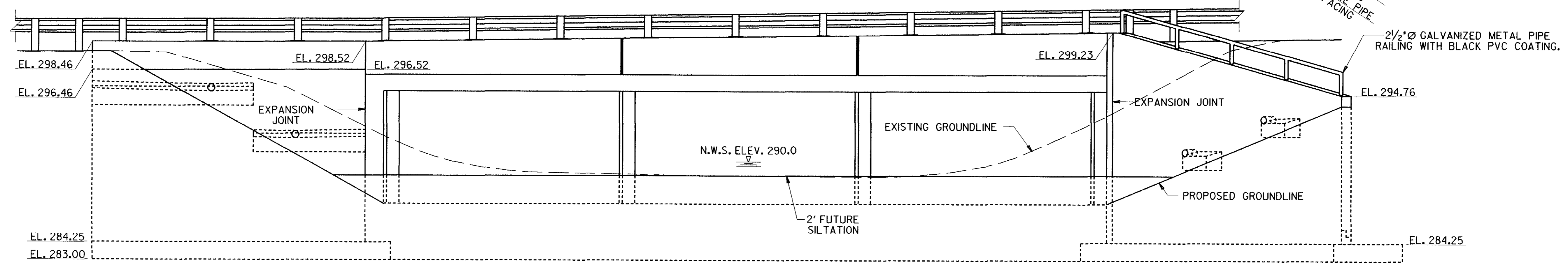
SHEET SI-5

REVISIONS <input type="checkbox"/> REDLINE NO. 1 CROSSED OUT TENTATIVE NOTE. JDP, 11/20/02	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER HEADWALL AND WING WALL TYPICAL SECTIONS	
	SCALE AS SHOWN DESIGNED BY J.D.P. DRAWN BY J.D.P. CHECKED BY	DATE CONTRACT H08395175
NOT FOR PUBLIC INFORMATION <small>Chapter 59 of the Acts of 1996, Annotated Code of Maryland provides that this plan may be used for official purposes only</small>		SHEET NO. 33 OF 54



- NOTES:
- FOR REINFORCING STEEL TIE-IN FROM FOOTING TO TOE WALL, SEE STANDARD DETAILS ON SHEET NO. SI-9
 - FOR TRAFFIC BARRIER ON HEADWALL DETAILS, SEE SHEET NO. SI-8
 - FOR EXPANSION AND CONSTRUCTION JOINT DETAILS IN WING WALLS, SEE SHEET NO. SI-9
 - FOR DRAINAGE SYSTEM FOR WING WALLS, SEE SHEET NO. SI-9
 - FOR BOX CULVERT, WING WALL, AND HEADWALL TYPICAL SECTIONS, SEE SHEET NOS. SI-4, SI-5 AND SI-10
 - FOR CONTRACTION JOINT IN BOX CULVERT DETAILS, SEE SHEET NO. SI-9

PLAN
SCALE: 1/4" = 1'-0"

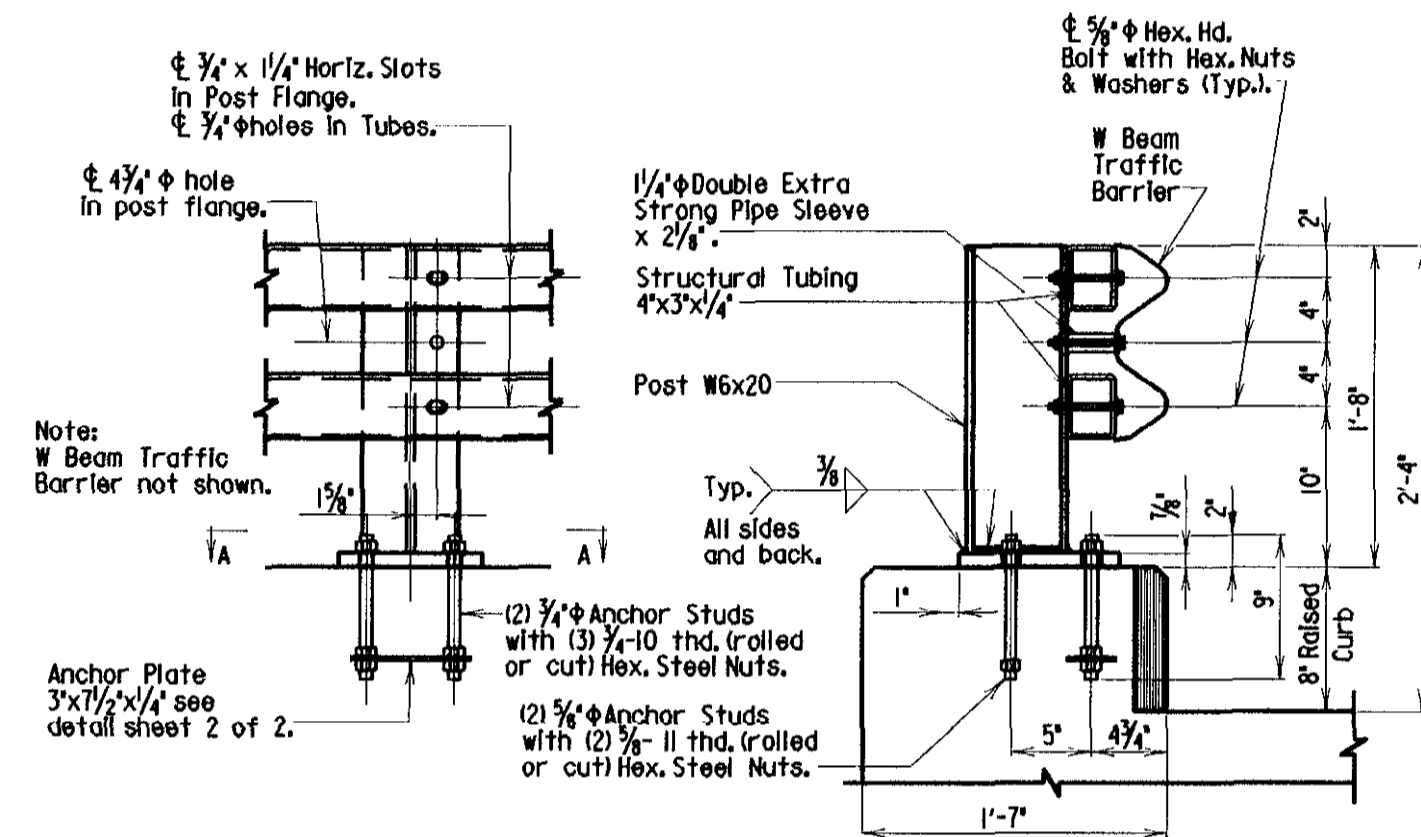
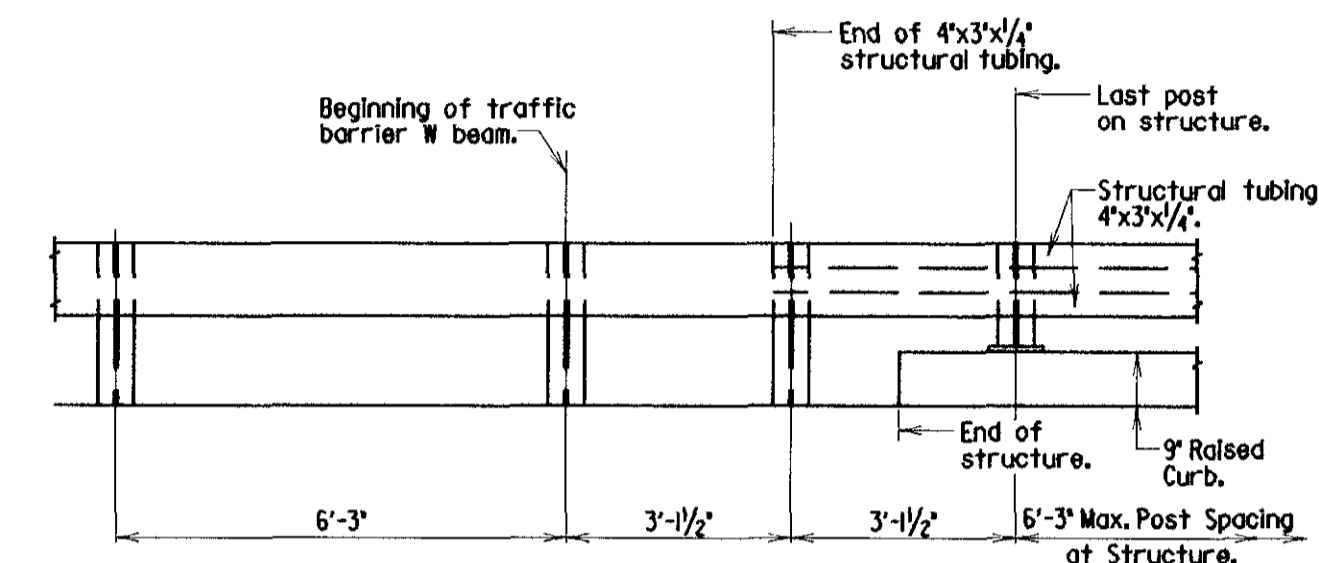
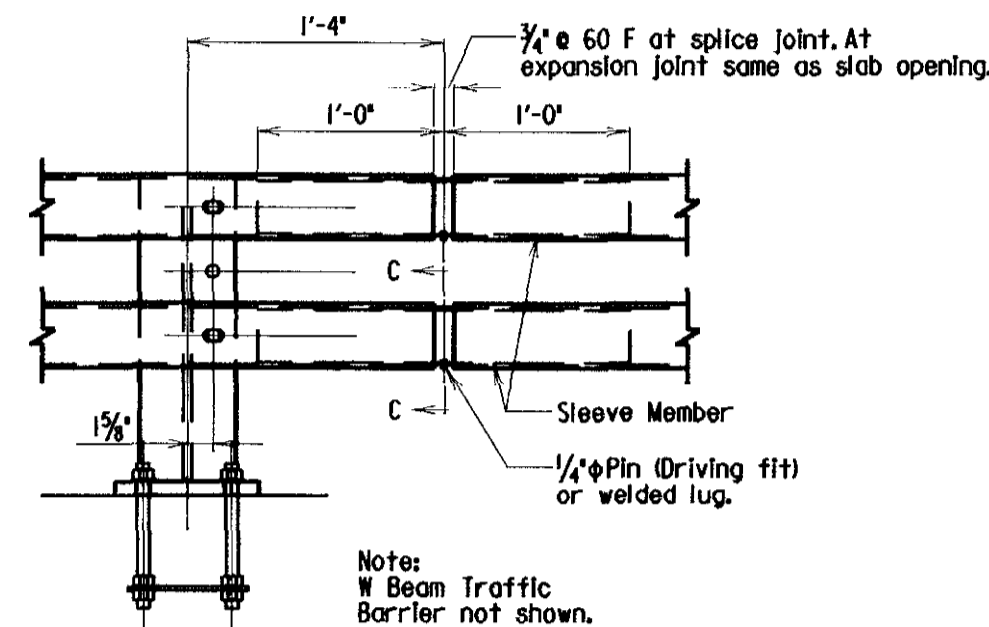
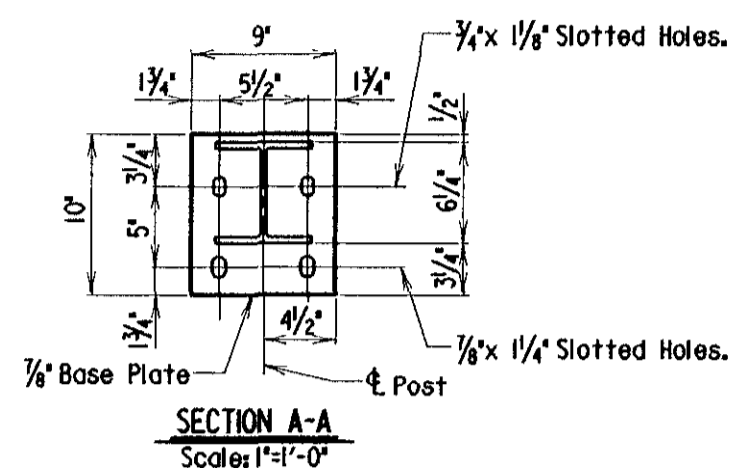


ELEVATION
SCALE: 1/4" = 1'-0"

SHEET SI-7

REVISIONS <input type="checkbox"/> REDLINE NO. 1 CROSSED OUT TENTATIVE NOTE. JDP, 11/20/02	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER HEADWALL & WING WALLS II & IV ELEVATIONS	
	SCALE AS SHOWN	DATE CONTRACT H08395175
DESIGNED BY J.D.P.	DRAWN BY J.D.P.	
CHECKED BY	E.S.F. AUG 13 2002	

~~TENTATIVE~~
BUREAU OF BRIDGE DESIGN
07-AUG-2002
NOT FOR PUBLIC INFORMATION
Chapter 59 of the Acts of 1956, Annotated Code of Maryland provides that this plan may be used for official purposes only

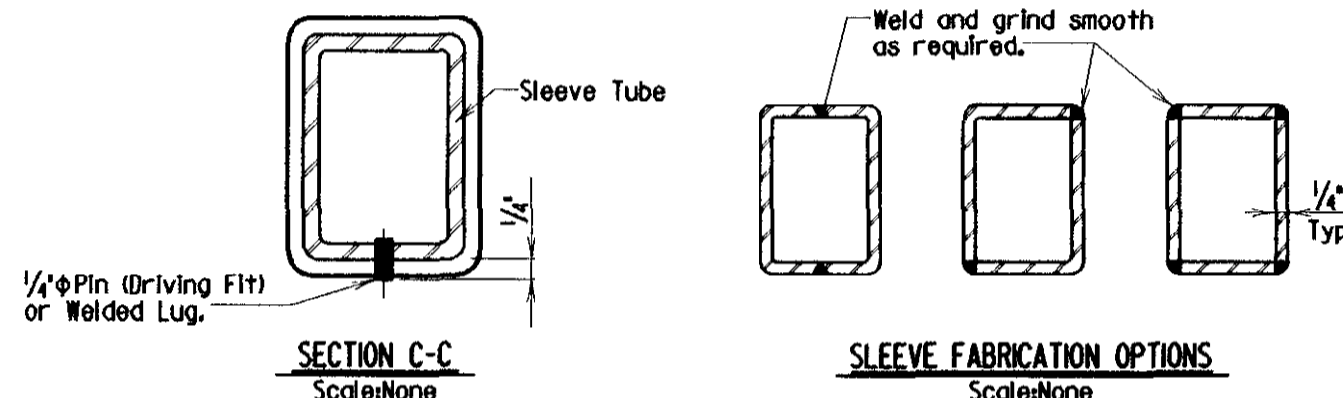


RAIL SPLICE DETAILS
Scale: 1"=1'-0"

ELEVATION
Scale: 3/4"=1'-0"

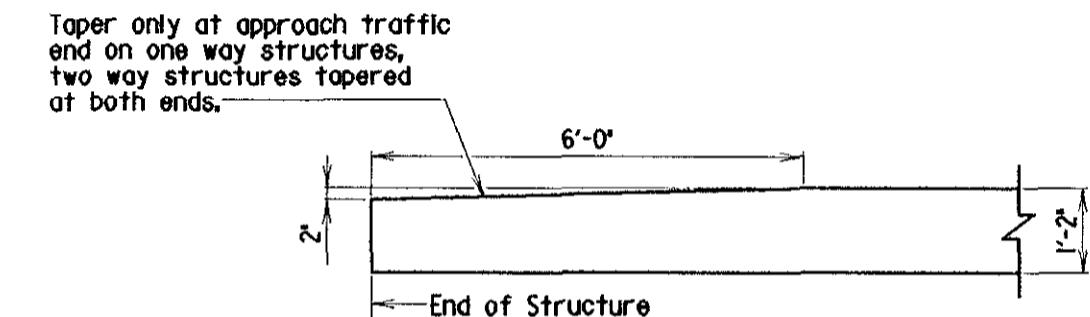
- Notes:
- Panel lengths of structural tubing members shall be attached continuously to a minimum of three posts except at abutments with expansion joints.
 - All steel components shall be galvanized, after fabrication, unless otherwise shown on Plans.
 - Structural tubing section shall meet ASTM A 572 Grade 50. All other steel except bolts shall meet ASTM A 36.
 - All anchor studs and nuts shall meet ASTM A 325.
 - Maximum post spacing 6'-3".
 - Vertical posts shall be set perpendicular to curb.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT
REVISIONS	W BEAM TRAFFIC BARRIER FOR STRUCTURES
DATE	
STANDARD NO.	SHEET 1 OF 3



SECTION C-C
Scale: None

SLEEVE FABRICATION OPTIONS
Scale: None



APPROACH END CURB
Scale: 3/4"=1'-0"

Note:
The difference between the outside dimensions of the sleeve and the inside dimensions of the rail shall not exceed 1/8 inch along either axis.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT
REVISIONS	W BEAM TRAFFIC BARRIER FOR STRUCTURES
DATE	
STANDARD NO.	SHEET 2 OF 3

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT
REVISIONS	W BEAM TRAFFIC BARRIER FOR STRUCTURES
DATE	
STANDARD NO.	SHEET 3 OF 3

~~TENTATIVE~~
BUREAU OF BRIDGE DESIGN
07-AUG-2002
NOT FOR PUBLIC INFORMATION
Chapter 59 of the Acts of 1956, Annotated Code of Maryland provides that this plat may be used for official purposes only

REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER TRAFFIC BARRIER DETAILS
REVISIONS	SCALE AS SHOWN DATE CONTRACT H08395175
DESIGNED BY J.D.P. DRAWN BY J.D.P. CHECKED BY	E.S.F. AUG 13 2002
REVISIONS	SHEET NO. 36 OF 54

BAR SIZE	* LOCATION CATEGORY			3 Times Bar Diameter	6 Times Bar Diameter	c/c spacing
	A	B	C			
#4	2'-11"	2'-7"	2'-4"	1 1/2"	3"	3 1/2"
#5	3'-8"	3'-3"	2'-7"	1 3/4"	3 3/4"	4 3/8"
#6	4'-5"	3'-10"	3'-1"	2 1/4"	4 1/2"	5 1/4"
#7	5'-3"	4'-7"	3'-8"	2 5/8"	5 1/4"	6 1/8"
#8	6'-10"	6'-1"	4'-10"	3"	6"	7"
#9	8'-8"	7'-8"	6'-1"	3 3/8"	6 3/4"	7 7/8"
#10	11'-0"	9'-8"	7'-9"	3 3/4"	7 3/4"	8 7/8"
#11	13'-6"	11'-11"	9'-6"	4 1/4"	8 1/2"	9 3/4"

* LOCATION CATEGORY

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6 inches apart.
- C - All bars not in Category A spaced 6 inches or more apart.

Note:
1. When bar lap is not specified on the plans, CASE NO.1 - For bars coated with epoxy with cover less than 3 times the bar diameter or clear spacing between bars less than 6 times the bar diameter.
2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."

APPROVAL DATE: 2/2/90	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 6 (4500 P.S.I.) CONCRETE EPOXY COATED REINFORCING CASE NO.1	NO. M6.051-80-122	SHEET 2 OF 3
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BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-9"	2'-0"	1'-7"
#5	3'-6"	2'-6"	2'-0"
#6	4'-2"	3'-0"	2'-5"
#7	4'-11"		2'-10"
#8	6'-6"	Does Not Exist	3'-9"
#9	8'-2"		4'-8"
#10	10'-5"		6'-0"
#11	12'-9"		7'-4"

* LOCATION CATEGORY

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6 inches apart.
- C - All bars not in Category A spaced 6 inches or more apart.

Note:
1. When bar lap is not specified on the plans, CASE NO.2 - For bars coated with epoxy not in Case No.1, the above dimensions shall be used.
2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."

APPROVAL DATE: 2/2/90	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 6 (4500 P.S.I.) CONCRETE EPOXY COATED REINFORCING CASE NO.2	NO. M6.051-80-122	SHEET 3 OF 3
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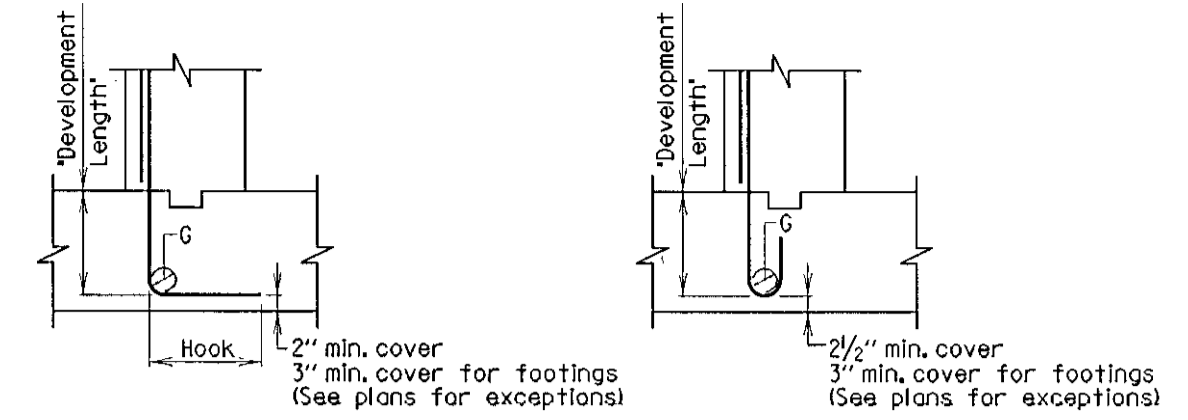
BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-10"	3'-6"	2'-10"
#8	6'-5"	4'-7"	3'-8"
#9	8'-1"	5'-9"	4'-8"
#10	10'-3"	7'-4"	5'-11"
#11	12'-7"	9'-0"	7'-3"

* LOCATION CATEGORY

- A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B - All bars not in Category A spaced less than 6 inches apart.
- C - All bars not in Category A spaced 6 inches or more apart.

Note:
1. When bar lap is not specified on the plans, the above dimensions shall be used.
2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."

APPROVAL DATE: 6/8/90	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING	NO. M6.071-81-127	SHEET 1 OF 3
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STANDARD 90° HOOK

STANDARD 180° HOOK

BAR SIZE	* LOCATION CATEGORY		
	D	E	F
#4	8"	11"	9"
#5	9"	11"	11"
#6	11"	11"	11"
#7	11"	11"	11"
#8	11"	11"	11"
#9	11"	11"	11"
#10	11"	11"	11"
#11	11"	11"	11"

BAR SIZE	RECOMMENDED END HOOKS ALL GRADES		
	Finished bend diameter G in.	180 Degree hooks	90 Degree hooks
#4	3"	6"	8"
#5	3 3/4"	7"	10"
#6	4 1/2"	8"	11-0"
#7	5 1/4"	10"	11-2"
#8	6"	11"	11-4"
#9	6 1/2"	11-3"	11-7"
#10	7 1/2"	11-5"	11-10"
#11	8 1/2"	11-7"	11-10"

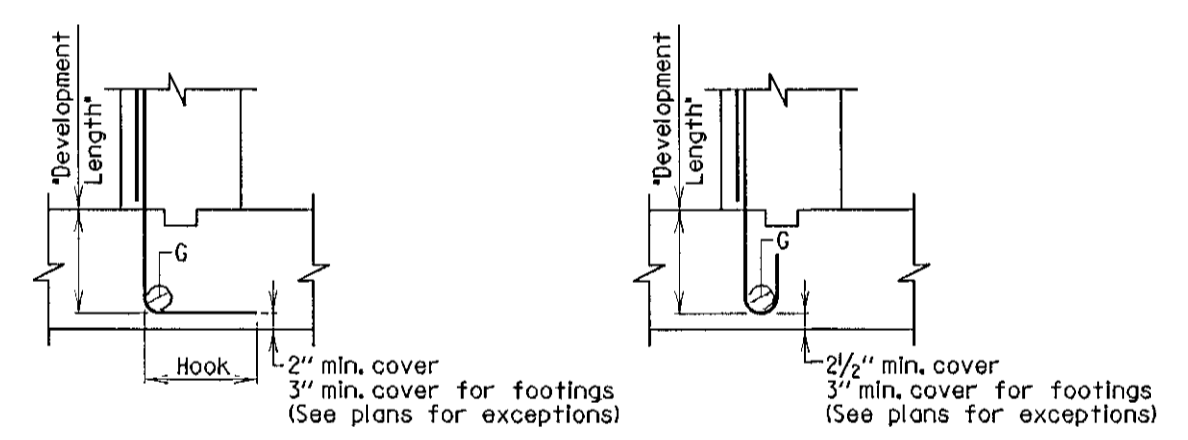
* LOCATION CATEGORY:

- D- All bars terminating with a standard 180° hook with side cover (normal to plane of hook) not less than 2 1/2 in. and for 90° deg. hook, cover on bar extension beyond hook not less than 2 in.
- E- All bars not in Category D.
- F- All bars with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar.

Note:

- When development length is not specified on the plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
- These development lengths only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."
- If depth of member does not allow bar development length indicated in Categories A, B, and C; Std. No. M6.141-90-214; then hook shall be added to all bars not conforming, as per D, E & F.

APPROVAL DATE: 6/8/90	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT DEVELOPMENT LENGTH DIMENSIONS OF HOOKED BARS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE	NO. M6.081-86-178	SHEET 1 OF 1
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STANDARD 90° HOOK

STANDARD 180° HOOK

BAR SIZE	* LOCATION CATEGORY		
	D	E	F
#4	7"	9"	8"
#5	8"	11-0"	9"
#6	10"	11-2"	11"
#7	11"	11-4"	11-1"
#8	11-1"	11-6"	11-3"
#9	11-3"	11-9"	11-5"
#10	11-4"	11-11"	11-7"
#11	11-6"	11-11"	11-9"

BAR SIZE	RECOMMENDED END HOOKS ALL GRADES		
	Finished bend diameter G in.	180 Degree hooks	90 Degree hooks
#4	3"	6"	8"
#5	3 3/4"	7"	10"
#6	4 1/2"	8"	11-0"
#7	5 1/4"	10"	11-2"
#8	6"	11"	11-4"
#9	6 1/2"	11-3"	11-7"
#10	7 1/2"	11-5"	11-10"
#11	8 1/2"	11-7"	11-10"

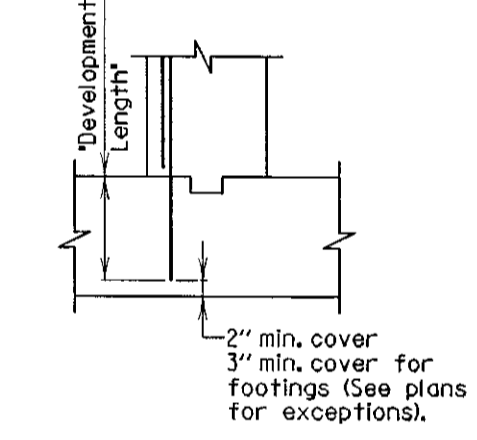
* LOCATION CATEGORY:

- D- All bars terminating with a standard 180° hook with side cover (normal to plane of hook) not less than 2 1/2 in. and for 90° deg. hook, cover on bar extension beyond hook not less than 2 in.
- E- All bars not in Category D.
- F- All bars with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar.

Note:

- When development length is not specified on the plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
- These development lengths only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."
- If depth of member does not allow bar development length indicated in Categories A, B, and C; Std. No. M6.161-90-216; then hook shall be added to all bars not conforming, as per D, E & F.

APPROVAL DATE: 6/8/90	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT DEVELOPMENT LENGTH DIMENSIONS OF HOOKED BARS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 6 (4500 P.S.I.) CONCRETE	NO. M6.101-86-180	SHEET 1 OF 1
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STANDARD STRAIGHT BAR

BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	1'-5"	1'-0"	1'-0"
#5	1'-9"	1'-3"	1'-0"
#6	2'-2"	1'-6"	1'-3"
#7	2'-11"	2'-1"	1'-8"
#8	3'-9"	2'-9"	2'-2"
#9	4'-9"	3'-5"	2'-9"
#10	6'-1"	4'-4"	3'-6"
#11	7'-5"	5'-4"	4'-3"

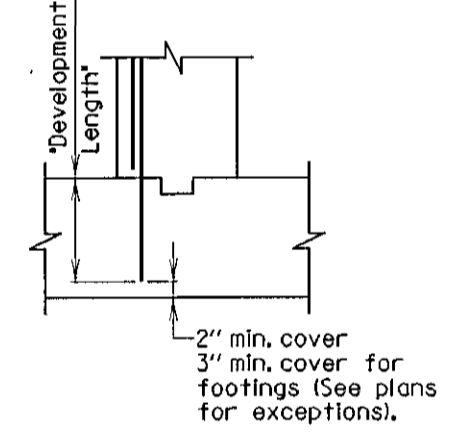
* LOCATION CATEGORY:

- A- Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B- All bars not in Category A spaced less than 6" apart.
- C- All bars not in Category A spaced 6 inches or more apart.

Note:

- When development length is not specified on the plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
- These development lengths only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."
- If depth of member does not allow bar development length indicated in Categories A, B, and C; then hook shall be added to all bars not conforming as per D, E, and F per Std. No. M6.081-86-178.

APPROVAL DATE: 11-23-93	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING	NO. M6.141-90-214	SHEET 1 OF 3
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STANDARD STRAIGHT BAR

BAR SIZE	* LOCATION CATEGORY			3 Times Bar Diameter	6 Times Bar Diameter	c/c Spacing
	A	B	C			
#4	1'-9"	1'-3"	1'-3"	1 1/2"	3"	3 1/2"
#5	2'-2"	1'-11"	1'-6"	1 3/4"	3 3/4"	4 3/8"
#6	2'-7"	2'-3"	1'-10"	2 1/4"	4 1/2"	5 1/4"
#7	3'-1"	2'-9"	2'-2"	2 5/8"	5 1/4"	6 1/8"
#8	4'-1"	3'-7"	2'-10"	3"	6"	7"
#9	5'-1"	4'-6"	3'-7"	3 3/8"	6 3/4"	7 7/8"
#10	6'-6"	5'-9"	4'-7"	3 3/4"	7 3/4"	8 7/8"
#11	7'-11"	7'-0"	5'-7"	4 1/4"	8 1/2"	9 3/4"

* LOCATION CATEGORY:

- A- Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.
- B- All bars not in Category A spaced less than 6" apart.
- C- All bars not in Category A spaced 6 inches or more apart.

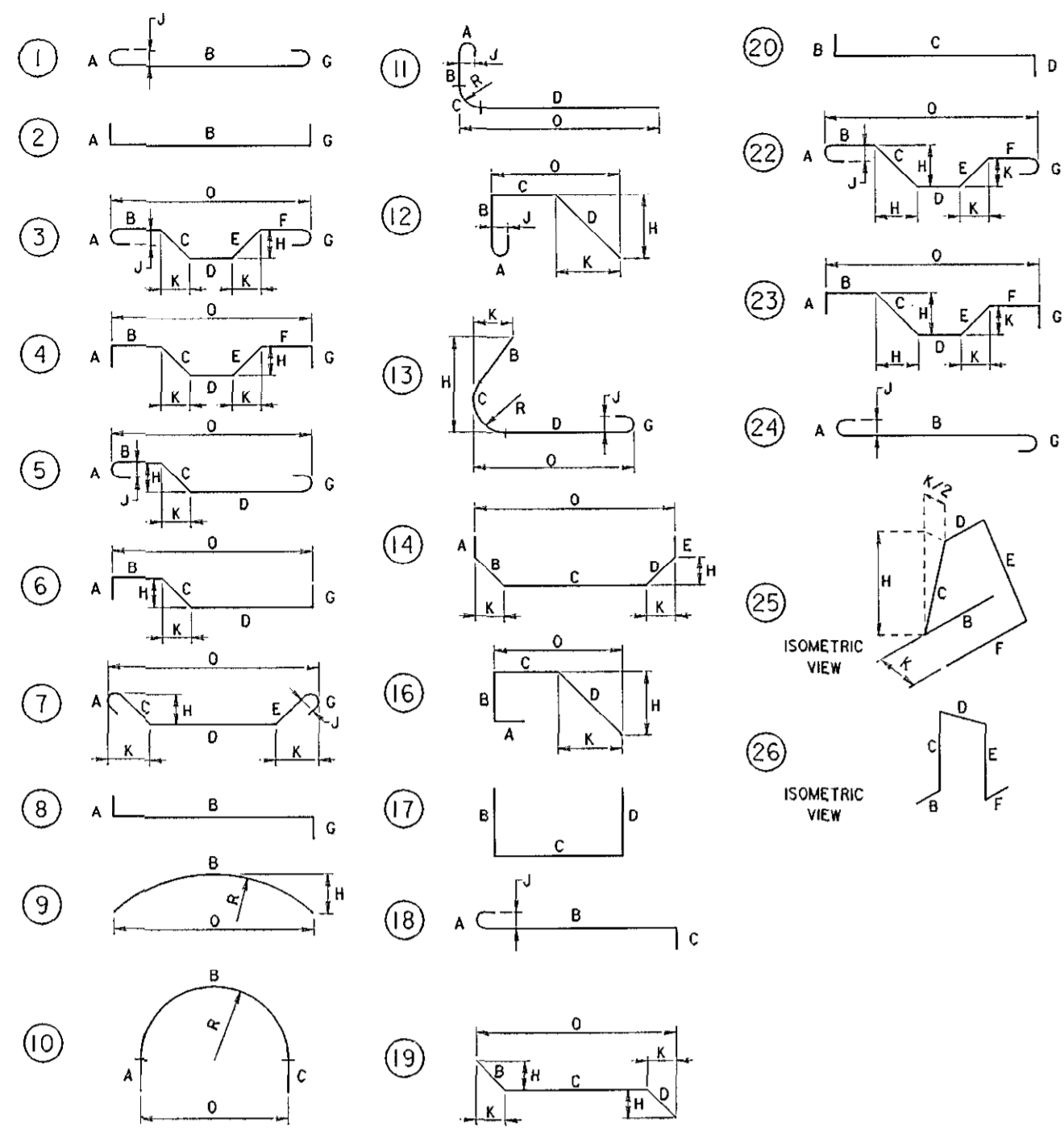
Note:

- When development length is not specified on the plans, the above dimensions shall be used.
- These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
- These development lengths only apply where the General Notes indicate "Reinforcing Steel Design, fs= 24,000 p.s.i."

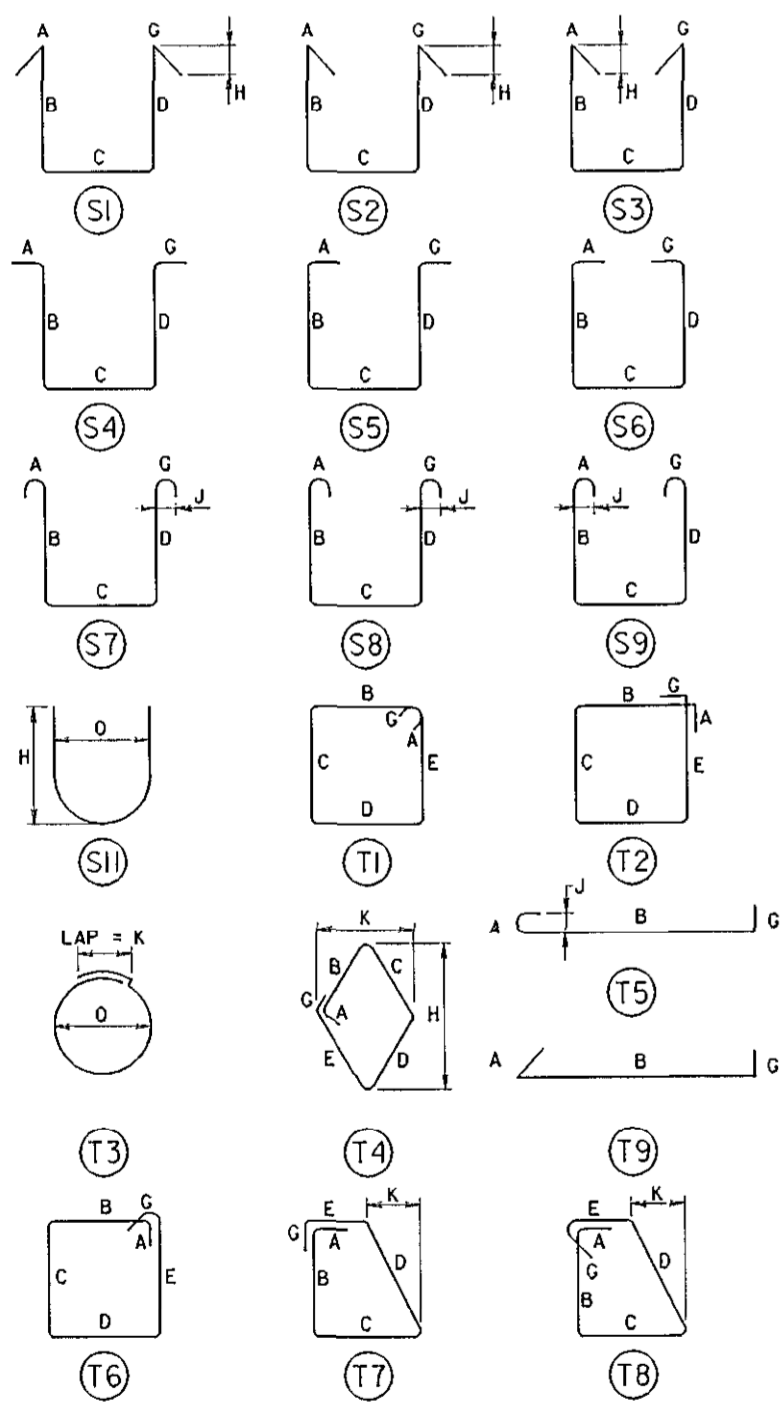
APPROVAL DATE: 11-23-93	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 6 (4500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING CASE NO.1	NO. M6.161-90-216	SHEET 2 OF 3
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REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER STANDARD DETAILS	
SCALE	AS SHOWN	DATE CONTRACT H08395180
DESIGNED BY	S.H.A.	
DRAWN BY	S.H.A.	
CHECKED BY	S.H.A.	
S. F.		
AUG 13 2002		
SHEET NO. 39 OF 54		

ACI TYPICAL BAR BENDS



STANDARD PIN BENDING

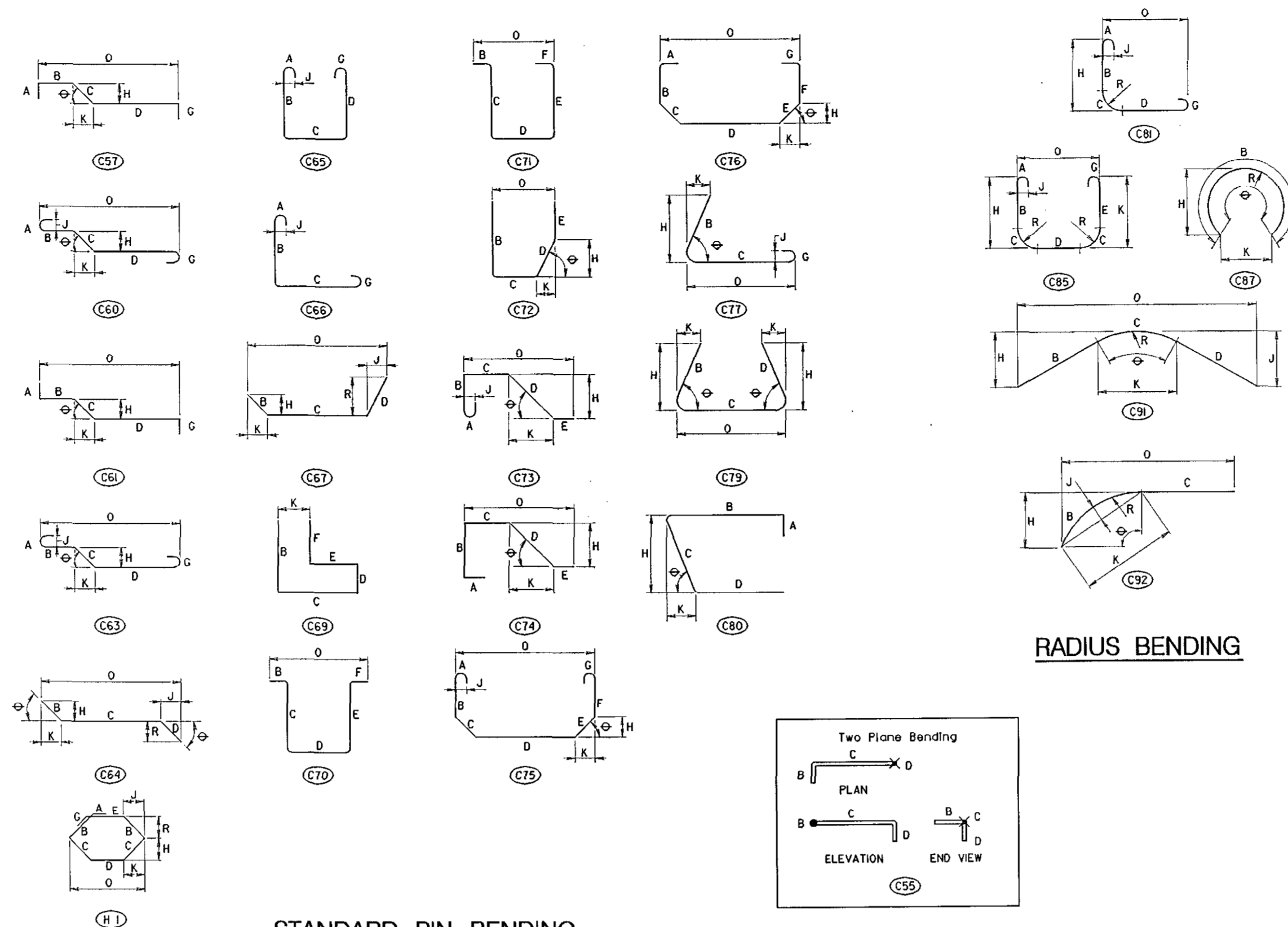


NOTE TO FABRICATOR

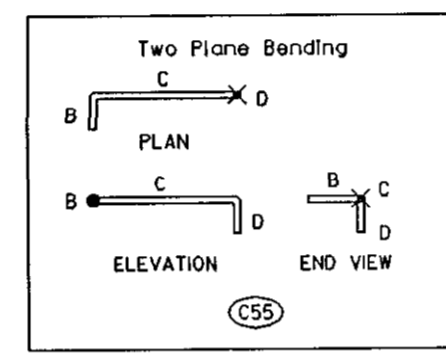
BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0) TOLERANCE (±) NORMAL ACI BENDING TOLERANCES

TIES AND STIRRUPS

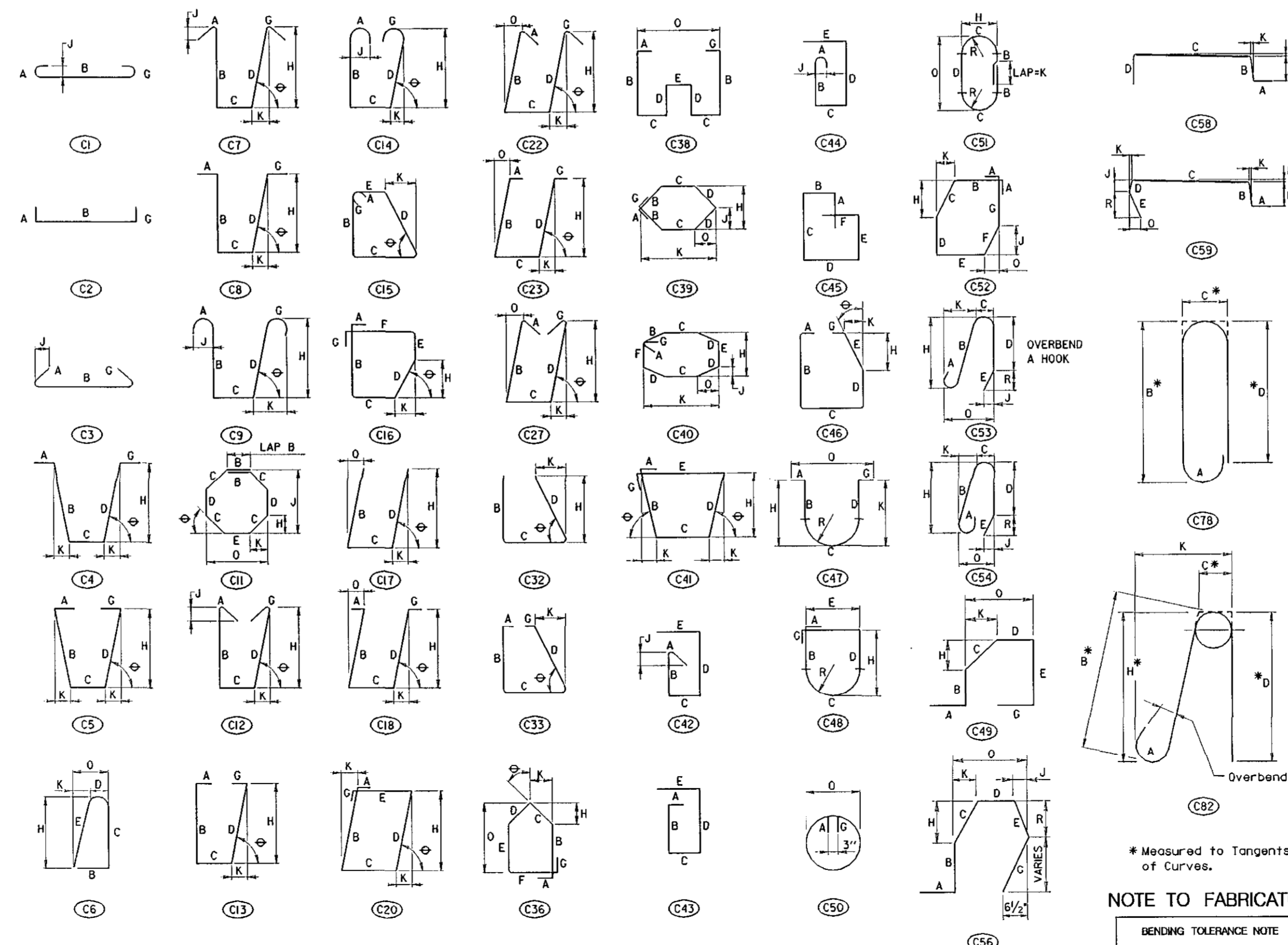
SHA TYPICAL BAR BENDS



STANDARD PIN BENDING



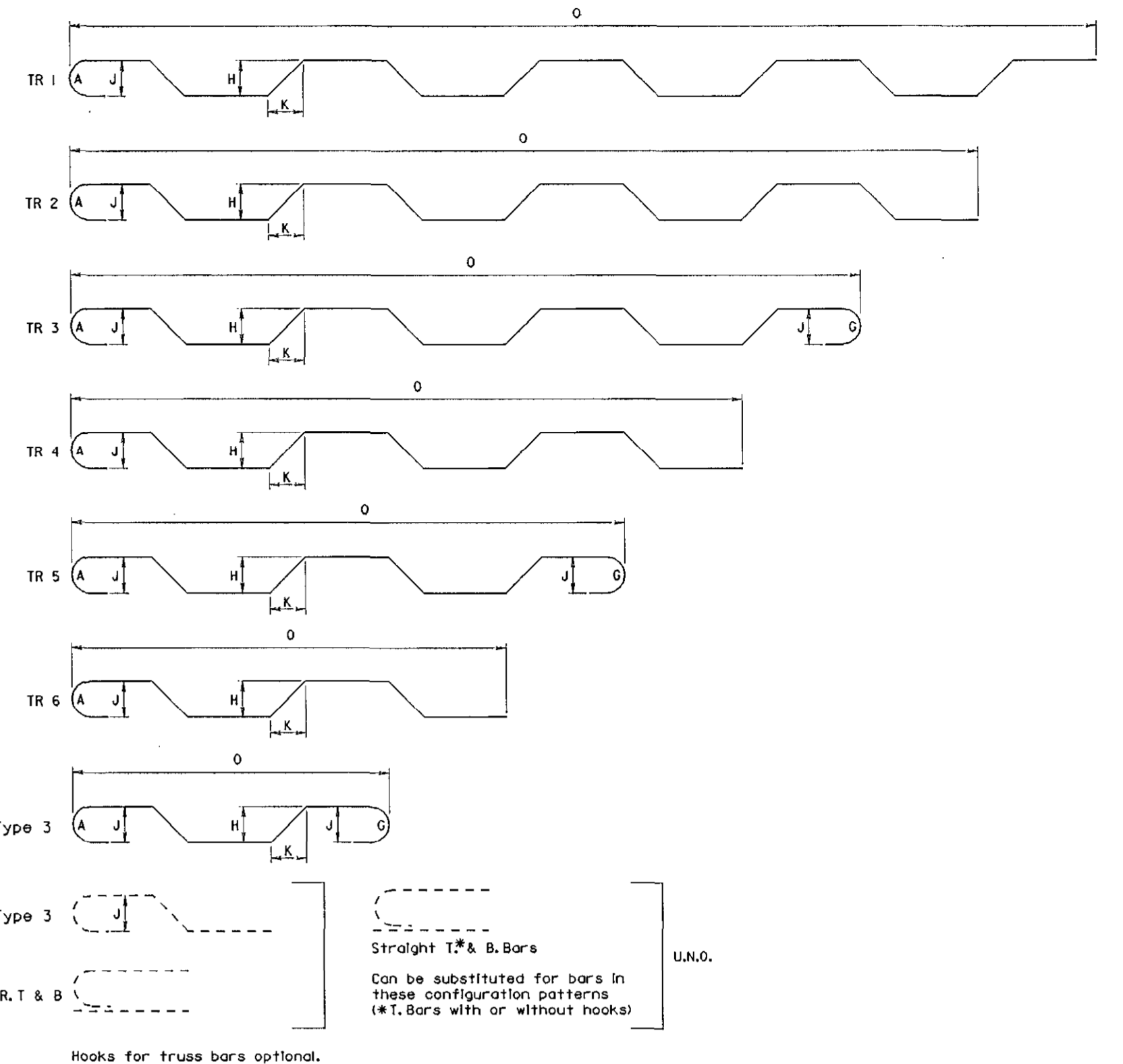
RADIUS BENDING



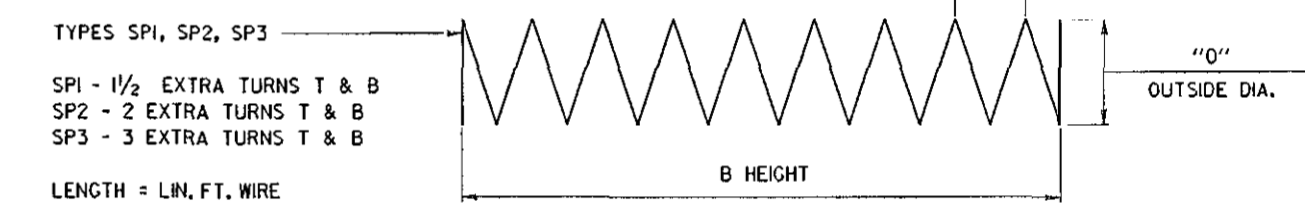
TIES AND STIRRUPS

* Measured to Tangents of Curves.

NOTE TO FABRICATOR
BENDING TOLERANCE NOTE
TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0) TOLERANCE (±) NORMAL ACI BENDING TOLERANCES

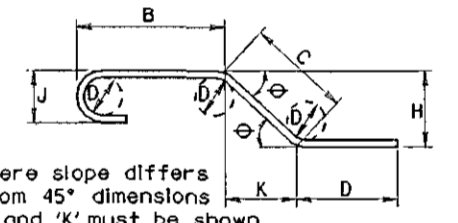


TRUSS BAR CONFIGURATION



SPIRAL

Unless otherwise noted diameter D is the same for all bends and hooks on a bar



ENLARGED VIEW SHOWING BAR BENDING DETAILS

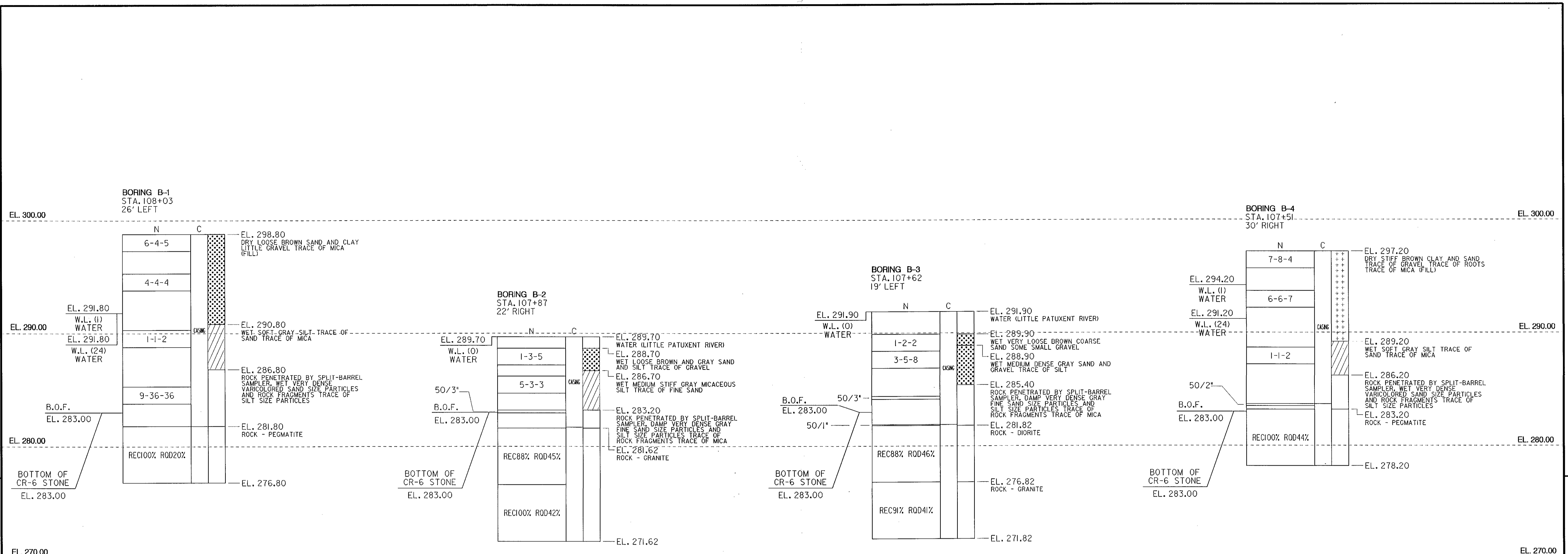
- Notes
- All dimensions are out to out of bar or to tangent points for 135° and 180° hooks.
 - 'J' dimensions on 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
 - Where 'J' is not shown, 'J' will be kept equal to or less than 'H' on truss bars, where 'J' can exceed 'H' it should be shown.
 - 'H' dimension on stirrups to be shown where necessary to fit within concrete.
 - Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

GENERAL NOTES

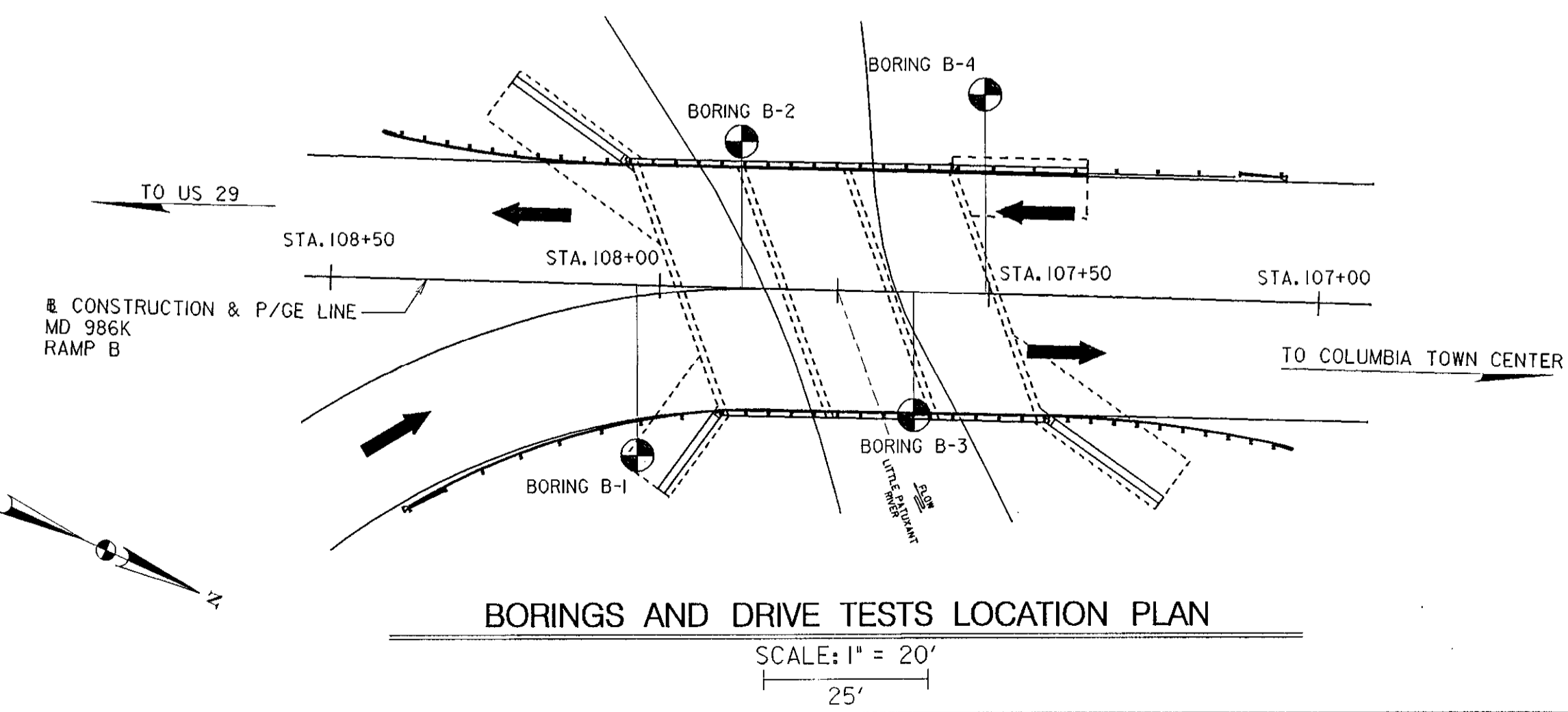
SHEET SI-12

REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER STANDARD DETAILS		
	SCALE AS SHOWN	DATE	CONTRACT H08395180
	DESIGNED BY S.H.A.	DRAWN BY S.H.A.	CHECKED BY S.H.A.
		E. S. F. AUG 13 2002	
OTHER CONTRACTS FOR THIS STRUCTURE		STRUCTURE INVENTORY NO. 1314300	SURVEY BOOK NO. 14235, 15622
		i:\0705300\md986k-1\patuxent\13143s04.	
		INDEXED	

SHEET NO. 40 OF 54



DATUM EL. 260.00



BORINGS AND DRIVE TESTS

SCALE: 1/4" = 1'
5'

NOTES:

- BORINGS AND DRIVE TESTS WERE TAKEN IN OCTOBER AND NOVEMBER, 2000 BY THE MARYLAND STATE HIGHWAY ADMINISTRATION.
- THE WRITTEN SOIL DESCRIPTIONS SUPERCEDE THE SOIL CLASSIFICATION SYMBOLS.
- THE ORIGINAL BORING LOGS RECORD SPOON SAMPLE RECOVERY. THE LOGS ARE AVAILABLE UPON REQUEST.
- N = BLOWS ON 2 INCH SPLIT-BARREL SAMPLING SPOON BY 140 LB. DRIVE-WEIGHT FALLING 30 INCHES INDICATING SUCCESSIVE 6 INCH INCREMENTS OF PENETRATION IN LIEU OF BLOWS PER FOOT. REC = ROCK CORE RECOVERY. ROD = ROCK QUALITY DESIGNATION.
- C = DEPTH OF BW FLUSHJOINT CASING.
- W.L. = WATER LEVEL READING. THE FIGURE IN PARENTHESIS INDICATES READING IN HOURS AFTER COMPLETION OF BORING.
- B.O.F. = BOTTOM OF FOOTING.
- BORINGS AND SAMPLINGS CONFORM TO AASHTO DESIGNATIONS T-206 AND T-225.
- SOIL HAS BEEN CLASSIFIED VISUALLY BY THE DRILLER.
- ROCK HAS BEEN CLASSIFIED BY A GEOLOGIST.

SHEET SI-13

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT TRIPLE 14' X 8' CONCRETE BOX CULVERT NO. 13143 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER BORINGS AND DRIVE TESTS		
SCALE AS SHOWN	DATE	CONTRACT H08395180
DESIGNED BY	S.H.A.	
DRAWN BY	S.H.A.	
CHECKED BY	S.H.A.	
E. S. F. AUG 13 2002		
SHEET NO. 41		OF 54

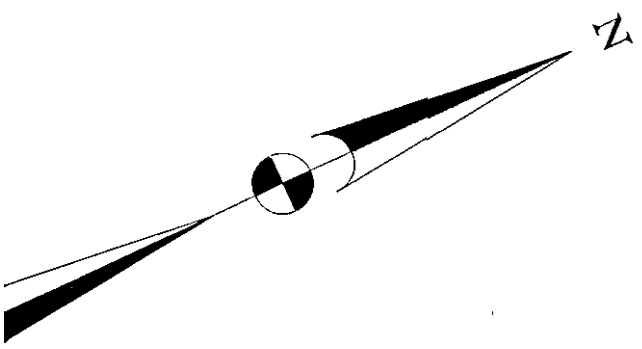
OTHER CONTRACTS FOR THIS STRUCTURE

BRIDGE NO. 1314300

SURVEY BOOK NO. 14235, 15622

i:\0705300\md986k-1 patuxent\al3143blo

INDEXED



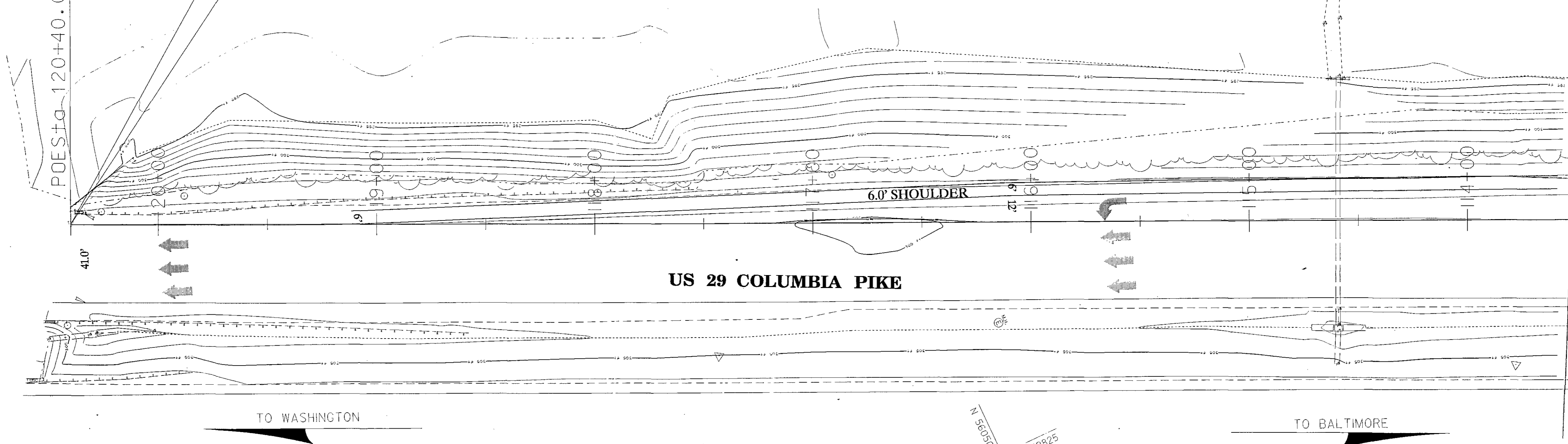
E 1352500
N 560500

E 1352500
N 560500

RIGHT-OF-WAY LINE OF THRU HIGHWAY

LIMIT OF WORK
CONT. NO. H08395180
US 29
STA. 120+40

POE Sta. 120+40.06



MATCH TO LS02

TO WASHINGTON

TO BALTIMORE

N 560500
E 1352500

PLANTING PLAN

LS-01

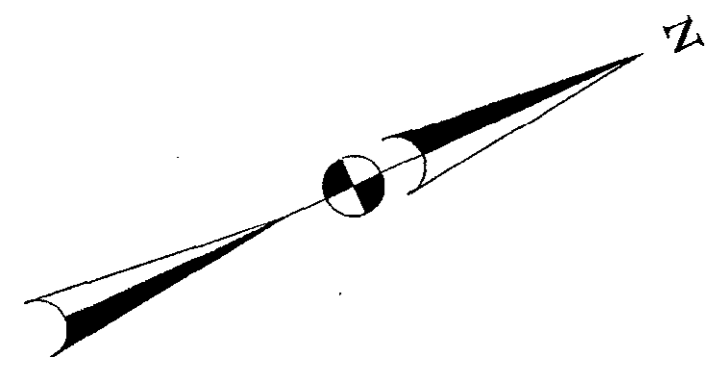
SCALE: 1" = 30'

NO PLANTING ON THIS SHEET

REVISIONS		
	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION LANDSCAPE ARCHITECTURE DIVISION REPLACEMENT OF BOX CULVERT # 1314300 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER	
CONT. NO. H08395175	F.A.P. NO. SEE TITLE SHEET	SHEET NO. 42 OF 54
PREL. TRAC. BY	FINAL TRAC. BY	

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Landscape



LANDSCAPE PLANT SCHEDULE LS-02

SYB	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
	○	9	LIQUIDAMBAR STYRACIFULA	SWEETGUM	2.5" CAL.	B&B OR CONT.	25' O.C.
	○	5	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL.	B&B OR CONT.	25' O.C.
	△	193	LIVE WILLOW STAKES				SEE NOTE ON THIS SHEET
		465	FURNISHED TOPSOIL 6" DEPTH			SY	
		35	SHREDDED HARDWOOD MULCH			SY	
		2 MG	ADDITIONAL WATERING			MG	

REFORESTATION PLANT SCHEDULE LS-02

QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
18	ACER RUBRUM	RED MAPLE	5' HT.	CONT.
19	LIQUIDAMBAR STYRACIFULA	SWEETGUM	5' HT.	CONT.
15	CORNUS AMOMUM	SILKY DOGWOOD	3' HT.	CONT.
3 MG	ADDITIONAL WATERING			

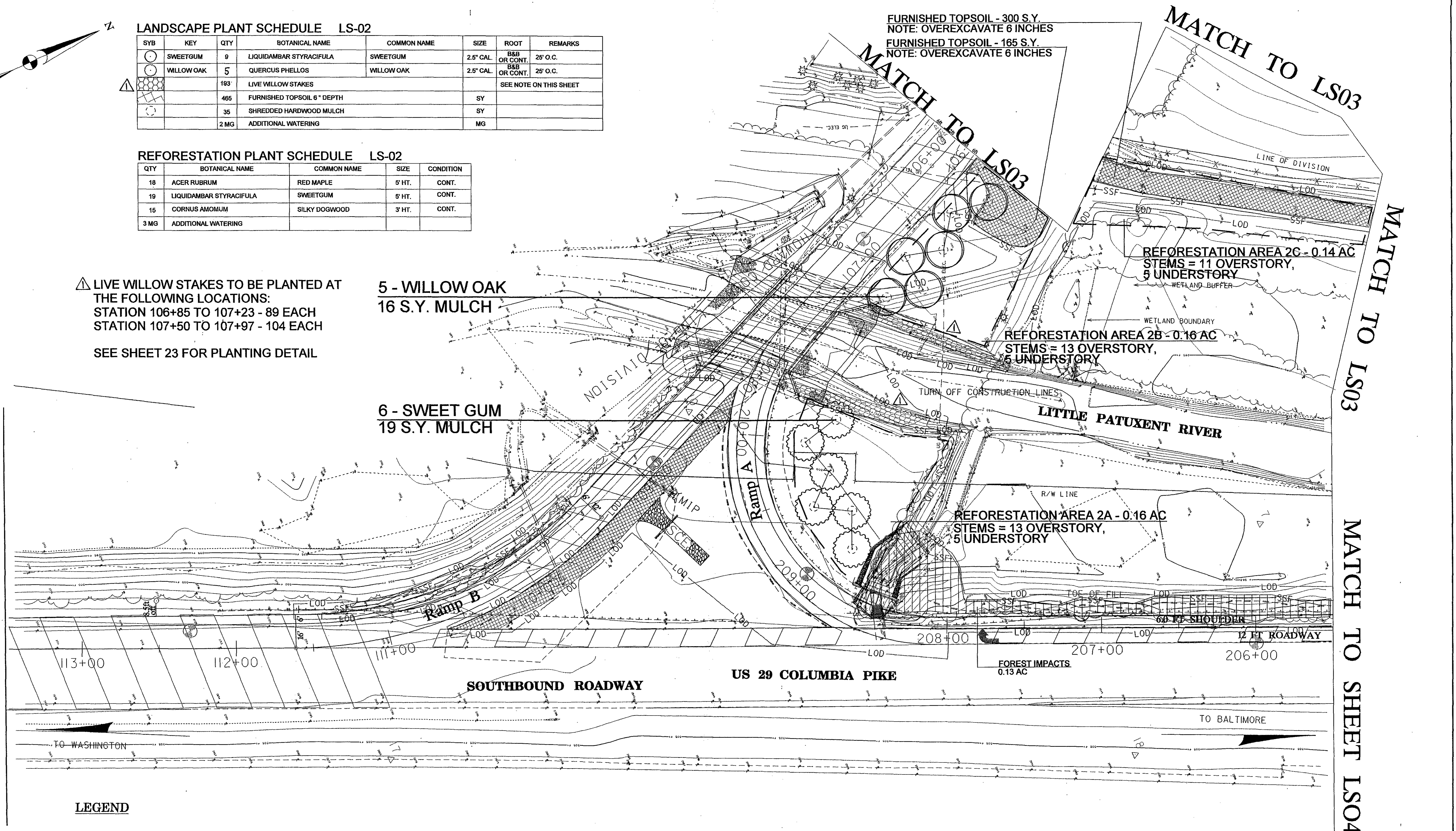
△ LIVE WILLOW STAKES TO BE PLANTED AT THE FOLLOWING LOCATIONS:
 STATION 106+85 TO 107+23 - 89 EACH
 STATION 107+50 TO 107+97 - 104 EACH
 SEE SHEET 23 FOR PLANTING DETAIL

5 - WILLOW OAK
 16 S.Y. MULCH

6 - SWEET GUM
 19 S.Y. MULCH

FURNISHED TOPSOIL - 300 S.Y.
 NOTE: OVEREXCAVATE 6 INCHES
 FURNISHED TOPSOIL - 165 S.Y.
 NOTE: OVEREXCAVATE 6 INCHES

MATCH TO LS01



LEGEND

- FOREST IMPACT AREA
- REFORESTATION AREA

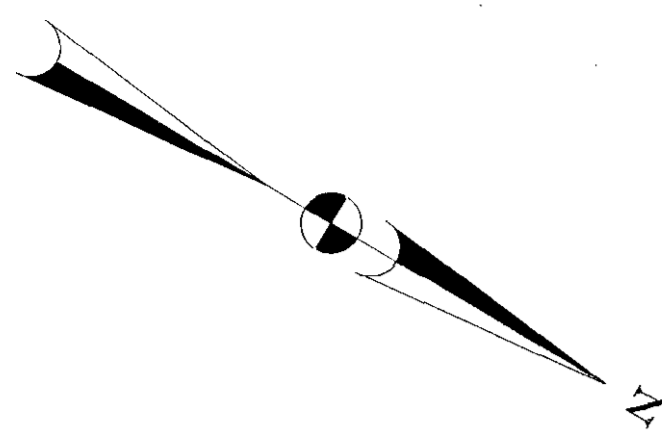
SCALE: 1" = 30'

THIS SHEET IS FOR PLANTING PURPOSES ONLY

PLANTING PLAN

LS-02

REVISIONS		STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION LANDSCAPE ARCHITECTURE DIVISION REPLACEMENT OF BOX CULVERT # 1314300 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER	
1	ADDENDUM NO. 1 9/5/02	CONT. NO. H08395180	F.A.P. NO. SEE TITLE SHEET SHEET NO. 43 OF 54
		PREL. TRAC. BY	FINAL TRAC. BY



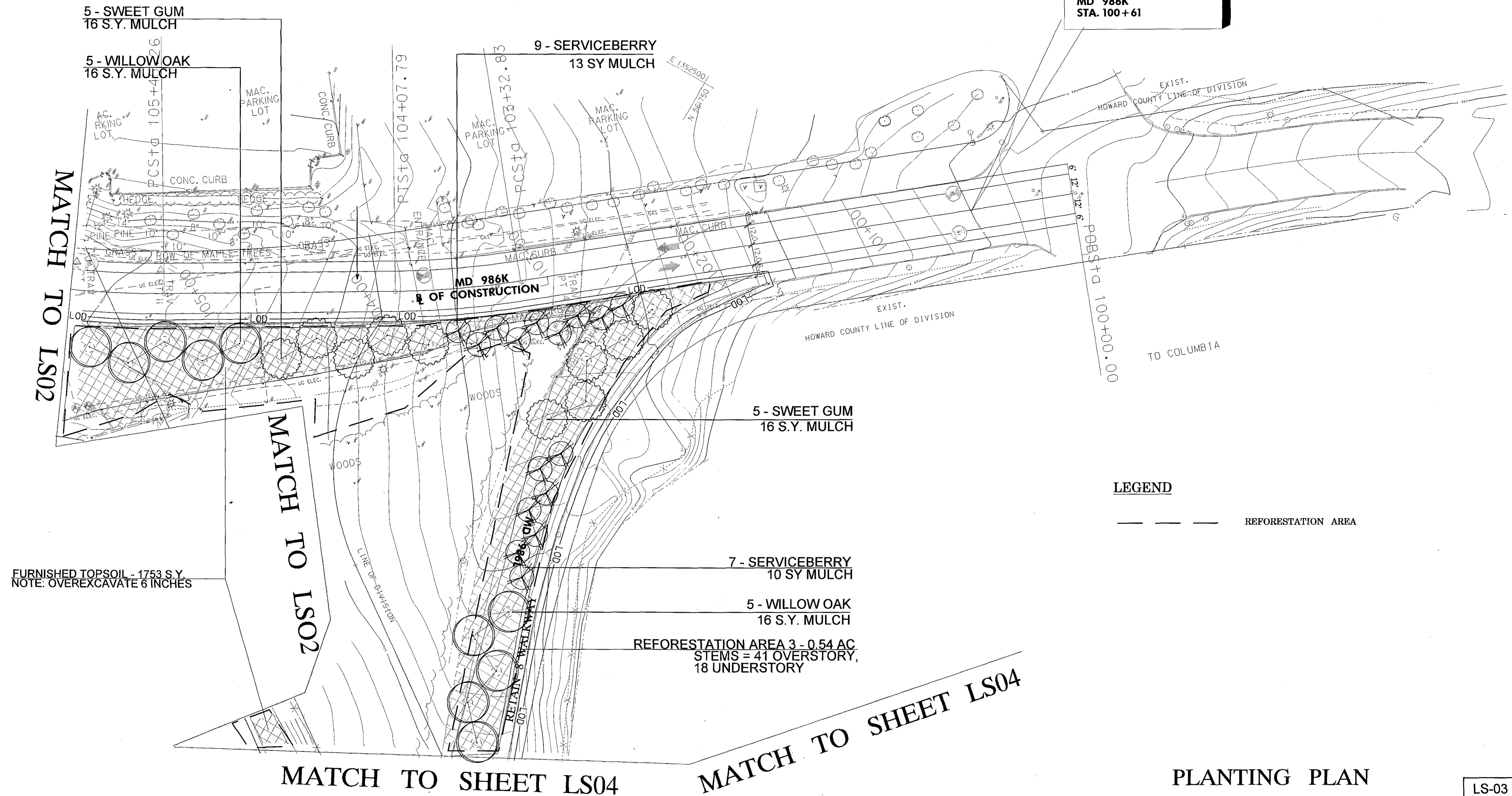
REFORESTATION PLANT SCHEDULE LS-03

QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
14	ACER RUBRUM	RED MAPLE	5' HT.	CONT.
14	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	5' HT.	CONT.
13	QUERCUS PHELLOS	WILLOW OAK	4' HT.	CONT.
18	VIBURNUM LENTAGO	NANNYBERRY	3' HT.	CONT.
3 MG	ADDITIONAL WATERING			

LANDSCAPE PLANT SCHEDULE LS-03

SYB	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
○	WILLOW OAK	10	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL.	B&B OR CONT.	25' O.C.
○	SWEET GUM	10	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	2.5" CAL.	B&B OR CONT.	25' O.C.
⊗	SERVICEBERRY	16	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5" CAL.	B&B OR CONT.	15' O.C. SINGLE-STEM
		1752	FURNISHED TOPSOIL 6" DEPTH		SY		
		87	SHREDDED HARDWOOD MULCH		SY		
		3	ADDITIONAL WATERING		MG		

**LIMIT OF WORK
CONT. NO. H08395180
MD 986K
STA. 100+61**



FURNISHED TOPSOIL - 1753 S.Y.
NOTE: OVEREXCAVATE 6 INCHES

LEGEND
----- REFORESTATION AREA

MATCH TO SHEET LS04

MATCH TO SHEET LS04

PLANTING PLAN

LS-03

SCALE: 1" = 30'

THIS SHEET IS FOR PLANTING PURPOSES ONLY

REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION LANDSCAPE ARCHITECTURE DIVISION REPLACEMENT OF BOX CULVERT # 1314300 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER
	CONT. NO. H08395180 F.A.P. NO. SEE TITLE SHEET SHEET NO. 44 OF 54 PREL. TRAC. BY _____ FINAL TRAC. BY _____

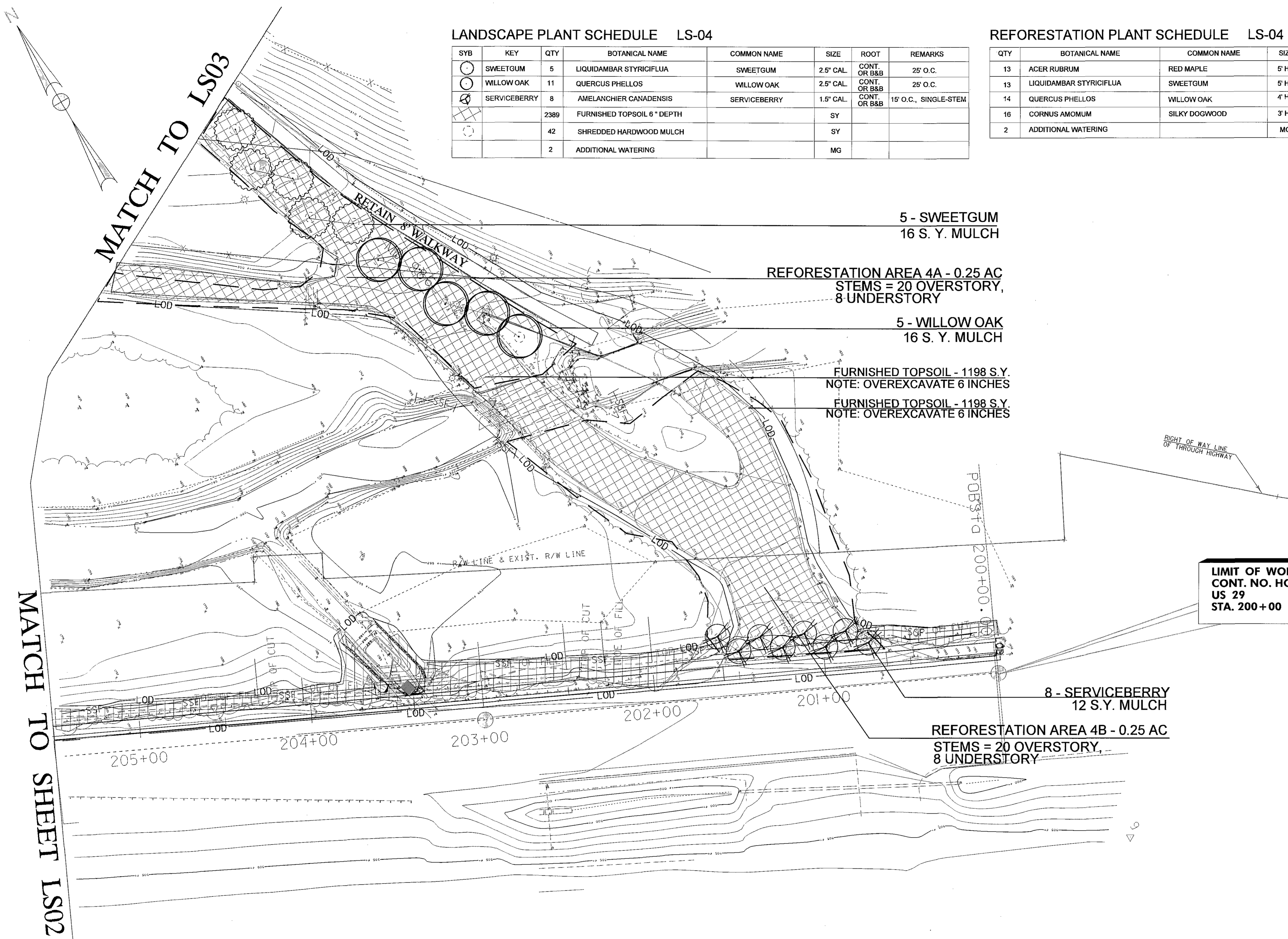
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LANDSCAPE PLANT SCHEDULE LS-04

SYB	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
○		5	LIQUIDAMBAR STYRICIFLUA	SWEETGUM	2.5" CAL.	CONT. OR B&B	25' O.C.
○		11	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL.	CONT. OR B&B	25' O.C.
○		8	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5" CAL.	CONT. OR B&B	15' O.C., SINGLE-STEM
		2389	FURNISHED TOPSOIL 6" DEPTH		SY		
		42	SHREDDED HARDWOOD MULCH		SY		
		2	ADDITIONAL WATERING		MG		

REFORESTATION PLANT SCHEDULE LS-04

QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
13	ACER RUBRUM	RED MAPLE	5' HT.	CONT.
13	LIQUIDAMBAR STYRICIFLUA	SWEETGUM	5' HT.	CONT.
14	QUERCUS PHELLOS	WILLOW OAK	4' HT.	CONT.
16	CORNUS AMOMUM	SILKY DOGWOOD	3' HT.	CONT.
2	ADDITIONAL WATERING		MG	



5 - SWEETGUM
16 S. Y. MULCH

REFORESTATION AREA 4A - 0.25 AC
STEMS = 20 OVERSTORY,
8 UNDERSTORY

5 - WILLOW OAK
16 S. Y. MULCH

FURNISHED TOPSOIL - 1198 S.Y.
NOTE: OVEREXCAVATE 6 INCHES

FURNISHED TOPSOIL - 1198 S.Y.
NOTE: OVEREXCAVATE 6 INCHES

LIMIT OF WORK
CONT. NO. HO8395180
US 29
STA. 200+00

8 - SERVICEBERRY
12 S.Y. MULCH

REFORESTATION AREA 4B - 0.25 AC
STEMS = 20 OVERSTORY,
8 UNDERSTORY

LEGEND

- FOREST IMPACT AREA
- REFORESTATION AREA

PLANTING PLAN

LS-04

SCALE: 1" = 30'

THIS SHEET IS FOR PLANTING PURPOSES ONLY

REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION LANDSCAPE ARCHITECTURE DIVISION REPLACEMENT OF BOX CULVERT # 1314300 ON MD 386K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER	
	CONT. NO. HO8395175	F.A.P. NO. SEE TITLE SHEET SHEET NO. 45 OF 54
	PREL. TRAC. BY	FINAL TRAC. BY

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GENERAL PLANTING NOTES

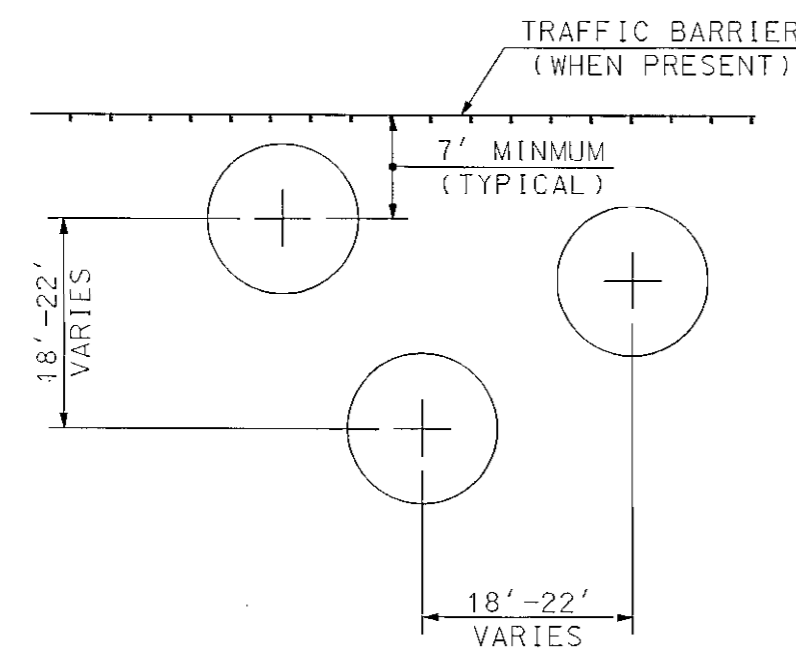
- DRAWINGS ARE FOR LANDSCAPE PURPOSES ONLY, AS-BUILT HIGHWAY CONDITIONS MAY VARY. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND UTILITY LOCATIONS SHOWN AND OR DESCRIBED ON THE DRAWINGS. THE CONTRACTOR SHALL INFORM THE MARYLAND STATE HIGHWAY ADMINISTRATION LANDSCAPE OPERATIONS DIVISION OF ANY DISCREPANCIES OR PROBLEMS PRIOR TO COMMENCING WORK.
- PLANT TREES OR SHRUBS 7'-0" FROM THE CENTERLINE OF SWALES OR DITCHES.
- PLANT TREES OR SHRUBS 5'-0" FROM THE CENTERLINE OF ALL UTILITY LINES. "MISS UTILITY" (1-800-257-7777) MUST BE CONTACTED AT LEAST A MINIMUM OF 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION FOR PLANT MATERIAL INSTALLATION.
- ALL BRANCHED DECIDUOUS TREES IN REFORESTATION PLANTING AREA SHALL BE PLANTED WITH RANDOM SPACING RANGING FROM 18'-0" TO 22'-0" ON CENTER. BRANCHED DECIDUOUS TREES OF THE SAME SPECIES SHALL BE PLANTED IN GROUPS OF NO LESS THAN 2 TREES AND NO MORE THAN 15 TREES. REFER TO PLANT SPACING DETAIL D1.
- SHRUBS AND CONTAINER GROWN EVERGREENS IN REFORESTATION PLANTING AREAS AND NOT IN PLANTING BEDS, SHALL BE PLANTED IN RANDOM SPACING RANGING FROM 13'-0" TO 18'-0" ON CENTER. SHRUBS AND CONTAINER GROWN EVERGREENS OF THE SAME SPECIES SHALL BE PLANTED IN GROUPS OF NO LESS THAN 3 PLANTS AND NO MORE THAN 20 PLANTS. REFER TO PLANT SPACING DETAILS D2 AND D3

MASTER LANDSCAPE PLANT SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
○	WILLOW OAK	26	QUERCUS PHELLOS	WILLOW OAK	2.5 IN. CAL.	25 FT. O.C.
○	SWEETGUM	24	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	2.5 IN. CAL.	25 FT. O.C.
○	SERVICEBERRY	24	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5 IN. CAL.	SINGLE-STEM 15 FT. O.C.
		4607	FURNISHED TOPSOIL 6" DEPTH		SY	
		164	SHREDDED HARDWOOD MULCH		SY	
		7	ADDITIONAL WATERING		MG	

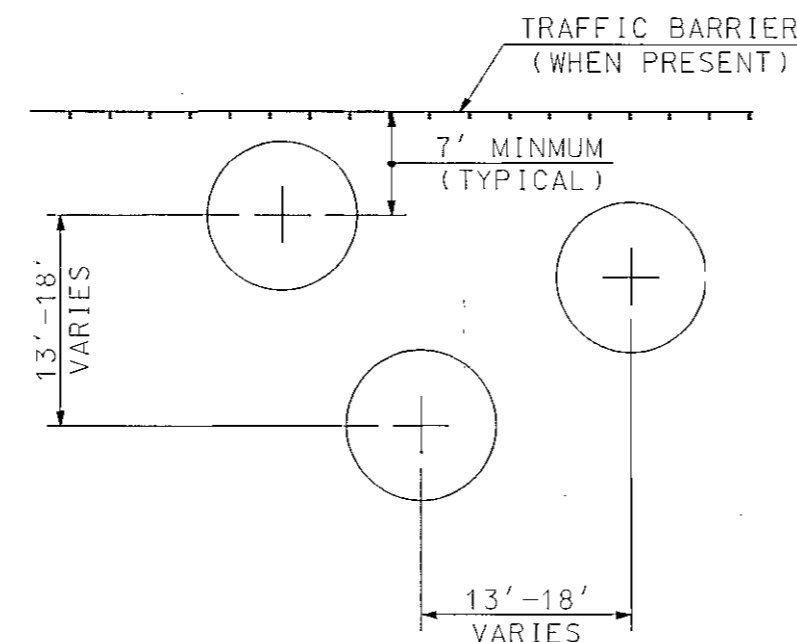
MASTER REFORESTATION PLANT SCHEDULE

QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
45	ACER RUBRUM	RED MAPLE	5' HT.	CONT.
46	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	5' HT.	CONT.
27	QUERCUS PHELLOS	WILLOW OAK	4' HT.	CONT.
18	VIBURNUM LENTAGO	NANNYBERRY	3' HT.	CONT.
32	CORNUS AMOMUM	SILKY DOGWOOD	3' HT.	CONT.
9 MG	ADDITIONAL WATERING			



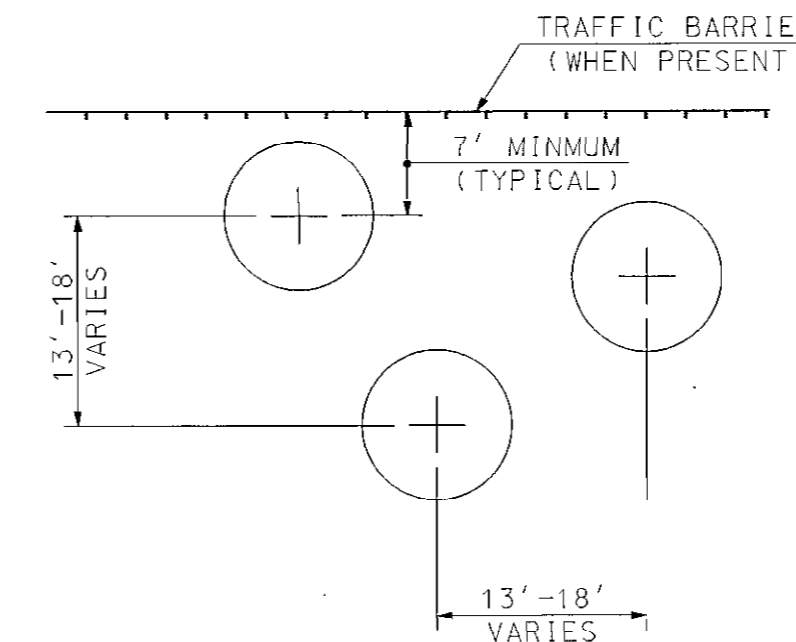
NOTE: PLACE OVERSTORY TREES ALONG EXISTING WOODS AND AS SENTINEL BEHIND SHRUBS

D
1
TYPICAL BRANCHED DECIDUOUS TREE LAYOUT WITHIN REFORESTATION ZONES
NOT TO SCALE



NOTE: PLACE EVERGREEN TREES IN CLUSTERS WITHIN REFORESTATION ZONES

D
2
TYPICAL EVERGREEN TREE LAYOUT WITHIN REFORESTATION ZONES
NOT TO SCALE



NOTE: PLACE SHRUBS AND UNDERSTORY TREES TOWARDS THE EDGES OF REFORESTATION ZONES TO FACE THE HIGHWAY

D
3
TYPICAL UNDERSTORY LAYOUT WITHIN REFORESTATION ZONES
NOT TO SCALE

NO PLANTING ON THIS SHEET

PLANTING PLAN

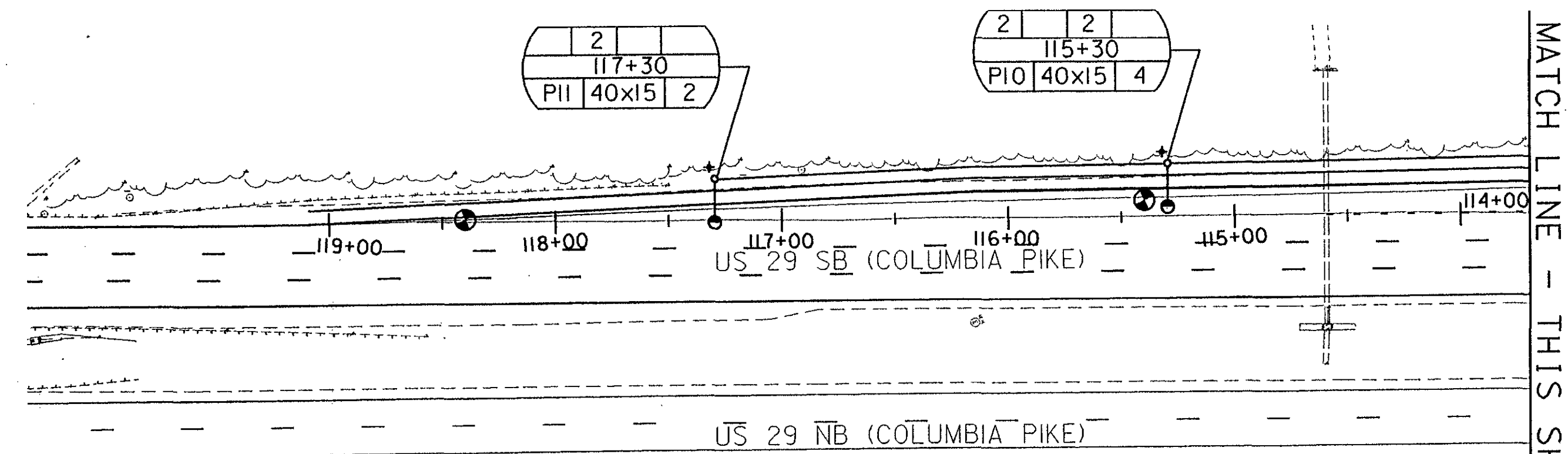
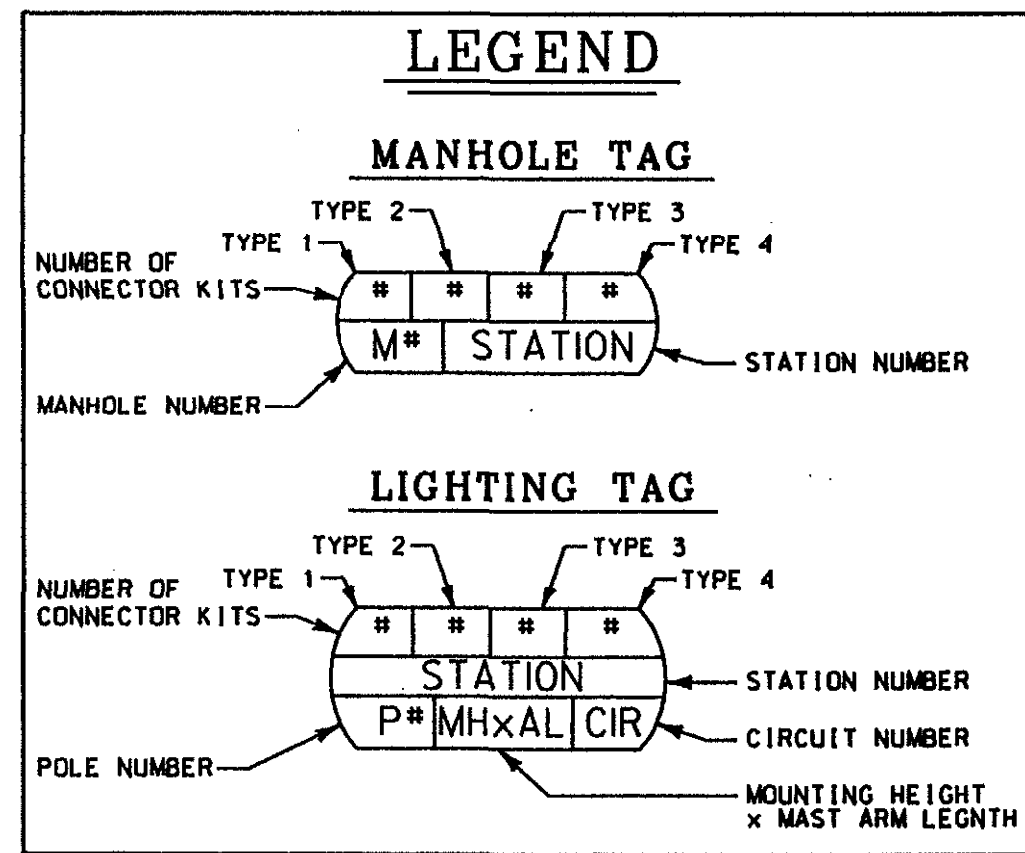
LS-05

REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION LANDSCAPE ARCHITECTURE DIVISION REPLACEMENT OF BOX CULVERT # 1314300 ON MD 986K (SOUTH ENTRANCE ROAD) OVER LITTLE PATUXENT RIVER
	CONT. NO. H08395175 F.A.P. NO. SEE TITLE SHEET SHEET NO. 46 OF 54 PREL. TRAC. BY _____ FINAL TRAC. BY _____

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Landscape

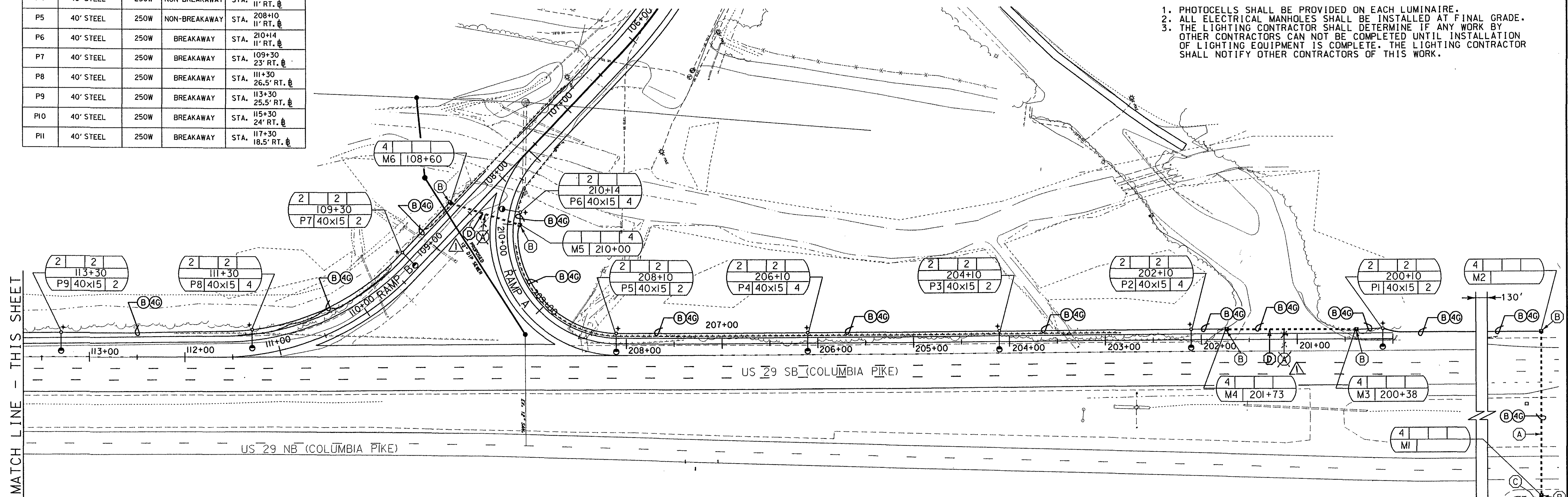
SCHEDULE OF PANEL										
CIRCUIT NUMBER	EQUIPMENT SERVED	CONNECTED LOAD		PHASE AND VOLTS	BRANCH CIRCUIT BREAKERS			WIRING		REMARKS
		KW	AMPS		NO. OF POLES	FRAME SIZE	TRIP SIZE	NO.	SIZE	
2	P1,P3,P5,P7,P9,P11	1.87	7.8	240	2	20A	20A	2	4	
4	P2,P4,P6,P8,P10	1.56	6.5	240	2	20A	20A	2	4	
TOTALS		3.43	14.3							



LIGHTING POLE SCHEDULE					
POLE NUMBER	TYPE OF POLE	LUMINAIRE WATTAGE	TYPE OF BASE	POLE LOCATION	
P1	40' STEEL	250W	BREAKAWAY	STA. 200+10	11' RT. Ⓟ
P2	40' STEEL	250W	BREAKAWAY	STA. 202+10	11' RT. Ⓟ
P3	40' STEEL	250W	NON-BREAKAWAY	STA. 204+10	11' RT. Ⓟ
P4	40' STEEL	250W	NON-BREAKAWAY	STA. 206+10	11' RT. Ⓟ
P5	40' STEEL	250W	NON-BREAKAWAY	STA. 208+10	11' RT. Ⓟ
P6	40' STEEL	250W	BREAKAWAY	STA. 210+14	11' RT. Ⓟ
P7	40' STEEL	250W	BREAKAWAY	STA. 109+30	23' RT. Ⓟ
P8	40' STEEL	250W	BREAKAWAY	STA. 111+30	26.5' RT. Ⓟ
P9	40' STEEL	250W	BREAKAWAY	STA. 113+30	25.5' RT. Ⓟ
P10	40' STEEL	250W	BREAKAWAY	STA. 115+30	24' RT. Ⓟ
P11	40' STEEL	250W	BREAKAWAY	STA. 117+30	18.5' RT. Ⓟ

GENERAL NOTES

- PHOTOCELLS SHALL BE PROVIDED ON EACH LUMINAIRE.
- ALL ELECTRICAL MANHOLES SHALL BE INSTALLED AT FINAL GRADE.
- THE LIGHTING CONTRACTOR SHALL DETERMINE IF ANY WORK BY OTHER CONTRACTORS CAN NOT BE COMPLETED UNTIL INSTALLATION OF LIGHTING EQUIPMENT IS COMPLETE. THE LIGHTING CONTRACTOR SHALL NOTIFY OTHER CONTRACTORS OF THIS WORK.



CONSTRUCTION DETAILS

- INSTALL 4 IN. SCHEDULE 80, RIGID POLYVINYL CHLORIDE ELECTRICAL CONDUIT (BORED).
- INSTALL ELECTRICAL MANHOLE.
- INSTALL 2 IN. SCHEDULE 80, POLYVINYL CHLORIDE ELECTRICAL CONDUIT (TRENCHED) WITH THREE 1-CONDUCTOR NO. 4 A.W.G., 600V ELECTRICAL CABLES AND STRANDED BARE COPPER GROUND WIRE NO. 4 A.W.G. FOR ELECTRICAL SERVICE. CONDUIT SHALL TIE INTO EXISTING METER PAN ON REAR OF BASE MOUNTED CABINET.
- INSTALL 4 IN. SCHEDULE 80, RIGID POLYVINYL CHLORIDE ELECTRICAL CONDUIT (TRENCHED).

LEGEND OF UNDERGROUND AND OVERHEAD UTILITIES	
AERIAL CABLE	A
ELECTRICAL	E
TELEPHONE	T
GAS	G
SEWER	SS
STORM DRAIN	SD
WATER	W
CABLE TV	TV

PROJECT APPROVALS

APPROVALS ARE FOR LIGHTING
SHEETS: L-1 THRU L-1
A TOTAL OF 1 SHEET

APPROVALS

Amy K. Beall 8/7/02
TEAM LEADER, TRAFFIC ENGINEERING DESIGN DIVISION

REVISIONS

ADDENDUM NO. 1
ADDED NOTE D.
D.T.B. 1/5/02



Whitman, Reardon
and Associates, LLP
801 South Caroline Street
Baltimore, Maryland 21231
(410) 235-3450

John J. ...
ASST. CHIEF TRAFFIC ENGINEERING DESIGN DIVISION
JAS 8/18/02
CHIEF TRAFFIC ENGINEERING DESIGN DIVISION
DIRECTOR, OFFICE OF TRAFFIC & SAFETY

SERVICE PEDESTAL CONTAINING 200 A, 2P MAIN CIRCUIT BREAKER WITH 2-20A 2P BRANCH CIRCUIT BREAKERS. INSTALL 2-2 IN. SCHEDULE 80, 90 DEGREE POLYVINYL CHLORIDE CONDUIT BENDS IN PEDESTAL BASE.

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION

LIGHTING PLAN
US 29 AT SOUTH ENTRANCE ROAD (MD 986K)

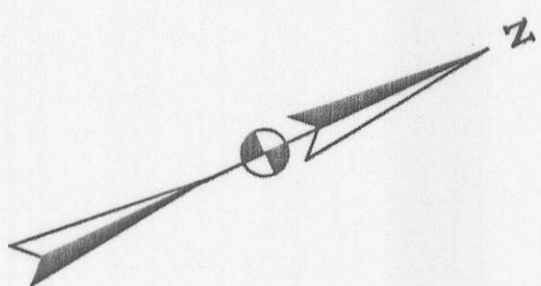
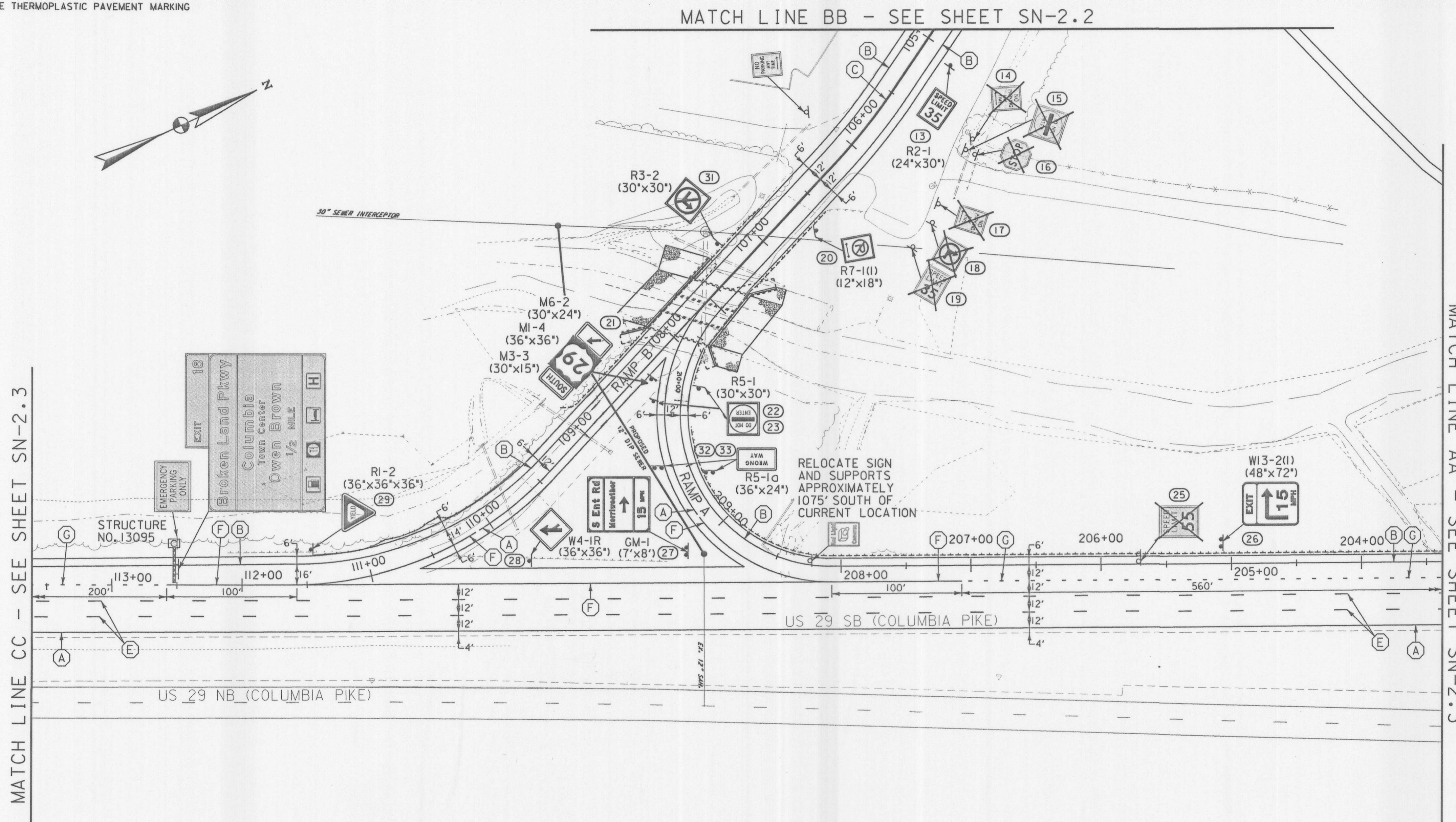
DRAWN BY: S.BLOSS	F.A.P. NO.	SEE TITLE SHEET	PLAN SHEET NO.:	SHEET NO.
CHECK BY: N.LEARY	S.H.A. NO.	SEE TITLE SHEET	L-1	47 OF 54
SCALE: 1"=50'	COUNTY: HOWARD			

PAVEMENT MARKING LEGEND

- (A) 5 IN. SOLID YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (B) 5 IN. SOLID WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (C) 5 IN. SOLID DOUBLE YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (D) REMOVE EXISTING PAVEMENT MARKINGS
- (E) 5 IN. SKIP WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (10 FOOT LINE WITH 30 FOOT GAP)
- (F) 10 IN. SOLID WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (G) 10 IN. SKIP WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3 FOOT LINE WITH 9 FOOT GAP)

SIGN LEGEND

- ▲▲ EXISTING GROUND MOUNTED SIGN AND SUPPORT(S)
- ▲▲ PROPOSED GROUND MOUNTED SIGN AND SUPPORT(S)
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING CANTILEVER STRUCTURE

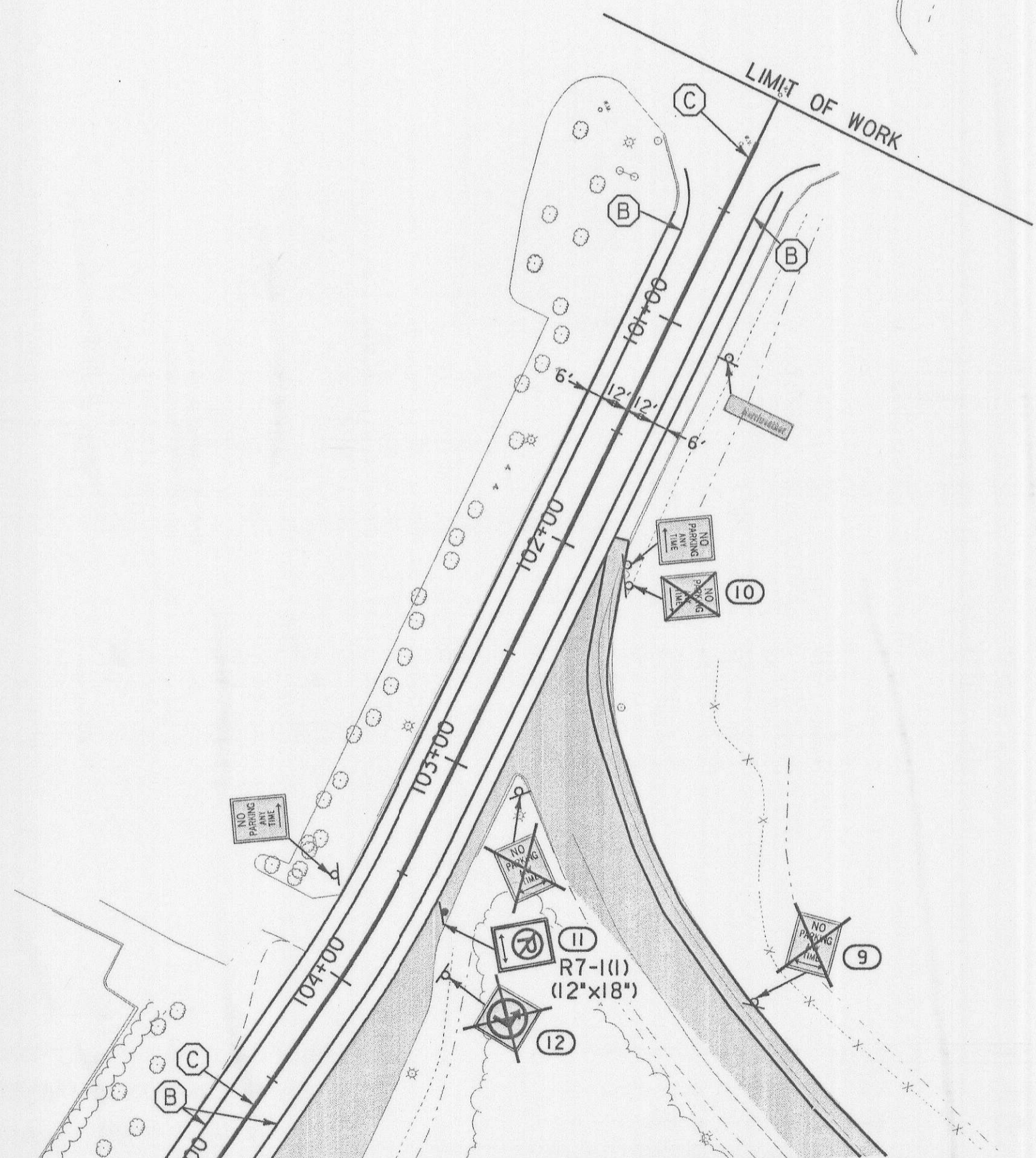
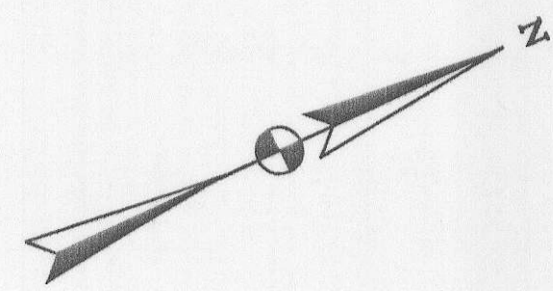


REVISIONS

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
 SIGNING AND MARKING PLAN
 US 29 AT SOUTH ENTRANCE ROAD (MD 986K)

WR&A
 Whitman, Reardon
 and Associates, LLP
 801 South Caroline Street
 Baltimore, Maryland 21231
 (410) 235-3450

DRAWN BY: S.BLOSS	F.A.P. NO.	SEE TITLE SHEET	PLAN SHEET NO.:	SHEET NO.
CHK. BY: N.LEARY	S.H.A. NO.	SEE TITLE SHEET	SN-2.1	49 OF 54
SCALE: 1"=50'	COUNTY	HOWARD		



MATCH BB - SEE SHEET SN-2.1

PAVEMENT MARKING LEGEND

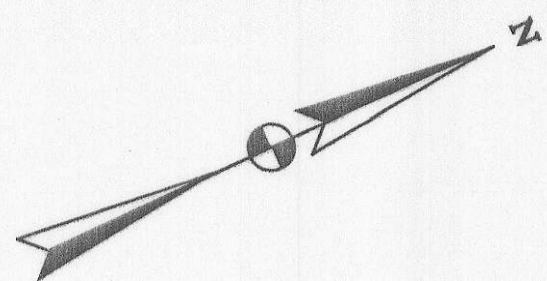
- (A) 5 IN. SOLID YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (B) 5 IN. SOLID WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (C) 5 IN. SOLID DOUBLE YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (D) REMOVE EXISTING PAVEMENT MARKINGS
- (E) 5 IN. SKIP WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (10 FOOT LINE WITH 30 FOOT GAP)
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- (G) 10 IN. SKIP WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3 FOOT LINE WITH 9 FOOT GAP)

SIGN LEGEND

	EXISTING GROUND MOUNTED SIGN AND SUPPORT(S)
	PROPOSED GROUND MOUNTED SIGN AND SUPPORT(S)
	EXISTING SIGN TO REMAIN
	EXISTING SIGN TO BE REMOVED
	PROPOSED SIGN
	EXISTING CANTILEVER STRUCTURE

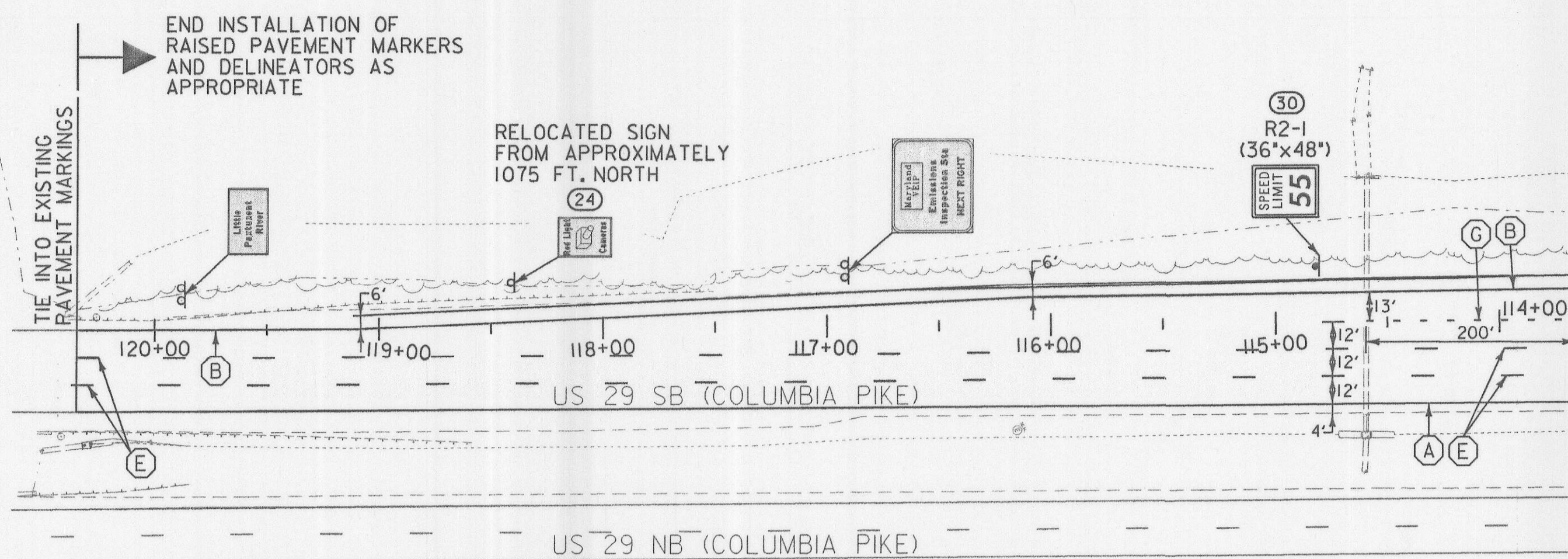
REVISIONS	MARYLAND DOT - STATE HIGHWAY ADMINISTRATION Office of Traffic & Safety TRAFFIC ENGINEERING DESIGN DIVISION SIGNING AND MARKING PLAN US 29 AT SOUTH ENTRANCE ROAD (MD 986K)			
	DRAWN BY: S.BLOSS CHK. BY: N.LEARY SCALE: 1" = 50'	F.A.P. NO. S.H.A. NO. COUNTY	SEE TITLE SHEET SEE TITLE SHEET HOWARD	PLAN SHEET NO.: SN-2.2 SHEET NO.: 50 OF 54

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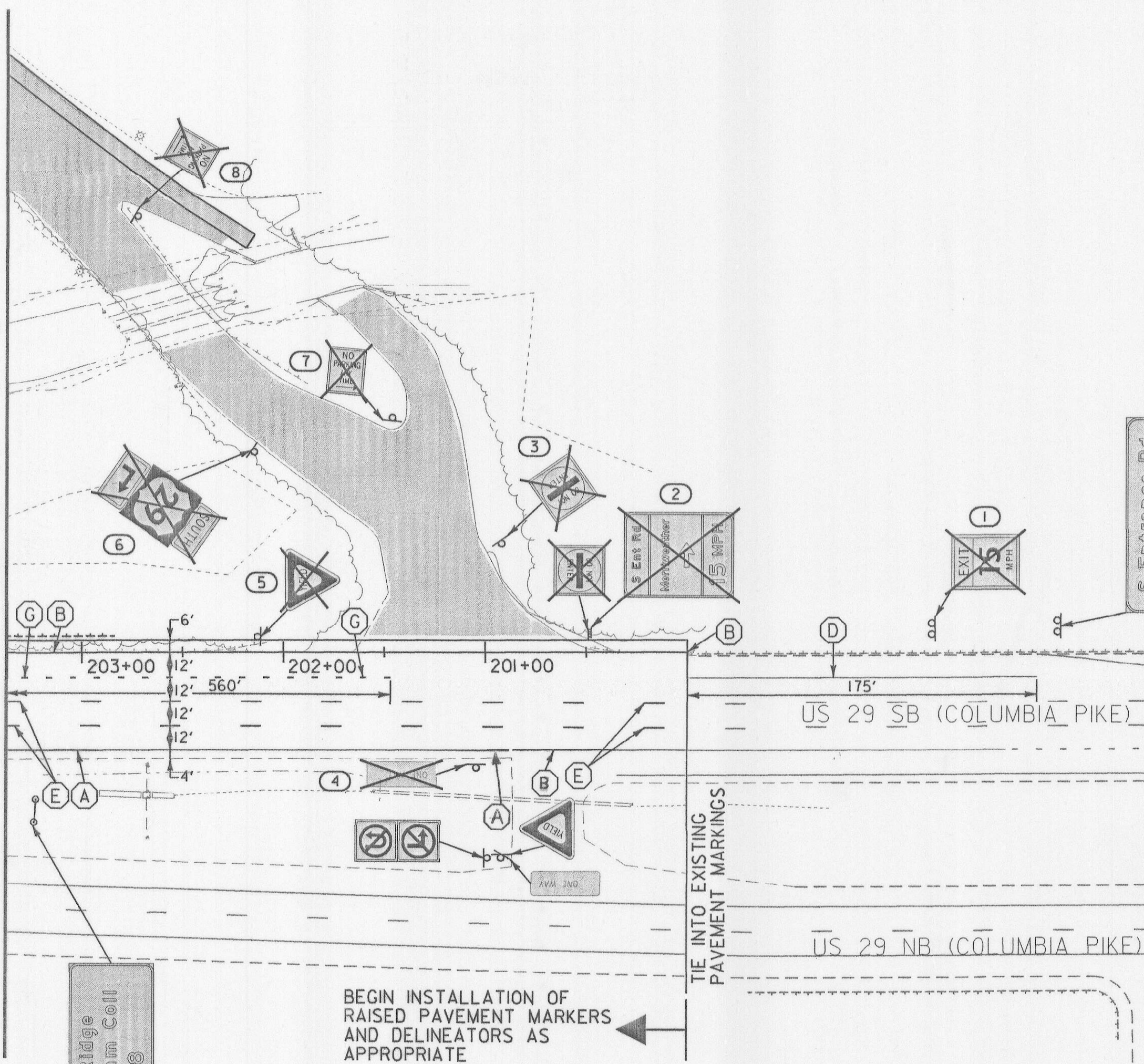


SPECIAL NOTES:

1. RAISED PAVEMENT MARKERS SHALL BE INSTALLED ALONG US 29 SOUTHBOUND IN ACCORDANCE WITH MARYLAND SUPPLEMENTAL TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. DELINEATORS, INCLUDING RAIL RIDER W-BEAM AND POST MOUNTED, SHALL BE INSTALLED ALONG US 29 SOUTHBOUND IN ACCORDANCE WITH STANDARD NOS. MD 655.01 TO MD 655.06.



MATCH LINE AA - SEE SHEET SN-2.1

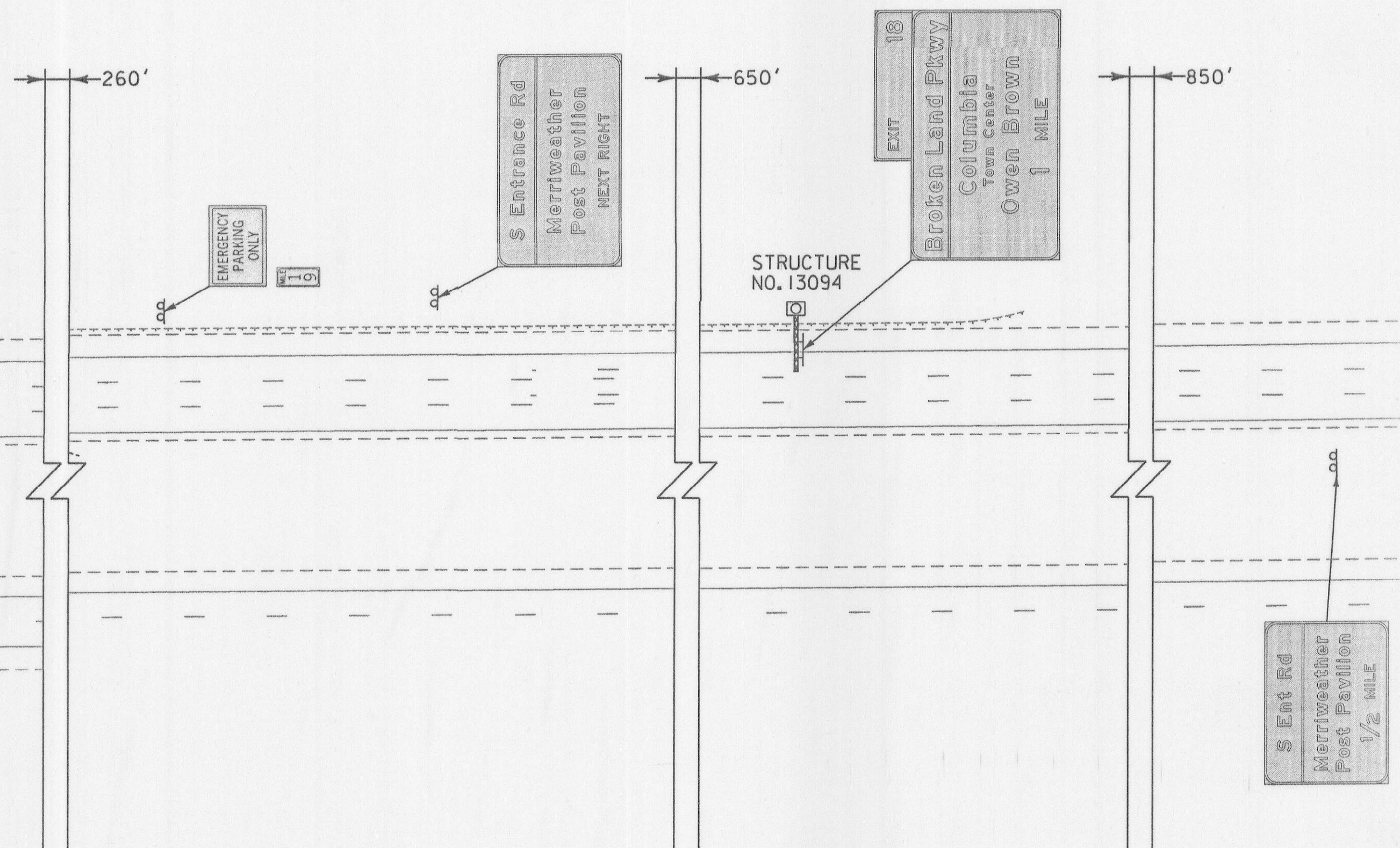


PAVEMENT MARKING LEGEND

- (A) 5 IN. SOLID YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (B) 5 IN. SOLID WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (C) 5 IN. SOLID DOUBLE YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (D) REMOVE EXISTING PAVEMENT MARKINGS
- (E) 5 IN. SKIP WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (10 FOOT LINE WITH 30 FOOT GAP)
- (F) 10 IN. SOLID WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING
- (G) 10 IN. SKIP WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3 FOOT LINE WITH 9 FOOT GAP)

SIGN LEGEND

- EXISTING GROUND MOUNTED SIGN AND SUPPORT(S)
- PROPOSED GROUND MOUNTED SIGN AND SUPPORT(S)
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- EXISTING CANTILEVER STRUCTURE



MATCH LINE CC - SEE SHEET SN-2.1

REVISIONS

NO.	DESCRIPTION

MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
 SIGNING AND MARKING PLAN
 US 29 AT SOUTH ENTRANCE ROAD (MD 986K)

DRAWN BY: S.BLOSS	F.A.P. NO.	SEE TITLE SHEET	PLAN SHEET NO.:	SHEET NO.
CHK. BY: N.LEARY	S.H.A. NO.	SEE TITLE SHEET	SN-2.3	51 OF 54
SCALE: 1"=50'	COUNTY	HOWARD		

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 Baltimore, Maryland 21231
 (410) 235-3450

PANEL DESIGNATION	SHEET NO.	QUANTITY	LEGEND	SIZE			COLOR		BORDER		ARROW	SHIELD	REMARKS
				AREA	WIDTH	HEIGHT	LEGEND	BCKGRND	WIDTH	RADIUS			
GM-1	SN-2.1	1		56	7'-0"	8'-0"	W	G	2"	9"	A-1	---	EXTRUDED ALUMINUM

PANEL DESIGNATION	SHEET NO.	QUANTITY	LEGEND	SIZE			COLOR		BORDER		ARROW	SHIELD	REMARKS
				AREA	WIDTH	HEIGHT	LEGEND	BCKGRND	WIDTH	RADIUS			

LEGEND & BACKGROUND COLORS: BLK=BLACK, BLU=BLUE, BRO=BROWN, G=GREEN, R=RED, W=WHITE/SILVER, Y=YELLOW, FYG=FLOURESCENT YELLOW/GREEN, FY=FLOURESCENT YELLOW


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REVISIONS		MARYLAND DOT - STATE HIGHWAY ADMINISTRATION <i>Office of Traffic & Safety</i> TRAFFIC ENGINEERING DESIGN DIVISION GUIDE SIGN MESSAGES - DETAILS & DIMENSIONS US 29 AT SOUTH ENTRANCE ROAD (MD 986K)			
DRAWN BY:	S.BLOSS	F.A.P. NO.	SEE TITLE SHEET	PLAN SHEET NO.:	SHEET NO.
CHK. BY:	N.LEARY	S.H.A. NO.	SEE TITLE SHEET	SN-3.1	54 OF 54
SCALE:	NONE	COUNTY	HOWARD		

SHEET NO.	SIGN NO.	REMARKS	CODE NUMBERS *																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SN-2.3	1	REMOVE EXISTING SIGN AND SUPPORTS		12																		
SN-2.3	2	REMOVE EXISTING SIGN AND SUPPORTS		72																		
SN-2.3	3	REMOVE EXISTING SIGN AND SUPPORTS		6.25																		
SN-2.3	4	REMOVE EXISTING SIGN AND SUPPORT		3																		
SN-2.3	5	REMOVE EXISTING SIGN AND SUPPORT		4																		
SN-2.3	6	REMOVE EXISTING SIGN AND SUPPORTS		8																		
SN-2.3	7	REMOVE EXISTING SIGN AND SUPPORT		1.5																		
SN-2.3	8	REMOVE EXISTING SIGN AND SUPPORT		1.5																		
SN-2.2	9	REMOVE EXISTING SIGN AND SUPPORT		1.5																		
SN-2.2	10	REMOVE EXISTING SIGN AND SUPPORT		1.5																		
SN-2.2	11	R7-1(1) (12" x 18")	1-4" x 4"	1.5			14															
SN-2.2	12	REMOVE EXISTING SIGN AND SUPPORTS		6.25																		
SN-2.1	13	R2-1 (24" x 30")	1-4" x 4"	5			15															
SN-2.1	14	REMOVE EXISTING SIGN AND SUPPORT		1.5																		
SN-2.1	15	REMOVE EXISTING SIGN AND SUPPORT		6.25																		
SN-2.1	16	REMOVE EXISTING SIGN AND SUPPORT		6.25																		
SN-2.1	17	REMOVE EXISTING SIGN AND SUPPORT		1.5																		
SN-2.1	18	REMOVE EXISTING SIGN AND SUPPORT		4																		
SN-2.1	19	REMOVE EXISTING SIGN AND SUPPORT		5																		
SN-2.1	20	R7-1(1) (12" x 18")	1-4" x 4"	1.5			14															
SN-2.1	21	M3-3 (30" x 15"), M1-4 (36" x 36"), M6-2 (30" x 24")	1-4" x 6"	17.2				17														
SN-2.1	22	R5-1 (30" x 30")	1-4" x 4"	6.25			15															
SN-2.1	23	R5-1 (30" x 30")	1-4" x 4"	6.25			15															
SN-2.1	24	RELOCATE EXISTING SIGN AND SUPPORT				12																
SN-2.1	25	REMOVE EXISTING SIGN AND SUPPORTS		12																		
SN-2.1	26	W13-2(1) (48" x 72") (B/FLY)	2-4" x 6"	24				35														
SN-2.1	27	GM-1 (7'-0" x 8'-0")	2-GALVANIZED W6x9 STEEL BEAMS								56	32	2	2.18								
SN-2.1	28	W4-1(R) (36" x 36")	1-4" x 4"	9				16														
SN-2.1	29	R1-2 (36" x 36" x 36")	1-4" x 4"	7			15															
SN-2.3	30	R2-1 (36" x 48")	2-4" x 6"	12			34															
SN-2.1	31	R3-2 (30" x 30")	1-4" x 4"	6.25			15															
SN-2.1	32	R1-5a (36" x 24")	2-4" x 4"	6			30															
SN-2.1	33	R1-5a (36" x 24")	2-4" x 4"	6			30															
PAVEMENT MARKING QUANTITIES																						
SN-2.1								2000	2420	900												
SN-2.2								920	920													
SN-2.3								990	1475	100	175											
ESTIMATED QUANTITIES			107.95	154	12	197	68	3840	4815	1000	175	56	32	2	2.18							
PROPOSAL QUANTITIES			120	170	15	210	80	4625	5780	1200	210	56	40	2	3							

* CODE NUMBER DESCRIPTION & UNIT		
CODE NUMBERS	DESCRIPTION	UNIT
1	FURNISH AND INSTALL SHEET ALUMINUM SIGNS	S.F.
2	REMOVE EXISTING GROUND MOUNTED SIGNS AND SUPPORTS	S.F.
3	RELOCATE EXISTING GROUND MOUNTED SIGNS	S.F.
4	FURNISH AND INSTALL WOOD SIGN SUPPORTS (4" x 4")	L.F.
5	FURNISH AND INSTALL WOOD SIGN SUPPORTS (4" x 6")	L.F.
6	5" YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING	L.F.
7	5" WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING	L.F.
8	10" WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING	L.F.
9	REMOVE EXISTING PAVEMENT MARKINGS	L.F.
10	FURNISH AND INSTALL EXTRUDED ALUMINUM SIGNS	S.F.
11	FURNISH AND INSTALL GALVANIZED STEEL BEAMS (W6x9)	L.F.
12	FURNISH AND INSTALL BREAKAWAY BASE SUPPORT SYSTEM FOR STEEL BEAMS	EA.
13	FURNISH AND INSTALL CONCRETE FOR SIGN	C.Y.

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REVISIONS		 MARYLAND DOT - STATE HIGHWAY ADMINISTRATION <i>Office of Traffic & Safety</i> TRAFFIC ENGINEERING DESIGN DIVISION SIGNING AND MARKING PLAN US 29 AND S. ENTRANCE ROAD (MD 986K)	
DRAWN BY: S.BLOSS	F.A.P. NO.		
CHK. BY: N.LEARY	S.H.A. NO.	SEE TITLE SHEET	SHEET NO. 54 OF 54
SCALE: NONE	COUNTY	HOWARD	