

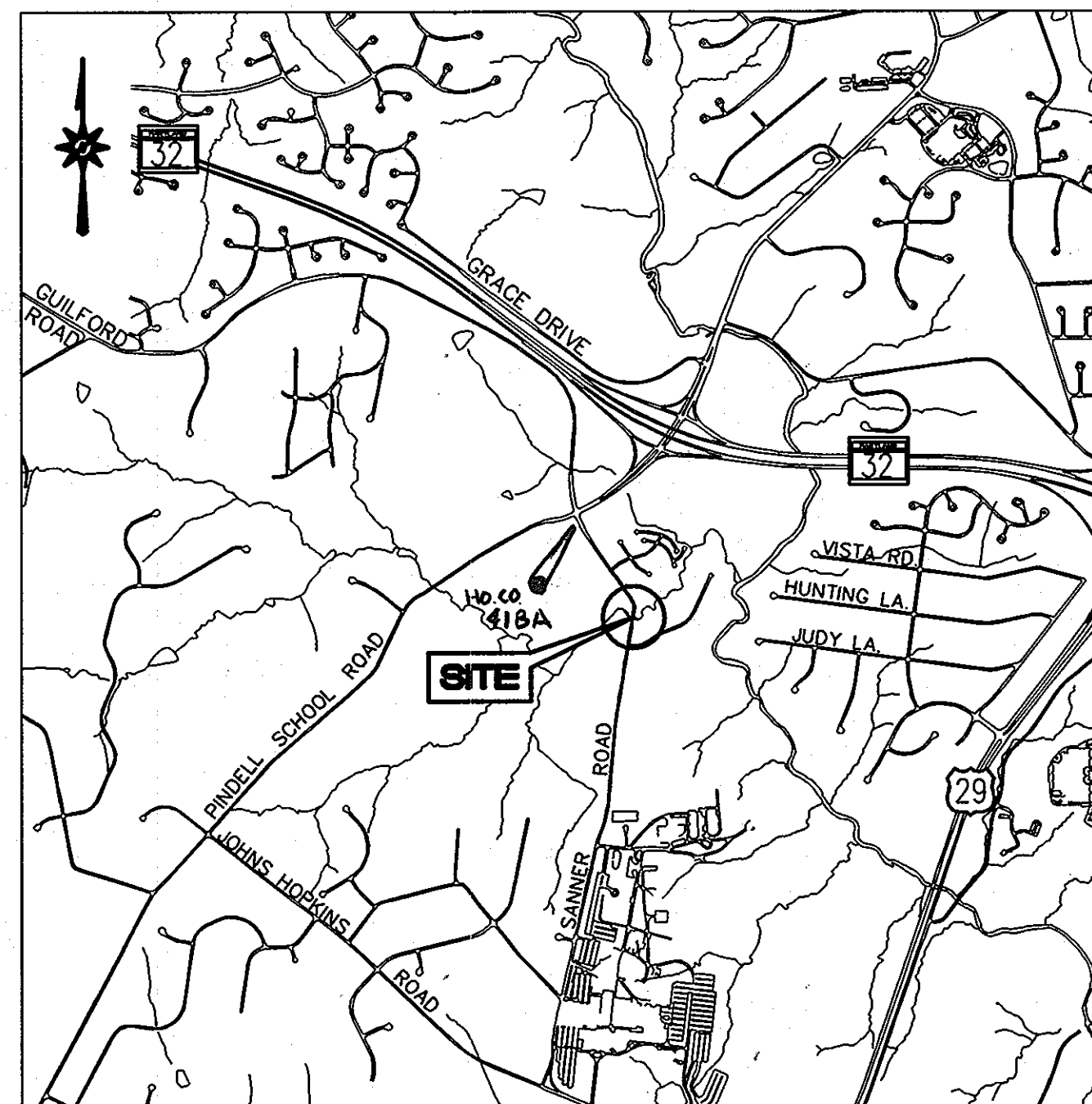
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS REPLACEMENT OF BRIDGE NO. HO-108 SANNER ROAD OVER TRIBUTARY TO THE MIDDLE PATUXENT RIVER HOWARD COUNTY CAPITAL PROJECT B-3842

INDEX OF DRAWINGS

SHEET NO.	TITLE
1	TITLE SHEET
2	DETOUR PLAN
3	TYPICAL ROADWAY SECTIONS
4	ROADWAY PLAN
5	ROADWAY PROFILE
6	MISCELLANEOUS DETAILS
7	SEDIMENT AND EROSION CONTROL PLAN
8	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
9	SEDIMENT AND EROSION CONTROL DETAILS
10	SEDIMENT AND EROSION CONTROL DETAILS
11	PAVEMENT STRIPING PLAN
12	WATER RELOCATION PLAN AND PROFILE
13	GENERAL PLAN AND ELEVATION
14	GEOMETRIC LAYOUT
15	ABUTMENT A PLAN, ELEVATION AND SECTION
16	ABUTMENT B PLAN, ELEVATION AND SECTION
17	ABUTMENT PILE PLAN
18	ABUTMENT BOTTOM FOOTING REINFORCEMENT
19	ABUTMENT TOP FOOTING REINFORCEMENT
20	SLOPE PROTECTION DETAILS
21	WINGWALL DETAILS
22	WINGWALL DETAILS
23	ABUTMENT AND WINGWALL CORNER REINFORCEMENT DETAILS
24	TYPICAL SECTION AND FRAMING PLAN
25	SLAB BEAM DETAILS
26	SLAB BEAM DETAILS
27	SUPERSTRUCTURE DETAILS
28	TRAFFIC BARRIER FOR STRUCTURES DETAILS
29	FINISH ROADWAY ELEVATIONS
30	BORING PLAN
31-34	DETAILS

GENERAL NOTES

- This contract shall be constructed under provisions of the Maryland Department of Transportation, State Highway Administration (S.H.A.) "Standard Specifications for Construction and Materials," dated October 1993, including all revisions thereof and additions thereto, except where noted otherwise. See Special Provisions.
- The Contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1870 at least five (5) working days prior to the start of work.
- The Contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work. The Contractor shall contact the following utilities at least 5 days prior to beginning any work under this contract. For additional information and requirements with respect to utilities, see Special Provisions.
 - ~~BGE Gas Division (410) 291-6894~~
 - ~~BGE Electric Division (410) 855-6958~~ SEE CAPITAL PROJECT J-4152 TITLE SHEET
 - ~~Bell Atlantic (410) 224-0950~~
- Project Background:
Location: Clarksville, Maryland
Tax Map: 41
Election District: 4
- Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- Any damage caused by the Contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the Contractor's expense.
- The existing utilities shown hereon are located from the best information available, but no guarantee is made to their accuracy. The approximate location of existing utilities are shown for the Contractor's information and convenience. The Contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the Contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service.
- ~~Horizontal and vertical datums are related to the Maryland State Plane Coordinate System as projected from Howard County Survey Control Triangulation and Howard County Benchmarks S-260 and S-261.~~ SEE CAPITAL PROJECT J-4152 TITLE SHEET
- Clearing shall be limited to the "Limit of Disturbance" as shown on the sediment and erosion control plan. Grading shall be done in such a manner as to provide positive drainage. Contractor shall seed and mulch all disturbed areas except as otherwise directed.
- The contractor shall take extreme caution not to disturb the existing vegetation outside the limits of construction. Soil stabilization shall conform to "Maryland Standards and Specifications for Soil Erosion and Sediment Control," dated 1994, published jointly by Water Management Administration, Soil Conservation Service, and State Soil Conservation Committee.
- All fill areas shall be compacted to a minimum of 95% of the maximum dry density as determined and verified in accordance with AASHTO T-180.



LOCATION MAP
SCALE: 1" = 2000'

TRAFFIC DATA

ROADWAY CLASSIFICATION	MINOR ARTERIAL
DESIGN SPEED	40 M.P.H.
A.D.T. (V.P.D.)	2,400 (1995) 27,000 (2015)

ADDENDUM NO. 1: 6/20/02 REVISIONS TO SHEET NOS. 1, 3, 12

BENCHMARKS

Howard County Survey Control
Description: 41BA
N 551789.441 E 1,340,518.144 ELEV. 343.31

Howard County Benchmark S-260
Description: P.K. NAIL SET 1.5' OFF OF DRIVING LANE IN SANNER ROAD,
350± SOUTH OF PINDELL SCHOOL ROAD
N 551,488.385 E 1,340,684.984 ELEV. 339.04

Howard County Benchmark S-261
Description: 3/8" REBAR, 1.5' OFF EDGE OF SANNER ROAD
N 551,133.080 E 1,340,958.067 ELEV. 309.90

By the Owner/Developer:
"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Richard E. Johnson
Signature of Owner/Developer
Print name below signature
5/3/00
Date

By the Engineer:
"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District."

Charles S. Nolan
Signature of Engineer
Print name below signature
5/2/00
Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

Charles S. Nolan
USDA-Natural Resources Conservation Service
5/3/00
Date

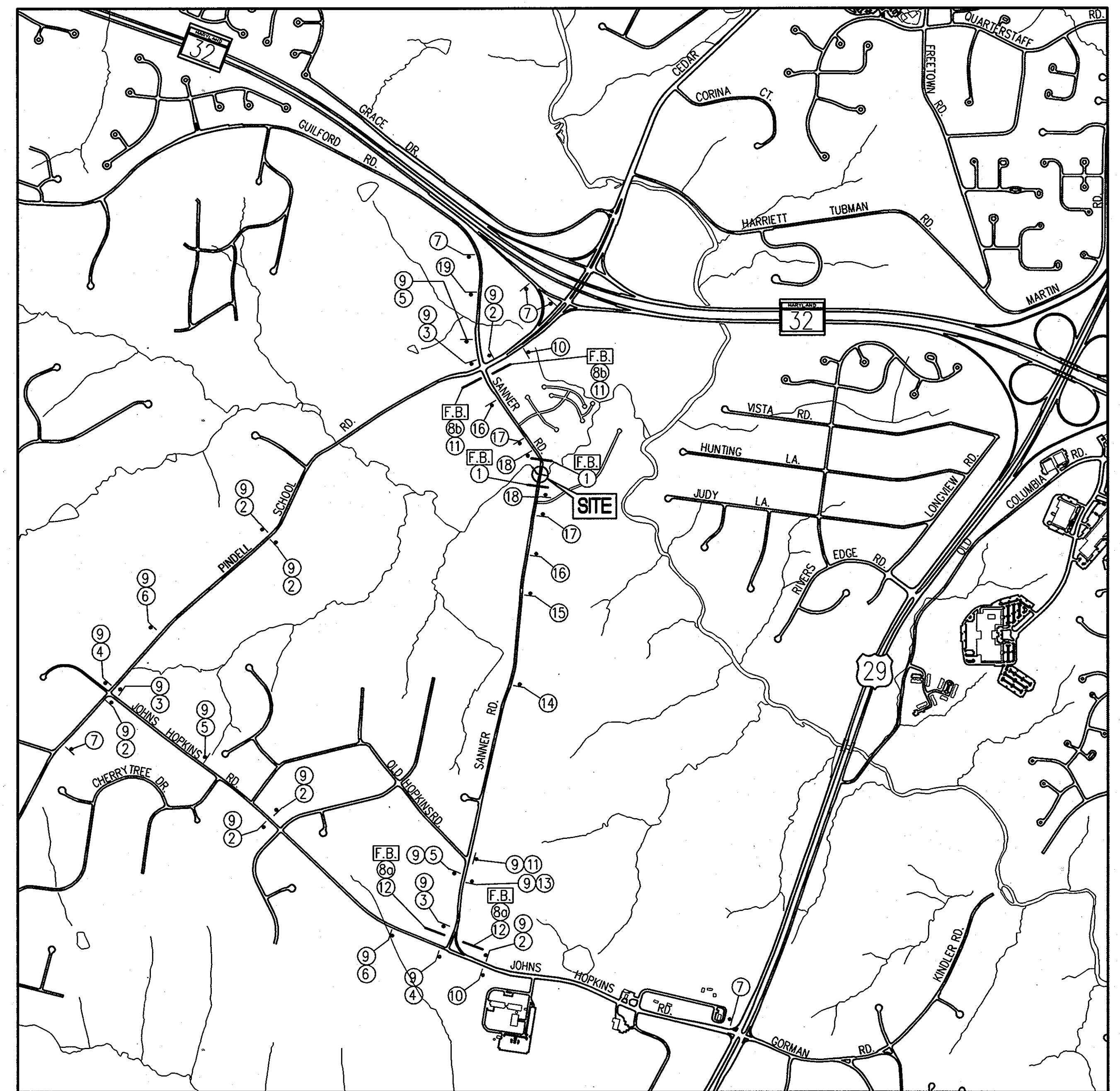
These plans are approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R. Johnston
Howard S.C.D.
5/3/00
Date

J:\V7086\ACAD\FINAL\17086B11.DWG

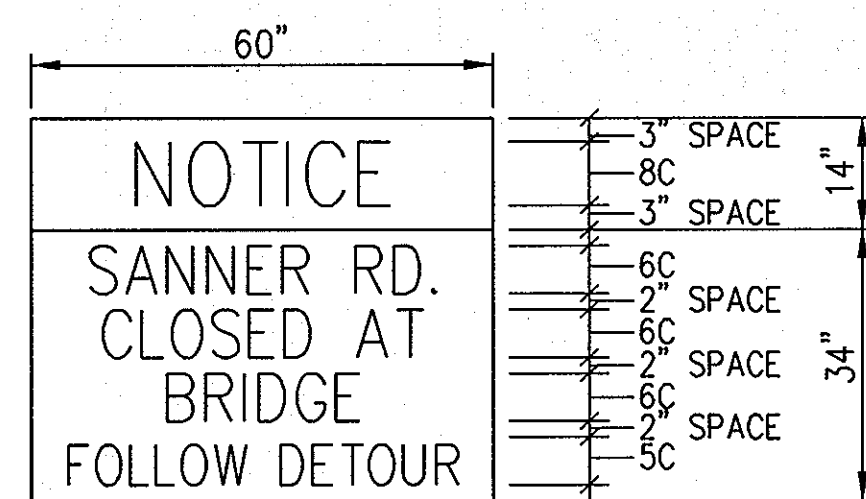
<p style="text-align: center;">DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>James J. ...</i> DIRECTOR OF PUBLIC WORKS 5/3/00 DATE</p> <p><i>Robert E. ...</i> CHIEF, BUREAU OF ENGINEERING 5/3/00 DATE</p> <p><i>Robert E. ...</i> CHIEF, DIVISION OF TRANSPORTATION 5/3/00 DATE</p> <p><i>Robert E. ...</i> CHIEF, BUREAU OF HIGHWAYS 5/3/00 DATE</p>	<p style="text-align: center;">NOLAN Associates, Inc. Engineers - Civil/Structural/Inspections 4785 Dorsey Hall Drive Suite 124 Ellicott City, Maryland 21042 Phone: (410) 995-3651 Fax: (410) 995-1363</p>	<p>DES: CSN DRN: BSB CHK: CSN DATE: APR 2000</p> <p>N.A.I. <input checked="" type="checkbox"/> ADDENDUM NO. 1 6-2002</p> <p>BY NO. REVISION DATE 600' SCALE MAP NO. BLOCK NO.</p>	<p style="font-size: 2em; font-weight: bold;">TITLE SHEET</p>	<p style="text-align: center;">REPLACEMENT OF BRIDGE NO. HO-108 SANNER ROAD OVER TRIBUTARY TO THE MIDDLE PATUXENT RIVER CAPITAL PROJECT B-3842 ELECTION DISTRICT NO. 4 CLARKSVILLE, MARYLAND</p> <p style="text-align: right;">SCALE: AS SHOWN</p> <p style="text-align: right;">SHEET 1 OF 34</p>
---	--	---	---	---

TEMPORARY TRAFFIC CONTROL SIGN TABLE						
SYMBOL	M.U.T.C.D. DESIGNATION	MESSAGE	SIZE	QUANTITY	COLOR	
					BACKGROUND	CHARACTERS
①	R11-2 (SEE NOTE 3)	ROAD CLOSED	48" X 30"	2	WHITE	BLACK
②	M4-9	DETOUR ↑	30" X 24"	7	ORANGE	BLACK
③	M4-9R	DETOUR →	30" X 24"	3	ORANGE	BLACK
④	M4-9L	DETOUR ←	30" X 24"	2	ORANGE	BLACK
⑤	M4-9R - advance (MODIFIED)	DETOUR ↘	30" X 24"	3	ORANGE	BLACK
⑥	M4-9L - advance (MODIFIED)	DETOUR ↙	30" X 24"	2	ORANGE	BLACK
⑦	R11-2A (MODIFIED)	NOTICE SANNER ROAD CLOSED AT BRIDGE FOLLOW DETOUR	60" X 48" (SEE DETAIL 1)	5	YELLOW WHITE	BLACK BLACK
⑧a	R11-3A	ROAD CLOSED 1 MILE AHEAD LOCAL TRAFFIC ONLY	60" X 30"	2	WHITE	BLACK
⑧b	R11-3A (MODIFIED)	ROAD CLOSED 1500 FEET AHEAD LOCAL TRAFFIC ONLY	60" X 30"	2	WHITE	BLACK
⑨	M4-9 ROAD NAME PANEL	SANNER ROAD	30" X 12"	19	WHITE	BLACK
⑩	M4-8A	END DETOUR	24" X 18"	2	ORANGE	BLACK
⑪	M4-10R	DETOUR →	48" X 18"	3	ORANGE	BLACK
⑫	M4-10L	DETOUR ←	48" X 18"	2	ORANGE	BLACK
⑬	W20-3	ROAD CLOSED 1 MILE	48" X 48"	1	ORANGE	BLACK
⑭	W20-3	ROAD CLOSED 1/2 MILE	48" X 48"	1	ORANGE	BLACK
⑮	W20-3	ROAD CLOSED 1500 FT.	48" X 48"	1	ORANGE	BLACK
⑯	W20-3	ROAD CLOSED 1000 FT.	48" X 48"	2	ORANGE	BLACK
⑰	W20-3	ROAD CLOSED 500 FT.	48" X 48"	2	ORANGE	BLACK
⑱	R11-2A (MODIFIED)	NOTICE SANNER ROAD WILL BE CLOSED ON OR ABOUT --/-- FOR INFO (410)313-3445	60" X 54" (SEE DETAIL 2)	2	YELLOW WHITE	BLACK BLACK
⑲	W20-2	DETOUR 1000 FT.	48" X 48"	1	ORANGE	BLACK

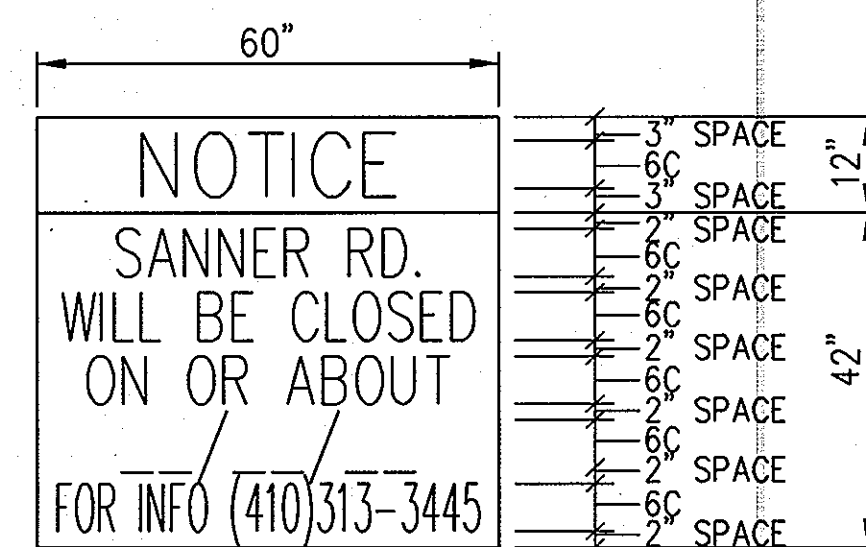


DETOUR PLAN
SCALE: 1" = 1000'

- NOTES:
1. F.B. = TYPE III BARRICADES.
 2. NOTICE SIGNS (18) SHALL BE PLACED A MINIMUM OF 4 WEEKS IN ADVANCE OF THE ROAD CLOSURE.
 3. FIXED BARRICADES SHALL EXTEND THE FULL WIDTH OF ROADWAY AT CLOSURE POINT AND SHALL HAVE FLASHING WARNING LIGHTS.



DETAIL 1
NOT TO SCALE



DETAIL 2
NOT TO SCALE

J:\97085\ACAD\FINAL\97085.TCP.DWG

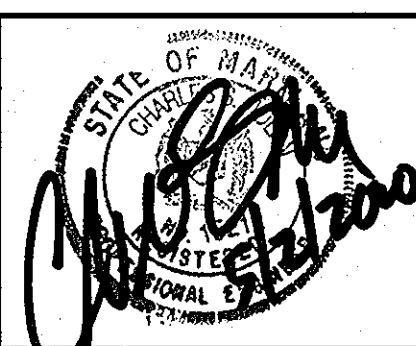
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Shaw 5/13/00
DIRECTOR OF PUBLIC WORKS DATE

Ralph Sisson 5/13/00
CHIEF, BUREAU OF ENGINEERING DATE

Saccone 5/14/00
CHIEF, DIVISION OF TRANSPORTATION
PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	BSB				
DRN:	BSB				
CHK:	CSN				
DATE:	APR. 2000	BY:	NO.	REVISION	DATE

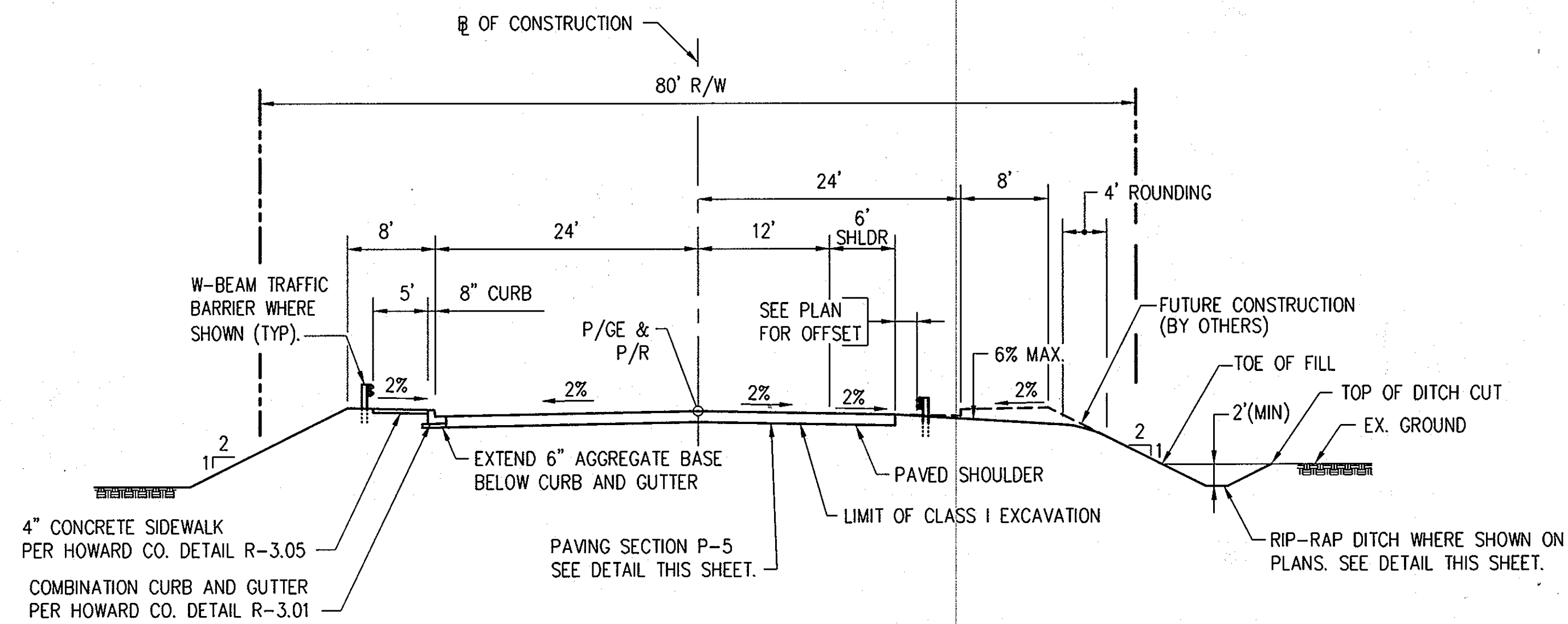
DETOUR PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

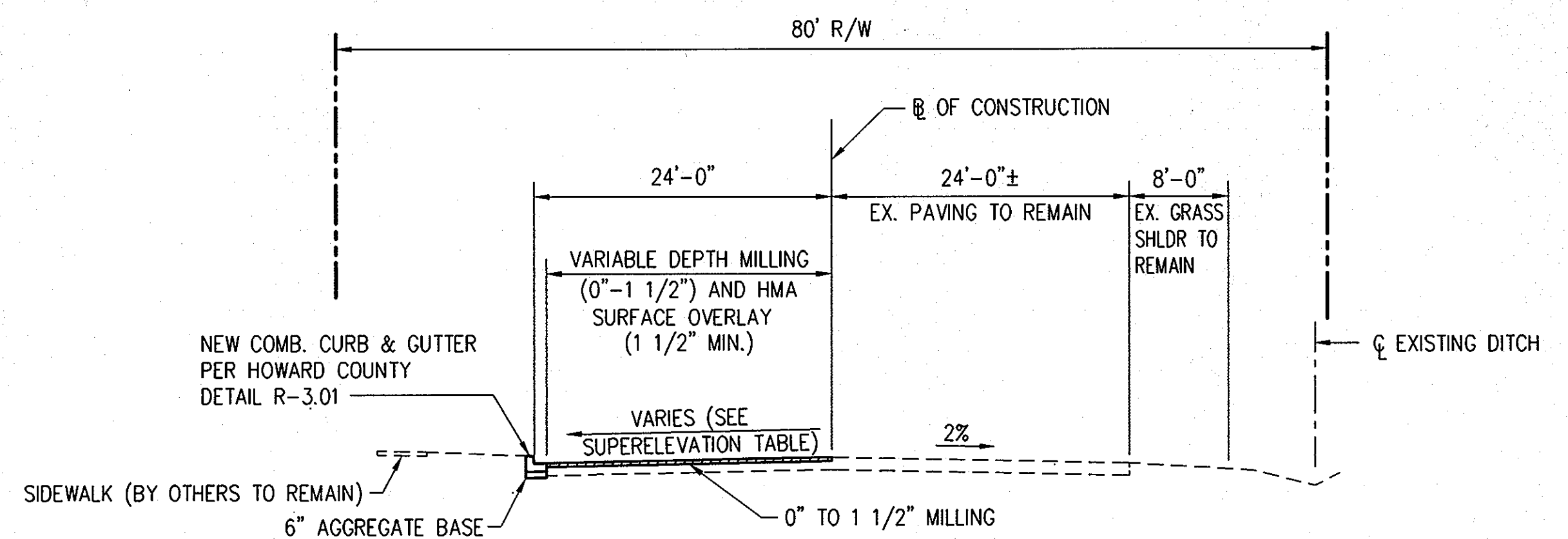
REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

SCALE:
AS SHOWN

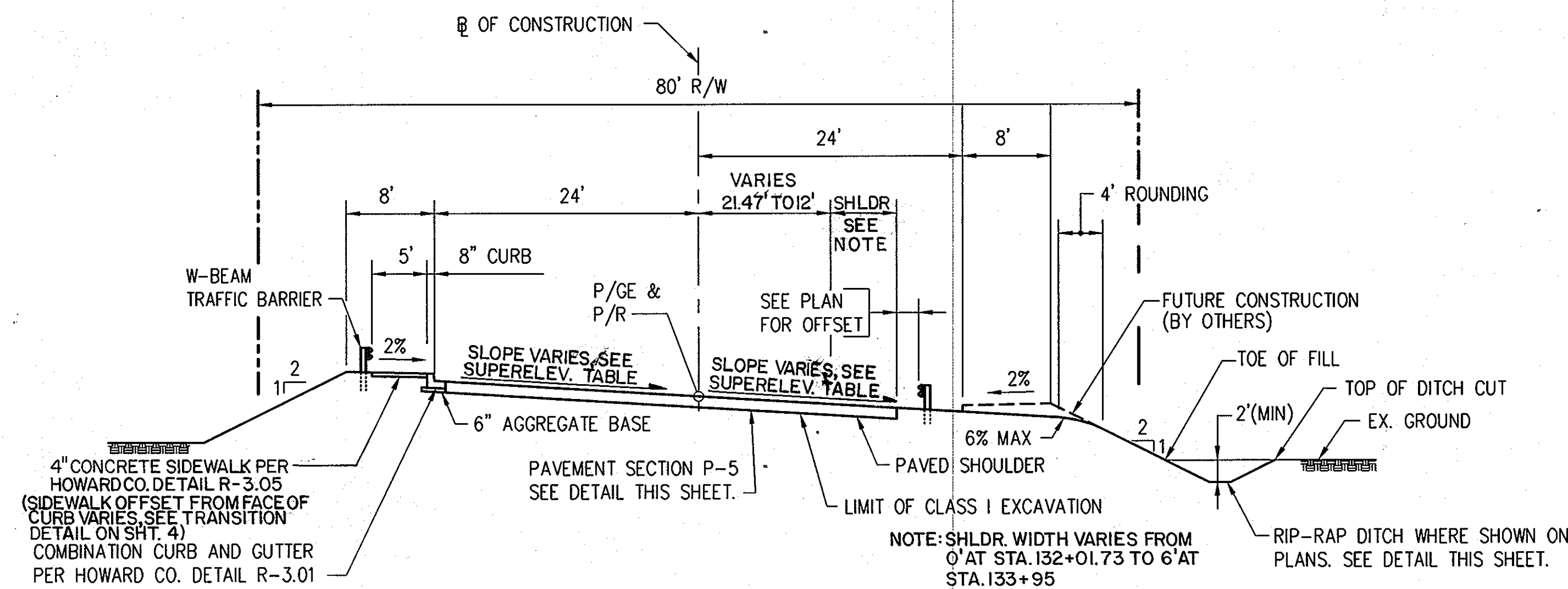
SHEET
2 OF 34



NORMAL CROWN ROADWAY
SCALE: 1"=10'

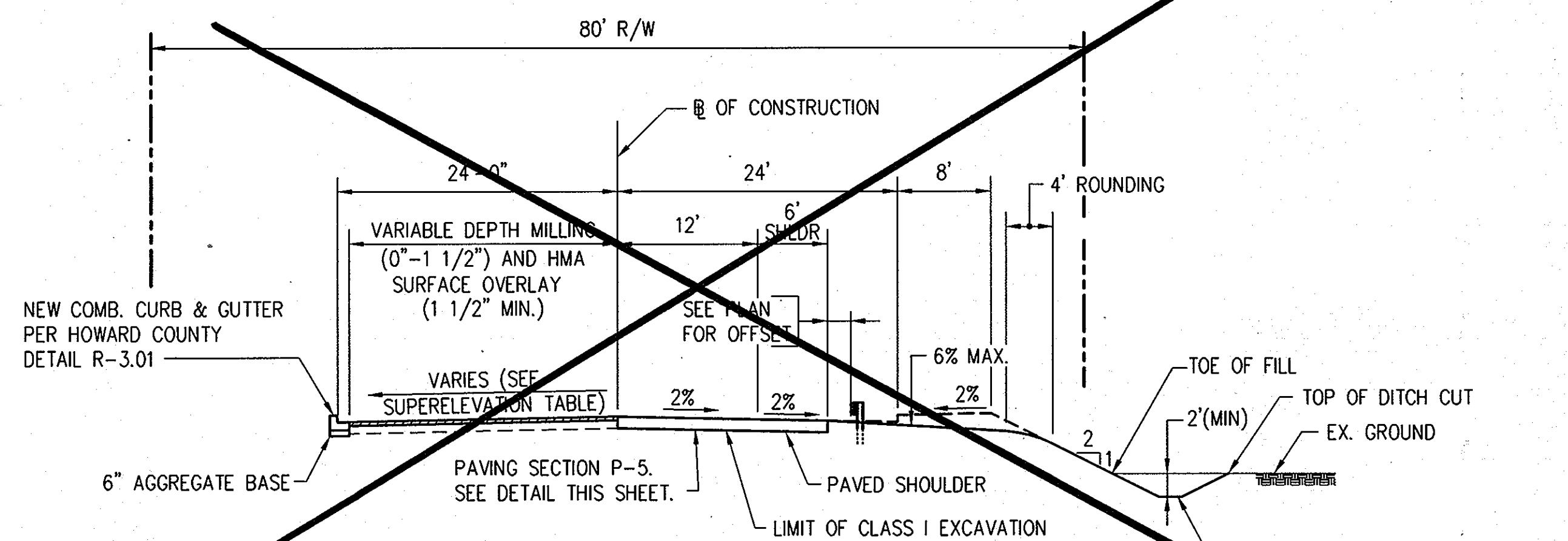


STA. 139+75 TO STA. 140+48.93

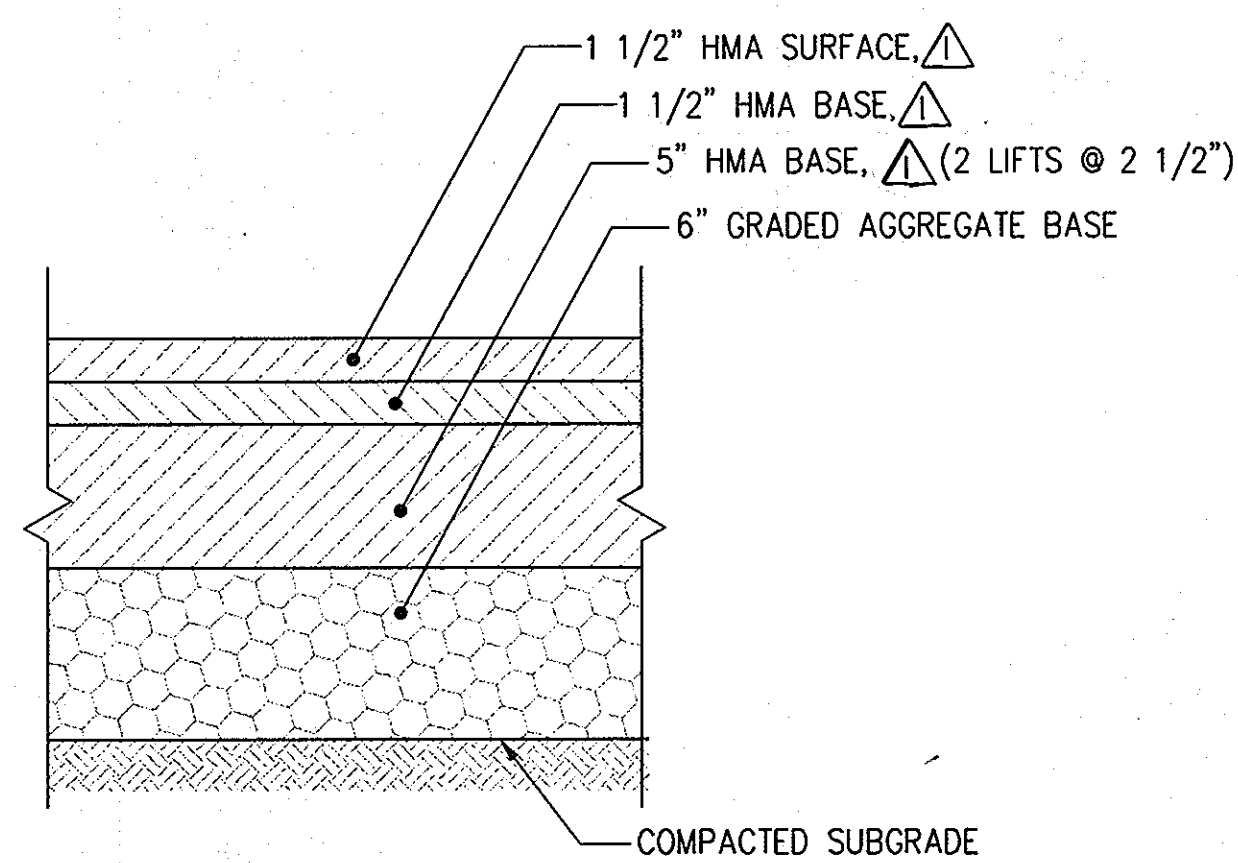


SUPERELEVATED ROADWAY
SCALE: 1"=10'

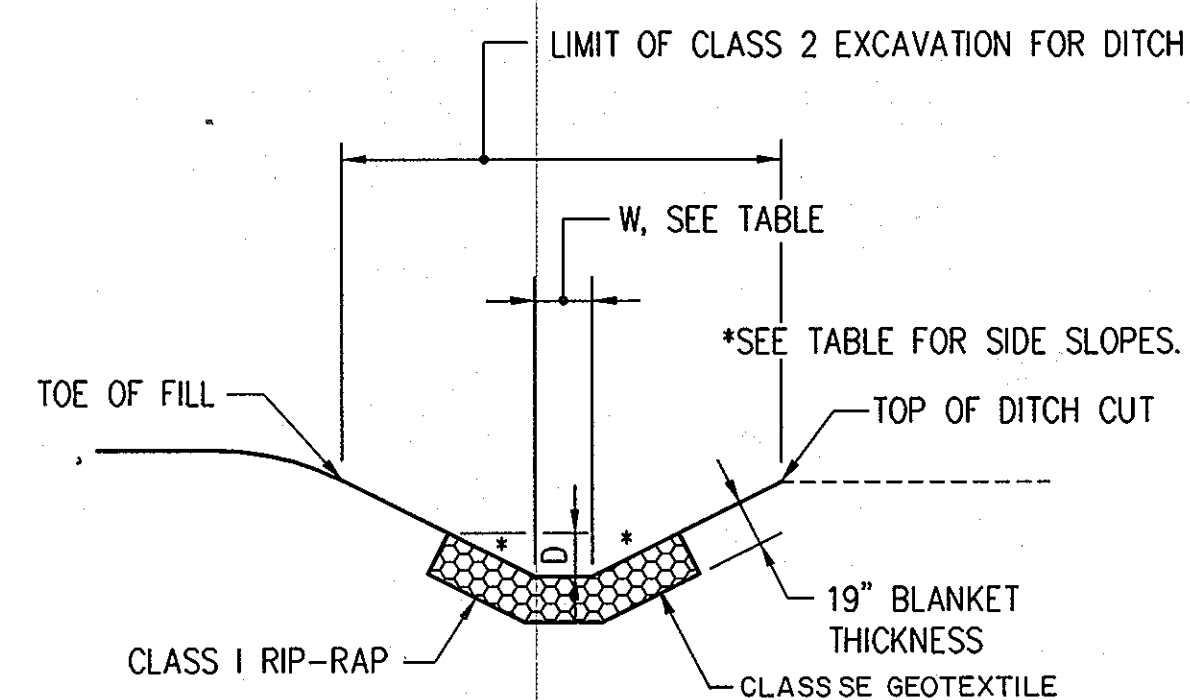
TYPICAL SECTIONS STA. 132+01.73 TO STA. 139+75



SECTION STA. 131+50 TO STA. 131+85.43



PAVING SECTION P-5
NOT TO SCALE

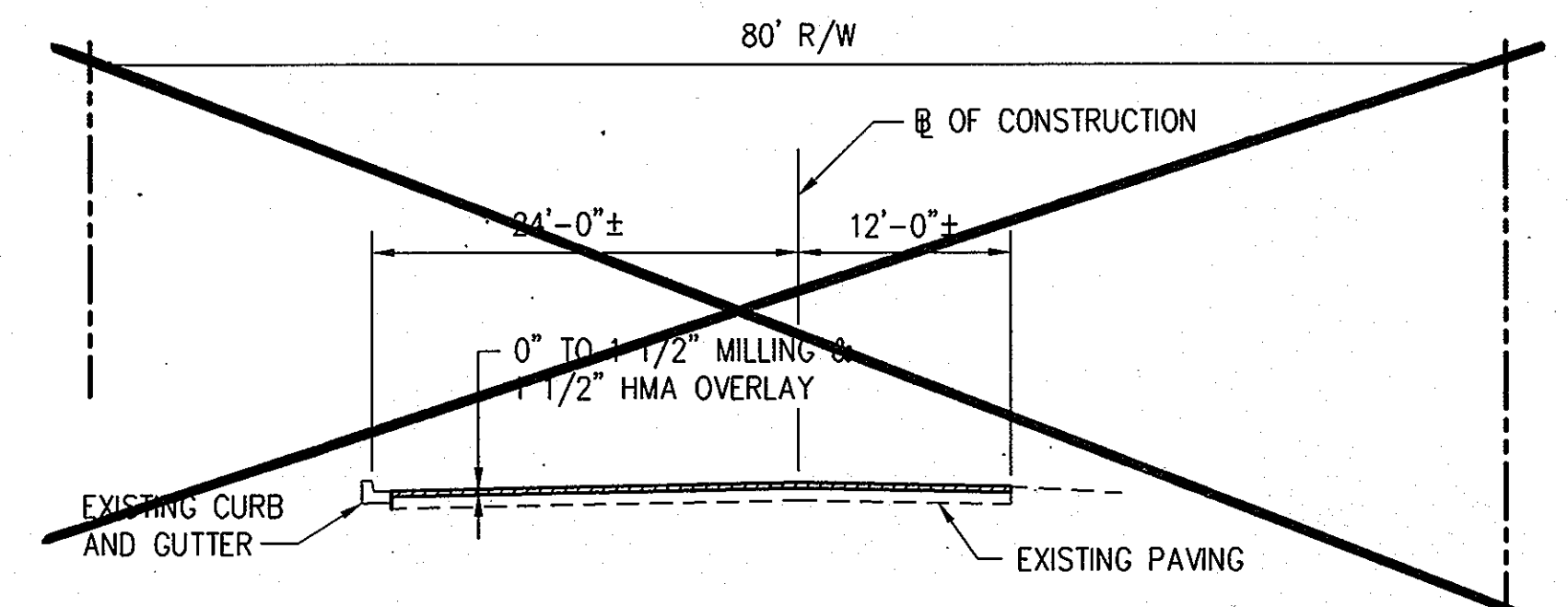


TYPICAL RIP-RAP DITCH

SUPERELEVATION TABLE	
NORMAL CROWN	STA. 131+85.43
1/2 LEVEL	STA. 132+23.76
2% PLANE INCLINE	STA. 132+62.09
BEGIN FULL SUPER	STA. 133+38.76
END FULL SUPER	STA. 138+95.60
2% PLANE INCLINE	STA. 139+72.27
1/2 LEVEL	STA. 140+10.60
NORMAL CROWN	STA. 140+48.93

RIP-RAP DITCH TABLE			
STATION	BOTTOM WIDTH W	SIDE SLOPES	COMMENTS
131+73(±)	2'	2:1	SEE NOTE 2
132+00	2'	2:1	
132+25	3'	1 1/2:1	
132+40	3'	1 1/2:1	AT HW-3
132+70	3'	1 1/2:1	AT HW-4
133+00	3'	1 1/2:1	
133+25	2'	2:1	
134+25	2'	2:1	
134+50	3'	1 1/2:1	
134+71	3'	1 1/2:1	AT HW-5
135+02	3'	1 1/2:1	AT HW-6
135+50	3'	1 1/2:1	
136+00	3'	2:1	
136+25	10'	2:1	

NOTES: 1. TRANSITION BOTTOM WIDTH AND SIDE SLOPES UNIFORMLY BETWEEN STATIONS.
2. MEET OUTFALL CONDITIONS AT ES-5 CONSTRUCTED UNDER CAPITAL PROJECT J-4152



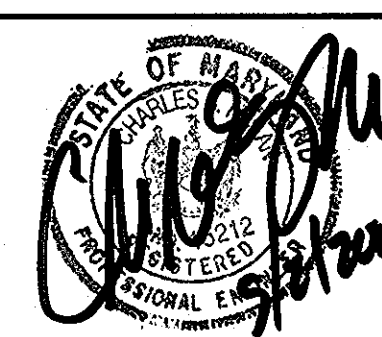
SECTION STA. 131+25 TO STA. 131+50

J:\17098\ACAD\FINAL\17098RES.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 5/3/00
Chief, Bureau of Engineering: *[Signature]* 5/3/00
Chief, Division of Transportation Projects and Watershed Management: *[Signature]* 5/4/00

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	CSN	NOLAN	1	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152	5/23/00
DRN:	BSB	N.A.I.	Δ	ADDENDUM NO. 1	6/20/02
CHK:	CSN				
DATE:	APR. 2000				

TYPICAL ROADWAY SECTIONS

600' SCALE MAP NO. _____ BLOCK NO. _____

REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

SCALE:
AS SHOWN
SHEET
3 OF 34

@ DRIVE STA. 132+55.67, RT.
 @ DRIVE STA. 134+90.19, RT.
 @ DRIVE STA. 139+26.64, RT.
 REGRADE EXISTING DRIVEWAYS AND PAVE
 IN ACCORDANCE WITH HOWARD CO. DETAIL R-6.06,
 EXCEPT PLAN DIMENSIONS TO BE IN ACCORDANCE
 WITH DETAILS ON SHEET 6. INSTALL CULVERTS WITH
 HEADWALLS AT DRIVEWAYS AS SHOWN. SEE STRUCTURE
 SCHEDULE AND STORM DRAIN PROFILE THIS SHEET
 AND PLANS AT DRIVES AN SHEET 6 FOR DETAILS.

COORDINATE TABLE		
	NORTHING	EASTING
POT STA. 131+00	551045.5621	1341008.6629
PC STA. 133+00.43	550881.3470	1341123.5834
PT STA. 139+33.94	550278.9211	1341260.5880
POT STA. 141+00	550115.0674	1341233.5790

RELOCATE EX. MAILBOXES. THE FINAL
 LOCATION TO BE APPROVED BY THE
 ENGINEER.
 STA. 132+40(±) LEFT
 STA. 134+75(±) LEFT
 STA. 139+50(±) LEFT
 WIDEN SIDEWALK PER DETAIL THIS SHEET
 AT RELOCATED MAILBOX

REMOVE AND DISPOSE OF EXISTING
 RETAINING WALL IN ITS ENTIRETY
 STA. 137+10(±) LEFT TO
 STA. 137+45(±) LEFT

REMOVE AND DISPOSE OF EXISTING BRIDGE
 STA. 137+85(±) LEFT IN ITS ENTIRETY,
 INCLUDING ABANDONED GAS ON BRIDGE,
 AND EXISTING TRAFFIC BARRIER ON
 BRIDGE AND AT APPROACHES.

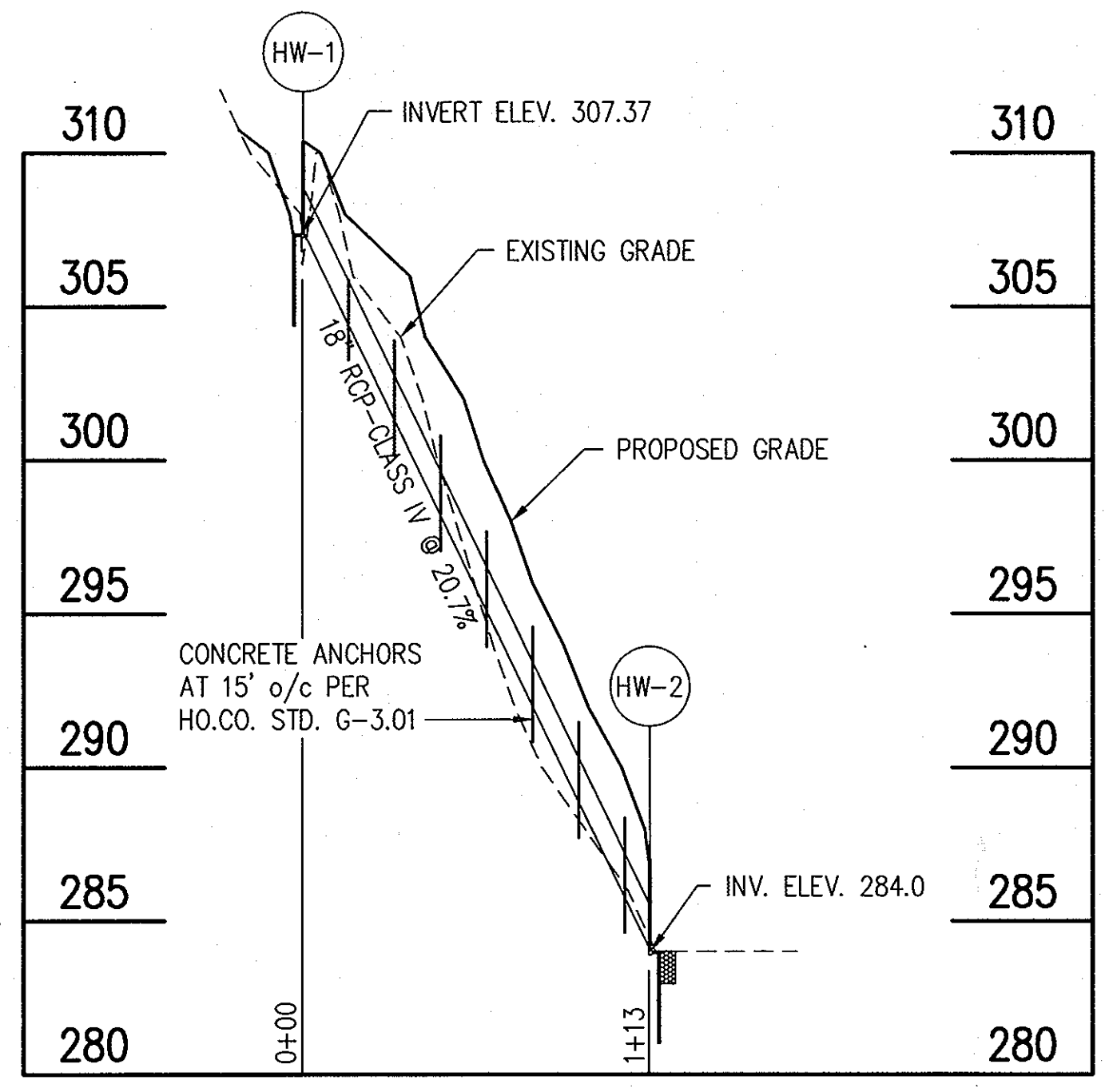
MILL AND OVERLAY EX. PAVEMENT
 STA. 131+25 TO 131+50- TRANSITION
 TO MEET EXISTING PAVEMENT ELEVATION
 AND CROSS SLOPE AT STA. 131+25

CLEAR TREES AND SHRUBS OUTSIDE LIMIT OF
 GRADING ALONG WEST SIDE OF SANNER ROAD
 TO LIMITS SHOWN IN ACCORDANCE WITH THE
 SPECIAL PROVISIONS.

INSTALL
 1 EACH TRAFFIC BARRIER W-BEAM TYPE I
 END FLARE PER HOWARD CO. DETAIL R-7.13.
 STA. 136+37, RIGHT
 50 LF TRAFFIC BARRIER W-BEAM
 STA. 136+37 TO STA. 136+88, RIGHT
 1 EACH THRIE BEAM ANCHORAGE AT BRIDGE
 STA. 136+88, RIGHT

STORM DRAIN STRUCTURE TABLE					
NO.	STATION	OFFSET	INV.	TYPE	HOWARD COUNTY DETAIL NO.
HW-1	139+75	41.2', RT.	307.4	TYPE 'A'	SD-5.11
HW-2	138+60.46	68.6', RT.	284.0	TYPE 'A'	SD-5.11
HW-3	132+40	40.0', RT.	290.3	TYPE 'C' *	SD-5.21 *
HW-4	132+71	39.1', RT.	289.6	TYPE 'C' *	SD-5.21 *
HW-5	134+71	39.5', RT.	284.2	TYPE 'C' *	SD-5.21 *
HW-6	135+02	39.9', RT.	283.7	TYPE 'C' *	SD-5.21 *

* = CONSTRUCT HEADWALL PER DIMENSIONS FOR 30" CIRCULAR PIPE EXCEPT MODIFY TO SUIT ELLIPTICAL OPENING.



STORM DRAIN PROFILE
 SCALE: 1"=50' HOR.
 1"=5' VERT.

CURVE DATA
 PC = 133+00.43
 PT = 139+33.94
 Δ = 44°20'43"
 T = 333.57'
 L = 633.50'
 LC = 617.81'
 C BEARING = S12°48'45"E
 R = 818.51'
 D = 7°00'00"
 E = 65.36'

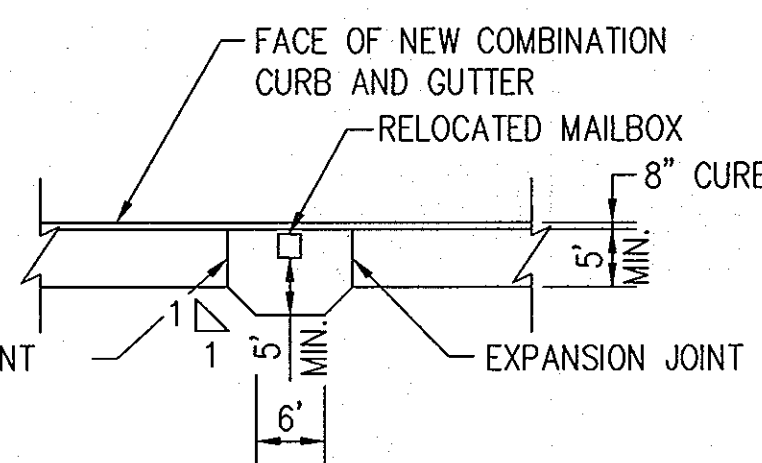
SEE SHEET 3 FOR SUPERELEVATION DATA

CONSTRUCT CLASS I RIP-RAP DITCH FROM
 STA. 131+73(±) RIGHT TO STA. 136+25, RIGHT.
 SEE TABLE ON SHEET 3 FOR ADDITIONAL
 DETAILS OF DITCH CONSTRUCTION.

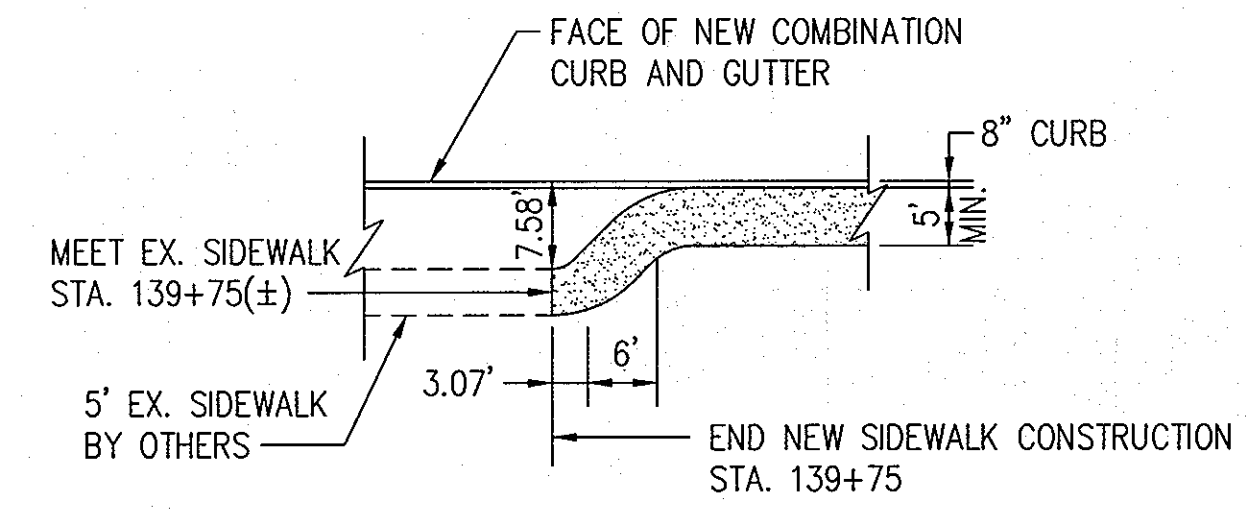
ROBERT A. GASKILL
 PHYLLIS J. GASKILL
 DEED 637/155

TO JOHNS HOPKINS ROAD

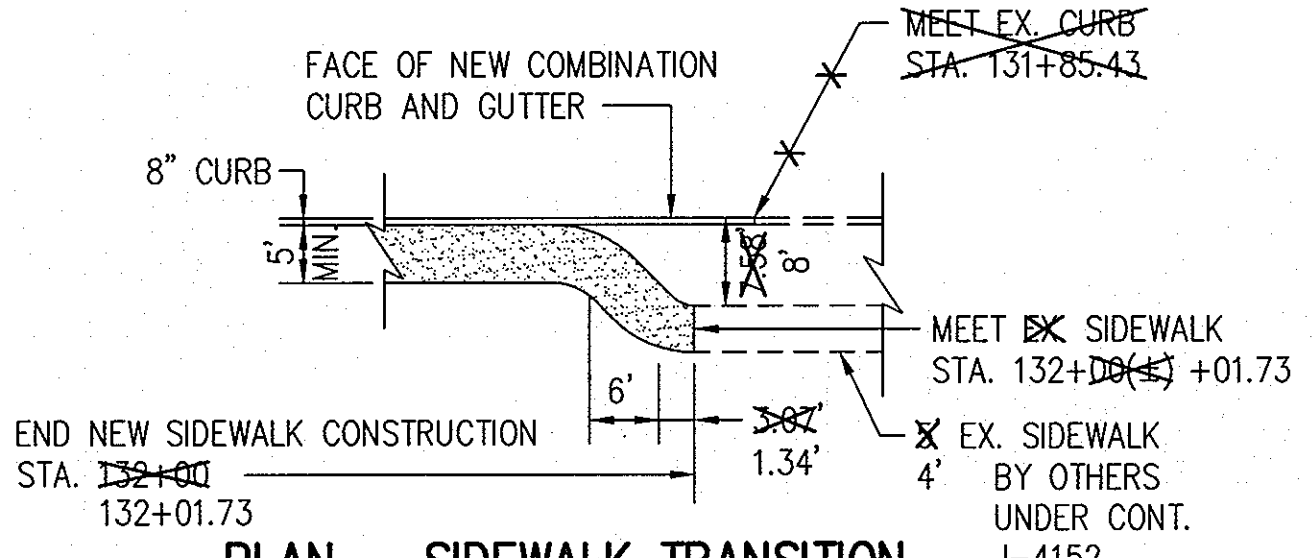
CONSTRUCT 274 L.F. NEW COMBINATION
 CURB AND GUTTER PER HOWARD
 CO. DETAIL R-3.01 FROM
 BACK OF BACKWALL AT
 ABUTMENT B, 24' LEFT, TO
 STA. 140+48.93, 24' LEFT, MEET
 EX. CURB AT STA. 140+48.93



PLAN - RELOCATED MAILBOX
 STA. 139+69 TO STA. 139+75



PLAN - SIDEWALK TRANSITION
 STA. 139+69 TO STA. 139+75

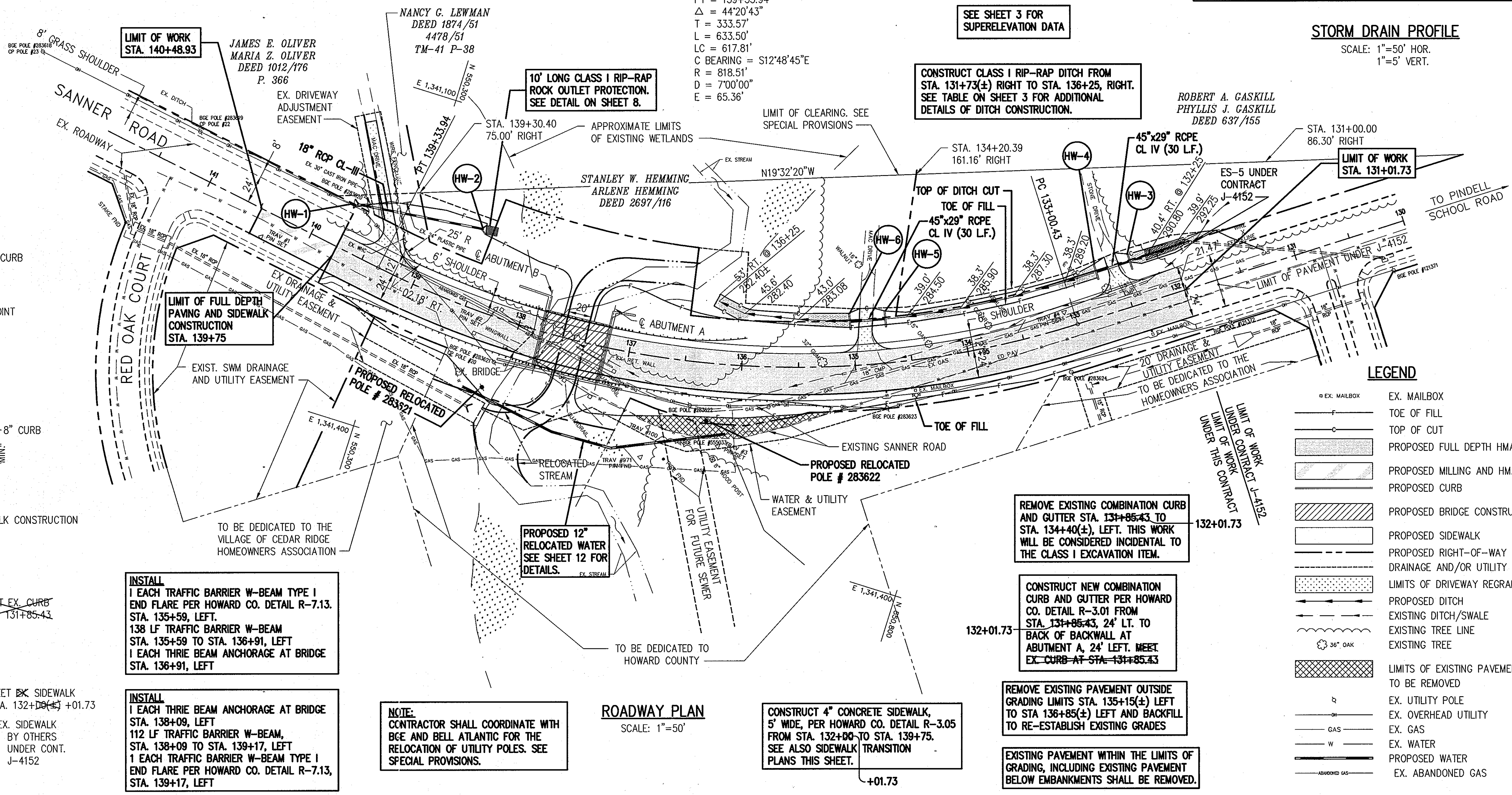


PLAN - SIDEWALK TRANSITION
 STA. 132+00 TO STA. 132+09.07
 01.73

INSTALL
 1 EACH THRIE BEAM ANCHORAGE AT BRIDGE
 STA. 138+12, RIGHT
 119 LF TRAFFIC BARRIER W-BEAM,
 STA. 138+12, RIGHT TO STA. 139+27, 35' RIGHT.
 1 EACH TRAIL END ANCHORAGE,
 STA. 139+27, RIGHT.

INSTALL
 115 LF 18" RCP-CLASS IV
 FROM INLET HW-1 TO HW-2

REMOVE AND DISPOSE OF EXISTING PIPE CULVERTS
 AT PRIVATE DRIVES IN THEIR ENTIRETY.



NOTE:
 CONTRACTOR SHALL COORDINATE WITH
 BGE AND BELL ATLANTIC FOR THE
 RELOCATION OF UTILITY POLES. SEE
 SPECIAL PROVISIONS.

ROADWAY PLAN
 SCALE: 1"=50'

CONSTRUCT 4" CONCRETE SIDEWALK,
 5' WIDE, PER HOWARD CO. DETAIL R-3.05
 FROM STA. 132+00 TO STA. 139+75.
 SEE ALSO SIDEWALK TRANSITION
 PLANS THIS SHEET.

REMOVE EXISTING COMBINATION CURB
 AND GUTTER STA. 134+85.43 TO
 STA. 134+40(±), LEFT. THIS WORK
 WILL BE CONSIDERED INCIDENTAL TO
 THE CLASS I EXCAVATION ITEM.

CONSTRUCT NEW COMBINATION
 CURB AND GUTTER PER HOWARD
 CO. DETAIL R-3.01 FROM
 STA. 134+85.43, 24' LT. TO
 BACK OF BACKWALL AT
 ABUTMENT A, 24' LEFT. MEET
 EX. CURB AT STA. 131+85.43

REMOVE EXISTING PAVEMENT OUTSIDE
 GRADING LIMITS STA. 135+15(±) LEFT
 TO STA. 136+85(±) LEFT AND BACKFILL
 TO RE-ESTABLISH EXISTING GRADES

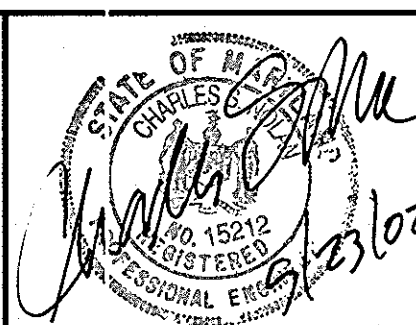
EXISTING PAVEMENT WITHIN THE LIMITS OF
 GRADING, INCLUDING EXISTING PAVEMENT
 BELOW EMBANKMENTS SHALL BE REMOVED.

LEGEND

	EX. MAILBOX
	TOE OF FILL
	TOP OF CUT
	PROPOSED FULL DEPTH HMA PAVING
	PROPOSED MILLING AND HMA OVERLAY
	PROPOSED CURB
	PROPOSED BRIDGE CONSTRUCTION
	PROPOSED SIDEWALK
	PROPOSED RIGHT-OF-WAY
	DRAINAGE AND/OR UTILITY EASEMENT
	LIMITS OF DRIVEWAY REGRADE
	PROPOSED DITCH
	EXISTING DITCH/SWALE
	EXISTING TREE LINE
	EXISTING TREE
	LIMITS OF EXISTING PAVEMENT TO BE REMOVED
	EX. UTILITY POLE
	EX. OVERHEAD UTILITY
	EX. GAS
	EX. WATER
	PROPOSED WATER
	EX. ABANDONED GAS

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

NOLAN
 Associates, Inc.
 Engineers - Civil/Structural/Inspections
 4785 Dorsey Hall Drive
 Suite 124
 Ellicott City, Maryland 21042
 Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	CSN	NOLAN	1	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152 5/23/02
DRN:	BSB			
CHK:	CSN			
DATE:	APR. 2000	BY:	NO.	REVISION

ROADWAY PLAN

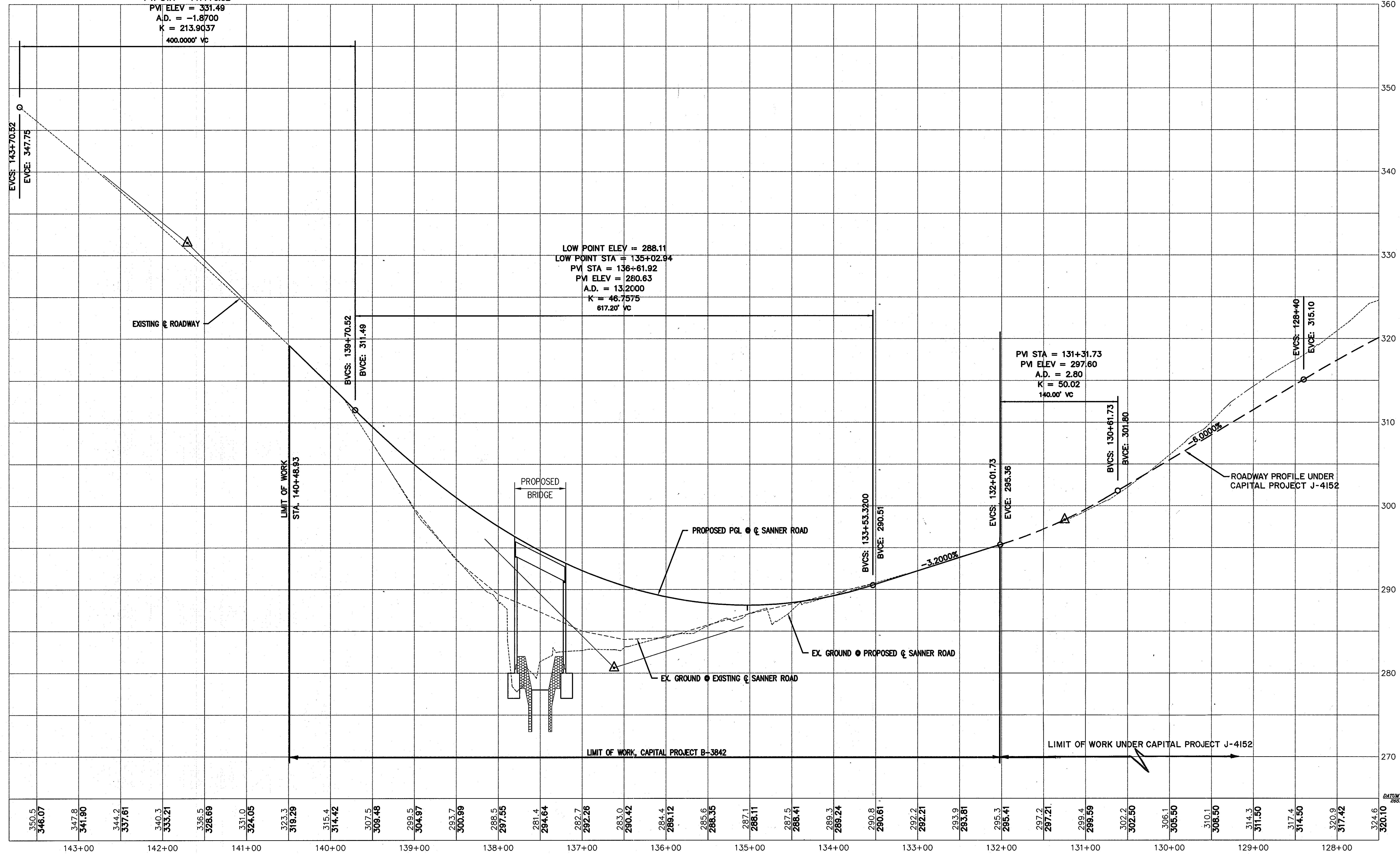
REPLACEMENT OF BRIDGE NO. HO-108
 TRIBUTARY TO THE MIDDLE PATUXENT RIVER
 CAPITAL PROJECT B-3842
 ELECTION DISTRICT NO. 4
 CLARKSVILLE, MARYLAND

SCALE:
 1" = 50'
 SHEET
 4 OF 34

PVI STA = 141+70.52
 PVI ELEV = 351.49
 A.D. = -1.8700
 K = 213.9037
 400.0000' VC

LOW POINT ELEV = 288.11
 LOW POINT STA = 135+02.94
 PVI STA = 136+61.92
 PVI ELEV = 280.63
 A.D. = 13.2000
 K = 46.7575
 617.20' VC

PVI STA = 131+31.73
 PVI ELEV = 297.60
 A.D. = 2.80
 K = 50.02
 140.00' VC



J:\197885\ACAD\FINAL\PROFILES.DWG

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

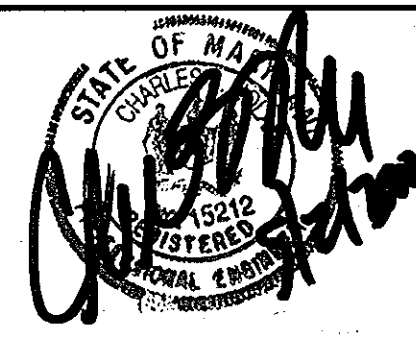
James P. [Signature] 5/3/00
 DIRECTOR OF PUBLIC WORKS
 DATE

[Signature] 5/11/00
 CHIEF, DIVISION OF TRANSPORTATION
 PROJECTS AND WATERSHED MANAGEMENT
 DATE

NOLAN
 Associates, Inc.

Engineers - Civil/Structural/Inspections
 4785 Dorsey Hall Drive
 Suite 124
 Ellicott City, Maryland 21042

Phone: (410) 995-3651 Fax: (410) 995-1363



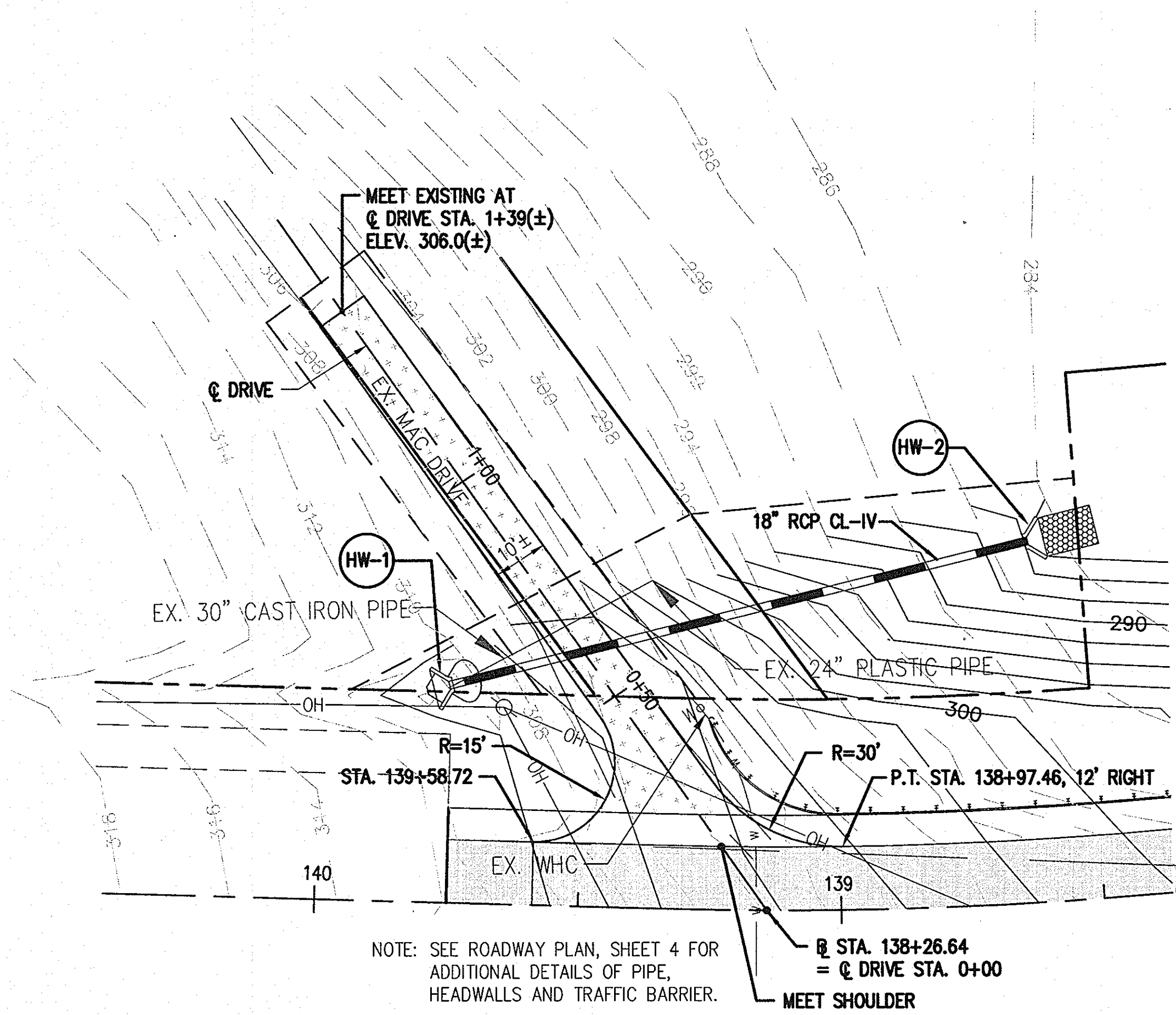
DES: CGW	NOLAN	I	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152	5/23/00
DRN: BSB				
CHK: CSN				
DATE: APR. 2000				

PROFILE

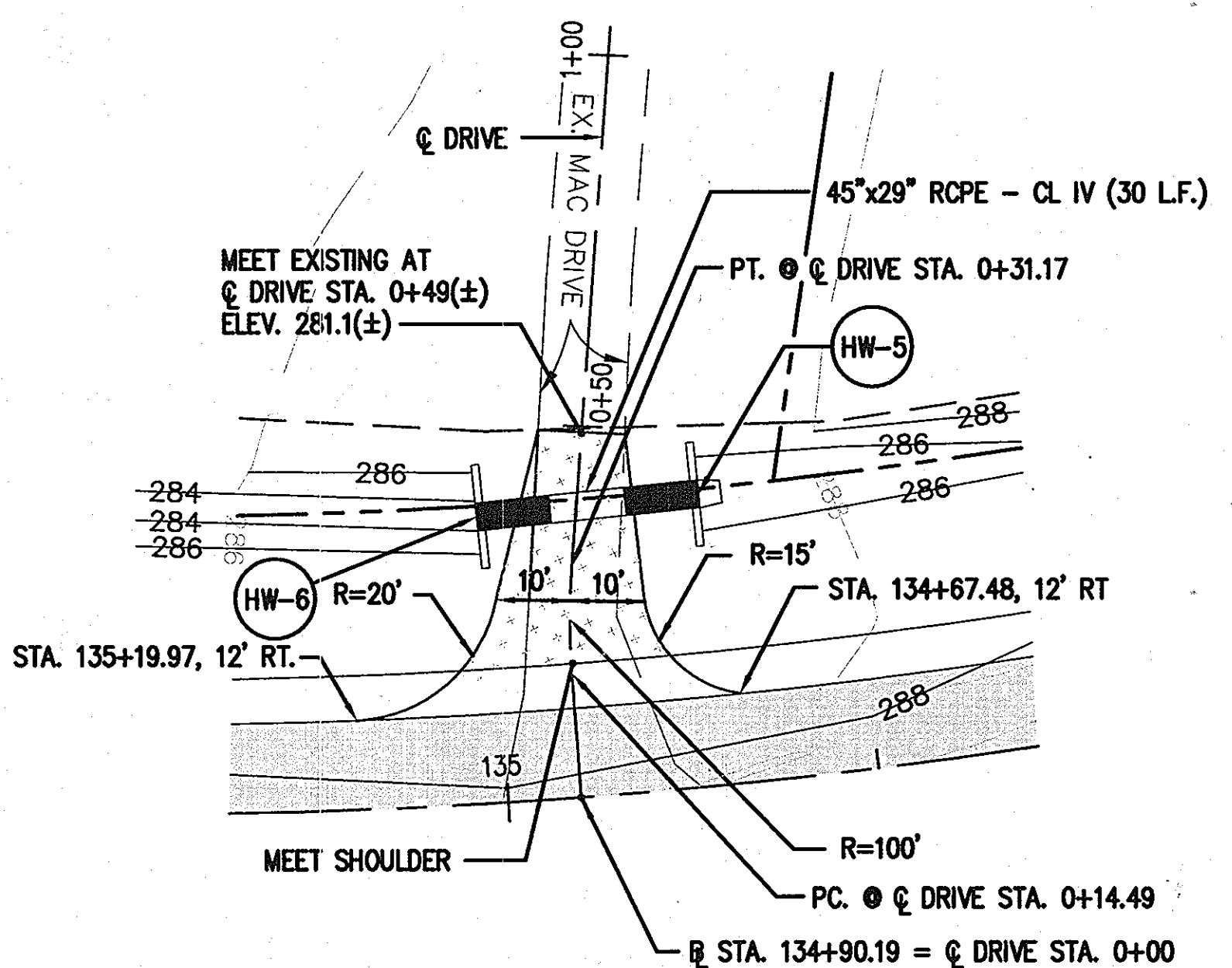
REPLACEMENT OF BRIDGE NO. HO-108
 SANNER ROAD OVER
 TRIBUTARY TO THE PATUXENT RIVER
 CAPITAL PROJECT B-3842
 ELECTION DISTRICT NO. 4
 CLARKSVILLE, MARYLAND

SCALE:
 1"=50' H
 1"=5' V

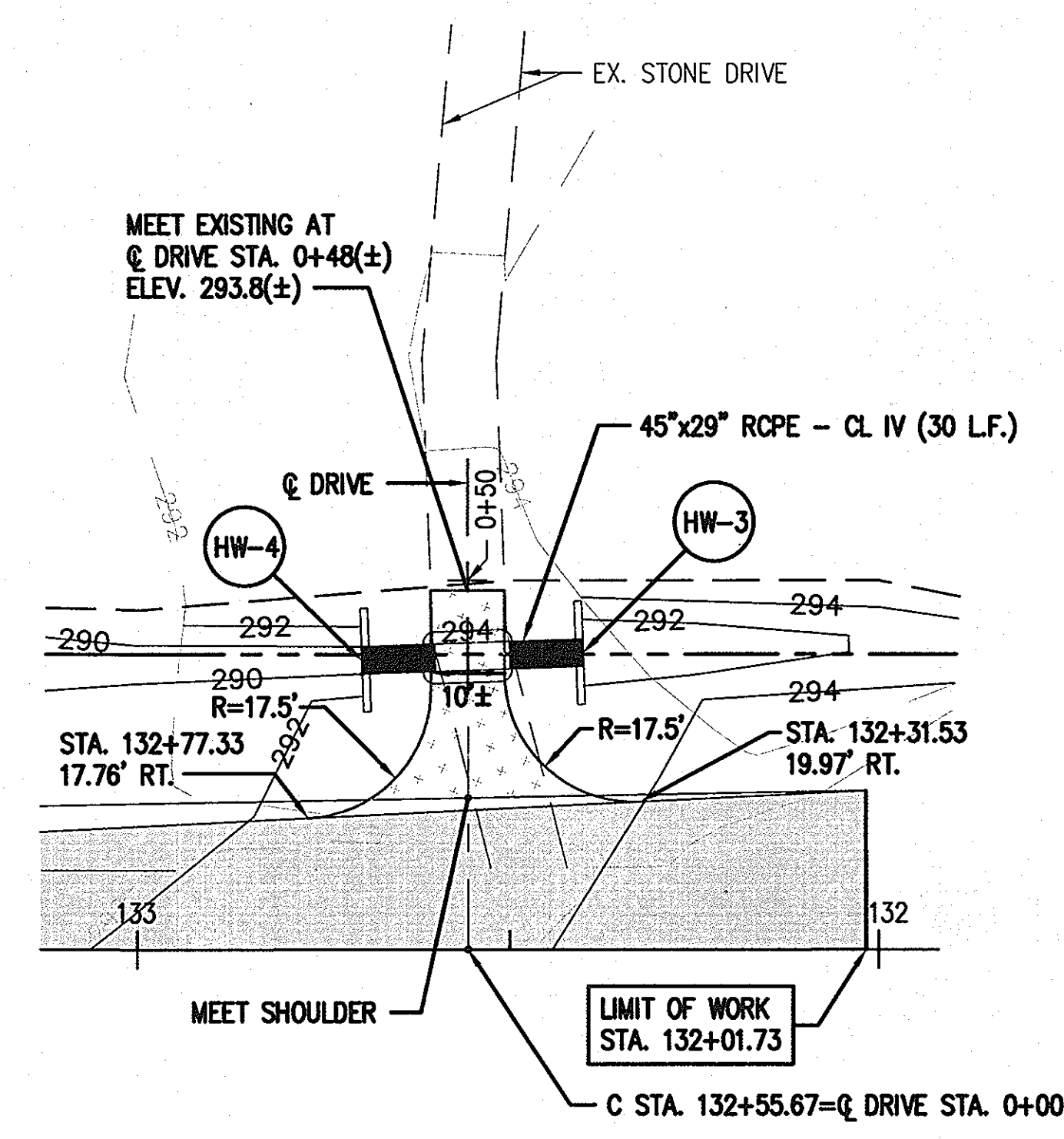
SHEET
 5 OF 34



PLAN AT PRIVATE DRIVE @ STA. 139+26.64
SCALE: 1"=20'



PLAN AT PRIVATE DRIVE @ STA. 134+90.19
SCALE: 1"=20'



PLAN AT PRIVATE DRIVE @ STA. 132+55.67
SCALE: 1"=20'

- NOTES:**
1. CONSTRUCT DRIVEWAYS TO THE LIMITS SHOWN AND IN ACCORDANCE WITH THE APPLICABLE DETAILS SHOWN IN HOWARD CO. DETAIL R 6.06.
 2. ACCESS SHALL BE MAINTAINED AT ALL TIMES TO EXISTING DRIVEWAYS. THE CONTRACTOR SHALL COORDINATE THE WORK AT EXISTING DRIVEWAYS WITH THE PROPERTY OWNERS AND AS DIRECTED BY THE ENGINEER.
 3. SEE ROADWAY PLAN, SHEET 4, FOR STORM DRAIN STRUCTURE TABLE.
 4. PLANS SHOWN ONLY TO â PROPOSED SANNER ROAD. SEE ROADWAY PLAN, SHEET 4 FOR ADDITIONAL DETAILS.

J:\170086_VACAD_FINAL\170086DETAILS.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

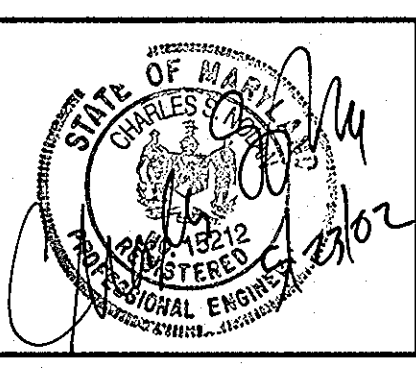
James M. Lewis 5/23/02
DIRECTOR OF PUBLIC WORKS DATE

Ronald G. Kerpson 5/23/02
CHIEF, BUREAU OF ENGINEERING DATE

William Malins 5/23/02
CHIEF, BUREAU OF HIGHWAYS DATE

Barbara 5/23/02
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	CSN	NOLAN	1	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152	5/23/02
DRN:	BSB				
CHK:	CSN				
DATE:	APR. 2000				
BY:					
NO.					
REVISION					
DATE					

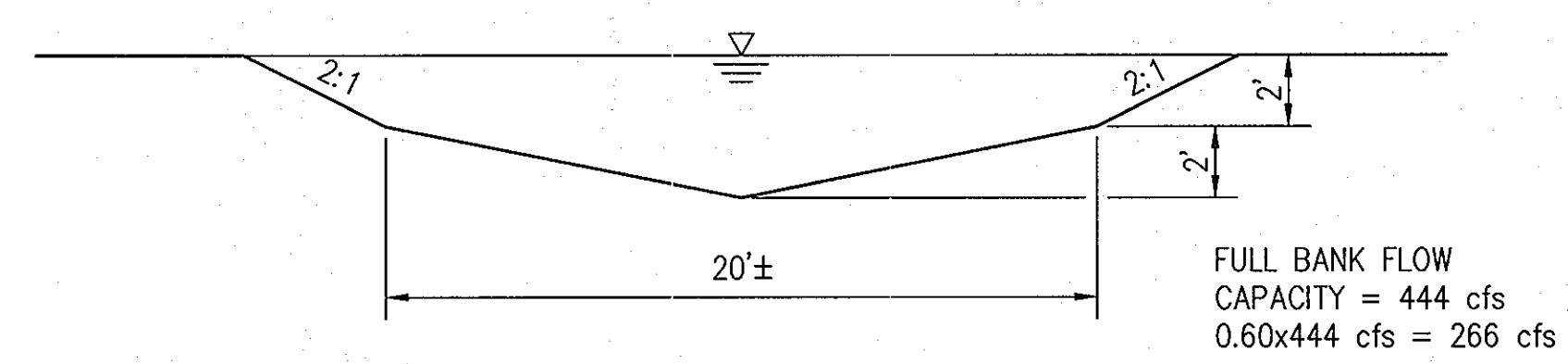
MISCELLANEOUS DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

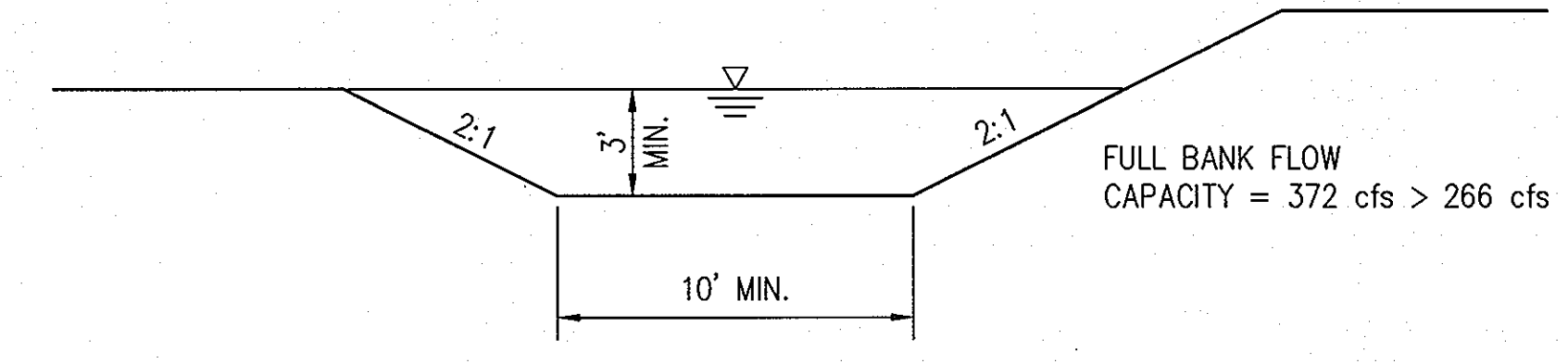
REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKVILLE, MARYLAND

SCALE:
AS SHOWN

SHEET
6 OF 34



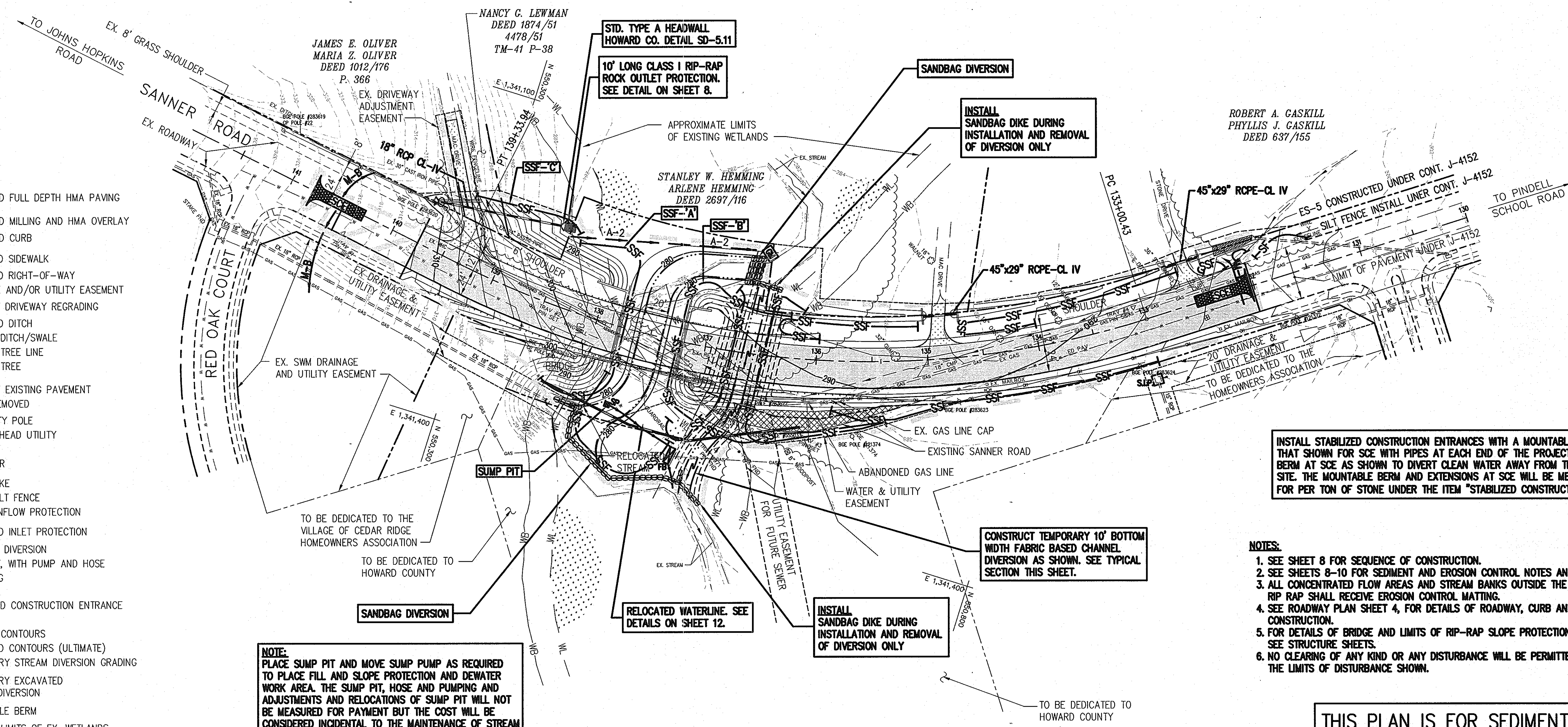
TYPICAL SECTION - EXISTING STREAM



TYPICAL SECTION AT EXCAVATED STREAM DIVERSION

NOTES:
CONSTRUCT 10' BOTTOM FABRIC BASED CHANNEL DIVERSION IN ACCORDANCE WITH DETAIL ON SHEET 10.

- LEGEND**
- PROPOSED FULL DEPTH HMA PAVING
 - PROPOSED MILLING AND HMA OVERLAY
 - PROPOSED CURB
 - PROPOSED SIDEWALK
 - PROPOSED RIGHT-OF-WAY
 - DRAINAGE AND/OR UTILITY EASEMENT
 - LIMITS OF DRIVEWAY REGRADING
 - PROPOSED DITCH
 - EXISTING DITCH/SWALE
 - EXISTING TREE LINE
 - EXISTING TREE
 - LIMITS OF EXISTING PAVEMENT TO BE REMOVED
 - EX. UTILITY POLE
 - EX. OVERHEAD UTILITY
 - EX. GAS
 - EX. WATER
 - EARTH DIKE
 - SUPER SILT FENCE
 - GABION INFLOW PROTECTION
 - STANDARD INLET PROTECTION
 - SANDBAG DIVERSION
 - SUMP PIT, WITH PUMP AND HOSE
 - FILTERBAG
 - STABILIZED CONSTRUCTION ENTRANCE
 - EXISTING CONTOURS
 - PROPOSED CONTOURS (ULTIMATE)
 - TEMPORARY STREAM DIVERSION GRADING
 - TEMPORARY EXCAVATED STREAM DIVERSION
 - MOUNTABLE BERM
 - APPROX. LIMITS OF EX. WETLANDS
 - APPROX. LIMITS OF EX. WETLANDS BUFFER
 - LIMITS OF DISTURBANCE



NOTE:
PLACE SUMP PIT AND MOVE SUMP PUMP AS REQUIRED TO PLACE FILL AND SLOPE PROTECTION AND DEWATER WORK AREA. THE SUMP PIT, HOSE AND PUMPING AND ADJUSTMENTS AND RELOCATIONS OF SUMP PIT WILL NOT BE MEASURED FOR PAYMENT BUT THE COST WILL BE CONSIDERED INCIDENTAL TO THE MAINTENANCE OF STREAM FLOW ITEM.

SEDIMENT AND EROSION CONTROL PLAN

SCALE: 1"=50'

CONSTRUCT TEMPORARY 10' BOTTOM WIDTH FABRIC BASED CHANNEL DIVERSION AS SHOWN. SEE TYPICAL SECTION THIS SHEET.

- NOTES:**
- SEE SHEET 8 FOR SEQUENCE OF CONSTRUCTION.
 - SEE SHEETS 8-10 FOR SEDIMENT AND EROSION CONTROL NOTES AND DETAILS.
 - ALL CONCENTRATED FLOW AREAS AND STREAM BANKS OUTSIDE THE LIMITS OF RIP RAP SHALL RECEIVE EROSION CONTROL MATTING.
 - SEE ROADWAY PLAN SHEET 4, FOR DETAILS OF ROADWAY, CURB AND SIDEWALK CONSTRUCTION.
 - FOR DETAILS OF BRIDGE AND LIMITS OF RIP-RAP SLOPE PROTECTION, SEE STRUCTURE SHEETS.
 - NO CLEARING OF ANY KIND OR ANY DISTURBANCE WILL BE PERMITTED OUTSIDE THE LIMITS OF DISTURBANCE SHOWN.

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY

NOTE:
BRIDGE SUPERSTRUCTURE NOT SHOWN.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan 7, 2002 5/23/02
DIRECTOR OF PUBLIC WORKS DATE

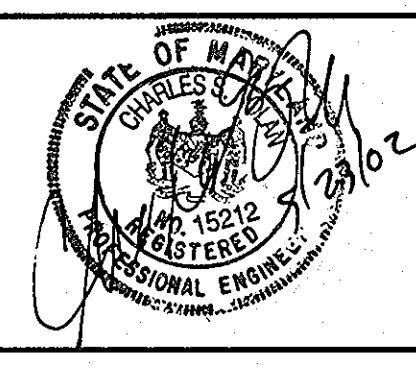
Ronald C. Lypson 5/23/02
CHIEF, BUREAU OF ENGINEERING DATE

William Malone 5/23/02
CHIEF, DIVISION OF TRANSPORTATION DATE

William Malone 5/23/02
CHIEF, BUREAU OF HIGHWAYS DATE

CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 986-3651 Fax: (410) 986-1863



DES:	CSN	NOLAN	1	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152	5/23/02
DRN:	BSB				
CHK:	CSN				
DATE:	APR. 2000				
BY:	NO.				
REVISION					
DATE					

SEDIMENT AND EROSION CONTROL PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

SCALE:
1" = 50'

SHEET
7 OF 34

J:\170861\ACAD\PLANAL\170861SE.DWG

SPECIFICATIONS FOR VEGETATION ESTABLISHMENT

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--In lieu of soil test recommendations, use one of the following schedules:

- 1. Preferred--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)
2. Acceptable--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding--For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by Option (1) - 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, Option (2) - Use sod, Option (3) - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

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

Maintenance--Inspect all seeding areas and make needed repairs, replacements and reseeds.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redistributed where a short-term vegetative cover is needed.

Seedbed preparation:--Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments:--Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

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

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

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

STANDARD SEDIMENT CONTROL NOTES

- 1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec.51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis
Total Area of Site 2.60 Acres
Area Disturbed 2.60 Acres
Area to be roofed or paved 0.95 Acres
Area to be vegetatively stabilized 1.65 Acres
Total Cut 950 Cu. Yds.
Total Fill 10,200 Cu. Yds.
Offsite Waste/Borrow Area Location To Be Determined By Contractor at a site with an active grading permit.
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be backfilled and stabilized within one working day, whichever is shorter.

STANDARD SEDIMENT CONTROL PROCEDURES FOR UTILITY CONSTRUCTION

- 1. Trenches for the construction of utilities is limited to three pipe lengths or that which can be backfilled and stabilized within one working day, whichever is shorter.
2. Excavated trench materials shall be placed on the high side of the trench.
3. Immediately following pipe installation, the trench shall be backfilled, compacted and stabilized by the end of each working day.
4. Full trench compaction is required.
5. Construct Stabilized Construction Entrances at all ingress and egress points to the site onto paved roads.
6. Silt fence shall be installed temporarily immediately downstream of any disturbed area intended to remain disturbed longer than one working day. Also, any inlet located below the affected area of the disturbance shall be protected using the appropriate inlet protection detail.
7. Staging areas for equipment and supplies shall be protected with silt fence, ends curled uphill by 2' in elevation, for containment.
8. Any sediment control practices which are disturbed during utility construction shall be repaired or replaced by the end of each working day.
9. Any ditches or drainage ways disturbed during construction must be restored to original condition.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

Director of Public Works signature and date 5/1/00
Chief, Division of Highways signature and date 5/4/00

Chief, Bureau of Engineering signature and date 5/3/00
Chief, Division of Transportation Projects and Watershed Management signature and date 5/4/00



Engineers - Civil/Structural/Inspections 4785 Dorsey Hall Drive Suite 124 Ellicott City, Maryland 21042 Phone: (410) 995-3651 Fax: (410) 995-1363

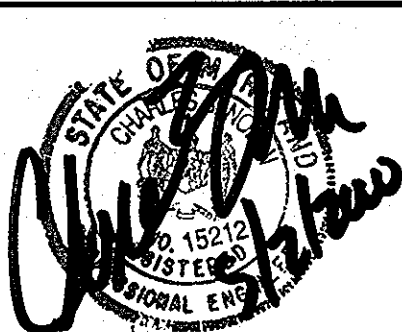
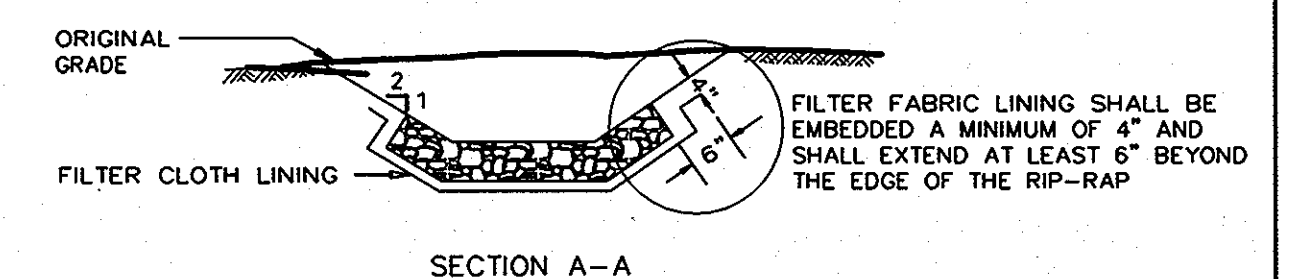
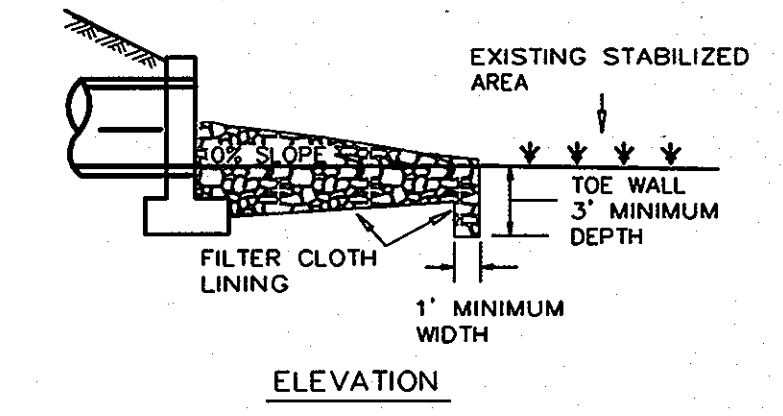
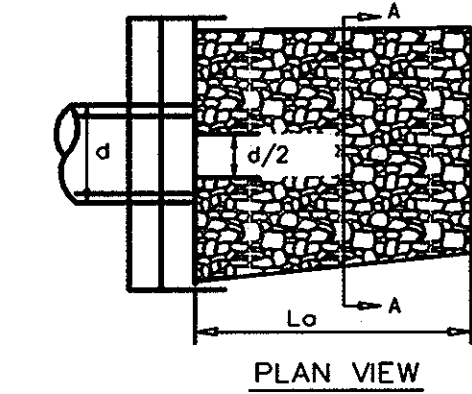


Table with columns: DES: CSN, DRN: TAC, CHK: CSN, DATE: APR. 2000, BY, NO., REVISION, DATE. Includes a 600' SCALE MAP NO. and BLOCK NO.

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

DETAIL 27 - ROCK OUTLET PROTECTION III



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F - 18 - 10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION III

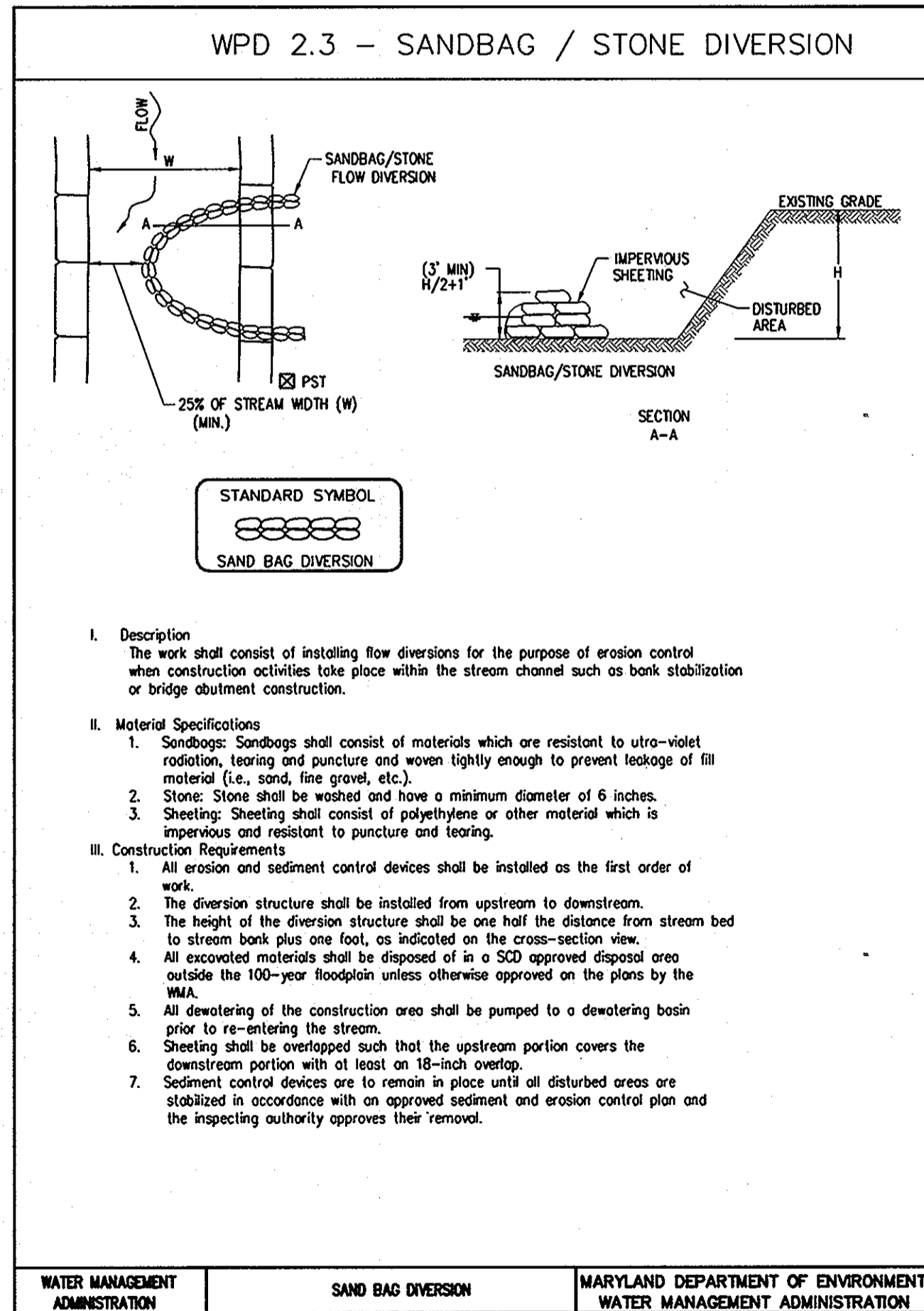
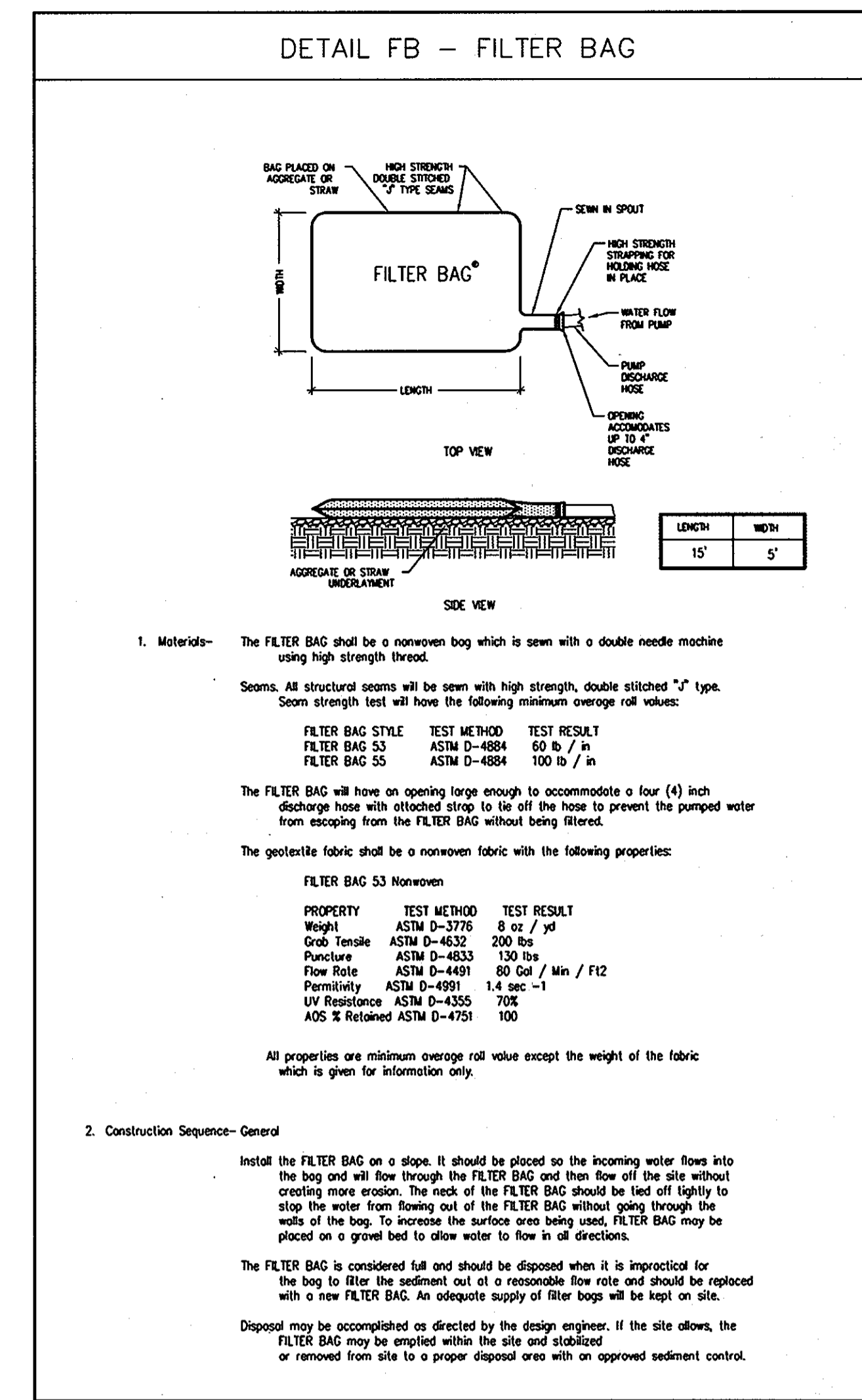
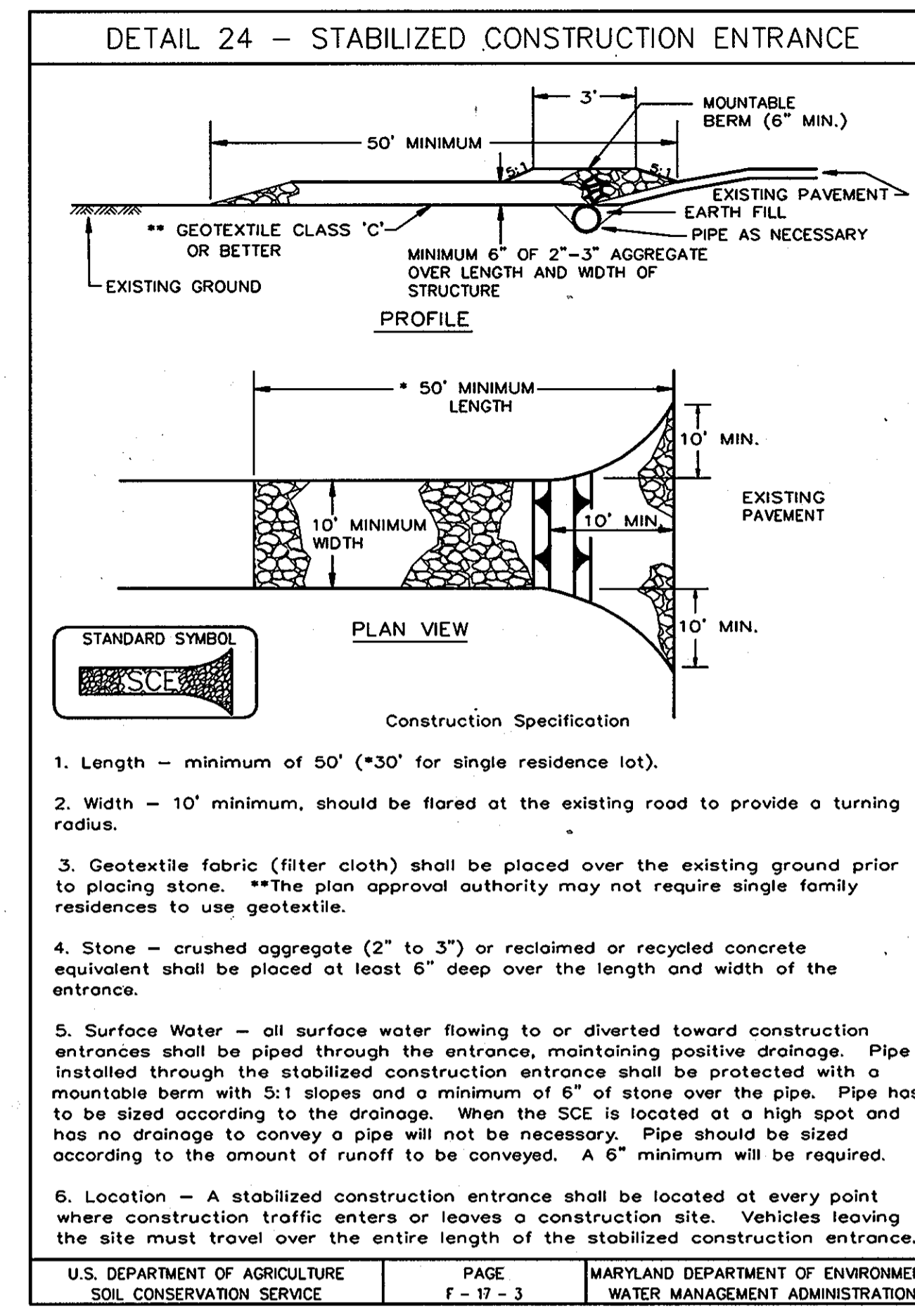
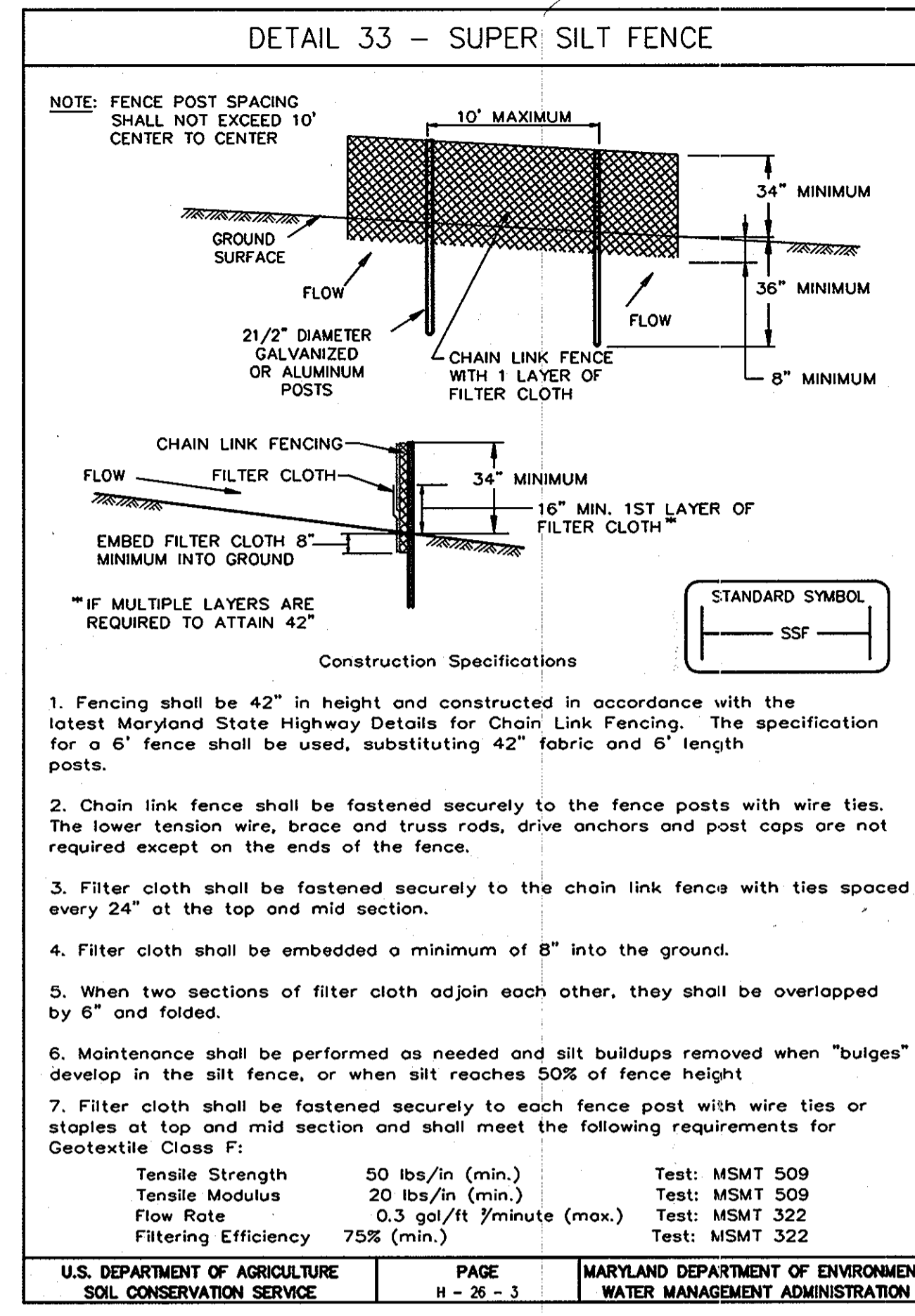
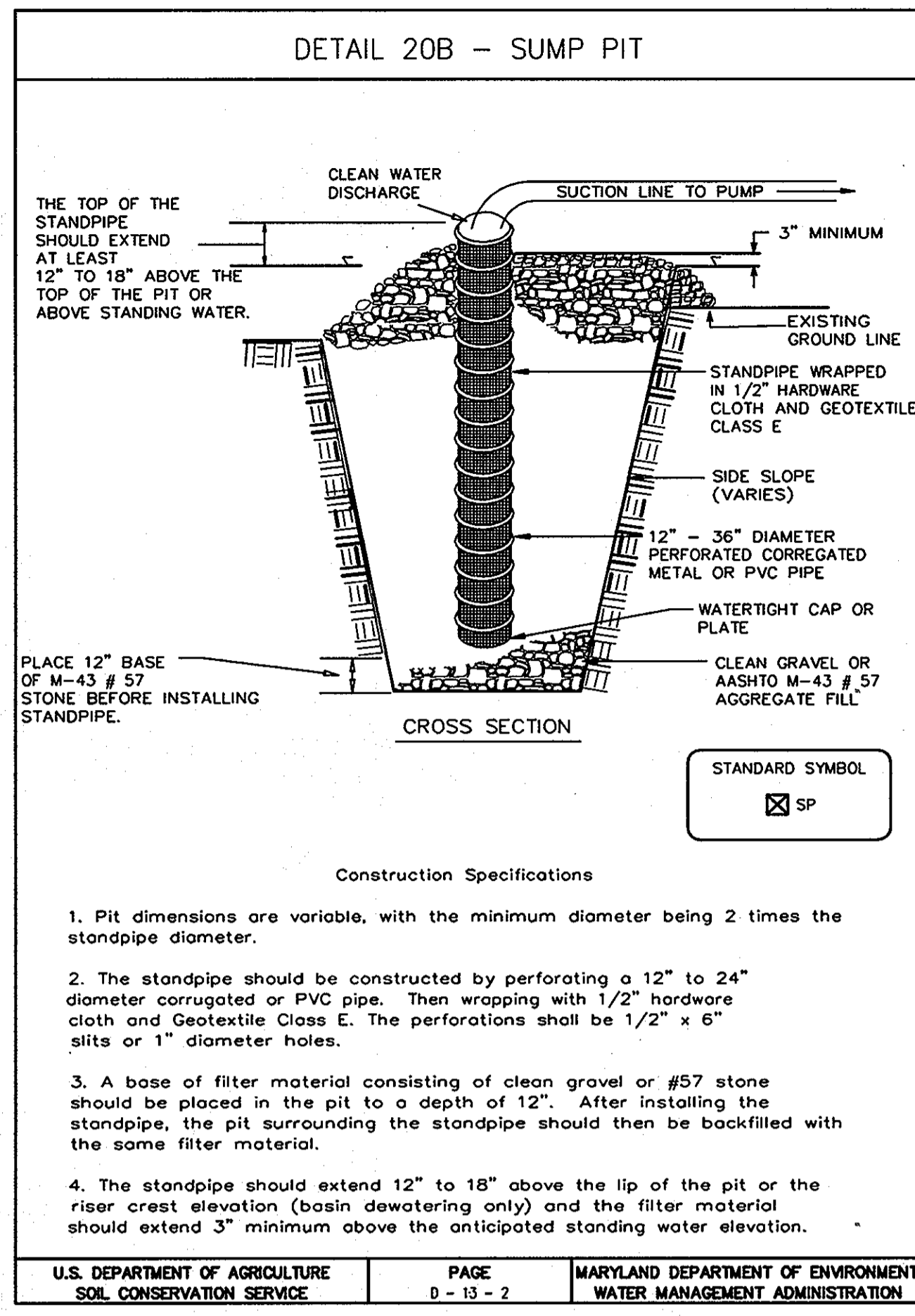
Construction Specifications

- 1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F - 18 - 10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

REPLACEMENT OF BRIDGE NO. HO-108 SANNER ROAD OVER TRIBUTARY TO THE MIDDLE PATUXENT RIVER CAPITAL PROJECT B-3842 ELECTION DISTRICT NO. 4 CLARKSVILLE, MARYLAND

SCALE: AS SHOWN SHEET 8 OF 34

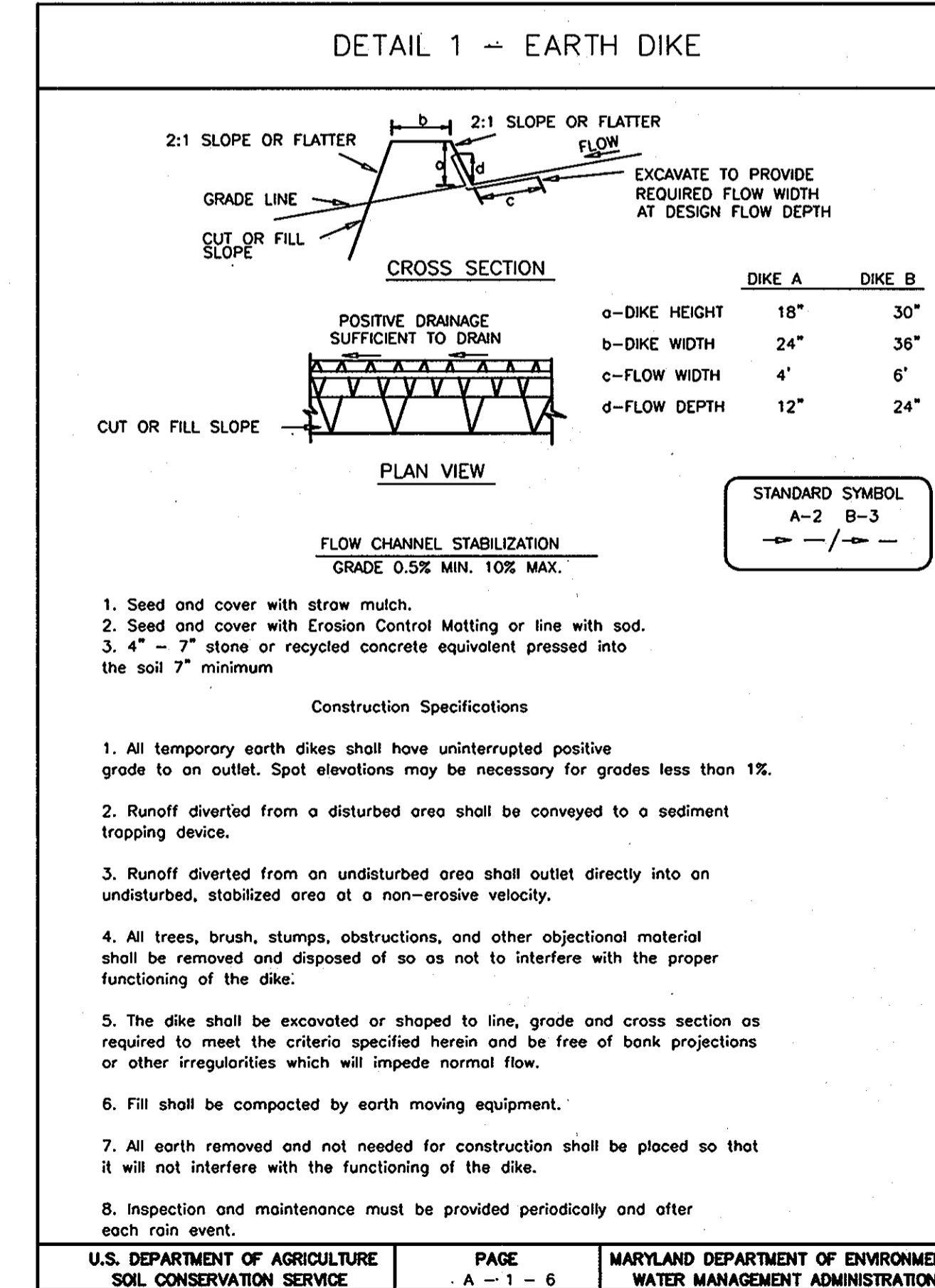
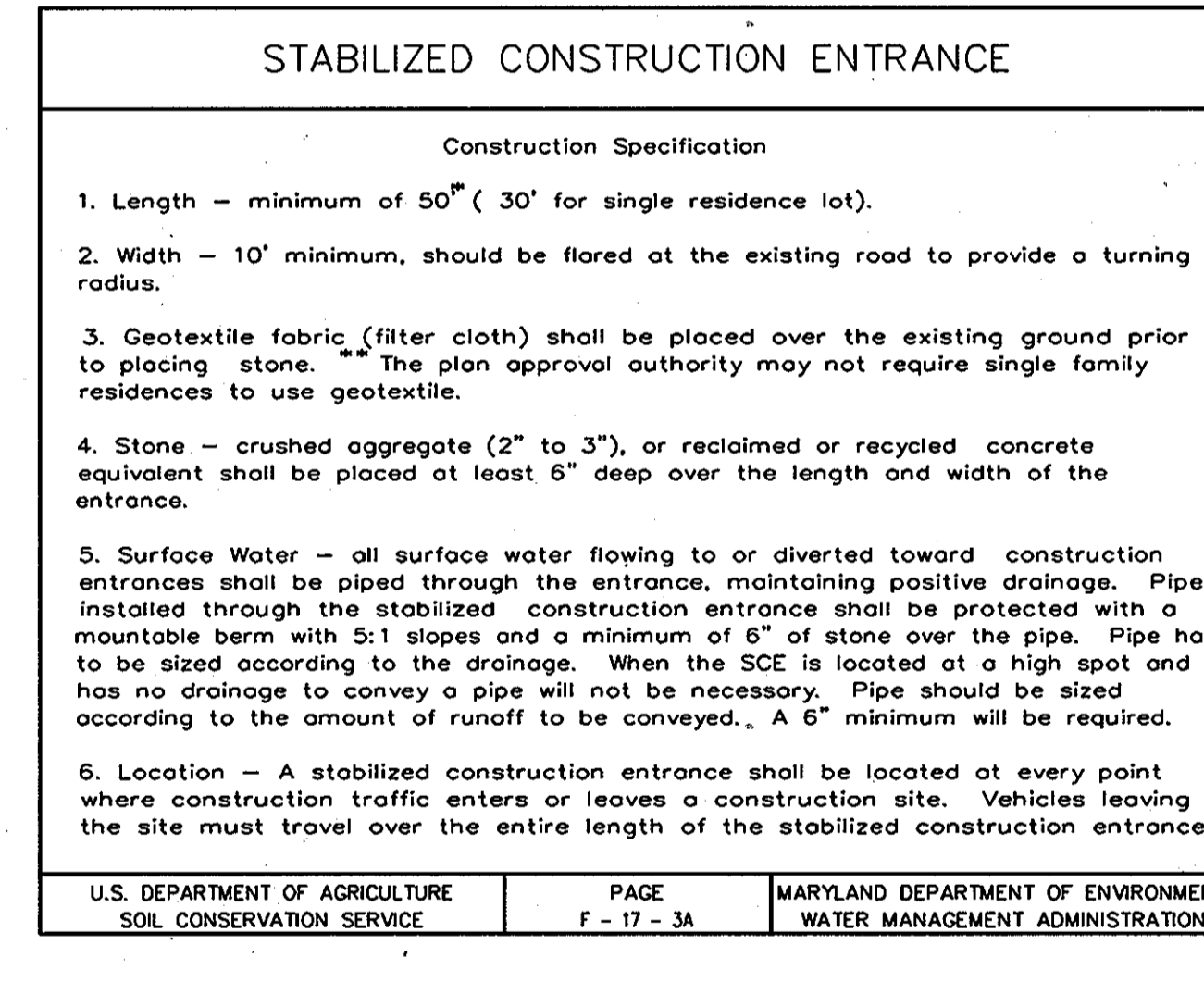


SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H - 26 - 3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



J:\97086\ACAD\DRAWING\97086SE2.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

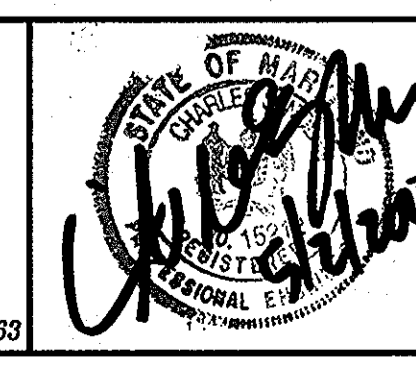
James G. Lewis 5/3/00
DIRECTOR OF PUBLIC WORKS DATE

Robert P. Sisson 5/13/00
CHIEF, BUREAU OF ENGINEERING DATE

Michael M. Conde 5/3/00
CHIEF, DIVISION OF HIGHWAYS DATE

Erica L. ... 5/14/00
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	BOB		
DRN:	TAC		
CHK:	CSN		
DATE:	APR. 2000		
BY:	NO.	REVISION	DATE

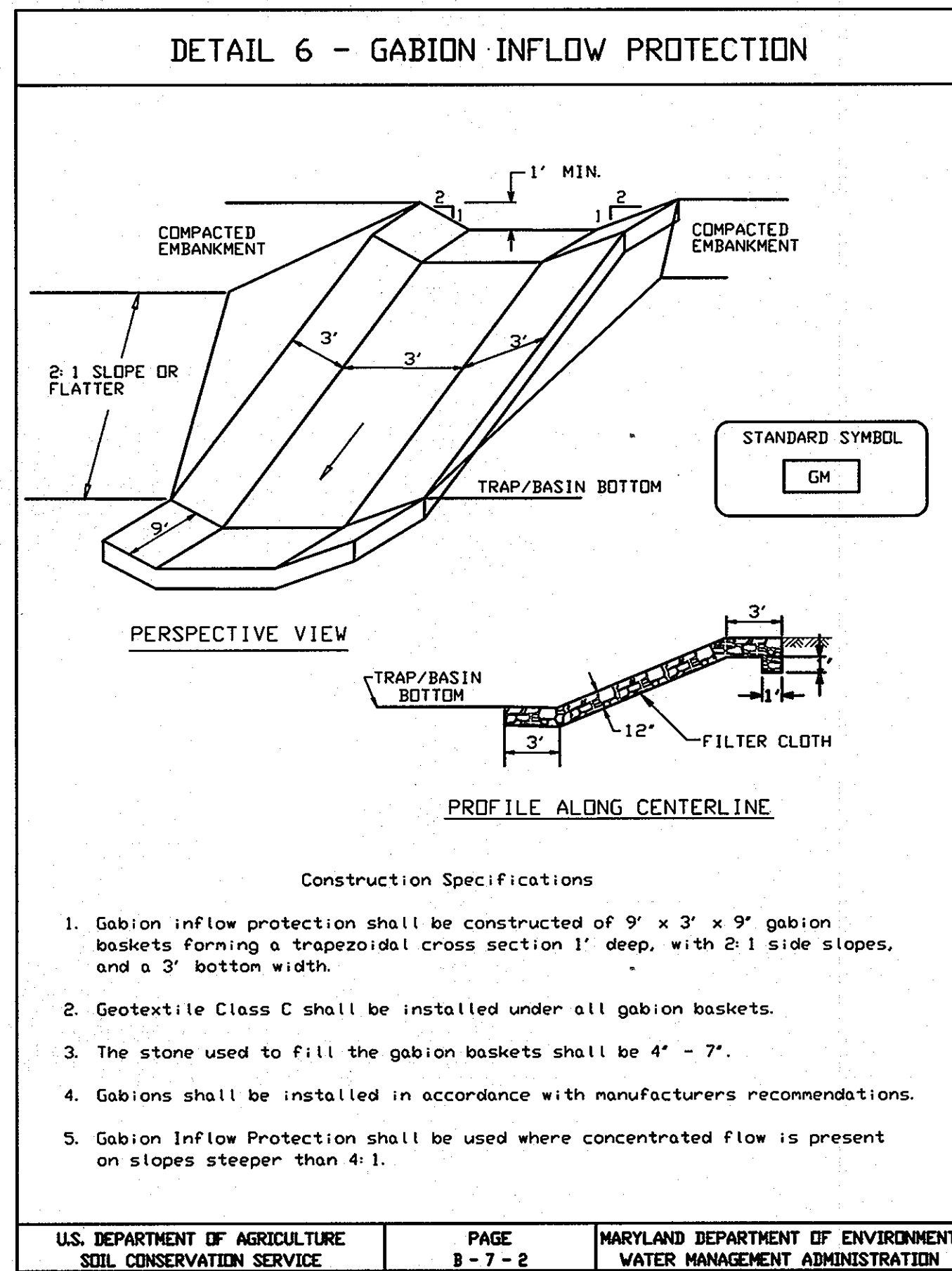
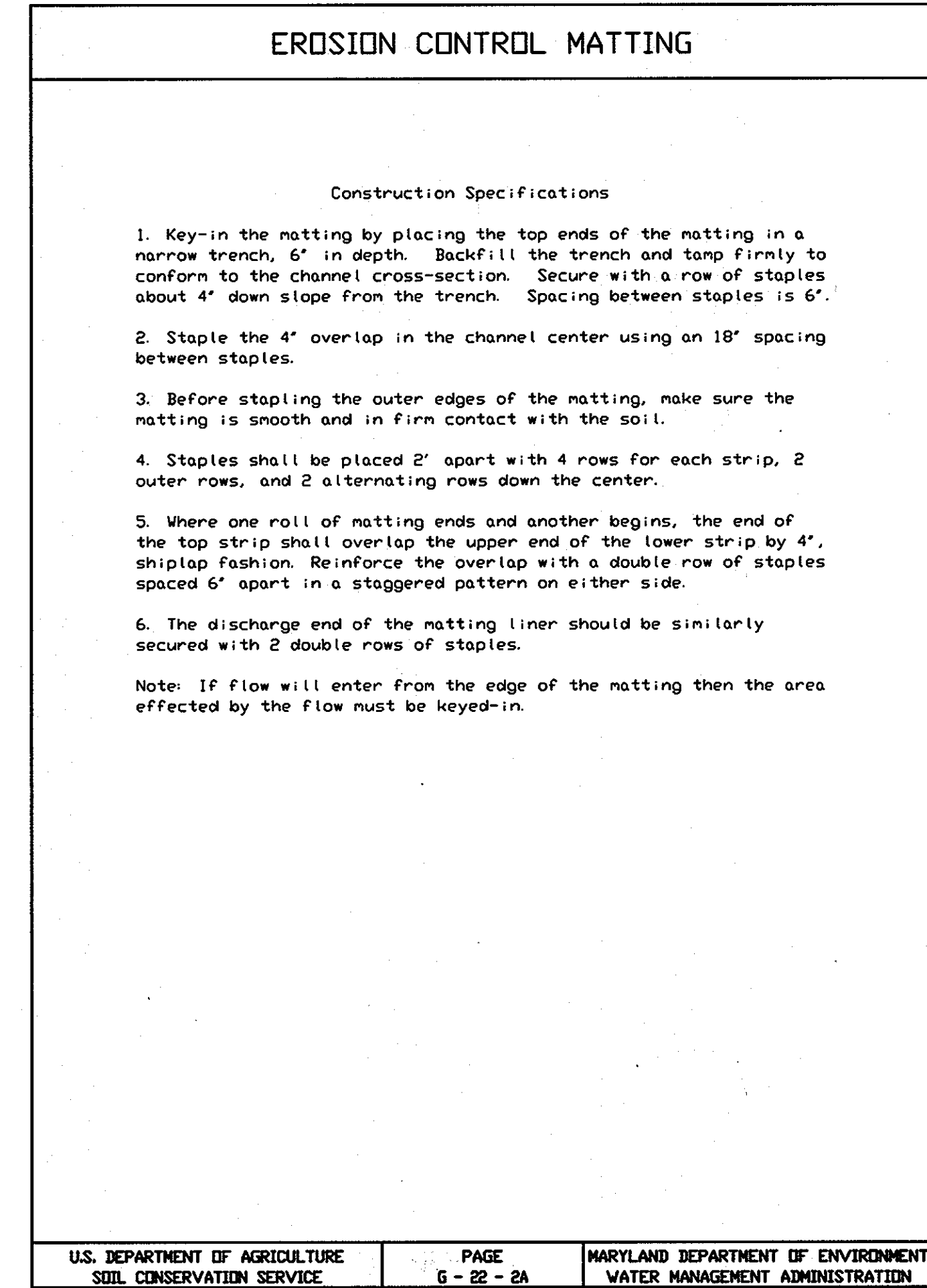
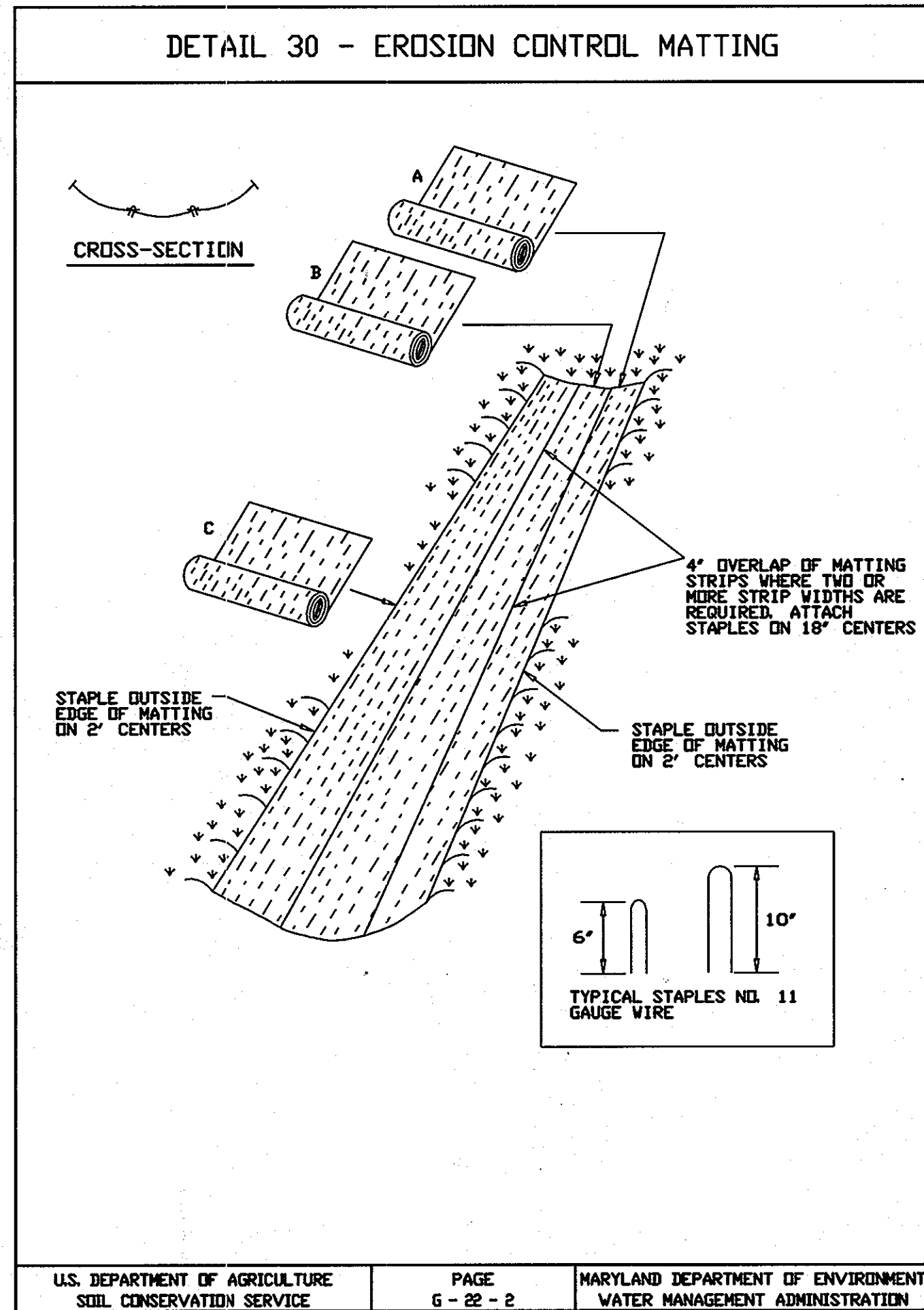
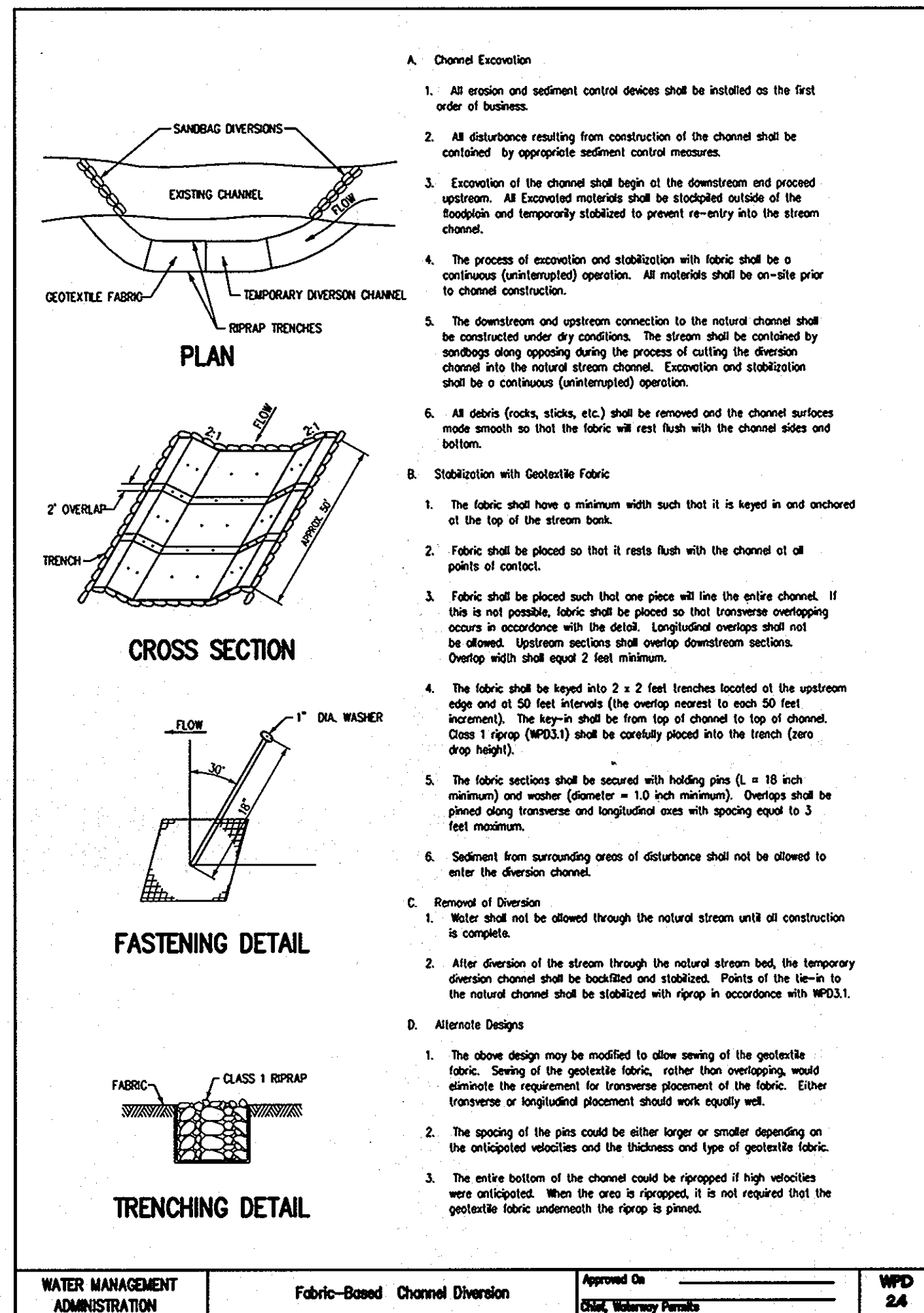
SEDIMENT AND EROSION CONTROL DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

SCALE:
AS SHOWN

SHEET
9 OF 34



J:\97086\ACAD\FINAL\97086SE1.DWG

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

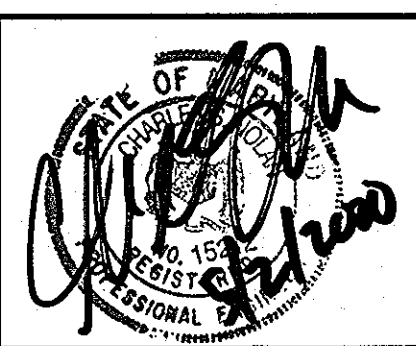
Jamie P. Sluiter 5/3/00
 DIRECTOR OF PUBLIC WORKS DATE

Robert P. Brown 5/3/00
 CHIEF, BUREAU OF ENGINEERING DATE

Richard M. Quale 5/3/00
 CHIEF, DIVISION OF HIGHWAYS DATE

Facalia 5/4/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN Associates, Inc.
 Engineers - Civil/Structural/Inspections
 4785 Dorsey Hall Drive
 Suite 124
 Ellicott City, Maryland 21042
 Phone: (410) 995-3651 Fax: (410) 995-1383



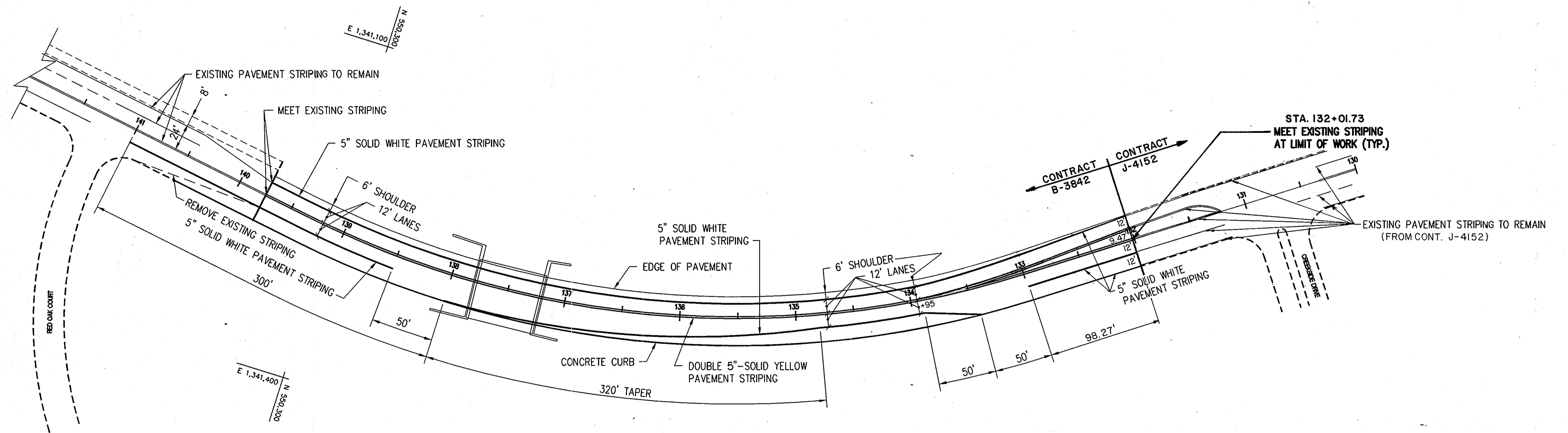
DES: BDB			
DRN: TAC			
CHK: CSN			
DATE: APR 2000			
BY	NO.	REVISION	DATE

SEDIMENT AND EROSION CONTROL DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

REPLACEMENT OF BRIDGE NO. HO-108
 SANNER ROAD OVER
 TRIBUTARY TO THE MIDDLE PATUXENT RIVER
 CAPITAL PROJECT B-3842
 ELECTION DISTRICT NO. 4
 CLARKSVILLE, MARYLAND

SCALE: AS SHOWN
 SHEET 10 OF 34



PAVEMENT STRIPING PLAN

J:\97088\ACAD\FINAL\97088PSP.DWG

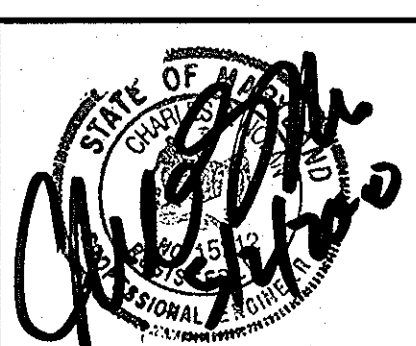
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Tommy J. Shaw 5/3/00
 DIRECTOR OF PUBLIC WORKS DATE

Robert J. Sporn
 CHIEF, BUREAU OF ENGINEERING

Robert J. Sporn 5/4/00
 CHIEF, DIVISION OF TRANSPORTATION
 PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN
 Associates, Inc.
 Engineers - Civil/Structural/Inspections
 4785 Dorsey Hall Drive
 Suite 124
 Ellicott City, Maryland 21042
 Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	CSN	NOLAN	1	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152	5-2303
DRN:	BSB				
CHK:	CSN				
DATE:	APR. 2000				
BY	NO.			REVISION	DATE

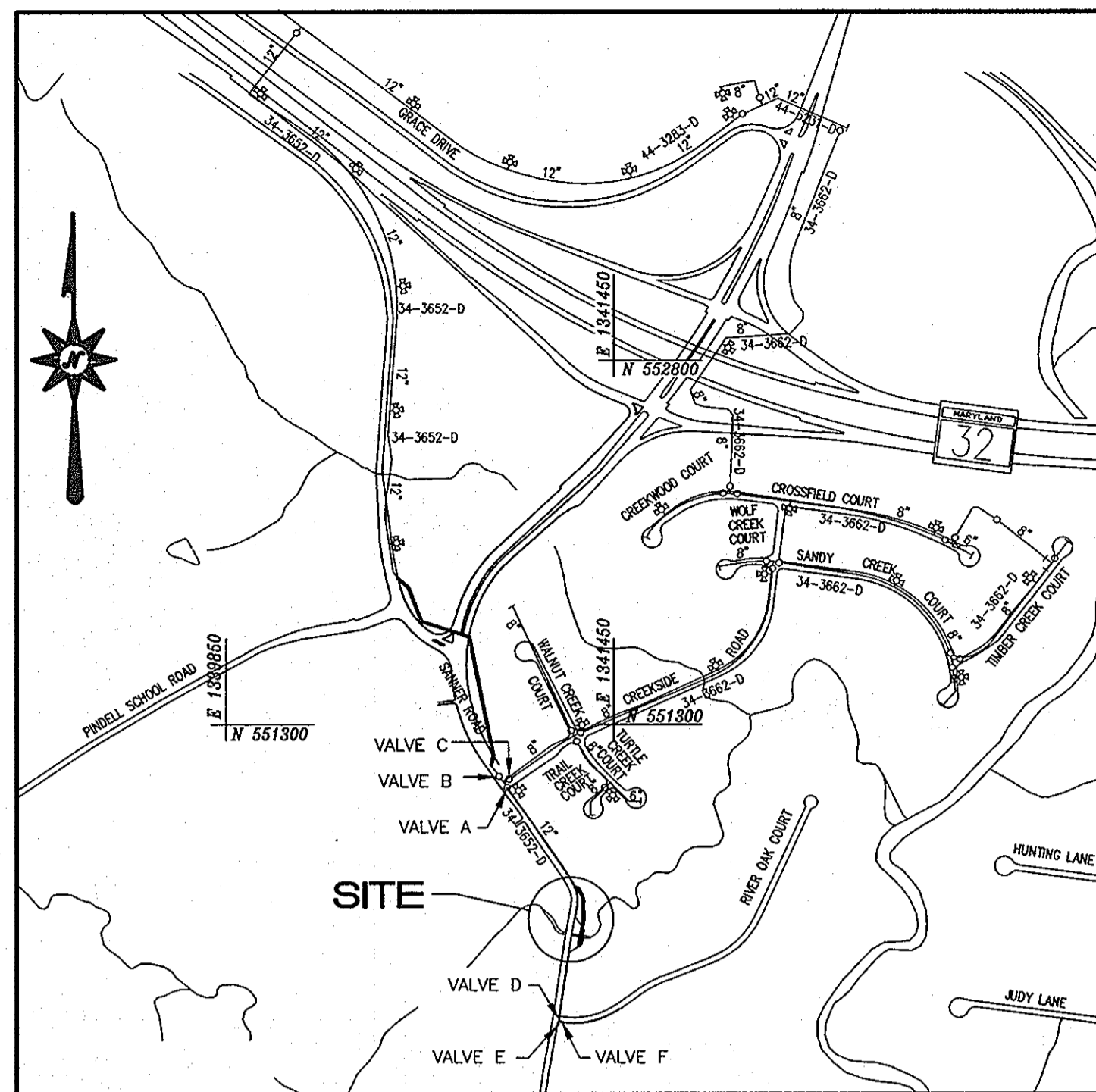
PAVEMENT STRIPING PLAN

600' SCALE MAP NO. _____ BLOCK NO. _____

REPLACEMENT OF BRIDGE NO. HO-108
 SANNER ROAD OVER
 TRIBUTARY TO THE MIDDLE PATUXENT RIVER
 CAPITAL PROJECT B-3842
 ELECTION DISTRICT NO. 4
 CLARKSVILLE, MARYLAND

SCALE:
 1" = 50'

SHEET
 11 OF 34



VICINITY MAP
SCALE: 1"=600'

BENCHMARKS

Howard County Survey Control
Description: 41BA
N 551789.441 E 1,340,518.144 ELEV. 343.31

Howard County Benchmark S-260
Description: P.K. NAIL SET 1.5' OFF OF DRIVING LANE IN SANNER ROAD,
350± SOUTH OF PINDELL SCHOOL ROAD
N 551,488.385 E 1,340,684.984 ELEV. 339.04

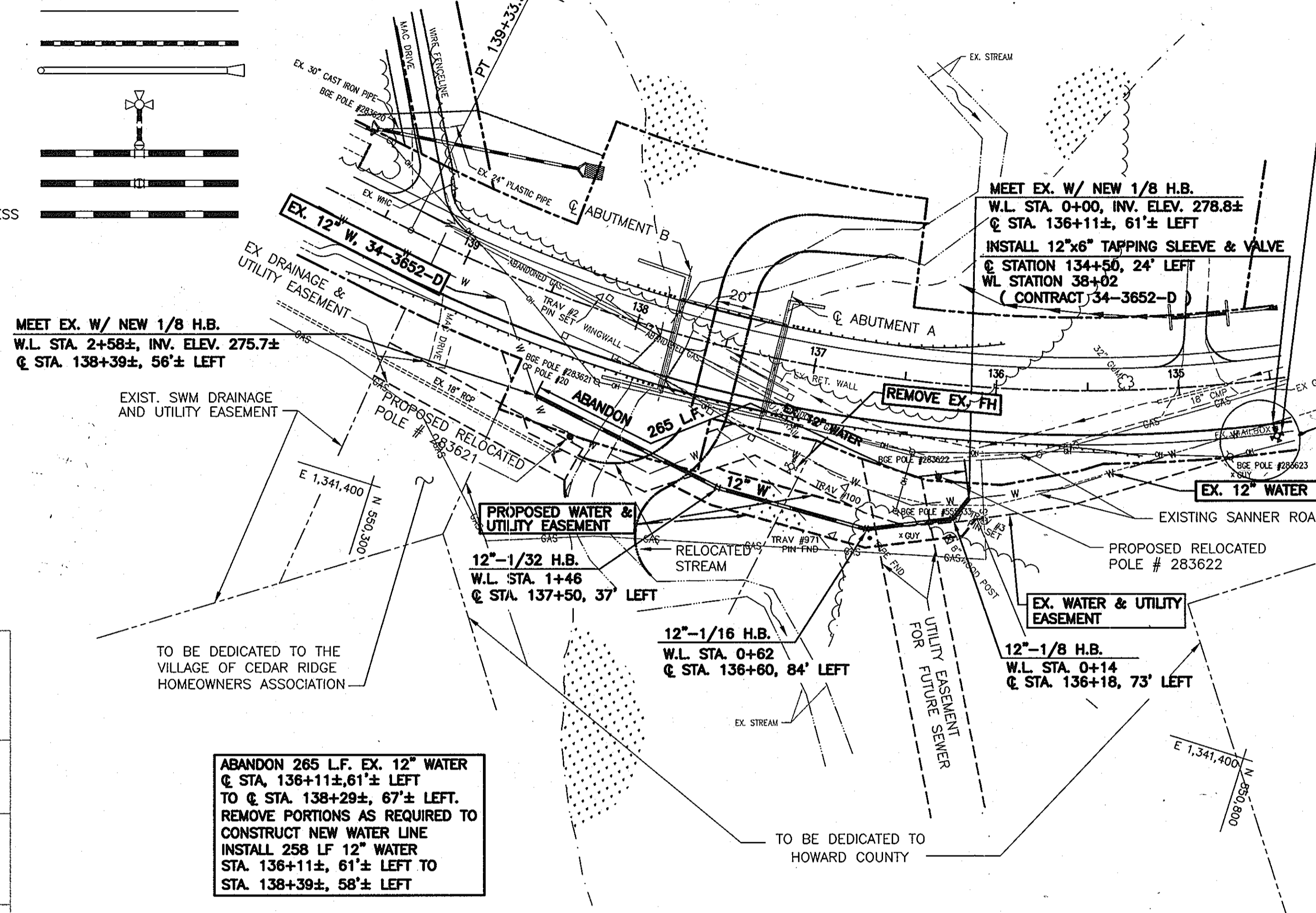
Howard County Benchmark S-261
Description: 3/8" REBAR, 1.5' OFF EDGE OF SANNER ROAD
N 551,133.080 E 1,340,958.067 ELEV. 309.90

LEGEND

- EXIST. WATER MAIN
- PROP. WATER MAIN
- PROP. STORM DRAIN (BY OTHERS)
- PROP. FIRE HYDRANT
- PROP. VALVE
- PROP. PLUG & BUTTRESS

NOTE:
THE CONTRACTOR SHALL PROVIDE SUPPORT/BRACING OF EXISTING UTILITY POLE NO. 555033, STA 136+45(±), 70±' LEFT DURING CONSTRUCTION OF NEW WATER MAIN AS REQUIRED. THE CONTRACTOR SHALL COORDINATE THE BRACING OF THE POLE AND HANDLING OF EXISTING GUY ANCHORS WITH BGE TO OBTAIN WRITTEN APPROVAL FROM BGE ON THE METHODS OF BRACING IN ADVANCE OF CONSTRUCTION OF THE WATER MAIN RELOCATION.

ITEMS	QUANTITIES ESTIMATED	QUANTITIES			
		QUANTITIES	TYPE	MANUF./SUPPLIER	U/S FILTER
12" WATER	240 L.F.	250	CL 52 DIP TYTONI JOINT	ATLANTIC STATES	" "
12"x6" T.S. & V.	1 EACH	1	SPRINKLER STRONG # 6 WEDGE VALVE	MUELLER CO.	" "
FIRE HYDRANT	1 EACH	1	# 422 CENTURION	" "	" "
12"-1/8 H.B.	3 EACH	3	M.J.	UNION FOUNDRY	" "
12"-1/16 H.B.	1 EACH	1	M.J.	" "	" "
12"-1/32 H.B.	1 EACH	1	M.J.	" "	" "
6" WATER	5 L.F.	3 E	4 BE DIP TYTONI JOINT	ATLANTIC STATES	" "
			6" & 12" FIELD LOCK GASKETS / U.S. PIPE & FOUNDRY / U.S.		FILTER
			6" & 12" MEGA LUG, RET GRAND / EBARA / U.S. FILTER		



12" WATER RELOCATION PLAN
SCALE: 1"=50'

SEQUENCE OF CONSTRUCTION

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST AMENDED HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND THE CONTRACT DRAWINGS AND SPECIFICATIONS.
- TEST HOLES SHALL BE EXCAVATED ON THE EXISTING 12 INCH WATER MAIN AT THE TIE-IN LOCATIONS PRIOR TO CONSTRUCTION OF THE PROPOSED WATER MAIN RELOCATION TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF THE EXISTING WATER MAIN.
- THE CONTRACTOR SHALL PREPARE A TEMPLATE OF THE EXISTING WATER MAIN TO CONFIRM THE ROUNDNESS OF THE PIPE.
- INSTALL RELOCATED WATER MAIN FROM WATER LINE STA. 0+00± TO STA. 2+58± INCLUDING HORIZONTAL AND VERTICAL BENDS, THRUST BLOCKS, ANCHORAGES AND BUTTRESSES EXCEPT FOR TIE-INS TO EXISTING MAIN. BACKFILL TRENCH IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, CHLORINATE AND PRESSURE TEST THIS SECTION OF WATER MAIN.
- INSTALL PRE-POURED THRUST BLOCKS FOR THE HORIZONTAL BENDS AT TIE-IN POINTS AT STA. 0+00 AND STA. 2+58. CONTRACTOR SHALL SUBMIT DETAILS FOR PRE-POURED THRUST BLOCKS AND WATER MAIN TIE-IN DETAILS TO ENGINEER FOR APPROVAL.
- CLOSE ISOLATION VALVES 'A' AND 'D' ON THE EXISTING 12 INCH WATER MAIN ALONG SANNER ROAD. SEE VICINITY MAP FOR APPROXIMATE LOCATIONS OF EX. VALVES.
- REMOVE EXISTING 12 INCH WATER MAIN AS NECESSARY AND CONNECT THE RELOCATED WATER MAIN TO THE EXISTING WATER MAIN IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND APPROVED WATER MAIN TIE-IN DETAILS. TIE-INS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL NO. W-4.15. THE RELOCATED WATER MAIN AND FITTINGS SHALL BE CHLORINATED DURING THE INSTALLATION IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS SECTION NO. 1006, "DISINFECTION OF WATER MAIN".
- VISUALLY INSPECT THE TIE-INS FOR LEAKS AND WHEN ASSURED THAT THERE ARE NO LEAKS, BACKFILL THE REMAINING TRENCH IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.

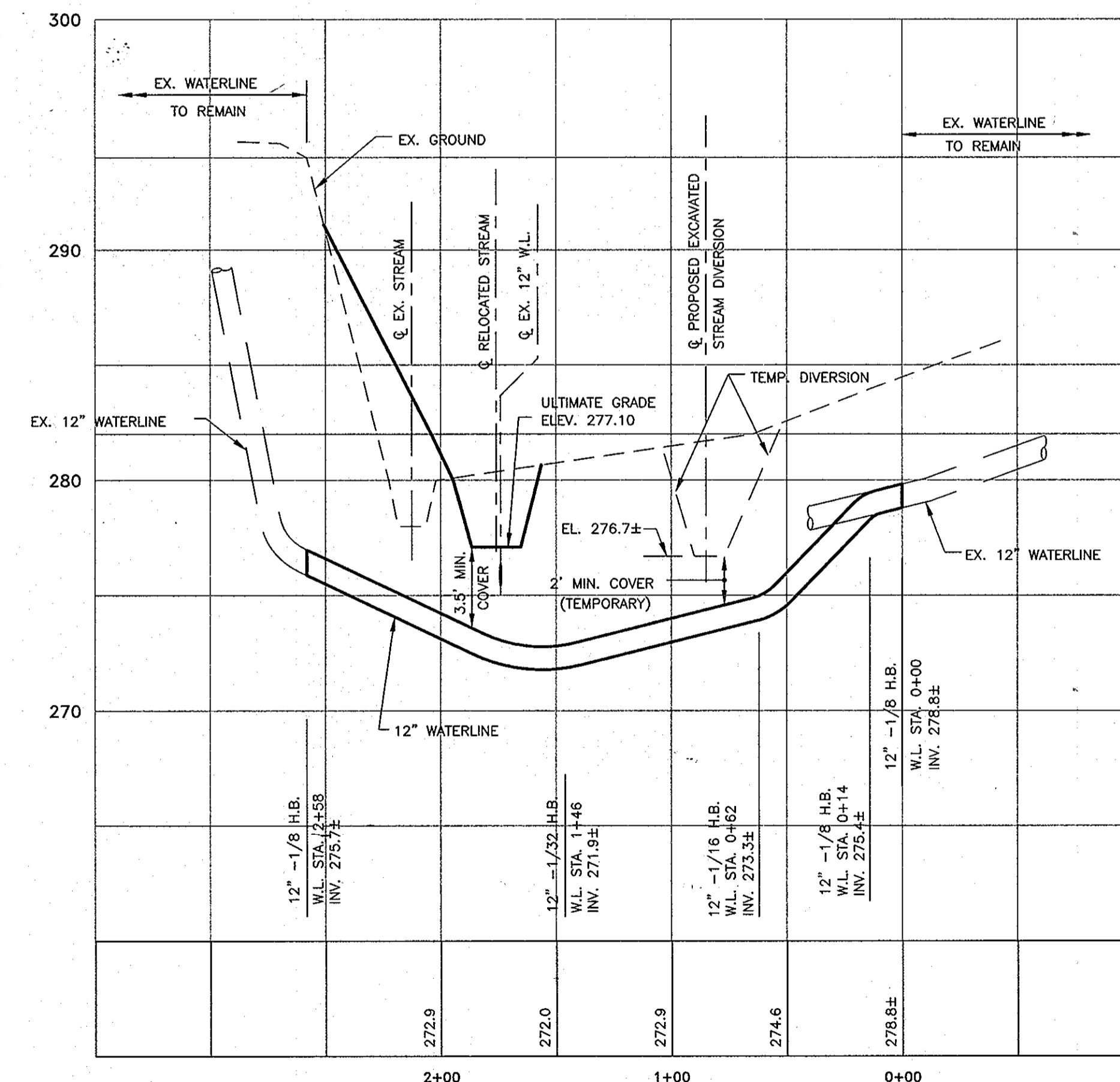
INSTALL FIRE HYDRANT
@ STATION 134+50, 31' LEFT
0+07
BURY LINE ELEV. 290.7
BURY LENGTH 6.5'

NOTES-WATER RELOCATION

- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES, NAD 83/91.
- ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM THE MONIES OWED BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB AT ALL TIMES.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL ⊕ AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T.....	1-800-252-1133
BGE (CONTRACTOR SERVICES).....	410-850-4620
BGE (UNDERGROUND DAMAGE CONTROL).....	410-787-9068
BUREAU OF UTILITIES.....	410-313-4900
COLONIAL PIPELINE CO.....	410-795-1390
MISS UTILITY.....	1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....	410-531-5533
VERIZON.....	1-800-743-0033/410-224-9210

- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE 12" WATER.
- ALL WATER MAINS TO BE D.I.P. CLASS 52 RESTRAINED JOINT PIPE, UNLESS OTHERWISE NOTED. PROVIDE FIELD LOC GASKETS FOR FULL LENGTH OF NEW 12" WATER. FITTINGS SHALL BE MEGA-LUG OR APPROVED EQUAL.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-6" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- ABANDON EXISTING PIPE IN PLACE WHERE SHOWN, EXCEPT REMOVE AS REQUIRED TO CONSTRUCT NEW PIPELINE. REMOVE EXISTING FIRE HYDRANT, VALVES AND FITTINGS, STA. 137+05(±) LEFT AND SALVAGE.
- EXISTING VALVES AND HYDRANTS REMOVED AS PART OF THE CONSTRUCTION SHALL BE SALVAGED, CLEANED AND TURNED OVER BY THE CONTRACTOR TO THE HOWARD COUNTY DEPT. OF PUBLIC WORKS, BUREAU OF UTILITIES AT 8250 OLD MONTGOMERY ROAD.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY PIPING AS REQUIRED TO MAINTAIN EXISTING WATER SERVICE TO THE SOUTH THROUGHOUT THE DURATION OF THE CONTRACT. THE RELOCATED WATER MAIN SHALL BE FULLY TESTED AND CHLORINATED PRIOR TO BEING PLACED IN SERVICE.



PROFILE - RECONSTRUCTED 12" WATER

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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

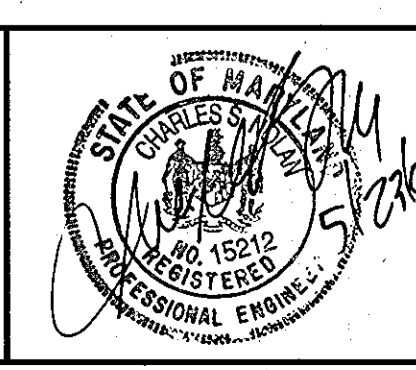
Jan P. Ibr 5/24/02
DIRECTOR OF PUBLIC WORKS DATE

Ronald C. Lepore 5/23/02
CHIEF, BUREAU OF ENGINEERING DATE

Robert D. Davis 5/23/02
CHIEF, UTILITY DESIGN DIVISION DATE

Robert B. Berman 5-24-02
CHIEF, BUREAU OF UTILITIES DATE

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3651 Fax: (410) 995-1363



DES: CSN	NOLAN	1	REV. LIMITS OF WORK WITH INCLUSION OF CONT. J-4152 5/23/02
DRN: BSB/JYR	KCI	2	ADDENDUM NO.1 ABUTMENT DATA ADDED TO PLAN
CHK: CSN			
DATE: 4-2002	BY: NO.	REVISION	DATE

12" WATER RELOCATION PLAN AND PROFILE

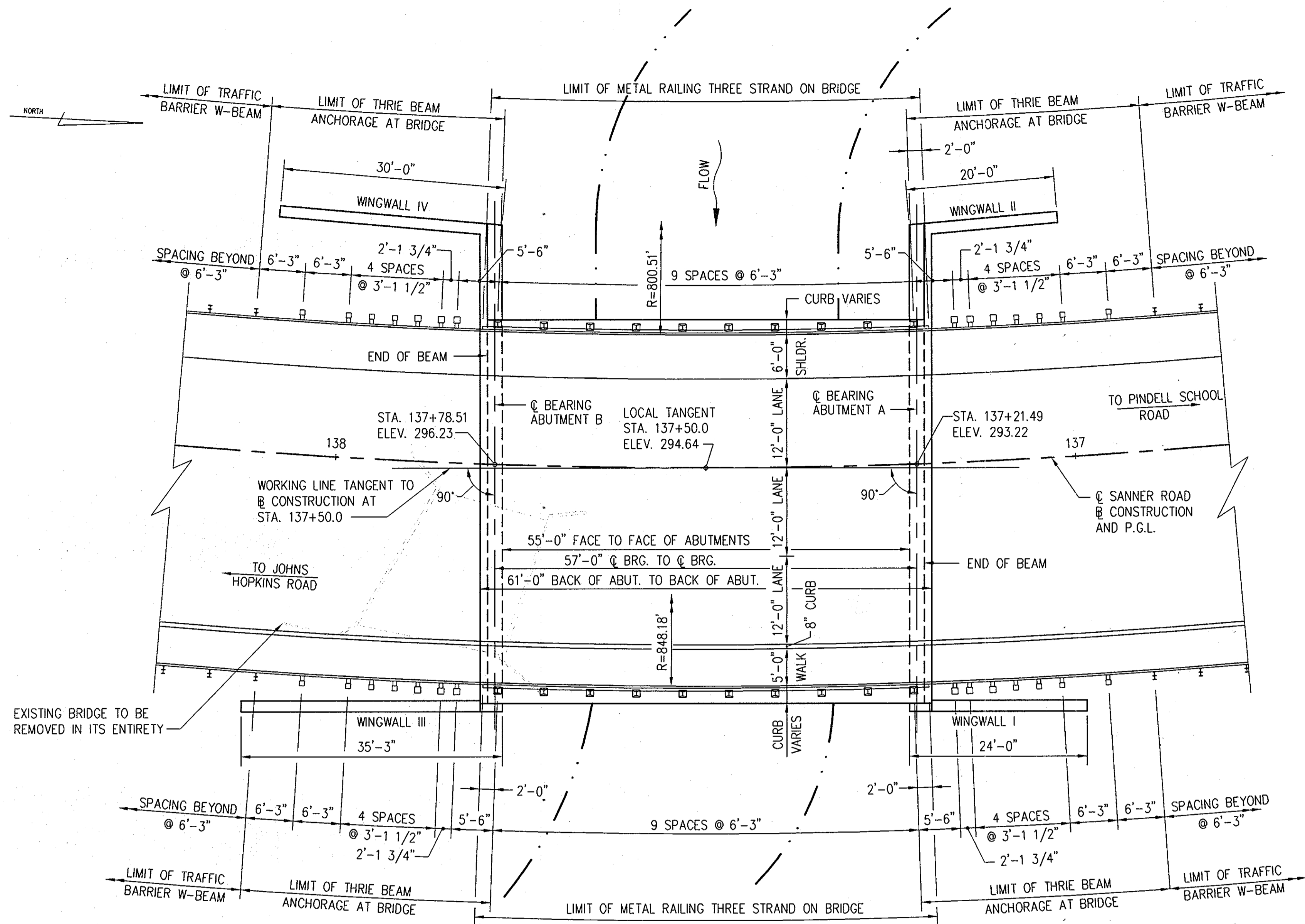
600' SCALE MAP NO. 41 BLOCK NO. 4

REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE PATUXENT RIVER
WATER CONTRACT 34-3652-D
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

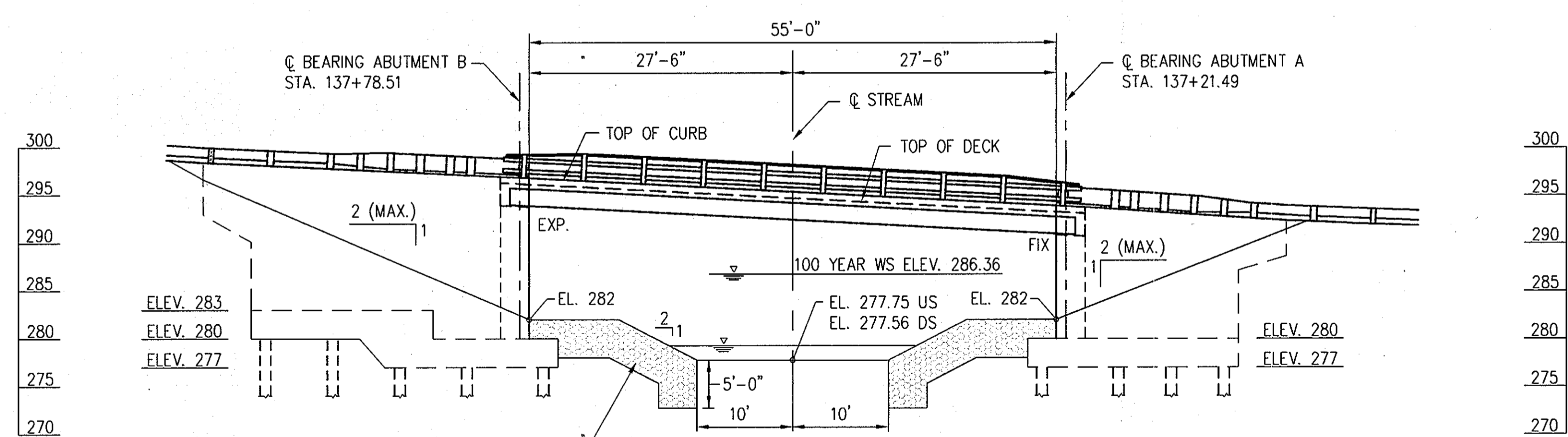
SCALE: AS SHOWN
SHEET 12 OF 34
WATER CONTRACT SHEET 3A OF 11

GENERAL NOTES

- SPECIFICATIONS:** SHA SPECIFICATIONS DATED OCTOBER, 1993 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 1999.
- CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD $F_c = 1200$ PSI EXCEPT THAT IN BRIDGE DECK SLABS SUPPORTED BY PRECAST BEAMS IT SHALL BE 1350 PSI FOR CONCRETE OTHER THAN PRESTRESSED CONCRETE.
- REINFORCING STEEL DESIGN: $F_s = 24,000$ PSI.
- LOADING:** HS 25 WITH PROVISIONS FOR FUTURE 2" WEARING SURFACE.
- CAST-IN-PLACE CONCRETE:** ALL CAST-IN-PLACE CONCRETE FOR ABUTMENT BACKWALLS AND ENTIRE SUPERSTRUCTURE SHALL BE MIX NO. 6 (4500 PSI). ALL OTHER CAST-IN-PLACE STRUCTURE CONCRETE SHALL BE MIX NO. 3 (3500 PSI).
- PRESTRESSED CONCRETE:** CONCRETE FOR PRECAST, PRESTRESSED CONCRETE BEAMS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF $F'_{ci} = 6,000$ PSI AND MINIMUM COMPRESSIVE STRENGTH AT PRESTRESS TRANSFER OF $F'_{ci} = 4,500$ 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
- REINFORCING STEEL IN THE FOLLOWING AREAS SHALL BE EPOXY COATED:
- ENTIRE SUPERSTRUCTURE INCLUDING PRESTRESSED CONCRETE BEAMS, CONCRETE DECK, CONCRETE CURBS, CONCRETE SIDEWALK, AND ABUTMENT BRIDGE SEAT AREAS.
- PRESTRESSING STEEL:** PRETENSIONING STEEL SHALL BE 7-WIRE, 1/2" DIA., HIGH TENSILE STRENGTH, LOW RELAXATION STRANDS CONFORMING TO AASHTO M203, GRADE 270, SUPPLEMENT I. INITIAL TENSILE FORCE APPLIED TO EACH STRAND SHALL BE 31,000 LBS.
- KEYS:** ALL KEYS ARE NOMINAL SIZE.
- EXISTING STRUCTURE:** EXISTING BRIDGE SHALL BE REMOVED IN ITS ENTIRETY.

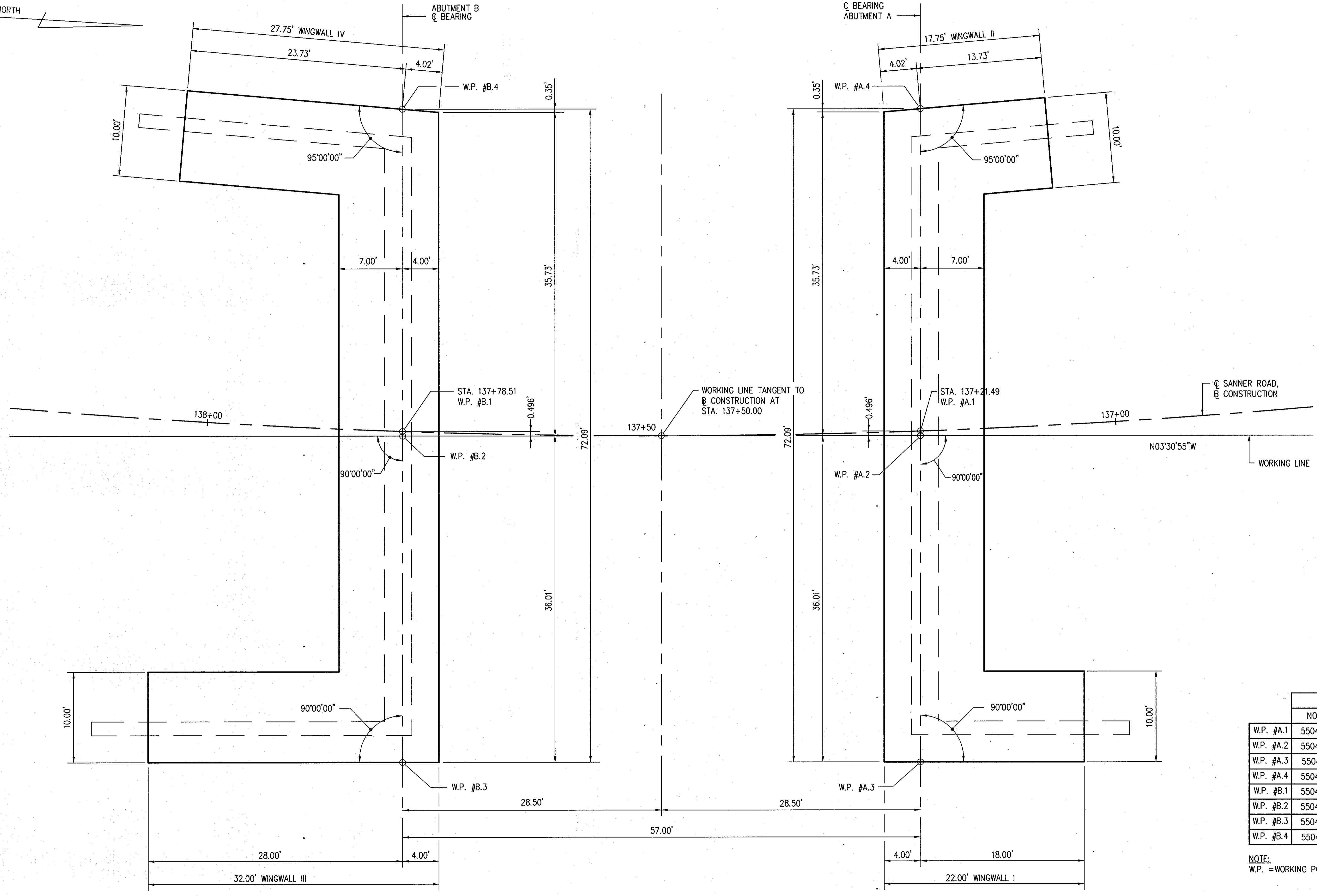
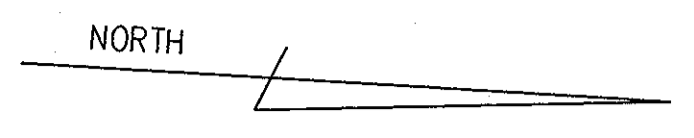


PLAN VIEW
SCALE: 1" = 10'



ELEVATION
SCALE: 1" = 10'

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>Ramon A. Jovan</i> 5/3/00 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Richard S. Johnson</i> 5/3/00 CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>Robert M. Cantelmo</i> 5/4/00 CHIEF, BUREAU OF HIGHWAYS DATE</p> <p>CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT</p>	<p>NOLAN Associates, Inc. Engineers - Civil/Structural/Inspections 4785 Dorsey Hall Drive Suite 124 Ellicott City, Maryland 21042 Phone: (410) 995-3851 Fax: (410) 995-1363</p>	<p>DES: BDB DRN: BSB CHK: CSN DATE: APR. 2000</p>	<p>GENERAL PLAN AND ELEVATION</p>	<p>REPLACEMENT OF BRIDGE NO. HO-108 SANNER ROAD OVER TRIBUTARY TO THE MIDDLE PATUXENT RIVER CAPITAL PROJECT B-3842 ELECTION DISTRICT NO. 4 CLARKSVILLE, MARYLAND</p>	<p>SCALE: AS SHOWN</p> <p>SHEET 13 OF 34</p>
---	--	---	--	--	--



	COORDINATES	
	NORTHING	EASTING
W.P. #A.1	550490.6467	1341267.7034
W.P. #A.2	550490.6772	1341268.1988
W.P. #A.3	550492.8851	1341304.1414
W.P. #A.4	550488.4648	1341232.1834
W.P. #B.1	550433.7540	1341271.1983
W.P. #B.2	550433.7844	1341271.6937
W.P. #B.3	550435.9924	1341307.6363
W.P. #B.4	550431.5720	1341235.6782

NOTE:
W.P. =WORKING POINT

GEOMETRIC LAYOUT
SCALE: 3/16"=1'-0"

J:\17085\ACAD\FINAL\17085GEO.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

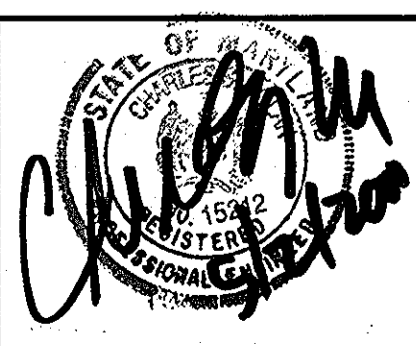
James J. New 5/3/00
DIRECTOR OF PUBLIC WORKS DATE

Robert M. Daulton 5-3-00
CHIEF, BUREAU OF HIGHWAYS DATE

Robert J. Johnson 5/3/00
CHIEF, BUREAU OF ENGINEERING DATE

Carolanne 5/4/00
CHIEF, DIVISION OF TRANSPORTATION
PROJECTS AND WATERSHED MANAGEMENT DATE

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 985-3651 Fax: (410) 985-1363



DES: BDB			
DRN: BSB			
CHK: CSN			
DATE: APR. 2000	BY	NO.	REVISION

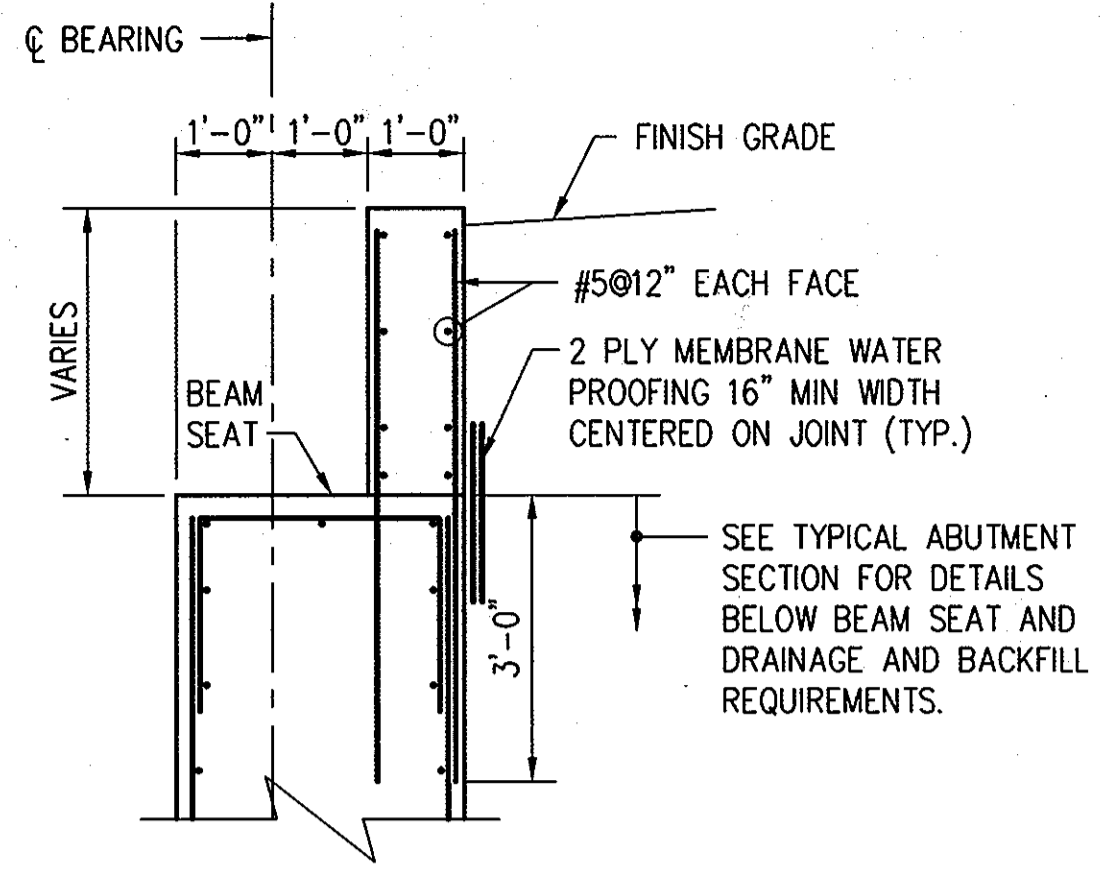
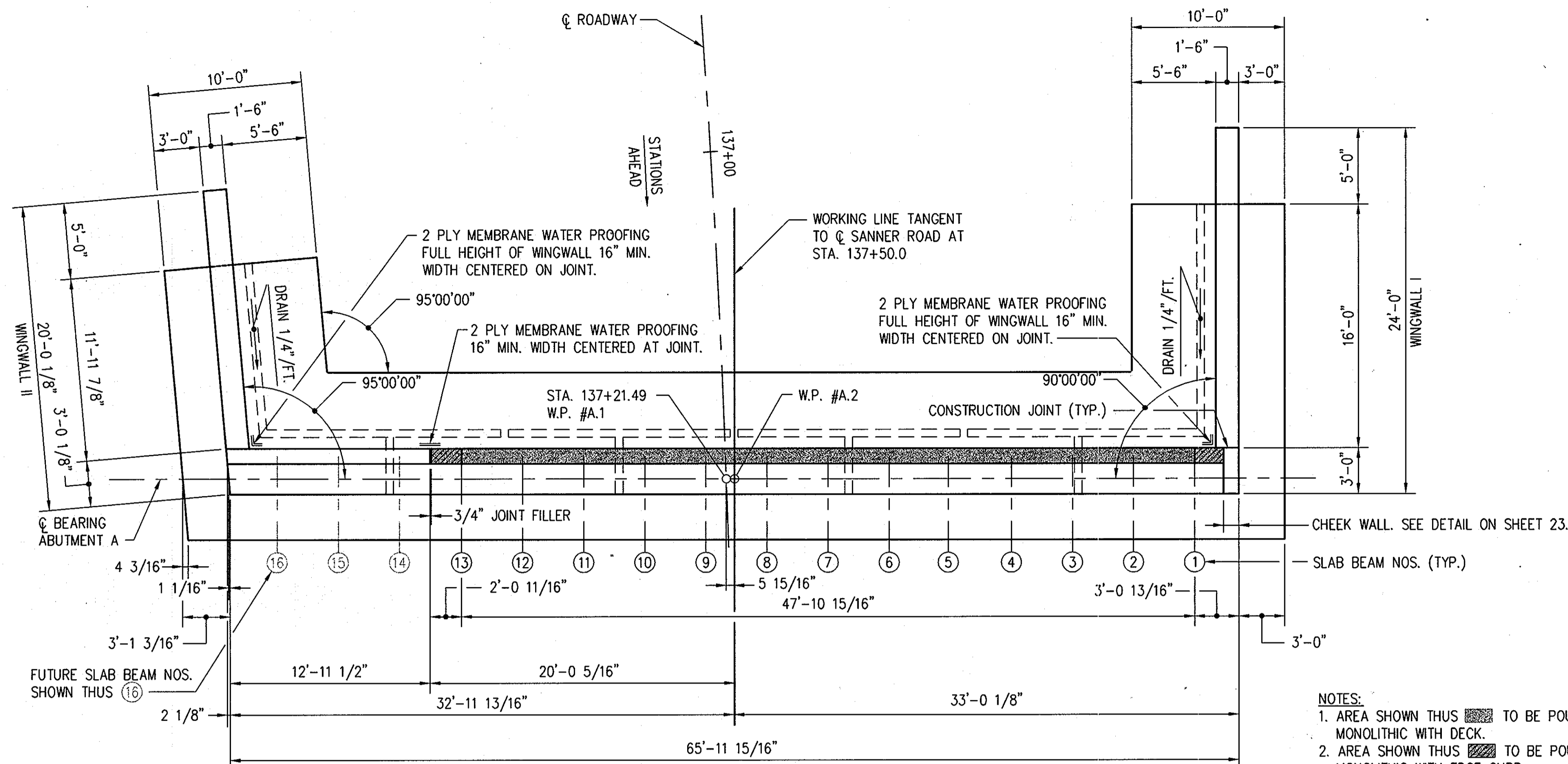
GEOMETRIC LAYOUT

600' SCALE MAP NO. _____ BLOCK NO. _____

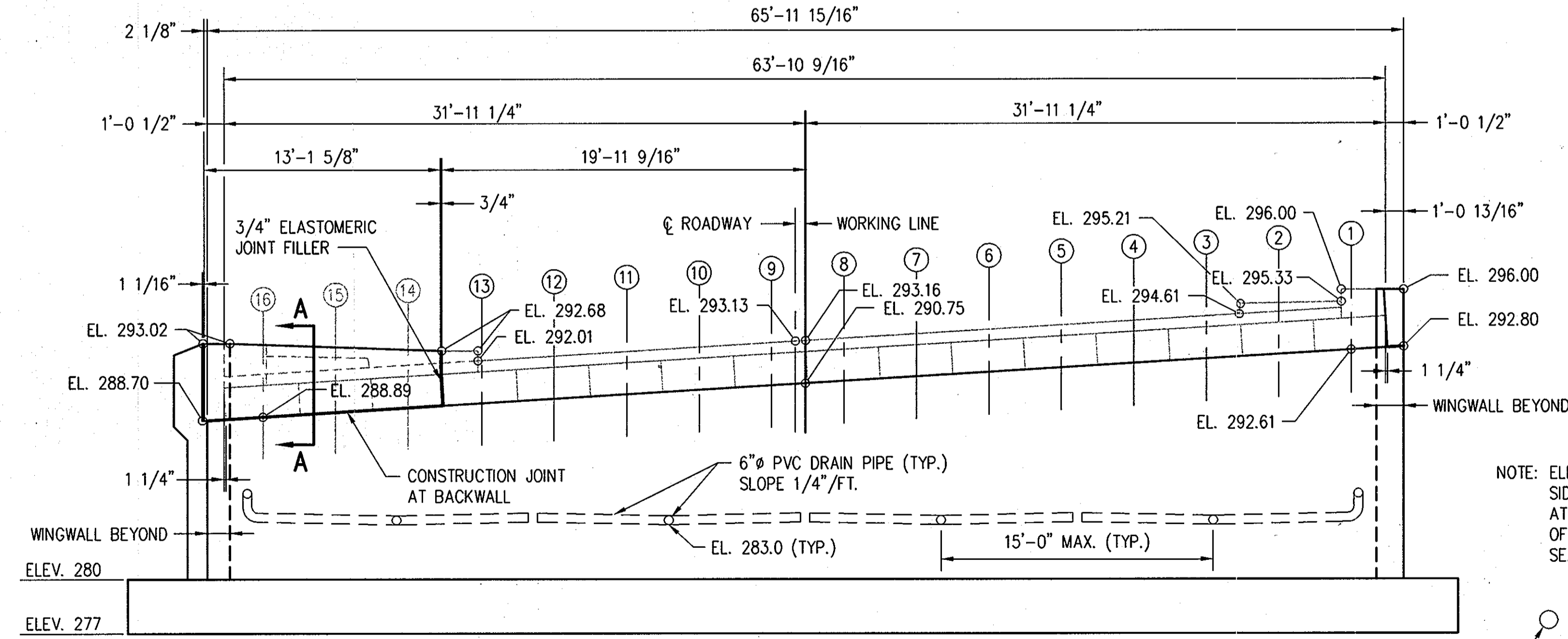
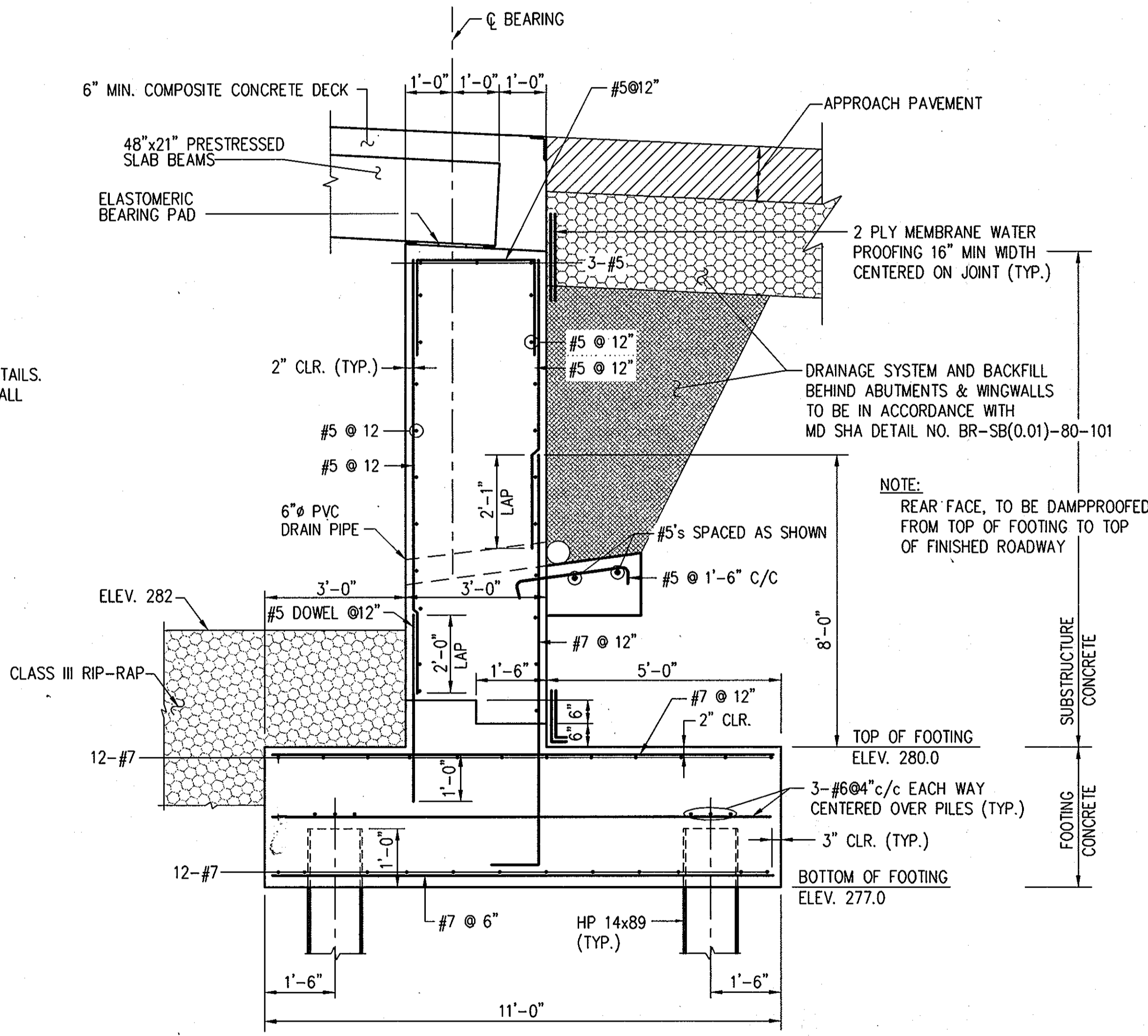
REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

SCALE:
AS SHOWN

SHEET
14 OF 34



- NOTES:
1. AREA SHOWN THUS [hatched] TO BE POURED MONOLITHIC WITH DECK.
 2. AREA SHOWN THUS [hatched] TO BE POURED MONOLITHIC WITH EDGE CURB.
 3. SEE SHEETS 21 AND 22 FOR WINGWALL DETAILS.
 4. SEE SHEET 23 FOR ABUTMENT AND WINGWALL CORNER REINFORCEMENT DETAILS.



NOTE: ELEVATIONS AT TOP OF ROADWAY, SIDEWALK AND CURB ARE SHOWN AT THE BACK OF ABUTMENT/END OF SLAB. ELEVATIONS AT BEAM SEAT ARE SHOWN AT ϕ BEARING.

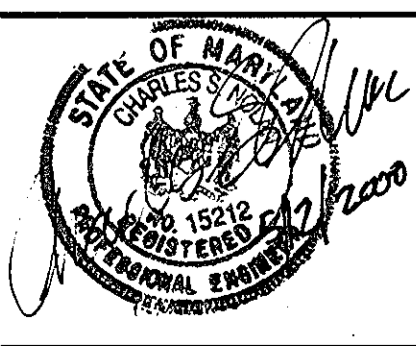
NOTE: DRAINAGE SYSTEM AND BACKFILL BEHIND ABUTMENTS AND WINGWALLS, COMPLETE IN PLACE, WILL NOT BE MEASURED SEPARATELY BUT WILL BE CONSIDERED INCIDENTAL TO THE SUBSTRUCTURE CONCRETE ITEM.

J:\17086.ACAD\FINAL\17086A.DWG

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John P. New* 5/3/00
Chief, Bureau of Engineering: *Robert S. Brown* 5/3/00
Chief, Bureau of Highways: *Richard M. Donnell* 5/3/00
Chief, Division of Transportation Projects and Watershed Management: *John A. Calva* 5/4/00

NOLAN
Associates, Inc.
Engineers - Civil/Structural/Inspections
4785 Dorsey Hall Drive
Suite 124
Ellicott City, Maryland 21042
Phone: (410) 995-3651 Fax: (410) 995-1363



DES:	BDB				
DRN:	BSB				
CHK:	CSN				
DATE:	APR. 2000	BY:		NO.:	
		REVISION:			
		DATE:			

ABUTMENT A
PLAN, ELEVATION
AND SECTIONS

REPLACEMENT OF BRIDGE NO. HO-108
SANNER ROAD OVER
TRIBUTARY TO THE MIDDLE PATUXENT RIVER
CAPITAL PROJECT B-3842
ELECTION DISTRICT NO. 4
CLARKSVILLE, MARYLAND

SCALE:
AS SHOWN
SHEET
15 OF 34