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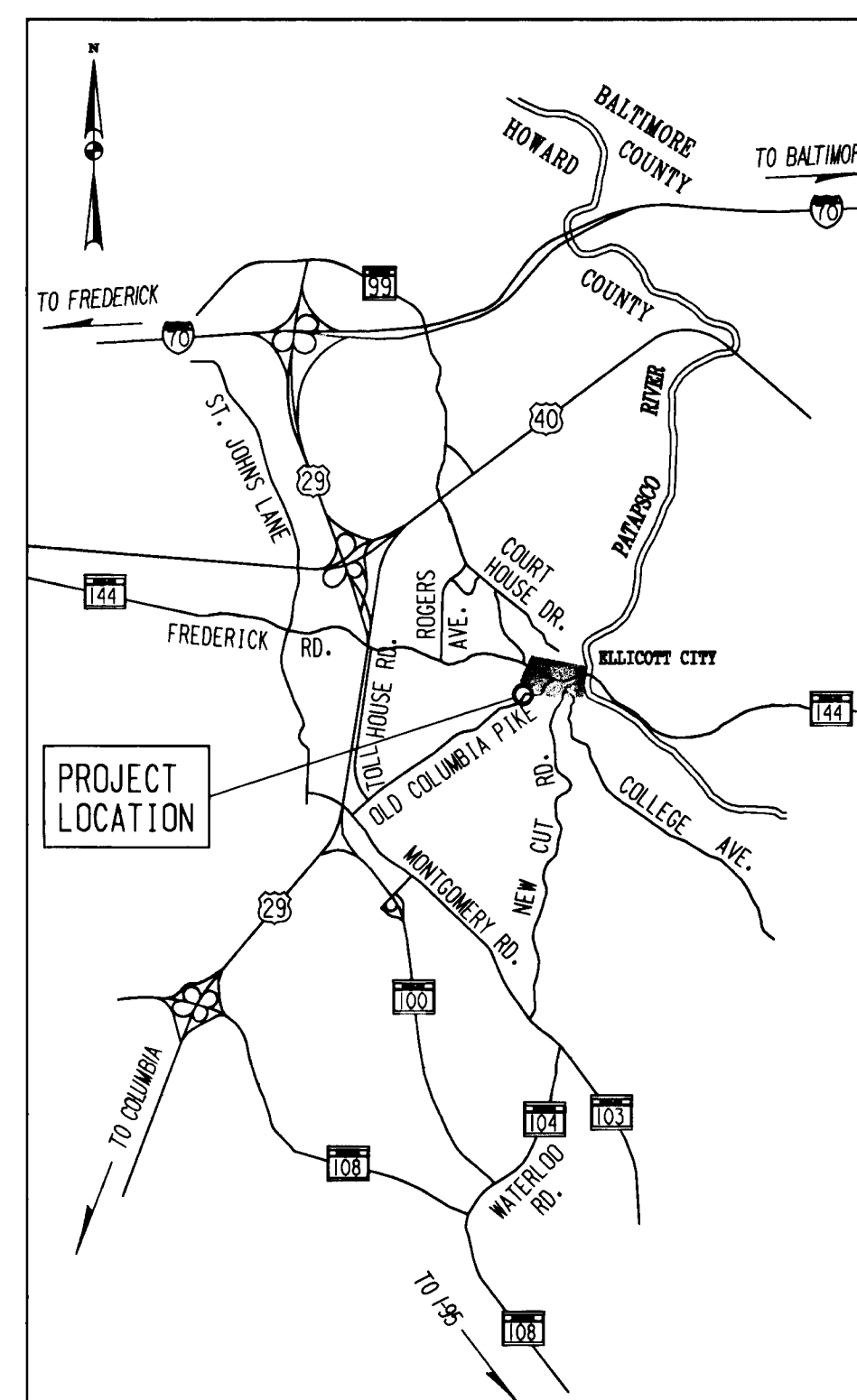
# HOWARD COUNTY, MARYLAND

## DEPARTMENT OF PUBLIC WORKS

### OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

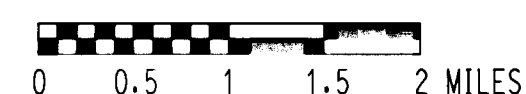
ELLICOTT CITY, MARYLAND

CAPITAL PROJECT B-3843  
CONTRACT AA



PROJECT LOCATION MAP

SCALE: 1" = 1 MILE



CERTIFICATION BY THE OWNER/DEVELOPER

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

*Richard J. Syson*  
SIGNATURE OF OWNER/DEVELOPER

6/23/97  
DATE

CERTIFICATION BY THE ENGINEER

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

*Anthony J. Beiler*  
SIGNATURE OF ENGINEER

6/20/97  
DATE

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

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
HOWARD S.C.D.

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

U.S. NATURAL RESOURCES  
CONSERVATION SERVICE

ALL UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

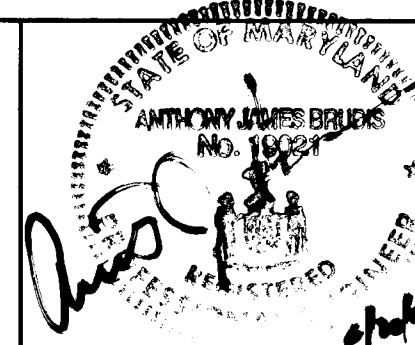
*Richard J. Syson* 6/23/97  
DIRECTOR OF PUBLIC WORKS DATE

*Charles Anderson Calce* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

*John J. ...* 6/23/97  
CHIEF, BUREAU OF HIGHWAYS DATE

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

9220 RUMSEY ROAD, SUITE 210  
COLUMBIA, MARYLAND 21045  
(410)-884-3607



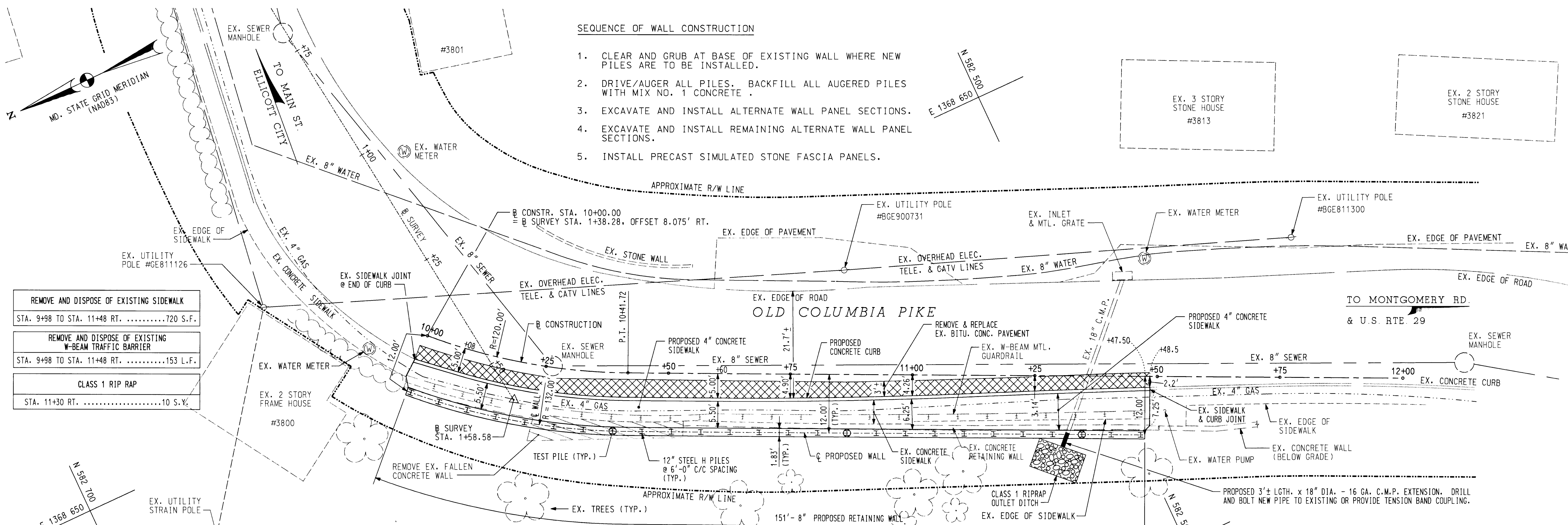
DESIGNED BY: T. E. M.	
DRAWN BY: T. E. M.	
CHECKED BY: A. J. B.	
DATE: 6/19/97	
BY	NO.
REVISION	DATE
600' SCALE MAP NO.	BLOCK NO.

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

TITLE SHEET

CAPITAL PROJECT B-3843

1 OF 10



- SEQUENCE OF WALL CONSTRUCTION**
1. CLEAR AND GRUB AT BASE OF EXISTING WALL WHERE NEW PILES ARE TO BE INSTALLED.
  2. DRIVE/AUGER ALL PILES. BACKFILL ALL AUGERED PILES WITH MIX NO. 1 CONCRETE.
  3. EXCAVATE AND INSTALL ALTERNATE WALL PANEL SECTIONS.
  4. EXCAVATE AND INSTALL REMAINING ALTERNATE WALL PANEL SECTIONS.
  5. INSTALL PRECAST SIMULATED STONE FASCIA PANELS.

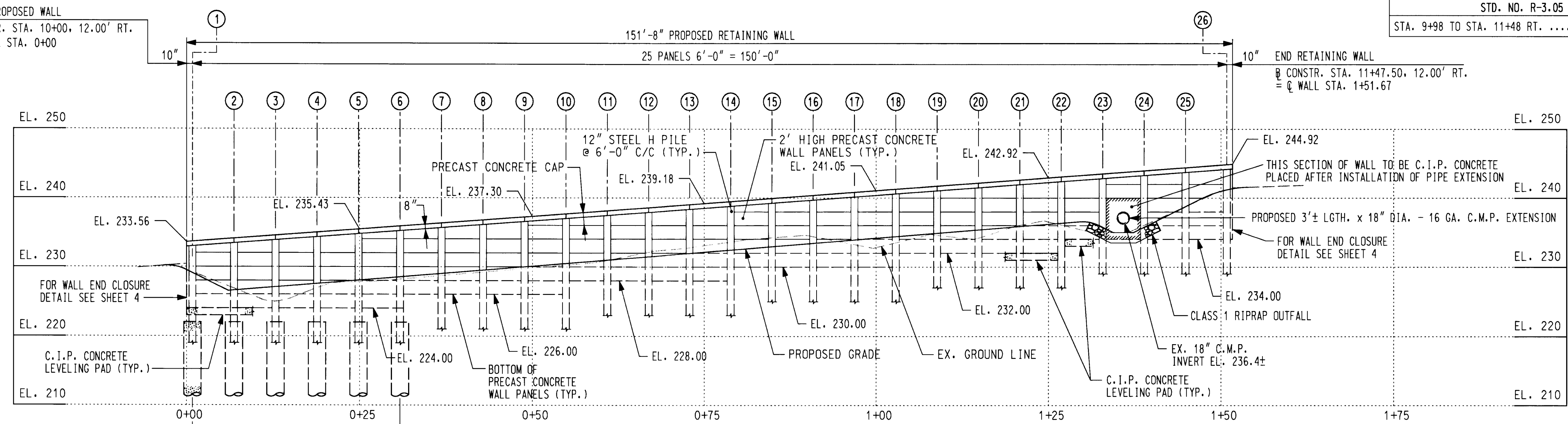
REMOVE AND DISPOSE OF EXISTING SIDEWALK STA. 9+98 TO STA. 11+48 RT. ....720 S.F.
REMOVE AND DISPOSE OF EXISTING W-BEAM TRAFFIC BARRIER STA. 9+98 TO STA. 11+48 RT. ....153 L.F.
CLASS 1 RIP RAP STA. 11+30 RT. ....10 S.F.

**UTILITY NOTE:**  
ALL UNDERGROUND AND OVERHEAD UTILITIES SHALL REMAIN UNDISTURBED IN PLACE.

**SITE PLAN**  
SCALE: 1" = 10 FT.

**CURVE DATA**

<b>@ CONSTRUCTION</b>	
DELTA ANGLE =	19° 55' 19.4"
CHORD DIRECTION =	S 35° 18' 50.5" W
RADIUS =	120.000'
LENGTH =	41.725'
TANGENT =	21.075'
CHORD LENGTH =	41.515'
EXTERNAL =	1.837'
MIDDLE ORDINATE =	1.809'
<b>@ PROPOSED WALL</b>	
DELTA ANGLE =	19° 55' 19.4"
CHORD DIRECTION =	S 35° 18' 50.5" W
RADIUS =	132.000'
LENGTH =	45.897'
TANGENT =	23.183'
CHORD LENGTH =	45.666'



**PROPOSED WALL - DEVELOPED VIEW**  
SCALE: 1" = 10 FT.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Jan P. ...* 6/23/97  
DIRECTOR OF PUBLIC WORKS

*Robert ...* 6/23/97  
CHIEF, BUREAU OF ENGINEERING

*Elizabeth ...* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

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COLUMBIA, MARYLAND 21045  
(410)-884-3607

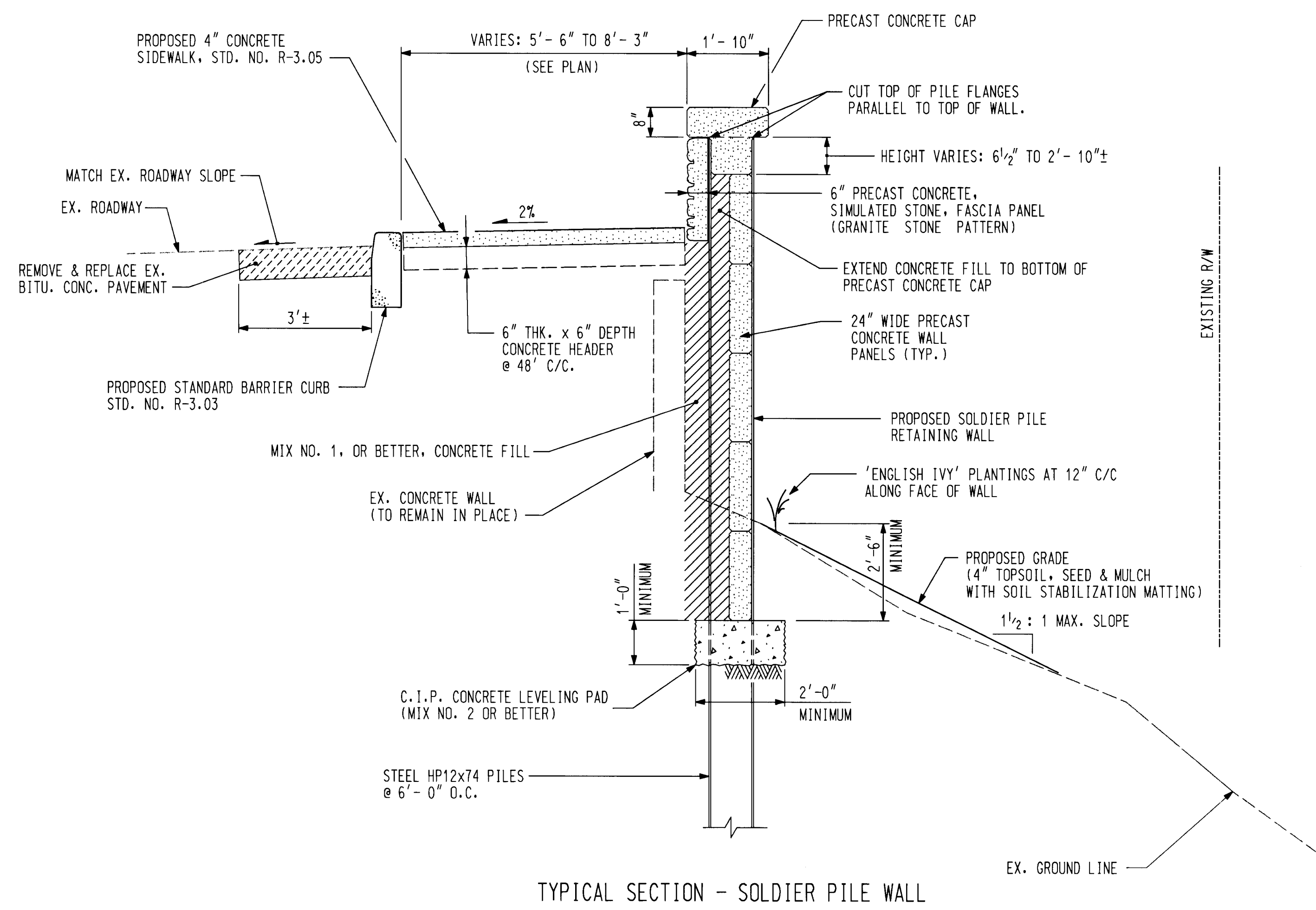
DESIGNED BY: T.E.M.  
DRAWN BY: T.E.M.  
CHECKED BY: A.J.B.  
DATE: 6/19/97

NO.	REVISION	DATE

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT  
GENERAL PLAN AND ELEVATION

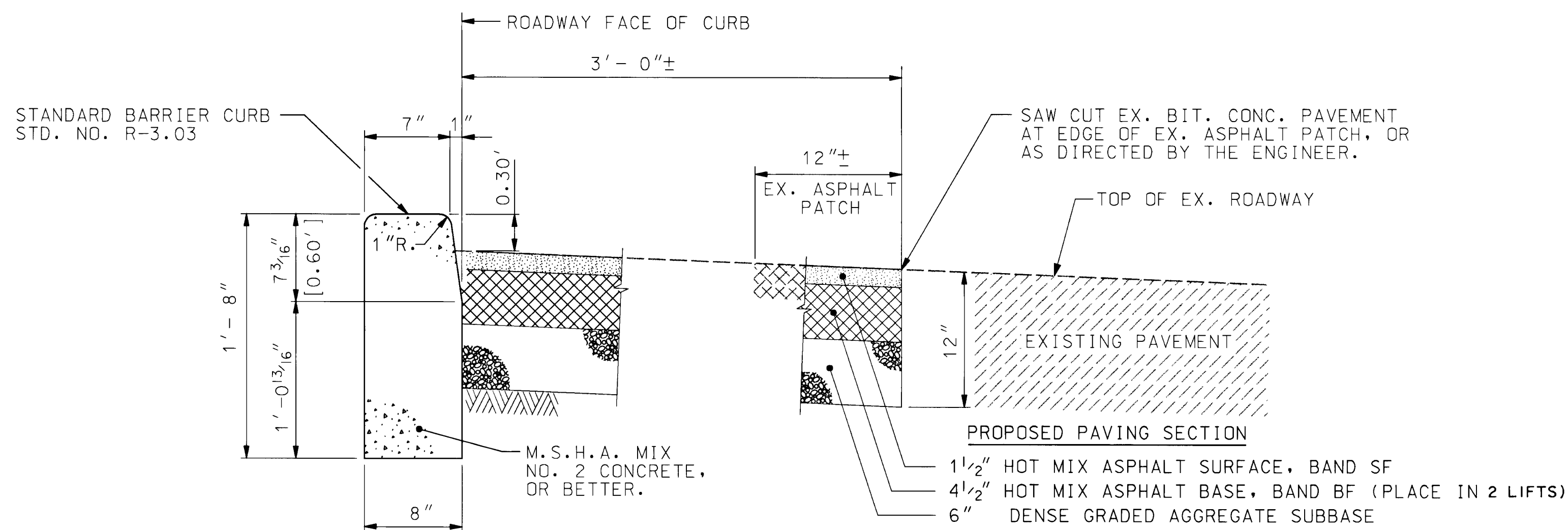
CAPITAL PROJECT B-3843

SCALE AS SHOWN  
SHEET  
2 OF 10



TYPICAL SECTION - SOLDIER PILE WALL

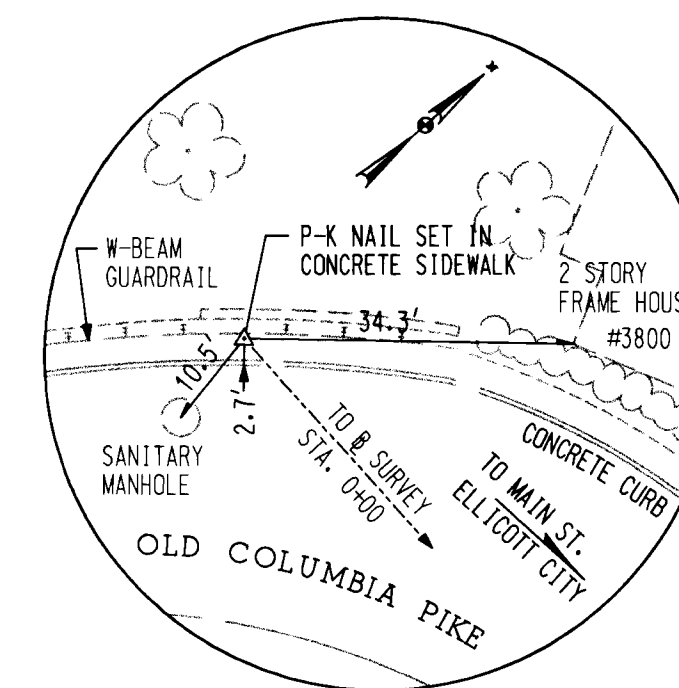
SCALE: 1/2" = 1'-0"



PROPOSED CURB AND PAVING DETAIL

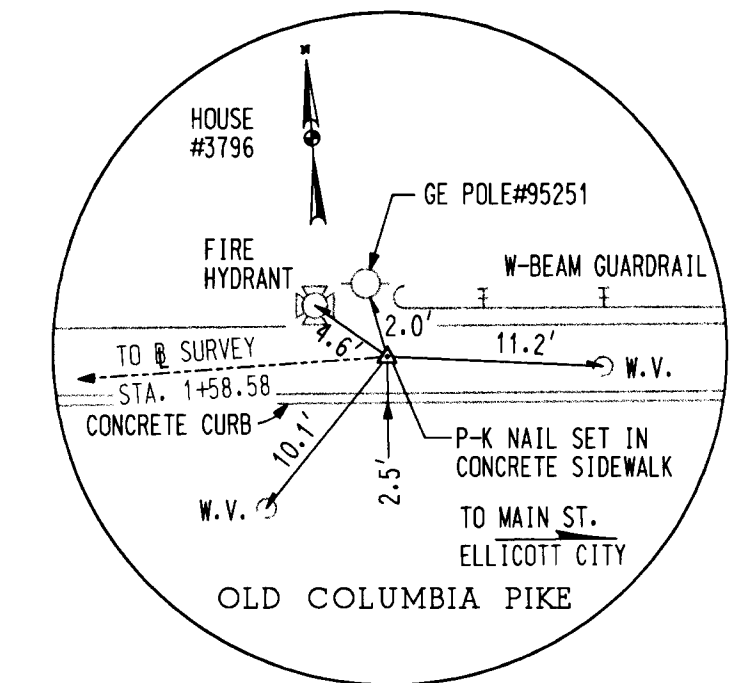
SCALE: 1 1/2" = 1'-0"

CONSTRUCTION CONTROL COORDINATES				
DESCRIPTION	BEARING	DISTANCE	NORTH COORDINATE	EAST COORDINATE
<b>Ⓡ CONSTRUCTION</b>				
P.C. STA. 10+00.00			582622.6240	1368653.4240
CURVE CENTER			582537.3654	1368737.8693
P.T. STA. 10+41.72			582588.7480	1368629.4260
STA. 12+00.00	S 25° 21' 09.8" W	158.276	582445.7160	1368561.6540
<b>Ⓡ PROPOSED WALL</b>				
BEGIN WALL P.C. STA. 0+00.00			582631.1498	1368644.9795
CURVE CENTER			582537.3654	1368737.8693
P.T. STA. 0+45.90			582593.8862	1368618.5817
END WALL STA. 1+51.67	S 25° 21' 09.8" W	105.769	582498.3036	1368573.2924



Ⓡ SURVEY STA. 1+58.58

N 582612.1867  
E 1368634.2334  
ELEV. 232.31



Ⓡ SURVEY STA. 0+00

N 582631.0923  
E 1368791.6817  
ELEV. 220.98

PILE DATA			
PILE NO.	LOCATION		DESIGN DATA
	Ⓡ CONSTR. STA.	OFFSET	MINIMUM TIP ELEVATION
1	10+00.76	12.00 RT.	209.0
2	10+06.21	12.00 RT.	209.0
3	10+11.67	12.00 RT.	209.0
4	10+17.12	12.00 RT.	209.0
5	10+22.58	12.00 RT.	209.0
6	10+28.03	12.00 RT.	209.0
7	10+33.48	12.00 RT.	211.0
8	10+38.94	12.00 RT.	211.0
9	10+44.66	12.00 RT.	211.0
10	10+50.66	12.00 RT.	211.0
11	10+56.66	12.00 RT.	213.0
12	10+62.66	12.00 RT.	213.0
13	10+68.66	12.00 RT.	213.0
14	10+74.66	12.00 RT.	213.0
15	10+80.66	12.00 RT.	215.0
16	10+86.66	12.00 RT.	215.0
17	10+92.66	12.00 RT.	215.0
18	10+98.66	12.00 RT.	215.0
19	11+04.66	12.00 RT.	217.0
20	11+10.66	12.00 RT.	217.0
21	11+16.66	12.00 RT.	217.0
22	11+22.66	12.00 RT.	217.0
23	11+28.66	12.00 RT.	219.0
24	11+34.66	12.00 RT.	219.0
25	11+40.66	12.00 RT.	219.0
26	11+46.66	12.00 RT.	219.0

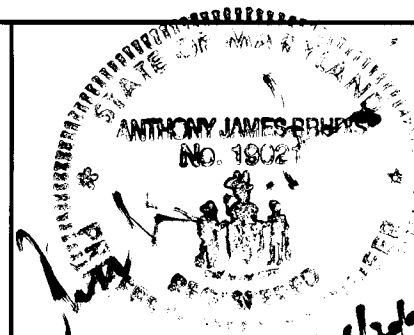
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Camille...* 6/23/97  
DIRECTOR OF PUBLIC WORKS  
*...* 6/23/97  
CHIEF, BUREAU OF HIGHWAYS

*Richard...* 6/23/97  
CHIEF, BUREAU OF ENGINEERING  
*Shabazz...* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

9220 RUMSEY ROAD, SUITE 210  
COLUMBIA, MARYLAND 21045  
(410)-884-3607



DESIGNED BY: T.E.M.  
DRAWN BY: T.E.M.  
CHECKED BY: A.J.B.  
DATE: 6/19/97

BY NO. REVISION DATE 600' SCALE MAP NO. BLOCK NO.

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

TYPICAL SECTION AND DETAILS

CAPITAL PROJECT B-3843

SCALE AS SHOWN

SHEET

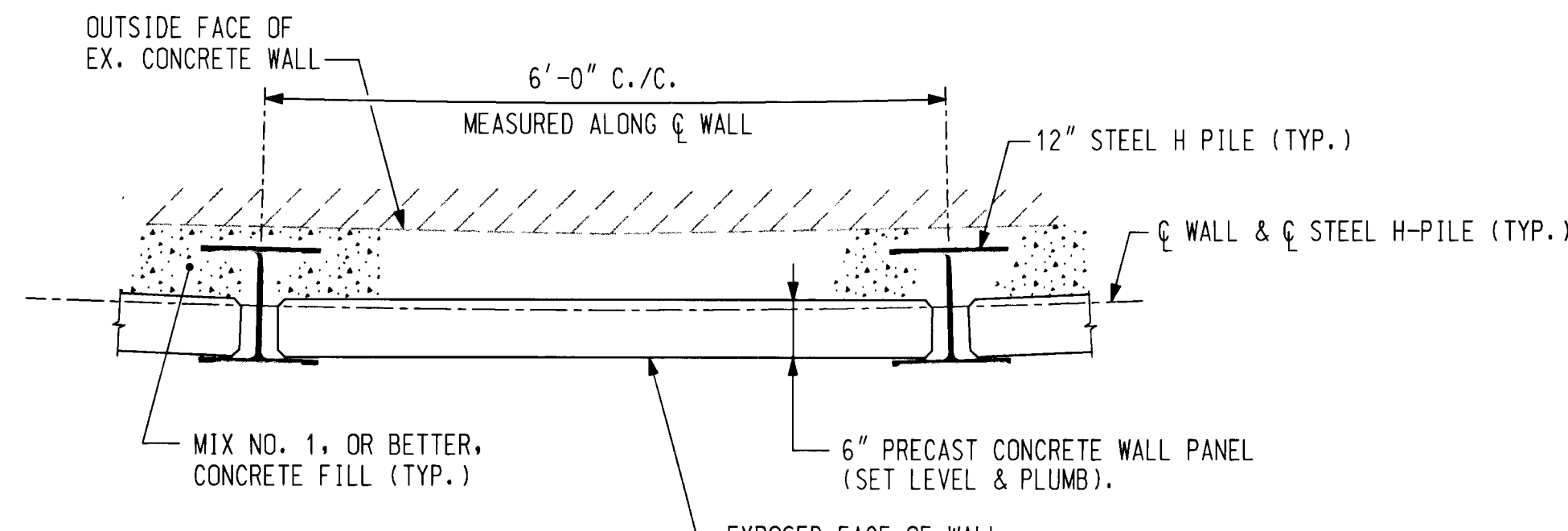
3 OF 10

B1821-03 FILE NAME: CPRINTPS.DGN DATE: 6/19/97



**STRUCTURE GENERAL NOTES**

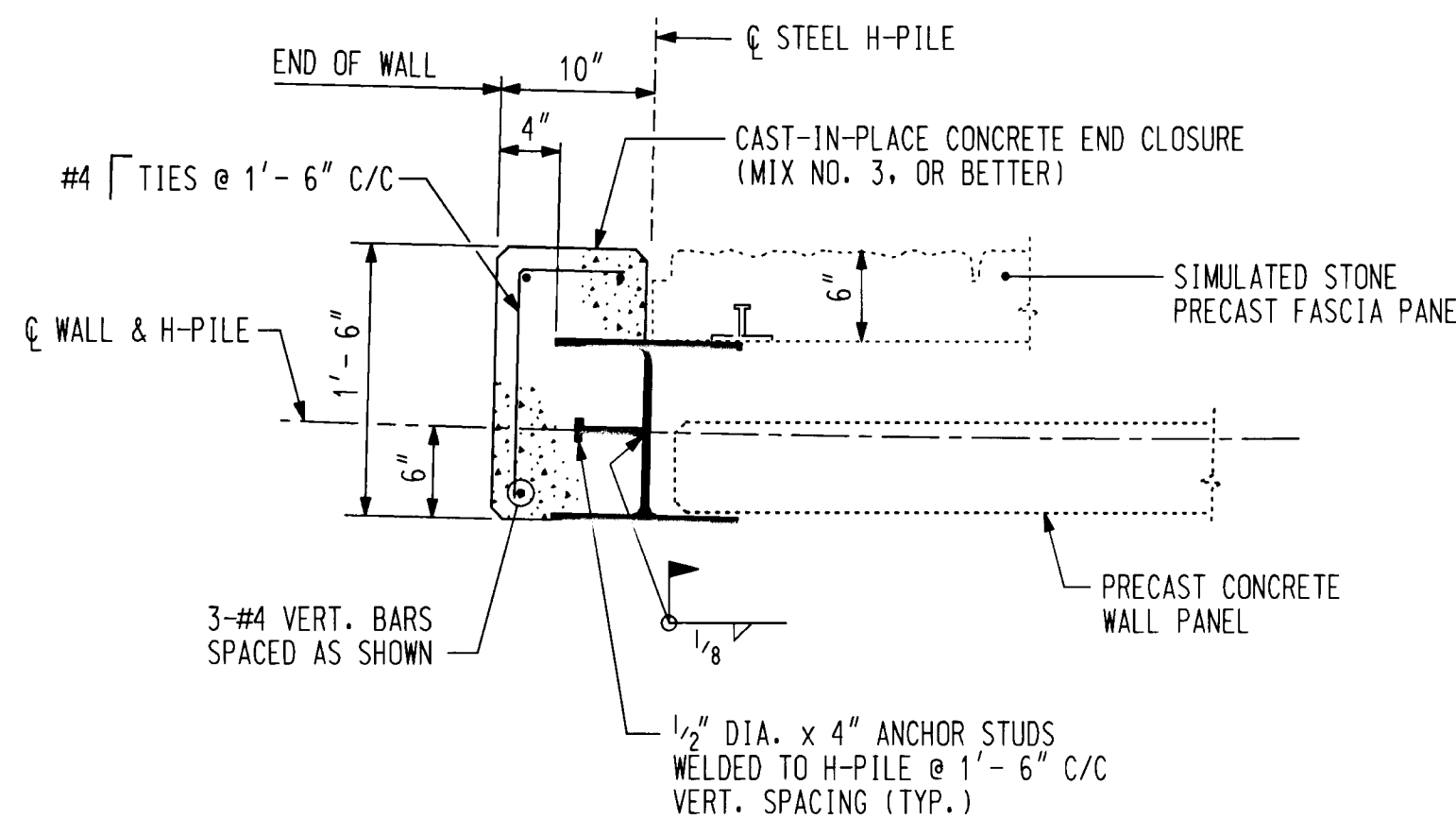
- SPECIFICATIONS:** SHA SPECIFICATIONS DATED OCTOBER, 1993 REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
- HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS DESIGN MANUAL - VOL. IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, FIFTEENTH EDITION, DATED 1992 FOR DESIGN INCLUDING ALL INTERIM SPECIFICATIONS THROUGH 1996.
- CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD  $f_c = 1,200$  PSI.
- REINFORCING STEEL DESIGN:  $f_s = 24,000$  PSI.
- LOADING:** AASHTO HIGHWAY LIVE LOAD SURCHARGE.
- CONCRETE:** ALL CONCRETE FOR PRECAST PANELS AND CAP SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF  $f'_c = 4,500$  PSI. ALL OTHER STRUCTURE CONCRETE SHALL BE AS NOTED ON THE PLANS.
- PRECAST CONCRETE:** ALL PRECAST PANEL CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH THE PCI DESIGN HANDBOOK.
- REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. ALL SPLICES NOT SHOWN SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3 INCH 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:
- PRECAST CONCRETE SIMULATED STONE FASCIA PANELS
  - PRECAST CONCRETE CAP
- PILING:** STEEL H-PILES SHALL CONFORM TO ASTM A36.
- KEYS:** ALL KEYS ARE NOMINAL SIZE UNLESS OTHERWISE NOTED.



NOTE: SHOP PLANS SHALL SHOW HOW PRECAST CONCRETE WALL PANELS WILL BE HELD IN PLACE WHILE CONCRETE FILL IS POURED.

**TYPICAL RETAINING WALL DETAIL**

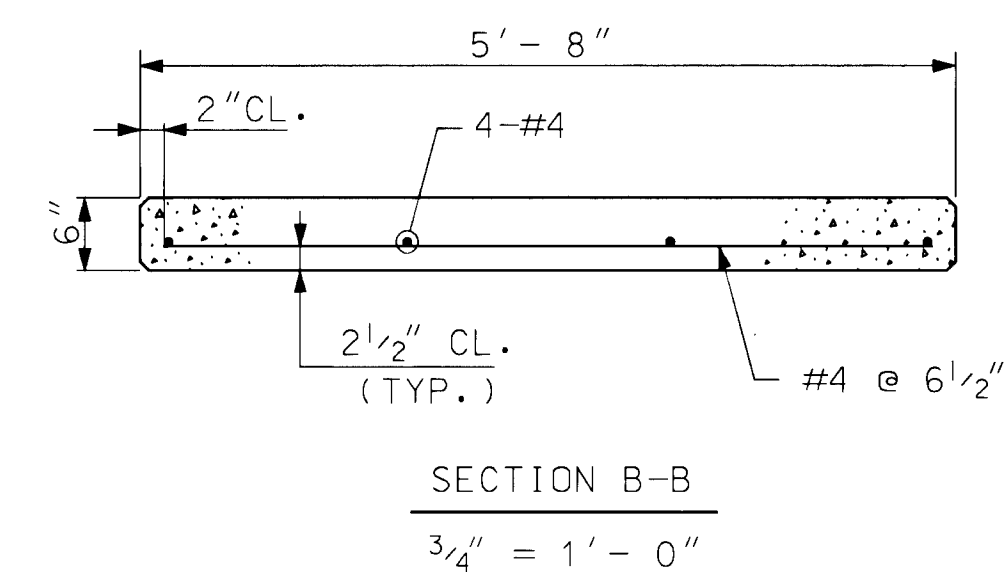
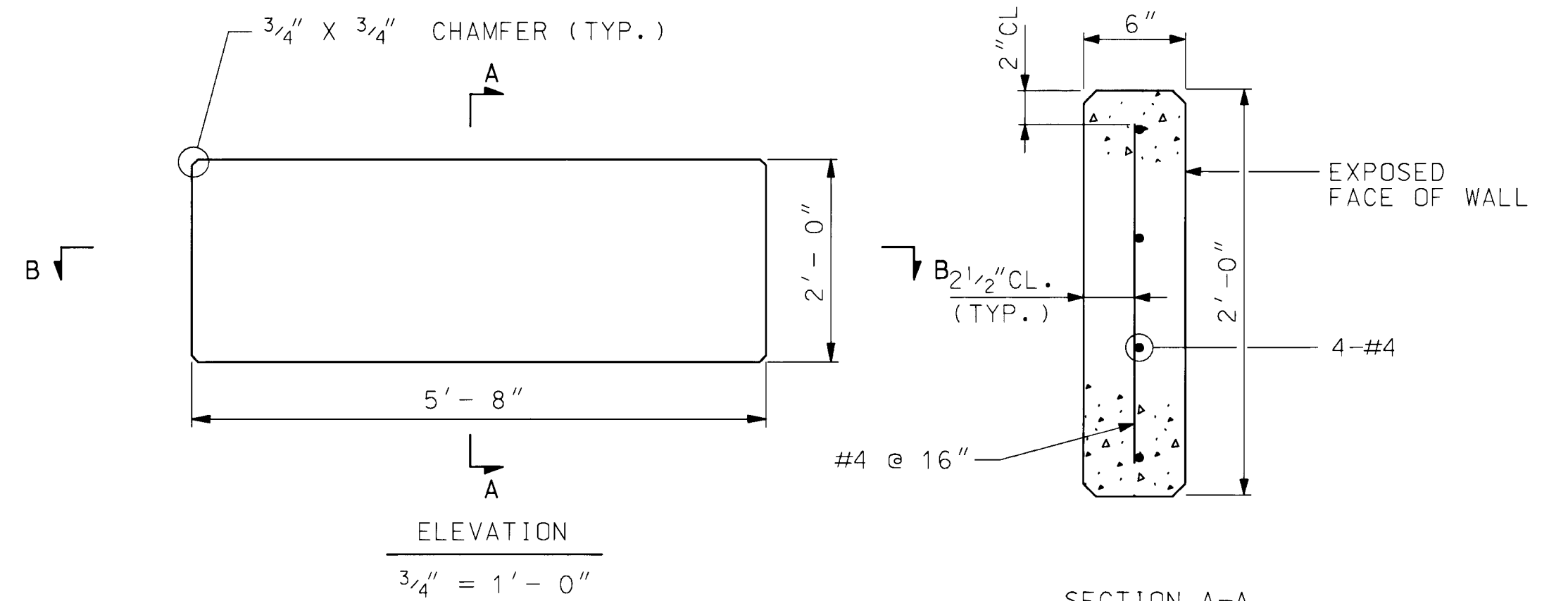
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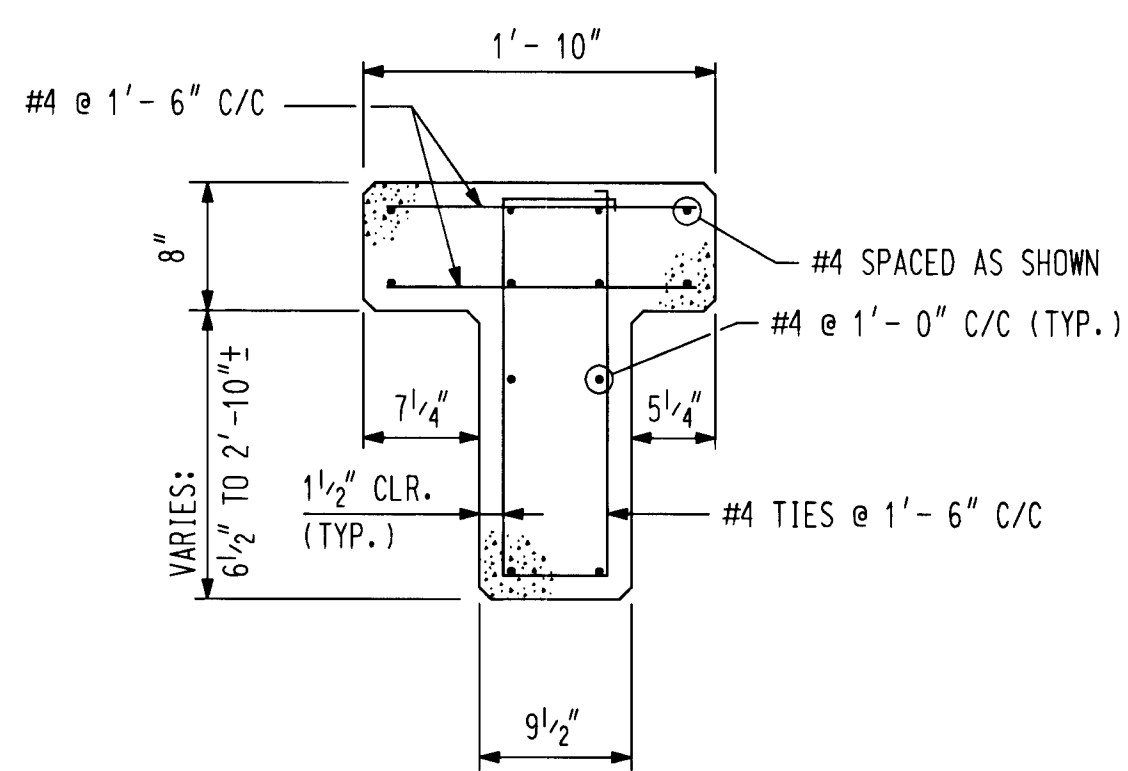
NOTE: C.I.P. CONCRETE END CLOSURE TO BE CONSTRUCTED FROM TOP OF LEVELING PAD TO UNDERSIDE OF PRECAST CONCRETE CAP.

**TYPICAL DETAIL - END CLOSURE**

SCALE: 1" = 1'-0"

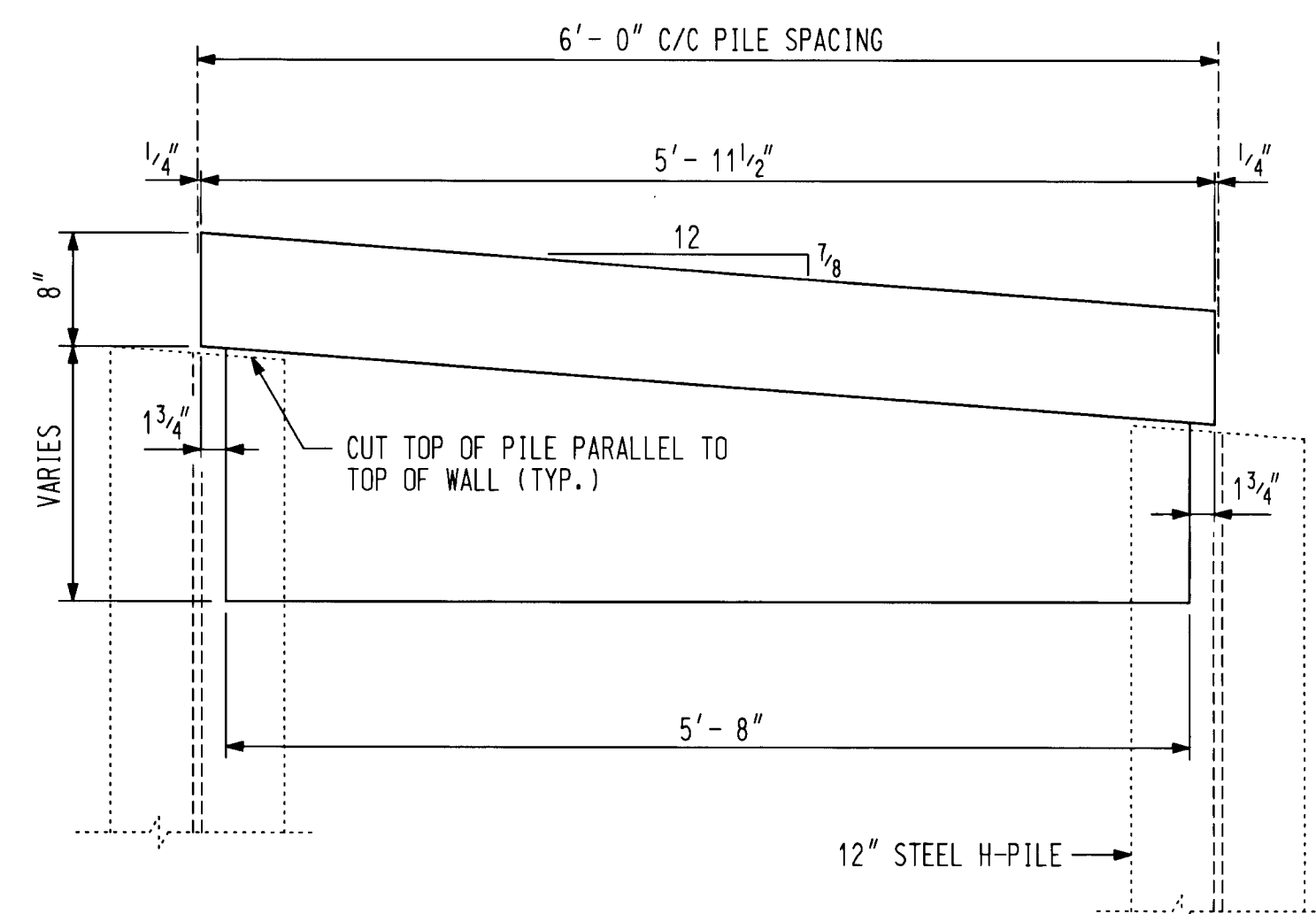


**TYPICAL PRECAST CONCRETE WALL PANEL DETAILS**



NOTE: CONCRETE CAP MAY BE CAST-IN-PLACE AT THE CONTRACTOR'S OPTION.

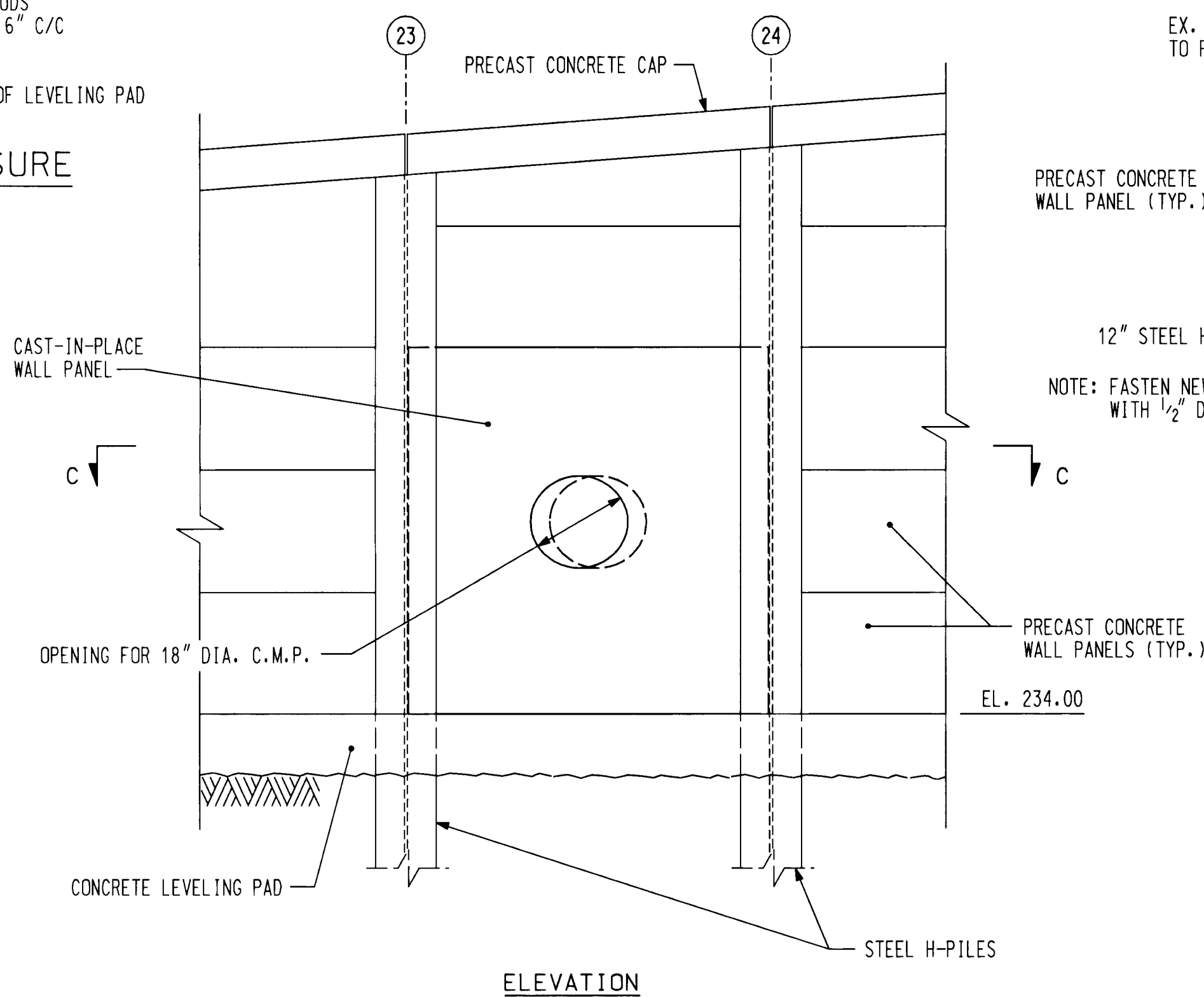
**TYPICAL SECTION**



**TYPICAL ELEVATION**

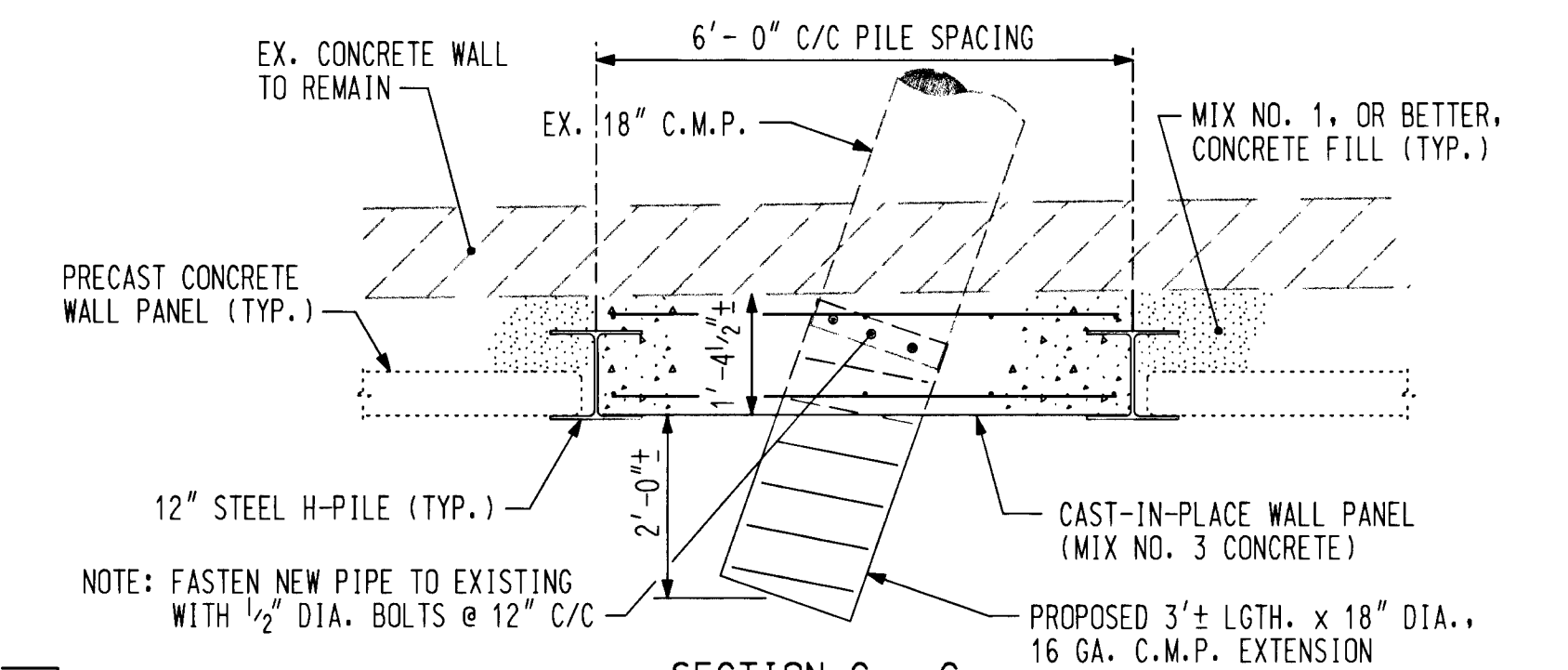
SCALE: 1" = 1'-0"

**PRECAST CONCRETE CAP DETAILS**



**CAST-IN-PLACE CONCRETE WALL PANEL AT PIPE OPENING**

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



NOTE: PROVIDE ABOVE REINFORCING ON INSIDE AND OUTSIDE FACE OF WALL PANEL.

**REINFORCING DETAIL**

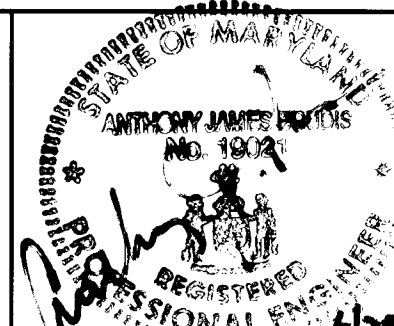
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works  
6/23/97

Chief, Bureau of Engineering  
6/23/97

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

9220 RUMSEY ROAD, SUITE 210  
COLUMBIA, MARYLAND 21045  
(410)-884-3607



DESIGNED BY: T. E. M.  
DRAWN BY: T. E. M.  
CHECKED BY: A. J. B.  
DATE: 6/19/97

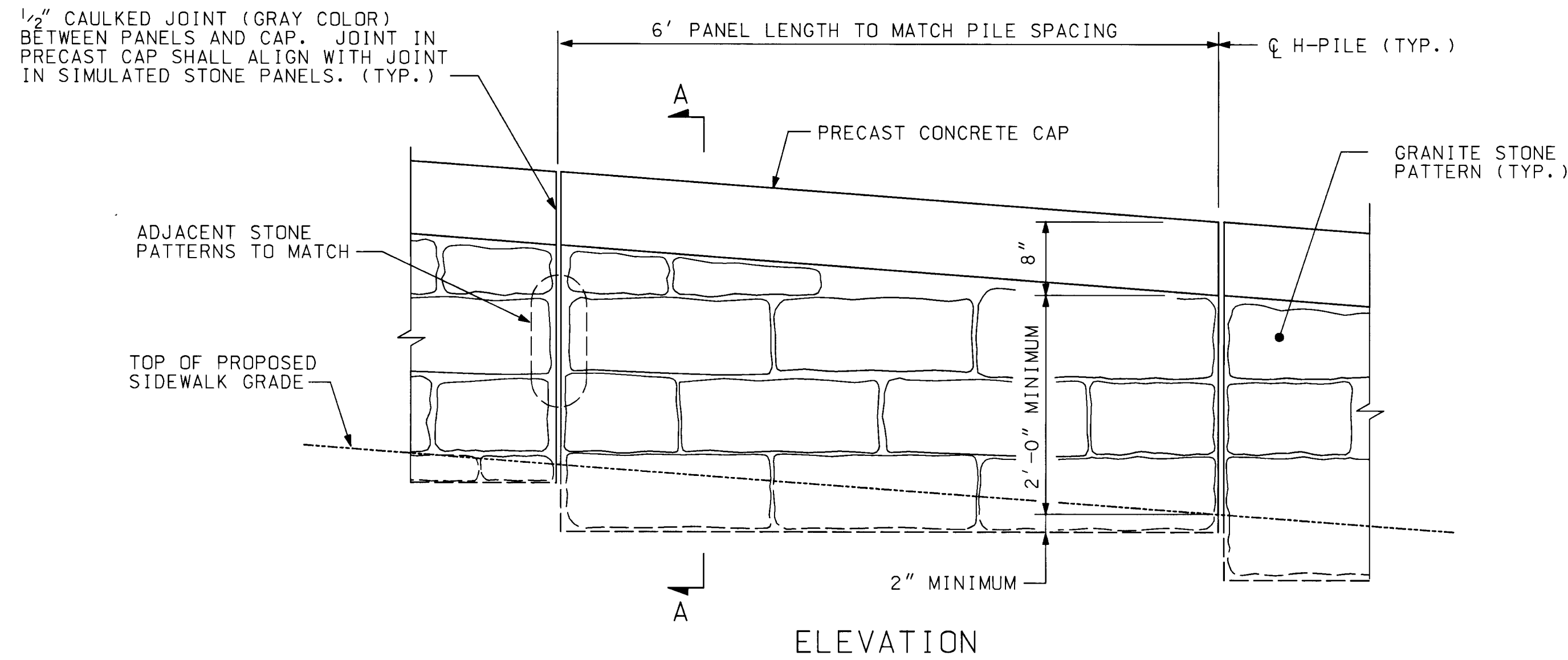
BY NO. REVISION DATE 600' SCALE MAP NO. BLOCK NO.

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

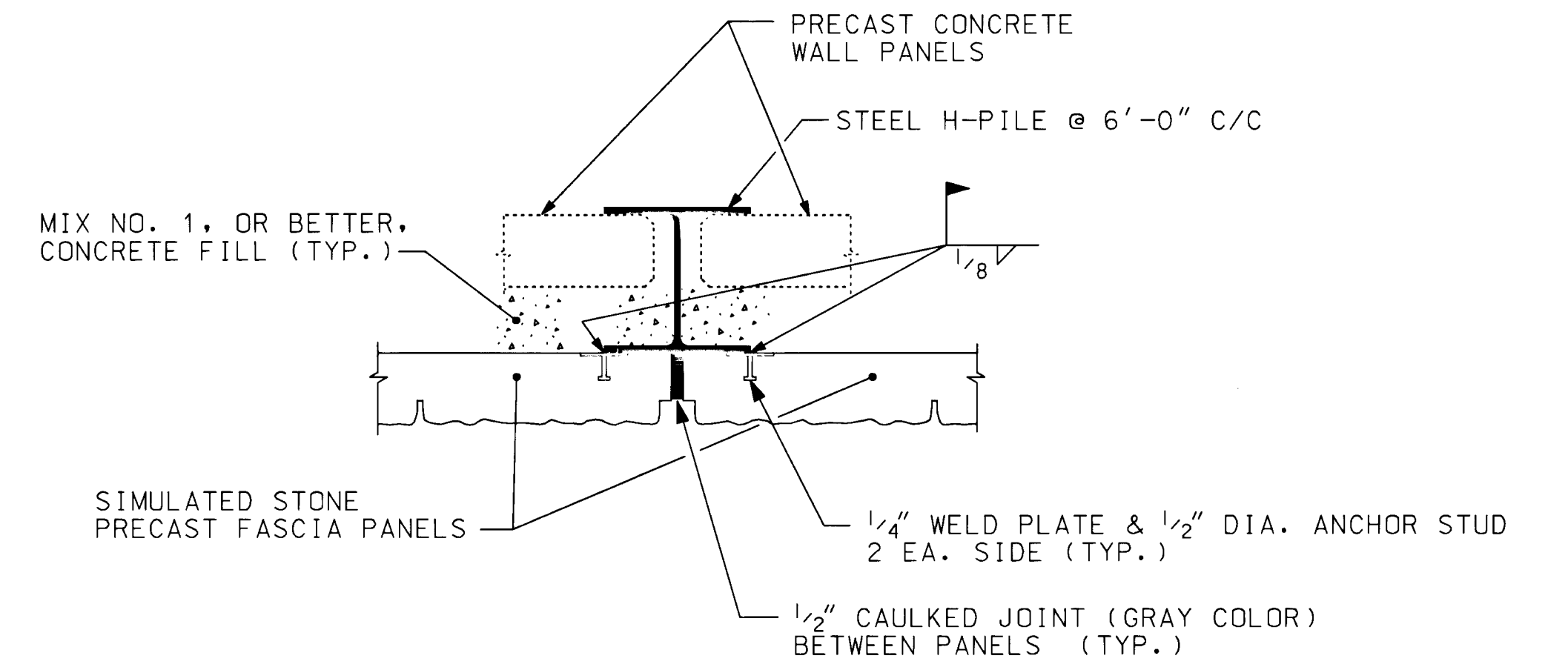
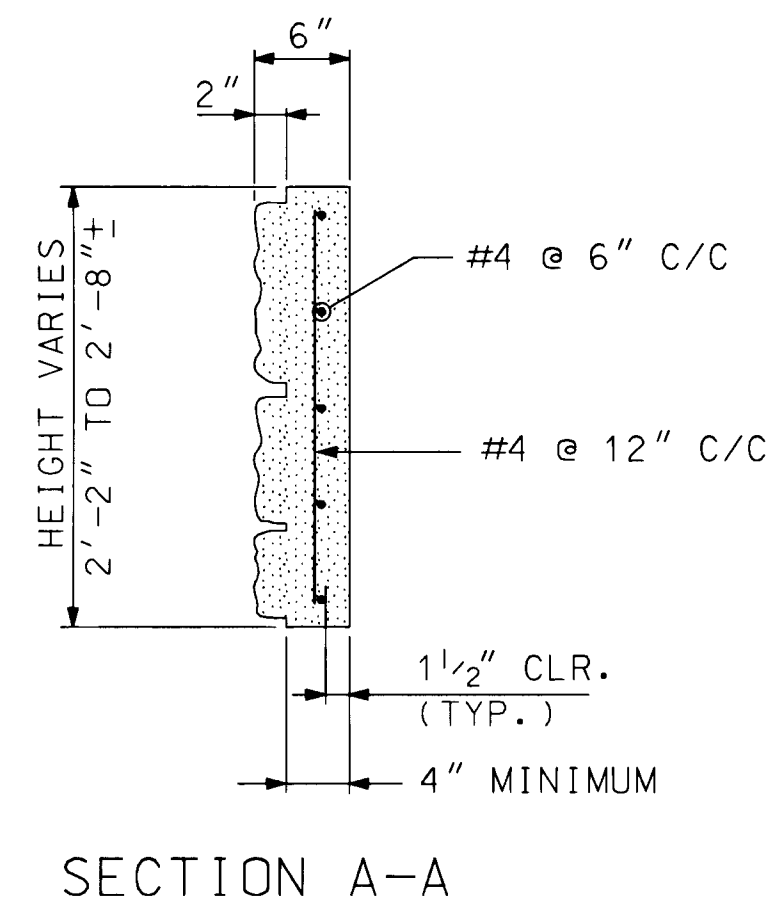
GENERAL NOTES AND WALL DETAILS

CAPITAL PROJECT B-3843

SCALE AS SHOWN  
SHEET  
4 OF 10



TYPICAL 6" SIMULATED STONE PRECAST FASCIA PANEL  
SCALE: 1" = 1'-0"



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

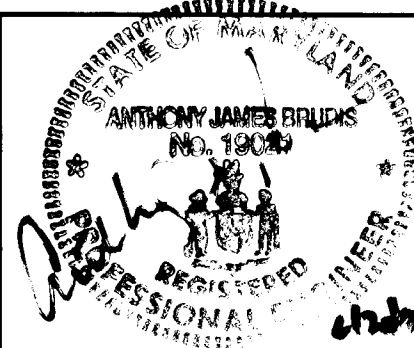
*James E. Lewis* 6/23/97  
DIRECTOR OF PUBLIC WORKS DATE

*Robert J. Gannon* 6/23/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Robert J. Gannon* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

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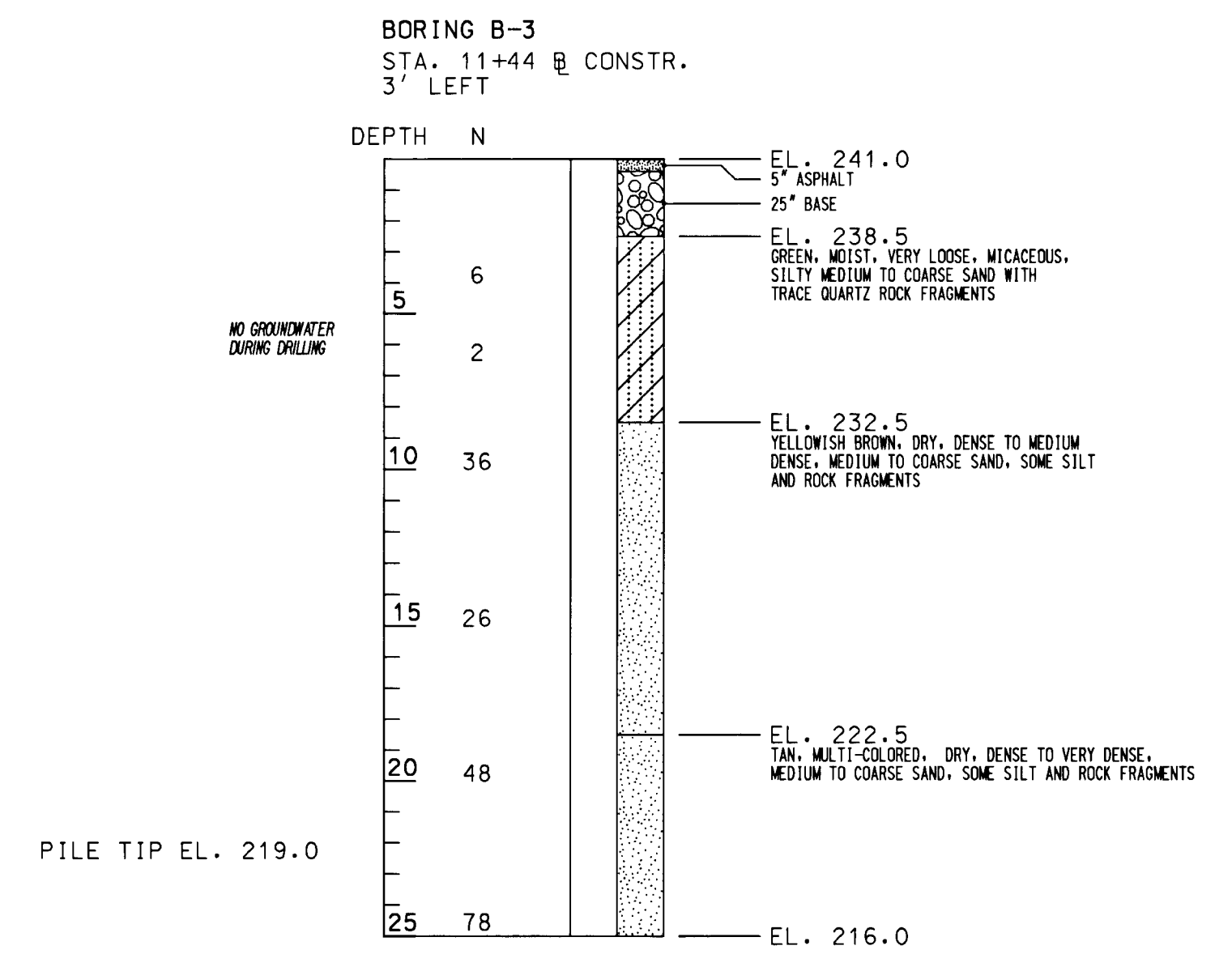
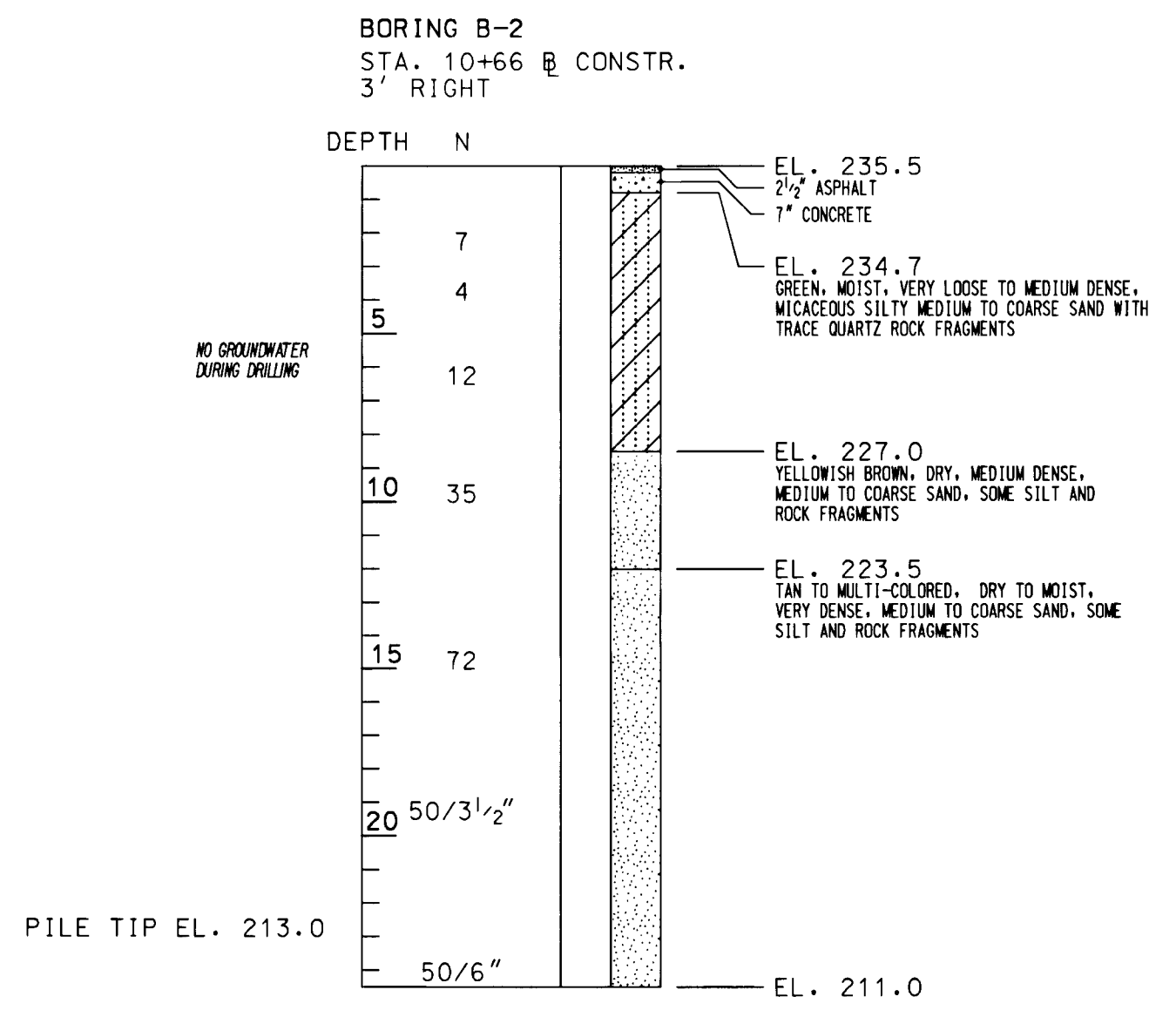
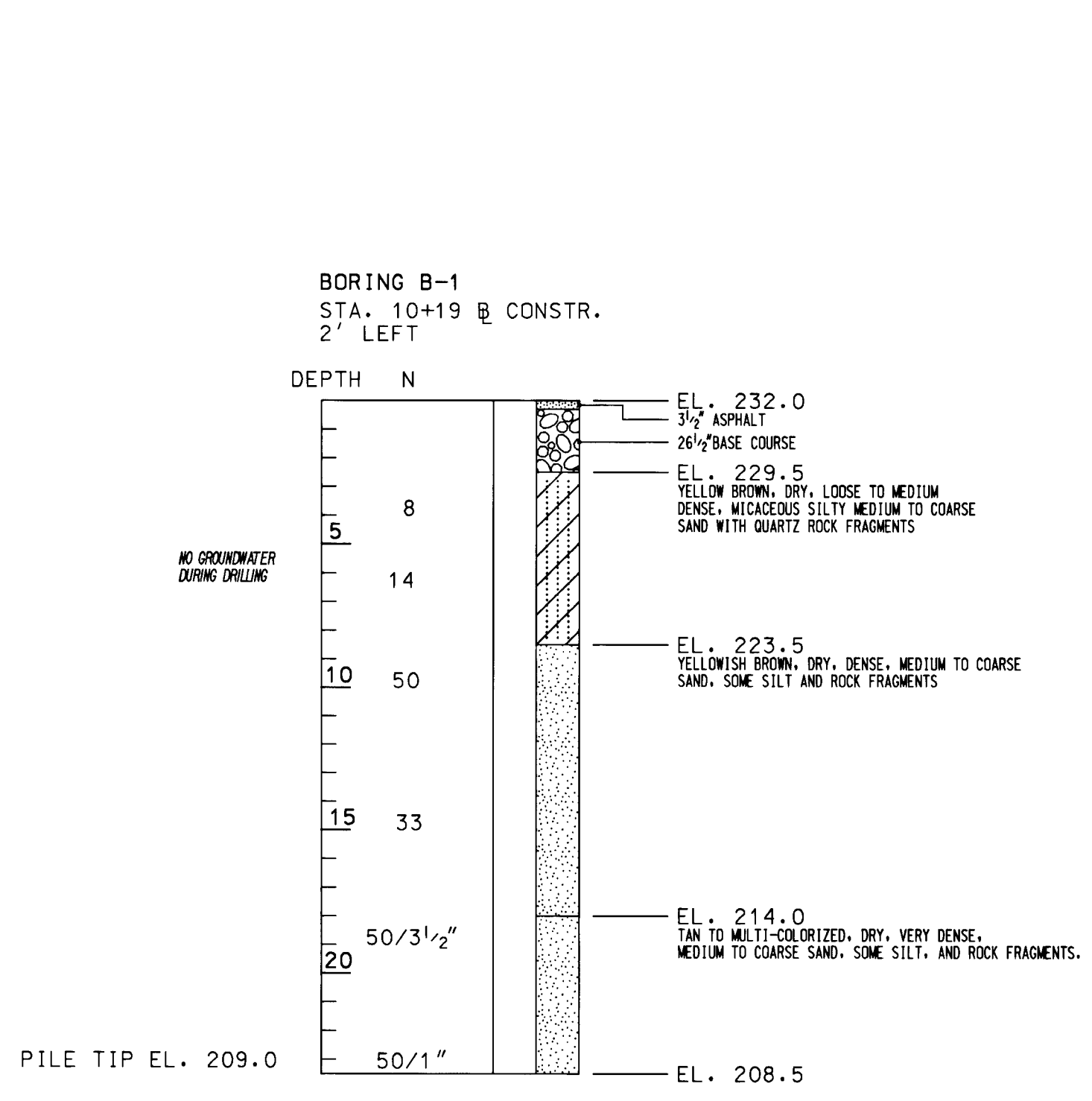
DESIGNED BY: T.E.M.  
DRAWN BY: T.E.M.  
CHECKED BY: A.J.B.  
DATE: 6/19/97

NO.	REVISION	DATE

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

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT  
FASCIA PANEL DETAILS  
CAPITAL PROJECT B-3843

SCALE AS SHOWN  
SHEET  
5 OF 10

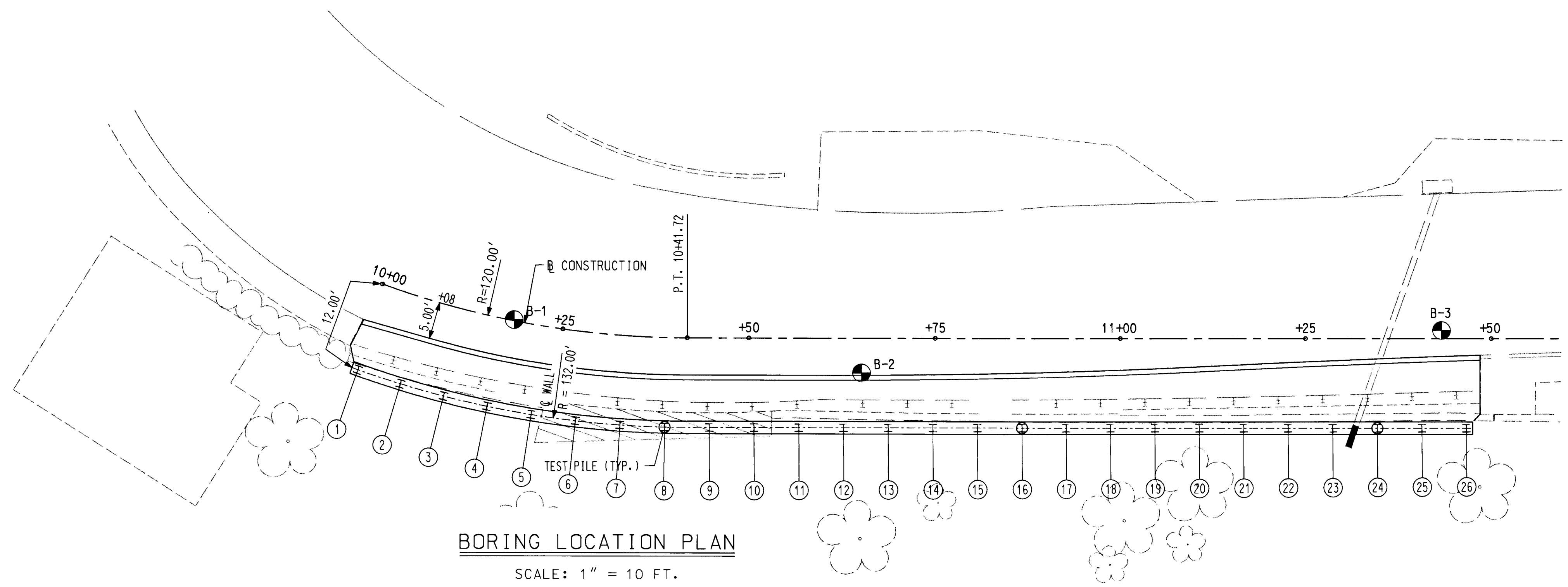


DATUM ELEV. = 200

DATUM ELEV. = 200

**BORINGS AND DRIVE TESTS**

SCALE: 1" = 5'



- NOTES:
- BORINGS AND DRIVE TESTS WERE PERFORMED AT THE DIRECTION OF HILLIS - CARNES ENGINEERING ASSOCIATES, INC., DURING JANUARY, 1997.
  - N = STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT, OBTAINED BY THE ASTM D1586 PROCEDURE USING A 2" O.D. SAMPLER WITH 140 LB. HAMMER @ 30 INCH DROP.
  - DEPTH SCALE IN FEET BELOW SURFACE.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

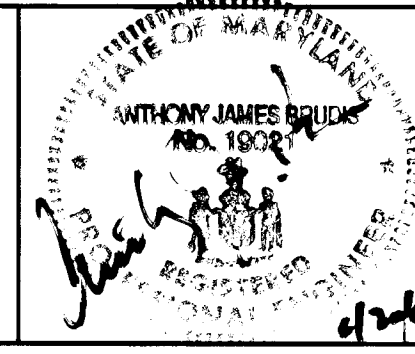
*Ram...* 6/23/97  
DIRECTOR OF PUBLIC WORKS DATE

*Robert...* 6/23/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Blanchard...* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

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DESIGNED BY: T.E.M.	
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DATE: 6/19/97	
BY	NO.
REVISION	DATE
600' SCALE MAP NO.	BLOCK NO.

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

BORINGS AND DRIVE TESTS

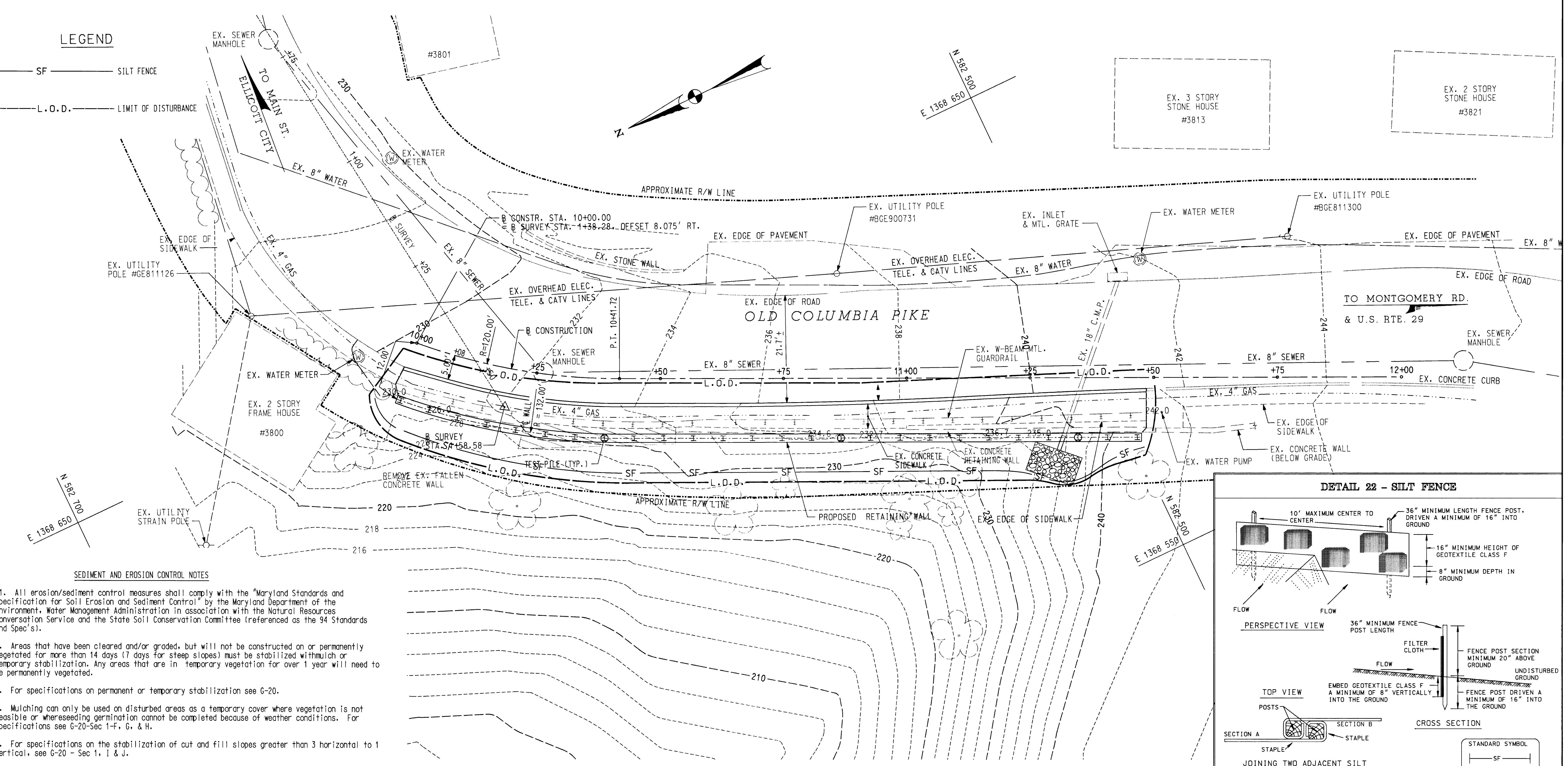
CAPITAL PROJECT B-3843

SCALE AS SHOWN

SHEET 6 OF 10

**LEGEND**

- SF — SILT FENCE
- L.O.D. — LIMIT OF DISTURBANCE



**SEDIMENT AND EROSION CONTROL NOTES**

1. All erosion/sediment control measures shall comply with the "Maryland Standards and Specification for Soil Erosion and Sediment Control" by the Maryland Department of the Environment, Water Management Administration in association with the Natural Resources Conversation Service and the State Soil Conservation Committee (referenced as the 94 Standards and Specs).
2. Areas that have been cleared and/or graded, but will not be constructed on or permanently vegetated for more than 14 days (7 days for steep slopes) must be stabilized with mulch or temporary stabilization. Any areas that are in temporary vegetation for over 1 year will need to be permanently vegetated.
3. For specifications on permanent or temporary stabilization see G-20.
4. Mulching can only be used on disturbed areas as a temporary cover where vegetation is not feasible or where seeding germination cannot be completed because of weather conditions. For specifications see G-20-Sec 1-F, G, & H.
5. For specifications on the stabilization of cut and fill slopes greater than 3 horizontal to 1 vertical, see G-20 - Sec 1, I & J.
6. The existing topsoil from on or off site that is used must meet the minimum specification in G-21.
7. No proposed slope shall be greater than 1 1/2 : 1.
8. All sediment control structures will be inspected once a week and after each rainfall and will be repaired, as needed, so that the structure meets the minimum specifications as shown in the 94 Standards and Specs.
9. The contractor is responsible for maintaining all sediment and erosion control measures until the disturbed areas are permanently stabilized.

**PERMANENT SEEDING NOTES**

Scope: Planting permanent, long lived vegetative cover on graded and/or cleared areas and areas that have been in temporary vegetation for more than 1 year.

Standards: MDT State Highway Administration 'STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS', See Special Provisions.

**NOTES:**

1. FOR DETAILS NOT SHOWN SEE PLAN/PROFILE SHEET.

**STACKPILE/TOPSOIL NOTES**

1. Stockpiling will not be allowed on any impervious area.
2. All stockpiles left at the end of the day will need to be temporarily stabilized until they are again disturbed, unless they are within existing perimeter sediment controls.

**SITE ANALYSIS**

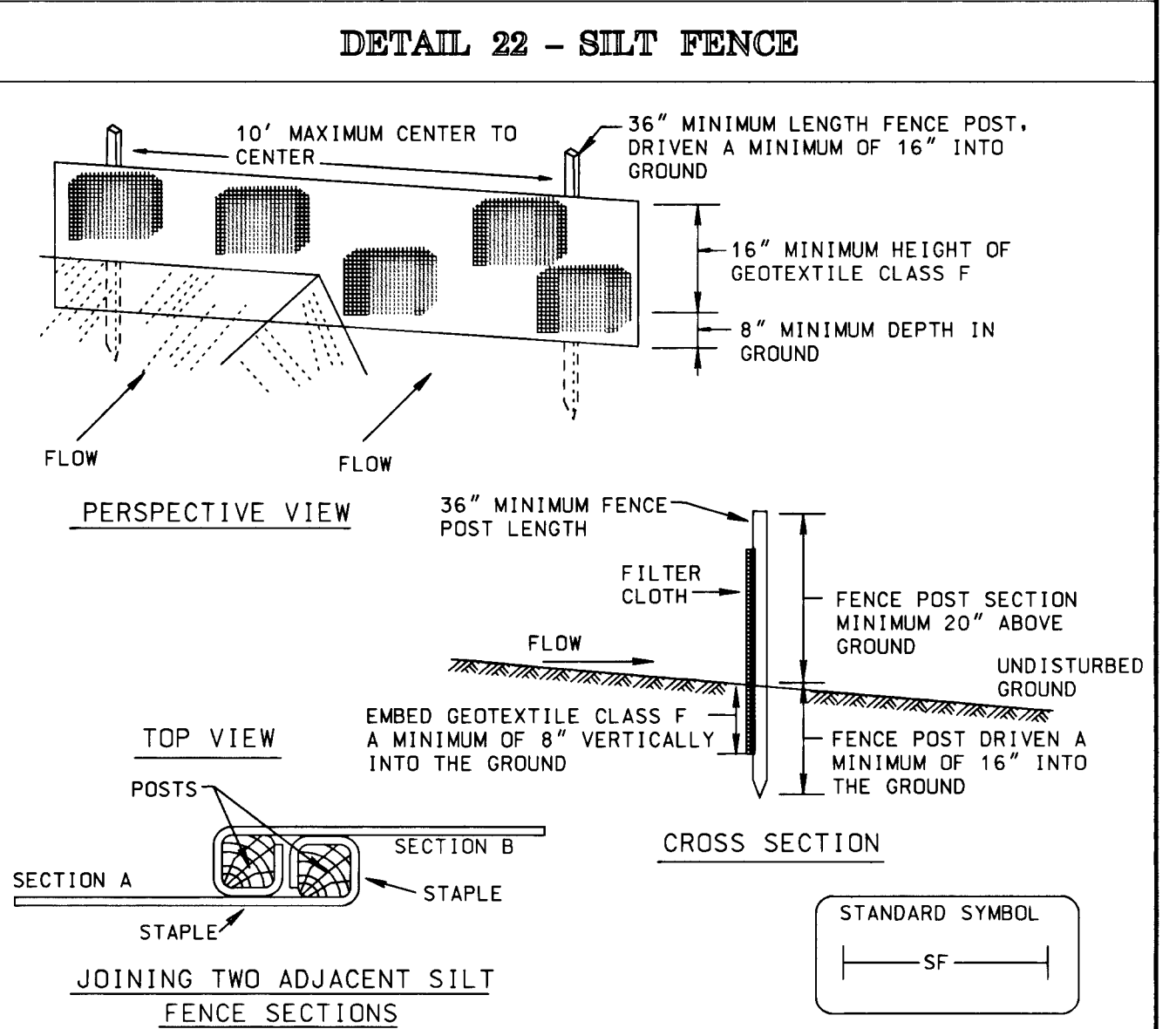
Total area of site	0.15	Acres
Total disturbed area	1900	Sq. Ft.
Approximate cut	25	Cu. Yds.
Approximate fill	25	Cu. Yds.

**PLAN**

SCALE: 1" = 10'

**SUGGESTED SEQUENCE OF CONSTRUCTION FOR SEDIMENT & EROSION CONTROL**

1. CONTRACTOR SHALL ATTEND THE EROSION AND SEDIMENT CONTROL FIELD MEETING AS SCHEDULED BY THE ENGINEER.
2. INSTALL TRAFFIC CONTROL SIGNS AND DEVICES.
3. INSTALL SEDIMENT CONTROL DEVICES.
4. REMOVE EXISTING W-BEAM GUARDRAIL.
5. CLEAR, GRUB, GRADE AND STABILIZE SLOPES DURING DRY WEATHER.
6. CONSTRUCT RETAINING WALL.
7. BACKFILL AND GRADE SLOPES AT BOTTOM OF RETAINING WALL.
8. STABILIZE ALL DISTURBED AREAS AS A RESULT OF ITEM 7.
9. REMOVE EXISTING CONCRETE CURB AND SIDEWALK.
10. INSTALL NEW CONCRETE CURB AND GUTTER, SIDEWALK AND PRECAST CONCRETE SIMULATED STONE FASCIA PANELS.
11. UPON APPROVAL FROM THE ENGINEER, REMOVE SEDIMENT CONTROL DEVICES.
12. REMOVE TRAFFIC CONTROL SIGNS AND DEVICES.



- Construction Specifications**
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
  2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:
 

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal #1/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
  3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
  4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

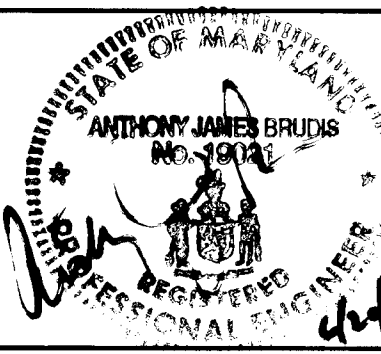
*James P. Lewis* 6/23/97  
DIRECTOR OF PUBLIC WORKS DATE

*Robert J. Gannon* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

*Shirley L. Gannon* 6/23/97  
CHIEF, BUREAU OF HIGHWAYS DATE

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

9220 RUMSEY ROAD; SUITE 210  
COLUMBIA, MARYLAND 21045  
(410)-884-3607



DESIGNED BY: T.E.M.	
DRAWN BY: T.E.M.	
CHECKED BY: A.J.B.	
DATE: 6/19/97	
BY	NO.
REVISION	DATE
600' SCALE MAP NO.	BLOCK NO.

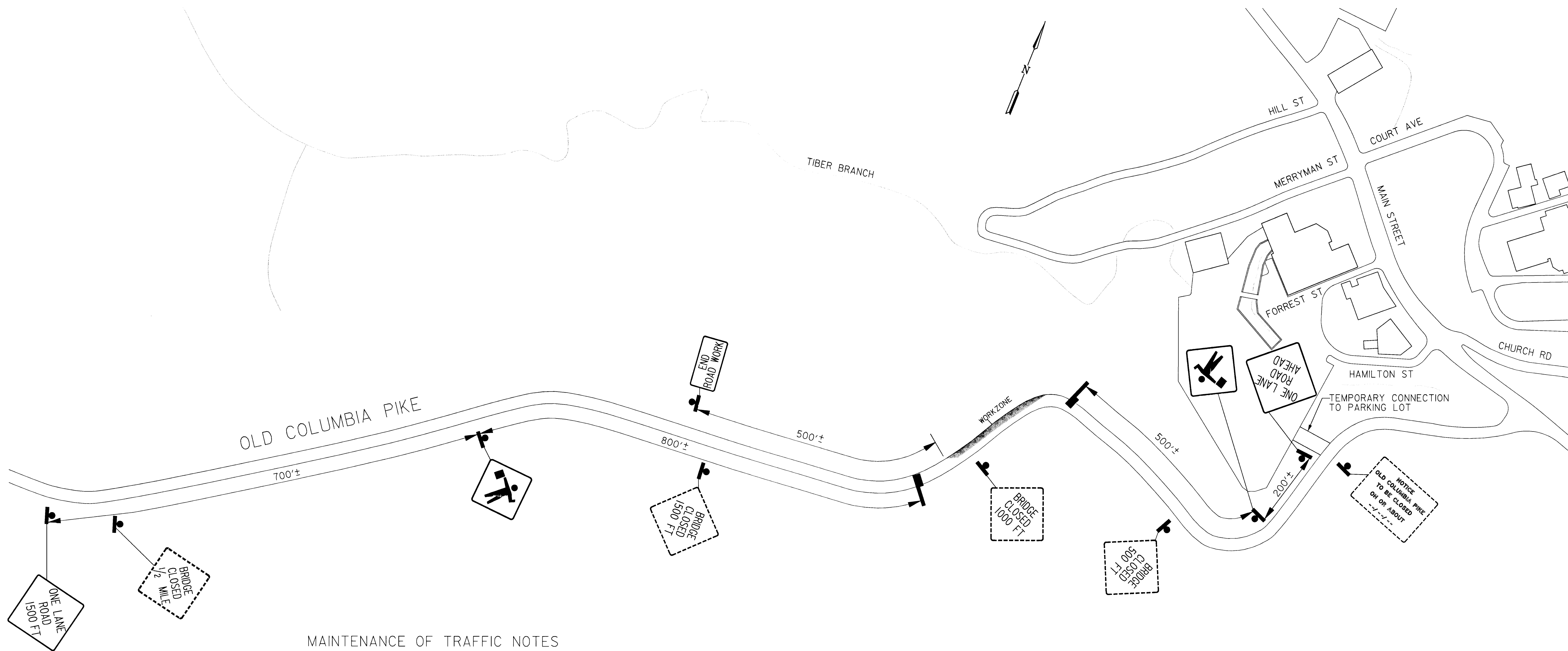
OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT  
SEDIMENT AND EROSION CONTROL PLAN

CAPITAL PROJECT B-3843

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 2-15-8 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SCALE AS SHOWN SHEET 7 OF 10

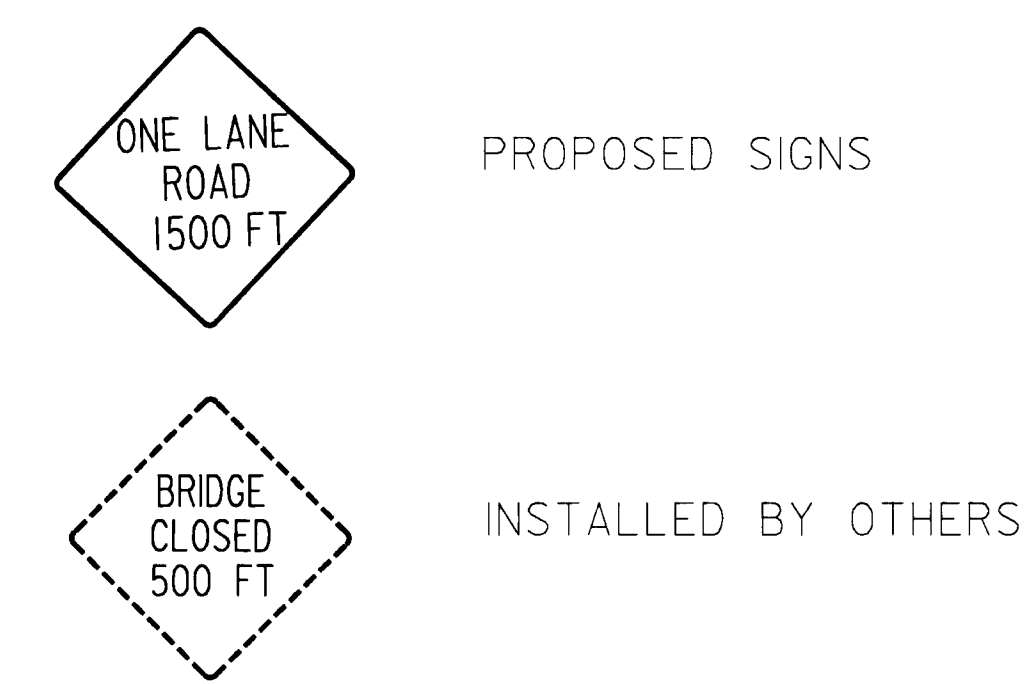




MAINTENANCE OF TRAFFIC NOTES

1. ALL TRAFFIC CONTROL DEVICES MUST COMPLY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1988.
2. ALL LANE CLOSURES SHALL BE BETWEEN 9:00AM AND 4:00PM ON WEEKDAYS.
3. THE CONTRACTOR SHALL COORDINATE ALL LANE CLOSURES AND OPENINGS WITH THE COUNTY. REFER TO THE INVITATION FOR BIDDERS FOR LANE CLOSURE RESTRICTIONS.
4. ALL CONSTRUCTIONS SIGNS THAT ARE THE RESPONSIBILITY OF THE CONTRACTOR ARE TO BE REMOVED OR COVERED AT THE END OF THE WORKING DAY.

LEGEND



SCALE 1" = 100'

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

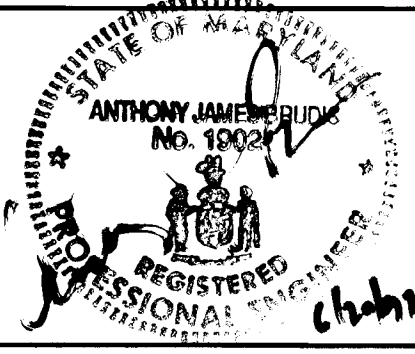
*Randy...* 6/23/97  
DIRECTOR OF PUBLIC WORKS DATE

*Robert...* 6/23/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Elizabeth...* 6/23/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

BRUDIS & ASSOCIATES, INC.  
CONSULTING ENGINEERS

9220 RUMSEY ROAD, SUITE 210  
COLUMBIA, MARYLAND 21045  
(410)-884-3607



DESIGNED BY: R. J. M.					
DRAWN BY: T. S.					
CHECKED BY: A. J. B.					
DATE: 6/19/97	BY	NO.	REVISION	DATE	600' SCALE MAP NO. _____ BLOCK NO. _____

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

ADVANCE SIGNING PLAN

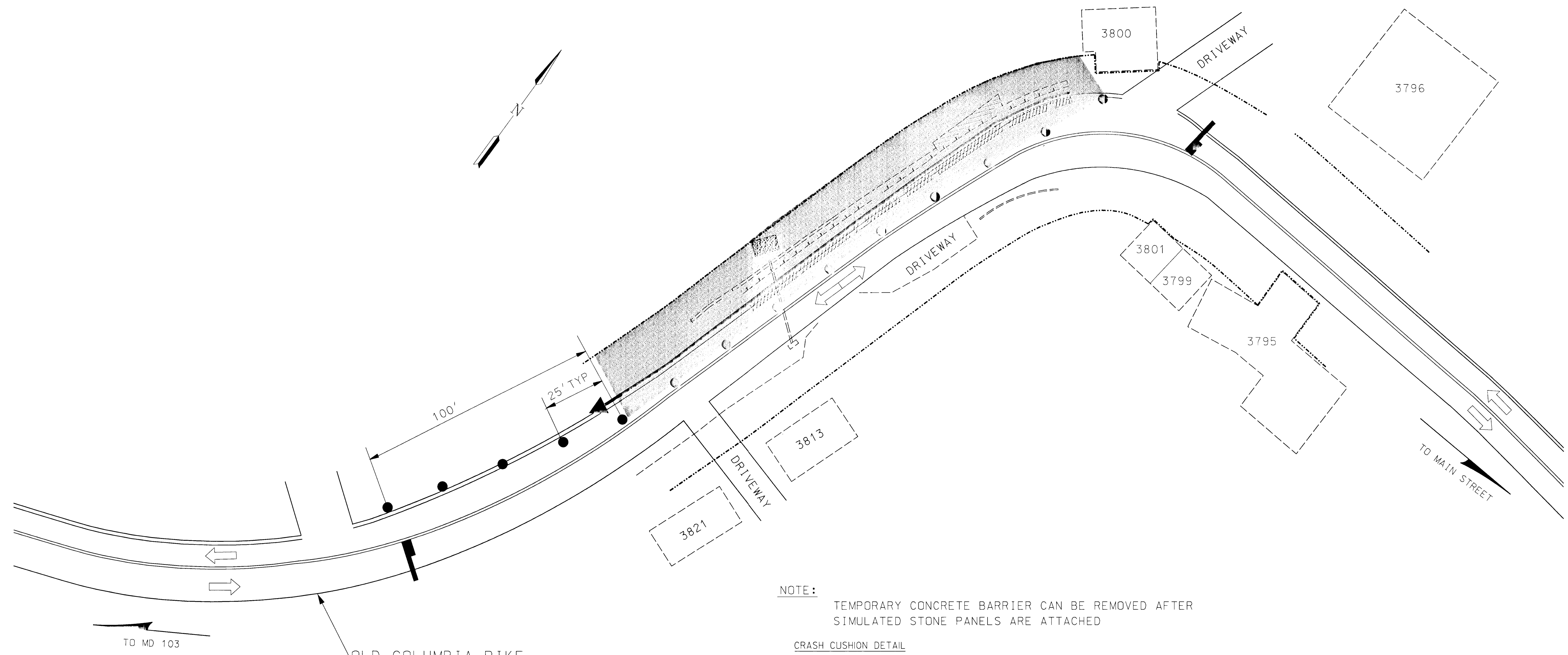
CAPITAL PROJECT B-3843

SCALE AS SHOWN

SHEET

8 OF 10

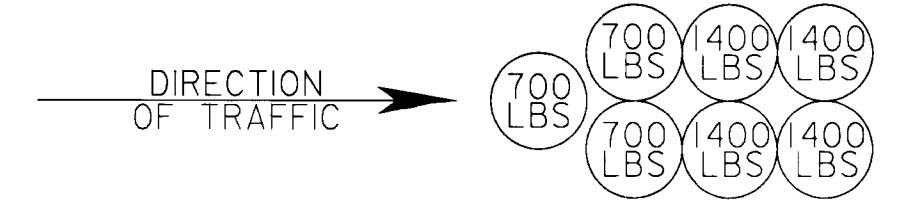




**NOTE:**  
 TEMPORARY CONCRETE BARRIER CAN BE REMOVED AFTER  
 SIMULATED STONE PANELS ARE ATTACHED

**CRASH CUSHION DETAIL**  
 SAND FILLED PLASTIC BARRELS FOR MAINTENANCE OF TRAFFIC  
 IMPACT VELOCITIES UP TO 30 MPH

**DIMENSIONS (ALL MODULES):**  
 OUTER CONTAINER = 36" + 3/8" HIGH, 35 1/2" + 3/8" TOP (OUTSIDE DIAMETER),  
 30 3/4" + 3/8" BOTTOM (OUTSIDE DIAMETER).  
 INNER CONTAINER = 36" + 3/8" HIGH LID = 1/8" + 1/16" THICK  
 5% ROCK SALT WILL BE USED WITH THE SPECIFIED AMOUNT OF SAND.



- FLAGGER
  - WORKZONE
  - CHANNELIZING DEVICE
  - TEMP. CONCRETE BARRIER (ON EXISTING SIDEWALK)
  - TEMPORARY CRASH CUSHION
- SCALE 1" = 20'

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

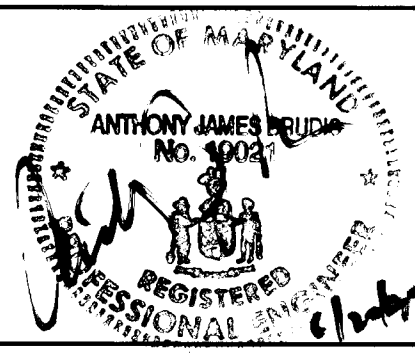
*Ramsey* 6/23/97  
 DIRECTOR OF PUBLIC WORKS DATE

*Richard G. Johnson* 6/23/97  
 CHIEF, BUREAU OF ENGINEERS DATE

*Elizabeth Anderson* 6/23/97  
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

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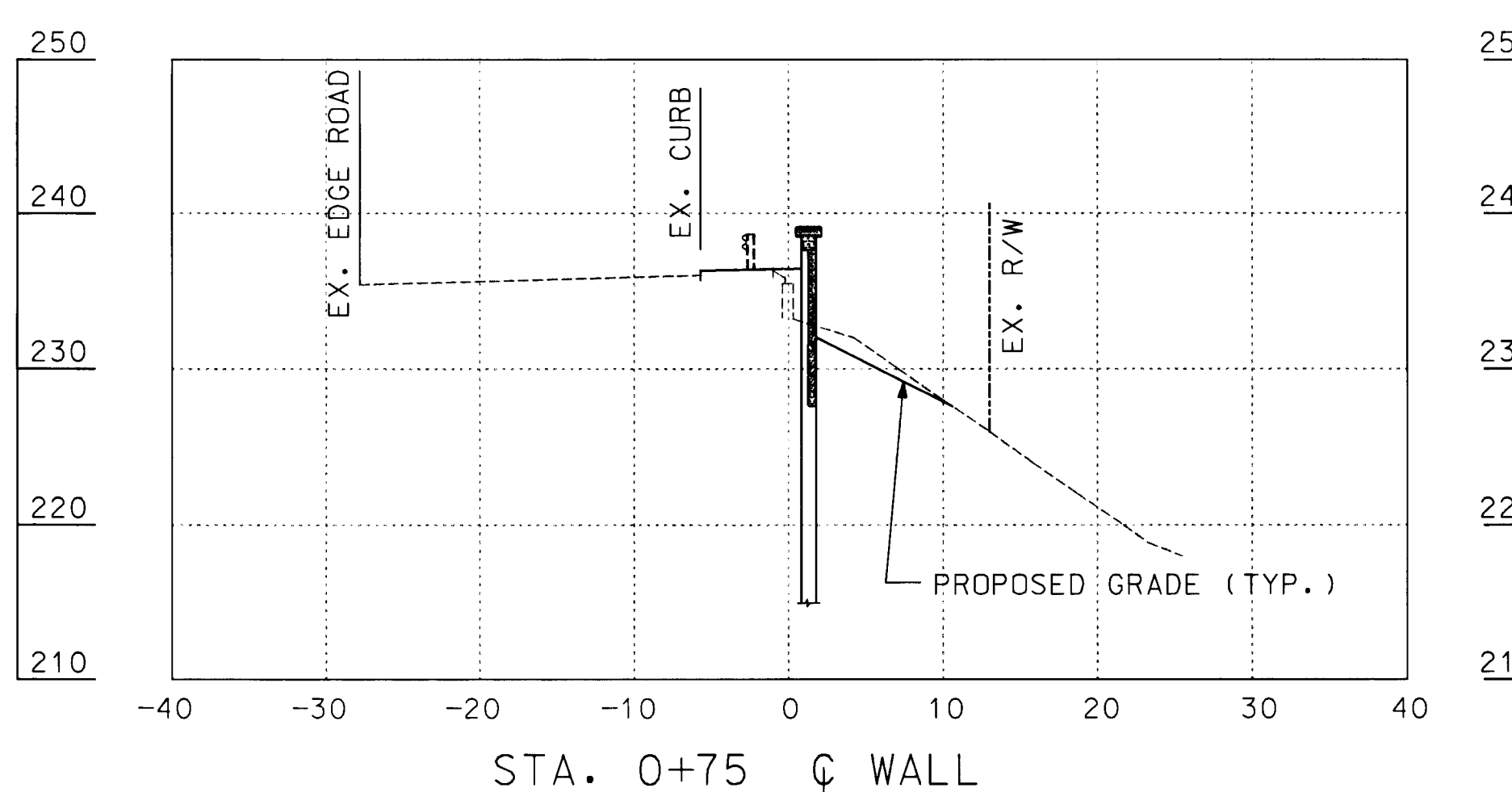
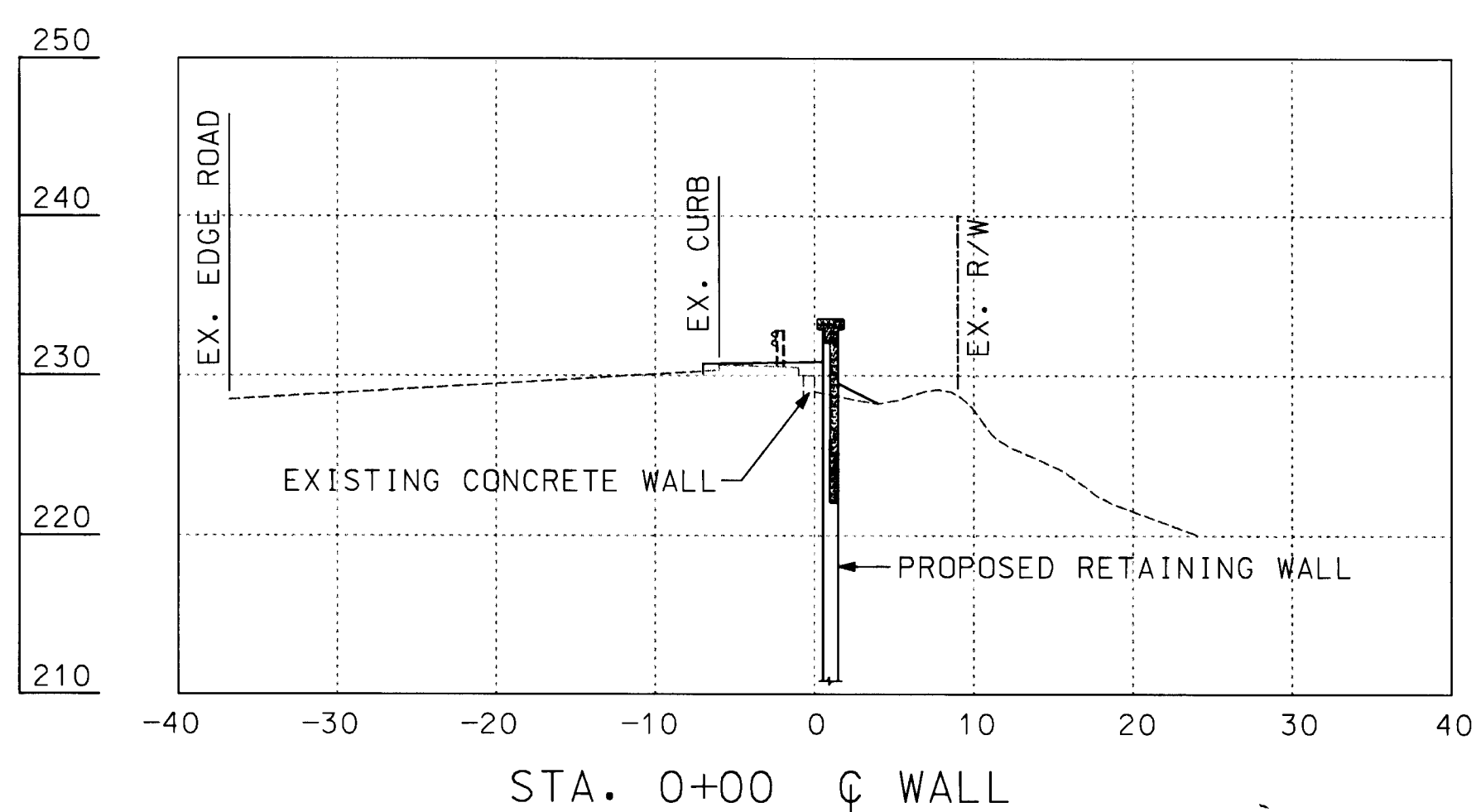
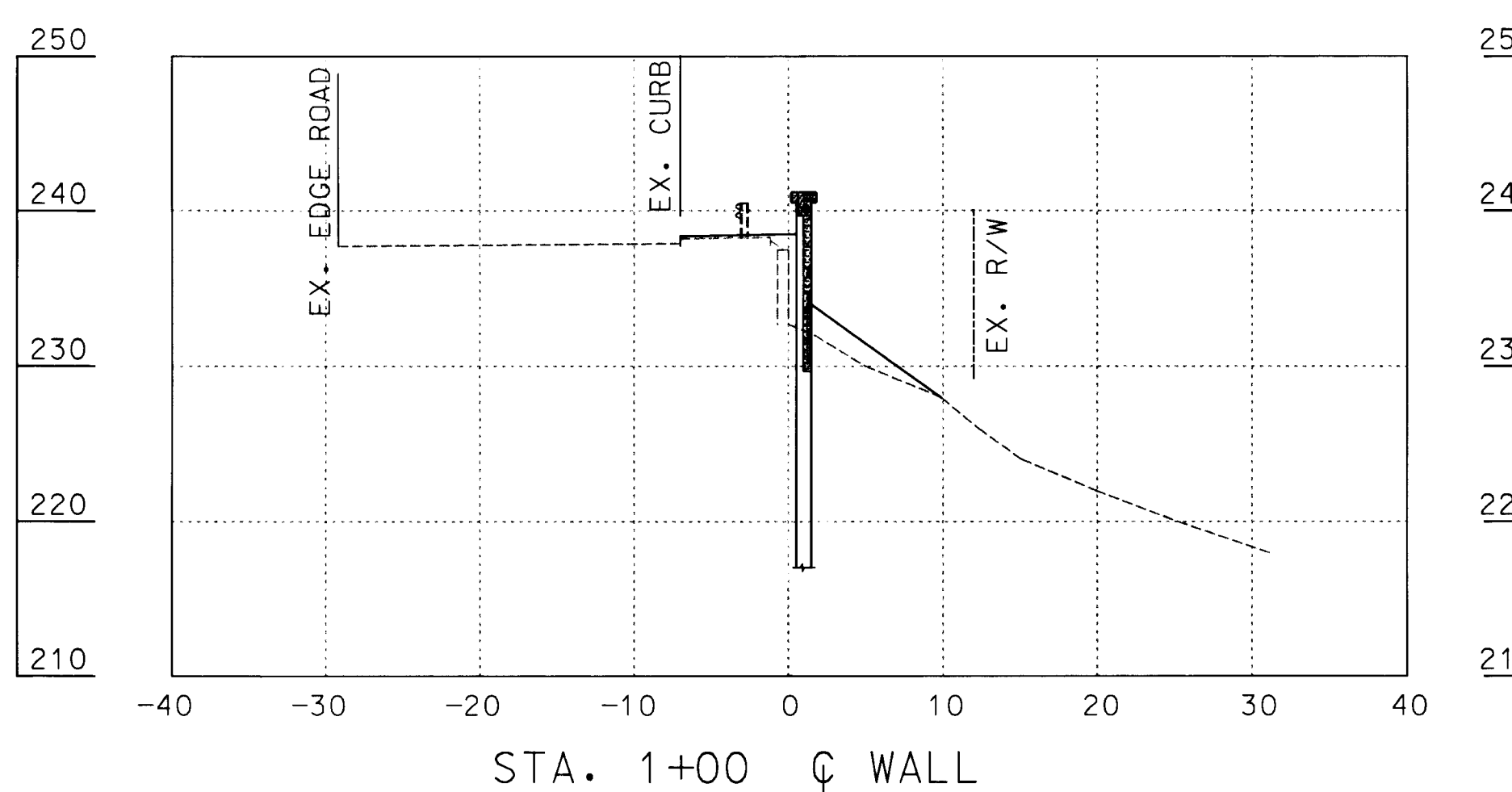
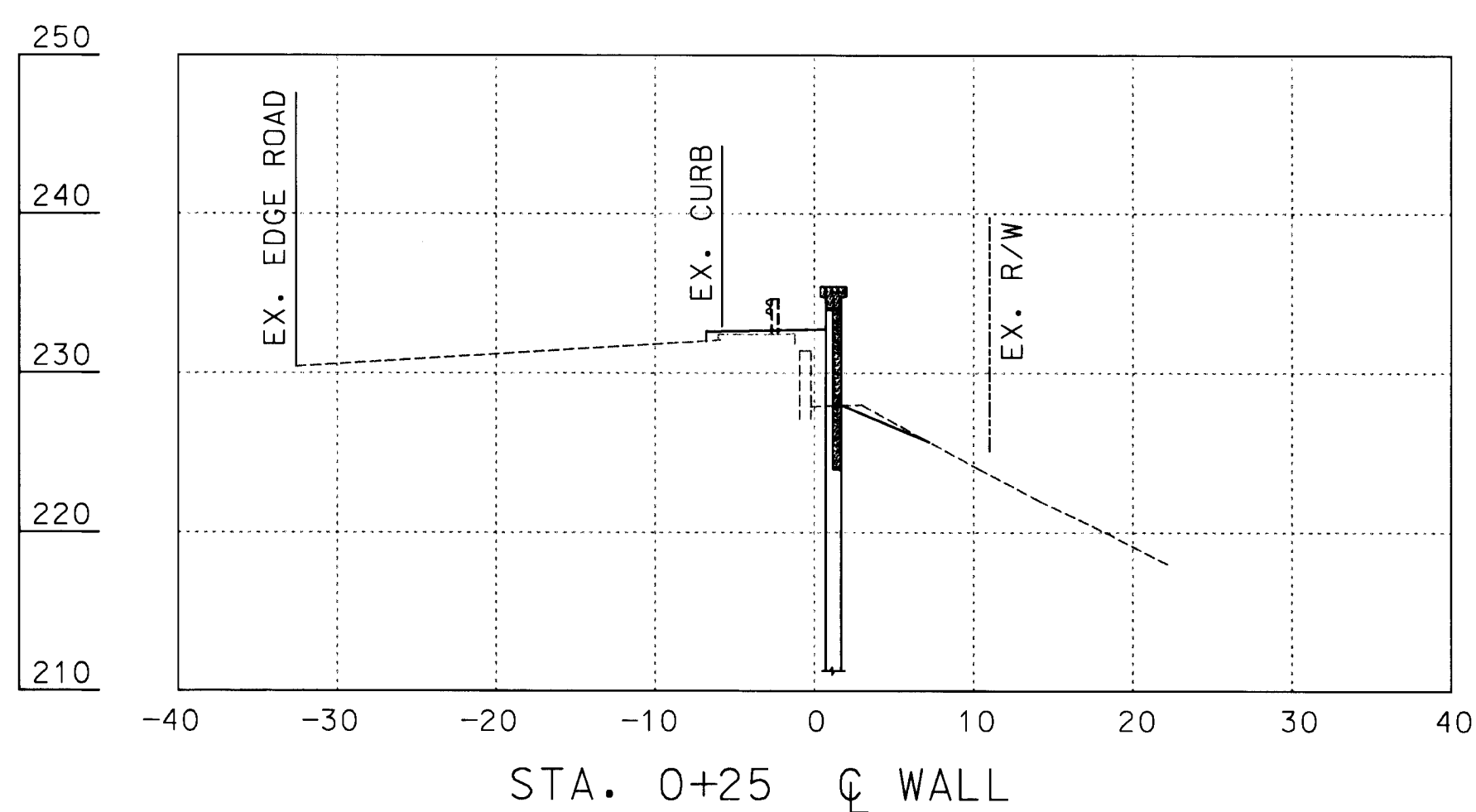
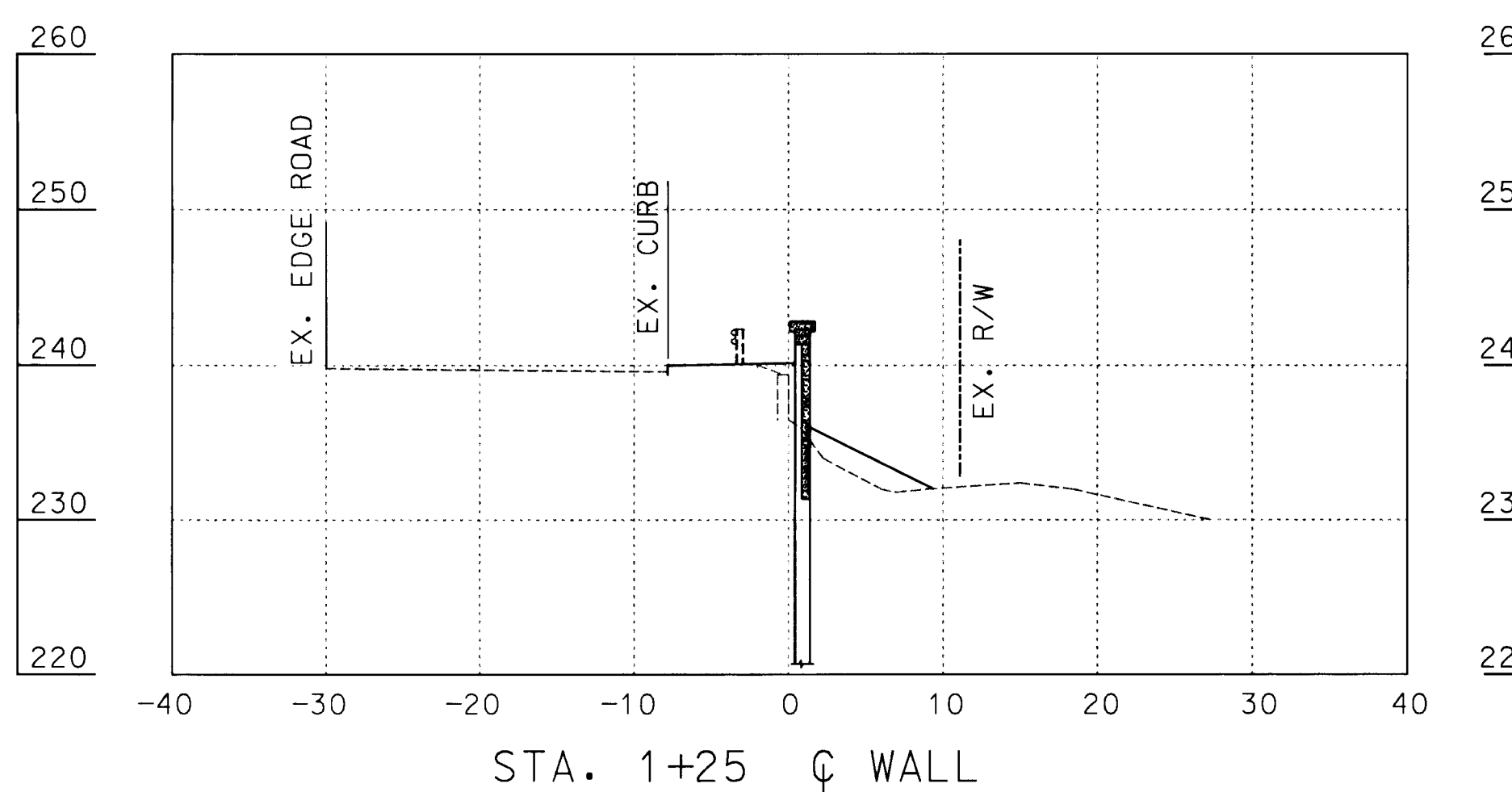
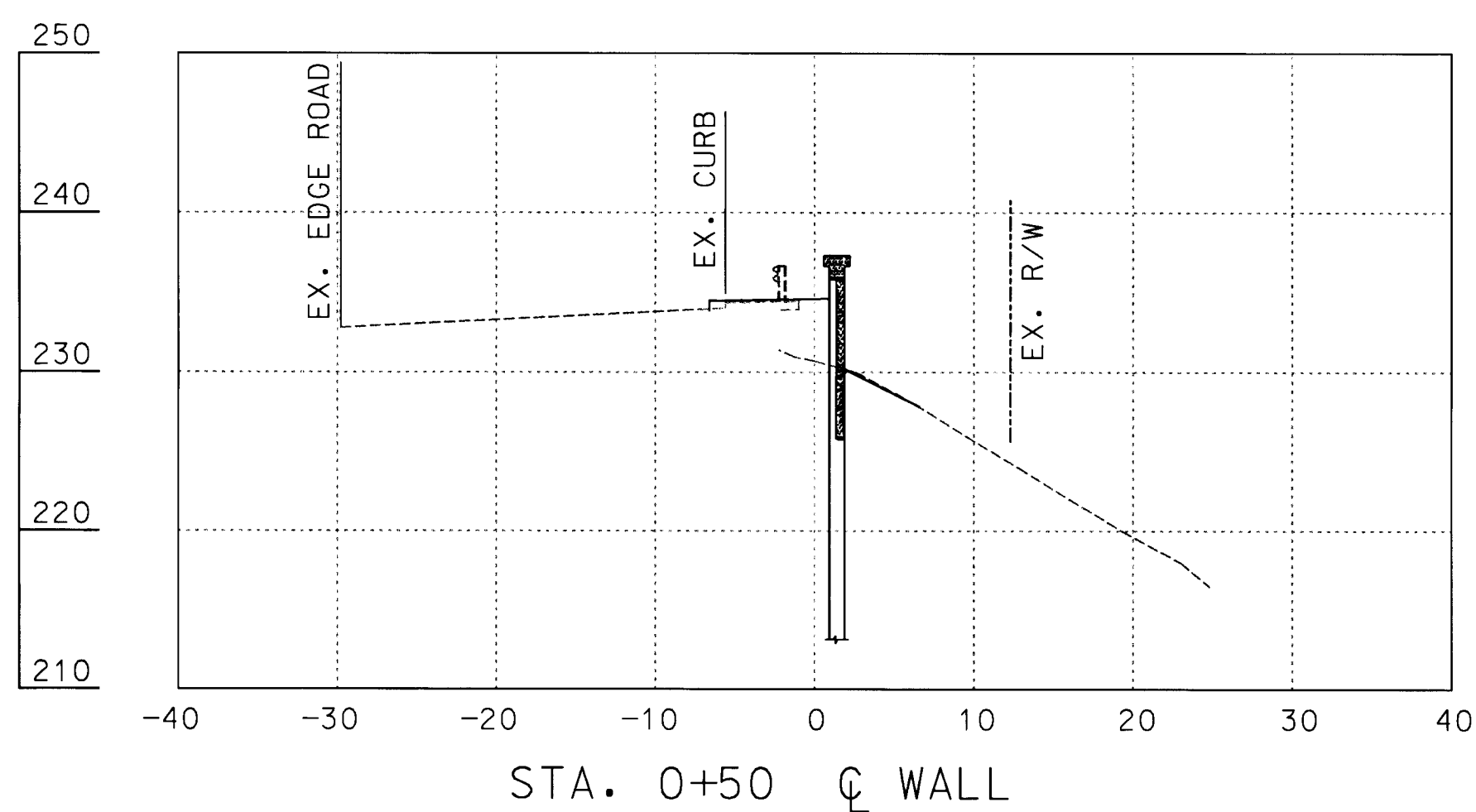


DESIGNED BY: R. J. M.					
DRAWN BY: T. S.					
CHECKED BY: A. J. B.					
DATE: 6/19/97	BY	NO.	REVISION	DATE	600' SCALE MAP NO. _____ BLOCK NO. _____

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT  
 TEMPORARY TRAFFIC CONTROL PLAN

CAPITAL PROJECT B-3843

SCALE AS SHOWN  
 SHEET  
 9 OF 10



WALL CROSS SECTIONS

SCALE: 1" = 10 FT.

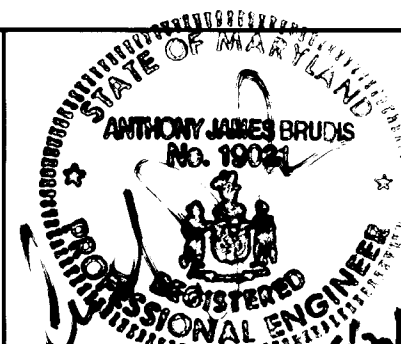
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Sam A. V. Lee* 6/23/97  
DIRECTOR OF PUBLIC WORKS  
DATE

*John B. Gorman* 6/23/97  
CHIEF, BUREAU OF ENGINEERING  
DATE

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CONSULTING ENGINEERS

9220 RUMSEY ROAD, SUITE 210  
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T. E. M.  
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CHECKED BY:  
A. J. B.  
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6/19/97

NO.	REVISION	DATE

OLD COLUMBIA PIKE RETAINING WALL REPLACEMENT

CROSS SECTIONS

CAPITAL PROJECT B-3843

SCALE AS SHOWN

SHEET

10 OF 10

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FILE NAME: CPRWKS.DGN

DATE: 6/19/97