

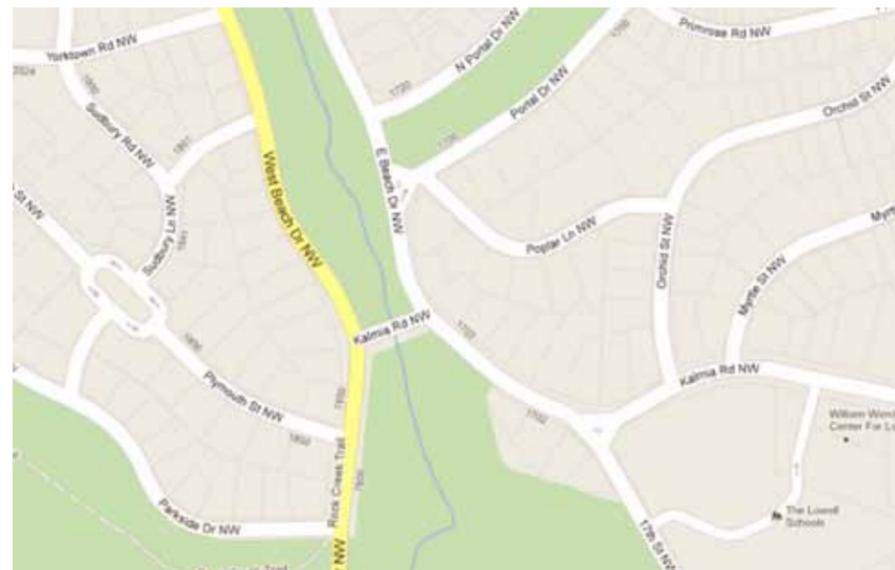
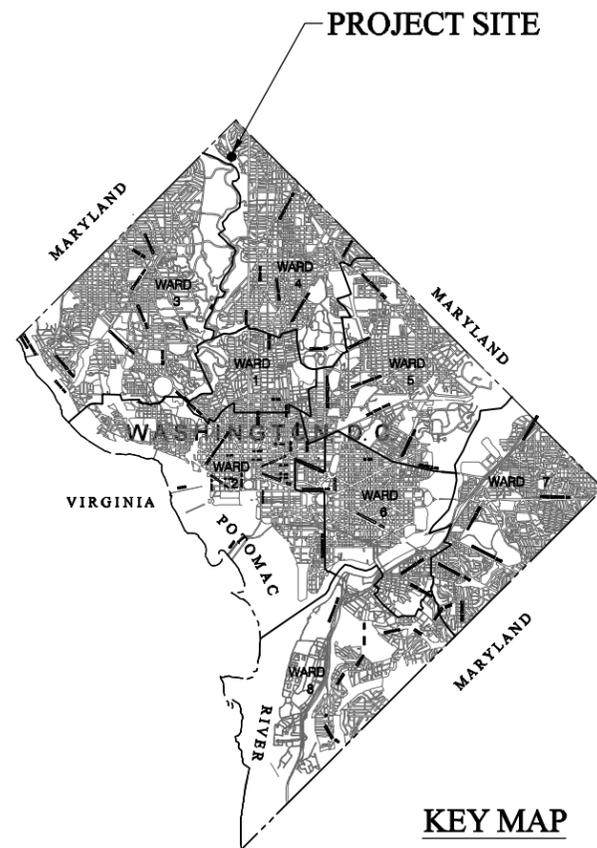
| REG | STATE | PROJECT | SHEET NO. | TOTAL SHEETS |
|-----|-------|------------------|-----------|--------------|
| XXX | D.C. | DUP - 0000 (000) | XXX | XXX |

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED CULVERT REPLACEMENT ON KALMIA ROAD OVER ROCK CREEK TRIBUTARY WEST BEACH DRIVE TO EAST BEACH DRIVE

| TRAFFIC DATA | |
|---|--------|
| CONTROL OF ACCESS | |
| ADT (2013) | 17,000 |
| ADT (2037) | 23,200 |
| DHV (2020) | 18,900 |
| DISTRIBUTION | XXX |
| TRUCKS | 3% |
| POSTED V | 25 MPH |
| DESIGN V | 30 MPH |
| FUNCTIONAL CLASSIFICATION: COLLECTOR | |

RESURFACING = 0,000 FT = 0.00 MILES
UPGRADE = 0,000 FT = 0.00 MILES
RECONSTRUCTION = 850 FT = 0.16MILES
LENGTH OF PROJECT = 850 FT = 0.16 MILES



**65% REVIEW
NOT FOR CONSTRUCTION
4-27-12**

SHEET 1 OF 28

DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DC SWM PLAN NO.
SWM SHEET 1 OF 10



RECOMMEND FOR APPROVAL:

DEPUTY CHIEF ENGINEER — AWI _____

APPROVED: _____

CHIEF TRANSPORTATION ENGINEER _____

DATE: _____

\$PLTDRYS\$
\$FILES\$
\$DATES\$

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| | |
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| 5 | EXISTING SURVEY PLAN |
| 6 | GEOMETRIC LAYOUT PLAN |
| 7 | ROADWAY PLAN AND PROFILE |
| 8 | TYPICAL SECTION AND DETAILS |
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| 10 | GENERAL PLAN AND LONGITUDINAL SECTION |
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| XX | PROPOSED WATERMAIN PLAN (DESIGN BY OTHERS) |
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| 28 | SOIL BORING LOGS |

GENERAL NOTES

SPECIFICATIONS: -DISTRICT OF COLUMBIA, DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND STRUCTURES DATED 2009.

DESIGN METHOD: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGN LOAD: HL-93 WITH PROVISIONS FOR FUTURE 2" WEARING SURFACE

MATERIALS: ALL PRECAST CONCRETE SHALL BE 5000 PSI. ALL OTHER STRUCTURE CONCRETE SHALL BE 4000 PSI.

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 FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.

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

ALL REINFORCING STEEL IN ARCH CULVERT SHALL BE EPOXY COATED.

ALL KEYS ARE NOMINAL SIZE.

ALL EXPOSED CONCRETE EDGES SHALL BE BEVELED 3/4" X 3/4", UNLESS OTHERWISE NOTED.

PRECAST STRUCTURE: PRECAST ANCHORED WINGWALL SYSTEM SHALL BE AS MANUFACTURED BY CONTECH CONSTRUCTION PRODUCTS, INC. OR APPROVED EQUAL. DESIGN OF CAST-IN-PLACE CONCRETE PEDESTALS SHALL BE COORDINATED WITH THE WINGWALL ANCHOR SYSTEM USED AND THE GEOTECHNICAL INVESTIGATION REPORT DATED APRIL 2, 2012.

EXISTING STRUCTURE: ALL DIMENSIONS AFFECTED BY THE GEOMETRICS AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY MATERIAL IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS. THE ± MARKS SHOWN WITH DIMENSIONS DO NOT INDICATE ANY DEGREE OF PRECISION. THESE (±) MARKS INDICATE EXISTING DIMENSIONS THAT MAY VARY AND DO REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.

EXISTING STRUCTURE SHOWN IN LONG DASHED LINES. PORTIONS OF EXISTING STRUCTURES SHOWN HATCHED, TO BE REMOVED.

SECTIONS AND DETAILS:



SECTION "A" OR DETAIL "A" TAKEN ON SHEET NO. 2 AND SHOWN ON SHEET NO. 5.



SECTION "A" OR DETAIL "A" TAKEN AND SHOWN ON SHEET NO. 9.

GENERAL NOTES (CONTINUED)

MAINTENANCE OF STREAM FLOW: THE CONTRACTOR SHALL MONITOR AND MAINTAIN THE STREAM FLOW AT ALL TIMES DURING CONSTRUCTION. IT IS ANTICIPATED THAT A PUMP WITH A MINIMUM CAPACITY OF APPROXIMATELY 14 CFS WILL BE NECESSARY TO DIVERT THE NORMAL BASE FLOW OF THE STREAM. HOWEVER, SHOULD RAIN BE FORECAST, AN ADDITIONAL BYPASS PUMP WITH A 200 CFS CAPACITY SHALL BE READILY AVAILABLE AND PLACED INTO SERVICE AT THE SITE. IF THE RAIN PERSISTS FOR MORE THAN ONE HOUR, AN ADDITIONAL PUMP WITH A CAPACITY OF 650 CFS DEPLOYED OR THE SITE SHALL BE CLEARED TO ALLOW FREE FLOW OF THE STREAM FLOW. ANY DAMAGE TO EXISTING CONSTRUCTION, THE CONTRACTOR'S MATERIALS OR EQUIPMENT, DUE TO WEATHER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO COSTS SHALL BE BORNE BY THE DISTRICT. THE COST TO PROVIDE, OPERATE AND MAINTAIN THE PUMP(S) WILL NOT BE MEASURED FOR PAYMENT, BUT COST THEREOF SHALL BE INCLUDED IN THE LUMP SUM COST FOR XXXXX

EXISTING UTILITIES: THE FOLLOWING UTILITIES HAVE FACILITIES WITHIN THE AREA OF THE CONTRACT LIMITS:

1. WASHINGTON GAS
2. DC WATER
3. POTOMAC ELECTRIC POWER COMPANY

THE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE BASED ON FIELD SURVEY DATA AND/OR RECORD DRAWINGS OF THE ORIGINAL LOCATIONS. THE INFORMATION SHOWN IS NOT NECESSARILY COMPLETE AND THE LOCATION OF UTILITIES SHOWN IS APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UTILITIES WELL IN ADVANCE OF CONDUCTING CONSTRUCTION OPERATIONS WHICH COULD DAMAGE THESE FACILITIES. IN THE AREAS WHERE PROPOSED CONSTRUCTION MAY CONFLICT WITH EXISTING UTILITIES, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UTILITIES. IF AN UNDERGROUND UTILITY IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE OWNER OF SAID UTILITY. ANY DAMAGE SUSTAINED TO UTILITIES ABOVE OR BELOW THE GROUND SHALL BE REPAIRED BY OR UNDER THE DIRECTION OF THE UTILITY COMPANY AT CONTRACTOR'S EXPENSE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BACKFILL AN EXCAVATION AFFECTING SAID UTILITY WITHOUT FIRST RECEIVING PERMISSION FROM THE UTILITY OWNER. THE EXISTENCE OF OTHER UTILITIES IS NOT KNOWN. FOR ADDITIONAL INFORMATION REGARDING UTILITY PROTECTION, SEE S.P. "UTILITY PROTECTIVE ALERT".

DAMAGE TO UTILITIES AND STRUCTURES: THE CONTRACTOR SHALL IDENTIFY LOCATION, PROTECT, PRESERVE, TEMPORARILY RELOCATE AND IF NECESSARY, SUPPORT ALL EXISTING UTILITIES, STRUCTURES AND ITEMS TO REMAIN. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE STRUCTURE, UTILITIES AND OTHER FACILITIES DURING CONSTRUCTION. AT THE CONTRACTOR'S EXPENSE, HE SHALL REPLACE OR REPAIR DAMAGED ITEMS AND RETURN TO THEIR ORIGINAL LOCATION THOSE TEMPORARILY RELOCATED, TO THE SATISFACTION OF THE ENGINEER.

MAINTENANCE OF TRAFFIC: DURING ALL PHASES OF CONSTRUCTION AND THE DURATION OF THE CONTRACT, THE TRAFFIC SHALL BE MAINTAINED ACCORDING TO CONTRACT DRAWINGS AND SPECIAL PROVISIONS.

MAINTENANCE OF EXISTING UTILITIES: UNLESS NOTED OTHERWISE, THE EXISTING UTILITIES SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. THE EXISTING UTILITIES MAY BE TEMPORARILY RELOCATED DUE TO CULVERT DEMOLITION AND CONSTRUCTION. IF RELOCATION IS NECESSARY THE CONTRACTOR SHALL SUBMIT THE RELOCATION PLAN, TEMPORARY SUPPORT AND DETAILS TO ENGINEER FOR APPROVAL BEFORE THE WORK PROCEEDS.

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DC SWM PLAN NO.
SWM SHEET 2 OF 10



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DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C

INDEX AND GENERAL NOTES

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____

SUMMARY OF QUANTITIES

| ITEM NO. | DESCRIPTION | QUANTITY | UNIT |
|----------|---|----------|------|
| 201002 | Clear and Grub | 1 | LS |
| 202002 | Common Excavation | 478 | CY |
| 204004 | Borrow Embankment Fill | 59 | CY |
| 205002 | Structure Excavation | 3300 | CY |
| 205008 | Demolition | 1 | LS |
| 206002 | Structure Backfill | | CY |
| 206004 | Borrow Structure Backfill | | CY |
| 209002 | Aggregate Base Course | 127 | CY |
| 309002 | Sewer Manhole on Sewer 48 Inch and Less Dia. | 15 | VLF |
| 310004 | Standard Double Basin | 2 | EACH |
| 310012 | Basin Connect PCC Pipe, Class IV, 15 Inch | 68 | LF |
| 402002 | Superpave Base Course, 19 mm | 224 | TON |
| 402012 | Superpave Surface Course, 12.5 mm | 90 | TON |
| 605002 | W Beam Guiderail | 283 | LF |
| 605016 | Guiderail Approach Terminal | 2 | EACH |
| 605018 | Guiderail Exit Terminal | 4 | EACH |
| 605038 | Remove W Beam/Thrie Beam Guiderail | 255 | LF |
| 608004 | PCC Sidewalk, 4 Inch | 145 | SY |
| 609006 | PCC Curb and Gutter, 13 to 15 Inch Depth | 474 | LF |
| 609202 | PCC Wheelchair/Bicycle Ramp - Existing Construction | 3 | EACH |
| 610002 | Seed | 572 | SY |
| 610016 | Sod | 572 | SY |
| 612002 | Mobilization | 1 | LS |
| 616001 | Maintenance of Highway Traffic | 1 | LS |
| 616008 | Temporary Construction Sign Supports | 48 | EACH |
| 616012 | Construction Warning and Detour Signs | 234 | SF |
| 616024 | Type III PVC Barricade | 2 | EACH |
| 616040 | Thermoplastic Pavement Marking, 4 Inch | 115 | LF |
| 616044 | Thermoplastic Pavement Marking, 6 Inch | 270 | LF |
| 616050 | Thermoplastic Pavement Marking, 12 Inch | 36 | LF |
| 616054 | Thermoplastic Pavement Arrow | 2 | EACH |
| 616110 | Portable Changeable Message Sign | 2 | EACH |
| 617164 | Traffic Sign Panels | 72 | SF |
| 620002 | Timber Ground Mounted Sign Posts, 4x4 Inch | 104 | LF |
| 620004 | Timber Ground Mounted Sign Posts, 4x6 Inch | 34 | LF |
| 624002 | Engineer's Field Facilities | 1 | LS |
| 628002 | Erosion and Sediment Control | 1 | LS |
| 700007 | Structures Construction Special Item - LS - Item XXXXXX-Precast 20' X 9' Concrete Arch and Wingwalls | 1 | LS |
| 703991 | Concrete for Structures Special Item - CY - | | CY |
| 709006 | Pipe Handrail | | LF |
| 604006 | Stone Foundation Protection Imbricated Riprap | | TON |

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 KALMIA ROAD CULVERT 103-C

QUANTITIES

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

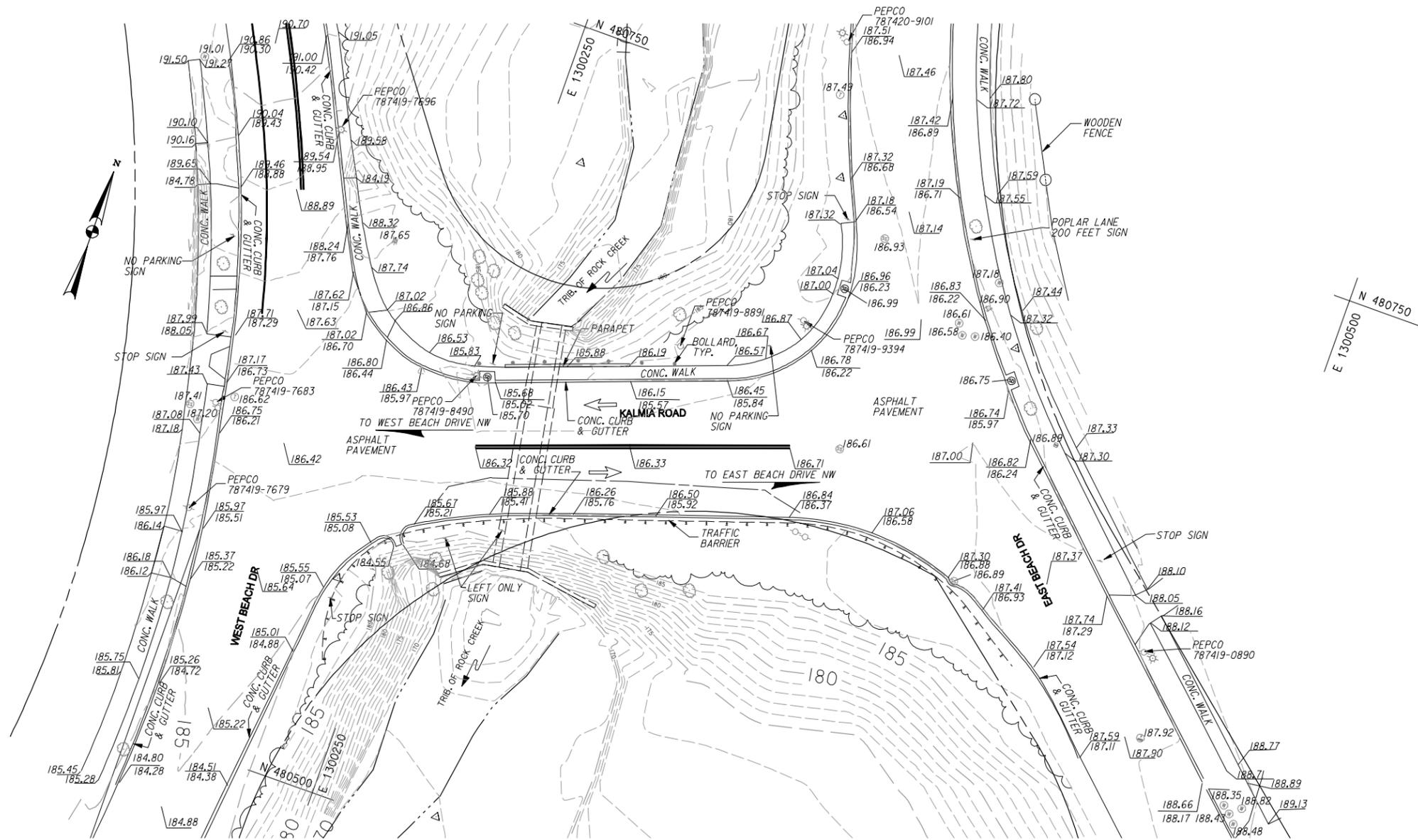
MERCADO
 CONSULTANTS, INC.
 ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

DESIGNED BY _____

DRAWN BY _____

CHECKED BY _____

SHEET NO. 4 OF 28



EXISTING SURVEY PLAN
SCALE: 1" = 20'

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DC.gov DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
EXISTING SURVEY PLAN



SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____

SHEET NO. 5 OF 28

| CURVE | DESCRIPTION | STATION | NORTH | EAST |
|---------------|-------------|----------|-----------|------------|
| KALMIA | P.O.B. | 10+00.00 | 480598.52 | 1300200.92 |
| KALMIA | P.O.E. | 12+15.28 | 480672.84 | 1300402.96 |
| WEST BEACH DR | P.O.B. | 20+00.00 | 480431.58 | 1300202.54 |
| WEST BEACH DR | P.C. | 20+35.40 | 480466.78 | 1300206.29 |
| | P.I. | 21+64.89 | 480595.54 | 1300220.03 |
| | C.C. | | 480514.51 | 1299758.83 |
| | P.T. | 22+87.58 | 480711.91 | 1300163.22 |
| WEST BEACH DR | P.O.E. | 23+00.59 | 480723.61 | 1300157.51 |
| EAST BEACH DR | P.O.B. | 30+00.00 | 480595.55 | 1300485.25 |
| EAST BEACH DR | P.C. | 30+97.64 | 480662.10 | 1300413.81 |
| | P.I. | 31+66.59 | 480709.10 | 1300363.35 |
| | C.C. | | 480845.02 | 1300584.21 |
| | P.T. | 32+32.20 | 480775.32 | 1300344.13 |
| EAST BEACH DR | P.O.E. | 32+61.56 | 480803.52 | 1300335.94 |

| CURVE DATA | | | | | | |
|------------|-------------------|-------------|---------|---------|---------|----------|
| CURVE | DELTA | Dc | RADIUS | TANGENT | LENGTH | EXTERNAL |
| 1 | 32° 06' 29" Left | 12° 43' 57" | 450.00' | 129.49' | 252.18' | 18.26' |
| 2 | 30° 50' 20" Right | 22° 55' 06" | 250.00' | 68.95' | 134.56 | 9.33' |

| TRAVERSE CONTROL POINTS | | | |
|-------------------------|-------------|--------------|--------|
| DESCRIPTION | NORTH | EAST | ELEV. |
| PT 98 | 481371.7633 | 1300140.8106 | 192.25 |
| PT 99 | 481007.8491 | 1300313.0067 | 189.51 |
| PT 100 | 480701.5998 | 1300408.1242 | 187.23 |
| PT 101 | 480564.8062 | 1300235.0989 | 185.66 |
| PT 102 | 480751.1364 | 1300334.0458 | 187.08 |
| PT 150 | 480732.9448 | 1300339.7067 | 187.15 |
| PT 151 | 480710.3152 | 1300262.7657 | 178.23 |
| PT 152 | 480505.8594 | 1300288.3854 | 168.42 |

LIMIT OF WORK
KALMIA ROAD
STA. 10+27.4

LIMIT OF WORK
KALMIA ROAD
STA. 11+89.4

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GEOMETRIC LAYOUT PLAN
SCALE: 1" = 20'



DC.gov DISTRICT OF COLUMBIA
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KALMIA ROAD CULVERT 103-C
GEOMETRIC LAYOUT PLAN

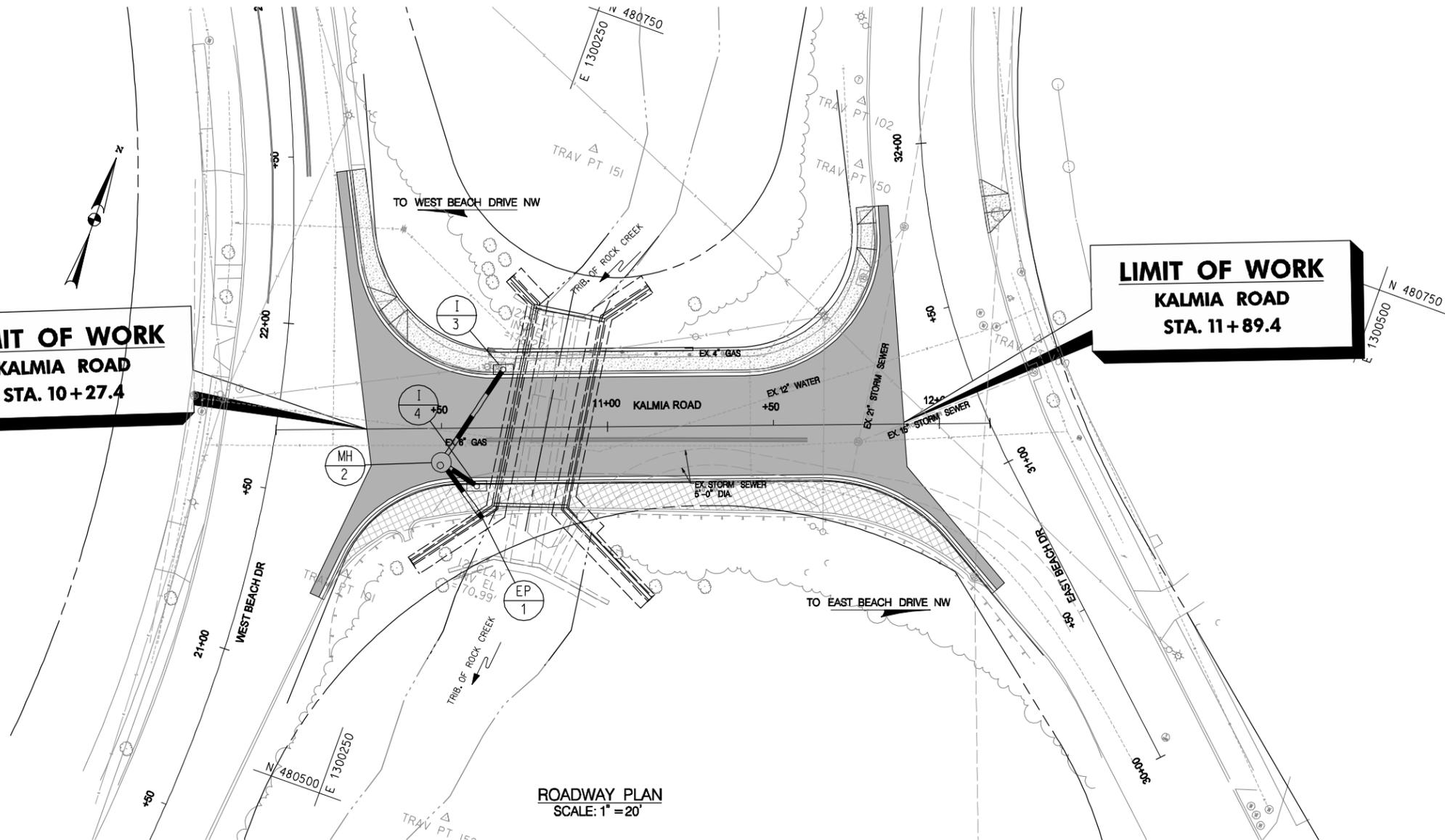
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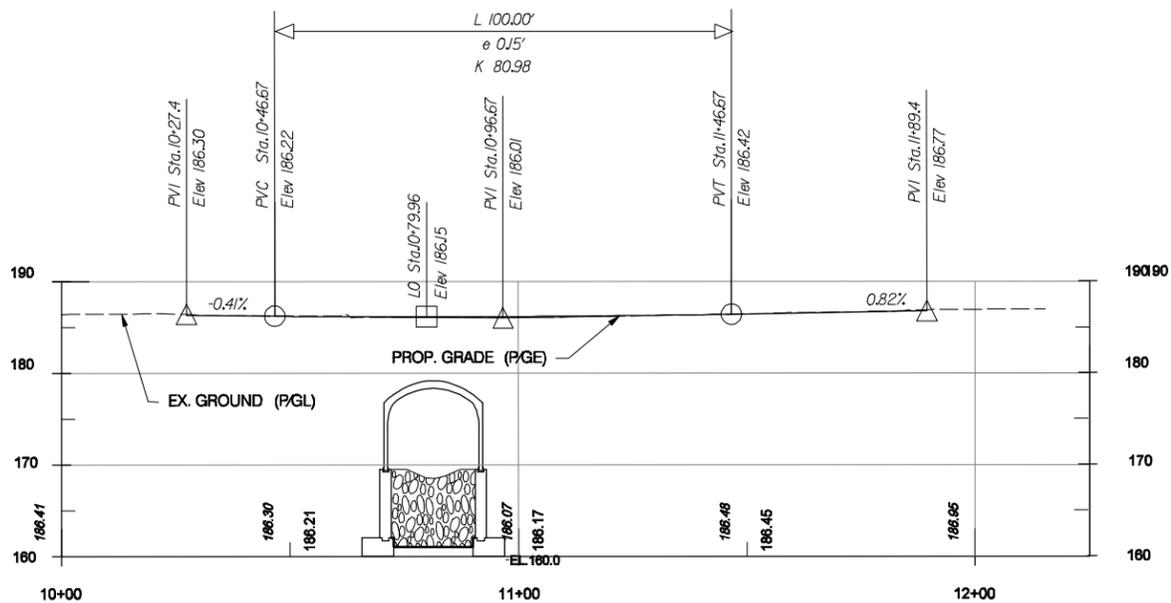
SHEET NO. 6 OF 28

**LIMIT OF WORK
KALMIA ROAD
STA. 10+27.4**

**LIMIT OF WORK
KALMIA ROAD
STA. 11+89.4**



**ROADWAY PLAN
SCALE: 1" = 20'**



**ROADWAY PROFILE
SCALE: 1" = 20' H
1" = 10' V**

LEGEND

-  FULL DEPTH PAVEMENT
-  CONCRETE SIDEWALK
-  PAVEMENT REMOVAL

W BEAM GUARDRAIL
43 L.F. - STA. 21+35, RT. TO 10+44, LT.
50 L.F. - STA. 11+46, LT. TO 31+70, LT.
190 L.F. - STA. 21+35, RT. TO 30+40, LT.

GUARDRAIL APPROACH TERMINAL
(SEE DWG. NO. 605.14 - W BEAM APPROACH TRANSITION)
1 EA - STA. 10+44 TO 10+64, LT.
1 EA - STA. 11+26 TO 11+46, LT

GUARDRAIL EXIT TERMINALS
(SEE DWG. NO. 605.27 - TANGENT APPROACH END TERMINAL)
1 EA - STA. 20+90 TO 21+40, RT.
1 EA - STA. 22+25 TO 22+75, RT
1 EA - STA. 30+40 TO 30+90, LT.
1 EA - STA. 31+70 TO 32+20, LT.

REMOVE GUARDRAIL
255 L.F. - STA. 21+05, RT. TO STA. 30+42, LT.

PCC CURB & GUTTER
(SEE DWG. NO. 609.01)
233 L.F. - STA. 21+22, RT. TO 30+58, LT.
231 L.F. - STA. 22+45, RT. TO 31+84, LT.
10 L.F. - STA. 31+73 TO 31+83, RT.

PCC SIDEWALK AND DRIVEWAYS
134 S.Y. - STA. 22+45, RT. TO 31+84, LT.

PCC WHEELCHAIR/BICYCLE RAMP
(SEE DWG. NO. 609.06)
1 EA - STA. 10+28 TO 10+40, LT.
1 EA - STA. 31+78 TO 31+87, LT.
1 EA - STA. 31+70 TO 31+79, RT.

FULL DEPTH HMA PAVEMENT
760 S.Y. - STA. 10+15 TO 12+00
(SEE PAVEMENT SECTION 'PCC CURB AND GUTTER WITH FLEXIBLE PAVEMENT' ON DWG. NO. 609.01)

REMOVAL OF EXISTING MASONRY
STA. 10+62, LT. INLET*

*REMOVAL IS INCIDENTAL TO COMMON EXCAVATION.

| STORM STRUCTURES | | | | | |
|------------------|--------------|----------|-----------|--------|--------|
| STRUCTURE | TYPE | STATION | OFFSET | TOP | SUMP |
| EP-1 | END PIPE | 10+61.93 | 26.73' RT | - | 171.00 |
| MH-2 | MANHOLE | 10+49.80 | 10.24' RT | 186.02 | 171.21 |
| I-3 | DOUBLE BASIN | 10+68.66 | 17.50' LT | 186.41 | 180.08 |
| I-4 | DOUBLE BASIN | 10+60.42 | 17.50' RT | 186.41 | 180.08 |

| STORM PIPES | | | | | |
|-------------|---------|--------|--------|---------|-------|
| PIPE | TYPE | LENGTH | INV IN | INV OUT | SLOPE |
| EP 1 - MH 2 | 15" PCC | 20.73' | 171.21 | 171.00 | 1.00% |
| MH 2 - I 3 | 15" PCC | 33.54' | 181.58 | 181.24 | 1.00% |
| MH 2 - I 4 | 15" PCC | 12.87' | 181.58 | 181.45 | 1.00% |

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DC SWM PLAN NO.
SWM SHEET 4 OF 10

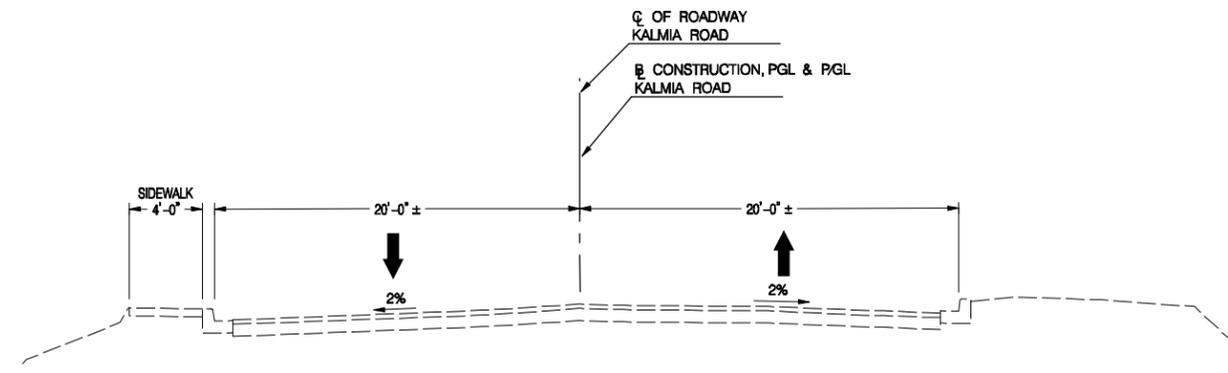


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KALMIA ROAD CULVERT 103-C

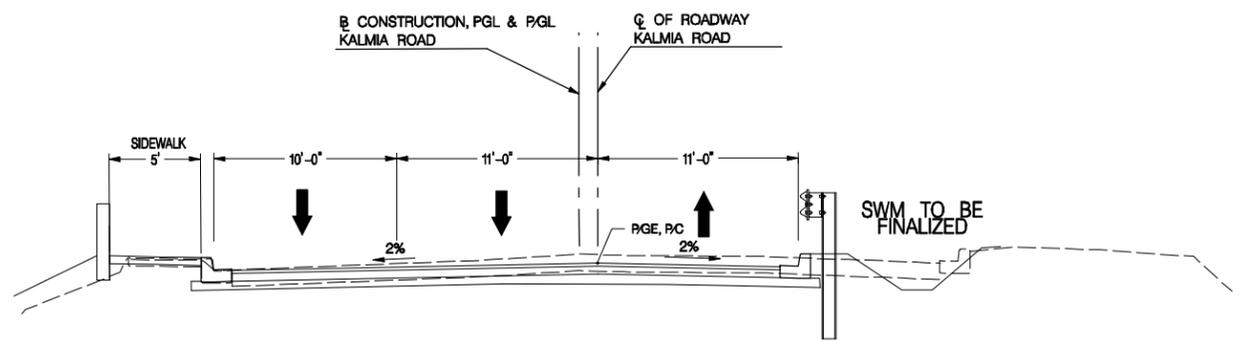
ROADWAY PLAN AND PROFILE

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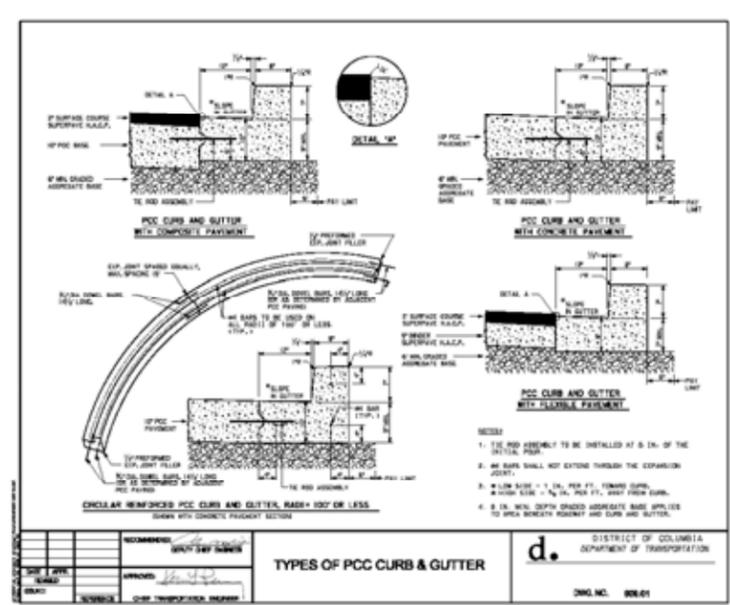
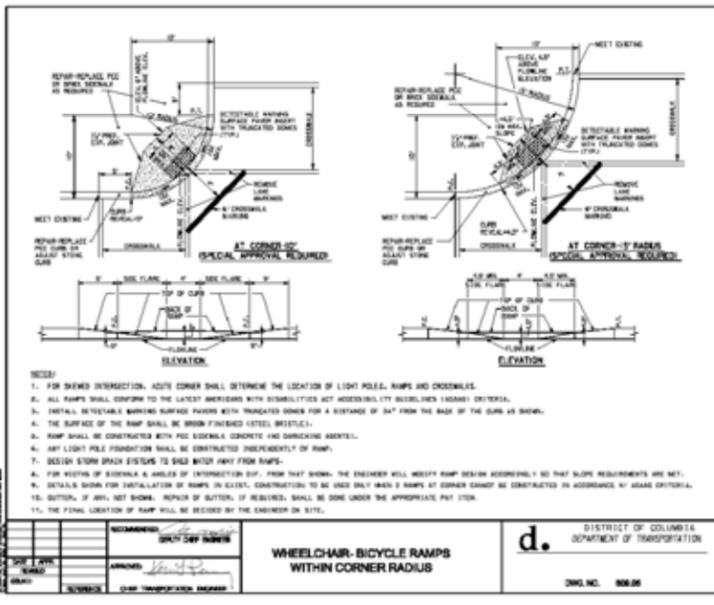
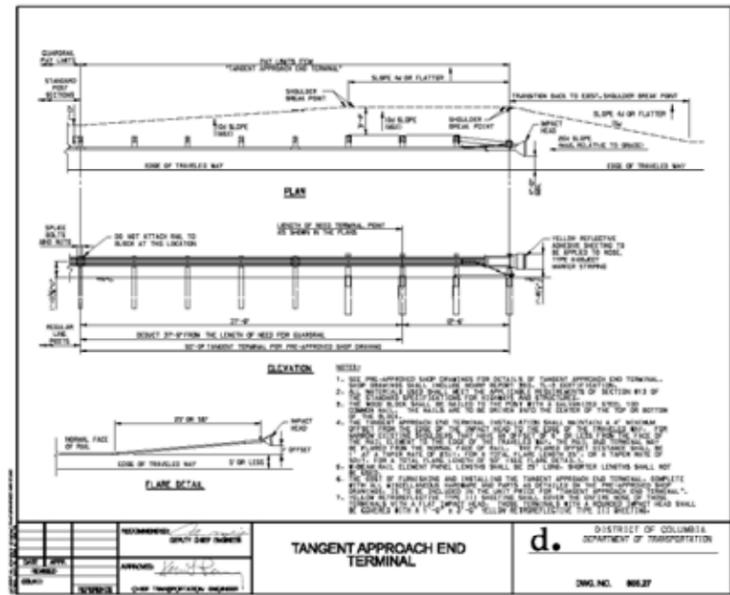
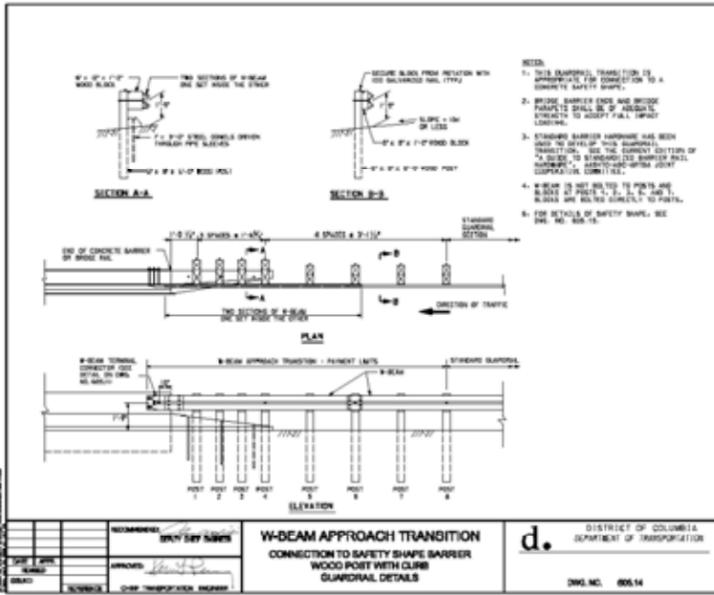


KALMIA ROAD EXISTING TYPICAL SECTION
STA. 10+27.4 TO 11+89.4



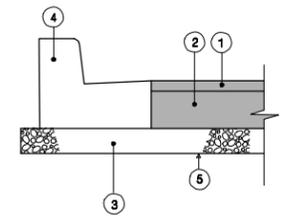
KALMIA ROAD PROPOSED TYPICAL SECTION
STA. 10+27.4 TO 11+89.4

- NOTES:**
1. PLACE 4" TOPSOIL, SEED AND MULCH ON ALL ROADSIDES AND SLOPE AREAS FLATTER THAN 2:1. PLACE 2" TOPSOIL, SEED AND STABILIZE WITH TYPE A SOIL STABILIZATION MATTING ON SLOPES 2:1 OR STEEPER.
 2. FULL DEPTH SAWCUT WILL NOT BE MEASURED BUT SHALL BE INCIDENTAL TO SURFACE COURSE HACP ITEM
 3. IN AREAS WHERE EXISTING PAVEMENT IS BEING REMOVED, THE LIMIT OF EXCAVATION SHALL BE AT THE BOTTOM OF THE UNBOUND BASE MATERIALS, EXCEPT AS NOTED IN AREAS FOR SWM. ALL AREAS TO BE BACKFILLED WITH BORROW TOPPED WITH 4" TOPSOIL, SEED AND MULCH.



PAVEMENT LEGEND

- ① 2" SURFACE COURSE SUPERPAVE HACP
- ② 5" BINDER SUPERPAVE HACP
- ③ 6" GRADED AGGREGATE BASE
- ④ PCC CURB AND GUTTER (12 INCH GUTTER PAN 7 INCH DEPTH)
- ⑤ TOP OF SUBGRADE AND LIMIT OF EXCAVATION



FLEXIBLE PAVEMENT SECTION
NOT TO SCALE

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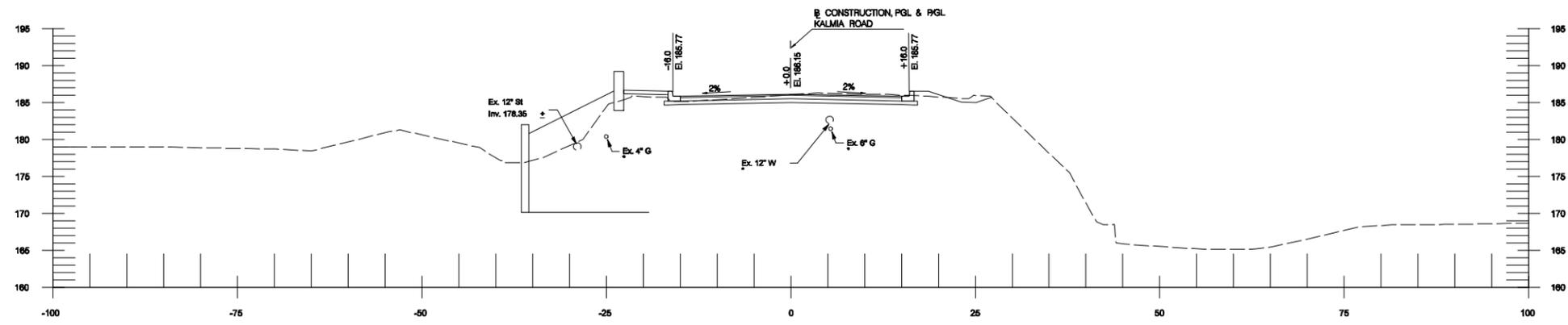
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SWM SHEET 5 OF 10



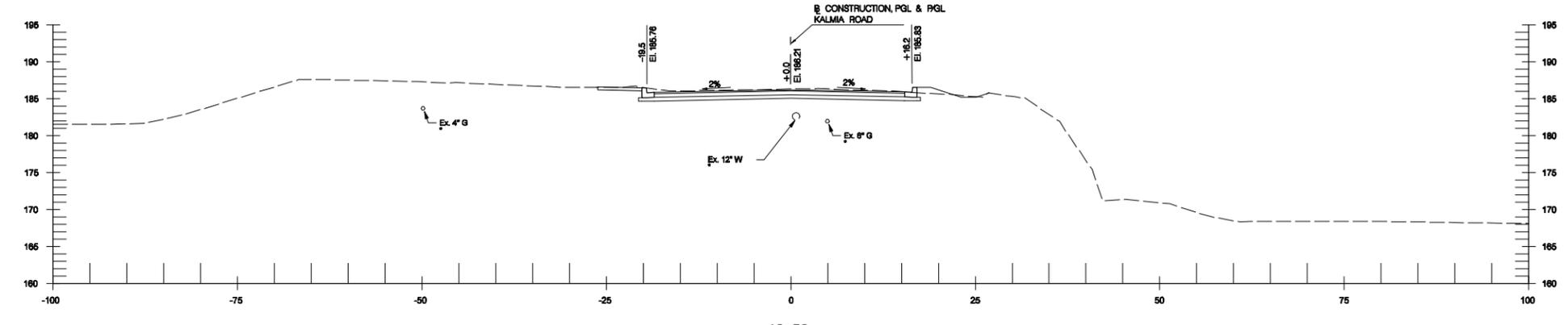
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DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C

TYPICAL SECTION AND DETAILS

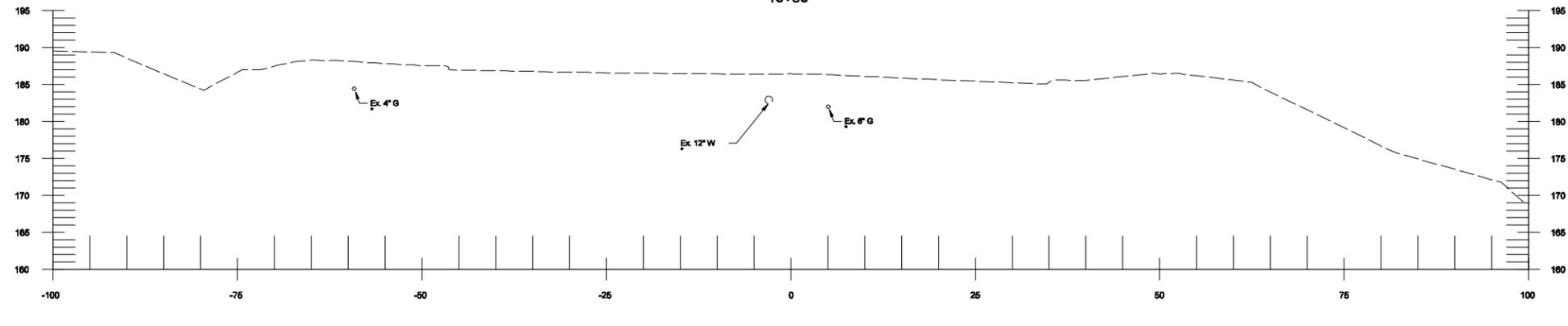
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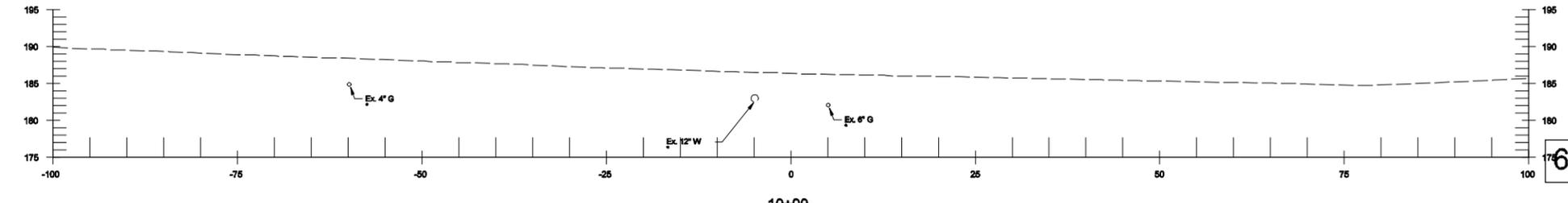
10+75



10+50



10+27



10+00

*DEPTHS OF EXISTING UTILITIES ARE ASSUMED.

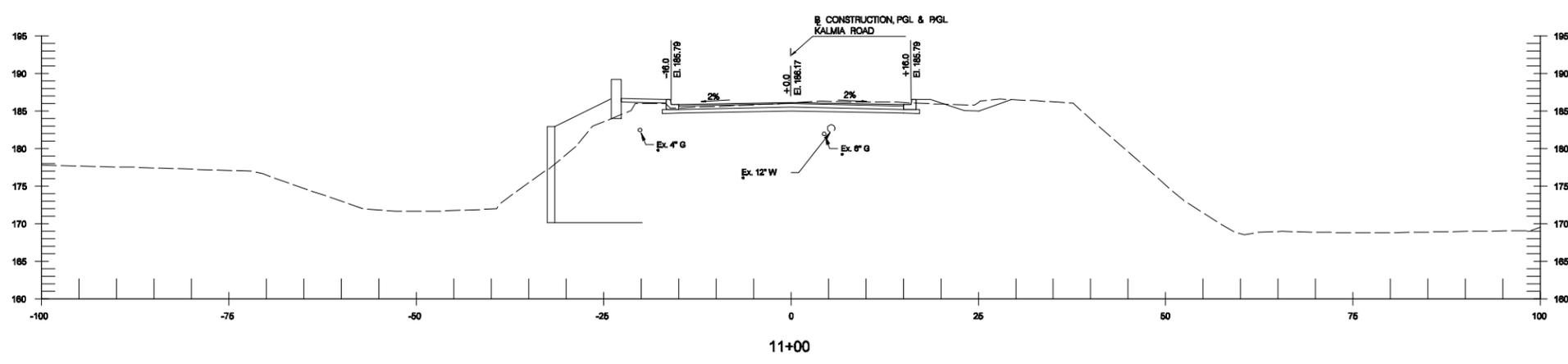
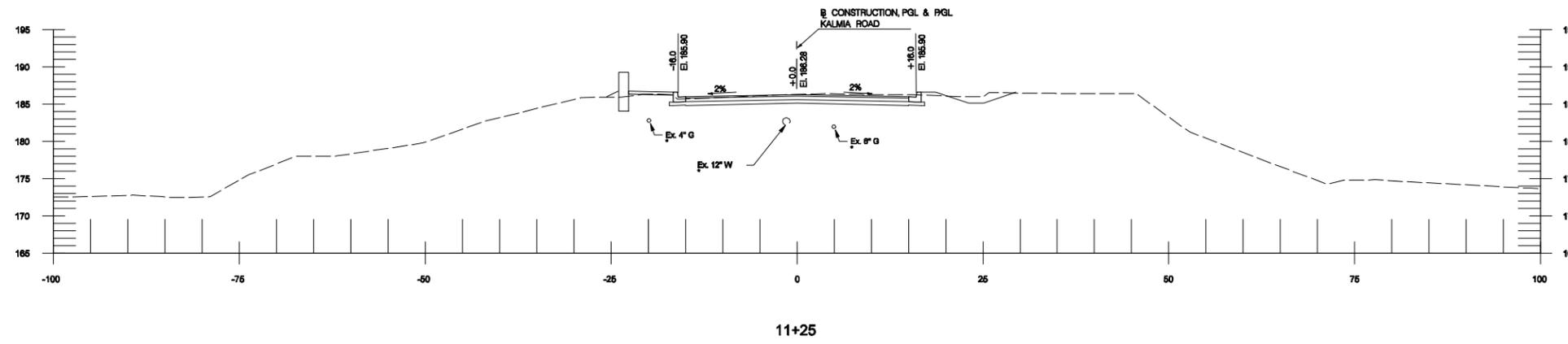
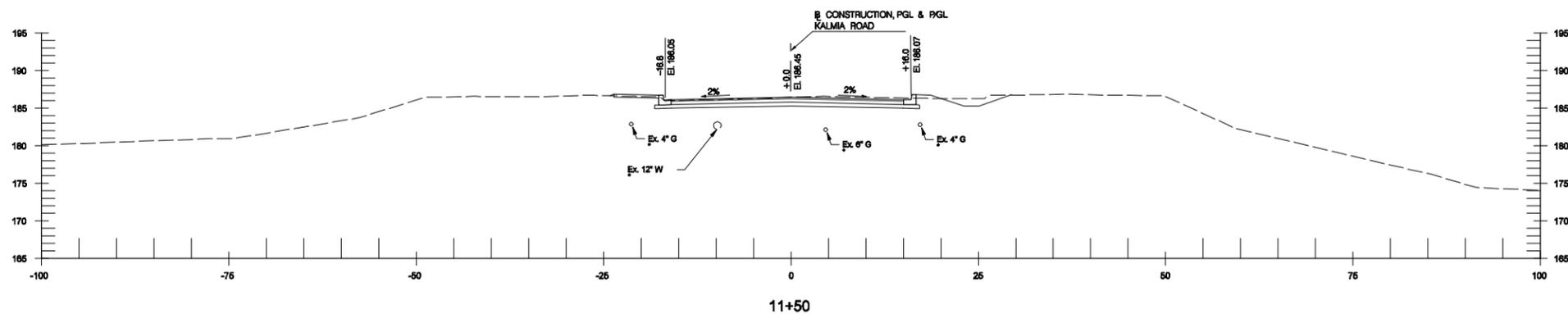
65% REVIEW – NOT FOR CONSTRUCTION

DC **gov** DISTRICT OF COLUMBIA
 DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
CROSS SECTIONS

MERCADO
 CONSULTANTS, INC.
 ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
 DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____

SHEET NO. 9-A OF 28



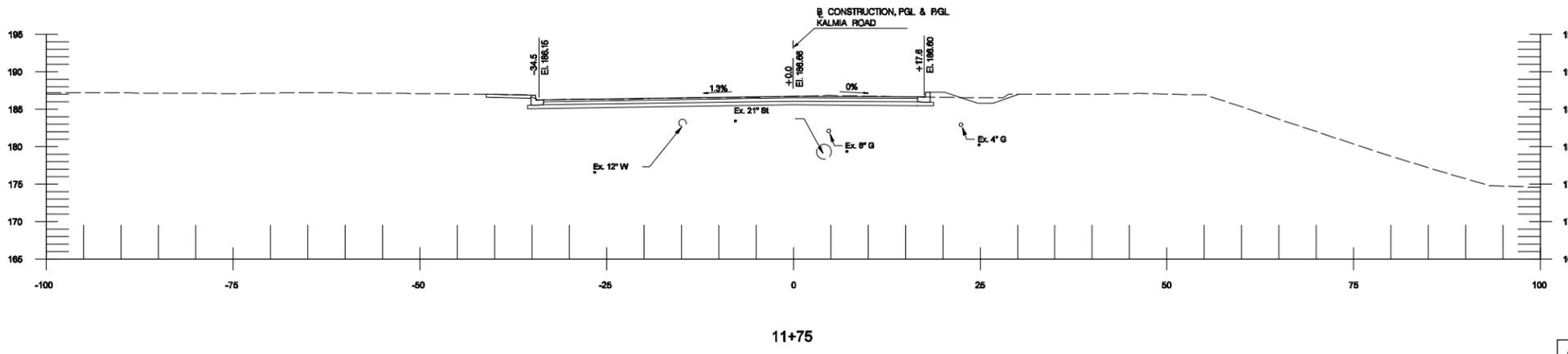
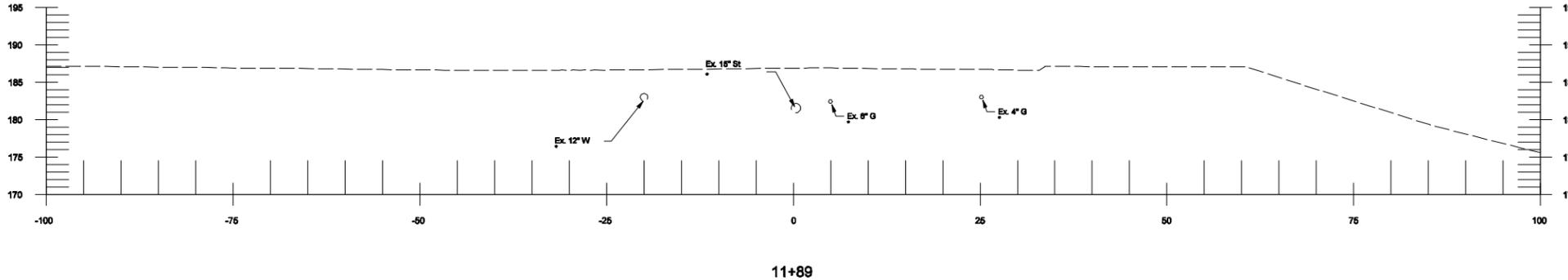
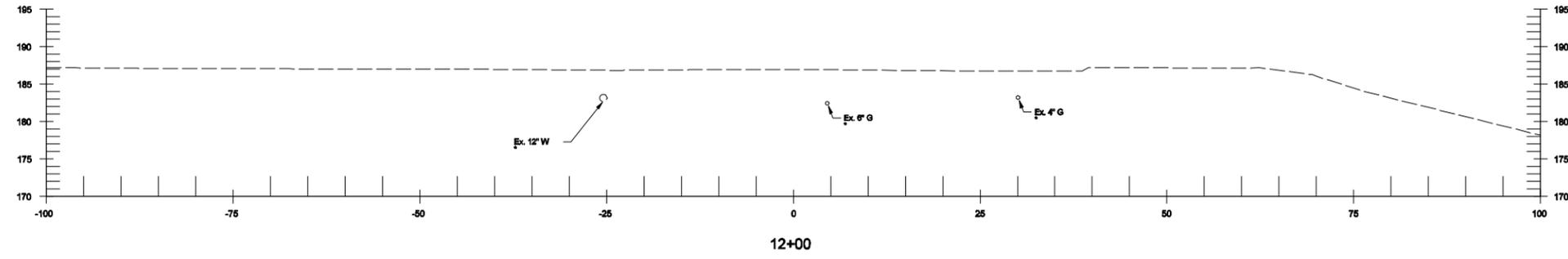
65% REVIEW – NOT FOR CONSTRUCTION

DC **gov** DISTRICT OF COLUMBIA
 DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
CROSS SECTIONS



SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
 DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____

SHEET NO. 9-B OF 28

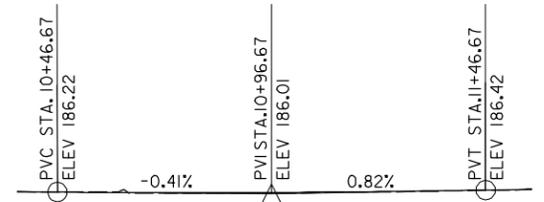
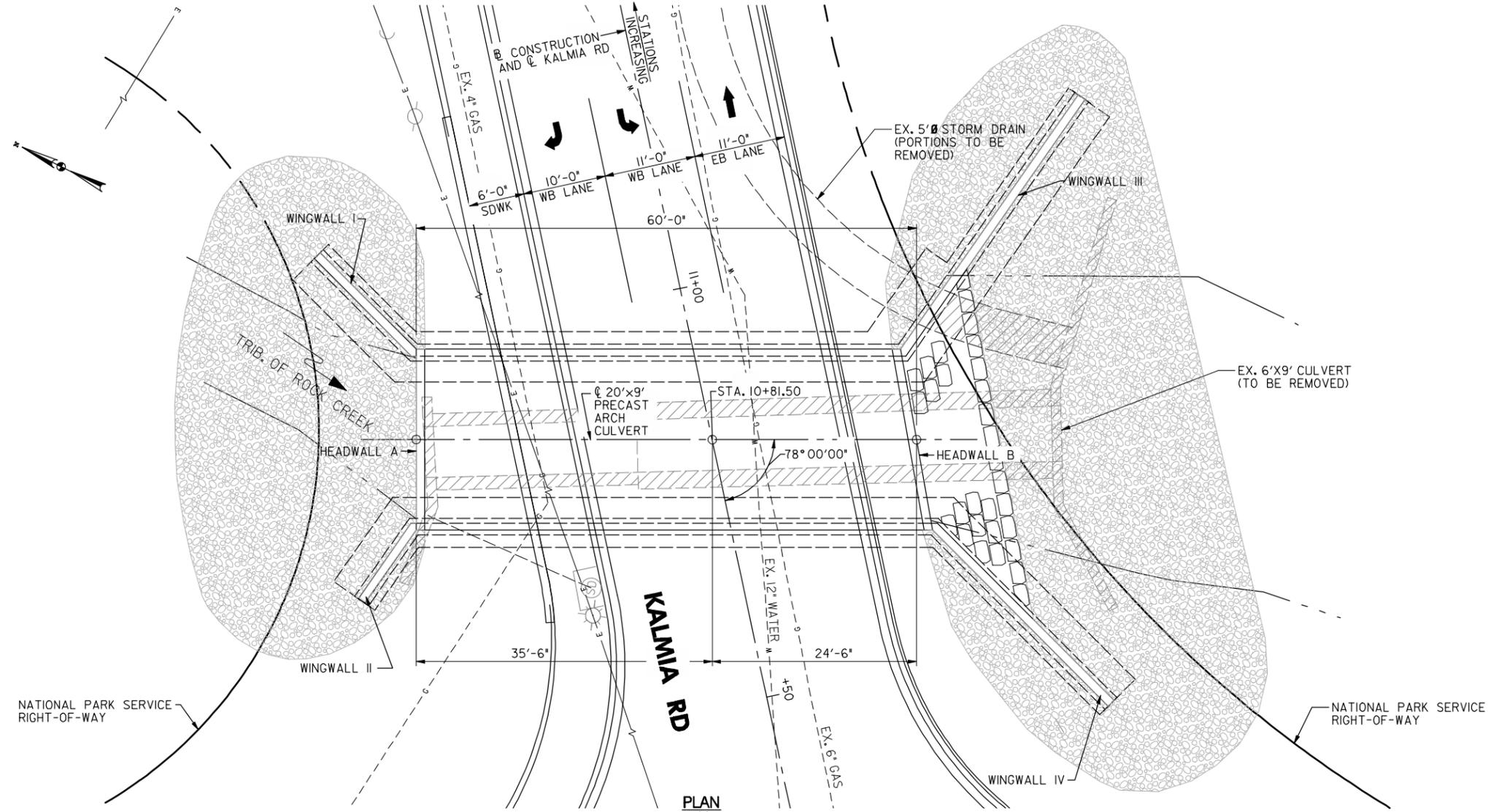


65% REVIEW – NOT FOR CONSTRUCTION

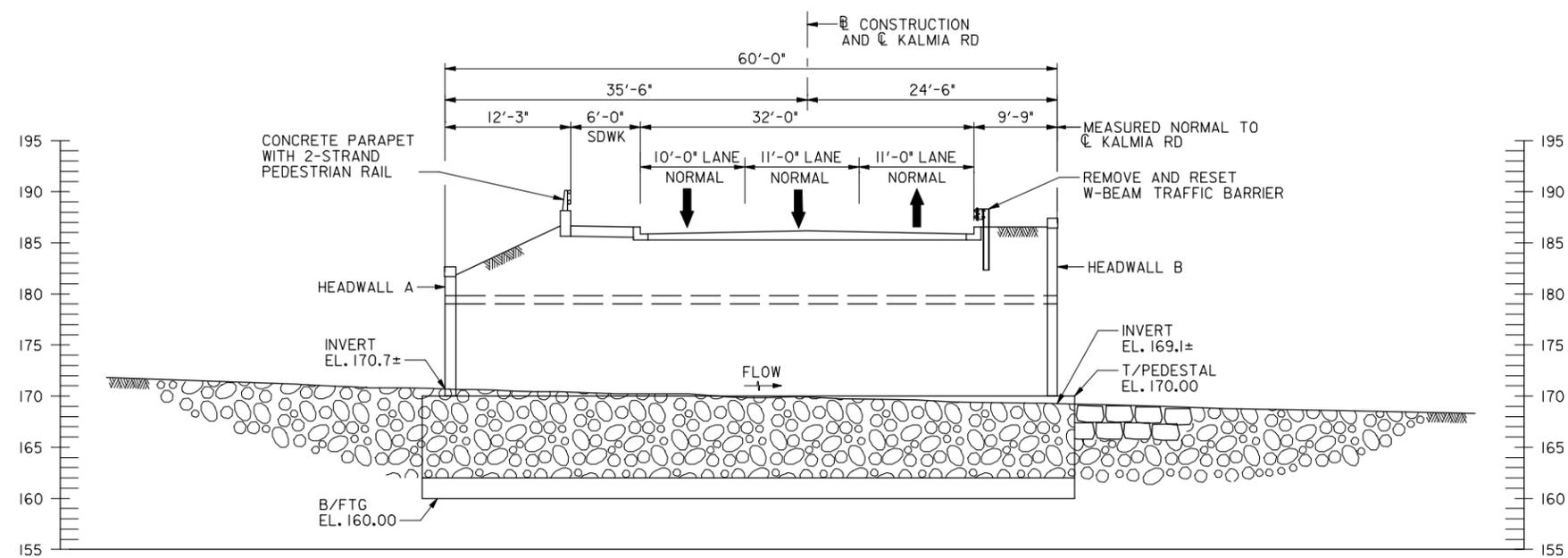
DC **gov** DISTRICT OF COLUMBIA
 DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
CROSS SECTIONS

MERCADO
 CONSULTANTS, INC.
 ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
 DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____



VERTICAL GEOMETRY
NOT TO SCALE

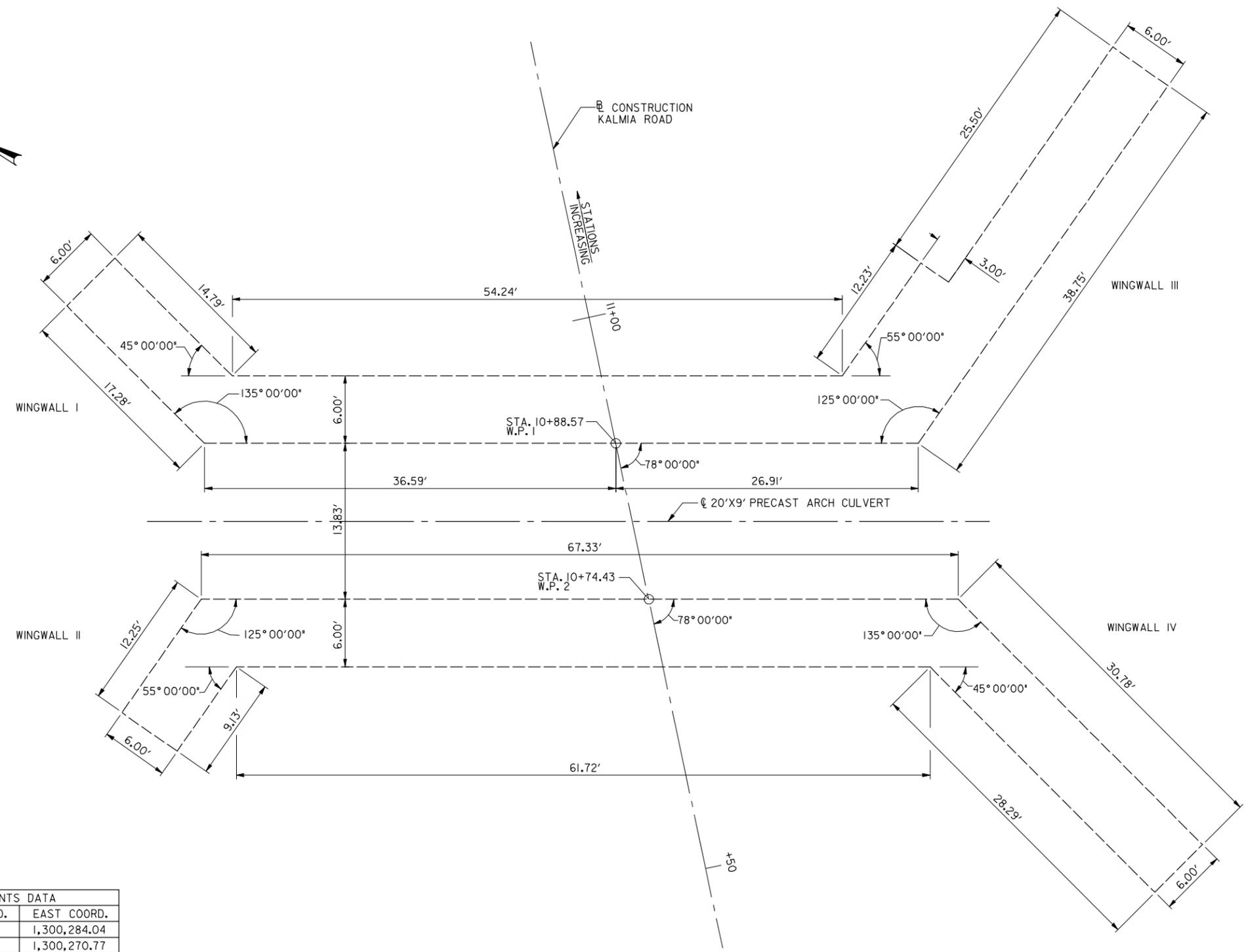


65% REVIEW - NOT FOR CONSTRUCTION

DC.gov DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
GENERAL PLAN AND LONGITUDINAL SECTION



SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____



| WORKING POINTS DATA | | |
|---------------------|--------------|--------------|
| W.P. # | NORTH COORD. | EAST COORD. |
| W.P. 1 | 480,629.10 | 1,300,284.04 |
| W.P. 2 | 480,624.22 | 1,300,270.77 |

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

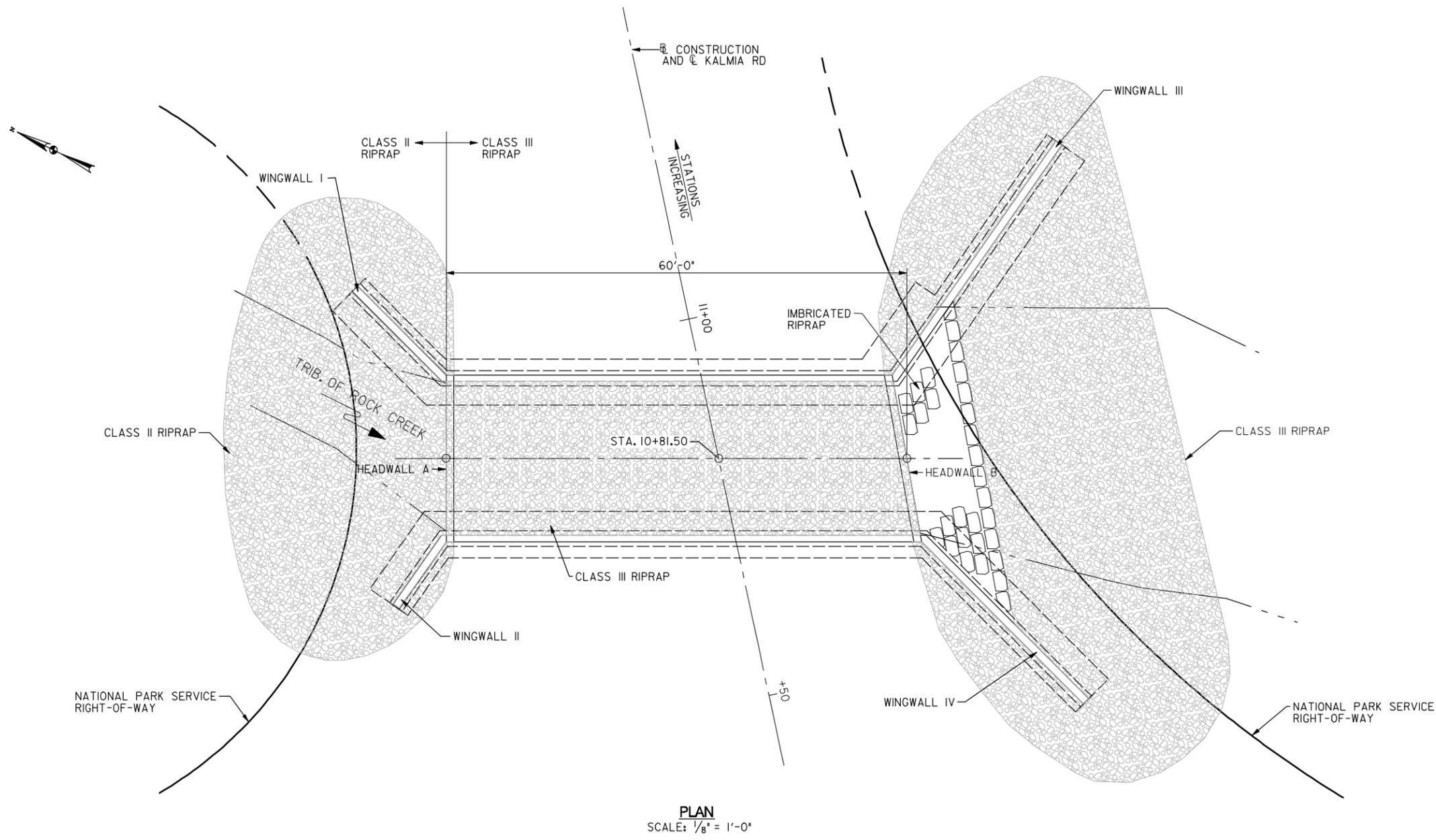
65% REVIEW – NOT FOR CONSTRUCTION




DISTRICT OF COLUMBIA
 DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
GEOMETRIC AND FOOTING LAYOUT

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
 DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____

SHEET NO. 11 OF 28

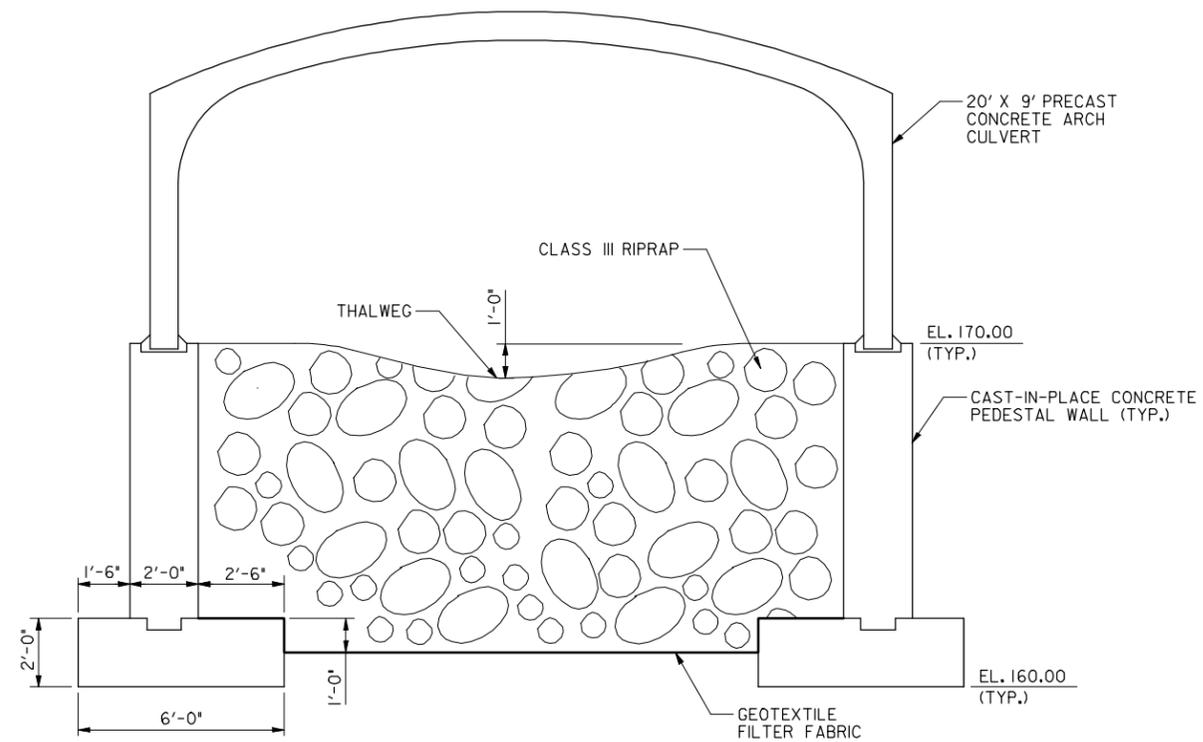


65% REVIEW – NOT FOR CONSTRUCTION


 DISTRICT OF COLUMBIA
 DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
**RIPRAP AND SCOUR
 PROTECTION LAYOUT**

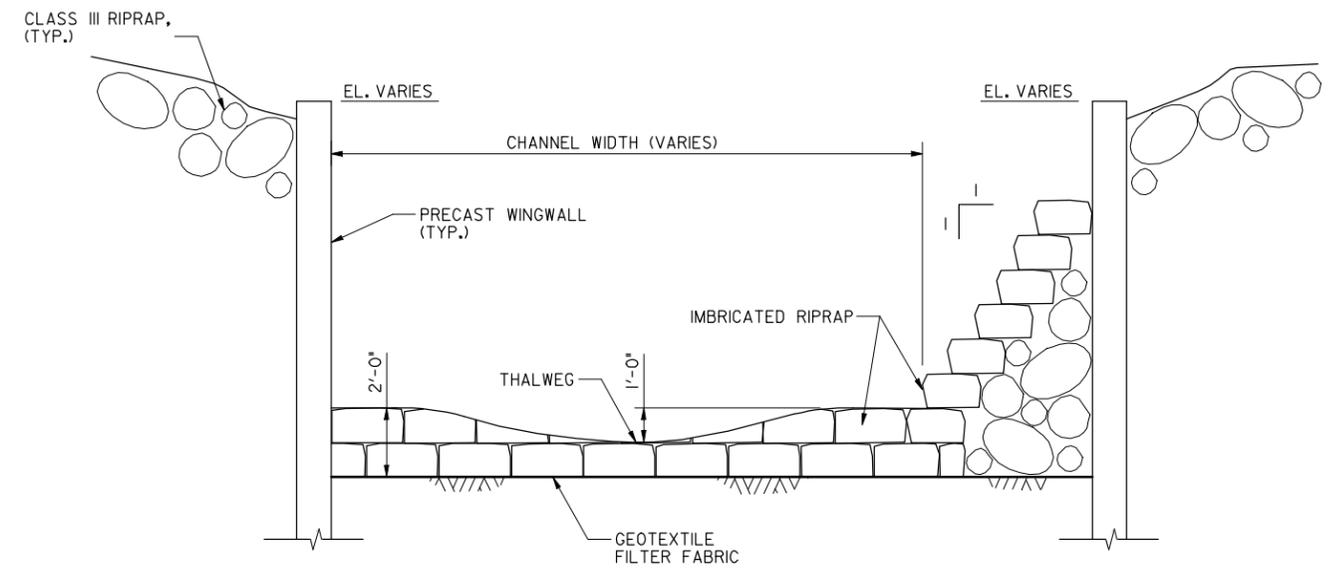

 ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
 DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____



TYPICAL PEDESTAL AND FOOTING DIMENSIONS

TYPICAL CULVERT SECTION
SCALE: 3/8" = 1'-0"



DOWNSTREAM CHANNEL SECTION
(LOOKING UPSTREAM)
SCALE: 3/8" = 1'-0"

65% REVIEW – NOT FOR CONSTRUCTION

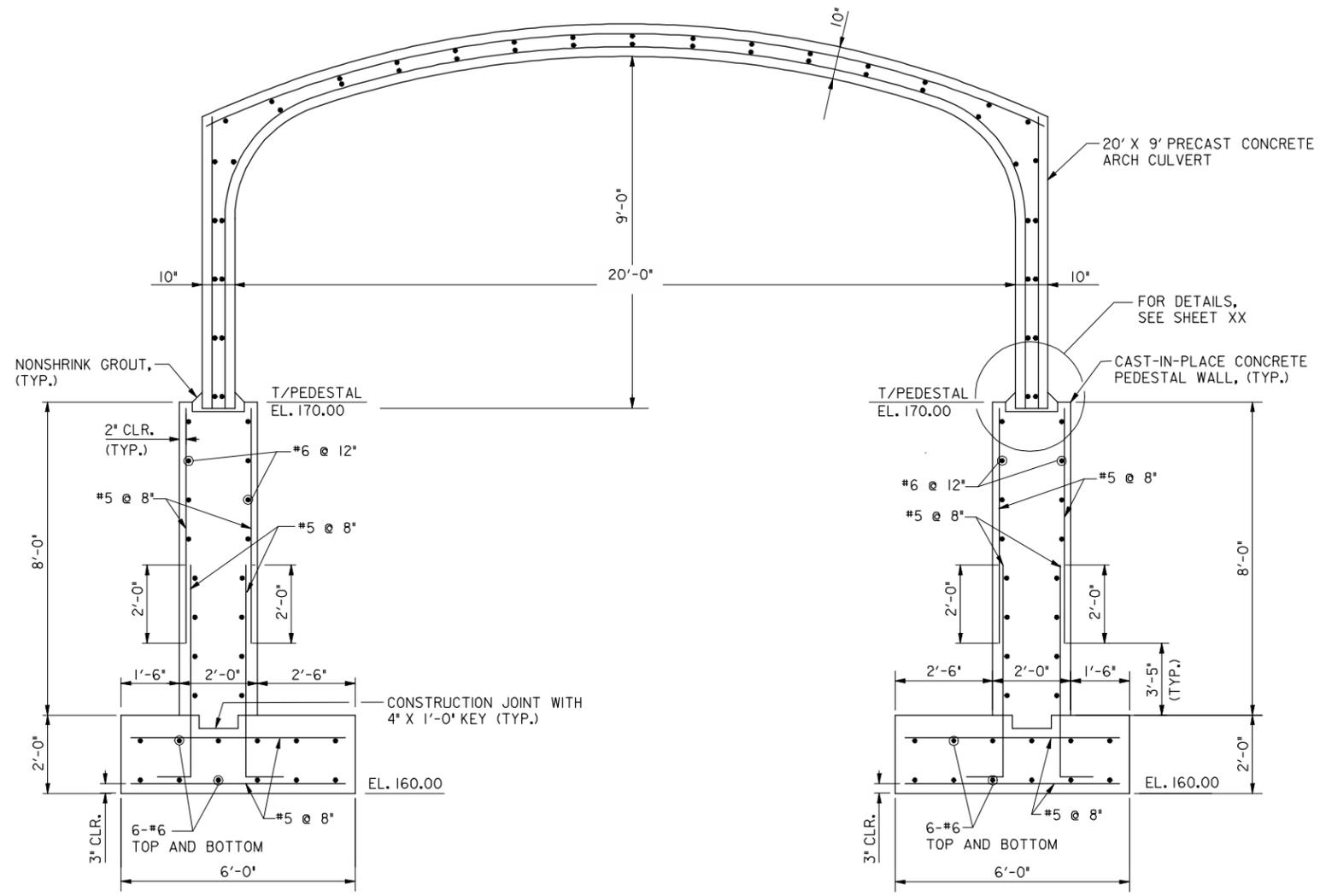
DC ***
gov DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
**RIPRAP AND SCOUR
PROTECTION SECTIONS**

MERCADO
CONSULTANTS, INC.
ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____

SHEET NO. 13 OF 28



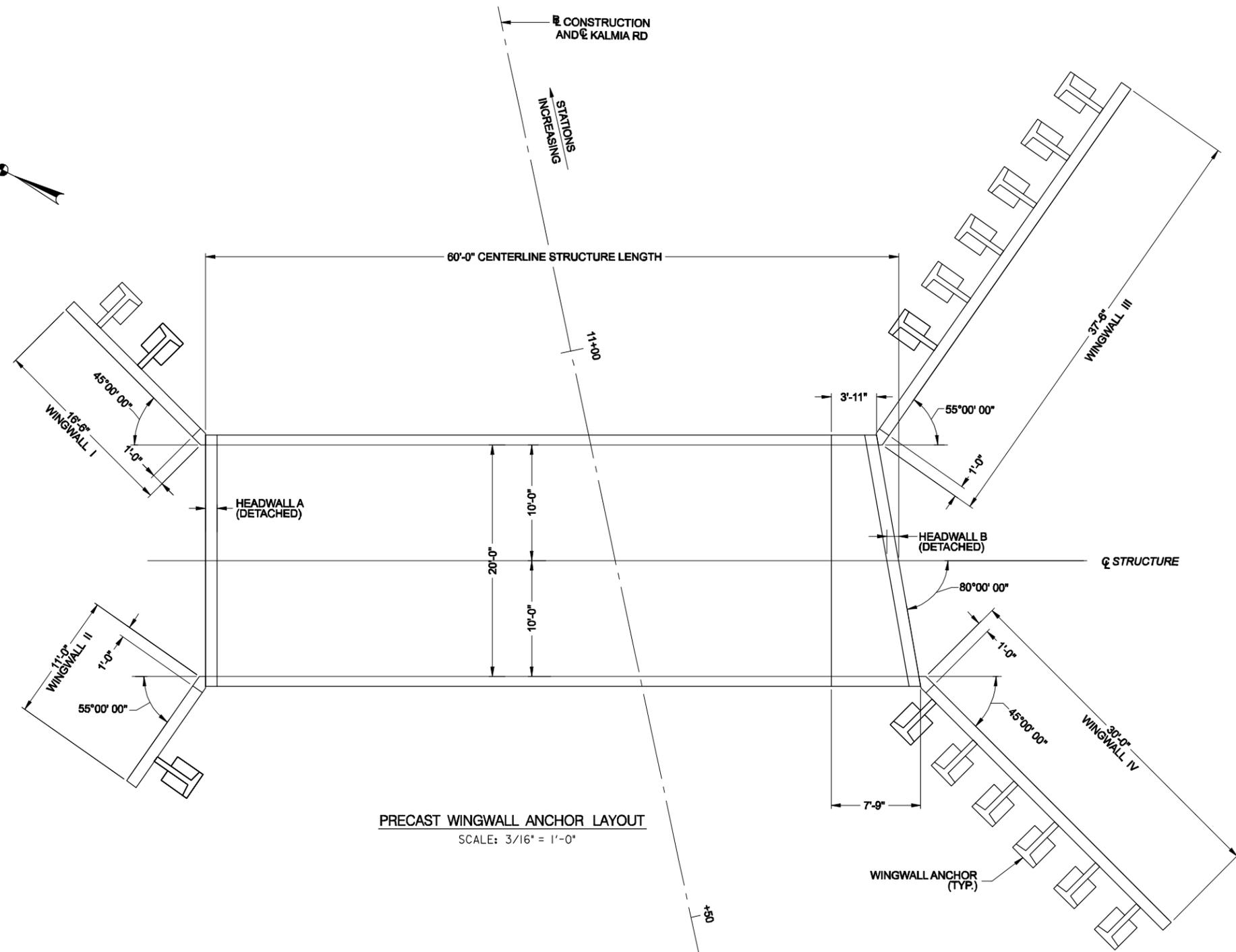
TYPICAL SECTION
SCALE: 1/2" = 1'-0"

65% REVIEW – NOT FOR CONSTRUCTION

DC .gov DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
CULVERT TYPICAL SECTION

MERCADO CONSULTANTS, INC.
ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____



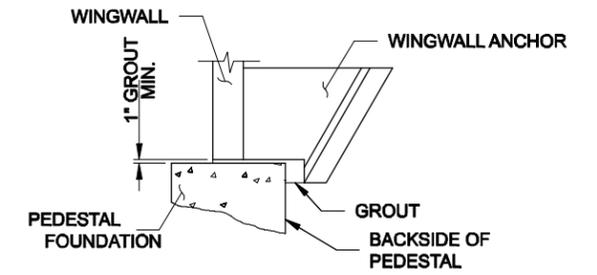
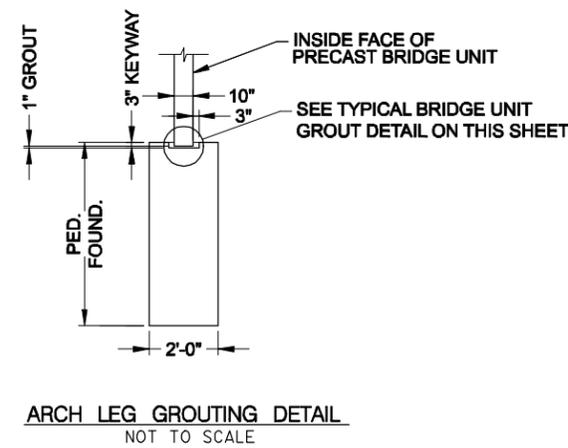
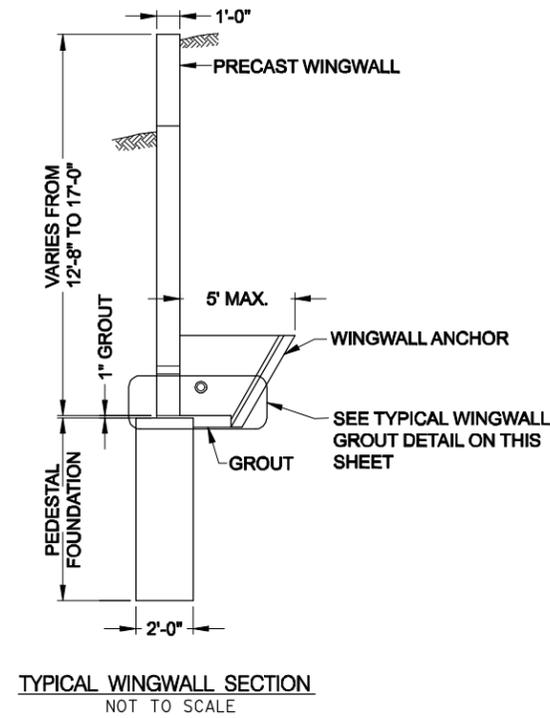
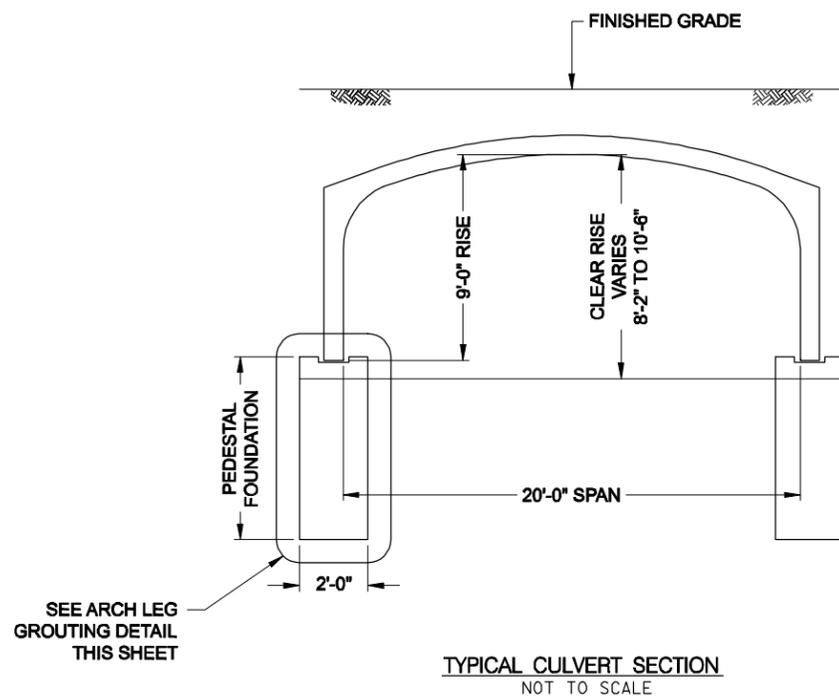
PRECAST WINGWALL ANCHOR LAYOUT
SCALE: 3/16" = 1'-0"

65% REVIEW – NOT FOR CONSTRUCTION

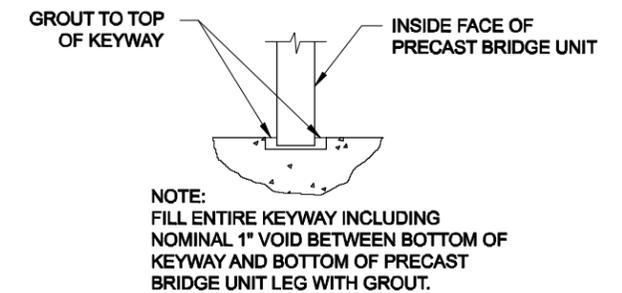
DC **gov** DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
**PRECAST WINGWALL
ANCHOR LAYOUT**

MERCADO
CONSULTANTS, INC.
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SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____



- NOTES:**
- MINIMUM 1" GROUT UNDER WINGWALL LEG & ANCHOR STEM.
 - AREA BETWEEN PEDESTAL FOUNDATION AND WINGWALL ANCHOR SHALL BE GROUTED SOLID BEFORE BACKFILL.
 - FORM BACKSIDE OF FOOTING TO DIMENSIONS SHOWN ELSEWHERE THESE PLANS.



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DC **gov** DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C

PRECAST GROUT DETAILS

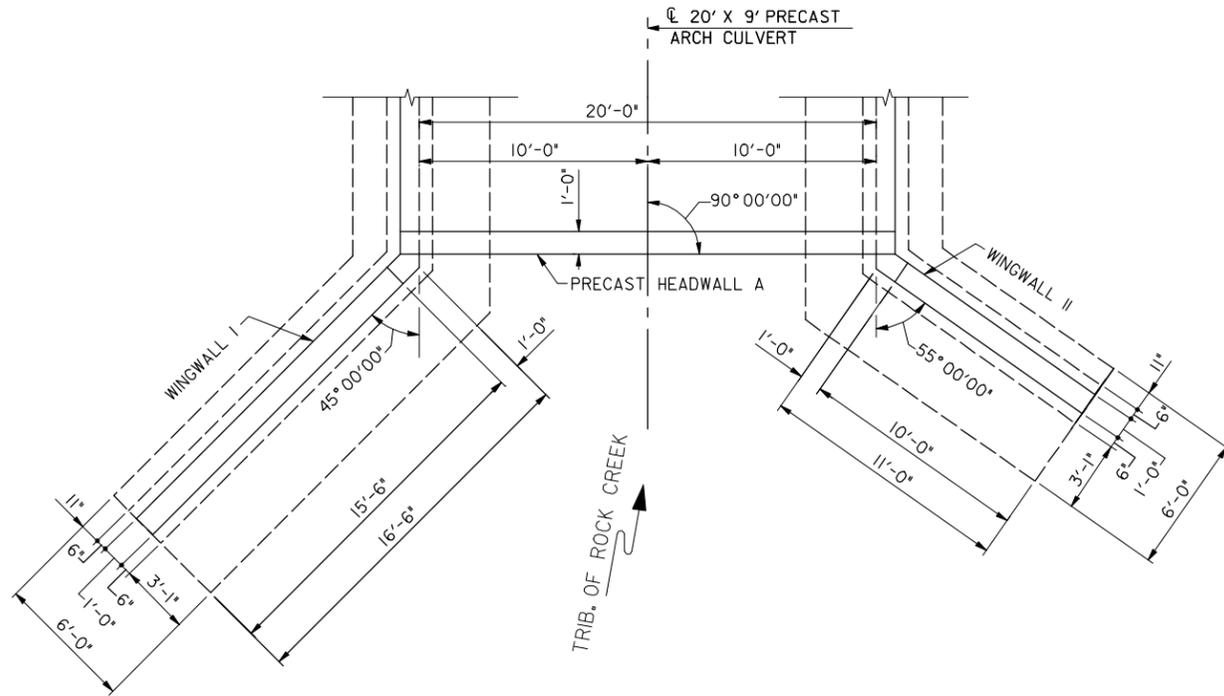
MERCADO
CONSULTANTS, INC.
ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

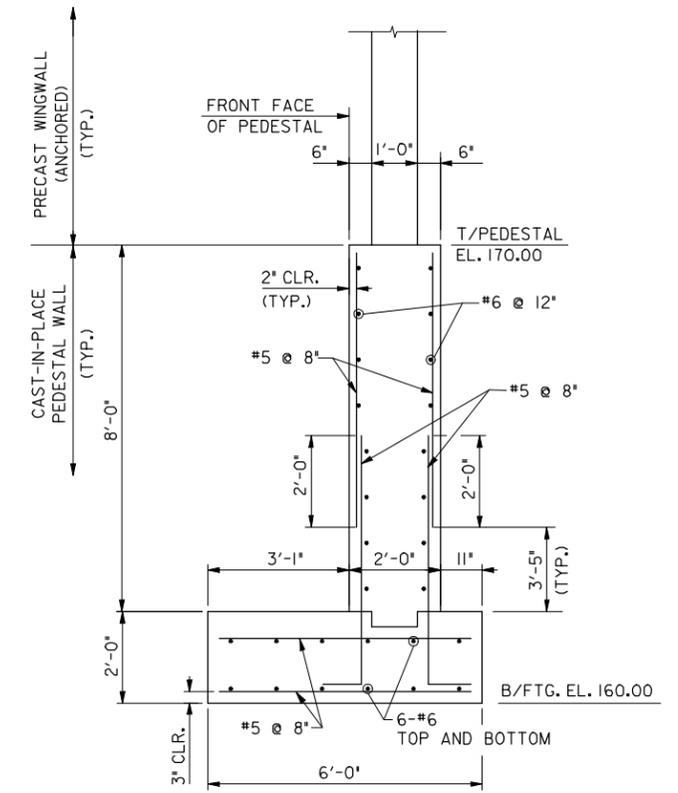
DESIGNED BY _____

DRAWN BY _____

CHECKED BY _____



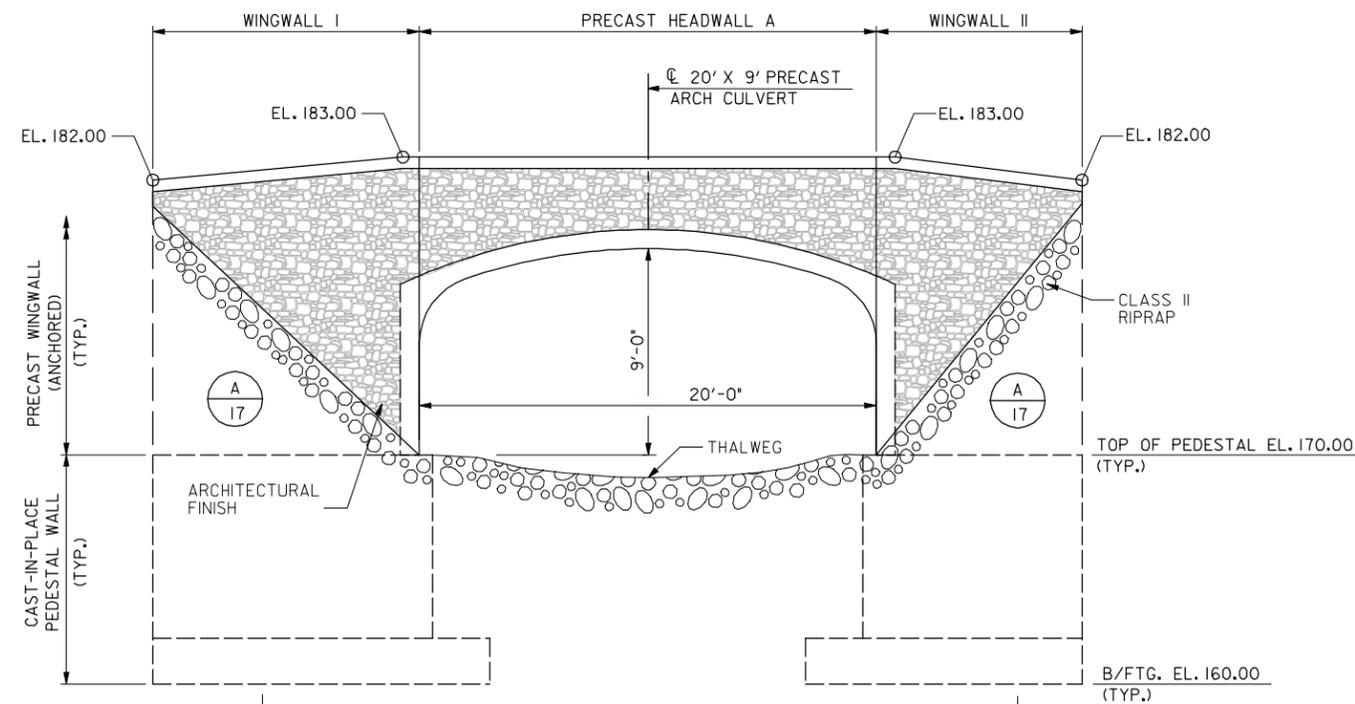
PLAN - HEADWALL A
SCALE: 1/4" = 1'-0"



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

NOTES:

- I. PRECAST WINGWALL ANCHORS NOT SHOWN FOR CLARITY. SEE SHEETS 14 AND 15 FOR DETAILS.



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

65% REVIEW - NOT FOR CONSTRUCTION

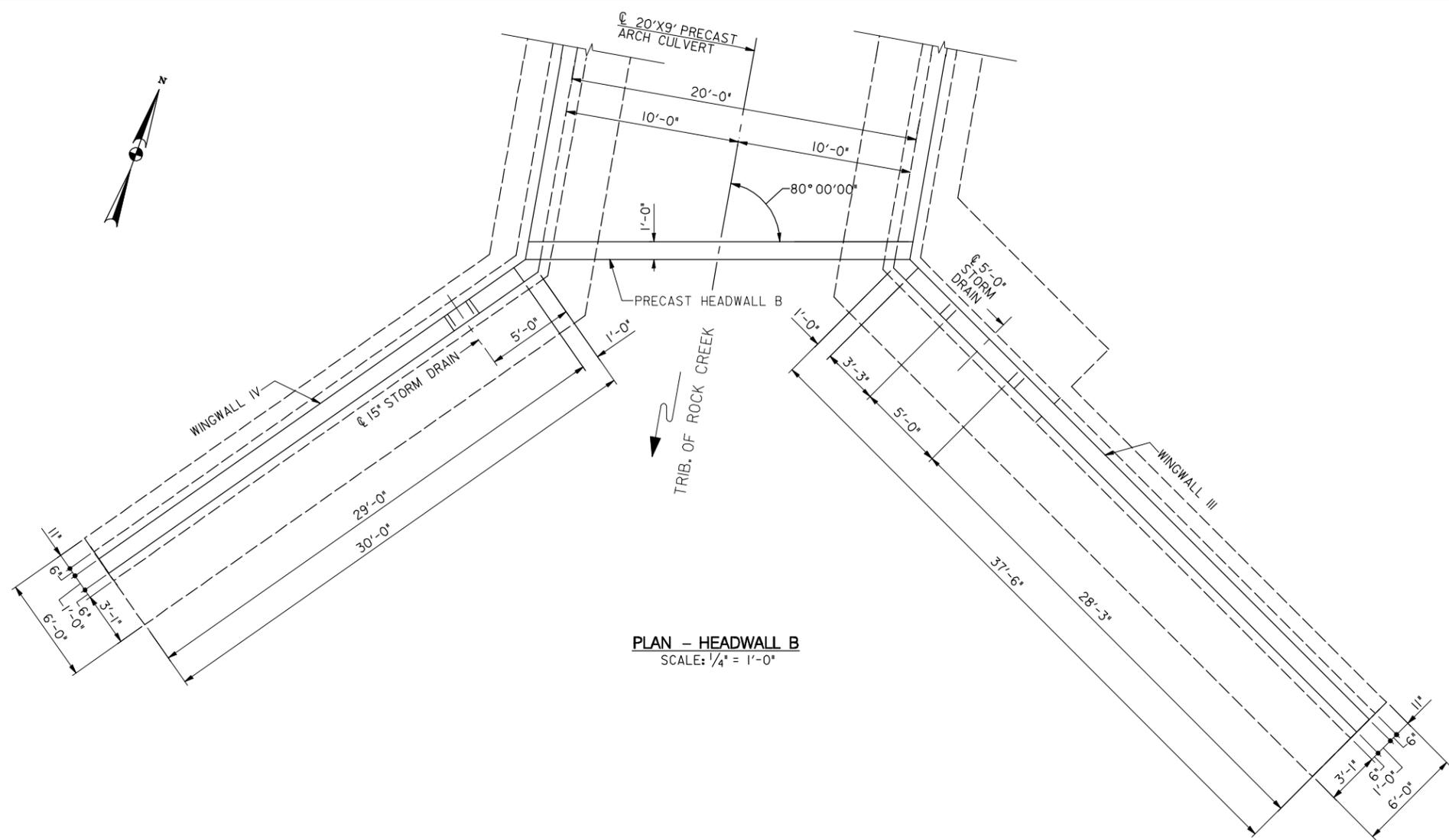
DC DISTRICT OF COLUMBIA
.gov DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C

HEADWALL A - PLAN AND ELEVATION

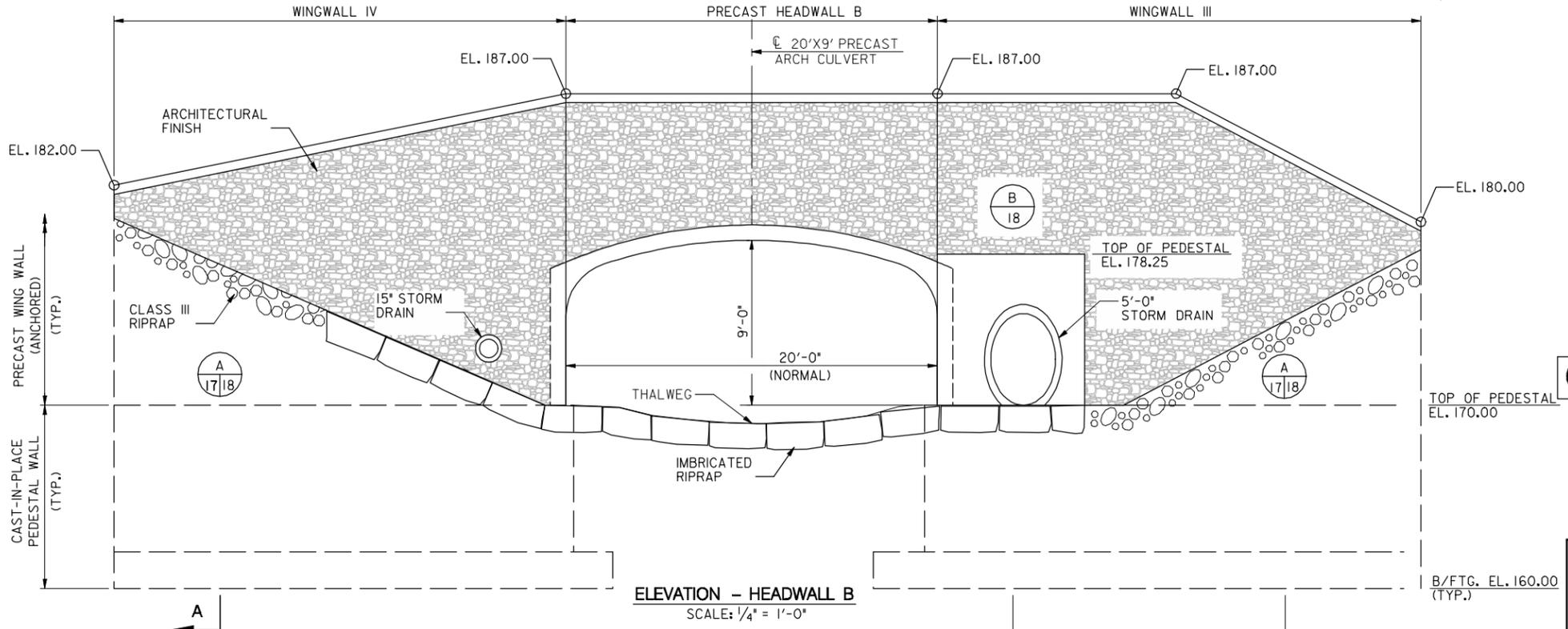
SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____



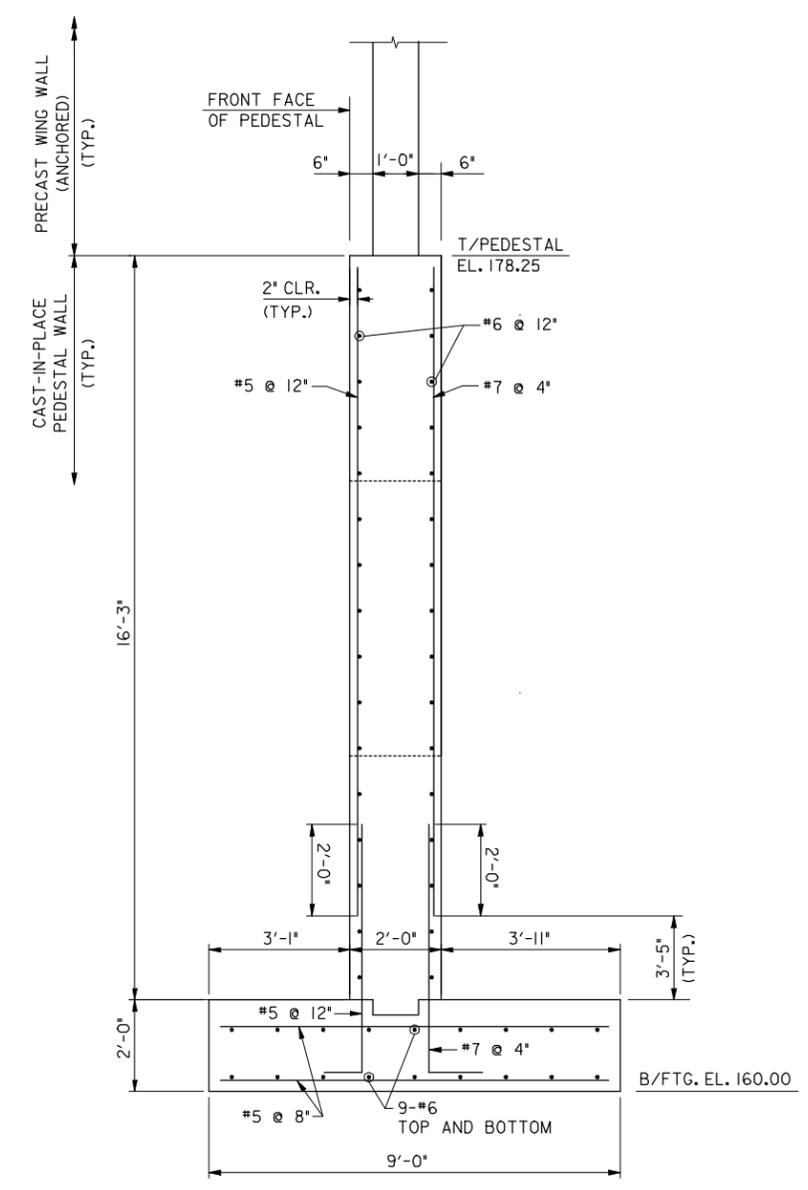
DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____



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



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



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

- NOTES:**
1. PRECAST WINGWALL ANCHORS NOT SHOWN FOR CLARITY. SEE SHEETS 45 AND 15 FOR DETAILS.
 2. FOR SECTION A-A SEE SHEET 16.

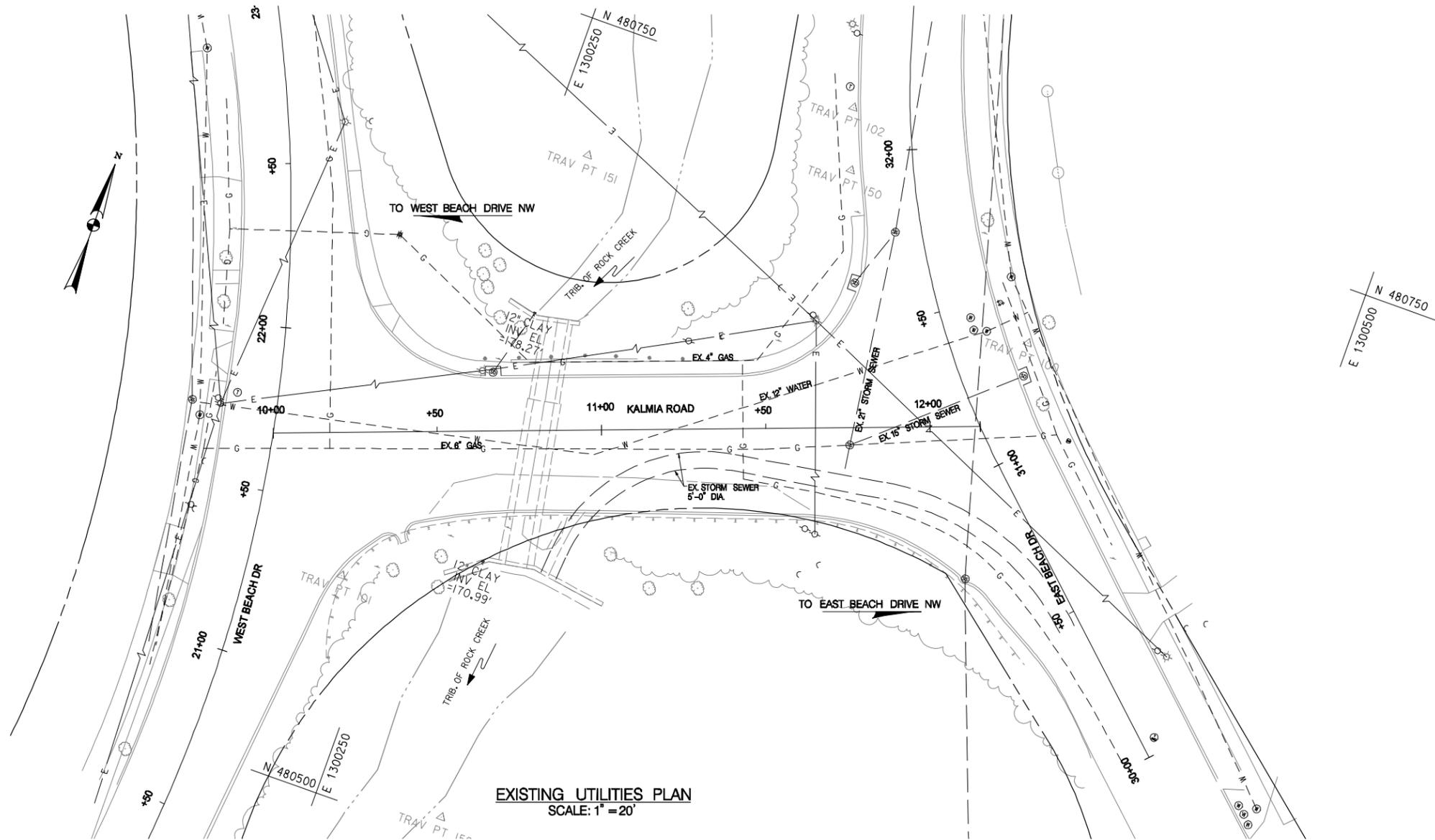
65% REVIEW - NOT FOR CONSTRUCTION

DC DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C

HEADWALL B - PLAN AND ELEVATION

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____





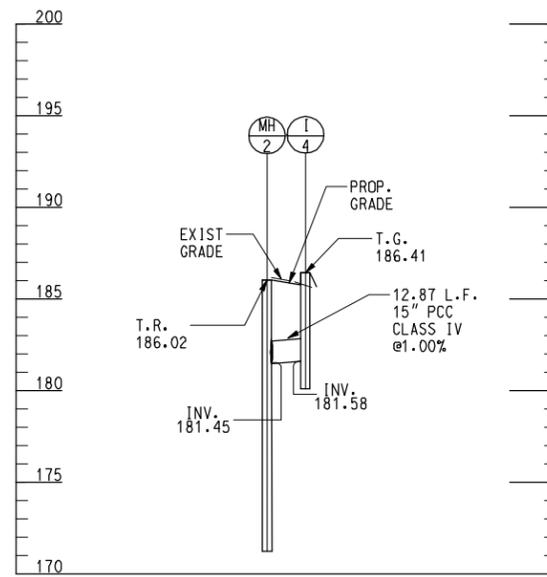
EXISTING UTILITIES PLAN
SCALE: 1" = 20'

65% REVIEW – NOT FOR CONSTRUCTION

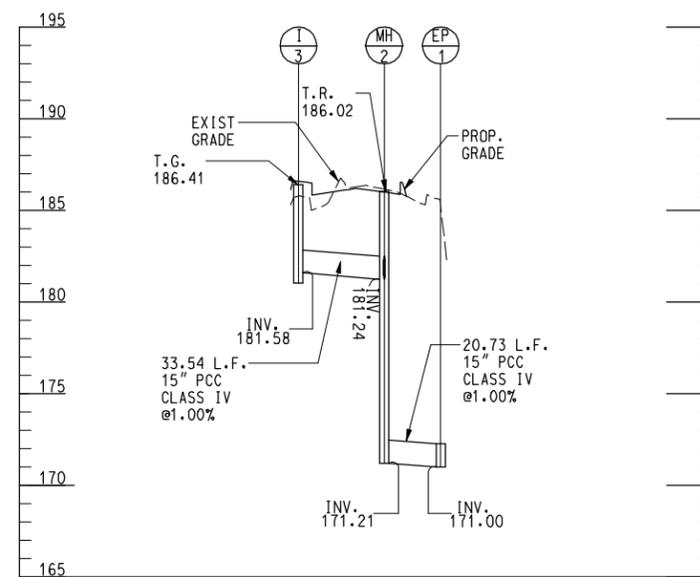
DC ^{***}
.gov DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
EXISTING UTILITIES PLAN



SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____



KALMIA ROAD: MH 2 TO 14



KALMIA ROAD: 13 TO MH 2
MH 2 TO EP 1

PIPE PROFILES
SCALE: H: 1" = 40'
V: 1" = 5'

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DC SWM PLAN NO.
SWM SHEET 6 OF 10



DC.gov DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C

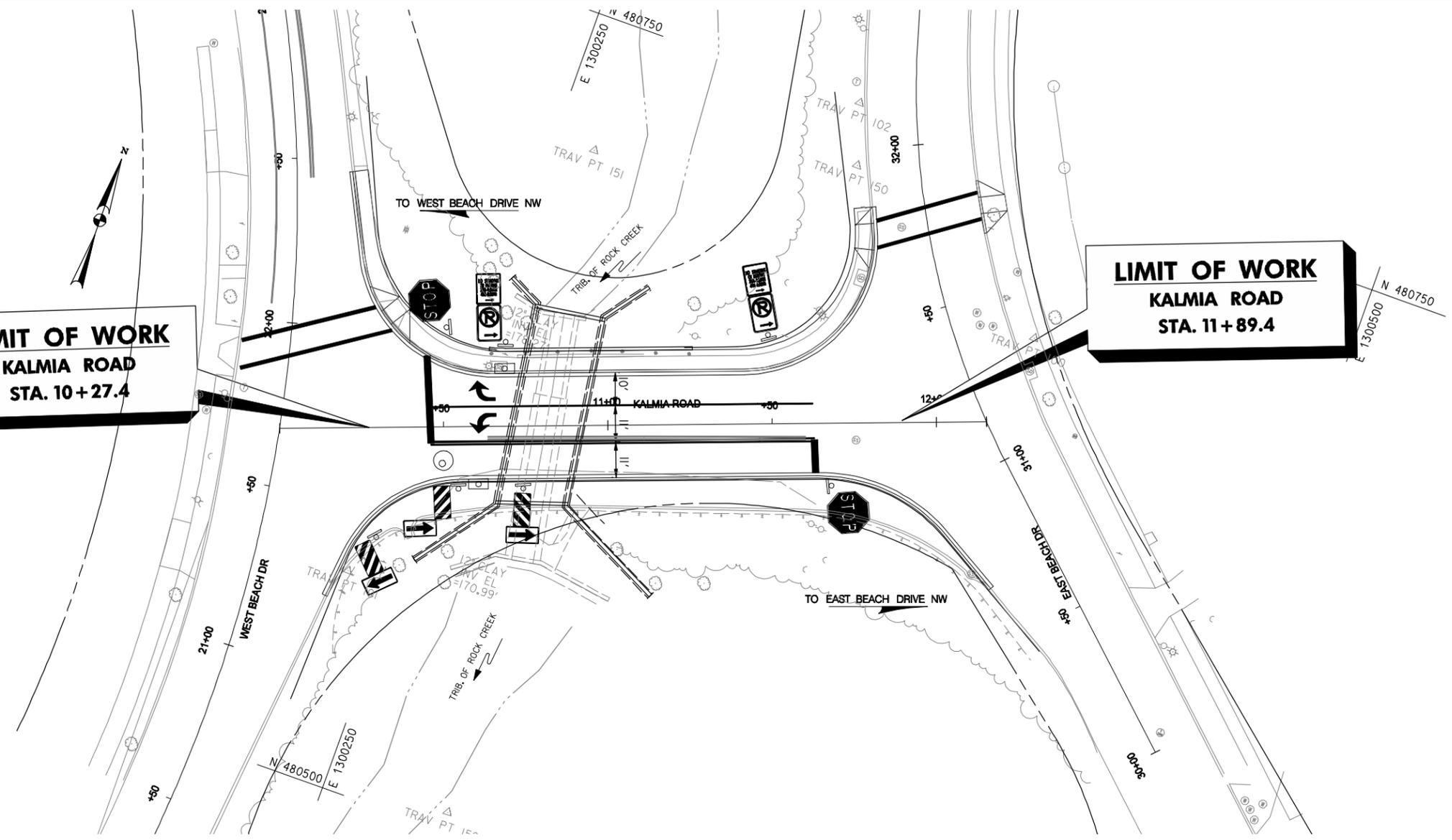
STORM WATER SEWER PROFILES

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____

**LIMIT OF WORK
KALMIA ROAD
STA. 10+27.4**

**LIMIT OF WORK
KALMIA ROAD
STA. 11+89.4**



PAVEMENT MARKING & SIGNING PLAN
SCALE: 1" = 20'

6" WHITE THERMOPLASTIC PAVEMENT MARKING
90 L.F. - STA. 21+85, LT. TO 22+07, RT.
65 L.F. - STA. 31+72, LT. TO 31+92, RT.
115 L.F. - STA. 10+47, LT. TO 11+62, RT.

12" WHITE THERMOPLASTIC PAVEMENT MARKING
26 L.F. - STA. 10+45, LT. TO 10+46, RT.
10 L.F. - STA. 11+62, LT. TO 11+63, RT.

WHITE THERMOPLASTIC PAVEMENT MARKING SYMBOLS AND LETTERS
2 EA. - STA. 10+62, LT.

4" DOUBLE YELLOW THERMOPLASTIC PAVEMENT MARKING
115 L.F. - STA. 10+47, LT. TO 11+62, RT.

TRAFFIC SIGN PANELS
9 S.F. - STA. 10+51, LT.
3 S.F. - STA. 10+69, LT.
3 S.F. - STA. 11+50, LT.
16 S.F. - STA. 10+29, RT.
16 S.F. - STA. 10+54, RT.
16 S.F. - STA. 10+74, RT.
9 S.F. - STA. 11+68, RT.

TIMBER GROUND MOUNTED SIGN POSTS (4" X 6")
17 L.F. - STA. 10+51, LT.
17 L.F. - STA. 11+68, RT.

TIMBER GROUND MOUNTED SIGN POSTS (4" X 4")
19 L.F. - STA. 10+69, LT.
19 L.F. - STA. 11+50, LT.
22 S.F. - STA. 10+29, RT.
22 S.F. - STA. 10+54, RT.
22 S.F. - STA. 10+74, RT.

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DC DISTRICT OF COLUMBIA
.gov DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
PAVEMENT MARKING & SIGNING PLAN



SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____

| PROPOSED SIGNS | | | | |
|----------------|-----------------------------|---|------|---------------|
| SERIAL NO. | TEXT NO. & SIZE | SIGN TEXT | NOS. | QUANTITY S.F. |
| 1 | R1-1 36" X36" |  | 2 | 18.00 |
| 2 | W1-6L (OR R) 48" X24" |  | 3 | 24.00 |
| 3 | OM-3(1)L (OR R) 24" X48" |  | 3 | 24.00 |
| 4 | R7-1(1) 12" X18" |  | 2 | 3.00 |
| 5 | R7-4 (MOD) 12" X18" |  | 2 | 3.00 |

| EXISTING SIGNS TO BE REMOVED | | | | |
|------------------------------|-----------------------------|---|------|---------------|
| SERIAL NO. | TEXT NO. & SIZE | SIGN TEXT | NOS. | QUANTITY S.F. |
| 1 | R1-1 36" X36" |  | 2 | 18.00 |
| 2 | W1-6L (OR R) 48" X24" |  | 3 | 24.00 |
| 3 | OM-3(1)L (OR R) 24" X48" |  | 3 | 24.00 |
| 4 | R7-1(1) 12" X18" |  | 2 | 3.00 |
| 5 | R7-4 (MOD) 12" X18" |  | 2 | 3.00 |

| MAINTENANCE OF TRAFFIC SIGNS | | | | |
|------------------------------|--------------------------------|---|------|---------------|
| SERIAL NO. | TEXT NO. & SIZE | SIGN TEXT | NOS. | QUANTITY S.F. |
| 1 | R11-2 30" X48" |  | 2 | 20.00 |
| 2 | ROAD NAME PANEL 30" X21" |  | 22 | 96.25 |
| 3 | M4-9 30" X24" |  | 10 | 50.00 |
| 4 | M4-9(MOD) 30" X24" |  | 5 | 25.00 |
| 5 | M4-9L (OR R) 30" X24" |  | 6 | 30.00 |
| 6 | M4-8a(1) 36" X24" |  | 2 | 12.00 |

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 DISTRICT OF COLUMBIA
 DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
SIGN QUANTITIES

MERCADO
 CONSULTANTS, INC.
 ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____

SHEET NO. 23 OF 28

GENERAL NOTES

- NOTIFY MISS UTILITY 1-800 257-777, 48 HOURS PRIOR TO EXCAVATING. ALL UTILITIES MUST BE TEST PIT BY HAND AND COORDINATED WITH UTILITY AND GAS.
- NOTIFY D.C. DEPT. OF PUBLIC WORKS - PUBLIC SPACE MAINTENANCE ADMINISTRATION , 48 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT MR. RALPH JORDAN, CHIEF UTILITY INSPECTOR (202) 767-7632.
- CONTACT D.C. DEPT. OF PUBLIC WORKS - PUBLIC SPACE MAINTENANCE ADMINISTRATION, 48 HOURS PRIOR TO START OF CONSTRUCTION ON 202-77-8522.
- ALL PROPOSED UTILITY WORK SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE D.C. DEPT. OF PUBLIC WORKS - WATER AND SEWER UTILITY ADMINISTRATION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING SITE CONDITIONS. ANY DISCREPANCIES IN THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING PRIOR TO THE START OF ANY WORK.
- ALL EXISTING FACILITIES, INCLUDING, BUT NOT LIMITED TO WALKS, ROADS, LAWNS, SHRUBBERY, ETC. INSIDE OR OUTSIDE OF CONSTRUCTION LIMITS, WHICH ARE TO REMAIN, BUT ARE DISTURBED UNDER THIS CONTRACT SHALL BE REESTABLISHED AND/OR RECONSTRUCTED TO THEIR ORIGINAL CONDITION AT NO COST TO THE OWNER.
- ALL WALKS, CURB, CURB AND GUTTER AND DRIVEWAYS DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN COMPLETE SECTIONS TO THE NEAREST JOINT.
- THE ARCHITECT SHALL BE NOTIFIED FOR INSPECTION AND APPROVAL PRIOR TO CUTTING OF ANY SIDEWALKS, CURB, CURB AND GUTTER OR DRIVEWAY.
- AREAS WHERE EXISTING PAVING IS REMOVED SHALL BE SCARIFIED AND TOPSOIL ADDED TO BRING AREA TO PROPOSED GRADE. THE DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SOODED.
- SHOULD THE CONTRACTOR, DURING HIS WORK, ENCOUNTER ANY UTILITIES OR STRUCTURES NOT IDENTIFIED WITHIN THE CONTRACT DRAWINGS, HE SHALL STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER.
- NO TRENCH SHALL REMAIN OPEN FOR MORE THAN 24 HOURS WITHOUT PRIOR APPROVAL OF THE ARCHITECT. TRENCHES LEFT OPEN SHALL HAVE BARRICADES INSTALLED AROUND PERIMETER.
- LOCATION OF UTILITIES ON THE PLANS ARE BASED ON FIELD SURVEY DATA AND/OR RECORD DRAWINGS OF THE ORIGINAL LOCATIONS. THE INFORMATION SHOWN IS NOT NECESSARILY COMPLETE AND THE LOCATION OF THE UTILITIES SHOWN ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UTILITIES WELL IN ADVANCE OF CONDUCTING CONSTRUCTION OPERATIONS WHICH COULD DAMAGE THESE FACILITIES.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ELEVATIONS OF ALL EXISTING UTILITIES WELL IN ADVANCE OF CONDUCTING CONSTRUCTION OPERATIONS TO ENSURE PROPER CONNECTIONS WITH PROPOSED UTILITIES.
- IN AREAS WHERE PROPOSED CONSTRUCTION MAY CONFLICT WITH EXISTING UTILITIES, THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UTILITIES. IF AN UNDERGROUND UTILITY IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND OWNER OF SAID UTILITY.
- ANY DAMAGE SUSTAINED TO UTILITIES ABOVE AND BELOW GROUND SHALL BE REPAIRED BY OR UNDER THE DIRECTION OF THE UTILITY OWNER AT CONTRACTORS EXPENSE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BACKFILL OR EXCAVATE AFFECTED SAID UTILITY WITHOUT FIRST RECEIVING PERMISSION FROM THE UTILITY OWNER.

AS-BUILT CERTIFICATION BY PROFESSIONAL ENGINEER WITHIN 21 DAYS AFTER COMPLETION OF CONSTRUCTION OF THE STORMWATER DISCHARGE FACILITY, PLEASE SEND THIS PAGE TO THE WATERSHED PROTECTION DIVISION-DEPARTMENT OF HEALTH.

1. STORMWATER DISCHARGE FACILITY INFORMATION:

SOURCE NAME:

SOURCE LOCATION:

DCRA PERMIT NO:

DATE ISSUED:

2. AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE STORMWATER DISCHARGE FACILITY HAS BEEN SUBSTANTIALLY IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THAT ANY SUBSTANTIAL DEVIATIONS (NOTED BELOW) WILL NOT PREVENT THE SYSTEM FROM FUNCTIONING IN COMPLIANCE WITH THE REQUIREMENTS OF SECTIONS 526 THROUGH 535 OF DCMR-21, CHAPTER 5 WHEN PROPERLY MAINTAINED AND OPERATED. THESE DETERMINATIONS HAVE BEEN BASED UPON ON-SITE OBSERVATION OF CONSTRUCTION, SCHEDULED AND CONDUCTED BY ME OR BY A PROJECT REPRESENTATIVE UNDER MY DIRECT SUPERVISION. I HAVE ENCLOSED ONE SET OF AS-BUILT ENGINEERING DRAWINGS.

SIGNATURE OF ENGINEER NAME/D.C. REG. NO.

COMPANY NAME:
COMPANY ADDRESS:
17830 NEW HAMPSHIRE AVENUE
SUITE 200
ASHTON, MD 20861

DATE:
PHONE #: (301) 260-0090

SUBSTANTIAL DEVIATIONS FROM THE APPROVED PLANS AND SPECIFICATIONS:

STATEMENT BY PERSON RESPONSIBLE FOR MAINTENANCE
THE UNDERSIGNED AGREES TO MAINTAIN AND OPERATE THE DISCHARGE FACILITIES IN SUCH A MANNER AS TO COMPLY WITH THE PROVISIONS OF SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5. RESPONSIBILITY FOR MAINTENANCE AND OPERATION MAY BE TRANSFERRED TO ANOTHER ENTITY UPON WRITTEN NOTICE TO THE WATERSHED PROTECTION DIVISION OF THE DEPARTMENT OF HEALTH FROM THE UNDERSIGNED AND ENTITY ASSUMING RESPONSIBILITY. CERTIFY THE TRANSFER OF RESPONSIBILITY FOR MAINTENANCE AND OPERATION IN COMPLIANCE WITH SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5 HAS BEEN ACCEPTED.

SIGNATURE OF THE PERSON RESPONSIBLE FOR MAINTENANCE

RONALDO T NICHOLSON, PE
CHIEF ENGINEER
DCDOT
55 M STREET SE 4TH FLOOR
WASHINGTON DC 20003
PHONE: 202.671.2800

STATEMENT BY PROFESSIONAL ENGINEER REGISTERED IN THE DISTRICT OF COLUMBIA
THIS IS TO CERTIFY THAT THE ENGINEERING FEATURES OF THIS STORMWATER DISCHARGE FACILITY HAVE BEEN DESIGNED/EXAMINED BY ME AND FOUND TO BE IN CONFORMITY WITH MODERN ENGINEERING PRINCIPLES APPLICABLE TO THE TREATMENT AND DISPOSAL OF STORMWATER POLLUTANTS. I FURTHER CERTIFY THAT THE FACILITY HAS BEEN DESIGNED IN ACCORDANCE WITH SPECIFICATION REQUIRED UNDER SECTION 526 THROUGH 535 OF DCMR-21, CHAPTER 5. IT IS ALSO THAT THE UNDERSIGNED HAS FURNISHED THE APPLICAT WITH A SET OF INSTRUCTIONS FOR THE MAINTENANCE AND OPERATION OF THE STORMWATER DISCHARGE FACILITY.

SIGNATURE OF ENGINEER NAME/D.C. REG. NO.

COMPANY NAME:
COMPANY ADDRESS:
17830 NEW HAMPSHIRE AVENUE
SUITE 200
ASHTON, MD 20861
DATE:
PHONE #: (301) 260-0090

EROSION AND SEDIMENT CONTROL NARRATIVE

DESCRIPTION OF PROJECT:
THIS PROJECT IS FOR THE REPLACEMENT OF THE CULVERT CARRYING A TRIBUTARY OF ROCK CREEK UNDER KALMIA ROAD.

SILT FENCE
SILT FENCE WILL BE INSTALLED IMMEDIATELY BEFORE ANY EARTH DISTURBANCE OR CLEARING ACTIVITIES ARE CONDUCTED. THE SILT FENCE WILL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE USDA STANDARDS AND SPECIFICATIONS.

CURB INLET PROTECTION
CURB INLET PROTECTION WILL BE INSTALLED ON EXISTING INLETS ALONG KALMIA ROAD BEFORE ANY EARTH DISTURBANCE TAKES PLACE AND WILL BE PLACED DURING THE EXCAVATION OF TRENCHES FOR THE PROPOSED STORM DRAIN AT THE PROPOSED INLETS.

PORTABLE SEDIMENT TANK (PST)
PORTABLE SEDIMENT TANK WILL BE PLACED NEAR CULVERT EXCAVATION TO DEWATER THE CONSTRUCTION AREA.

BMP CONSTRUCTION SEQUENCE

- MICRO-BIORETENTION BASIN
- EXCAVATE BIORETENTION AREA TO SUBGRADE.
 - INSTALL OVERFLOW STRUCTURE AND OUTFALL PIPE.
 - INSTALL PERFORATED UNDERDRAIN PIPE IN STONE RESERVOIR.
 - INSTALL BIORETENTION SOIL.
 - SHAPE TO FINAL GRADES
 - INSTALL LANDSCAPING IN BIORETENTION AREA.
 - COMPLETE AS BUILT CERTIFIED BY PROFESSIONAL ENGINEER

MAINTENANCE SCHEDULE

- MICRO-BIORETENTION BASIN
- INSPECT OVERFLOW STRUCTURE YEARLY.
 - REMOVE SEDIMENT BUILD UP AS NEEDED.

| CLASS | GEOTEXTILE FABRICS | | |
|----------------|--------------------------------|--------------------------------|--------------------------|
| | APPARENT OPENING SIZE MM. MAX. | GRAB TENSILE STRENGTH LB. MIN. | BURST STRENGTH PSI. MIN. |
| A | 0.30 | 250 | 800 |
| B | 0.80 | 200 | 320 |
| C | 0.30 | 200 | 320 |
| D | 0.80 | 90 | 146 |
| E | 0.30 | 90 | 146 |
| F (SILT FENCE) | 0.40-0.80* | 90 | 190 |

* US STD. SIEVE C2-02215

19.0 STANDARDS AND SPECIFICATIONS FOR LAND GRADING
DEFINITION
RESHAPING OF THE EXISTING LAND SURFACE IN ACCORDANCE WITH A PLAN AS DETERMINED BY ENGINEERING SURVEY AND LAYOUT.

PURPOSE

THE PURPOSE OF A LAND GRADING SPECIFICATION IS TO PROVIDE FOR EROSION CONTROL AND VEGETATIVE ESTABLISHMENT ON THOSE AREAS WHERE THE EXISTING LAND SURFACE IS TO BE RESHAPED BY GRADING ACCORDING TO PLAN.

DESIGN CRITERIA

THE GRADING PLAN SHOULD BE BASED UPON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SLOPE STABILITY, EFFECT ON ADJACENT PROPERTIES AND DRAINAGE PATTERNS, MEASURES FOR DRAINAGE AND WATER REMOVAL AND VEGETATIVE TREATMENT, ETC.

MANY COUNTIES HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING)- AND CUT AND FILL SLOPES. WHERE THESE REQUIREMENTS EXIST, THEY SHALL BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS OF THE AREA(S) TO BE GRADED. THE PLAN SHALL ALSO INCLUDE PRACTICES FOR EROSION CONTROL, SLOPE STABILIZATION, SAFE DISPOSAL OF RUNOFF WATER AND DRAINAGE, SUCH AS WATERWAYS, LINED DITCHES, REVERSE SLOPE BENCHES (INCLUDE GRADE AND CROSS SECTION), GRADE STABILIZATION STRUCTURES, RETAINING WALLS, AND SURFACE AND SUBSURFACE DRAINS. THE PLAN SHALL ALSO INCLUDE PHASING OF THESE PRACTICES. THE FOLLOWING SHALL BE INCORPORATED INTO THE PLAN:

1. PROVISIONS SHALL BE MADE TO SAFELY CONDUCT SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO INSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.

2. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASSES SHALL NOT BE STEEPER THAN 2:1 (WHERE THE SLOPE IS TO BE MOWED THE SLOPE SHOULD BE NO STEEPER THAN 3:1); 4:1 IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES; SLOPES EXCEEDING 2:1 SHALL REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS THAT SHALL BE ADEQUATELY SHOWN ON THE PLANS.

3. REVERSE BENCHES SHALL BE PROVIDED WHENEVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:1 SLOPE EXCEEDS 20 FEET; FOR 3:1 SLOPE IT SHALL BE INCREASED TO 30 FEET AND FOR 4:1 TO 40 FEET. BENCHES SHALL BE LOCATED TO DIVIDE THE SLOPE FACE AS EQUALLY AS POSSIBLE AND SHALL CONVEY THE WATER TO A STABLE OUTLET SOILS, SEEPS, ROCK OUTCROPS , ETC., SHALL ALSO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.

A. BENCHES SHALL BE A MINIMUM OF SIX-FEET WIDE TO PROVIDE FOR EASE OF MAINTENANCE.

B. BENCHES SHALL BE DESIGNED WITH A REVERSE SLOPE OF 6:1 OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. BENCH GRADIENT TO THE OUTLET SHALL BE BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.

C. THE FLOW LENGTH WITHIN A BENCH SHALL NOT EXCEED 800' UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS. FOR FLOW CHANNEL STABILIZATION SEE TEMPORARY SWALE.

4. SURFACE WATER SHALL BE DIVERTED FROM THE FACE OF ALL CUT AND/OR FILL SLOPES BY THE USE OF EARTH DIKES, DITCHES AND SWALES OR CONVEYED DOWN SLOPE BY THE USE OF A DESIGNED STRUCTURE, EXCEPT WHERE:

A. THE FACE OF THE SLOPE IS OR SHALL BE STABILIZED AND THE FACE OF ALL GRADED SLOPES SHALL BE PROTECTED FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.

B. THE FACE OF THE SLOPE SHALL NOT BE SUBJECT TO ANY CONCENTRATED FLOWS OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGE WAYS, GRADED SWALES, DOWNSPOUTS, ETC.

C. THE FACE OF THE SLOPE WILL BE PROTECTED BY SPECIAL EROSION CONTROL MATERIALS, TO INCLUDE, BUT NOT LIMITED TO: APPROVED VEGETATIVE STABILIZATION PRACTICES (SEE SECTION G), RIP-RAP OR OTHER APPROVED STABILIZATION METHODS.

5. CUT SLOPES OCCURRING IN RIPABLE ROCK SHALL BE SERRATED AS SHOWN ON THE FOLLOWING DIAGRAM. THESE SERRATIONS SHALL BE MADE WITH CONVENTIONAL EQUIPMENT AS THE EXCAVATION IS MADE. EACH STEP OR SERRATION SHALL BE CONSTRUCTED ON THE CONTOUR AND WILL HAVE STEPS CUT AT NOMINAL TWO-FOOT INTERVALS WITH NOMINAL THREE-FOOT HORIZONTAL SHELVES. THESE STEPS WILL VARY DEPENDING ON THE SLOPE RATIO OR THE CUT SLOPE. THE NOMINAL SLOPE LINE IS 1:1. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THIS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION. OVERLAND FLOW SHALL BE DIVERTED FROM THE TOP OF ALL SERRATED CUT SLOPES AND CARRIED TO A SUITABLE OUTLET.

6. SUBSURFACE DRAINAGE SHALL BE PROVIDED WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.

7. SLOPES SHALL NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTIES WITHOUT ADEQUATELY PROTECTING SUCH PROPERTIES AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGES.

8. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIAL. IT SHOULD BE FREE OF STONES OVER TWO (2) INCHES IN DIAMETER WHERE COMPACTED BY HAND OR MECHANICAL TAMPERS OR OVER EIGHT (8) INCHES IN DIAMETER WHERE COMPACTED BY ROLLERS OR OTHER EQUIPMENT. FROZEN MATERIAL SHALL NOT BE PLACED IN THE FILL NOR SHALL THE FILL MATERIAL BE PLACED ON A FROZEN FOUNDATION.

9. STOCKPILES, BORROW AREAS AND SPOIL SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATIONS.

10. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 20.0 STANDARDS AND SPECIFICATIONS FOR

| NUMBER | SIZE RANGE | STONE SIZE | | | | WEIGHT |
|------------|---------------|-----------------|-----------------|--------|-------------|--------|
| | | D ₁₀ | D ₅₀ | AASHTO | | |
| NUMBER 57* | 3/8" - 1 1/2" | 1/2" | 1 1/2" | M-43 | N/A | |
| NUMBER 1 | 2" - 3" | 2 1/2" | 3" | M-43 | N/A | |
| RIIP-RAP** | 4" - 9" | 5 1/2" | 9" | N/A | N/A | |
| CLASS I | N/A | 16" | 24" | N/A | 1500lb max | |
| CLASS II | N/A | 18" | 24" | N/A | 7000lb max | |
| CLASS III | N/A | 23" | 34" | N/A | 20000lb max | |

NOTE: USE OF THIS INFORMATION DOES NOT PRECLUDE MEETING ALL OF THE REQUIREMENTS OF THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL VEGETATIVE PRACTICES.

20.0 VEGETATIVE STABILIZATION

PERMANENT AND TEMPORARY SEEDING, SOODING AND MULCHING

SITE PREPARATION

PERMANENT OR TEMPORARY VEGETATION SHALL BE ESTABLISHED WITHIN SEVEN (7) DAYS ON THE SURFACE OF ALL SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, SEDIMENT CONTROL BASINS, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND WITHIN 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. MULCHING MAY ONLY BE USED ON DISTURBED AREAS AS TEMPORARY COVER WHERE VEGETATION IS NOT FEASIBLE OR WHERE SEEDING CANNOT BE COMPLETED BECAUSE OF WEATHER.

SEEDING PREPARATION AND SEEDING APPLICATION
LOOSEN THE TOP LAYER OF THE SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS, CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF THE SOIL BY DISCING OR BY OTHER SUITABLE MEANS. ROUGH AREAS SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN A ROUGHENED CONDITION. STEEP SLOPES GREATER THAN 3:1 SHOULD BE TRACKED BY A DOZEN, LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1 TO 3 INCHES OF SOIL SHOULD BE LOOSE AND FRIABLE. PERMANENT COVER MAY REQUIRE AN APPLICATION OF TOPSOIL. IF SO, IT MUST MEET THE REQUIREMENTS SET FORTH IN SECTION 21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL FROM THE 1994 STANDARDS AND SPECIFICATIONS.

III. SOIL AMENDMENTS

SOIL TESTS SHALL BE MADE ON SITES OVER FIVE ACRES TO DETERMINE THE EXACT REQUIREMENTS FOR BOTH LIME AND FERTILIZER. FOR SITES UNDER 5 ACRES, IN LIEU OF A SOIL TEST, APPLY THE FOLLOWING:

| Temporary Seeding Summary | | | | | Fertilizer Rate (10-10-10) | Lime Rate (100/1000) |
|-----------------------------------|---------|---------------------------|---------------|---------------|----------------------------|----------------------|
| Seed Mixture (Performance Zone #) | | | | | | |
| No. | Species | Application Rate (lb/100) | Seeding Dates | Seeding Depth | | |
| 1 | Rye | 140 | 9/15-11/15 | 1/2" | 400 lbs/ac (100/1000) | 2 tons/ac (100/1000) |

| Permanent Seeding Summary | | | | | Fertilizer Rate (10-20-20) | Lime Rate |
|-----------------------------------|---------|---------------------------|---------------|---------------|----------------------------|-----------------------|
| Seed Mixture (Performance Zone #) | | | | | | |
| No. | Species | Application Rate (lb/100) | Seeding Dates | Seeding Depth | | |
| 1 | Timothy | 150 | 9/15-9/15 | 1/2" | 50 lbs/ac (10/1000) | 400 lbs/ac (100/1000) |

IV. SEDIMENT CONTROL PRACTICE SEEDING

SELECT A SEEDING MIXTURE FROM TABLES 25 OR 26 IN SECTION G OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW. NOTE: IF SEDIMENT CONTROL PRACTICES ARE IN FOR LONGER THAN 12 MONTHS, PERMANENT SEEDING IS REQUIRED.

V. TEMPORARY/PERMANENT SEEDING MIXTURES AND RATES

SELECT A SEEDING MIXTURE FROM APPROPRIATE TABLE 25 OR 26 IN SECTION G OF THE 1994 STANDARDS AND SPECIFICATIONS. DOCUMENT SEEDING ON THE EROSION AND SEDIMENT CONTROL PLAN USING APPROPRIATE CHART BELOW.

VI. TURFGRASS ESTABLISHMENT

THIS INCLUDES LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILLED BY DISCING OR BY OTHER APPROVED METHODS TO A DEPTH OF 3 TO 5 INCHES, LEVELED AND RAKED TO PREPARE A PROPER SEEDBED. STONES AND DEBRIS OVER 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY. USE CERTIFIED MATERIAL AND CHOOSE A TURFGRASS MIXTURE FROM PAGE G-20 OF THE 1994 STANDARDS AND SPECIFICATIONS OR SELECT FROM THE LIST IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND". SEE MEMO AT END OF THIS SECTION.

VII. MULCHING

ALL SEEDINGS REQUIRE MULCHING. ALSO MULCH DURING NON-SEEDING DATES UNTIL SEEDING CAN BE DONE.

MULCH SHALL BE UNROTTED, UNCHOPPED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS/ACRE OR 90 LBS/1000 SQ. FT. (2 BALES). IF A MULCH ANCHORING TOOL IS USED, APPLY 2.5 TONS/ACRE. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE COMPLETELY FREE OF PROHIBITED NOXIOUS WEEDS. SPREAD MULCH UNIFORMLY, MECHANICALLY OR BY HAND, TO A DEPTH OF 1-2 INCHES. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY MULCH NETTINGS, MULCH ANCHORING TOOL, WOOD CELLULOSE FIBER OR LIQUID MULCH BINDERS.

APPLY WOOD CELLULOSE FIBER AT A DRY WEIGHT OF 1,500 LBS/ACRE. IF MIXED WITH WATER, USE 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

LIQUID BINDER SHOULD BE APPLIED HEAVIER AT THE EDGE, WHERE WIND CATCHES MULCH IN VALLEYS, AND ON CREST OF BANKS. THE REMAINDER OF THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. APPLY RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR AND MULCH. STAPLE LIGHT WEIGHT, PLASTIC NETTING OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

VIII. SOODING

CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED, OR MARYLAND OR VIRGINIA STATE APPROVED SOD. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD IS TO BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR USING STAGGERED JOINTS WITH ALL ENDS TIGHTLY BUTTED AND NOT OVER LAPPING. SOD SHALL BE ROLLED AND THOROUGHLY WATERED AFTER INSTALLATION. DAILY WATERING TO MAINTAIN 4 INCH DEPTH OF MOISTURE FOR THE FIRST WEEK IS REQUIRED IN THE ABSENCE OF RAINFALL. SOD IS NOT TO BE APPLIED ON FROZEN GROUND.

IX. MAINTENANCE

A. IRRIGATE - APPLY MINIMUM 1" OF WATER EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE, WHEN SOIL MOISTURE BECOMES DEFICIENT TO PREVENT LOSS OF PROTECTIVE VEGETATION.
B. REPAIRS - IF STAND PROVIDES BETWEEN 40% AND 94% GROUND COVERAGE, OVERSEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY APPLIED. IF STAND PROVIDES LESS THAN 40% COVERAGE, REESTABLISH STAND FOLLOWING ORIGINAL RATES AND PROCEDURES.

65% REVIEW - NOT FOR CONSTRUCTION

DC SWM PLAN NO.

SWM SHEET 7 OF 10



21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

B. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

C. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

I. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

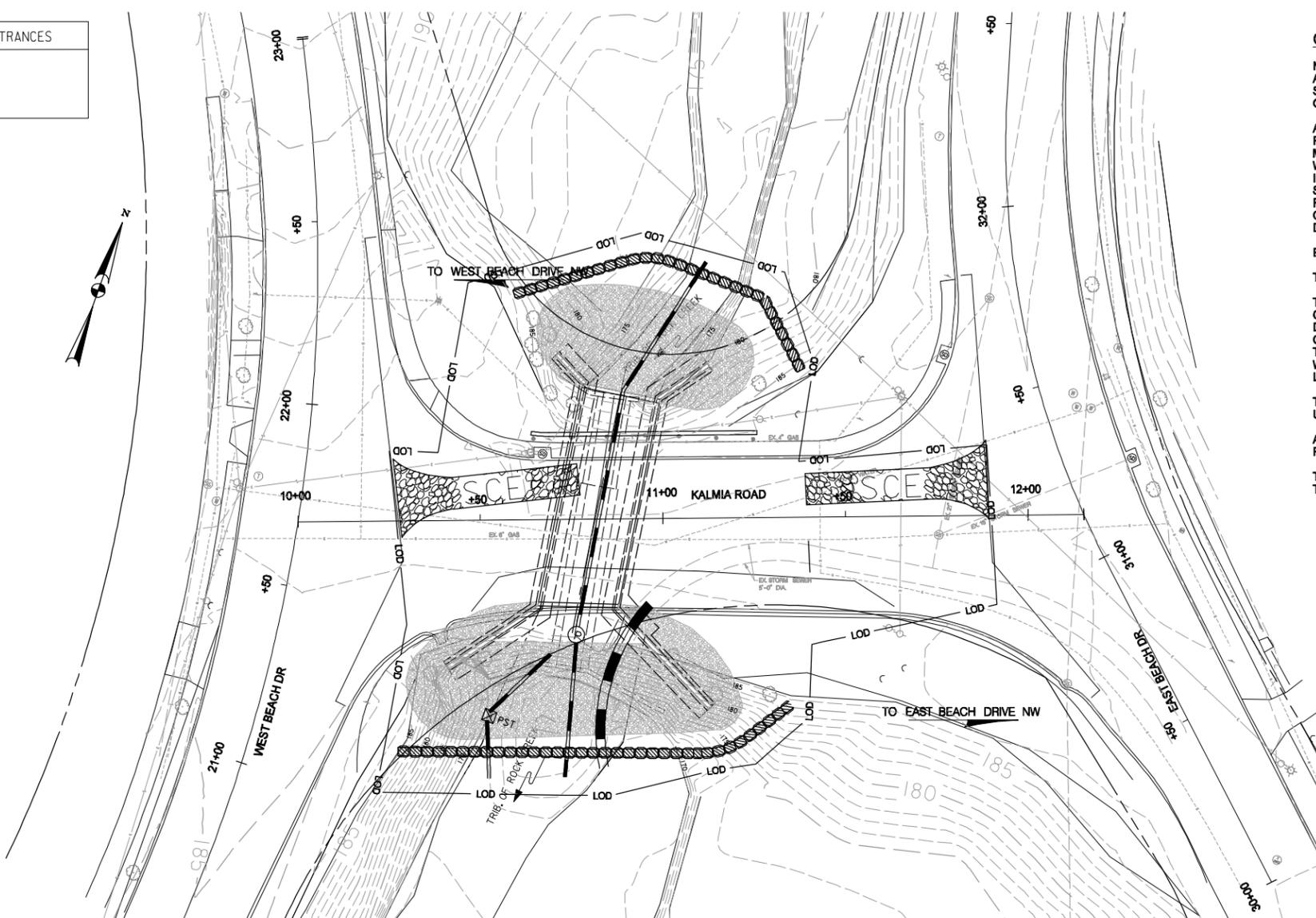
IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

- ON SOIL HEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
 - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (1/4 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
- NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
- PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION, STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"-8" HIGHER ELEVATION.
- TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

| STABILIZED CONSTRUCTION ENTRANCES | |
|-----------------------------------|--|
| 50 TONS - STA. 10+25 | |
| 50 TONS - STA. 11+80 | |



EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 20'

GENERAL NOTES:

NO STAGING OR STOCKPILE AREAS SHALL BE ALLOWED IN THE 100 YEAR FLOODPLAIN OR ANY OTHER ENVIRONMENTALLY SENSITIVE AREA. CONTRACTOR SHALL COORDINATE LOCATION AND APPROVAL WITH DDOT AND NPS. ALL WORK STORAGE, OR ANY OTHER STAGING AREAS SHALL BE STABILIZED AS NECESSARY DURING CONSTRUCTION AND UNPAVED TRAFFIC AREAS SHALL BE MATTED OR GRAVELED AND ALL CONSTRUCTION EQUIPMENT USED WITHIN THE STREAM DIVERSION MUST BE PLACED ON MATS.

AT THE CONTRACTORS OPTION AN ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE PROPOSED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING THE APPROPRIATE PLANS AND REQUEST IN WRITING FOR A CHANGE TO THESE PLANS. ALL CHANGES MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE APPLICABLE PERMITTING AGENCIES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DELAYS CAUSED BY THE REVIEW AND APPROVAL PROCESS NOR WILL ADDITIONAL COMPENSATION BE ALLOWED IF ANY PROPOSED CHANGE IS REJECTED. DDOT AND PERMITTING AGENCIES SHALL DETERMINE WHETHER ANY PROPOSED ALTERNATE SEQUENCE IS ACCEPTABLE. IF NO ALTERNATE IS FOUND ACCEPTABLE THEN THE SEQUENCE SHOWN ON THESE PLANS SHALL BE FOLLOWED. CONTRACTOR SHALL PROVIDE A PUMP WITH SUFFICIENT CAPACITY TO DEWATER THE WORK ZONE DURING LOW FLOW. CONTRACTOR SHALL SUBMIT PLANS FOR DEWATERING THE ONE YEAR STORM EVENT TO THE ENGINEER FOR APPROVAL. THE SANDBAG DIVERSION SHALL BE OF SUFFICIENT WIDTH TO WITHSTAND THE WATER PRESSURE.

EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED FOR THIS PROJECT.

THE STORM AND STREAM DIVERSION SHALL BE IN PLACE FOR THE SHORTEST TIME POSSIBLE.

THE STREAM DIVERSION DETAILS ARE SUGGESTED METHODS OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL HAVE THE OPTION OF USING OTHER DIVERSION DEVICES BASED ON OBTAINING APPROVAL FOR CHANGES MADE TO THESE PLANS. ONCE THE DIVERSION DEVICE IS APPROVED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DEWATER THE AREA. NO ADDITIONAL COMPENSATION WILL BE ALLOWED IF THE METHOD OF DIVERSION OPTION IS CHANGED BECAUSE OF DEWATERING DIFFICULTIES. THE DIVERSION SHALL BE PLACED SO THAT IT IS LOCATED WITHIN THE EXISTING RIGHT-OF-WAY AND ALLOWS CONSTRUCTION WITHIN THE DIVERSION AREA TO BE COMPLETED IN THE DRY. ACTUAL STREAM DIVERSION QUANTITIES MAY BE ADJUSTED AS LONG AS ALL CONSTRUCTION IS IN THE DRY AND CHANGES DO NOT EXCEED LOD WITHOUT PRIOR APPROVAL.

THE DIVERSION IS NOT INTENDED TO BLOCK HIGHWATER EVENTS FROM FLOODING THE DEWATERED AREAS. NO EQUIPMENT OR UNSECURED MATERIALS WILL BE ALLOWED OVERNIGHT WITHIN THE STREAM BANKS IN CASE FLOODING OCCURS.

ALL PLACEMENT, ADJUSTMENTS, ETC. OF THE STREAM DIVERSION SHALL BE PERFORMED WHILE OBSERVING ANY IN-STREAM WORK RESTRICTIONS.

THE COST OF THE STREAM DIVERSION AND REQUIRED EQUIPMENT (PIPE, RIPRAP OUTLET PADS, PUMPS, SAND BAGS, ETC.) IS TO BE CONSIDERED INCIDENTAL TO MAINTENANCE OF STREAM FLOW ITEM.

STANDARD SYMBOLS

- SILT FENCE (SEE DETAIL 4, PAGE B-6-3) *
- CURB INLET PROTECTION (SEE DETAIL 6C, PAGE B-7-7) *
- STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL 1, PAGE A-1-3) *
- SANDBAG DIVERSION
- LIMIT OF DISTURBANCE
- EXISTING CONTOURS
- PROPOSED CONTOURS

* ALL PAGE REFERENCES REFER TO THE 2003 DISTRICT OF COLUMBIA STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

65% REVIEW - NOT FOR CONSTRUCTION

DC SWM PLAN NO.
SWM SHEET 8 OF 10

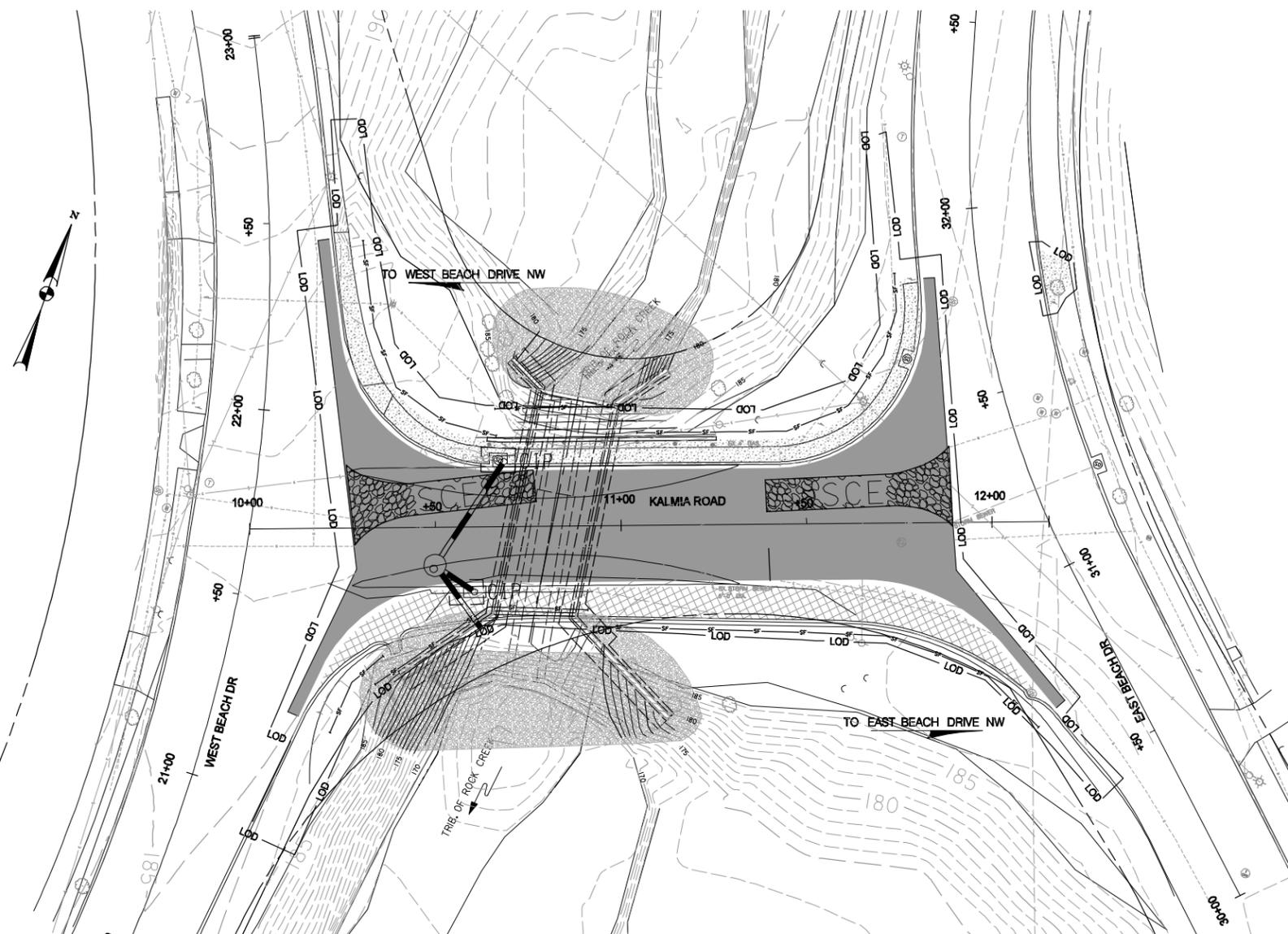


DC DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

KALMIA ROAD CULVERT 103-C
STAGE 1 SEDIMENT AND EROSION CONTROL PLAN

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____



SILT FENCE
 233 L.F. - STA. 21+22, RT. TO 30+58, LT.
 231 L.F. - STA. 22+45, RT. TO 31+84, LT.
 5 L.F. - STA. 31+73, RT.

PORTABLE SEDIMENT TANK
 1 EA

EROSION AND SEDIMENT CONTROL PLAN
 SCALE: 1" = 20'

- LEGEND**
- FULL DEPTH PAVEMENT
 - CONCRETE SIDEWALK
 - PAVEMENT REMOVAL
- STANDARD SYMBOLS**
- SILT FENCE (SEE DETAIL 4, PAGE B-6-3) *
 - CURB INLET PROTECTION (SEE DETAIL 6C, PAGE B-7-7) *
 - STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL 1, PAGE A-1-3) *
 - SANDBAG DIVERSION
 - LIMIT OF DISTURBANCE
 - EXISTING CONTOURS
 - PROPOSED CONTOURS

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65% REVIEW - NOT FOR CONSTRUCTION

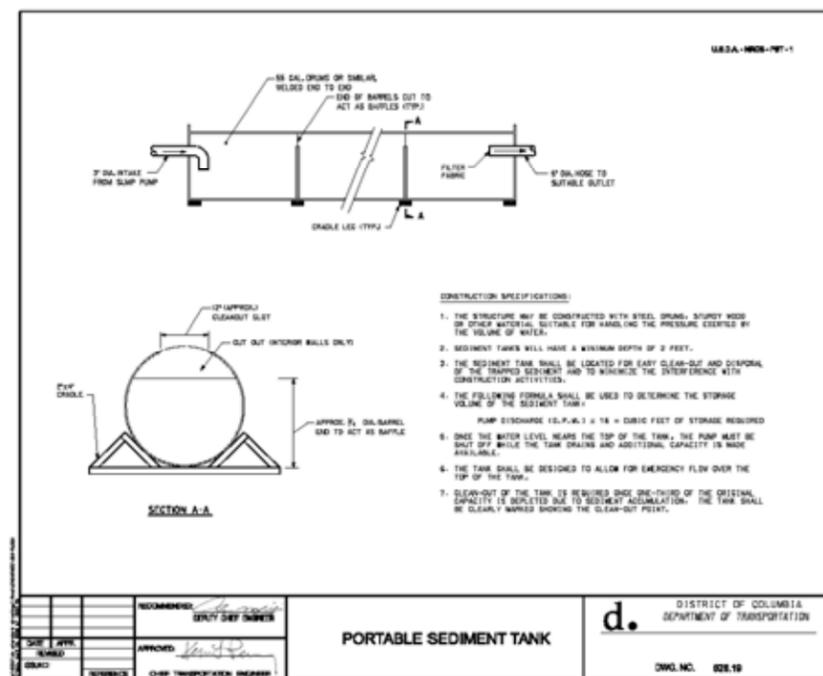
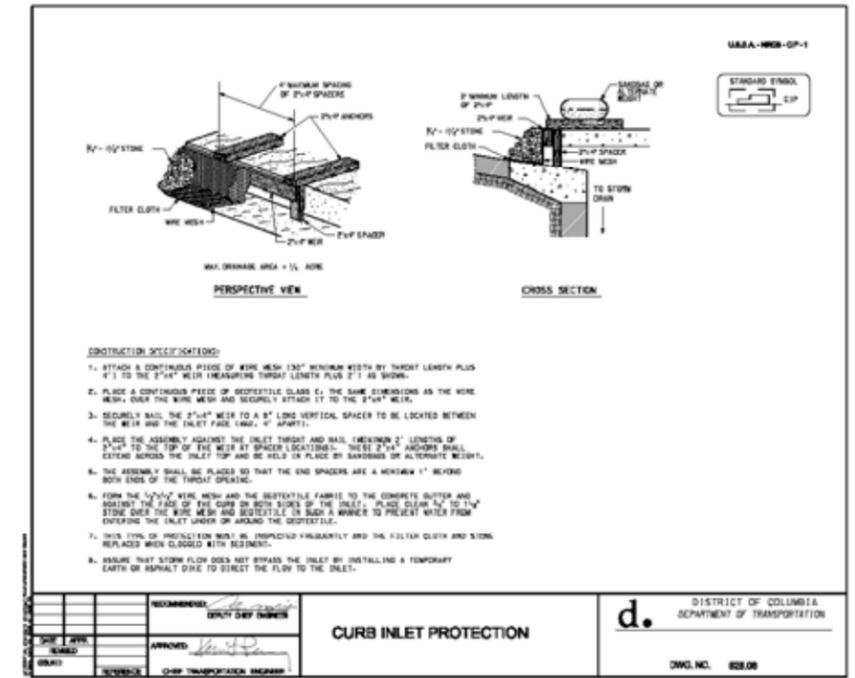
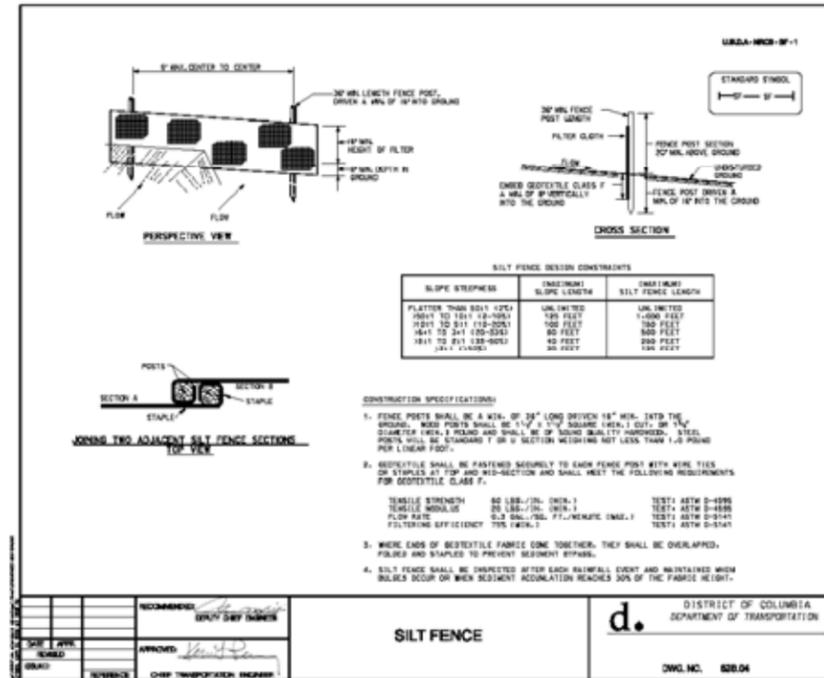
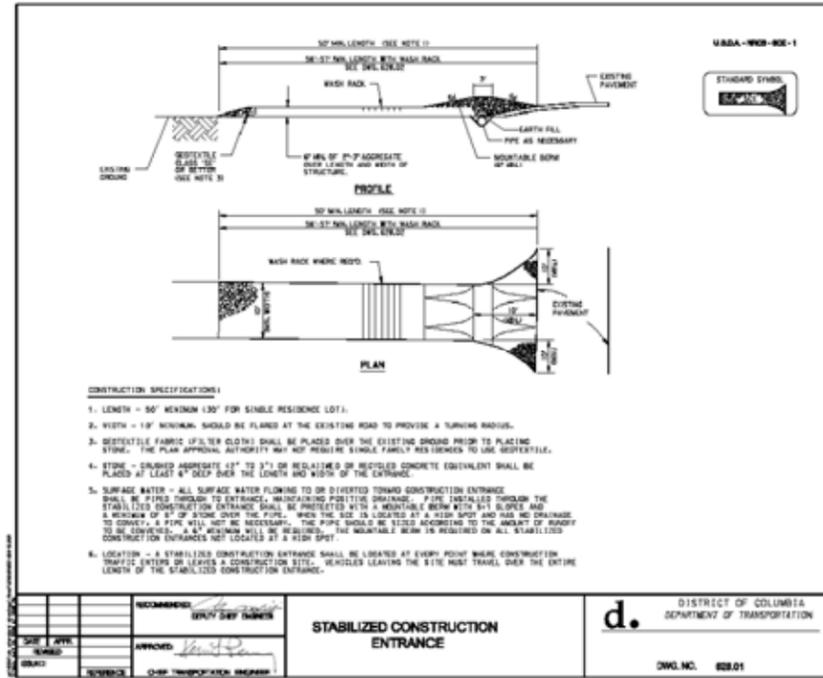
DC SWM PLAN NO.
 SWM SHEET 9 OF 10



DC DISTRICT OF COLUMBIA
 .gov DEPARTMENT OF TRANSPORTATION
 KALMIA ROAD CULVERT 103-C
STAGE 2 SEDIMENT AND EROSION CONTROL PLAN

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
 DRAWN BY _____
 CHECKED BY _____



65% REVIEW - NOT FOR CONSTRUCTION

DC SWM PLAN NO. _____
SWM SHEET 10 OF 10

MERCADO CONSULTANTS, INC.
ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

DC.gov DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C

SEDIMENT & EROSION CONTROL DETAILS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____

DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____

SHEET NO. 27 OF 28

RECORD OF SOIL / ROCK EXPLORATION

Contracted With Mercado Consultants, Inc. Boring # SI-1
Project Name Replace Culvert 103-C - Kalmia Road Job # 11-033
Location Between E. Beach Dr & W. Beach Dr., NW, Washington, DC

SAMPLER
Datum _____ Hammer Wt. 140 lb Hole Diameter 6 in Foreman W. Massey
Surf. Elev. 185.8 ± ft Hammer Drop 30 in Rock Core Dia. 2 in Inspector _____
Date Started 10/31/11 Spoon Size 2 in Boring Method HSA/RC Date Completed 10/31/11

| ELEV. (ft) | SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size Proportions | STRA DEPTH (ft) | SOIL SYMBOL | DEPTH SCALE | Cond | SAMPLE | | | | BORING & SAMPLE NOTES | |
|------------|--|-----------------|-------------|-------------|------|--------------------|-----|------|----------|-----------------------|--|
| | | | | | | Blows/6" ROD/REC | No. | Type | Rec (in) | | |
| 185.6 | ASPHALT, 3 inches | 0.3 | | | | | | | | | 1. Water encountered at 18.0 ft. 2. Boring backfilled with auger cuttings and surface was restored in kind. |
| 185.1 | CONCRETE, 6 inches | 0.8 | | | I/D | 1-2-6 | 1 | DS | 10 | | |
| 184.7 | VOID, 4 inches | 1.1 | | | | | | | | | |
| 182.8 | Black, moist, loose, fine to coarse SILTY SAND, little gravel, trace clay, trace mica, (FILL) | 3.0 | | | I/D | 7-4-3 | 2 | DS | 6 | | |
| 180.8 | Brown, moist, loose, clayey SAND, trace gravel, trace silt, trace mica, (FILL) | 5.0 | | | I/D | 3-2-2 | 3 | DS | 10 | | |
| | Brown, moist, soft to medium stiff, sandy SILT, trace gravel, trace clay, trace mica, (FILL) | | | | I/D | 2-2-2 | 4 | DS | 12 | | |
| | | | | | I/D | 3-3-3 | 5 | DS | 16 | | |
| | | | | | I/D | 2-2-4 | 6 | DS | 16 | | |
| 170.8 | Gray, moist, loose, silty SAND, trace gravel, trace mica, (SM) | 15.0 | | | I/D | 6-3-3 | 7 | DS | 14 | | |
| 168.3 | Brown-gray, wet, medium dense to very dense, silty SAND, little gravel and stone | 17.5 | | | I/D | 7-13-10 | 8 | DS | 8 | | |
| | | | | | I/D | 25-12-19 | 9 | DS | 10 | | |
| | | | | | I/D | 36-51 | 10 | DS | 12 | | |
| 160.8 | Brown, moist, very dense, silty SAND, trace gravel, trace mica, (SM) | 25.0 | | | I/D | 24-41-44 | 11 | DS | 16 | | |
| 156.8 | Gray-brown, moist, hard, silty CLAY, little gravel, (POSSIBLE BEDROCK) | 29.0 | | | I | 51/5" | 12 | DS | 5 | | |
| 156.6 | Light gray, very hard, medium grained, slightly weathered BIOTITE SCHIST | 29.2 | | | | ROD=88X REC=83X | R1 | RC | 50 | | |
| 151.6 | Brown, hard to very hard, medium to coarse grained, moderately weathered, slightly rough BIOTITE SCHIST, thin bedding, steeply dipping | 34.2 | | | | ROD=48X REC=75X | R2 | RC | 45 | | |
| 146.6 | Bottom of Boring at 39.2 ft | 39.2 | | | | | | | | | |

SAMPLER TYPE DS - DRIVEN SPLIT SPOON, PT - PRESSED SHELBY TUBE, CA - CONTINUOUS FLIGHT AUGER, RC - ROCK CORE
SAMPLE CONDITIONS D - DISINTEGRATED, I - INTACT, U - UNDISTURBED, L - LOST
GROUNDWATER DEPTH AT COMPLETION _____ ft, AFTER _____ HRS., AFTER 24 HRS. _____ ft, CAVED AT _____ ft
BORING METHOD HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING
STANDARD PENETRATION TEST DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

RECORD OF SOIL / ROCK EXPLORATION

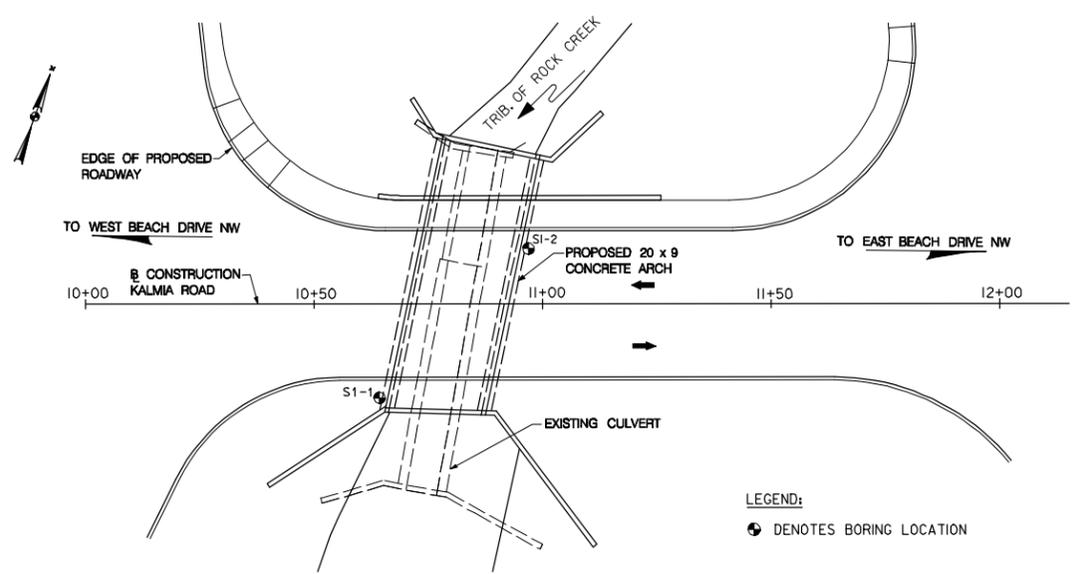
Contracted With Mercado Consultants, Inc. Boring # SI-2
Project Name Replace Culvert 103-C - Kalmia Road Job # 11-033
Location Between E. Beach Dr & W. Beach Dr., NW, Washington, DC

SAMPLER
Datum _____ Hammer Wt. 140 lb Hole Diameter 6 in Foreman W. Massey
Surf. Elev. 186.2 ± ft Hammer Drop 30 in Rock Core Dia. N/A Inspector _____
Date Started 11/1/11 Spoon Size 2 in Boring Method HSA/RC Date Completed 11/1/11

| ELEV. (ft) | SOIL DESCRIPTION Color, Moisture, Density, Plasticity, Size Proportions | STRA DEPTH (ft) | SOIL SYMBOL | DEPTH SCALE | Cond | SAMPLE | | | | BORING & SAMPLE NOTES | |
|------------|--|-----------------|-------------|-------------|------|------------------|-----|------|----------|-----------------------|--|
| | | | | | | Blows/6" ROD/REC | No. | Type | Rec (in) | | |
| 185.9 | ASPHALT, 4 inches | 0.3 | | | | | | | | | 1. Water encountered at 18.0 ft. 2. Boring backfilled with auger cuttings and surface was restored in kind. |
| 184.9 | CONCRETE, 12 inches | 1.3 | | | | | | | | | |
| | Brown-gray, moist, medium dense, silty SAND, some gravel, trace clay, trace mica, (FILL) | | | | I/D | 5-5-8 | 1 | DS | 7 | | |
| 181.2 | Brown, moist, medium stiff, SILT, trace gravel, trace sand, trace clay, little mica, (FILL) | 5.0 | | | I/D | 7-2-3 | 2 | DS | 12 | | |
| 178.7 | Brown, moist, medium stiff to soft, silty CLAY, trace gravel, trace mica, (FILL) | 7.5 | | | I | 5-3-3 | 3 | DS | 6 | | |
| | | | | | I | 4-3-3 | 4 | DS | 4 | | |
| | | | | | I | 5-2-1 | 5 | DS | 6 | | |
| 171.2 | Gray, wet, soft, sandy CLAY, trace gravel, trace mica | 15.0 | | | I/D | 4-1-3 | 6 | DS | 15 | | |
| 168.7 | Brown, moist to wet, dense to very dense, silty SAND, with gravel, trace mica, (SM) | 17.5 | | | I/D | 14-17-17 | 7 | DS | 8 | | |
| | | | | | I/D | 39-21-14 | 8 | DS | 6 | | |
| | | | | | I/D | 40-29-23 | 9 | DS | 18 | | |
| 161.2 | Brown, moist, hard, sandy SILT, trace gravel, trace mica | 25.0 | | | I/D | 22-20-31 | 10 | DS | 18 | | |
| 158.7 | Brown, moist, medium dense to very dense, silty SAND, trace gravel, trace clay, trace mica, (SM) | 27.5 | | | I/D | 17-21-15 | 11 | DS | 10 | | |
| | | | | | I/D | 8-14-16 | 12 | DS | 14 | | |
| | | | | | I/D | 8-12-32 | 13 | DS | 18 | | |
| 151.4 | Bottom of Boring at 34.8 ft | 34.8 | | | I/D | 40-50/4" | 14 | DS | 10 | | |

SAMPLER TYPE DS - DRIVEN SPLIT SPOON, PT - PRESSED SHELBY TUBE, CA - CONTINUOUS FLIGHT AUGER, RC - ROCK CORE
SAMPLE CONDITIONS D - DISINTEGRATED, I - INTACT, U - UNDISTURBED, L - LOST
GROUNDWATER DEPTH AT COMPLETION _____ ft, AFTER _____ HRS., AFTER 24 HRS. _____ ft, CAVED AT _____ ft
BORING METHOD HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING
STANDARD PENETRATION TEST DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

BORING AND DRIVE TESTS
SCALE: NONE



BORING LOCATION PLAN
SCALE: 1" = 20'-0"

65% REVIEW - NOT FOR CONSTRUCTION

DC.gov DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION
KALMIA ROAD CULVERT 103-C
SOIL BORING LOGS

MERCADO CONSULTANTS, INC.
ENGINEERS • SURVEYORS • INSPECTORS • CONSTRUCTION MANAGERS

SCALE AS SHOWN DATE 4-27-12 CONTRACT NO. _____
DESIGNED BY _____
DRAWN BY _____
CHECKED BY _____ SHEET NO. 28 OF 28