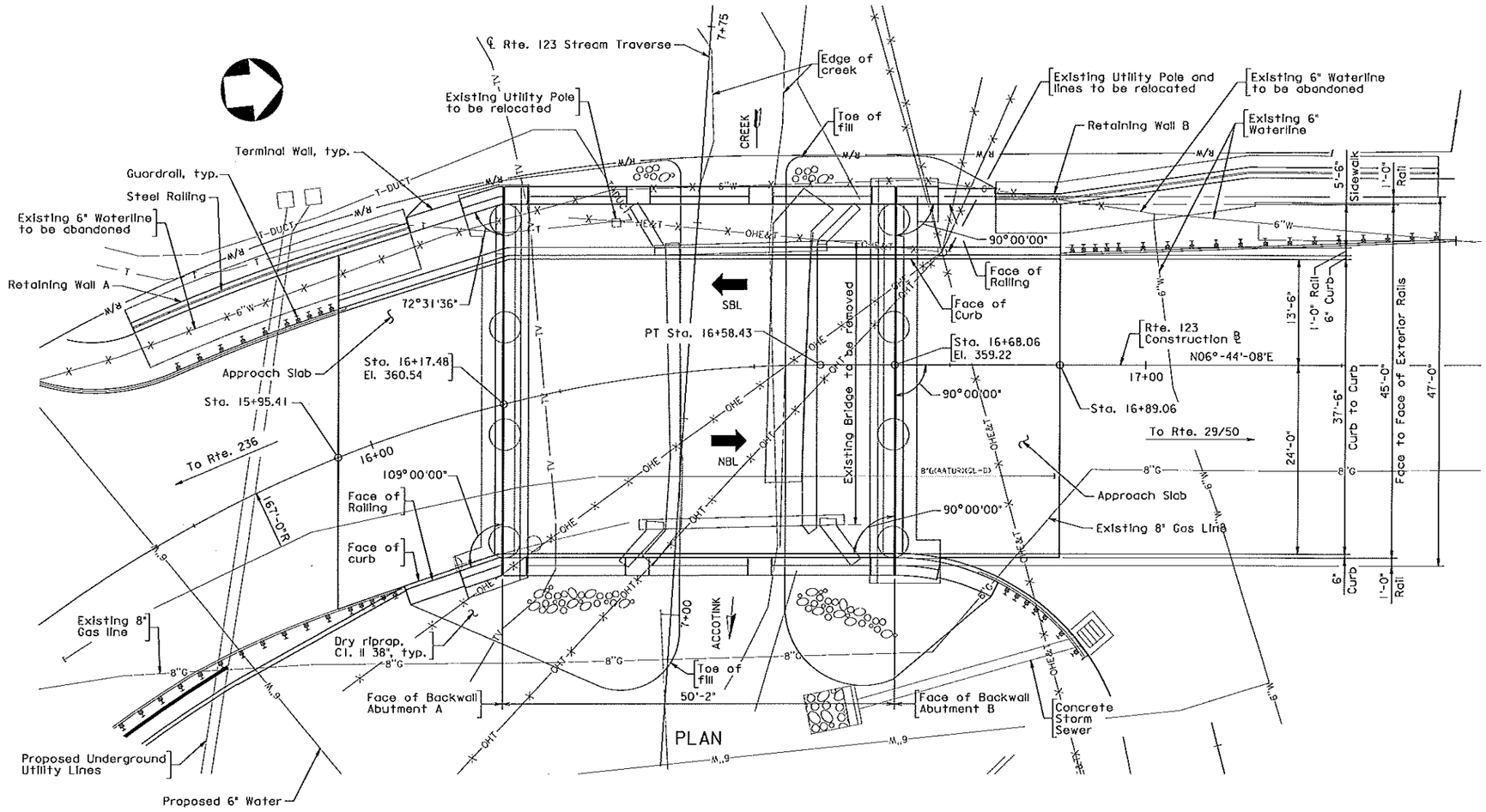
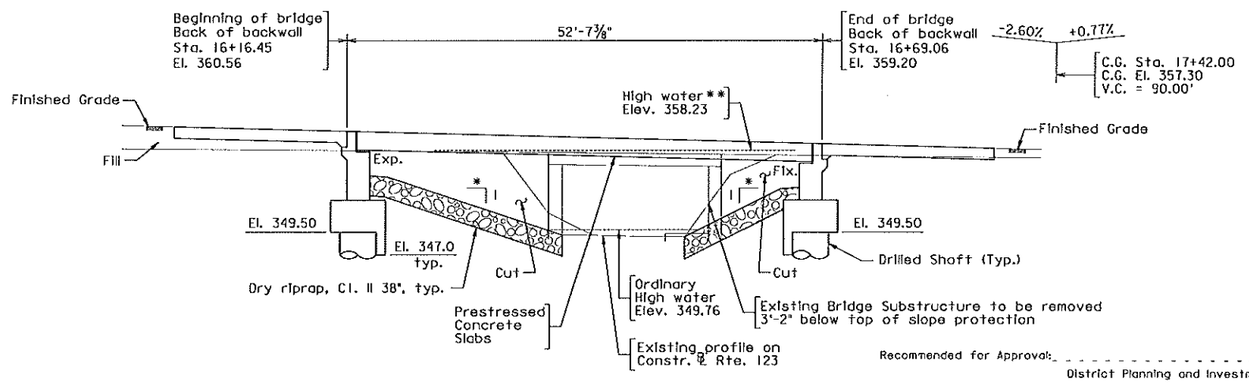
STATE	FEDERAL AID		STATE		SHEET
	ROUTE	PROJECT	ROUTE	PROJECT	NO.
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	1
NBIS Number:		000000000022496	UPC No.	89891	
Federal Oversight Code:		NFO	FHWA Construction and Scour Code:		X080-S5





DEVELOPED SECTION ALONG ℄

* 1½ H:1V Min. Slope normal to abutment

** Based on Hydraulic Analysis and not a recorded data.

Scale: ⅛" = 1'-0"

DESIGN EXCEPTIONS:

None.

GENERAL NOTES:

The original approved sheet, including original signatures, is filed in the VDOT Central Office. Any misuse of electronic files is illegal. Violators will be prosecuted to the full extent of the applicable laws.

Widths: 5'-6" Sidewalk, 1'-0" railing, 6" curb, 13'-6" minimum and 18'-0" maximum SBL roadway, 3'-0" minimum and 7'-0" maximum median, 15'-6" minimum and 17'-0" maximum NBL roadway, 6" curb. Overall width 45'-0" face-to-face of exterior rails.

Span layout: 50'-2" simple prestressed concrete slab span.

Capacity: HL-93 loading

Drainage area: 1.15 sq. mi.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007 and Current Revisions.

Design: AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010; 2010 Interim Specifications; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, June 2011 and latest revisions.

Concrete in superstructure including sidewalks, rails, terminal walls, abutment footings, and drilled shafts shall be Class A4; in abutment neat work, and retaining walls, Class A3.

Low permeability concrete shall be used in this project.

Prestressed concrete in prestressed concrete slabs shall be Class A5 having a minimum compressive cylinder strength at 28 days equal to 8,000 psi and a minimum compressive cylinder strength at time of release of strands equal to 6,500 psi.

All reinforcing steel shall be deformed and shall conform to ASTM A615 Grade 60 except for reinforcing steel noted as CRR (corrosion resistant reinforcement) which shall conform to the applicable specifications noted in the special provision. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

Corrosion resistant reinforcing (CRR) steels shall conform to one or more of two types (low carbon/chromium, or solid stainless) listed in the special provision. The minimum yield strength shall be: 100 ksi for low carbon/chromium steel and 60 ksi for stainless clad steel or solid stainless steel. The types of CRR steels required on this project are noted on plan sheets and on the reinforcing steel schedule.

Prestressing strands shall be uncoated, seven-wire, low-relaxation steel strands conforming to ASTM A416 Grade 270.

See Sheet 2 for continuation of General Notes.

VDOT

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE REPLACEMENT ON

ROUTE 123 (CHAIN BRIDGE ROAD) OVER ACCOTINK CREEK CITY OF FAIRFAX - 0.31 MI. N. RTE. 236 PROJ. 0123-151-139, B604

COMMONWEALTH OF VIRGINIA
EFREN MADDAD SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 12:22:00 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

PLANS BY:	Consultant
COORDINATED:	SAS
SUPERVISED:	KB
DESIGNED:	GMK
DRAWN:	MH
CHECKED:	EMS

No.	Description	Date
	REVISIONS	
	For Table of Revisions, see Sheet 2.	

Recommended for Approval: _____ District Planning and Investment Manager — Date

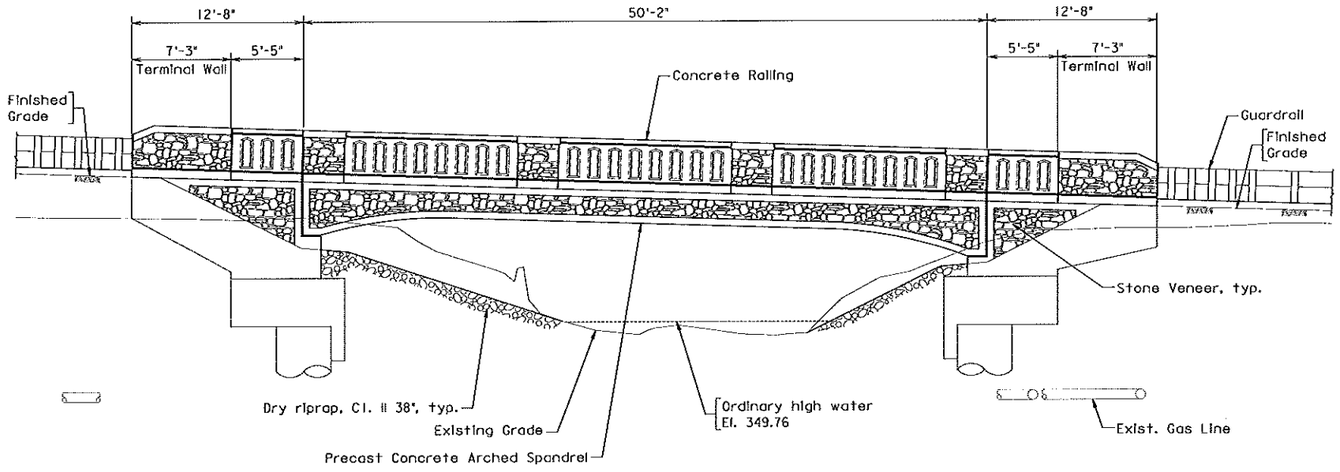
Recommended for Approval: _____ District Project Development Engineer — Date

Approved: _____ District Administrator — Date

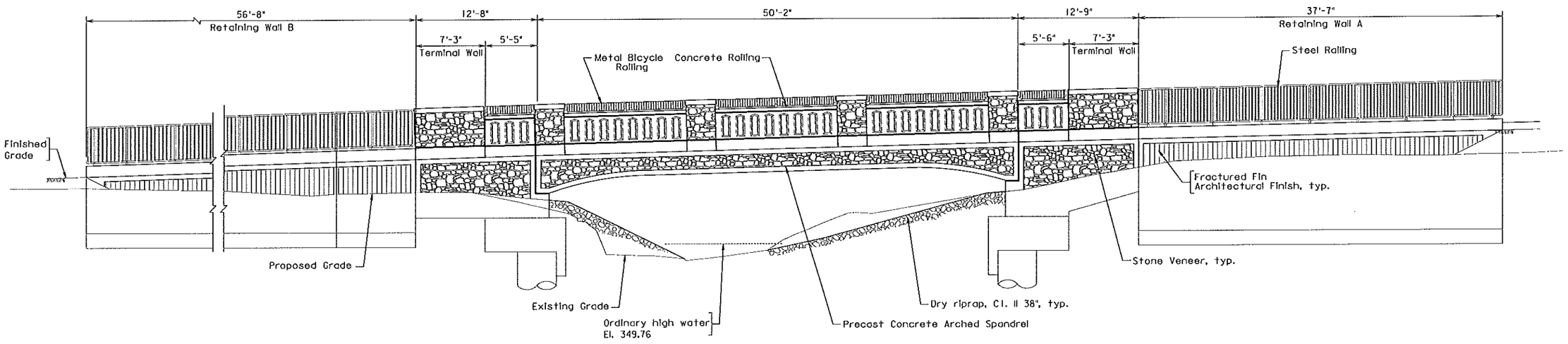
291-81

Date: December 31, 2012

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	2



EAST ELEVATION



WEST ELEVATION

GENERAL NOTES (Continued):

Drilled shafts for abutments are required to provide a minimum axial design capacity of 230 tons per shaft and a minimum lateral design capacity of 20 tons per shaft. Drilled shafts shall be installed to the minimum tip elevations shown on the plans, unless otherwise directed or authorized by the Engineer.

Footings for retaining walls shall bear on firm material. Bearing capacity of foundation shall be 2.0 tons/sq. ft. min.

Bridge No. of existing bridge is 1802.

Deck shall be waterproofed in accordance with the requirements of Sec. 405 and Sec. 416.

The existing structure is designated a Type B structure in accordance with Sec. 411.

Structural approach slabs are included in the bridge contract.

No construction equipment shall be placed in the stream area during construction.

Prior to commencement of any work Contractor shall field verify all dimensions, stations, and elevations of the existing structure and report to the Engineer any discrepancies between field measurements and dimensions/stations shown on the contract documents.

B.M.: TRV #103, Pipe with Cap, Elev. 356.15

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 12:25:05 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

Scale: 3/16" = 1'-0"

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ELEVATIONS

Designed: GMK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	2 of 56
Checked: EMS			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	3

ESTIMATED QUANTITIES - SUBSTRUCTURE ONLY

		Concrete Class A3 CY	Reinforcing Steel LB	Corrosion Resistant Reinf. Steel Low Carbon/ Chromium LB	Corrosion Resistant Reinf. Steel Solid Stainless LB	Regular Excavation CY ⊗	Structure Excavation CY ⊗	Dry Riprap Class II 38" TON	Porous Backfill CY ⊗	Lightweight Backfill TON	Drilled Shaft 42" Standard Excavation and Installation LF	Drilled Shaft 42" Special Excavation and Installation LF	Crosshole Sonic Logging Testing EA.
Abutment A	Neat	38.8	—	—	—	—	—	—	—	—	—	—	
	Footing	46.9	7,400	4,080	340	518	464	391	24	244	128	88	4
Abutment B	Neat	29.5	—	—	—	—	—	—	—	—	—	—	
	Footing	48.4	7,400	3,520	340	253	429	257	19	223	132	84	4
Total		163.6	14,800	7,600	680	771	893	648	43	468	260	172	8

⊗ Denotes Items to be paid for on the basis of plan quantities in accordance with current Road and Bridge Specifications.

ESTIMATED QUANTITIES - SUBSTRUCTURE ONLY

		6" Pipe Underdrain LF	Temporary Sheet Piling SF	East Concrete Railing LF ⊗	West Concrete Railing LF ⊗	Metal Railing LF ⊗	Stone Veneer (Note 1) LF
Abutment A	Neat	80	723	13	13	11	150
	Footing						
Abutment B	Neat	78	418	13	13	11	151
	Footing						
Total		158	1141	26	26	22	301

ESTIMATED QUANTITIES - RETAINING WALL ONLY

		Concrete Class A3 CY	Reinforcing Steel LB	Structure Excavation CY ⊗	Porous Backfill CY ⊗	6" Pipe Underdrain LF	Select Material Type I (Min CBR 30) TON	Steel Railing LF ⊗
Retaining Wall A	Neat	20.7	1,670	—	—	39	—	38
	Footing	17.2	1,660	96	21		3	
Retaining Wall B	Neat	21.3	1,390	—	—	58	—	57
	Footing	19.8	1,580	82	21		2	
Total		79.0	6,300	178	42	97	5	95

LUMP SUM BID ITEMS

Mobilization	LS
Construction Surveying	LS
Dismantle and Remove Existing Structure Number 1802	LS
Bridge Lighting System	LS

ESTIMATED QUANTITIES - SUPERSTRUCTURE ONLY

Item	Units	Quantity
Concrete Class A4 (Note 2)	CY	7.2
Precast Concrete Spandrel Arch	SF	266
Asphalt Concrete Ty. SM-9.5D	TON	34
Corrosion Resistant Reinforcement Steel ⊗ Solid Stainless (Note 2)	LB	400
Prestressed Concrete Slab 3'x21" (50')	EA	1
Prestressed Concrete Slab 4'x21" (50')	EA	11
East Concrete Railing ⊗	LF	50
West Concrete Railing ⊗	LF	50
Pedestrian Concrete Railing ⊗	LF	50
Metal Railing ⊗	LF	77
Rapid Cure Silicone Joint	LF	99
Stone Veneer (Note 3)	SF	361
Concrete Class A4 Bridge Approach Slab (Note 4) ⊗	CY	90.7
Reinforcement Steel Bridge Approach Slab (Note 4) ⊗	LB	15,660
Asphalt Concrete Ty. SM-9.5D Approach Slab	TON	29
Pedestrian Concrete Railing on Approach Slab ⊗	LF	43
Metal Railing on Approach Slab ⊗	LF	29

⊗ Denotes Items to be paid for on the basis of plan quantities in accordance with current Road and Bridge Specifications.

INDEX OF SHEETS

Rev. No.	Sheets Revised	Date

TABLE OF REVISIONS

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:06:36 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

Notes:

1. Stone veneer in substructure include stone veneers in terminal walls and wingwalls.
2. Concrete or reinforcing steel for superstructure sidewalk slab.
3. Stone veneer in superstructure include stone veneers in east and west concrete railings and in Precast Concrete Spandrel Arches.
4. Includes concrete or reinforcing steel of sidewalk slab.

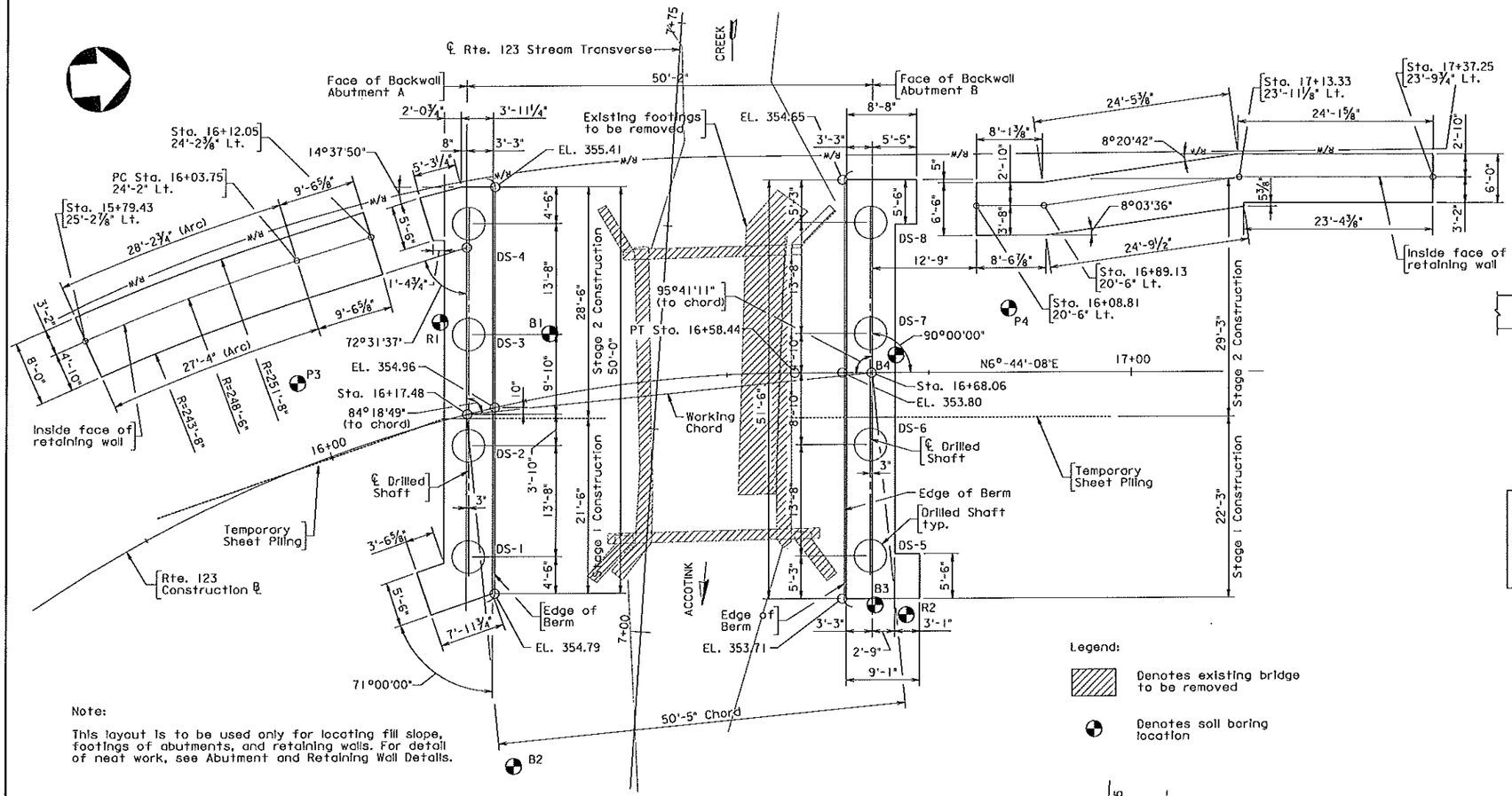
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ESTIMATED QUANTITIES & INDEX OF SHEETS

Designed: GVK	Date	Plan No.	Sheet No.
Drawn: WH	Dec. 2012	291-81	3 of 56
Checked: HH/EMS			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	4



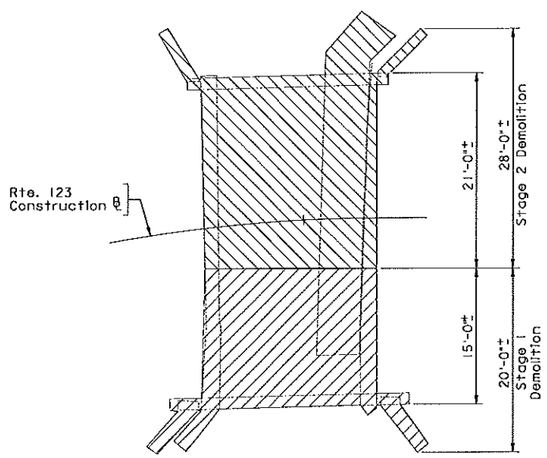
Note:

This layout is to be used only for locating fill slope, footings of abutments, and retaining walls. For detail of neat work, see Abutment and Retaining Wall Details.

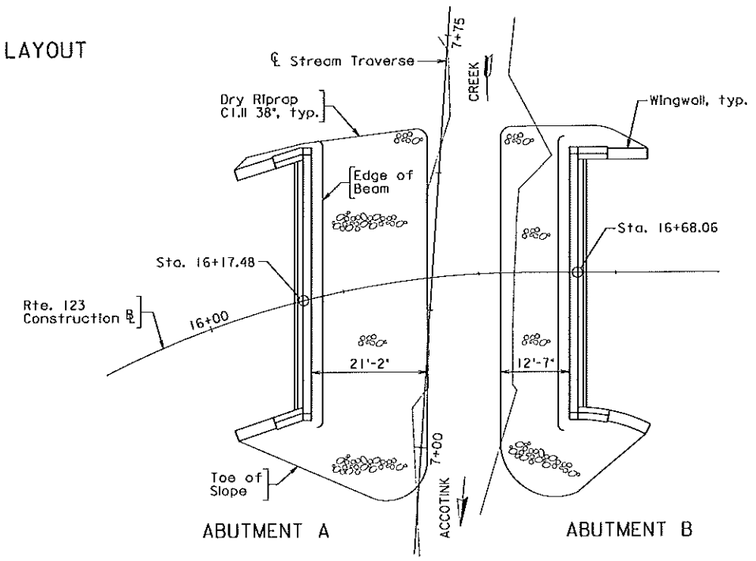
Legend:

- Denotes existing bridge to be removed
- Denotes soil boring location

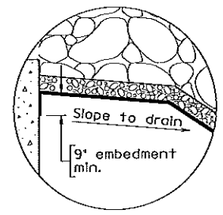
SUBSTRUCTURE LAYOUT



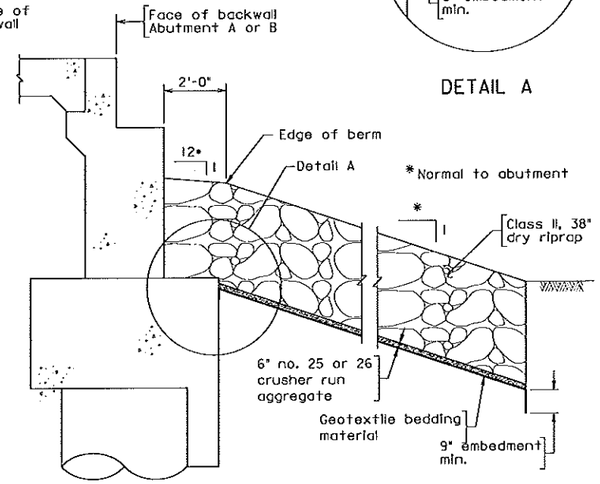
EXISTING BRIDGE DEMOLITION PLAN



SLOPE PROTECTION PLAN
Not to Scale



DETAIL A



TYPICAL SECTION SLOPE PROTECTION
Not to Scale

Scale: ⅛" = 1'-0"

COMMONWEALTH OF VIRGINIA
EFREN MASIAS SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 12:31:28 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

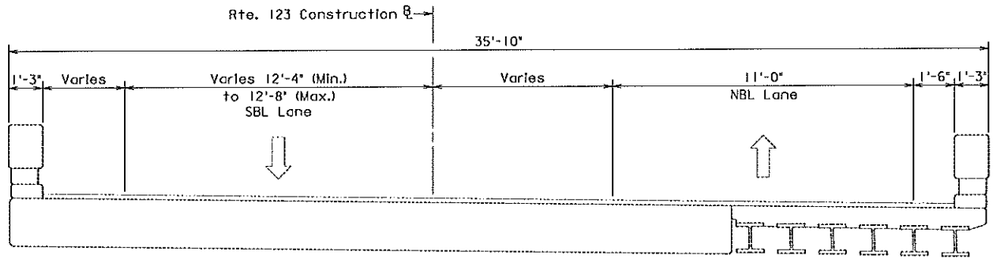
SUBSTRUCTURE LAYOUT AND SLOPE PROTECTION DETAILS

Designed: CMK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	4 of 56
Checked: EMS			

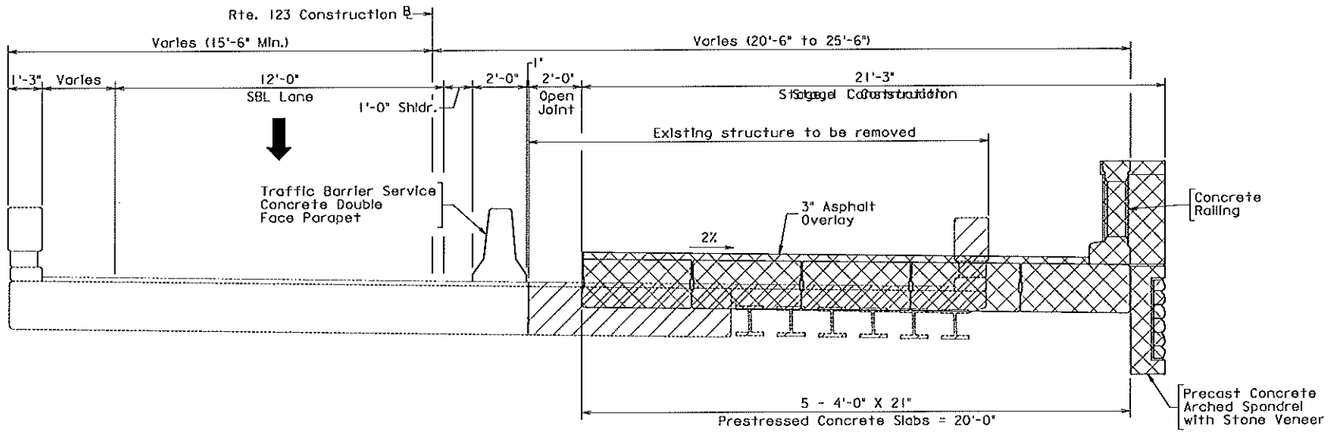
DGN

b291810004

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	5



EXISTING STRUCTURE



STAGE I CONSTRUCTION

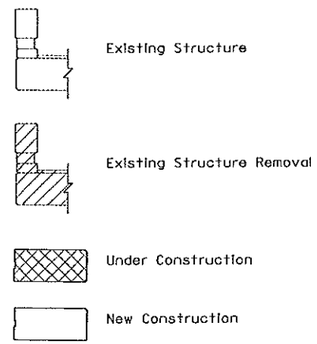
SUGGESTED CONSTRUCTION SEQUENCE

During construction, SBL lane shall be maintained over the structure and NBL lane shall be detoured. The required construction shall be accomplished in two stages. The staged construction shall be in accordance with the following construction sequences and coordinated with the Maintenance of Traffic Plans and TMP. For details of the Traffic Barrier Service Concrete Double Face Parapets, see Roadway Plans.

STAGE I

- Place Traffic Barrier Service Concrete Double Face Parapet and implement traffic control to regulate SBL traffic on existing bridge as shown. Detour NBL traffic. See Roadway Plans, Sheets 1L (10) and 1L (11), for Detour Map.
- Remove portion of existing bridge superstructure as shown.
- Install temporary sheetpiling and remove the corresponding portion of existing bridge abutments.
- Construct portion of new abutments as shown on abutment sheets.
- Place new prefabricated prestressed concrete slab superstructure including post-tensioning of transverse tendons. Exterior concrete slab and the concrete railing will be fabricated together and installed at the site as one module.
- Install the precast concrete arched spandrel.
- Install deck expansion joints and apply the waterproofing membrane strips and asphalt concrete overlay.
- Install the stone veneer on the precast spandrel wall and concrete railings, and abutment wingwalls.

LEGEND:



Scale: 3/8" = 1'-0"

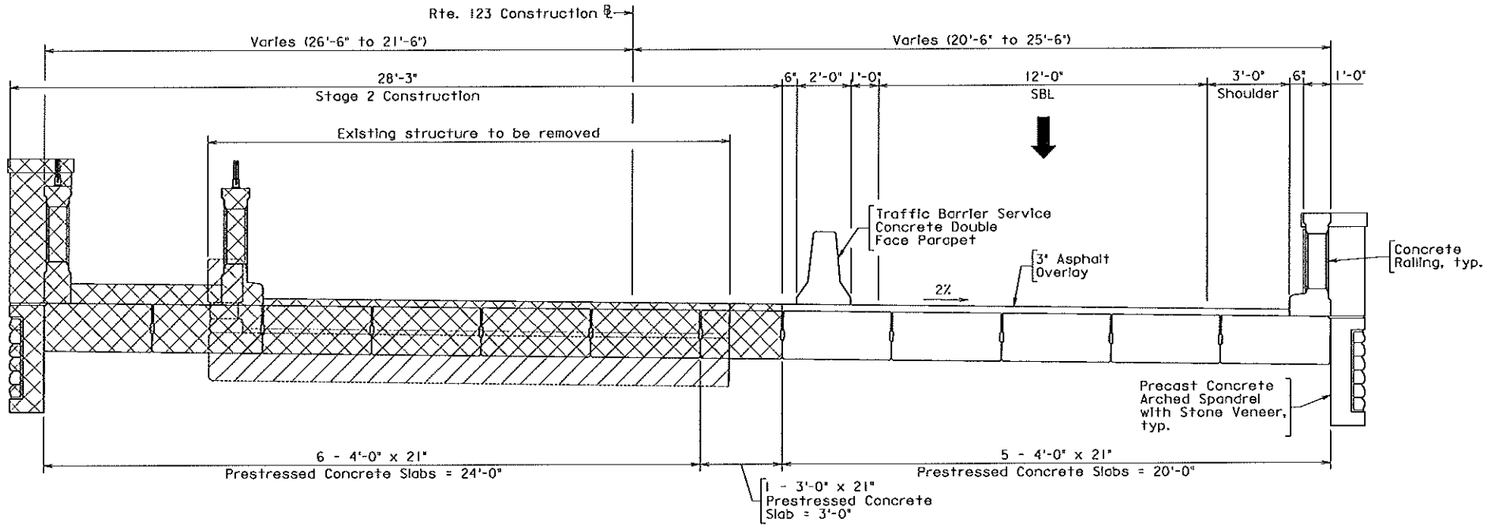
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

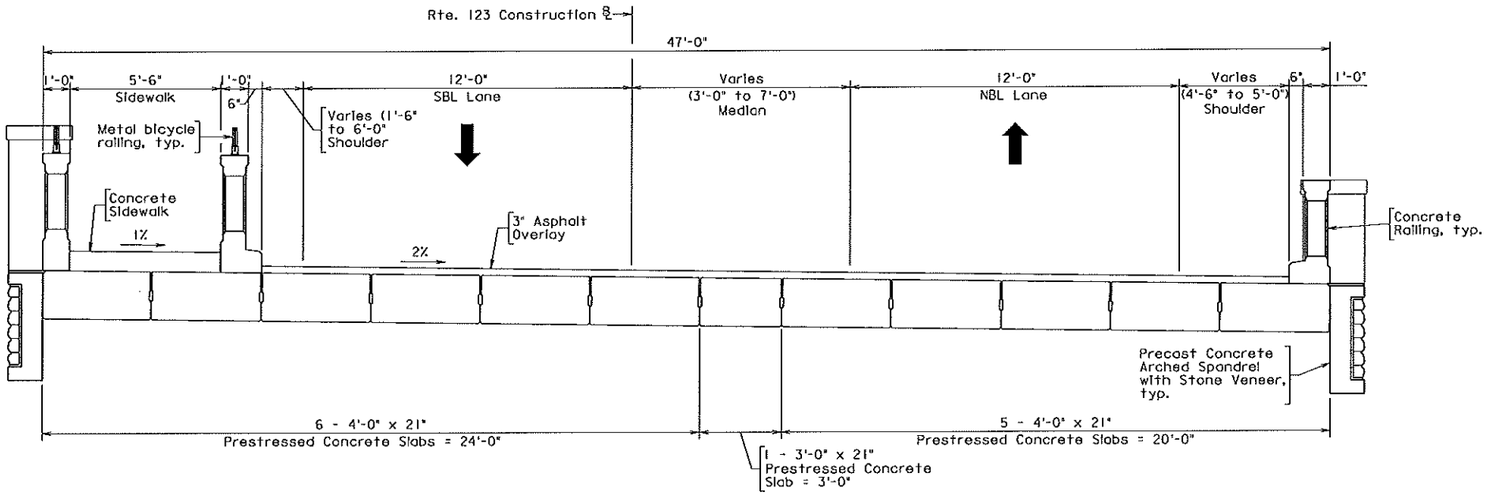
CONSTRUCTION SEQUENCE - I

Designed: JAJ	Date	Plan No.	Sheet No.
Drawn: JAJ	Dec. 2012	291-81	5 of 56
Checked: EMS			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	6



STAGE 2 CONSTRUCTION



COMPLETED STRUCTURE

STAGE 2

- Place Traffic Barrier Service Concrete Double Face Parapet as shown. Redirect SBL traffic to the newly constructed superstructure on the east side of the bridge. NBL traffic remains to be detoured during construction.
- Remove the remaining portion of existing bridge superstructure as shown.
- Remove the remaining portion of existing bridge abutment.
- Construct the remaining portion of new abutments.
- Construct the new retaining walls on the westside.
- Place the remaining new prefabricated prestressed concrete slab superstructure as shown, including post-tensioning of transverse tendons. Exterior concrete slabs and the first interior slab on the west side will be fabricated together with corresponding concrete railings and to be installed at the site as one module.
- Complete the west and pedestrian concrete railings by installing the metal bicycle railing on top, and install steel railing on the retaining walls.
- Install the precast concrete arched spandrel on the west side.
- Apply the remaining deck expansion joint and apply the waterproofing membrane strips and asphalt concrete overlay.
- Install the stone veneer on the precast spandrel wall, concrete railings, and abutment wingwalls.
- Remove Traffic Barrier Service Concrete Double Face Parapet.
- Apply permanent pavement marking as shown in the pavement marking plan.
- Redirect traffic to the final traffic pattern.

LEGEND:

Existing Structure Removal

Under Construction

New Construction

Scale: 3/8" = 1'-0"

No.	Description	Date
	Revisions	

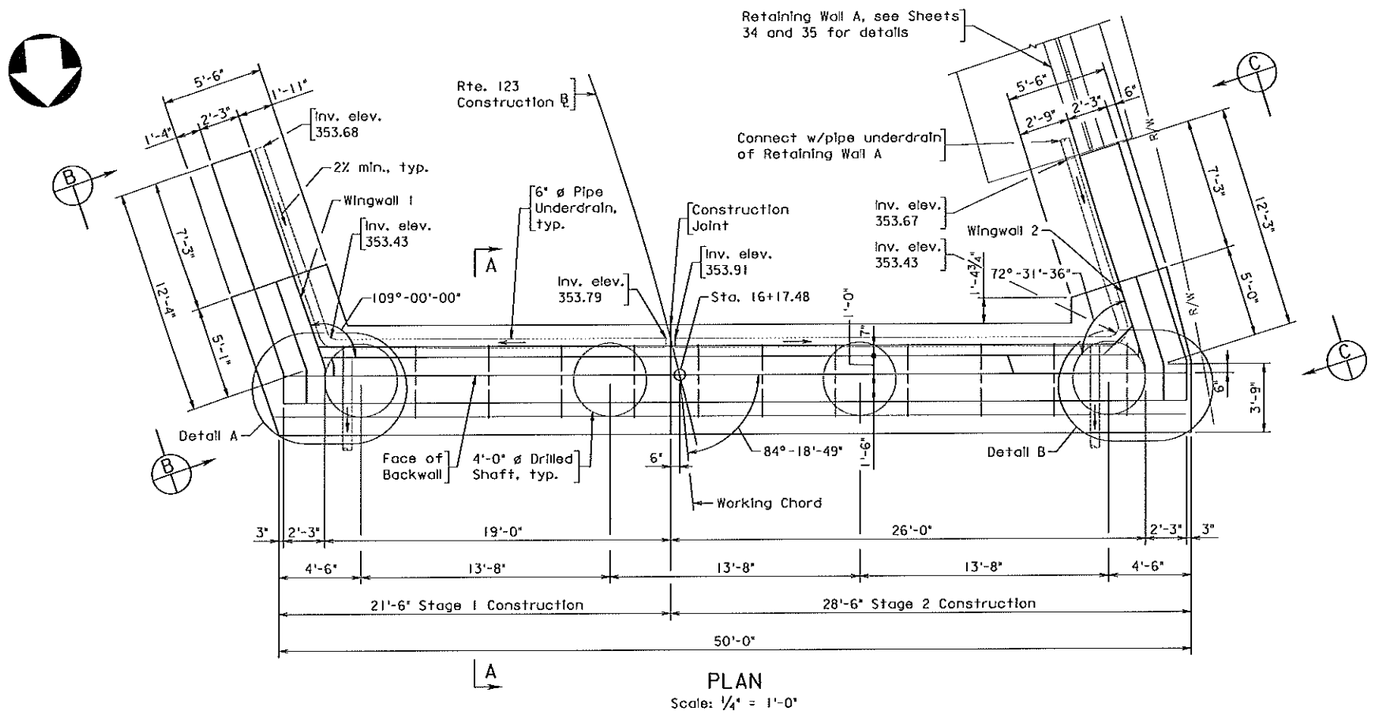
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

CONSTRUCTION SEQUENCE - 2

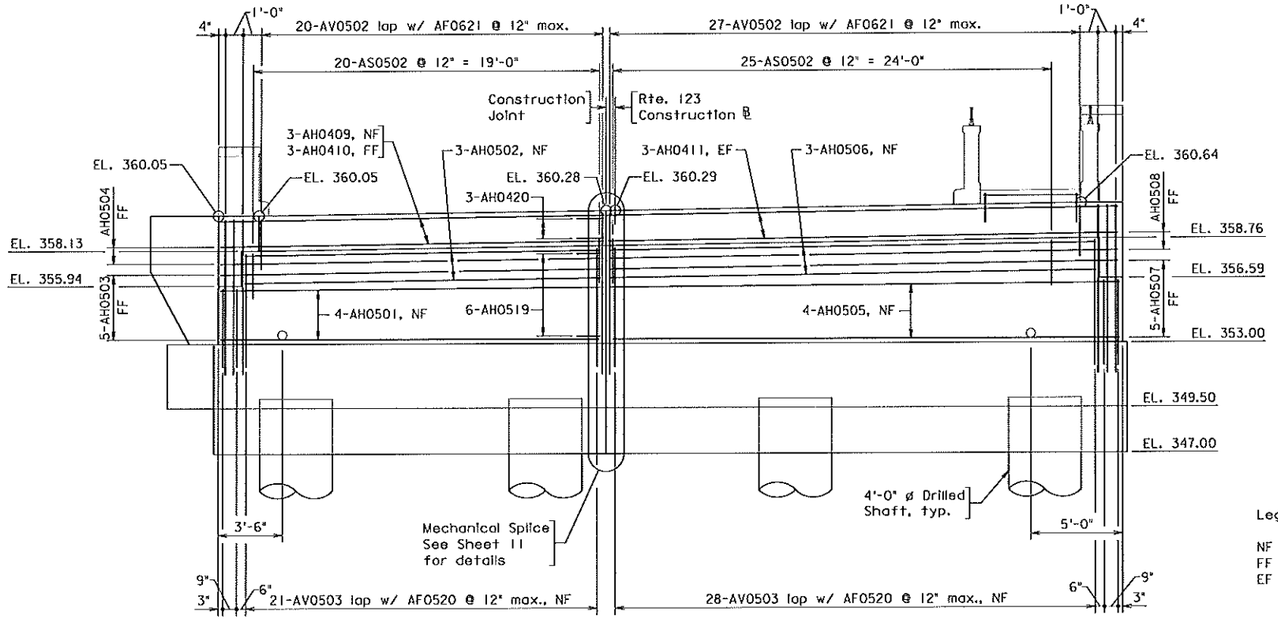
Designed: JAJ	Date	Plan No.	Sheet No.
Drawn: JAJ	Dec. 2012	291-81	6 of 56
Checked: EMS			

b29181006

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	----	RSTP-5401 (944)	123	0123-151-139, B604	7



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

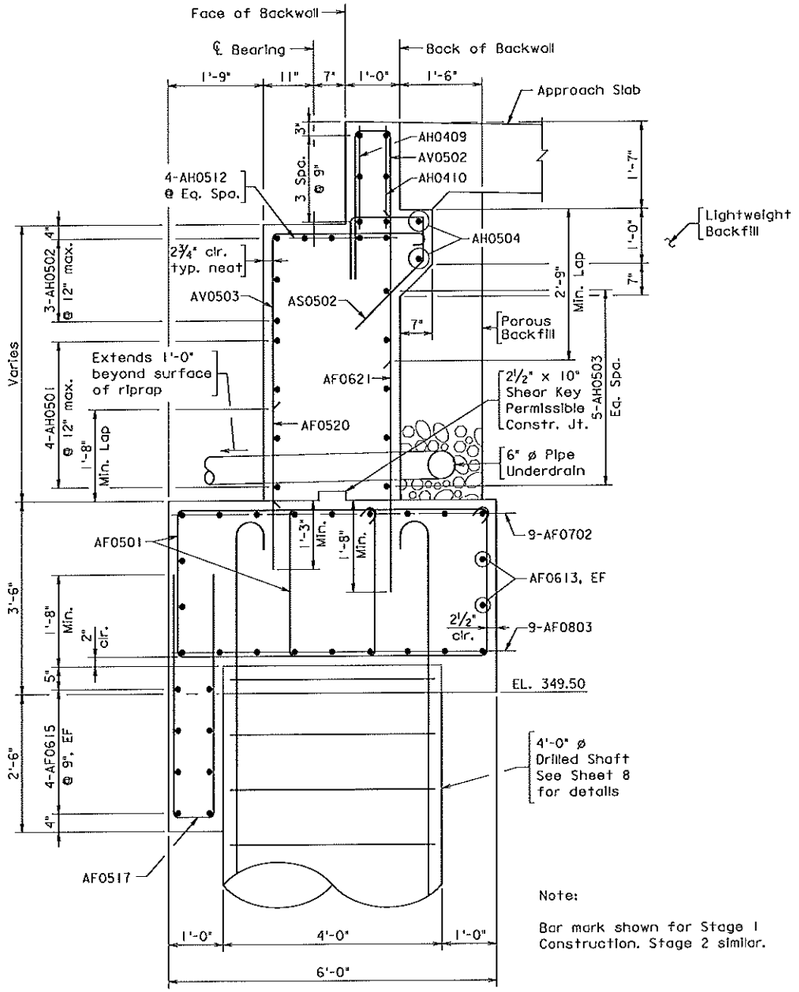


ELEVATION
Scale: 1/4" = 1'-0"

Note:
See Partial Elevation on sheet 11 for additional details on the ends.
See Sheet 16 for Vertical Construction Joint Detail.

Notes:

1. For View B-B and other Wingwall 1 details, see Sheet 9.
2. For View C-C and other Wingwall 2 details, see Sheet 10.
3. For Temporary Sheet Piling, Backfill and Drilled Shaft details, see Sheet 8.
4. For railing reinforcement embedded in the backwall and wingwalls, see Sheets 23-28.
5. For anchor bolt layout, see Sheet 19.
6. For Details A and B, see Sheet 11.



SECTION A-A
Scale: 3/4" = 1'-0"

Note:
Bar mark shown for Stage 1 Construction. Stage 2 similar.

Legend:

NF Denotes Near Face
FF Denotes Far Face
EF Denotes Each Face

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREM MAXIMO SEBASTIAN
No. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:15:04 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURE ENGINEER

No.	Description	Date
	Revisions	

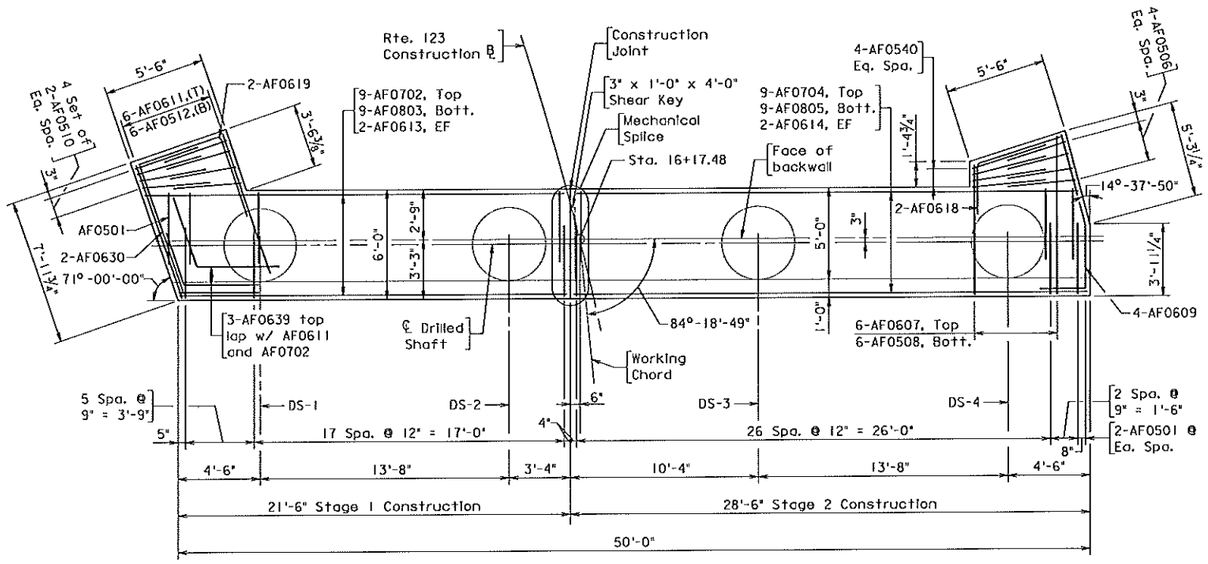
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ABUTMENT A
PLAN, ELEVATION AND SECTION

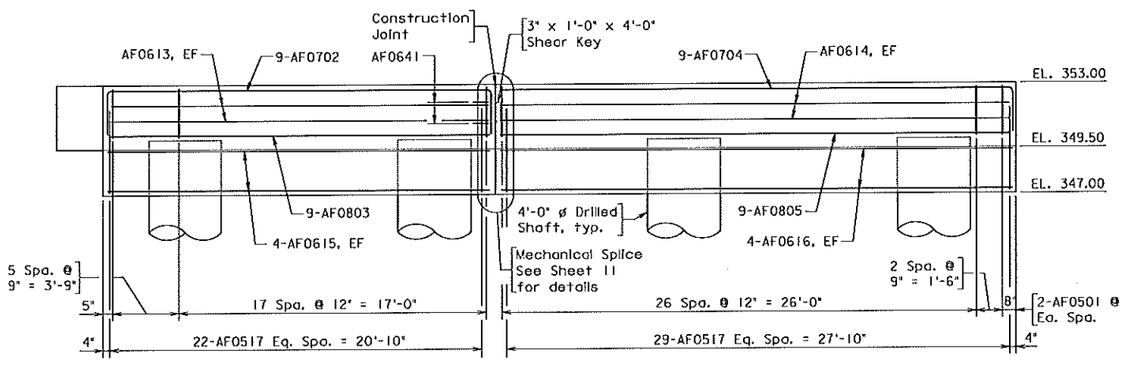
Designed: GMX/HH	Date	Plan No.	Sheet No.
Drawn: HH	Dec. 2012	291-81	7 of 56
Checked: EMS/GMX			

DGN
b291810007

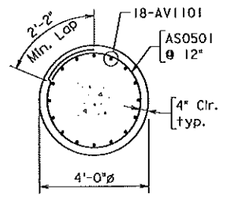
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5A01 (944)	123	0123-151-139, B604	8



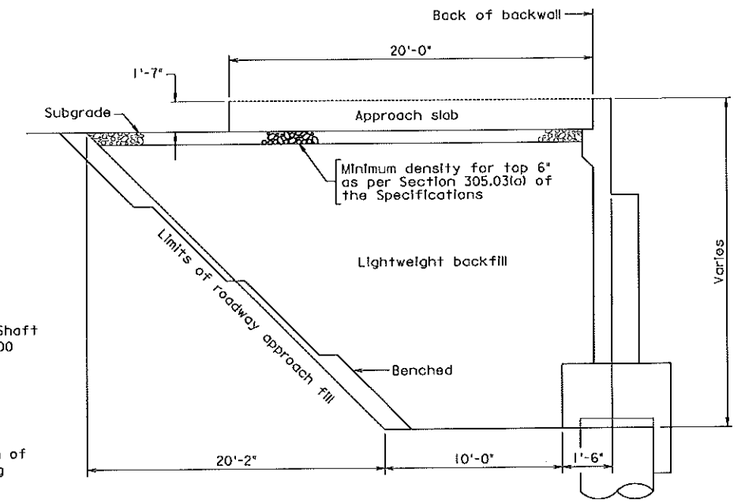
FOOTING PLAN
Scale: ¼" = 1'-0"



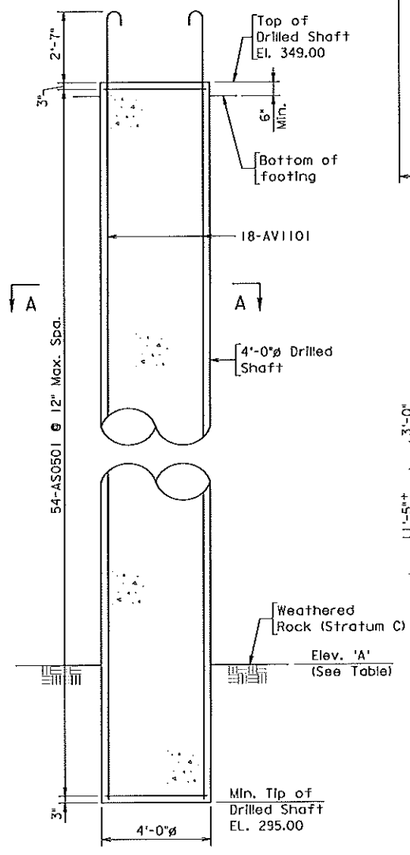
FOOTING ELEVATION
Scale: ¼" = 1'-0"



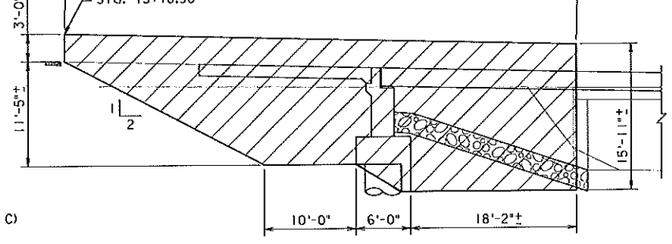
SECTION A-A
Scale: ⅜" = 1'-0"



SECTION THROUGH ABUTMENT A
Abutment drainage not shown
Not to scale



DRILLED SHAFT DETAIL
Scale: ⅜" = 1'-0"



TEMPORARY SHEET PILING - ABUTMENT A
Scale: ⅛" = 1'-0"

Legend:

DS-1 Denotes Drilled Shaft Designation

Denotes temporary sheet piling limits of payment

Legend:

NF Denotes Near Face
FF Denotes Far Face
EF Denotes Each Face

Note:

1. For abutment and wingwall reinforcement embedded into footing, see Sheets 7, 9, 10 and 11.
2. For wingwall footing elevation, see Sheet 11.

Abutment	Drilled Shaft Mark	Elev. A
A	DS-1 to DS-4	317.00
B	DS-5 & DS-6	327.00
	DS-7 & DS-8	316.00

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:17:05 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

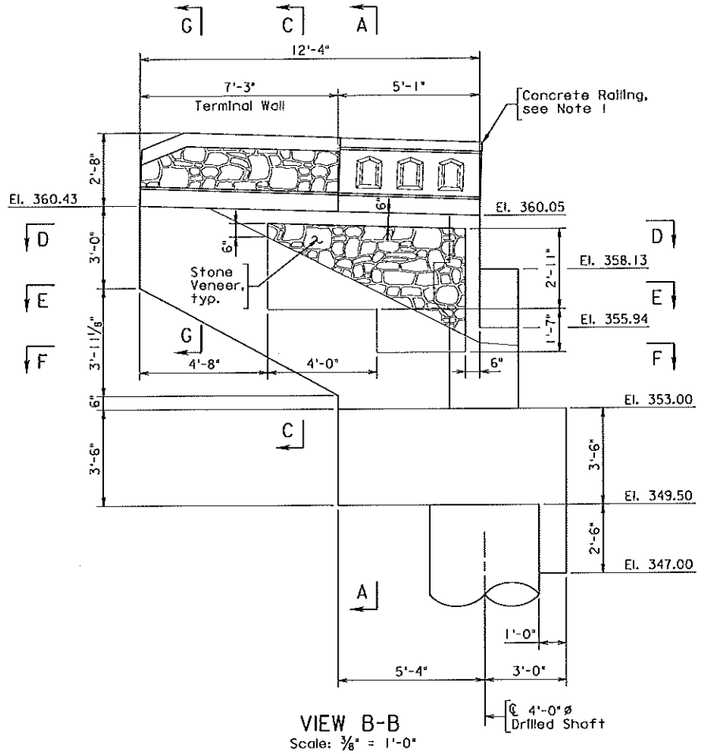
ABUTMENT A FOOTING PLAN AND DETAILS

Designed: GMK/HH	Date	Plan No.	Sheet No.
Drawn: MM			
Checked: EMS/GMK	Dec. 2012	291-81	8 of 56

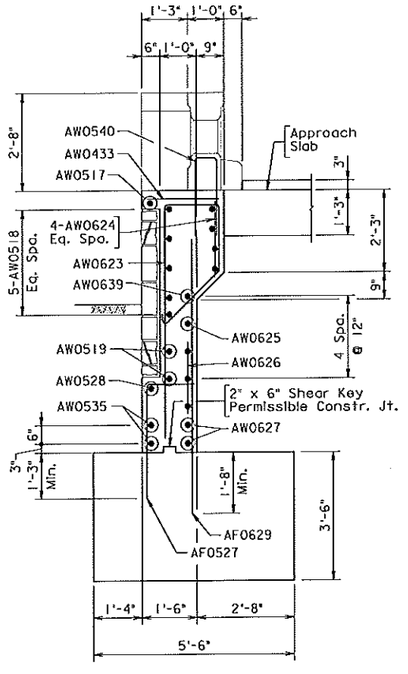
Scale: As shown

b2918008

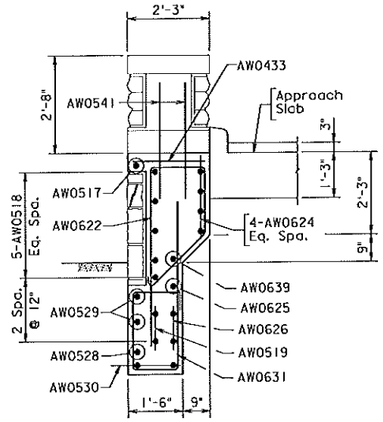
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	9



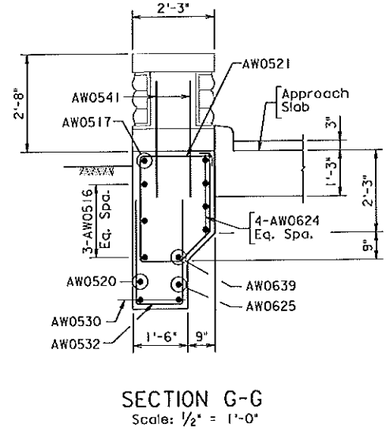
VIEW B-B
Scale: ⅜" = 1'-0"



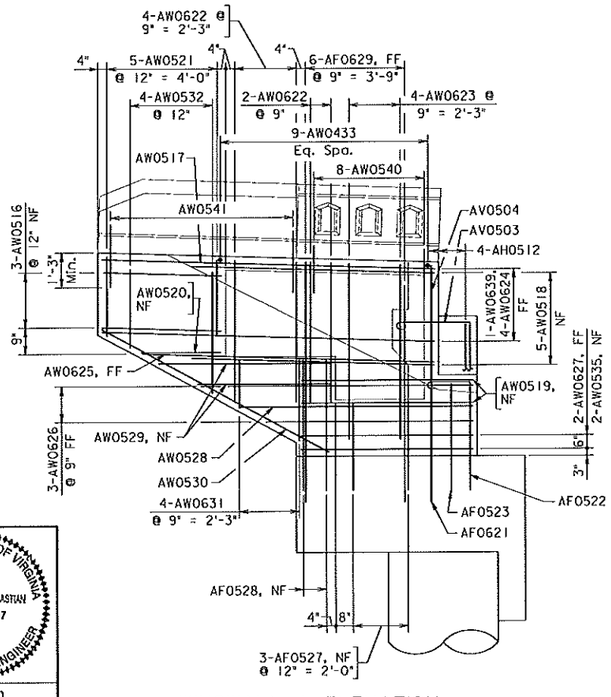
SECTION A-A
Scale: ½" = 1'-0"



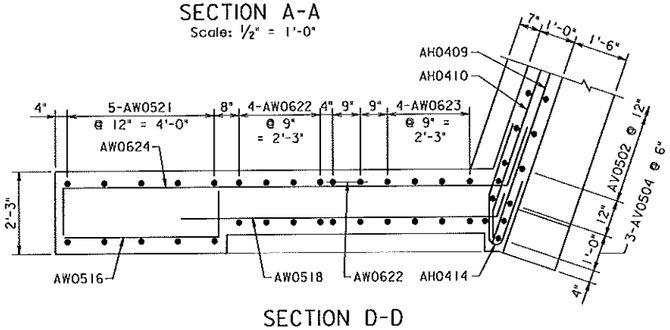
SECTION C-C
Scale: ½" = 1'-0"



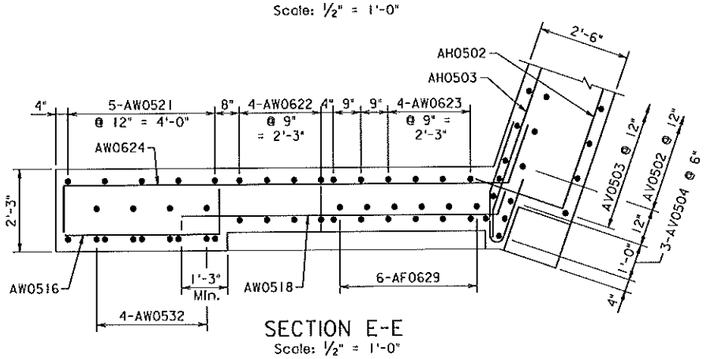
SECTION G-G
Scale: ½" = 1'-0"



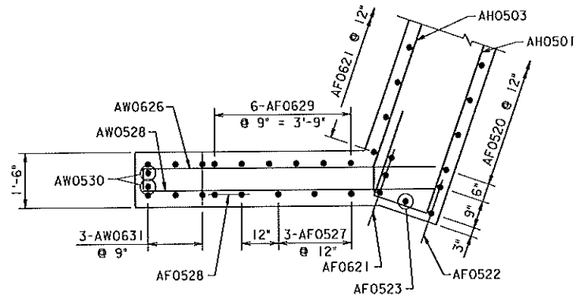
WINGWALL 1 ELEVATION
Scale: ⅜" = 1'-0"



SECTION D-D
Scale: ½" = 1'-0"



SECTION E-E
Scale: ½" = 1'-0"



SECTION F-F
Scale: ½" = 1'-0"

Note:

1. For Concrete Railing and Terminal Wall and reinforcement embeded into wingwall, see Sheet 22.
2. For footing details, see Sheet 8 and 11.
3. For spacing and location of AW0541 and AW0540, see Sheet 23.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:18:12 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

B2918I009

Scale: As shown

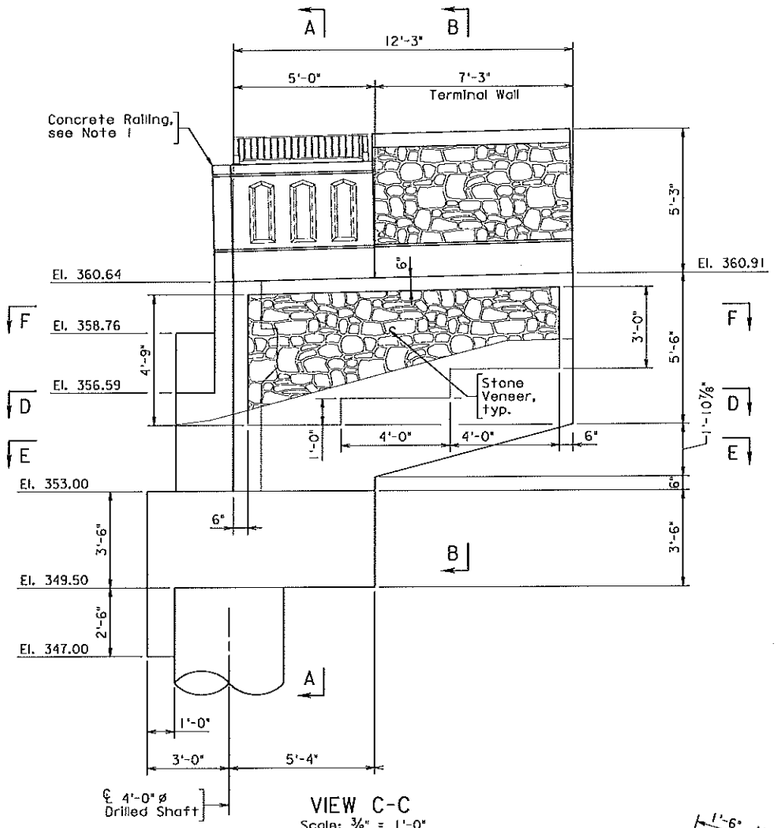
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

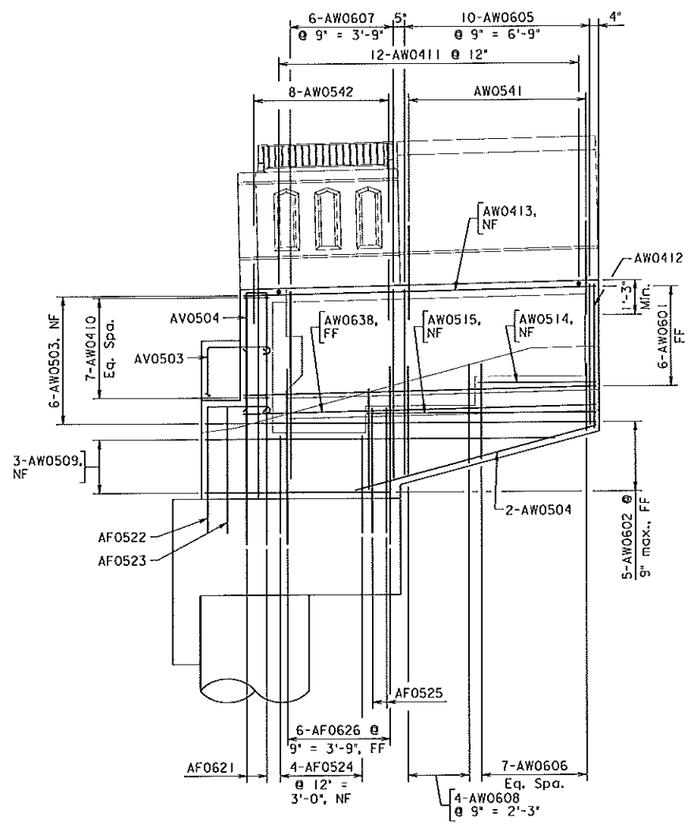
ABUTMENT A WINGWALL 1

Designed: GVK/HH	Date	Plan No.	Sheet No.
Drawn: ..../GVK/DVK	Dec. 2012	291-81	9 of 56
Checked: EMS/DVK			

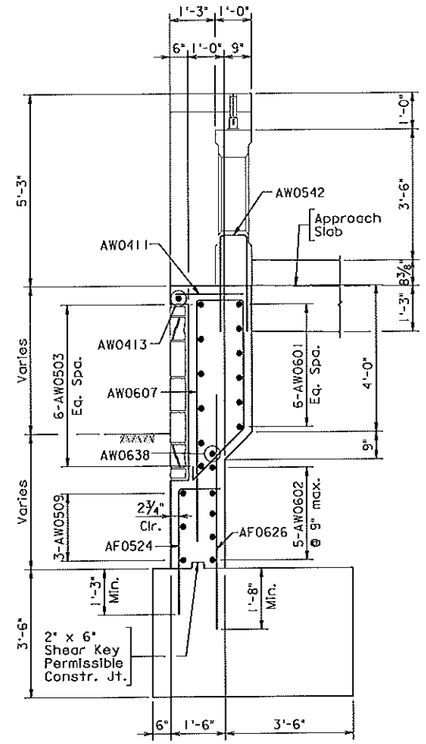
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	10



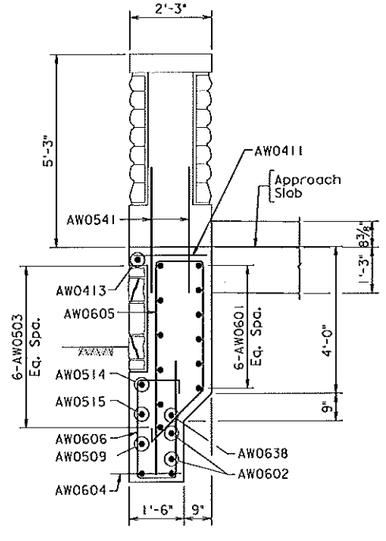
VIEW C-C
Scale: ⅜" = 1'-0"



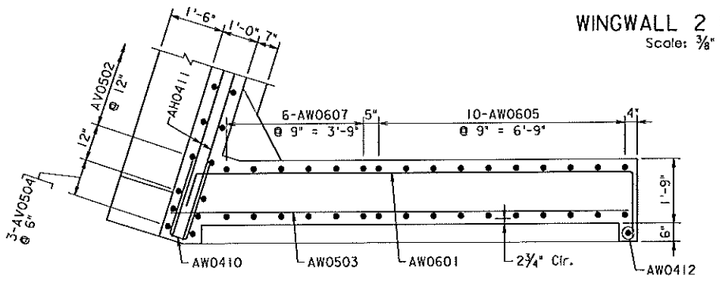
WINGWALL 2 ELEVATION
Scale: ⅜" = 1'-0"



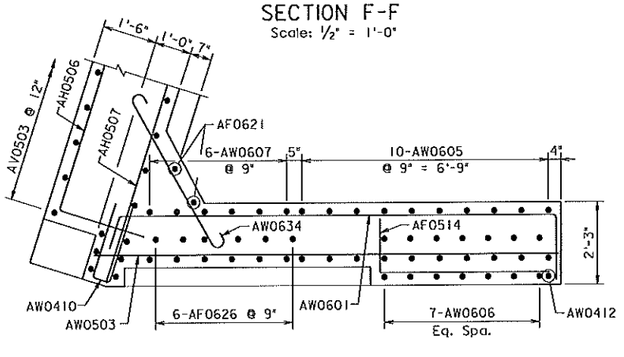
SECTION A-A
Scale: ½" = 1'-0"



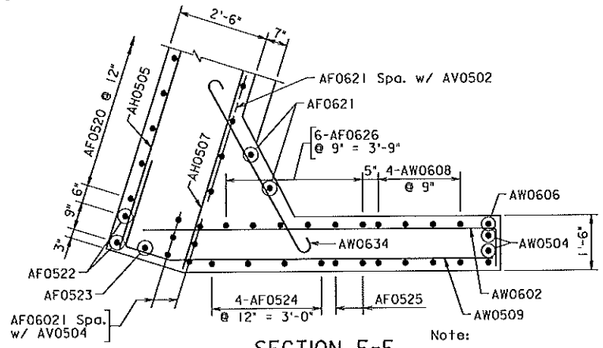
SECTION B-B
Scale: ½" = 1'-0"



SECTION F-F
Scale: ½" = 1'-0"



SECTION D-D
Scale: ½" = 1'-0"



SECTION E-E
Scale: ½" = 1'-0"

Note:

1. For Concrete Railing and Terminal Wall and reinforcement embeded into wingwall, see Sheets 25 - 26.
2. For footing details, see Sheet 8 and 11.
3. For spacing and location of AW0541 and AW0540, see Sheet 25.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:19:12 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

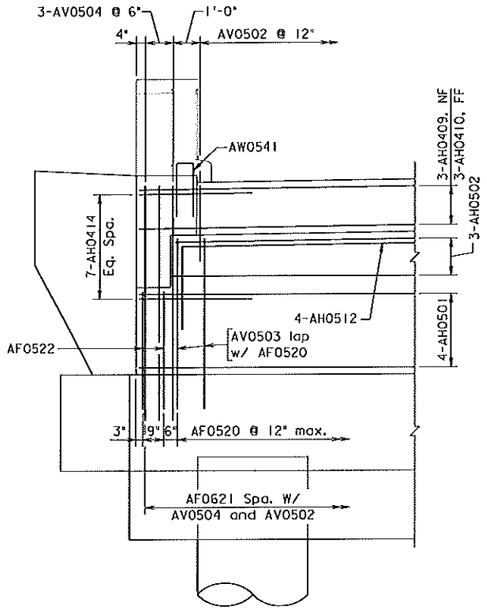
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ABUTMENT A WINGWALL 2

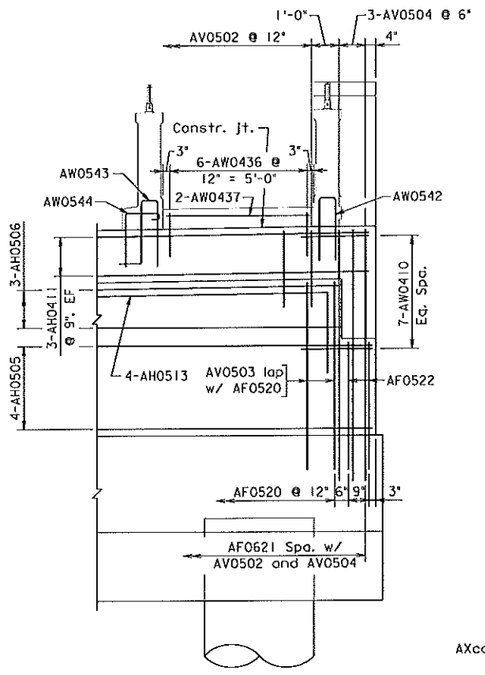
Designed: GMK/HH	Date	Plan No.	Sheet No.
Drawn: WH	Dec. 2012	291-81	10 of 56
Checked: EMS/GMK			

Scale: As shown

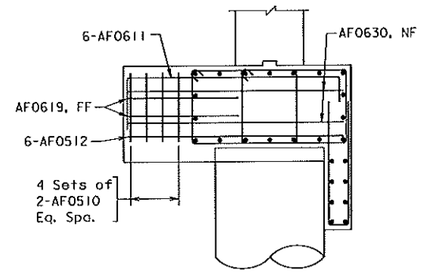
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	11



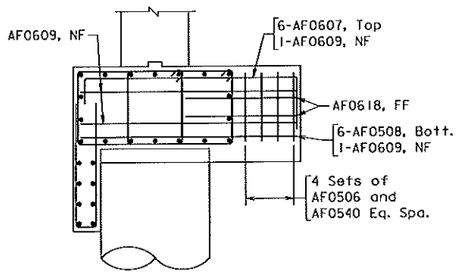
PARTIAL ELEVATION
Scale: ⅜" = 1'-0"



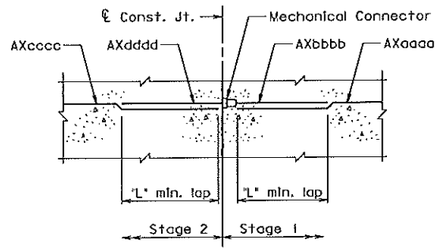
PARTIAL ELEVATION
Scale: ⅜" = 1'-0"



WINGWALL 1 FOOTING ELEVATION
Scale: ⅜" = 1'-0"



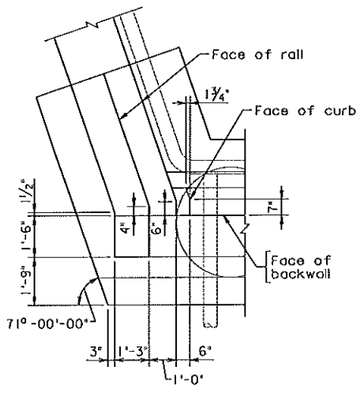
WINGWALL 2 FOOTING ELEVATION
Scale: ⅜" = 1'-0"



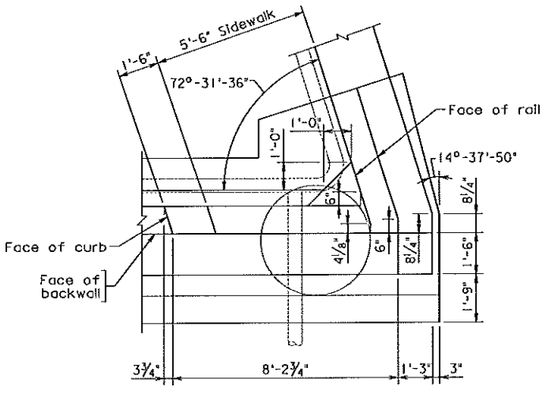
MECHANICAL SPLICE

MECHANICAL SPLICE - ABUTMENT A

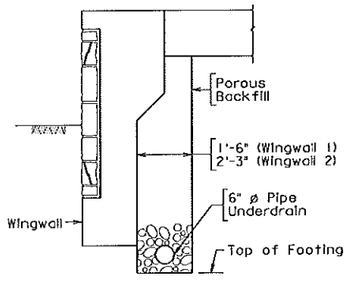
Stage 1 Reinf. (AXaaaa)	Stage 1 Splice (AXbbbb)	Stage 2 Reinf. (AXcccc)	Stage 2 Splice (AXdddd)	"L"
AH0501	AH0515	AH0505	AH0516	2'-2"
AH0502	AH0515	AH0506	AH0516	2'-2"
AH0503	AH0515	AH0507	AH0516	2'-2"
AH0504	AH0515	AH0508	AH0516	2'-2"
AH0409	AH0417	AH0411	AH0418	1'-8"
AH0410	AH0417	AH0411	AH0418	1'-8"
AH0512	AH0515	AH0513	AH0516	2'-2"
AF0702	AF0731	AF0704	AF0732	5'-3"
AF0803	AF0833	AF0805	AF0834	4'-11"
AF0613	AF0635	AF0614	AF0636	2'-9"
AF0615	AF0635	AF0616	AF0636	2'-9"



DETAIL A
Scale: ⅜" = 1'-0"



DETAIL B
Scale: ⅜" = 1'-0"



POROUS BACKFILL DETAIL
Not to Scale

Note:

1. See Sheets 7 and 8 for footing details.
2. See Sheet 7 for location of Details A and B.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:20:23 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ABUTMENT A DETAILS

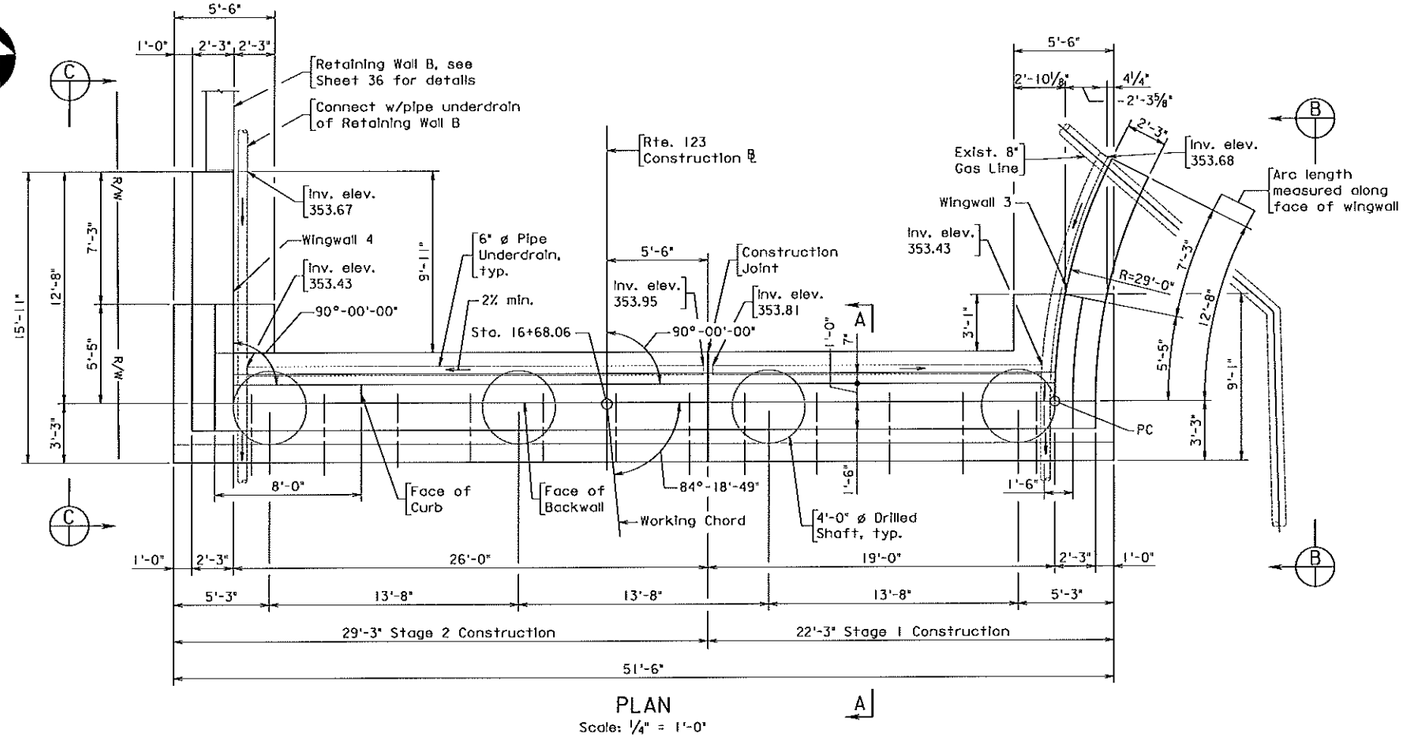
Designed: CMK/NH	Date	Plan No.	Sheet No.
Drawn: NH	Dec. 2012	291-81	11 of 56
Checked: EMS/CMK			

Scale: As shown

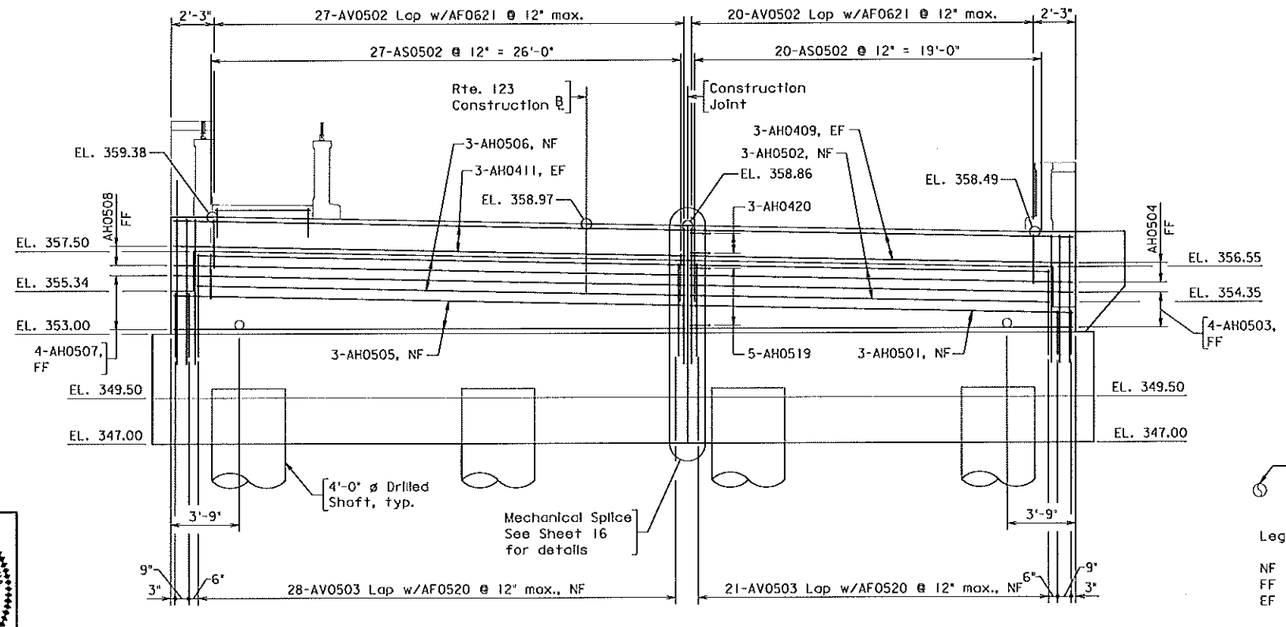
DGN

B2918101

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	12



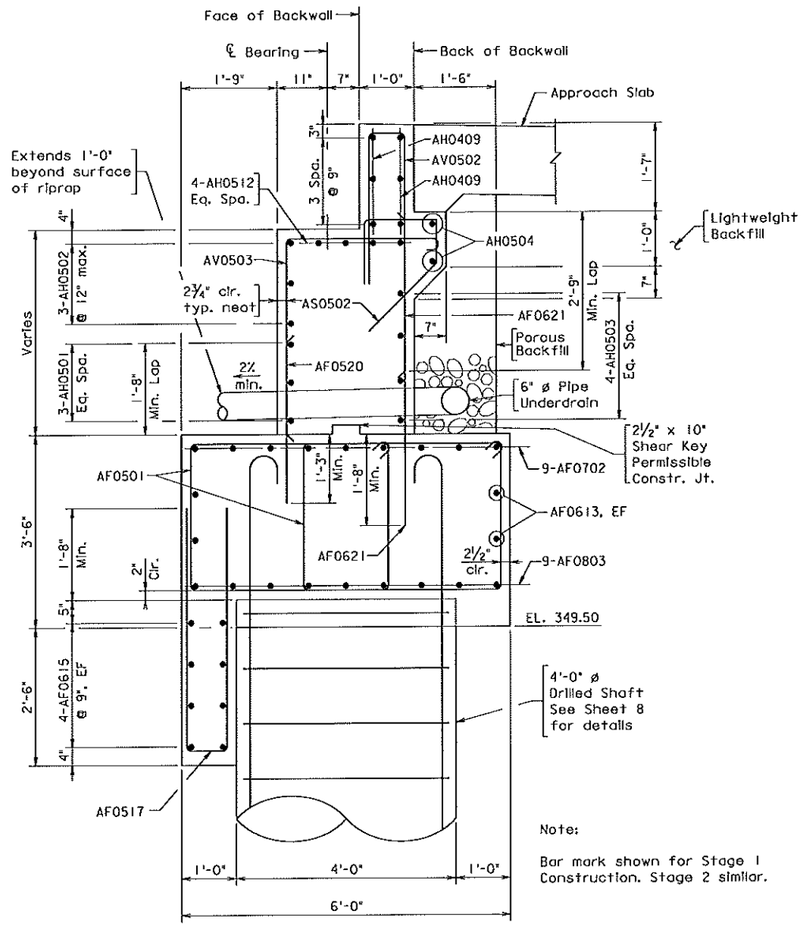
PLAN
Scale: 1/4" = 1'-0"



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

Notes:

1. For View B-B and other Wingwall 3 details, see Sheet 14.
2. For View C-C and other Wingwall 4 details, see Sheet 15.
3. For Temporary Sheet Piling and Backfill, see Sheet 13.
4. For rolling reinforcement embedded in the backwall and wingwalls, see Sheets 23-28.
5. For anchor bolt layout, see Sheet 19.
6. For drilled shaft details, see Sheet 8.



Note:
Bar mark shown for Stage 1 Construction. Stage 2 similar.

SECTION A-A
Scale: 3/4" = 1'-0"

Exist. 8" Gas Line

Legend:

NF Denotes Near Face
FF Denotes Far Face
EF Denotes Each Face

Note:
See Partial Elevation on sheet 16 for additional details on the ends.
See Sheet 16 for Vertical Construction Joint Detail.

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
No. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:21:30 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

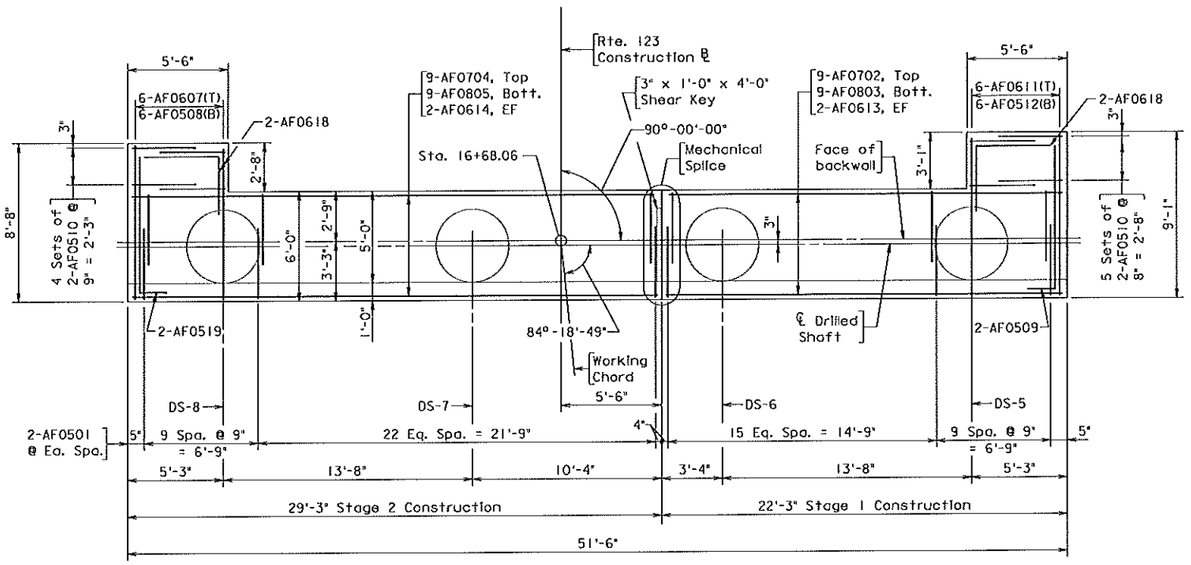
ABUTMENT B
PLAN, ELEVATION AND SECTION

Designed: GVK/HH	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	12 of 56
Checked: EMS/GVK			

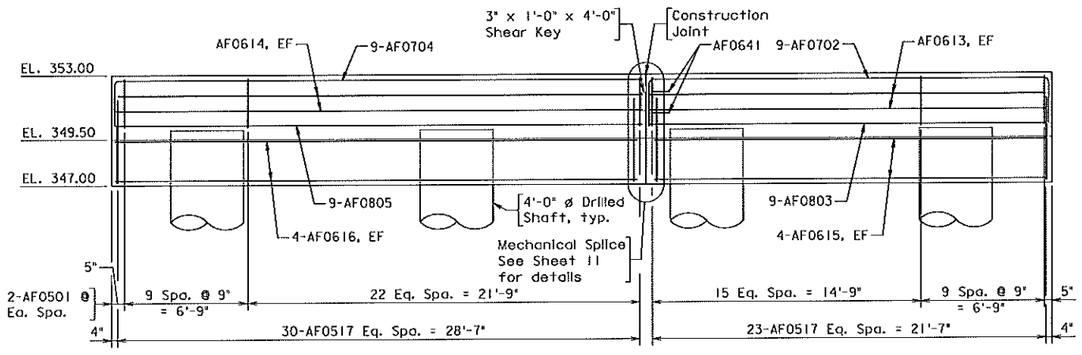
DGN

b291l012

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	13



FOOTING PLAN
Scale: 1/4" = 1'-0"



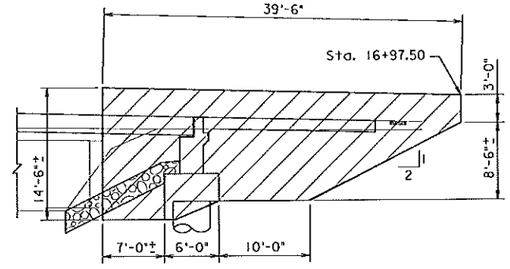
FOOTING ELEVATION
Scale: 1/4" = 1'-0"

Notes:

1. For Drilled Shaft Details, see Sheet 8.
2. For footing section, see Sheet 12.
3. For additional wingwall footing detail, see Sheet 16.
4. For abutment and wingwall reinforcement embedded into the footing, see Sheets 12, 14, 15 and 16.

Legend:

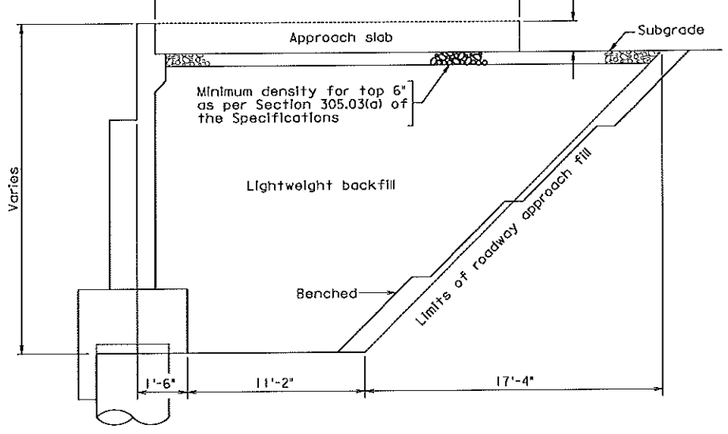
DS-7 Denotes Drilled Shaft designation



TEMPORARY SHEET PILING AT ABUTMENT B
Scale: 1/8" = 1'-0"

Legend:

Denotes temporary sheet piling limits of payment



SECTION THROUGH ABUTMENT B
Abutment drainage not shown
Not to scale

Legend:

NF Denotes Near Face
FF Denotes Far Face
EF Denotes Each Face

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:22:36 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

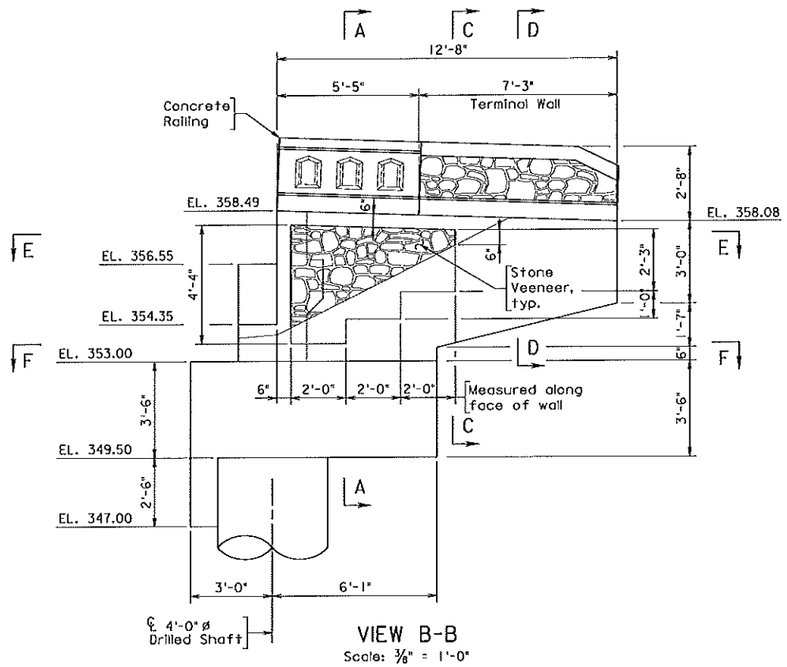
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

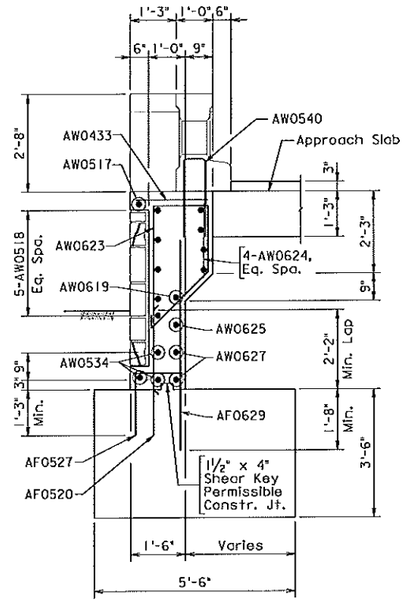
ABUTMENT B
FOOTING PLAN AND DETAILS

Designed: GMK/HH	Date	Plan No.	Sheet No.
Drawn:	Dec. 2012	291-81	13 of 56
Checked: EMS/GMK			

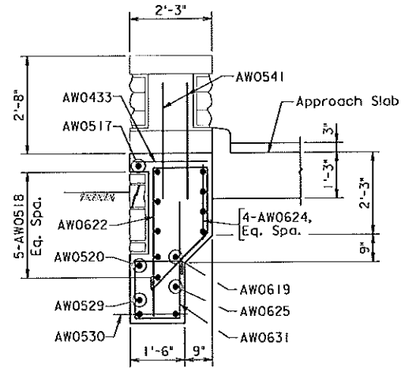
STATE	FEDERAL AID ROUTE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	14



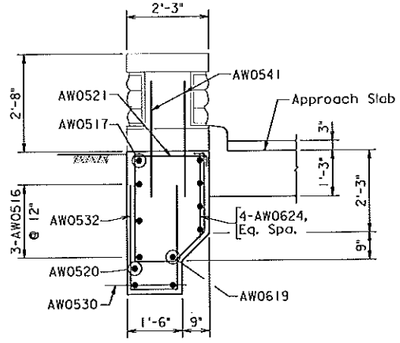
VIEW B-B
Scale: 3/8" = 1'-0"



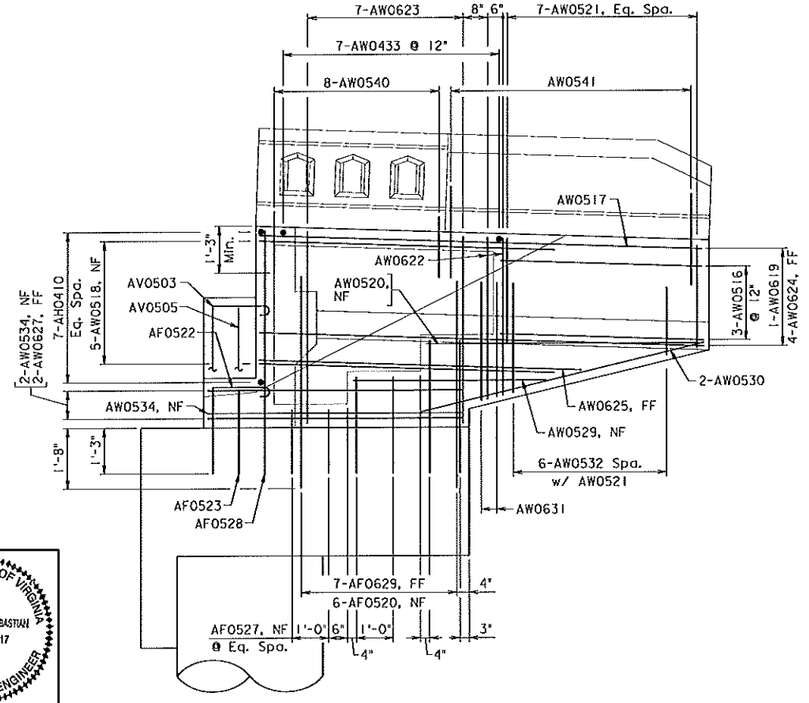
SECTION A-A
Scale: 1/2" = 1'-0"



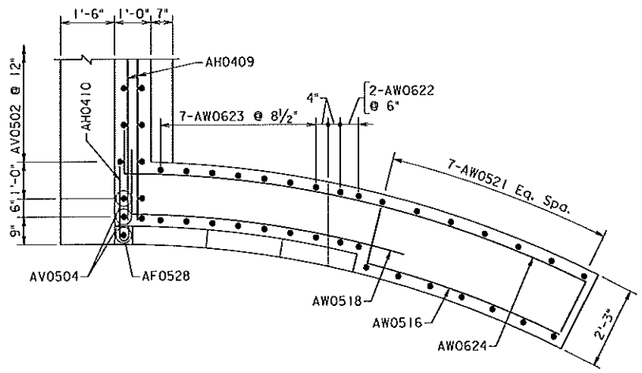
SECTION C-C
Scale: 1/2" = 1'-0"



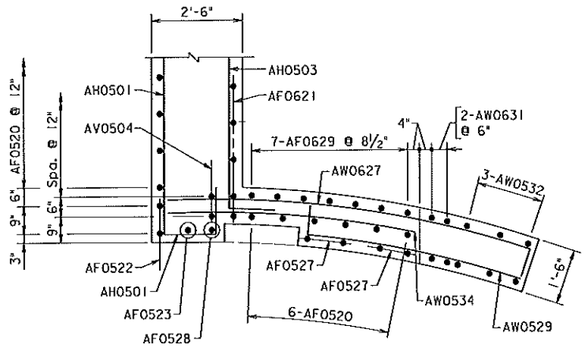
SECTION D-D
Scale: 1/2" = 1'-0"



WINGWALL 3 ELEVATION
Scale: 1/2" = 1'-0"



SECTION E-E
Scale: 1/2" = 1'-0"



SECTION F-F
Scale: 1/2" = 1'-0"

Note:

1. For Concrete Railing and Terminal Wall and reinforcement embeded into wingwall and backwall, see Sheets 23 and 24.
2. For footing details, see Sheets 12, 13 and 16.
3. For porous backfill, see Sheet 16.
4. Field bend circular portion of rebars.
5. For spacing and location of AW0541 and AW0540, see Sheet 23.

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:23:39 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

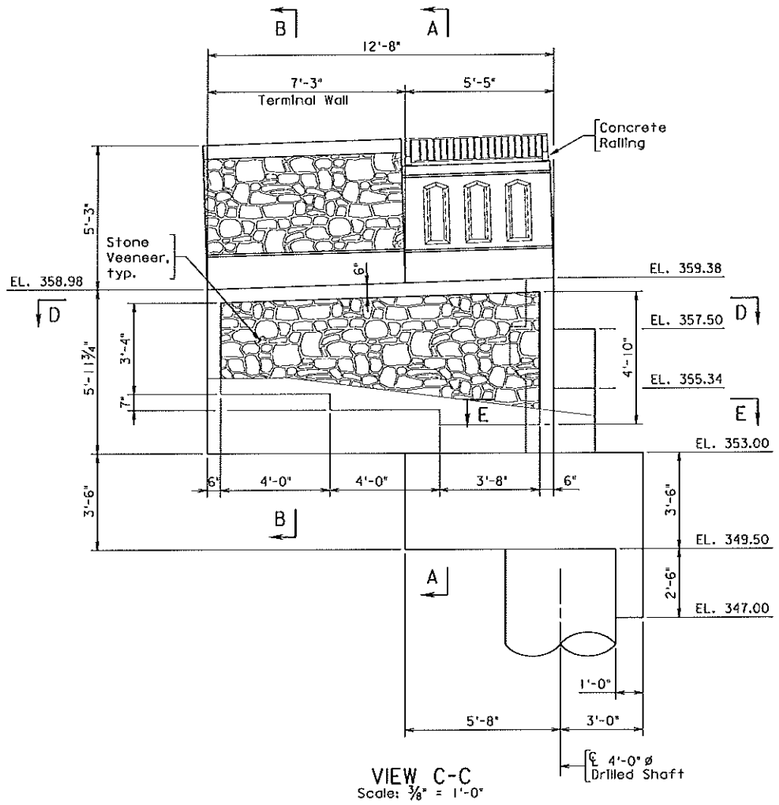
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ABUTMENT B WINGWALL 3

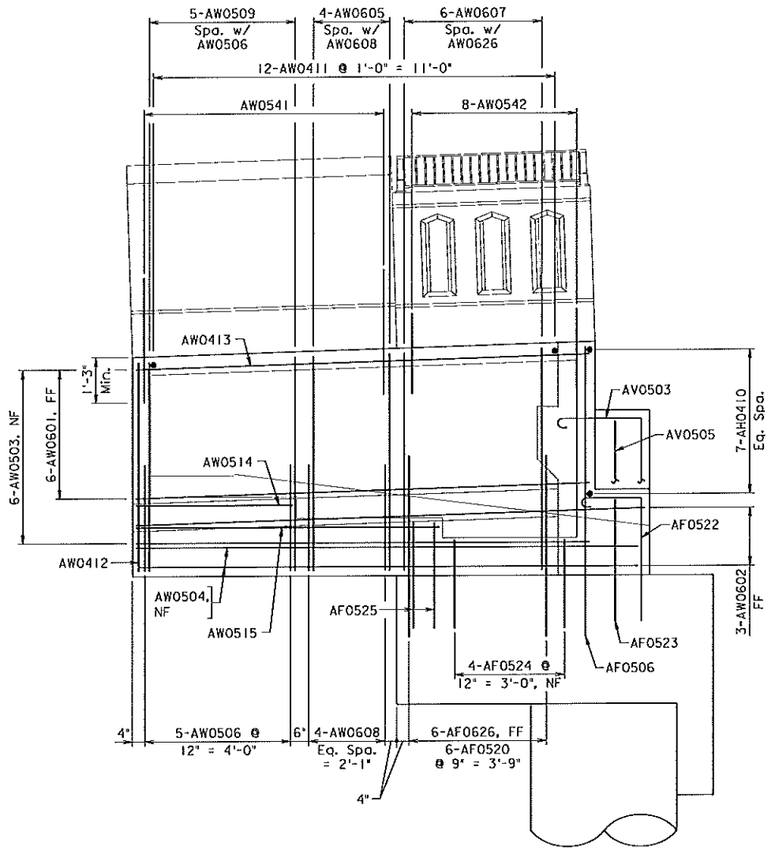
Designed: GMK/HH	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	14 of 56
Checked: EMS/GMK			

b29181014

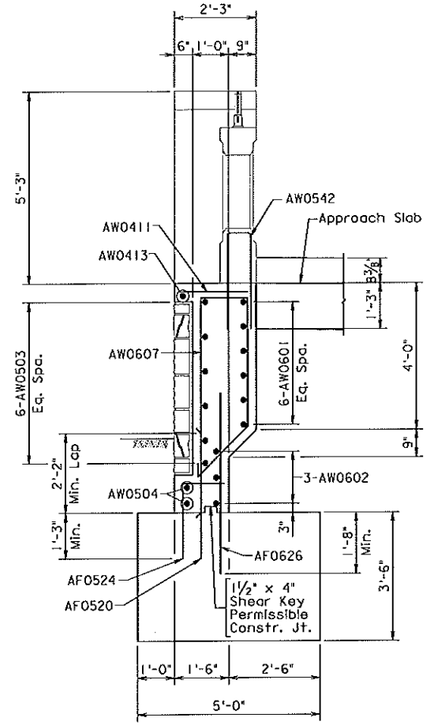
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	15



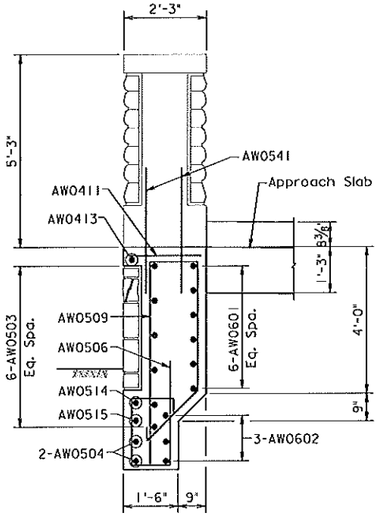
VIEW C-C
Scale: ⅜" = 1'-0"



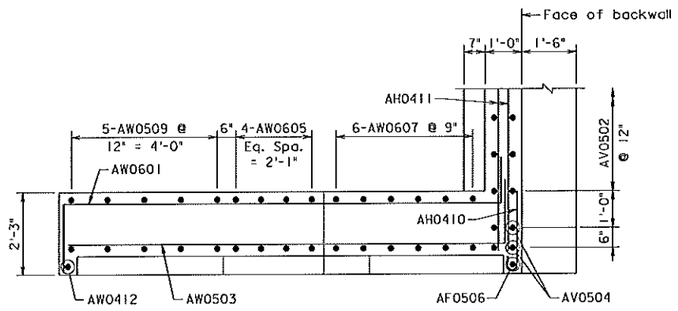
WINGWALL 4 ELEVATION
Scale: ½" = 1'-0"



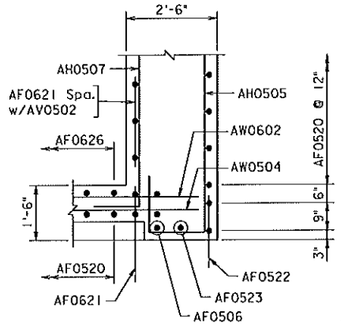
SECTION A-A
Scale: ½" = 1'-0"



SECTION B-B
Scale: ½" = 1'-0"



SECTION D-D
Scale: ½" = 1'-0"



SECTION E-E
Scale: ½" = 1'-0"

Note:

1. For Concrete Railing and Terminal Wall and reinforcement embeded into wingwall and backwall, see Sheets 25 and 26.
2. For footing details, see Sheets 12, 13 and 16.
3. For porous backfill, see Sheet 16.
4. For spacing and location of AW0541 and AW0540, see Sheet 25.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:24:38 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

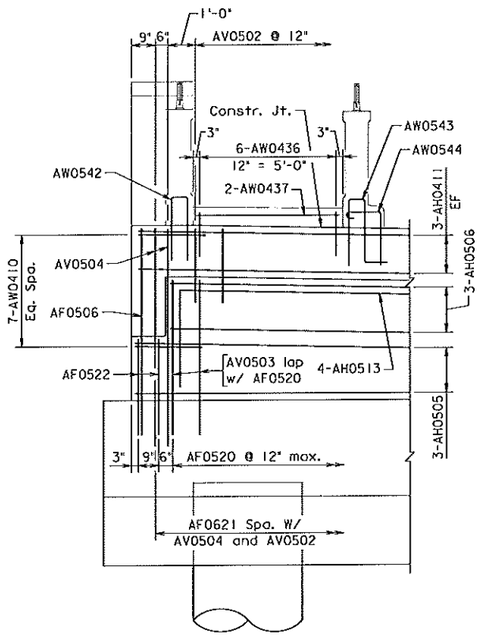
Scale: As shown

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

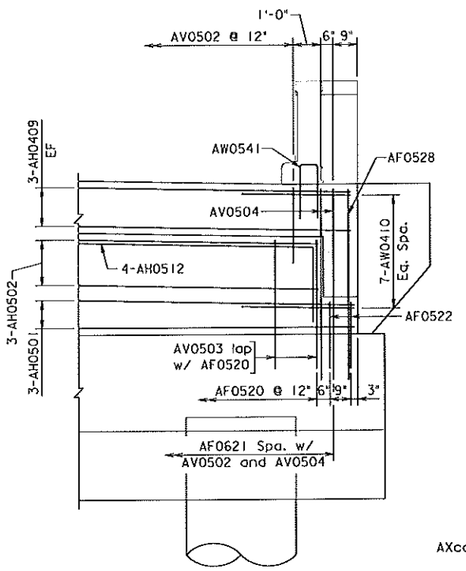
ABUTMENT B WINGWALL 4

Designed: CMK/HH	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	15 of 56
Checked: EMS/CMK			

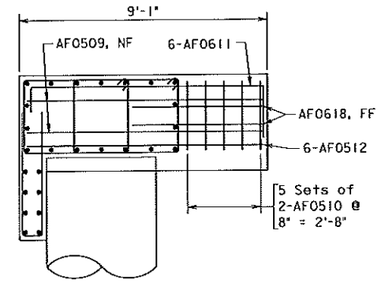
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, 8604	16



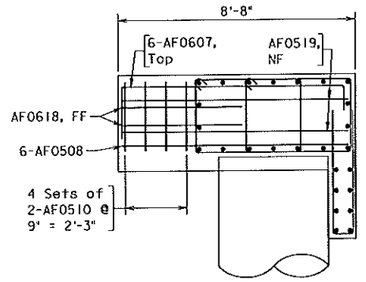
PARTIAL ELEVATION
Scale: ⅜" = 1'-0"



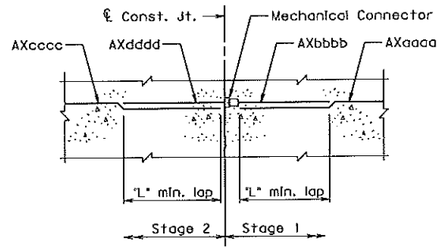
PARTIAL ELEVATION
Scale: ⅜" = 1'-0"



WINGWALL 3 FOOTING ELEVATION
Scale: ⅜" = 1'-0"

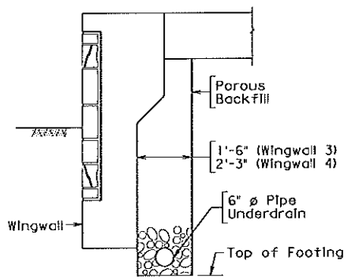


WINGWALL 4 FOOTING ELEVATION
Scale: ⅜" = 1'-0"

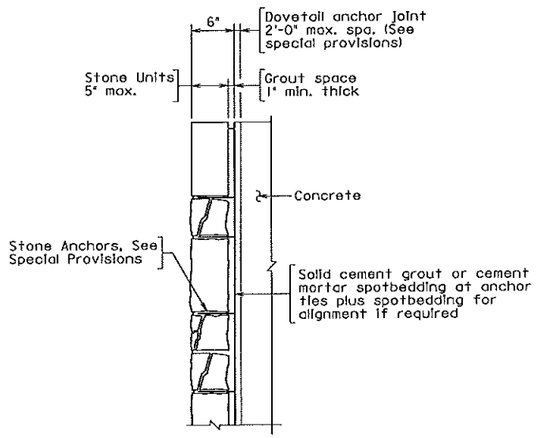


MECHANICAL SPLICE

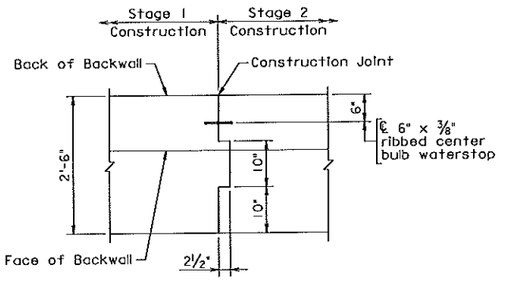
MECHANICAL SPLICE - ABUTMENT B				
Stage 1 Reinf. (AXaaaa)	Stage 1 Splice (AXbbbb)	Stage 2 Reinf. (AXcccc)	Stage 2 Splice (AXdddd)	"L"
AH0501	AH0515	AH0505	AH0516	2'-2"
AH0502	AH0515	AH0506	AH0516	2'-2"
AH0503	AH0515	AH0507	AH0516	2'-2"
AH0504	AH0515	AH0508	AH0516	2'-2"
AH0409	AH0417	AH0411	AH0418	1'-8"
AH0512	AH0515	AH0513	AH0516	2'-2"
AF0702	AF0730	AF0704	AF0731	5'-3"
AF0803	AF0832	AF0805	AF0833	4'-11"
AF0613	AF0634	AF0614	AF0635	2'-9"
AF0615	AF0634	AF0616	AF0635	2'-9"



POROUS BACKFILL DETAIL
Not to Scale



STONE VENEER DETAIL
Scale: 1" = 1'-0"



TYPICAL VERTICAL CONSTRUCTION JOINT DETAIL
Scale: ¾" = 1'-0"

Notes:

1. Waterstop from top of backwall to top of footing.
2. Shear Key from top of seat to top of footing.

Note: See Sheets 12 and 13 for footing details.

Efren M Sebastian
2013.02.04 13:25:41 -05'00'
LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

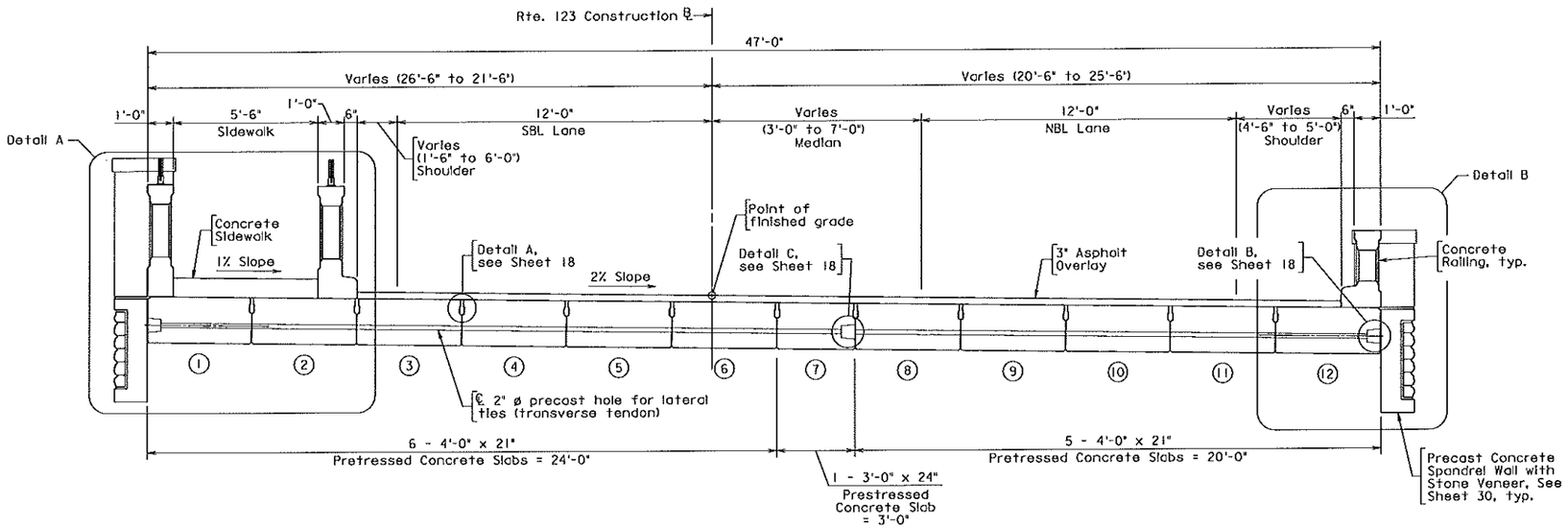
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ABUTMENT B DETAILS

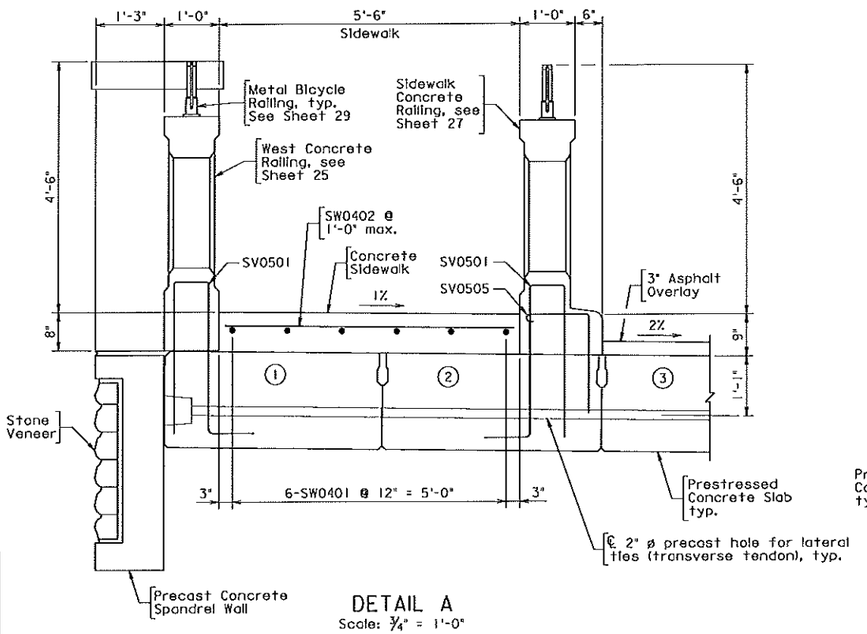
Designed: CMK/HH	Date	Plan No.	Sheet No.
Drawn:	Dec. 2012	291-81	16 of 56
Checked: EMS/CMK			

Scale: As shown

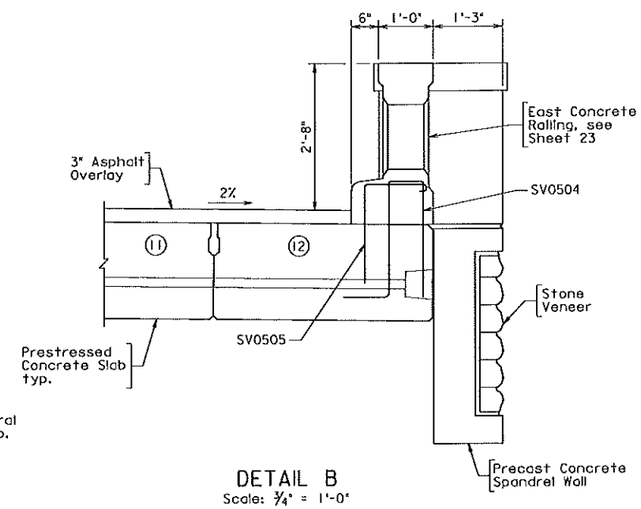
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	17



TRANSVERSE SECTION
Scale: ⅜" = 1'-0"



DETAIL A
Scale: ¾" = 1'-0"



DETAIL B
Scale: ¾" = 1'-0"

NOTES:

1. Asphalt concrete overlay shall be Type SM-9.5D for the top 2" thickness and Type IM-19A for the remaining portion. Payment for the entire overlay shall be made at the unit prices for asphalt concrete Type SM-9.5D.

2. Concrete in prestressed members shall be Class A5 having a minimum compressive cylinder strength at 28 days equal to 8000 psi. All other concrete including parapet, sidewalk & curb shall be Class A4.

3. All prestressed strands shall be Grade 270 low-relaxation strands and shall be uncoated unless otherwise noted.

4. Reinforcing steel for prestressed concrete slabs, parapet, rails and sidewalk shall be deformed and shall be solid stainless steel reinforcing bars conforming to ASTM A955. See Special Provisions.

5. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

6. Transverse tendons shall be a ⅞" dia., smooth rod conforming to ASTM A449 with 2½" long threaded ends tensioned to 30,000 lbs. for the ½" dia. strand. The rod shall have a washer and nut at each end. Rods, nuts, washers and 1" x 5" x 5" steel plates shall be galvanized.

7. Entire deck shall be waterproofed in accordance with the requirements of Section 405 and Section 416 of the Specifications.

8. Cost of deck and joint waterproofing shall be included in the price of prestressed concrete slabs.

9. All keyway surfaces shall be cleaned of all dirt, laitance and loose aggregate by means of sandblasting and pre-wetted prior to the grouting of shear keys.

10. All grouting of shear keys shall be done in one continuous operation without interruption for each span. Care shall be taken to prevent leakage of grout into precast holes for transverse tendons or from bottoms of shear keys.

11. Post tensioning of transverse tendons shall not be done until all grouting of keys are completed and the grout has reached a minimum strength of 4000 psi.

12. The grout in the shear keys shall be non-shrink grout in accordance with Section 218.03(d) of the Specifications having a minimum compressive strength of 5,000 psi within 24 hours.

13. The exterior Slabs 1 and 12 and the first interior Slab 2 shall be prefabricated with corresponding concrete railings as a module.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:26:43 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

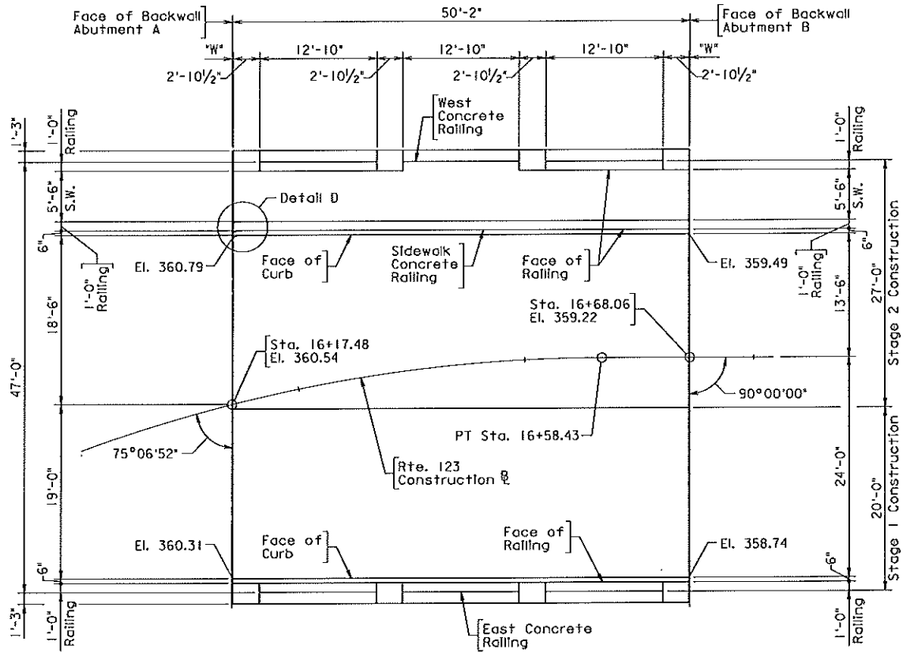
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

TRANSVERSE SECTION & DETAILS

Designed: GVK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	17 of 56
Checked: EMS			

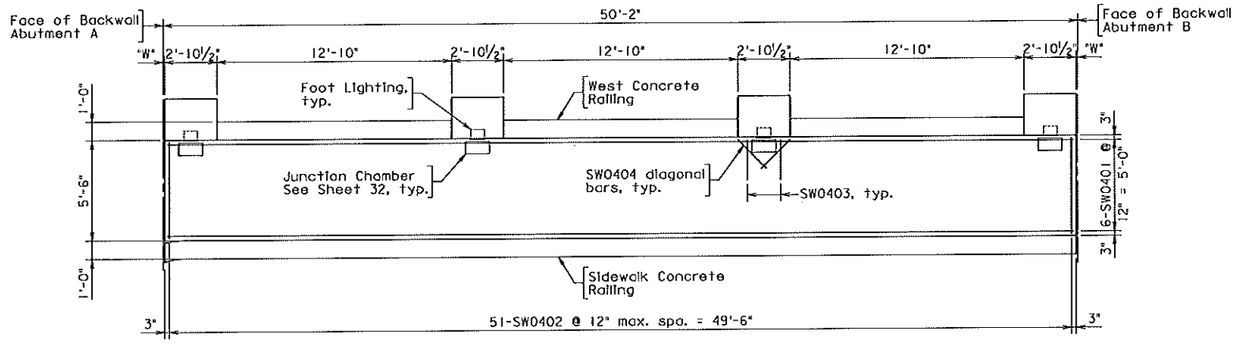
Scale: As shown

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	18

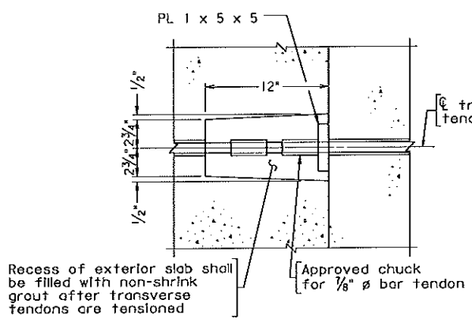


DECK SLAB PLAN
Scale: 1/8" = 1'-0"

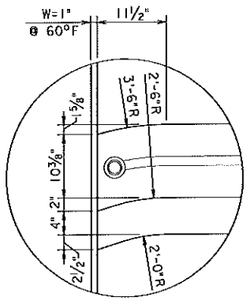
*Elevations are on top of asphalt concrete overlay.



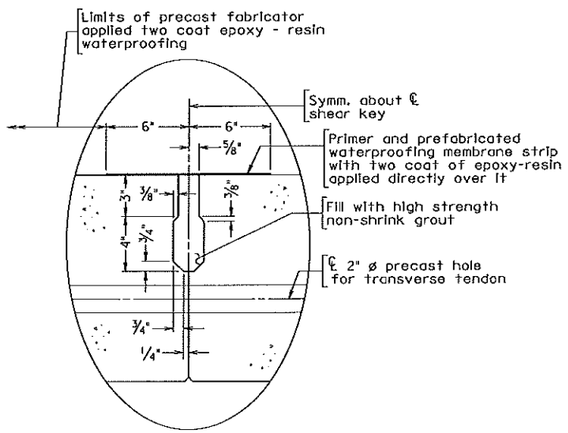
SIDEWALK REINFORCEMENT PLAN
Scale: 1/4" = 1'-0"



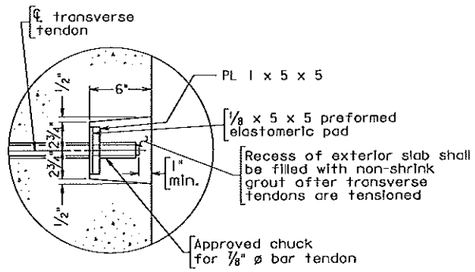
DETAIL C
Not to Scale
(See Note 7)



DETAIL D
Scale: 1" = 1'-0"



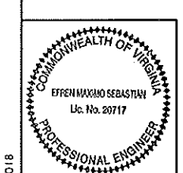
DETAIL A
Not to Scale



DETAIL B
Not to Scale
(See Note 7)

Notes:

1. For East Concrete Railing Details, see Sheets 23 & 24.
2. For West Concrete Railing Details, see Sheets 25 & 26.
3. For Sidewalk Railing Details, see Sheets 27 & 28.
4. For Rapid Cure Silicone Joint Detail, see Sheet 22.
5. For Reinforcing Steel Schedule, see Sheet 38.
6. For Bridge Conduit System, see Sheet 32.
7. The end anchorage details for transverse tendons are schematic. Contractor shall modify the detail to suit the PT devices manufacturers requirements. Contractor to submit shop drainage for review and approal.



Efren M Sebastian
2013.02.04 13:27:46 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

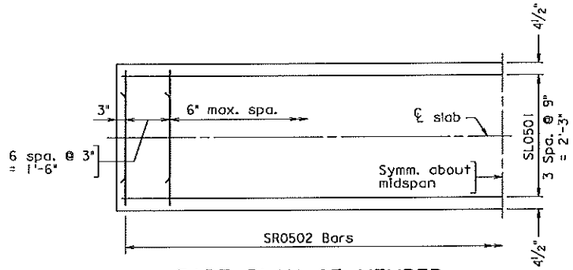
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

DECK SLAB PLAN & DETAILS

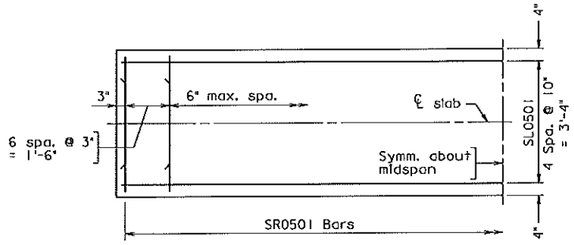
Designed: GVK	Date	Plan No.	Sheet No.
Drawn: MH			
Checked: EMS	Dec. 2012	291-81	18 of 56

Scale: As shown

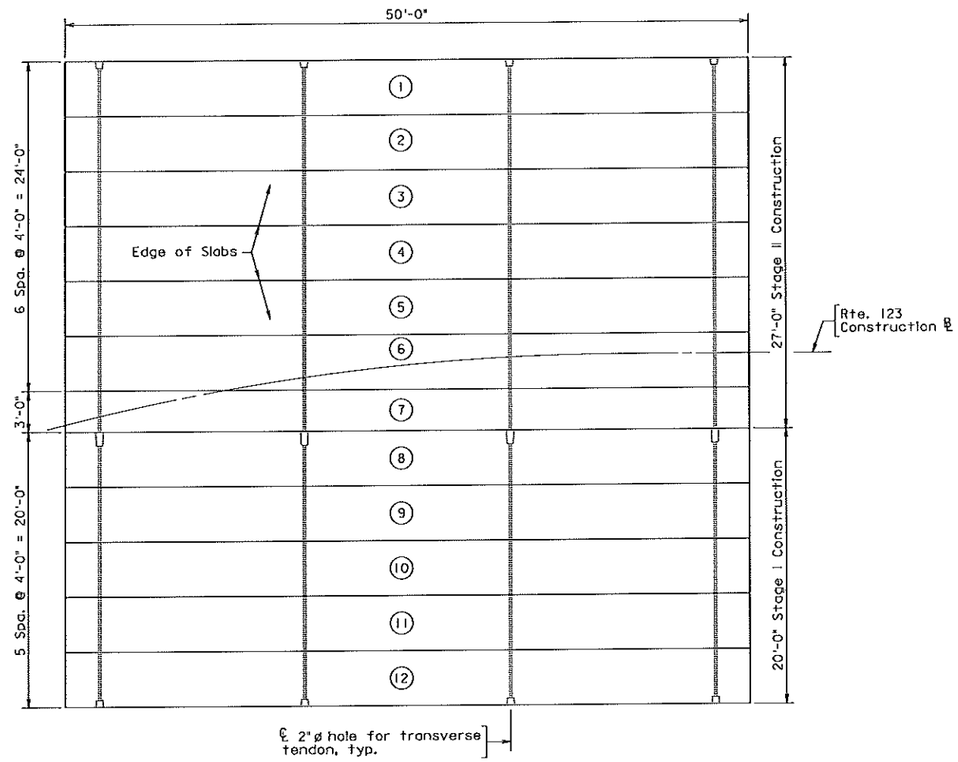
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	19



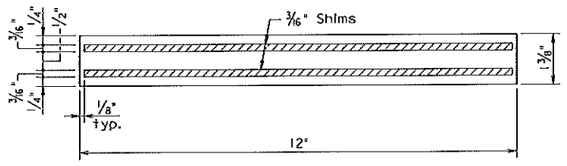
PART PLAN OF MEMBER
(3'-0" x 21" Slab)
(Showing reinforcing steel)



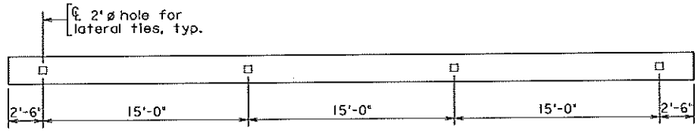
PART PLAN OF MEMBER
(4'-0" x 21" Slab)
(Showing reinforcing steel)



PLAN
Scale: 3/16" = 1'-0"



ELASTOMERIC BEARING
PAD DETAIL

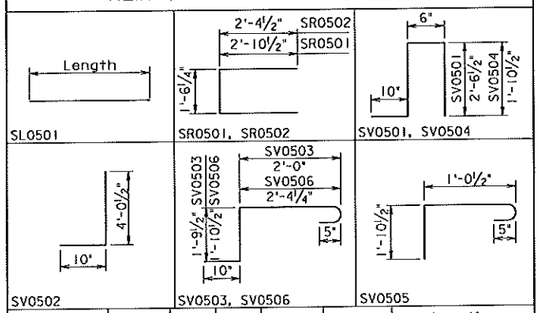


ELEVATION
Scale: 3/16" = 1'-0"

NOTES:

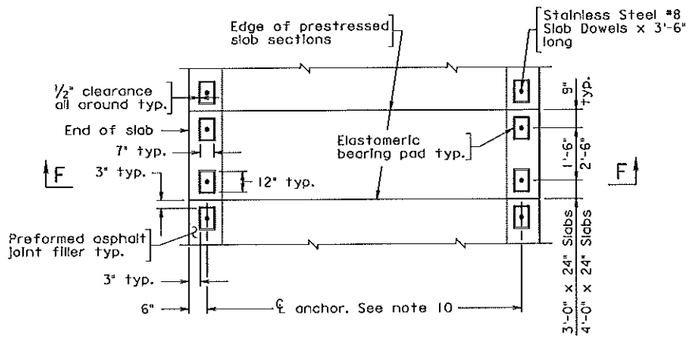
1. In lieu of splicing several reinforcing bars to form each stirrup, the stirrup may be made from one single bar.
2. All reinforcing steel shall be stainless steel reinforcing bars conforming to ASTM A955.
3. Slab corners damaged during construction shall be restored to their shape as shown on the plans by an approved epoxy mortar.
4. The Contractor shall submit prestressing strand pattern to the Engineer for approval.
5. Due to construction tolerances, adjustment to the bridge seat elevations may be needed. It is the Contractor's responsibility to make such adjustment as directed by the Engineer to insure the full bearing of the slab on the pads. Cost of adjustment shall be included in other bid items.
6. Cost of reinforcing steel, waterproofing, elastomeric bearing pads, anchor bolts, embedded plates and threaded inserts for bolts are incidental and to be included in price bid for Prestressed Concrete Slabs.
7. Materials: Elastomer - 50 durameter hardness
   Shim - ASTM A36 or A1011 mild steel
8. Elastomeric bearings shall be molded as a single unit.
9. For Slab Reinforcing Details, see Sheet 20 and 21.
10. For detail of anchors/dowel bars, see Sheet 20.

REINFORCING STEEL SCHEDULE

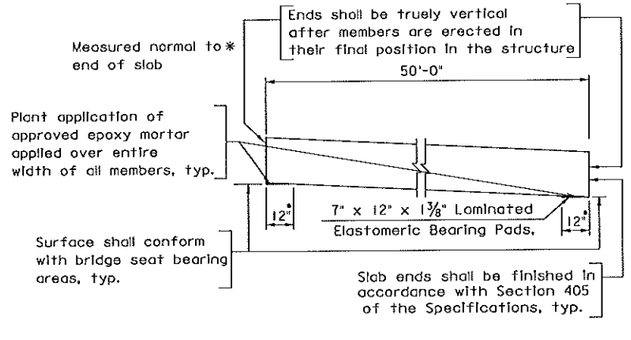


Slab Size	Mark	No.	Size	Pin ø	Length	Location
3'-0" x 21"	SL0501	4	#5	—	49'-8"	Slab 7
	SR0502	212	#5	2½"	6'-4"	Slab 7
4'-0" x 21"	SL0501	55	#5	—	49'-8"	All Slabs
	SR0501	2332	#5	2½"	7'-1"	All Slabs
	SV0501	121	#5	2½"	6'-2"	Slabs 1 & 2
	SV0502	48	#5	3¾"	4'-9"	Slabs 1 & 12
	SV0503	24	#5	3¾"	5'-0"	Slab 1
	SV0504	54	#5	2½"	4'-10"	Slab 12
	SV0505	121	#5	3¾"	3'-5"	Slabs 2 & 12
	SV0506	24	#5	3¾"	5'-5"	Slab 12

Dimensions in bending diagram are out-to-out of bars.



PART PLAN OF BEARINGS



SECTION F-F

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:28:48 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

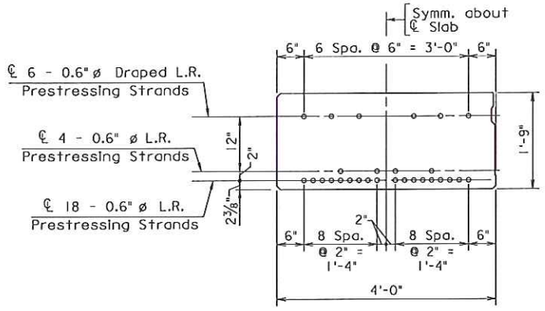
SUPERSTRUCTURE DETAILS - 1

Designed: GWK	Date	Plan No.	Sheet No.
Drawn: WH	Dec. 2012	291-81	19 of 56
Checked: EMS			

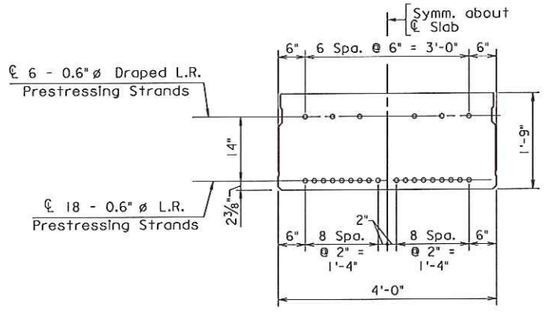
DGN

b291810l9

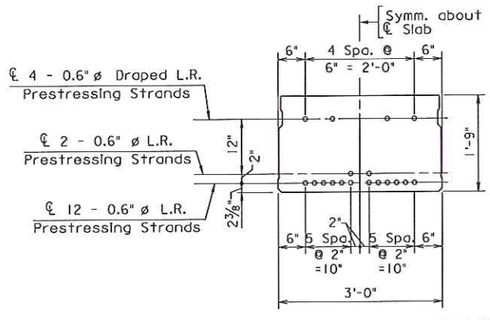
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	20



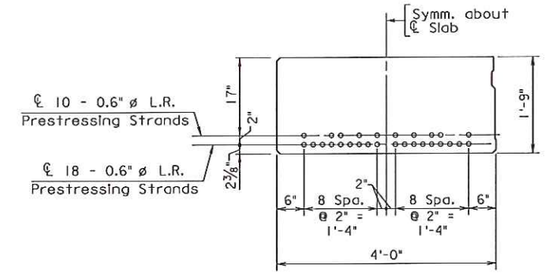
4'-0" x 21" EXTERIOR PRESTRESSED CONCRETE SLAB SECTION AT END
(Slabs 1, 2, and 12 showing prestressing strands)



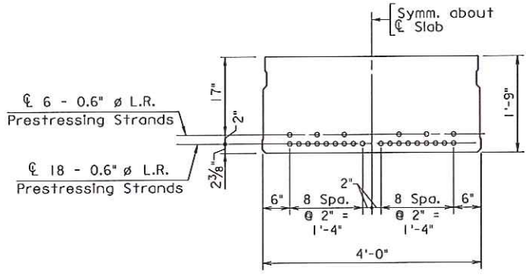
4'-0" x 21" INTERIOR PRESTRESSED CONCRETE SLAB SECTION AT END
(Slabs 3 thru 6 and 8 thru 11 showing prestressing strands)



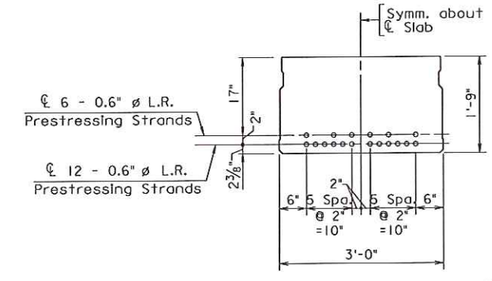
3'-0" x 21" PRESTRESSED CONCRETE SLAB SECTION AT END
(Slab 7 showing prestressing strands)



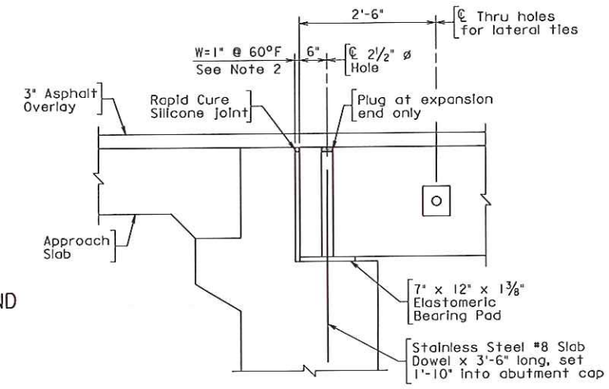
4'-0" x 21" EXTERIOR PRESTRESSED CONCRETE SLAB SECTION AT MIDSPAN
(Slabs 1, 2, and 12 showing prestressing strands)



4'-0" x 21" INTERIOR PRESTRESSED CONCRETE SLAB SECTION AT MIDSPAN
(Slabs 3 thru 6 and 8 thru 11 showing prestressing strands)

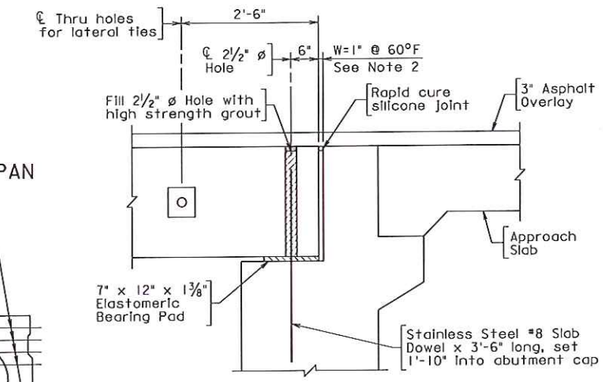


3'-0" x 21" PRESTRESSED CONCRETE SLAB SECTION AT MIDSPAN
(Slab 7 showing prestressing strands)



EXPANSION END

Note: Waterproofing Detail not shown for clarity, see Sheet 22 for Waterproffing Detail.



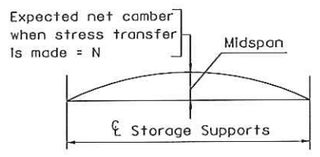
FIXED END

Note:

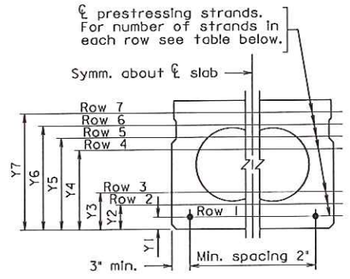
Waterproofing Detail not shown for clarity, See Sheet 22 for Waterproffing Detail. Cost of waterproofing shall be included in Prestressed Concrete Slabs pay items.

PRESTRESSING STEEL DATA TABLE

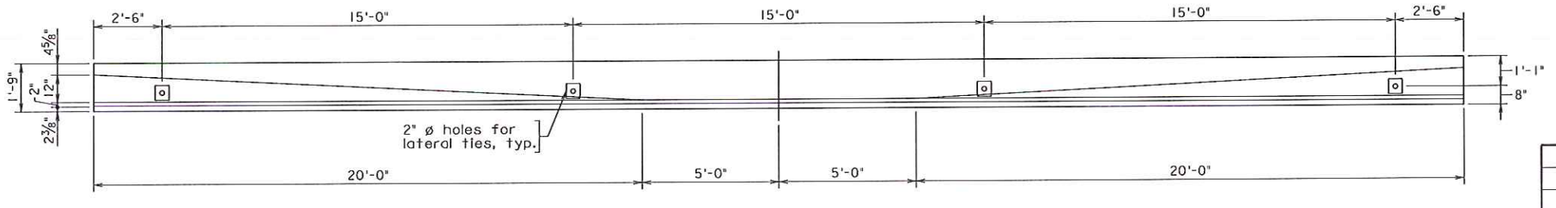
Strand Type	Slab Size	At End of Slab No. of Strands Row 1	Row 2	Row 3	Row 7	At Mid-span of Slab No. of Strands Row 1	Row 2	Row 3	Row 7	Y1 in.	Y2 in.	Y3 in.	Y7 in.	Total Number of Strands per Slab	Prestressing Force per Strand-lbs.	Net Camber N in.
0.6"ø Low-Relaxation Strands	3'-0" x 21" Exterior	12	2	-	4	12	6	-	-	2⅜"	2"	-	16⅜"	18	43,900	⅞"
	4'-0" x 21" Exterior	18	4	-	6	18	10	-	-	2⅜"	2"	-	16⅜"	28	43,900	1⅛"
	4'-0" x 21" Interior	18	0	-	6	18	6	-	-	2⅜"	2"	-	16⅜"	24	43,900	⅞"



CAMBER DIAGRAM



SECTION E-E
Showing location of 0.60" ø strands



PRESTRESSED CONCRETE SLAB ELEVATION

Notes:

1. For other steel reinforcing steel in the slabs, see Sheet 21.
2. For rapid cure silicone joint details, see Sheet 22.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:30:01 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

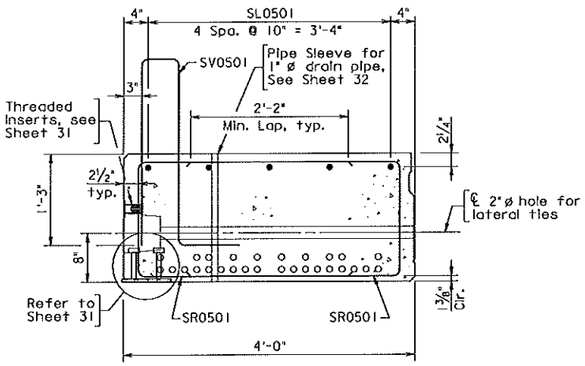
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

SUPERSTRUCTURE DETAILS - 2

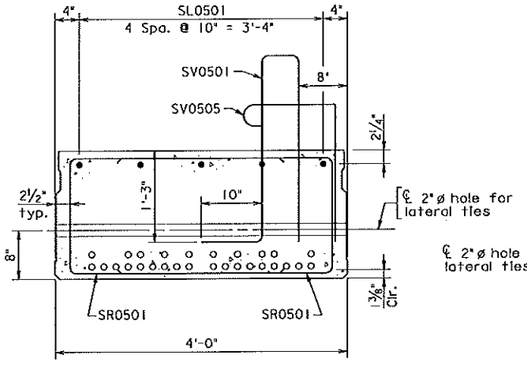
Designed: GVK	Date	Plan No.	Sheet No.
Drawn: VH	Dec. 2012	291-81	20 of 56
Checked: EMS			

Scale: Not to Scale

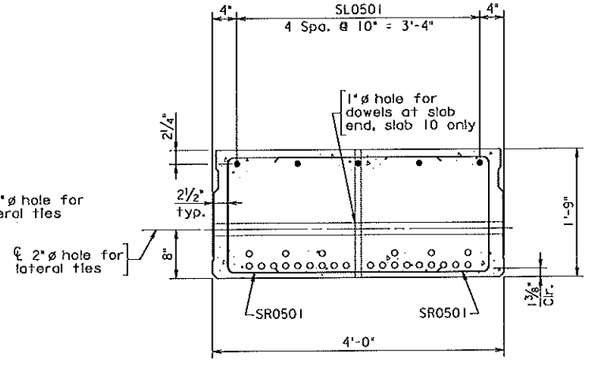
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	21



PRESTRESSED CONCRETE SLAB DETAILS
4'-0" x 21" (SLAB 1)
(At Rail)



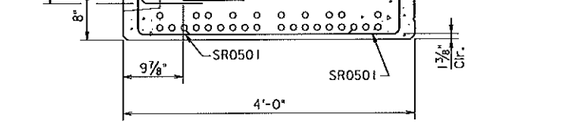
PRESTRESSED CONCRETE SLAB DETAILS
4'-0" x 21" (SLAB 2)



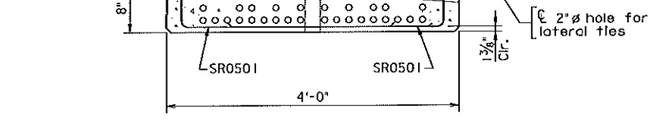
PRESTRESSED CONCRETE SLAB DETAILS
4'-0" x 21" (SLABS 3 thru 6, 8 thru 11)

Notes:

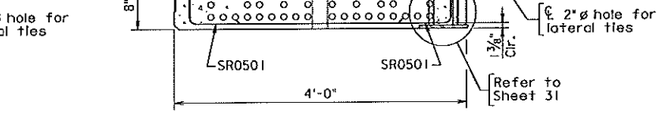
1. For Slab Plan Layout, see Sheet 18 and 19.
2. For Prestressing Strands Layout and Details, see Sheet 20.
3. For East Concrete Railing Details, see Sheets 23 and 24.
4. For West Concrete Railing Details, see Sheets 25 and 26.
5. For Sidewalk Railing Details, see Sheets 27 and 28.
6. For Precast Concrete Spandrel Wall Details, see Sheets 30 and 31.



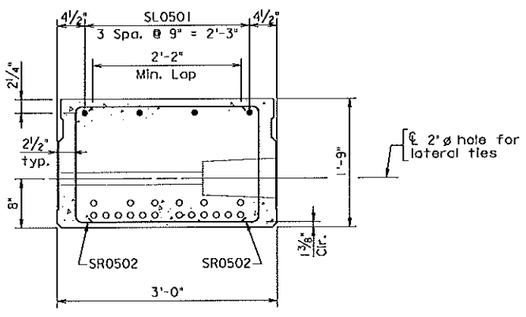
PRESTRESSED CONCRETE SLAB DETAILS
4'-0" x 21" (SLAB 1)
(At Pilaster)



PRESTRESSED CONCRETE SLAB DETAILS
4'-0" x 21" (SLAB 12)
(At Rail)



PRESTRESSED CONCRETE SLAB DETAILS
4'-0" x 21" (SLAB 12)
(At Pilaster)



PRESTRESSED CONCRETE SLAB DETAILS
3'-0" x 21" (SLAB 7)

Efren M Sebastian
2013.02.04 13:31:01 -05'00'
LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

Scale: 1" = 1'-0"

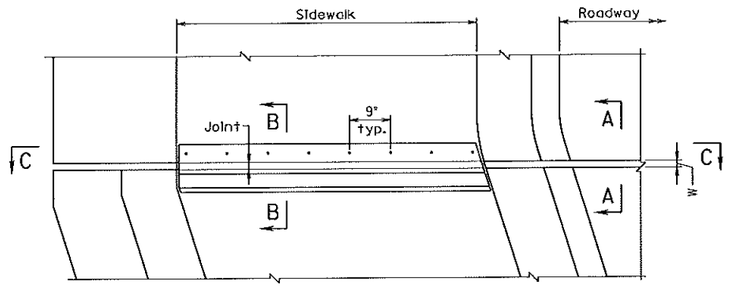
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

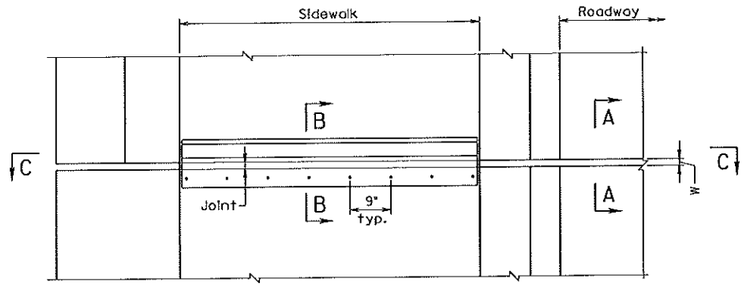
SUPERSTRUCTURE DETAILS - 3

Designed: GVK	Date	Plan No.	Sheet No.
Drawn: VH	Dec. 2012	291-81	21 of 56
Checked: EMS			

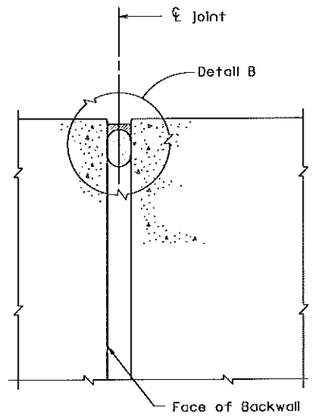
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	22



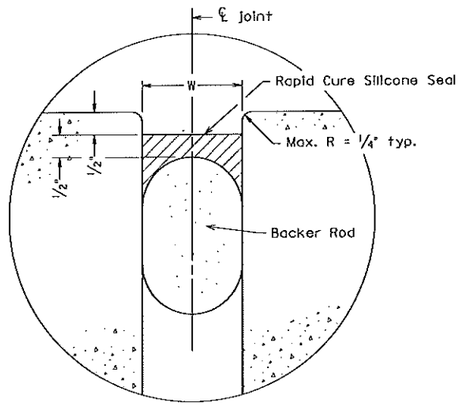
PLAN AT SIDEWALK - ABUTMENT A



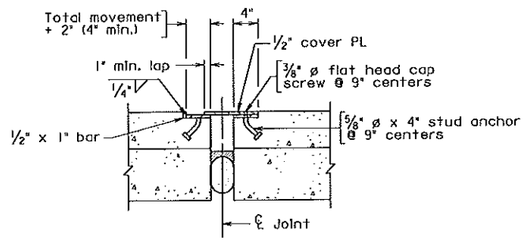
PLAN AT SIDEWALK - ABUTMENT B



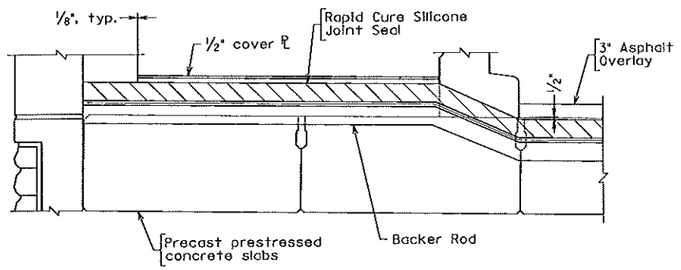
SECTION A-A



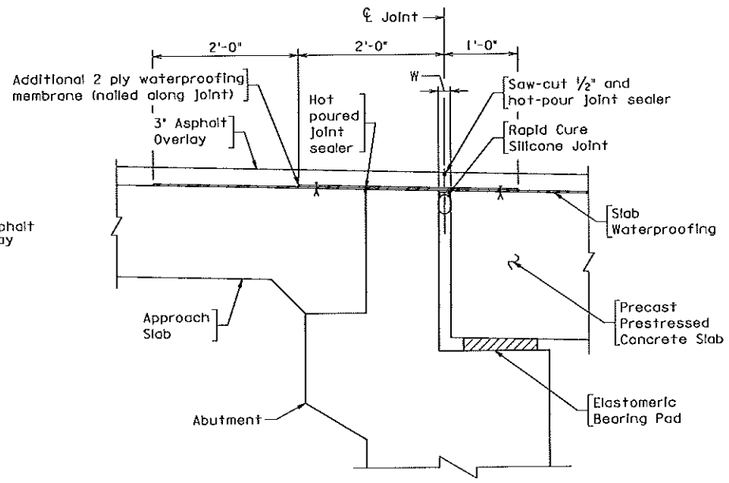
DETAIL B



SECTION B-B



SECTION C-C



JOINT WATERPROOFING DETAIL

Notes:

Silicone Seal shall be one of the following:

a. Dow Corning 902 RCS Joint Sealant - For proper installation, the Contractor shall follow the installation recommendations as described in the Dow Corning Silicone Pavement Sealants Installation Guide.

b. Wabo Silicone Seal by Watson Bowman Acme - For proper installation, the Contractor shall follow the manufacturer's installation procedure as described in Wabo Silicone Seal Joint System Silicone Expansion Joint Sealant for Bridge and Highway Applications.

For first installation, the Sealant Representative shall be on site to observe and insure proper installation.

As nearly as possible, sides of joints shall be straight, vertical and parallel. The area of the installation shall be free from cracks and spalls.

Joint width W=1" is the final joint width of the cured concrete when placed at 60° F. The joint width shall be increased or decreased for every 10° F temperature drop or rise respectively by 1/64 "

All bolts, nuts, washers and cap screws shall be ASTM A276, Type 304 stainless steel.

Non-stainless ferrous metal shall be ASTM A709 Grade 36 and shall be painted in accordance with Section 411 of the Specifications.

Completely welded curb and gutter steel sections shall be furnished for the joint.

All cost of furnishing materials, fabricating and installing the steel curb and gutter sections, and the sealants complete in place shall be included in the unit price bid per linear foot of 'Rapid Cure Silicone Joint'.

Cost of addtional waterproofing membrane shall be included in Prestressed Concrete Slabs pay items.

DGN

B29181022

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:32:00 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

Not to scale

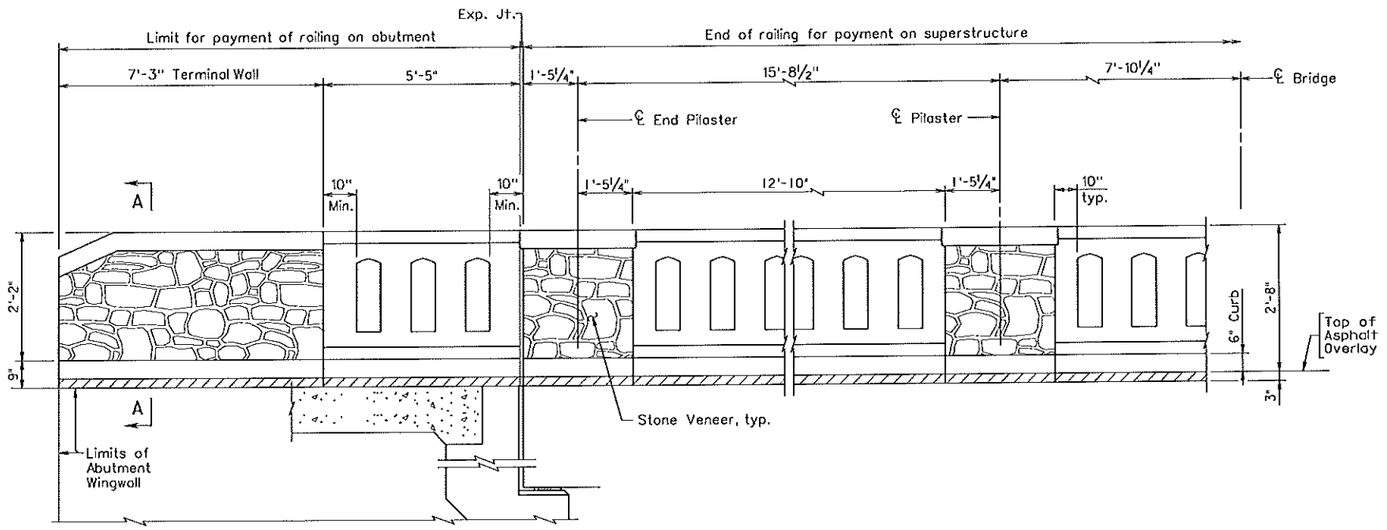
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

RAPID CURE SILICONE JOINT DETAILS

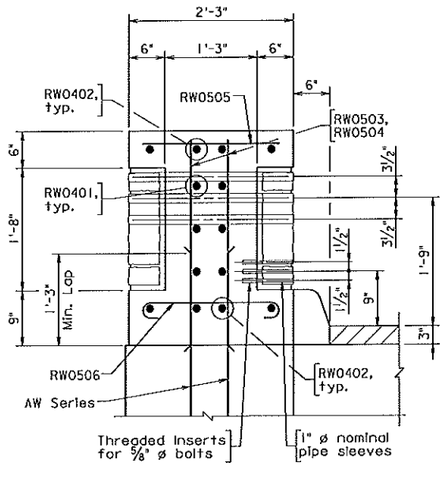
Designed: EMS	Date	Plan No.	Sheet No.
Drawn: MM	Dec. 2012	291-81	22 of 56
Checked: MM			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	23

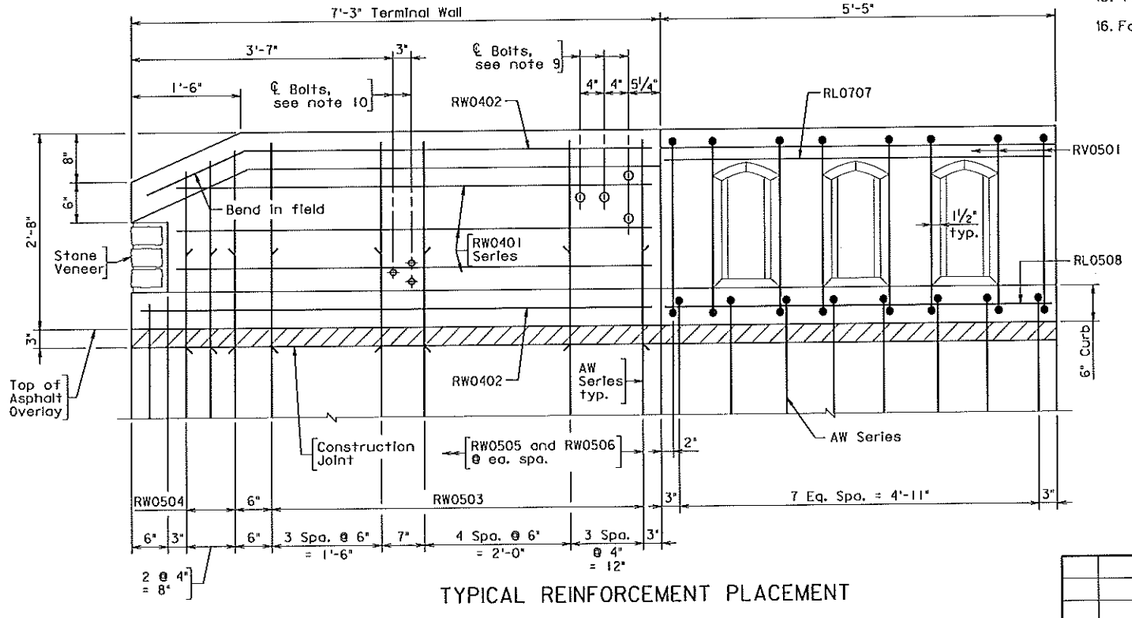


END PILASTER TYPICAL PILASTER

ROADWAY ELEVATION OF RAILING



SECTION A-A



TYPICAL REINFORCEMENT PLACEMENT

Notes:

1. All reinforcing stel shall be deformed and shall be solid stainless steel reinforcing bars conforming to ASTM A955, See Special Provisions.
2. The railing shown is Texas Classic T411 with additional pilasters. It is crash tested and approved for the NCHRP 350 TL-2 Rating with vehicular speeds up to 45 mph.
3. Barrier delineator size, color, and spacing to be in accordance with the Specifications. Cost of delineator to be included in the price bid for railing. Reflective surface of barrier delineator, in all instances, to be facing oncoming traffic.
4. The Contractor shall determine all dimensions and details necessary for installation.
5. Each terminal wall shall be cast as one piece.
6. For details of wingwall below construction joint, see abutment sheets.
7. Terminal walls are detailed to take guard rail attachment GR-F0A-1.
8. All bevels for concrete on this sheet shall be ¾". Rounded edges with 1" radius may be used in lieu of bevels along top of terminal wall and railing.
9. Holes, where shown, shall be formed with sleeves of 1½" diameter nominal pipe. Extend sleeves through stone veneer.
10. Bolts, where shown, shall be ⅝" dia. bolts through 1" dia. nomial sleeves on stone veneer, matching the threaded inserts on concrete terminal wall and installed when rub rail is attached.
11. All concrete shall be Class A4.
12. Bid item for railing shall include concrete noted in plans and reinforcing steel indicated in Reinforcing Steel Schedule.
13. Plan dimensions shown are measured in the respective horizontal and vertical planes. The Contractor shall adjust the reinforcing steel as required for the plan horizontal slope and vertical gradient.
14. For railing sections, railing post and window dimensions and details, see Sheet 24.
15. For expansion joint information, see Sheet 22.
16. For stone veneer detail, see Sheet 11.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:33:05 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

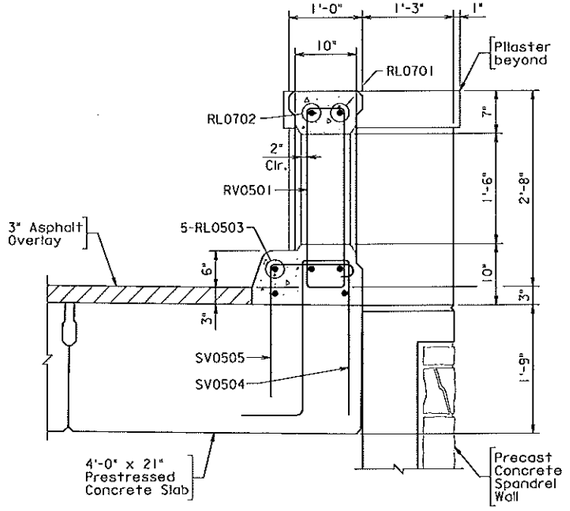
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

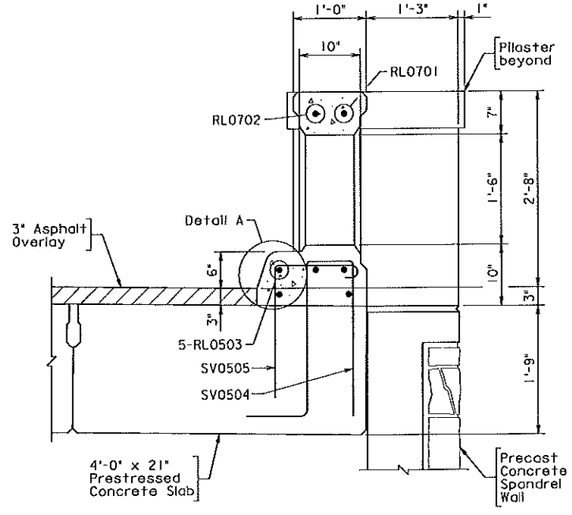
EAST CONCRETE RAILING DETAILS - 1

Designed: GWK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	23 of 56
Checked: EMS			

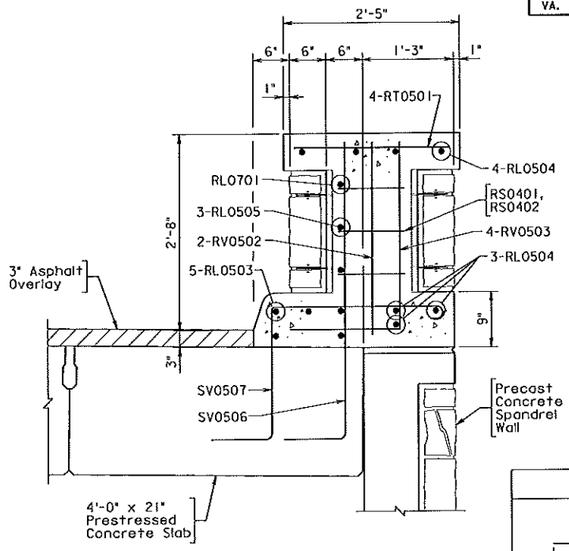
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	24



SECTION THROUGH POST
Scale: 1" = 1'-0"



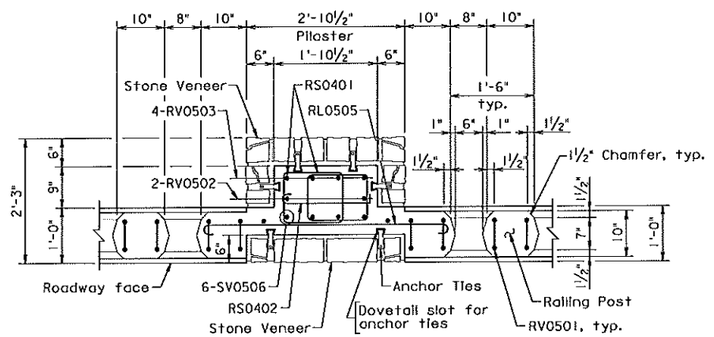
SECTION AT WINDOW
Scale: 1" = 1'-0"



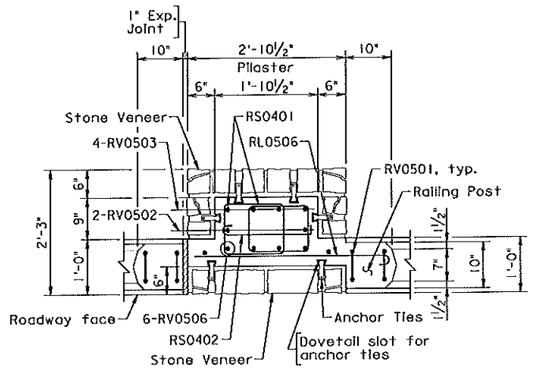
SECTION AT PILASTER
Scale: 1" = 1'-0"

Note:

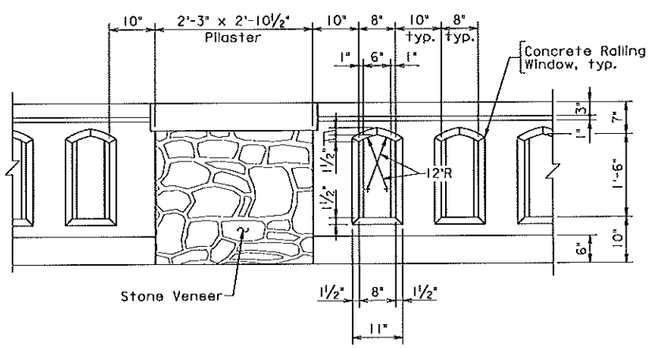
1. For elevation of railing and terminal wall details, see Sheet 23.



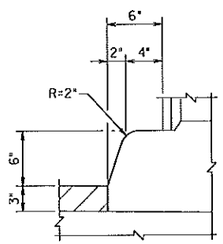
PLAN - TYPICAL RAILING & PILASTER
Scale: ¾" = 1'-0"



PLAN - END RAILING & PILASTER
Scale: ¾" = 1'-0"

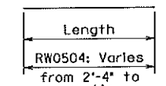


TYPICAL CONCRETE RAILING ELEVATION
Scale: ¾" = 1'-0"

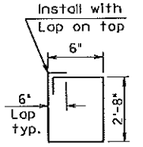


DETAIL A
Scale: 1½" = 1'-0"

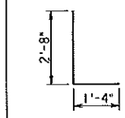
REINFORCING STEEL SCHEDULE



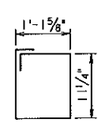
RV0502, RL07 Series, RW0503
RL05 Series, RT0501



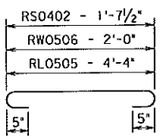
RV0501



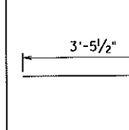
RV0503



RS0401



RS0402, RW0506, RL0505



RL0506

Mark	Size	No.	Length	Pin ø	Location
RV0501	#5	70	6'-9"	2½"	Railing Posts
RV0502	#5	8	2'-8"	—	Pilasters
RV0503	#5	16	3'-11"	3¾"	Pilasters
RL0701	#7	1	49'-9"	—	Top Rail
RL0702	#7	3	12'-7"	—	Top Rail
RL0503	#5	5	49'-9"	—	Bottom Rail
RL0504	#5	28	2'-7½"	—	Pilasters
RL0505	#5	6	5'-6"	3¾"	Interior Pilasters
RL0506	#5	6	4'-1"	3¾"	End Pilasters
RL0707	#7	4	5'-2"	—	Approach Top Rail
RL0508	#5	8	5'-2"	—	Approach Bottom Rail
RS0401	#4	24	4'-6"	2"	Pilasters
RS0402	#4	12	2'-8"	3"	Pilasters
RT0501	#5	16	2'-2"	—	Pilasters
RW0401	#4	12	6'-6"	—	Terminal Walls
RW0402	#5	16	7'-0"	—	Terminal Walls
RW0503	#5	48	8'-8"	—	Terminal Walls
RW0504	#5	12	Varies	—	Terminal Walls
RW0505	#5	30	2'-0"	—	Terminal Walls
RW0506	#5	30	3'-2"	3¾"	Terminal Walls

Dimensions in bending diagram are out-to-out of bars.

COMMONWEALTH OF VIRGINIA
EFREN MASIMO SEBASTIAN
No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:34:10 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

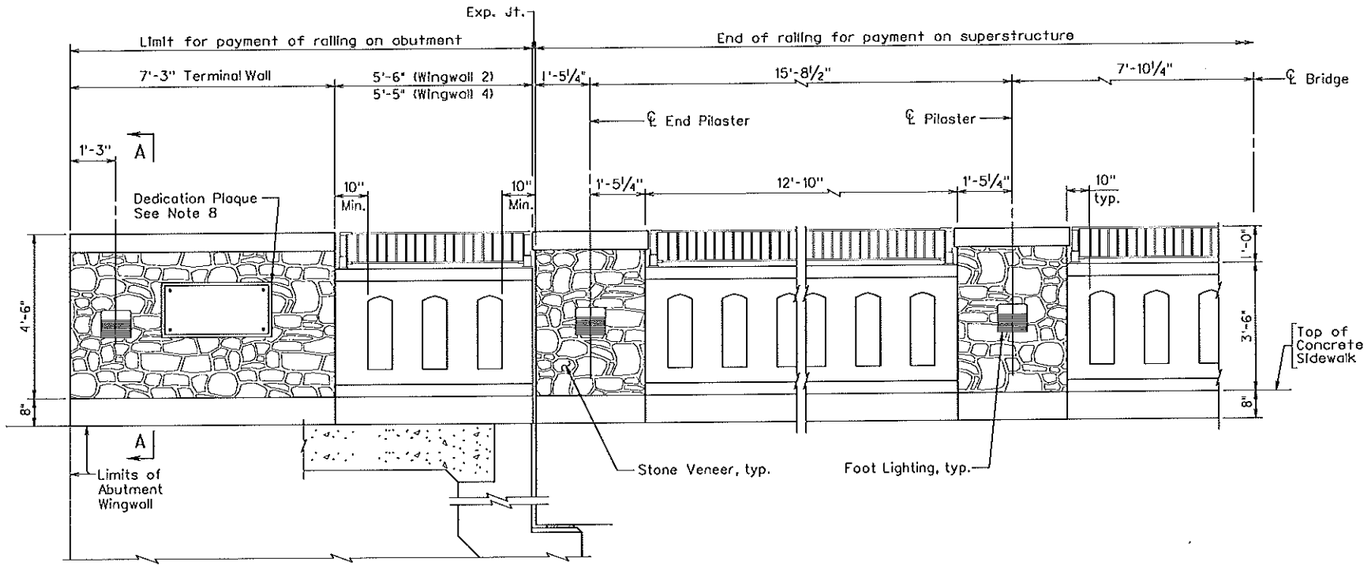
EAST CONCRETE RAILING DETAILS - 2

Designed: GMK	Date	Plan No.	Sheet No.
Drawn: VM	Dec. 2012	291-81	24 of 56
Checked: EMS			

Scale: As shown

b29181024

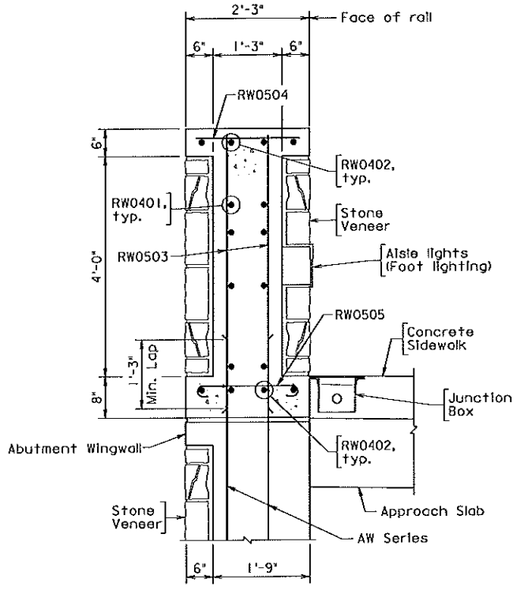
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	25



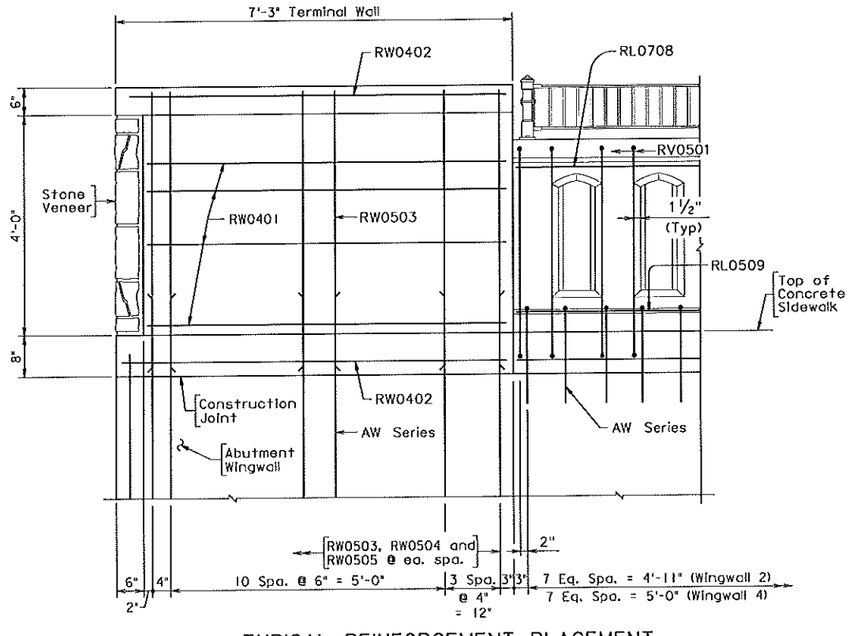
END PILASTER

TYPICAL PILASTER

ROADWAY ELEVATION OF RAILING



SECTION A-A

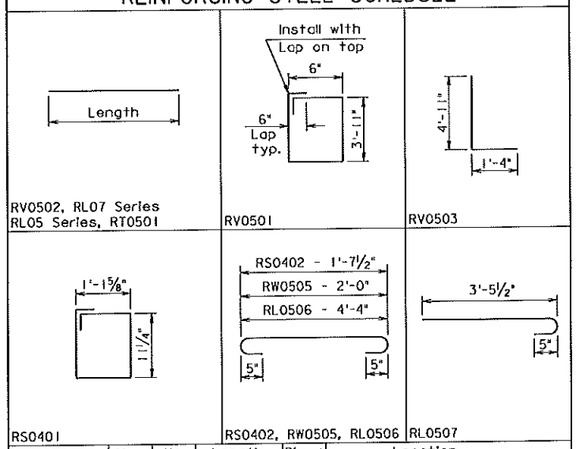


TYPICAL REINFORCEMENT PLACEMENT

Notes:

1. All reinforcing steel shall be deformed and shall be solid stainless steel reinforcing bars conforming to ASTM A955, See Special Provisions.
2. The railing shown is Combination Rail Texas Classic C411 with additional pilasters and metal railing on top. It is crash tested and approved for the NCHRP 350 TL-2 Rating with vehicular speeds up to 45 mph.
3. All concrete shall be Class A4.
4. For railing sections, railing post, window dimensions and details and other notes, see Sheet 26.
5. Each terminal wall shall be cast as one piece.
6. For details of wingwall below construction joint, see abutment sheets.
7. For stone veneer details, see Sheet 11 and special provisions.
8. Dedication Plaque shall be bronze with all raised surfaces to have bright finish. Provide threaded inserts for ⅝" ø bronze bolts.

REINFORCING STEEL SCHEDULE



RV0502, RL07 Series RL05 Series, RT0501 | RV0501 | RV0503 | RS0401 | RS0402, RW0505, RL0506 | RL0507

Mark	Size	No.	Length	Pin ø	Location
RV0501	#5	70	9'-3"	2½"	Posts
RV0502	#5	24	4'-11"	—	Pilasters
RV0503	#5	16	6'-2"	3¾"	Pilasters
RL0701	#7	1	49'-9"	—	Top Rail
RL0702	#7	3	12'-7"	—	Top Rail
RL0503	#5	3	49'-9"	—	Bottom Rail
RL0504	#5	3	12'-7"	—	Bottom Rail
RL0505	#5	28	2'-7½"	—	Pilasters
RL0506	#5	10	5'-6"	3¾"	Interior Pilasters
RL0507	#5	10	4'-1"	3¾"	End Pilasters
RL0708	#7	4	5'-2"	—	Approach Top Rail
RL0509	#5	8	5'-2"	—	Approach Bottom Rail
RS0401	#4	48	4'-6"	2"	Pilasters
RS0402	#4	24	2'-8"	3"	Pilasters
RT0501	#5	16	2'-2"	—	Pilasters
RW0401	#5	16	6'-6"	—	Terminal Walls
RW0402	#5	16	7'-0"	—	Terminal Walls
RW0503	#5	30	4'-11"	—	Terminal Walls
RW0504	#5	30	2'-0"	—	Terminal Walls
RW0505	#5	30	3'-2"	3¾"	Terminal Walls

Dimensions in bending diagram are out-to-out of bars.

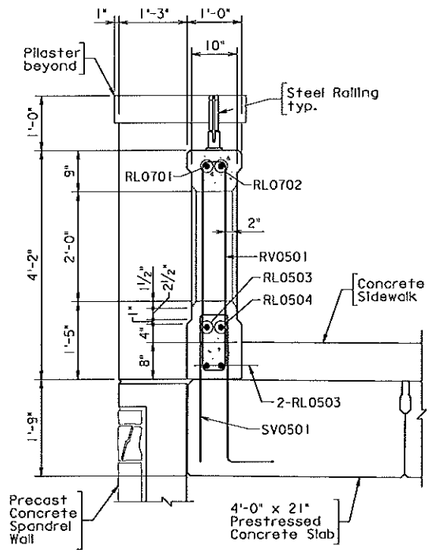
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

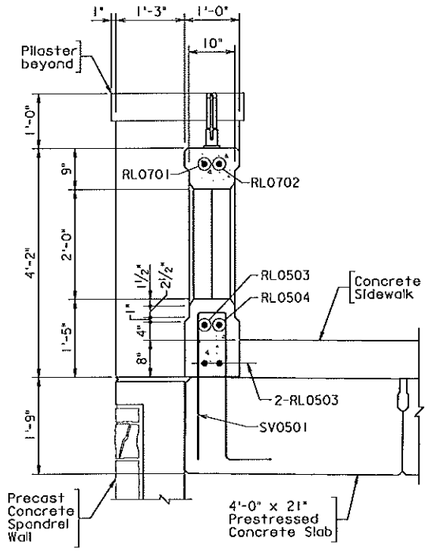
WEST CONCRETE RAILING DETAILS - 1

Designed: CVK	Date	Plan No.	Sheet No.
Drawn: VH	Dec. 2012	291-81	25 of 56
Checked: EMS			

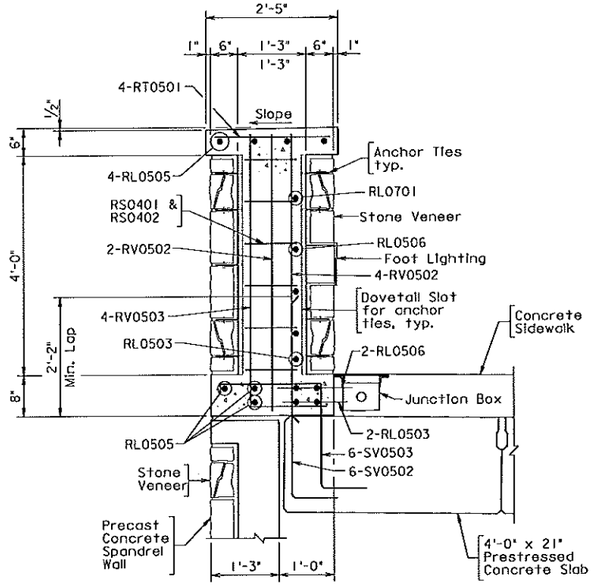
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, 8604	26



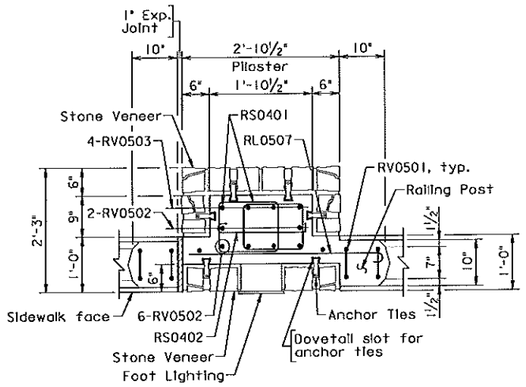
SECTION THROUGH POST
Scale: ¾" = 1'-0"



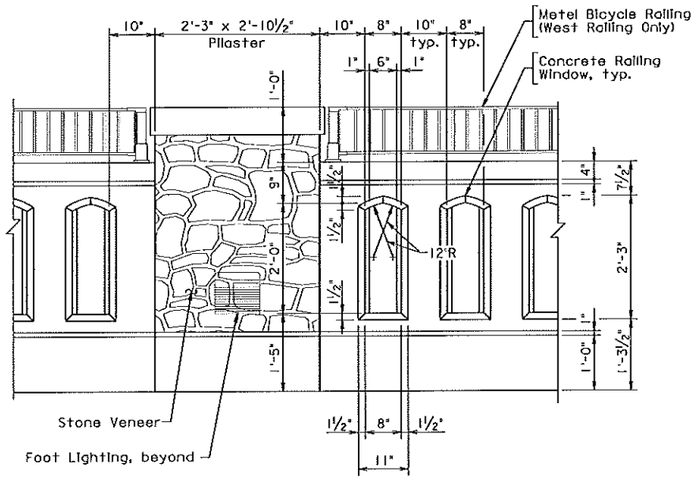
SECTION AT WINDOW
Scale: ¾" = 1'-0"



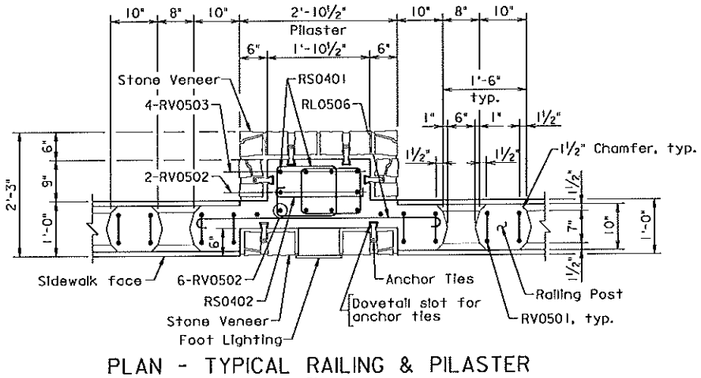
SECTION AT PILASTER
Scale: ¾" = 1'-0"



PLAN - END PILASTER & PILASTER
Scale: ¾" = 1'-0"



TYPICAL CONCRETE RAILING ELEVATION
Scale: ¾" = 1'-0"



PLAN - TYPICAL RAILING & PILASTER
Scale: ¾" = 1'-0"

Notes:

1. For elevation of railing and terminal wall details, see Sheet 25.
2. The Contractor shall determine all dimensions and details necessary for installation.
3. All bevels for concrete on this sheet shall be ¾". Rounded edges with 1" radius may be used in lieu of bevels along top of terminal wall and railing.
4. Bid item for railing shall include concrete noted in plans and reinforcing steel indicated in Reinforcing Steel Schedule. It shall also include a bronze dedicated plaque with the connection accessories to be set in place and attached to the terminal wall.
5. Plan dimensions shown are measured in the respective horizontal and vertical planes. The Contractor shall adjust the reinforcing steel as required for the plan horizontal slope and vertical gradient.
6. For expansion joint information, see Sheet 22.
7. For bridge conduit system, see Sheet 32.
8. For bridge lighting, see Sheets 52 to 56.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:36:36 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

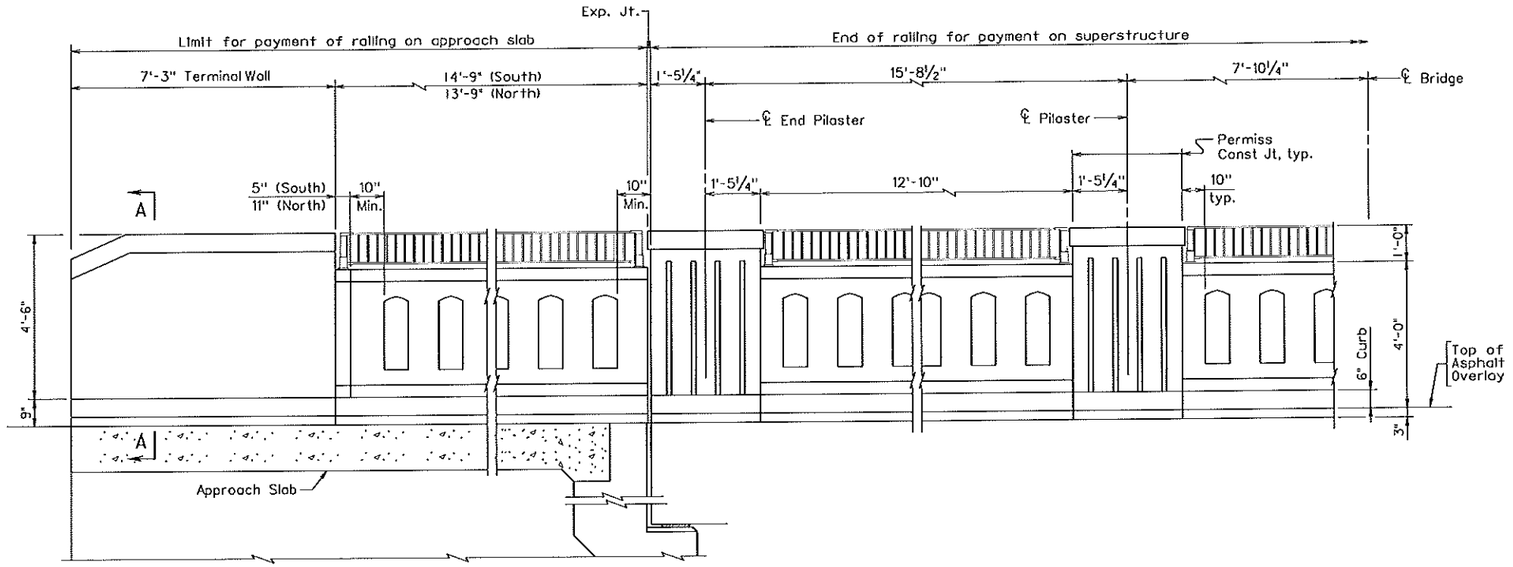
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

WEST CONCRETE RAILING DETAILS - 2

Designed: CMK
Drawn: VVJ
Checked: EMS

Date	Plan No.	Sheet No.
Dec. 2012	291-81	26 of 56

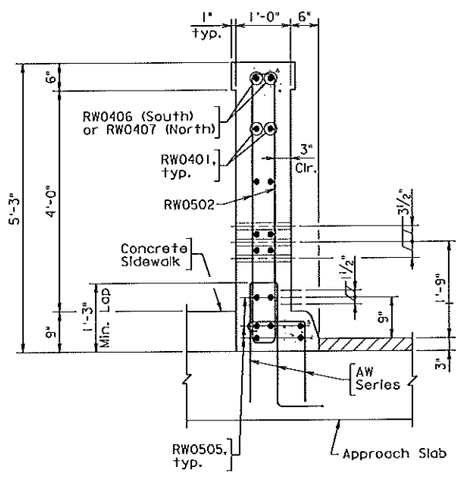
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	27



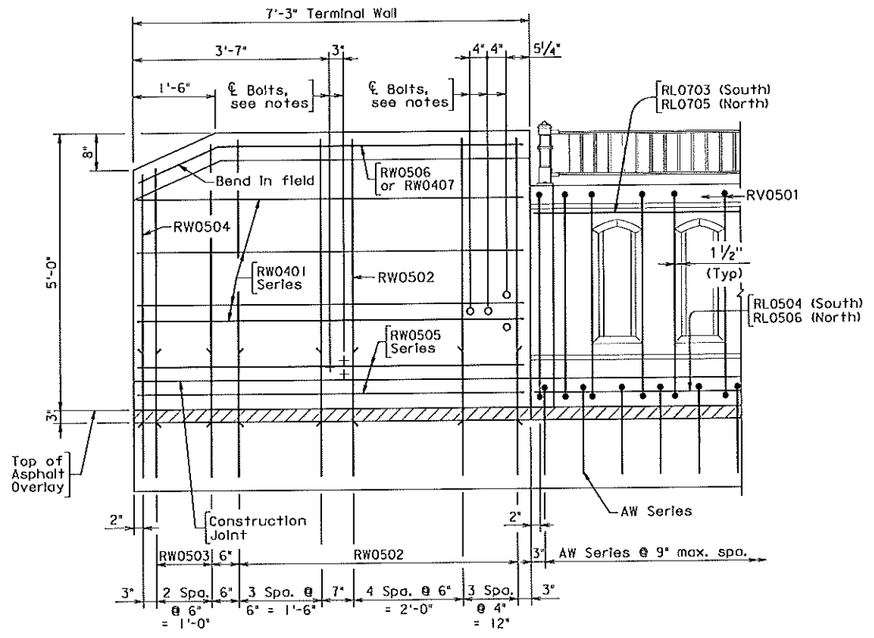
END PILASTER

TYPICAL PILASTER

ROADWAY ELEVATION OF RAIL



SECTION A-A



TYPICAL REINFORCEMENT PLACEMENT

Notes:

1. All reinforcing stel shall be deformed and shall be solid stainless steel reinforcing bars conforming to ASTM A955, See Special Provisions.
2. The railing shown is Combination Rail Texas Classic C411 with metal railing on top. It is crash tested and approved for the NCHRP350 TL-2 Rating with vehicular speeds up to 45 mph.
3. Barrier delineator size, color, and spacing to be in accordance with the Specifications. Cost of delineator to be included in the price bid for railing. Reflective surface of barrier delineator, in all instances, to be facing oncoming traffic.
4. The Contractor shall determine all dimensions and details necessary for installation.
5. Each terminal wall shall be cast as one piece.
6. For details of approach slabs, see Sheets 46 and 47.
7. Terminal walls are detailed to take guard rail attachment GR-F0A-1.
8. All bevels for concrete on this sheet shall be ¾". Rounded edges with 1" radius may be used in lieu of bevels along top of terminal wall and railing.
9. Holes, where shown, shall be formed with sleeves of 1½" diameter nominal pipe.
10. Bolts, where shown, shall be ⅝" dia. expansion anchor bolts, 6" long to be drilled and installed when rub rail is attached.
11. All concrete shall be Class A4.
12. Bid item for railing shall include concrete noted in plans and reinforcing steel indicated in Reinforcing Steel Schedule.
13. Plan dimensions shown are measured in the respective horizontal and vertical planes. The Contractor shall adjust the reinforcing steel as required for the plan horizontal slope and vertical gradient.
14. For railing sections, railing post and window dimensions and details, see Sheet 28.
15. For expansion joint information, see Sheet 22.

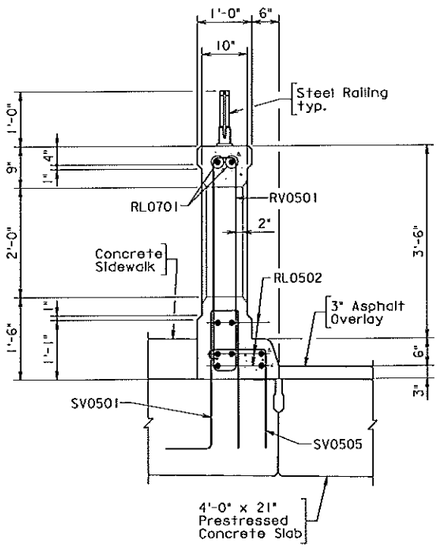
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

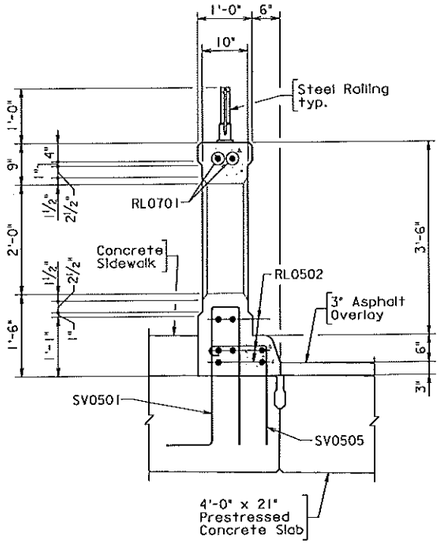
SIDEWALK CONCRETE RAILING DETAILS - 1

Designed: GVK	Date	Plan No.	Sheet No.
Drawn: VH	Dec. 2012	291-81	27 of 56
Checked: EMS			

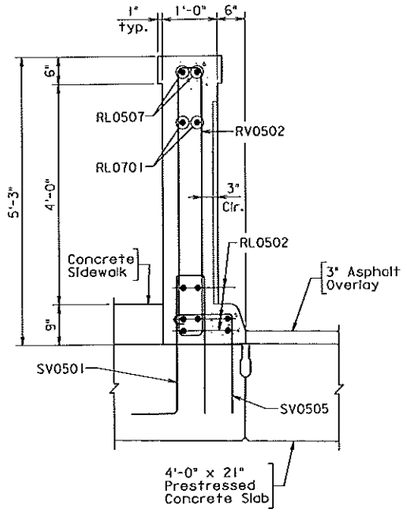
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	28



SECTION THROUGH POST
Scale: ¾" = 1'-0"



SECTION AT WINDOW
Scale: ¾" = 1'-0"

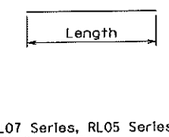


SECTION AT PILASTER
Scale: ¾" = 1'-0"

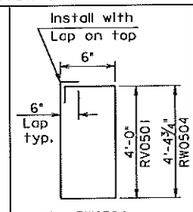
Note:

1. For elevation of railing and terminal wall details, see Sheet 27.

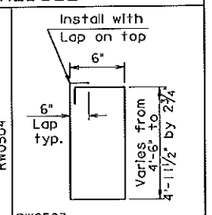
REINFORCING STEEL SCHEDULE



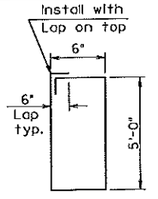
RL07 Series, RL05 Series
RW0401, RW0505



RV0501, RW0504



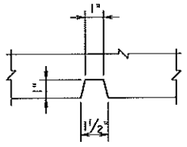
RW0503



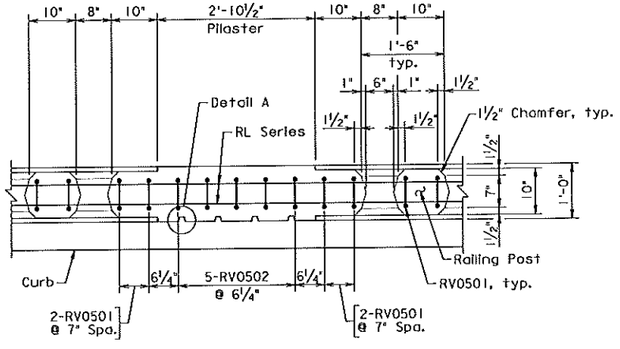
RV0502, RW0502

Mark	Size	No.	Length	Pin ø	Location
RV0501	#5	92	9'-5"	2½"	Posts
RV0502	#5	23	11'-5"	2½"	Pilasters
RV0507	#5	8	2'-7½"	—	Pilasters
RL0701	#7	2	49'-9"	—	Top Rail
RL0502	#5	7	49'-9"	—	Bottom Rail
RL0703	#7	2	14'-6"	—	South Approach Railing
RL0504	#5	7	14'-6"	—	South Approach Railing
RL0705	#7	2	13'-6"	—	North Approach Railing
RL0506	#5	7	13'-6"	—	North Approach Railing
RW0401	#4	16	7'-0"	—	Terminal Walls
RW0502	#5	24	11'-5"	2½"	Terminal Walls
RW0503	#5	6	Varies	2½"	Terminal Walls
RW0504	#5	2	10'-3"	2½"	Terminal Walls
RW0505	#5	14	7'-0"	—	Terminal Walls
RW0406	#4	2	7'-5"	—	Terminal Walls
RW0407	#4	2	7'-11"	—	Terminal Walls

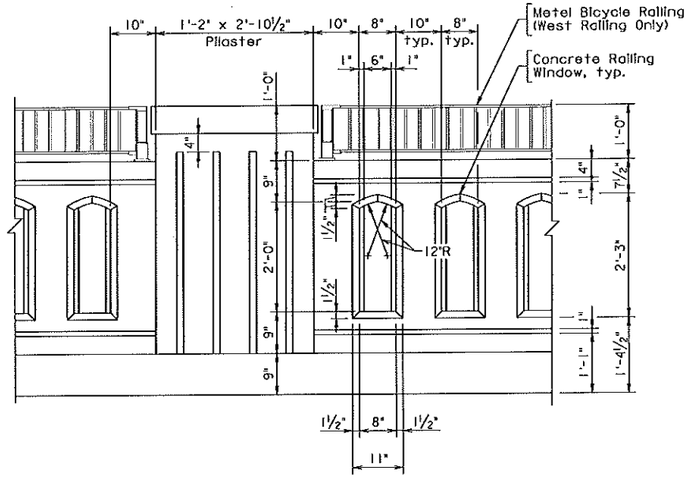
Dimensions in bending diagram are out-to-out of bars.



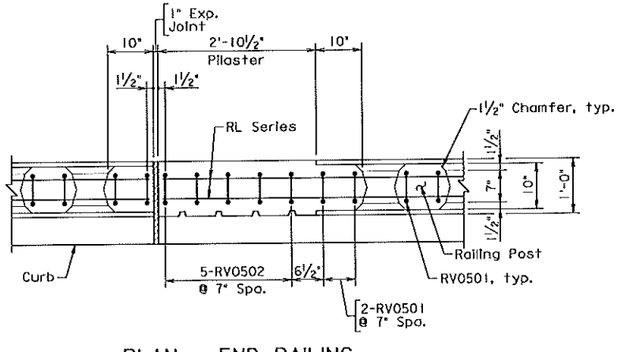
DETAIL A
Scale: 3" = 1'-0"



PLAN - TYPICAL RAILING
Scale: ¾" = 1'-0"



TYPICAL CONCRETE RAILING ELEVATION
Scale: ¾" = 1'-0"



PLAN - END RAILING
Scale: ¾" = 1'-0"

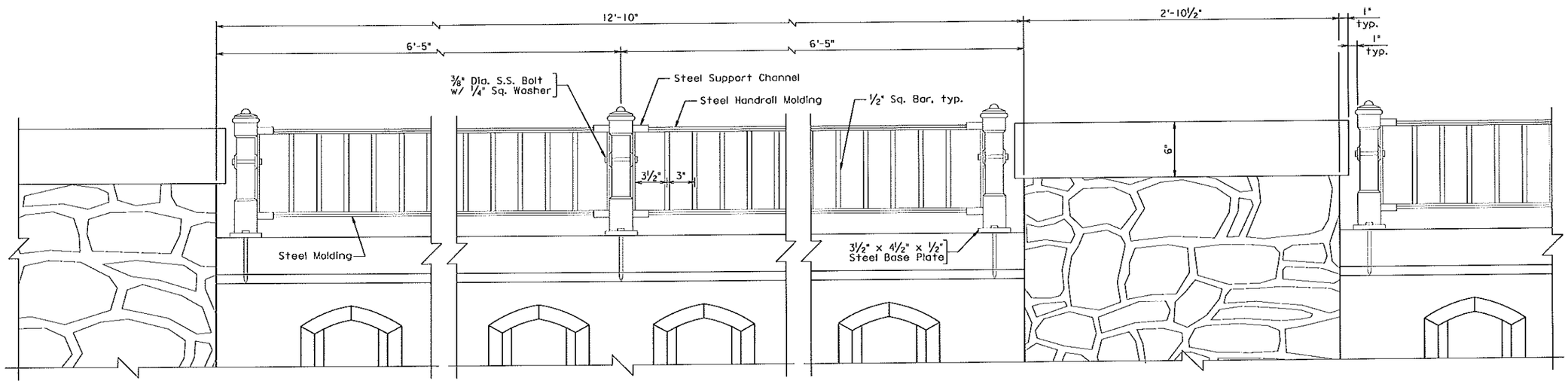
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

SIDEWALK CONCRETE RAILING DETAILS - 2

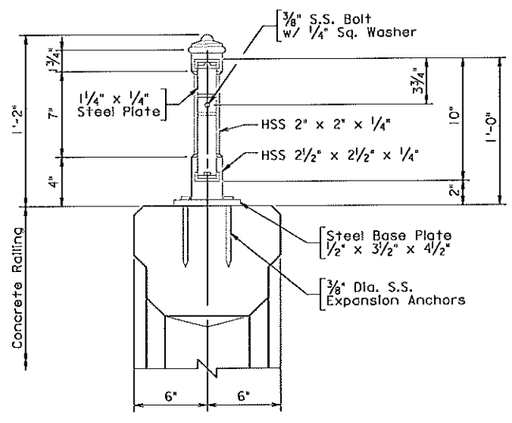
Designed: GWK	Date	Plan No.	Sheet No.
Drawn: VHJ	Dec. 2012	291-81	28 of 56
Checked: EMS			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5A01 (944)	123	0123-151-139, B604	29



ELEVATION

FENCE TYPE BICYCLE RAILING DETAILS



SECTION

Notes:

1. For locations and additional information of the metal railings, see Sheets 25 through 28.
2. Contractor shall submit for the engineer's approval of detailed working drawings for the railings and pilasters prior to beginning any work.
3. The railing and its related components shall conform with Section 410 of the Specifications and shall be painted in accordance with Section 411 of the Specifications. The color of paint is black or as specified by the City.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:39:27 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

Scale: 2" = 1'-0"

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

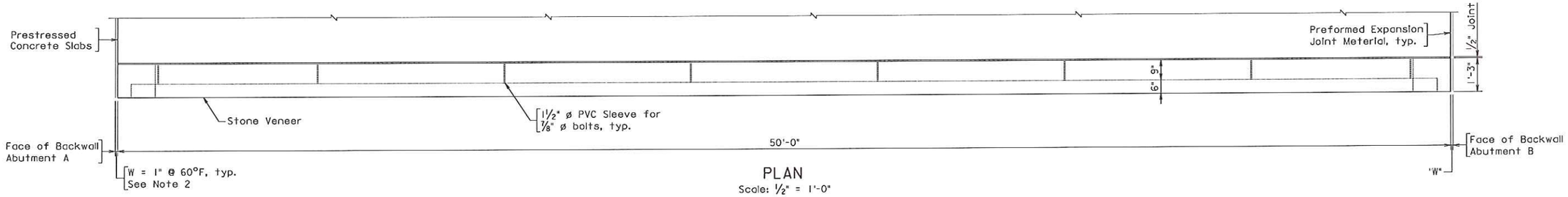
METAL RAILING

Designed: EMS	Date	Plan No.	Sheet No.
Drawn: WH	Dec. 2012	291-81	29 of 56
Checked: GWK			

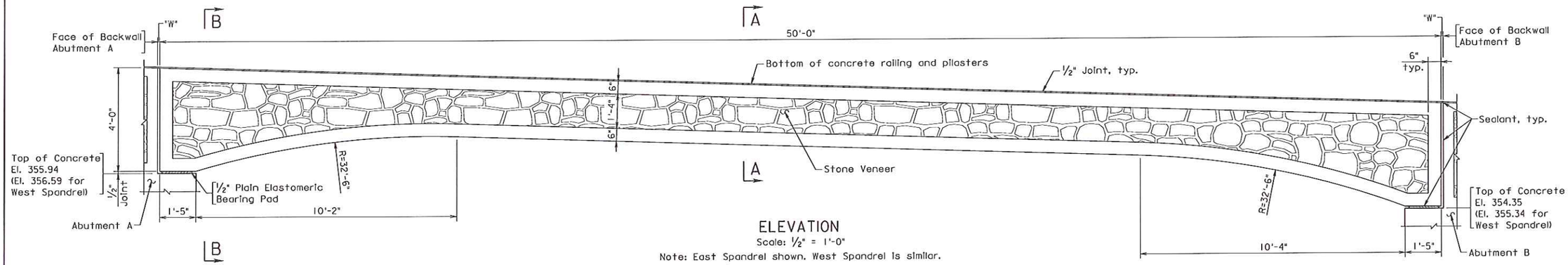
DGN

b29181029

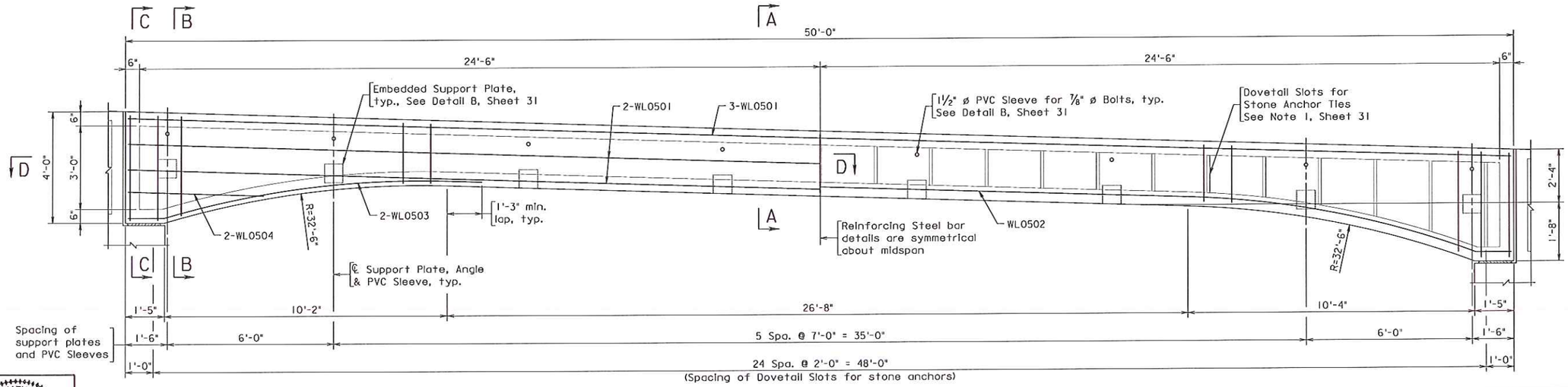
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	30



PLAN
Scale: ½" = 1'-0"



ELEVATION
Scale: ½" = 1'-0"
Note: East Spandrel shown. West Spandrel is similar.



ELEVATION
Scale: ½" = 1'-0"

Notes:

1. For precast concrete notes, reinforcing steel layout and connection details, see Sheet 31.
2. For expansion joint details, see Sheet 22.

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:40:32 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

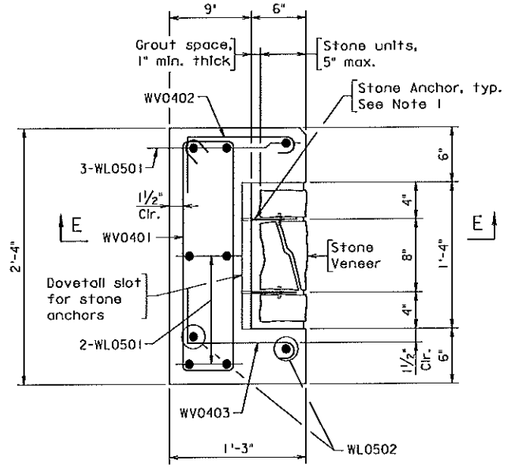
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

PRECAST CONCRETE SPANDREL WALL DETAILS - 1

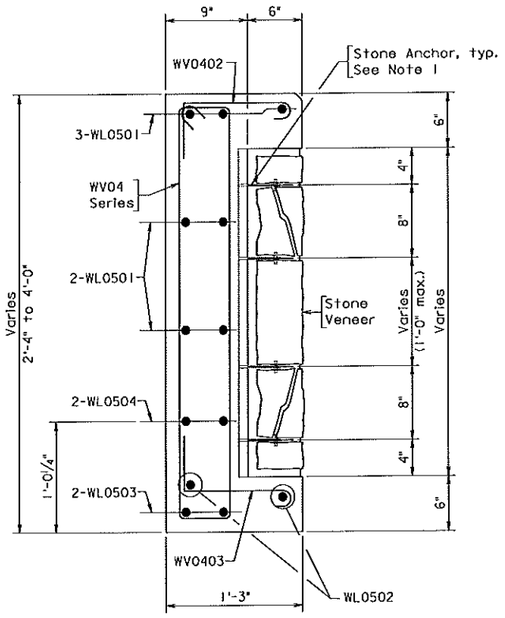
Designed: GMK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	30 of 56
Checked: EMS			

b291810300
©DGN©

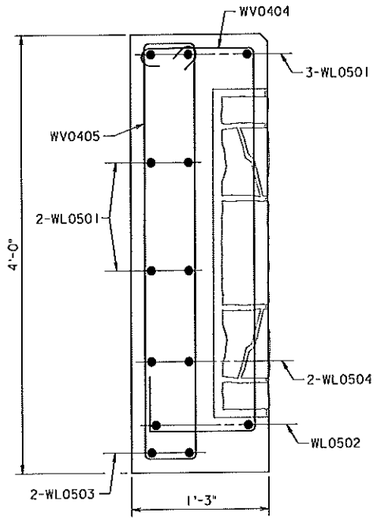
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	31



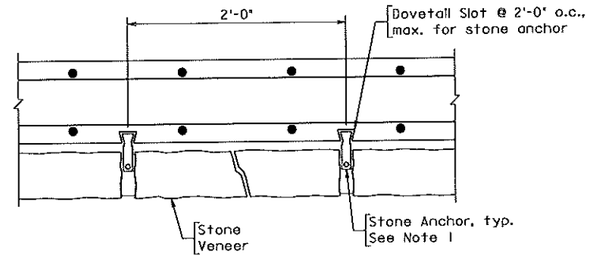
SECTION A-A
Scale: 1½" = 1'-0"



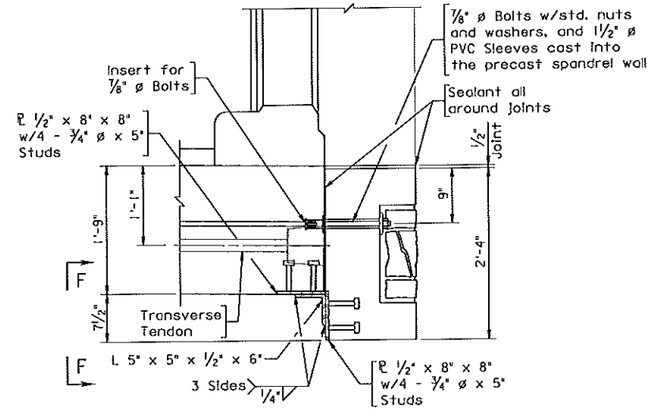
SECTION B-B
Scale: 1½" = 1'-0"



SECTION C-C
Scale: 1½" = 1'-0"

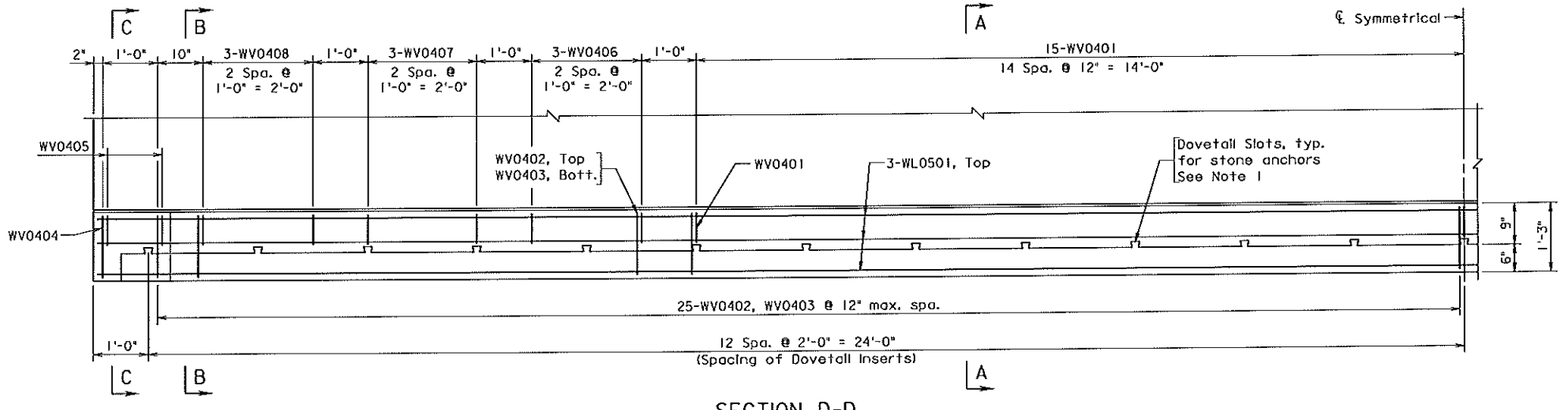


SECTION E-E
Scale: 1½" = 1'-0"

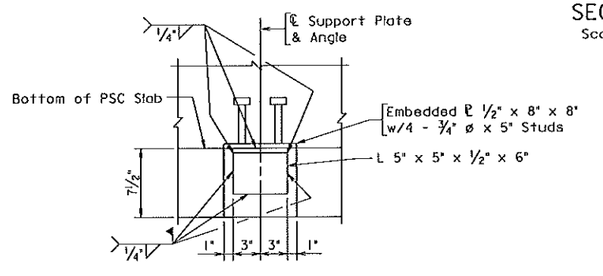


DETAIL B
Scale: 1" = 1'-0"

Note:
East Spandrel Wall shown.
West Spandrel Wall similar.



SECTION D-D
Scale: ¾" = 1'-0"



VIEW F-F
Scale: 1½" = 1'-0"

Notes:

1. For stone materials and stone anchor information, see special provisions.
2. For Stone Veneer Layout, see Sheet 30.

Precast Concrete Notes:

1. Concrete in precast concrete spandrel wall panels shall be Class A4.
2. Reinforcing bars shall be deformed and shall be low carbon/chromium reinforcing steel bars conforming to ASTM A1035.
3. Contractor shall submit shop drawings, including bar schedule, in accordance with VDOT Road and Bridge Specifications.
4. Contractor shall design the precast spandrel wall panels for additional stresses due to transportation, erection, and other construction loads; and shall provide required embeds/anchors in accordance with VDOT Specifications.
5. Precast Concrete Spandrel Wall Panels that will be incorporated in the completed structure will be measured in square feet of surface area, complete-in-place, and will be paid for at the contract unit price per square foot. This price shall include manufacturing and furnishing the panels complete-in-place in the structure, reinforcing steel, dovetail slots for stone anchors, steel embeds, inserts, and sleeves in units, bearing pads, joint fillers and sealers, waterproofing, hauling, and treatment.

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:41:38 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

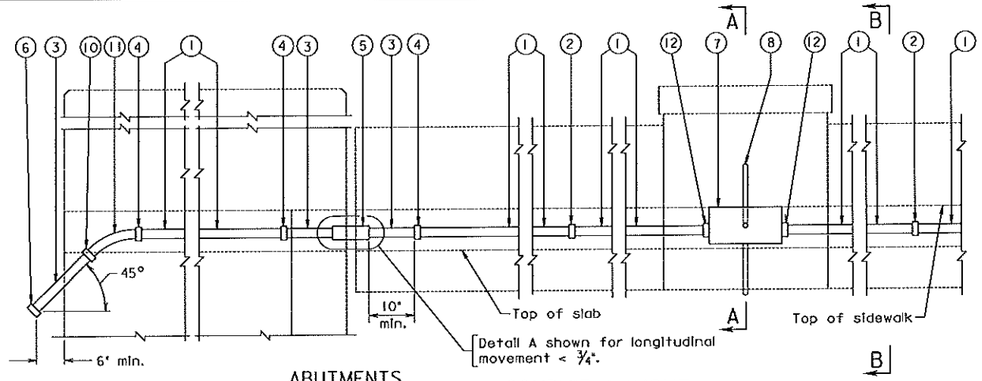
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

PRECAST CONCRETE SPANDREL WALL DETAILS - 2

Designed: GMK	Date	Plan No.	Sheet No.
Drawn: VM	Dec. 2012	291-81	31 of 56
Checked: EMS			

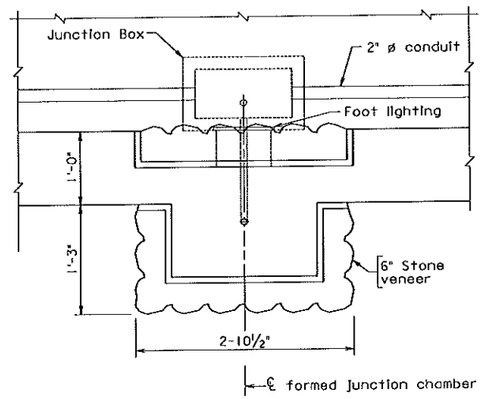
DGN
b291b103

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5A01 (944)	123	0123-151-139, B604	32



ABUTMENTS

CONDUIT LAYOUT
Scale: ¾" = 1'-0"
(Railing not shown)



PLAN

1. 2" ø nonmetallic conduit
2. Nonmetallic coupling
3. 2" ø metal conduit
4. Adapter to connect nonmetallic conduit to metal conduit
5. Metal expansion and deflection fitting
6. 2" ø pipe cap
7. 8" x 8" x 1'-4" junction box
8. ¾" ø metal conduit. Furnish locknut and bushing to connect conduit to junction box.
9. Metal expansion fitting
10. Pipe coupling
11. 2" ø 45° 13" R steel elbow
12. Bell fitting or bushing to connect conduit to junction box

Abutment	Longitudinal Movement	t	Detail Type
A (Expansion)	½"	1/15"	A
B (Fixed)	-	-	A

Notes:

All reinforcing bars shall be corrosion resistant reinforcing steel -

Cut or bend bars to clear junction chamber.

Close adherence to the manufacturer's requirements in regard to clearances for the installation of deflection fittings shall be observed.

Junction chamber frame and cover to be galvanized, after fabrication, in accordance with ASTM A123.

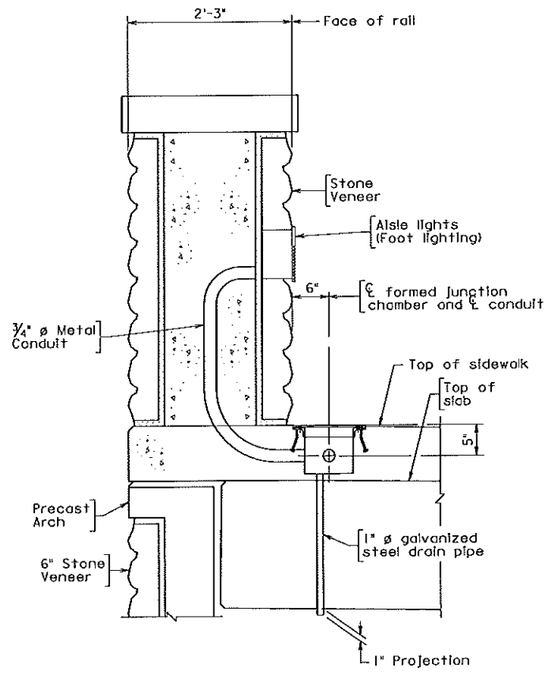
Cost of Bridge Conduit System and anchorages shall be included in price bid for railing.

Longitudinal movement is the maximum amount of movement of the expansion and deflection fitting calculated for placement at 60 F and shall be adjusted in accordance with manufacturer's requirements. The amount of movement shall be increased or decreased for every 10 F temperature drop or rise respectively by t.

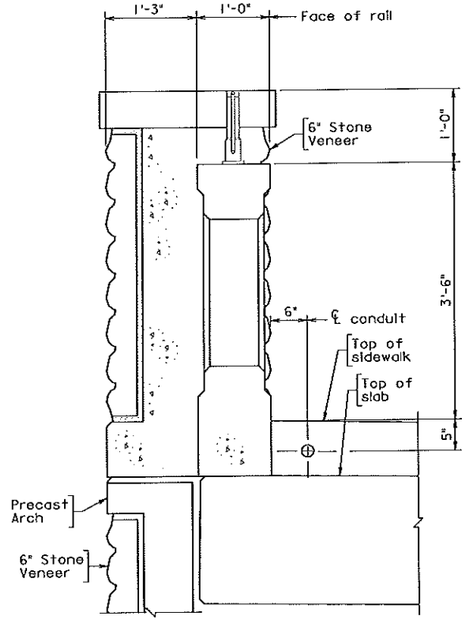
The Contractor shall determine all dimensions and details necessary for installation.

Conduit shall be grounded in conformance with Section 700 with grounding materials that conform to Section 238.

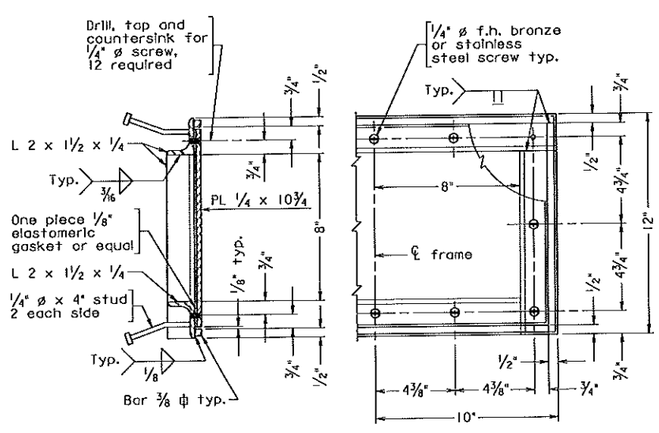
See sheets 25 and 26 for Reinforcement Details.



SECTION A-A



SECTION B-B



JUNCTION CHAMBER FRAME
Scale: 3" = 1'-0"

Scale: 1" = 1'-0" unless otherwise shown.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:43:00 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

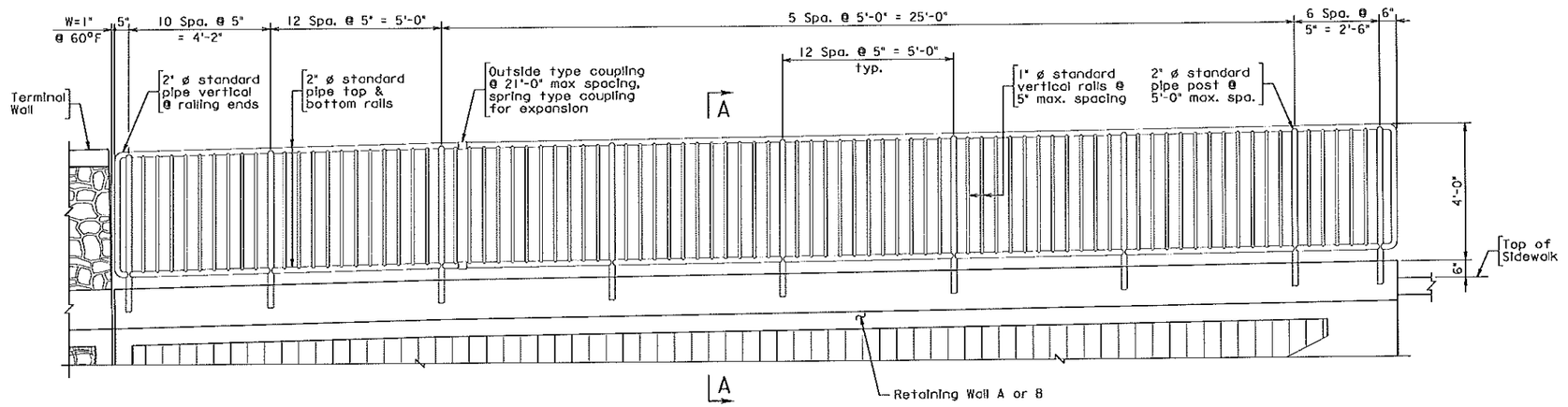
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

BRIDGE CONDUIT SYSTEM

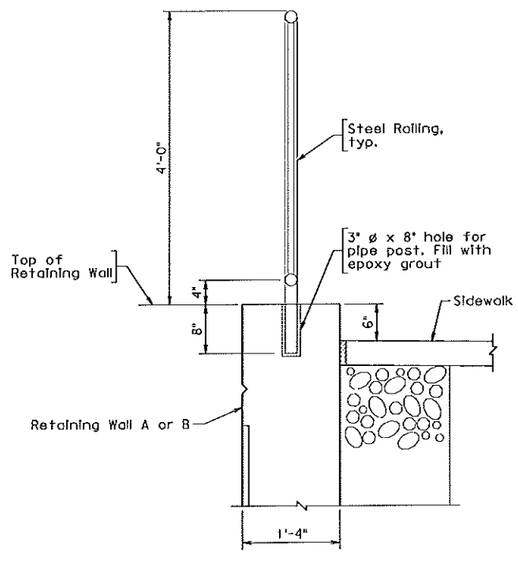
Designed: EMS	Date	Plan No.	Sheet No.
Drawn: MA	Dec. 2012	291-81	32 of 56
Checked: EMS			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	33



ELEVATION
Scale: ½" = 1'-0"

Note: Retaining Wall A shown, Retaining Wall B is similar.



SECTION A-A
Scale: 1" = 1'-0"

Notes:

1. Post shall be set vertical. Rail shall be set parallel to the top of curb.
2. An inside sleeve type coupling shall be provided at 21' maximum spacing. At every fifth coupling and at expansion joints in parapet, an inside expansion coupling will be provided.
3. The "W" dimension shall be the same as that shown on Rapid Cure Silicone Joint Details sheet.
4. The railing and its related components shall conform with Section 410 of the Specifications and shall be painted in accordance with Section 411 of the Specifications. The color of paint is black or as specified by the City.
5. All edges of fabricated railing and its supports shall be ground to a 8" max. radius.
6. For Post Spacings, see Sheets 34 and 36.
7. Pedestrian Railing will be measured in Linear Feet. It will be paid for the contract unit price per linear foot, which shall be full compensation for all materials, labor, tools, equipment and incidentals, necessary to complete the work.

DGN

b29181033

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:44:46 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

Scale: As shown

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

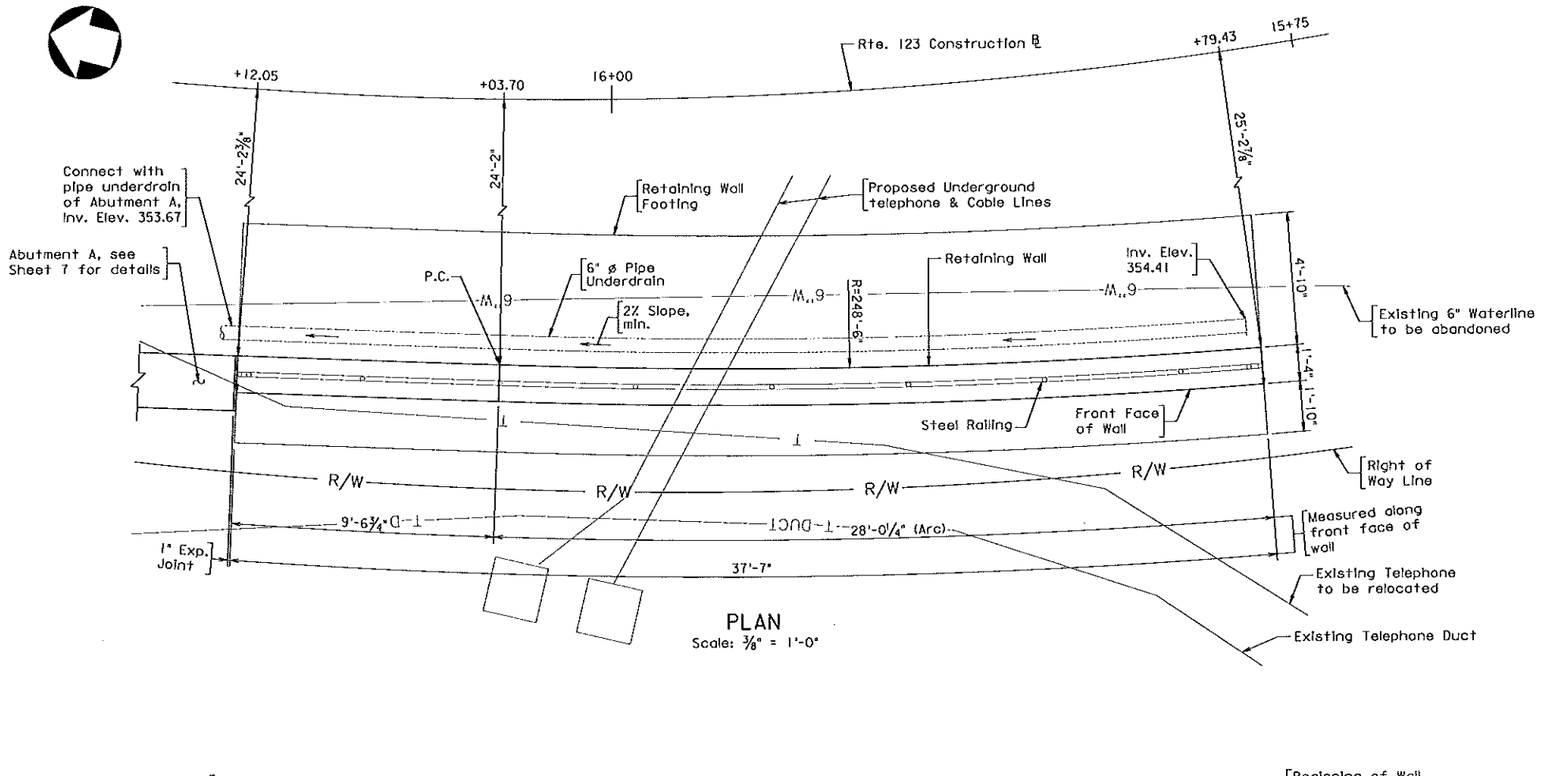
PEDESTRIAN RAILING DETAILS

Designed: GMK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	33 of 56
Checked: EMS			

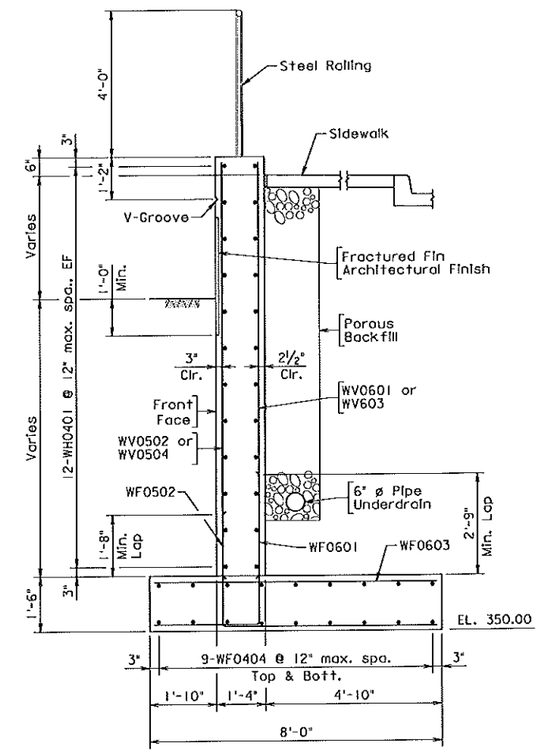
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	34

Notes:

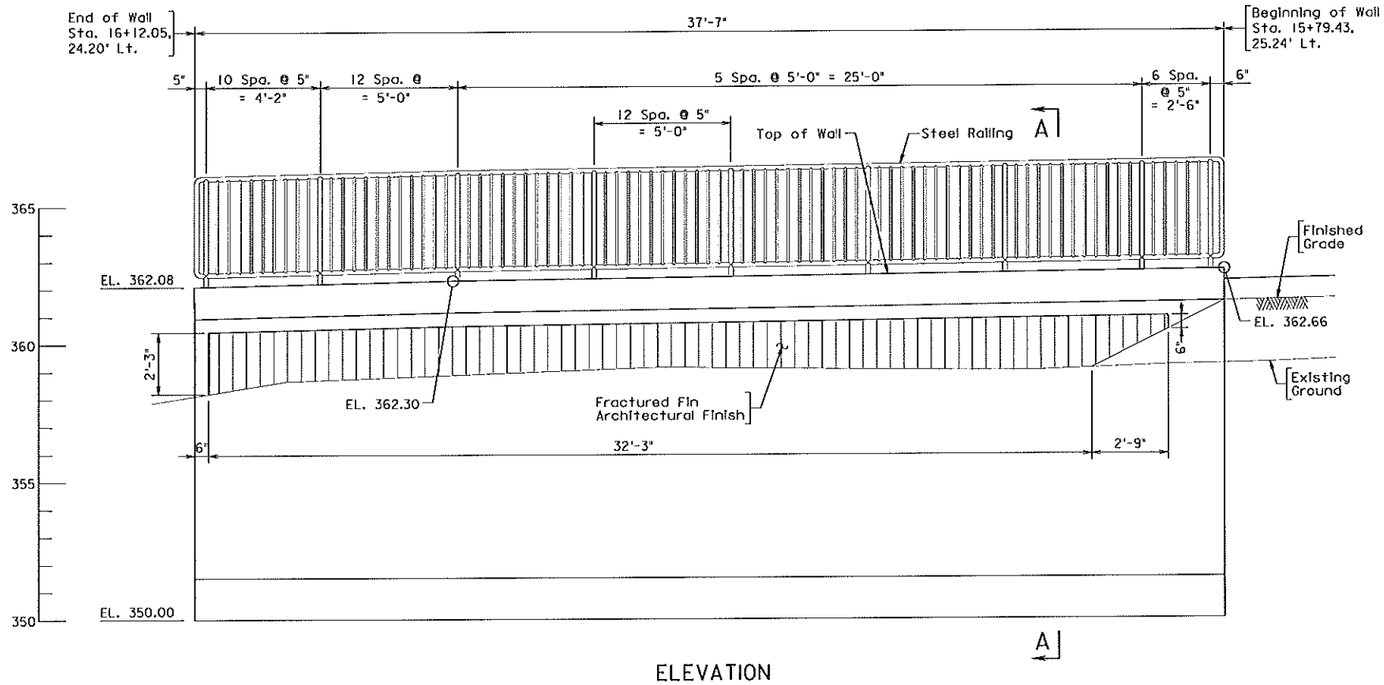
1. For Architectual Treatment Detail, Footing and Wall Reinforcing Details, see Sheet 35.
2. For Pedestrian Railing Details, see Sheet 33.



PLAN
Scale: 3/8" = 1'-0"



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



ELEVATION
Scale: 3/8" = 1'-0"

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MASSIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:46:08 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

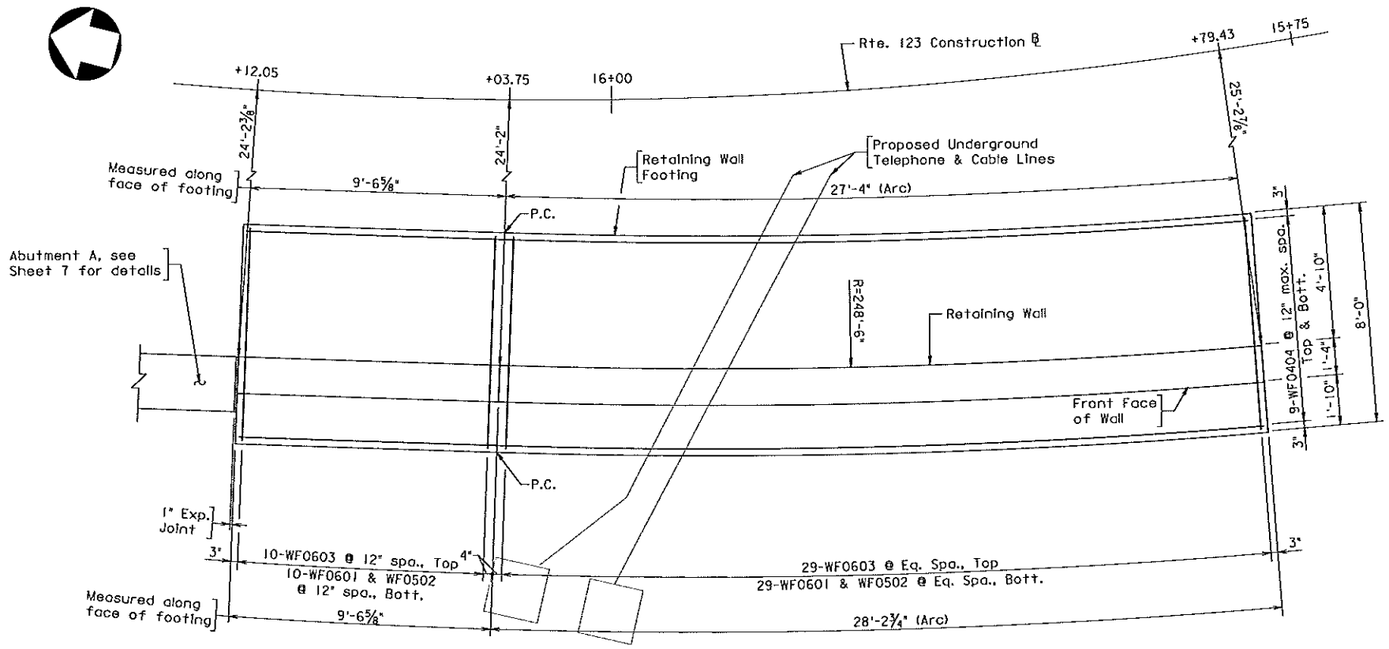
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

RETAINING WALL A
PLAN, ELEVATION AND SECTION

Designed: GMK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	34 of 56
Checked: EMS			

b2918034

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	35



FOOTING PLAN
Scale: ⅜" = 1'-0"

Notes:

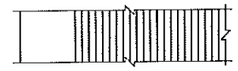
1. For Section A-A, see Sheet 34.
2. For Reinforcing Steel Schedule, see Sheet 43.
*3. Contractor shall field verify the Utility Conduits location and information and adjust the reinforcing steel accordingly.
4. The cost of architectural treatment shall be included in the corresponding concrete pay items.

Legend:

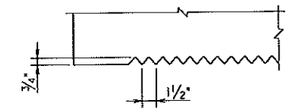
NF Denotes Near Face

FF Denotes For Face

EF Denotes Each Face

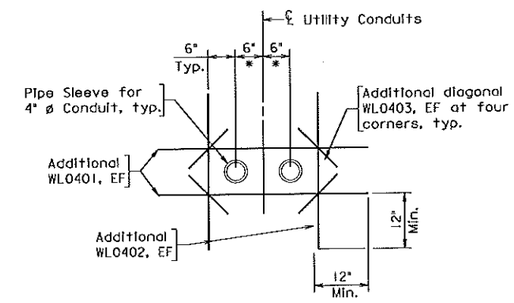


ELEVATION



WALL SECTION

ARCHITECTURAL TREATMENT
Scale: 1½" = 1'-0"



ELEVATION
Scale: ⅜" = 1'-0"

DETAIL A
Scale: ¾" = 1'-0"

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:47:12 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

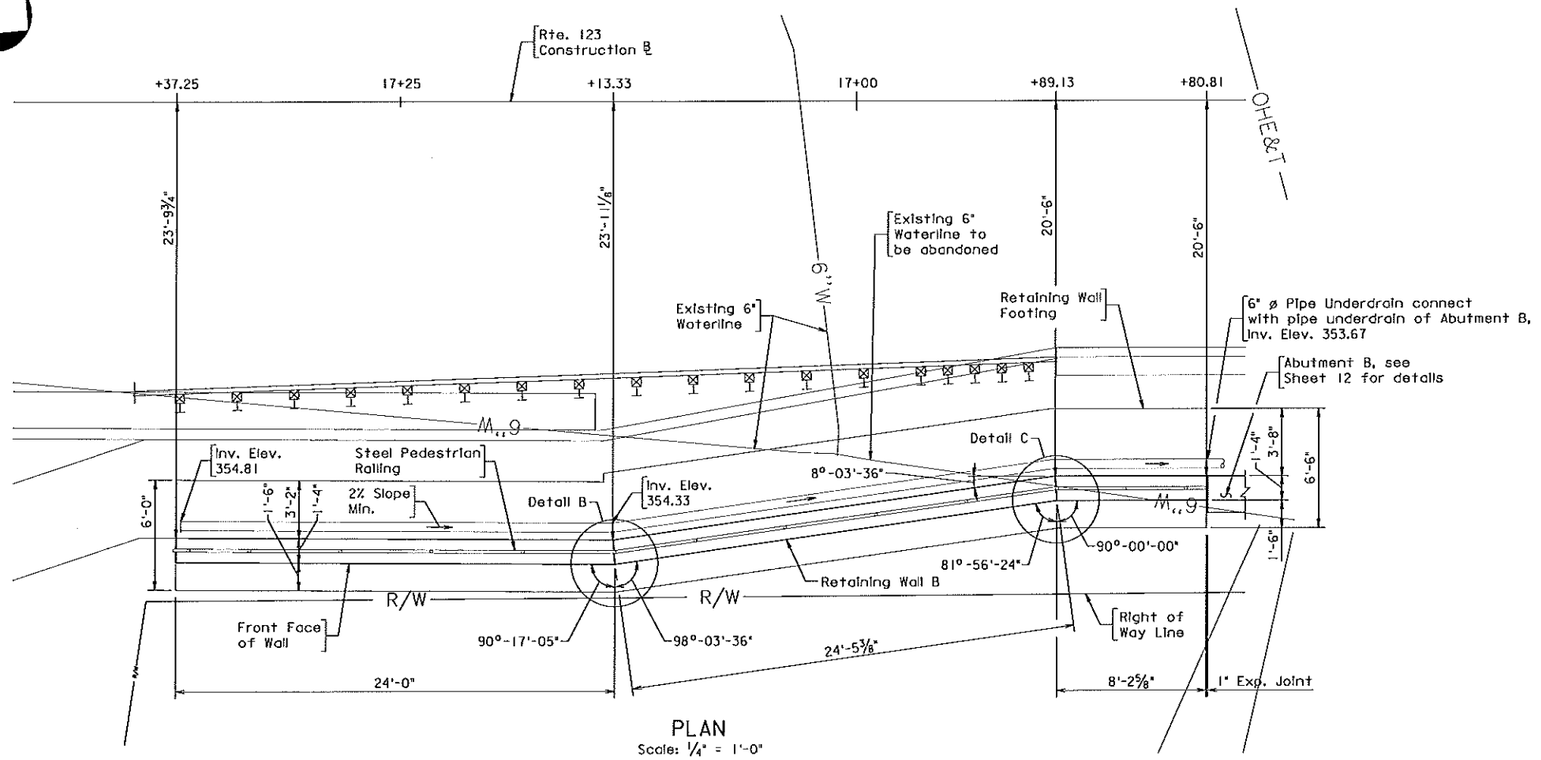
RETAINING WALL A FOOTING PLAN AND WALL ELEVATION

Designed: GMS	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	35 of 56
Checked: EMS			

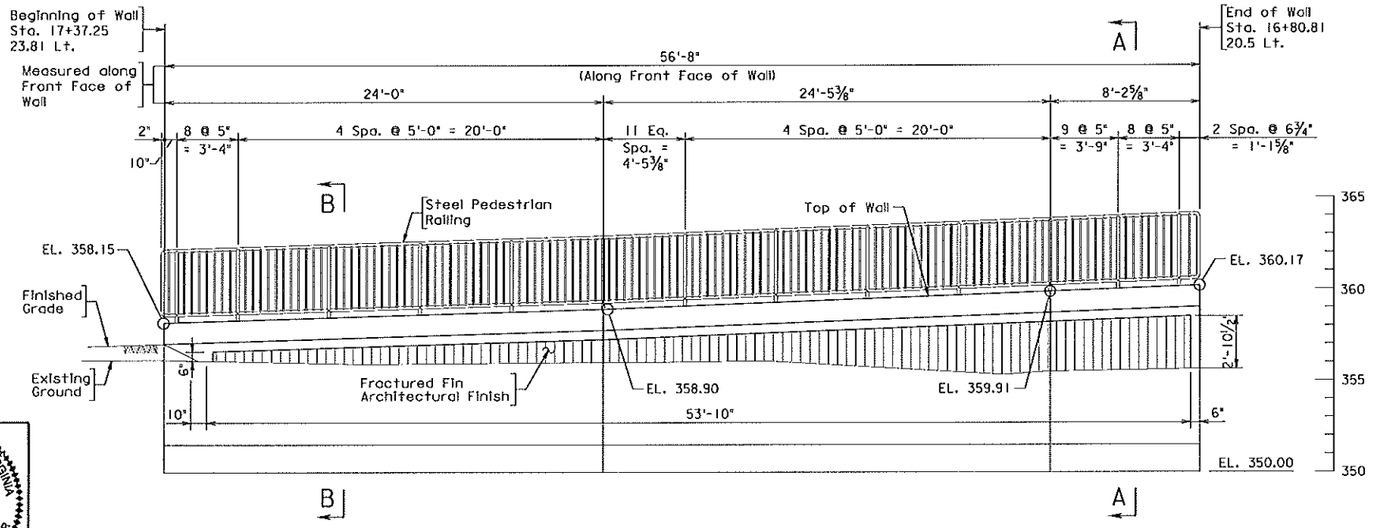
DGN

b291810 35

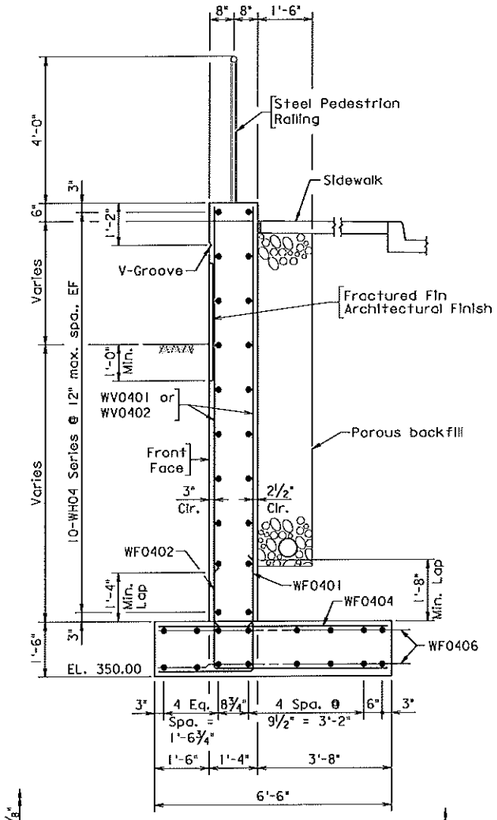
STATE	FEDERAL AID ROUTE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	36



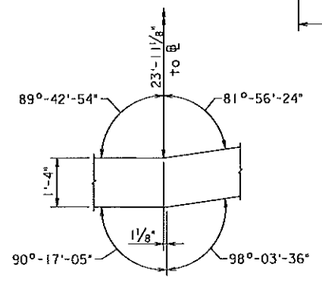
PLAN
Scale: ¼" = 1'-0"



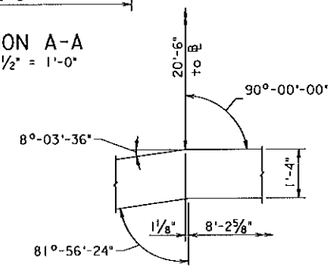
ELEVATION
Scale: ¼" = 1'-0"



SECTION A-A
Scale: ½" = 1'-0"



DETAIL B
Scale: ½" = 1'-0"



DETAIL C
Scale: ½" = 1'-0"

Notes:

1. For Architectural Treatment Detail, see Sheet 35.
2. For Section B-B and Footing and Wall Reinforcing Details, see Sheet 37.
3. For Pedestrian Railing Details, see Sheet 33.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:48:24 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

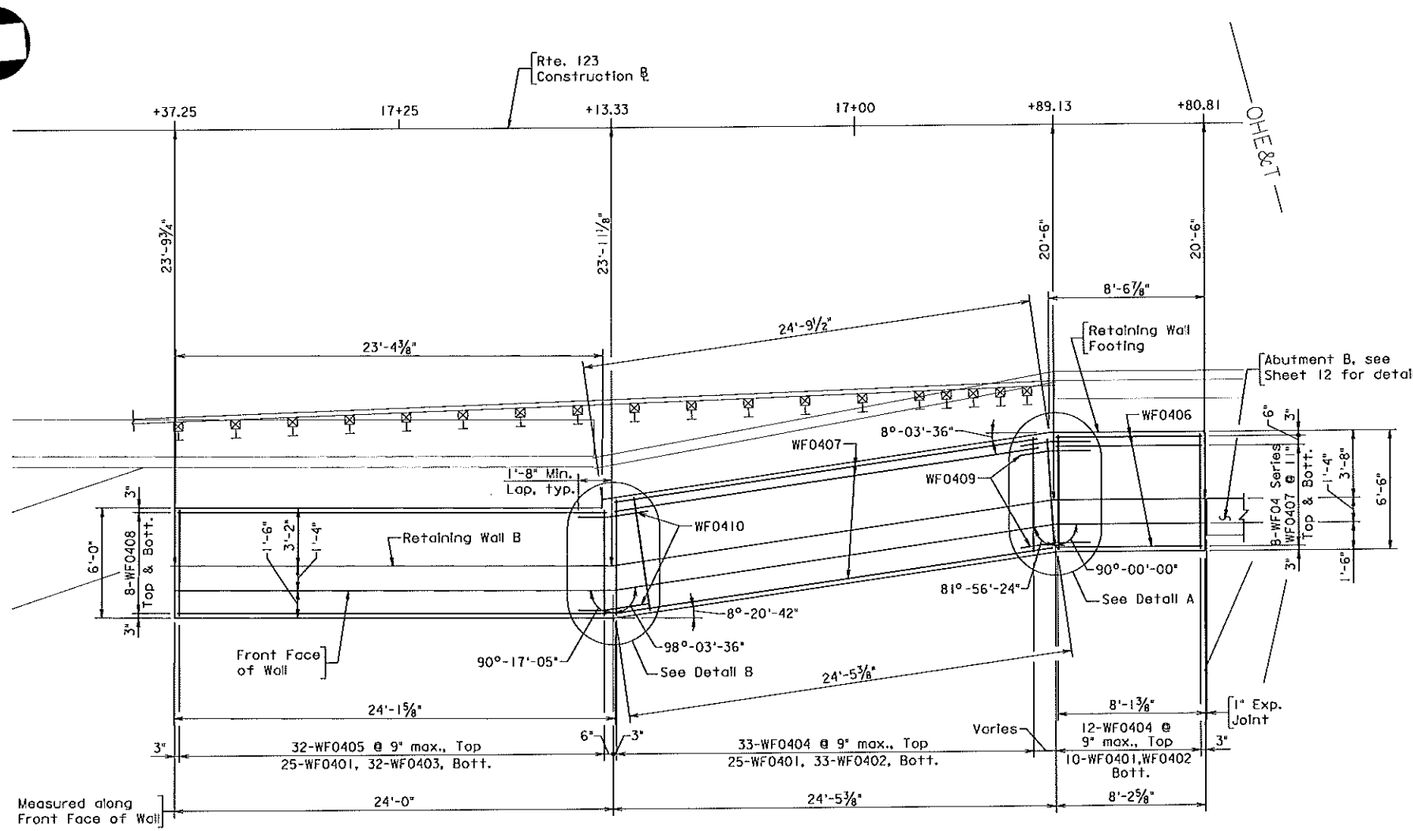
RETAINING WALL B
PLAN, ELEVATION AND SECTION

Designed: GMS	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	36 of 56
Checked: EMS			

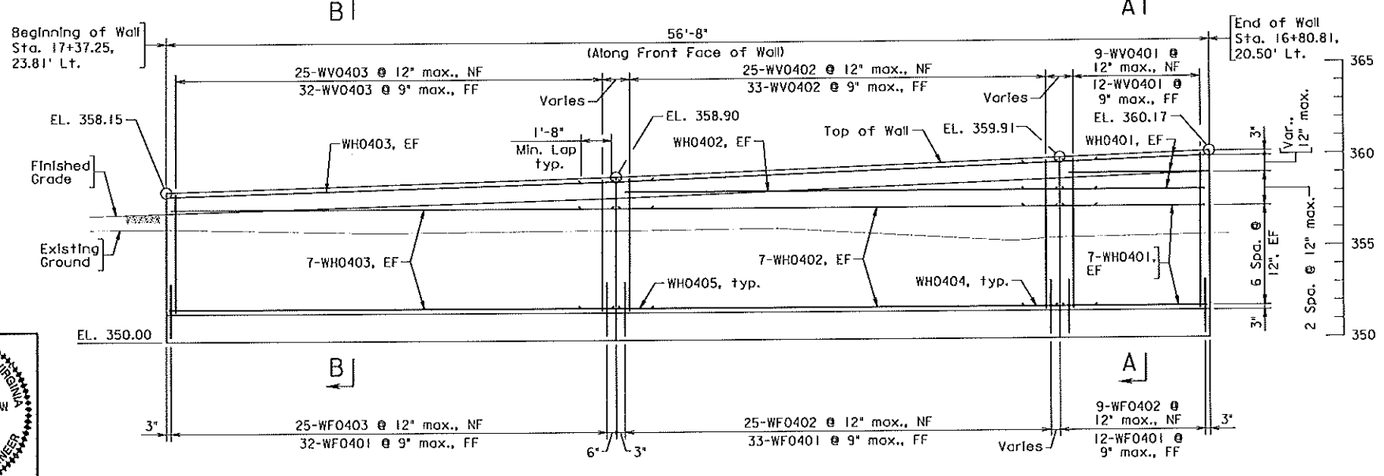
Scale: As shown

$DGN#
b291036

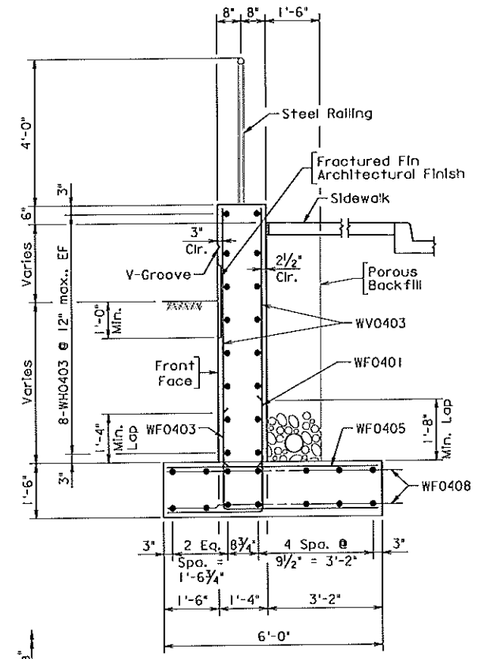
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	37



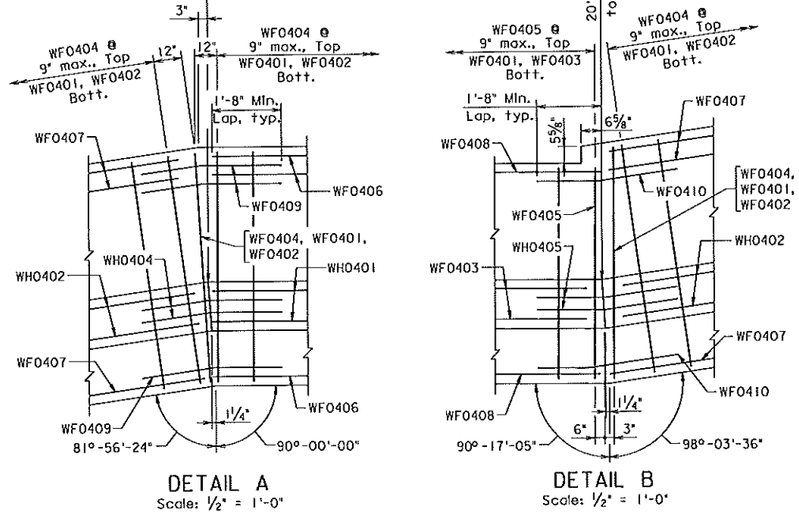
FOOTING PLAN
Scale: ¼" = 1'-0"



WALL ELEVATION
Scale: ¼" = 1'-0"



SECTION B-B
Scale: ½" = 1'-0"



DETAIL A
Scale: ½" = 1'-0"

DETAIL B
Scale: ½" = 1'-0"

Note: For Section A-A, see Sheet 36.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:49:44 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

RETAINING WALL B FOOTING PLAN, WALL ELEVATION AND SECTION

Designed: GWK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	37 of 56
Checked: EMS			

Scale: As shown

b291i037
900ns

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	38

REINFORCING STEEL SCHEDULE

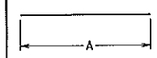
DIMENSION TABLE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN	WEIGHT (LBS.)	LOCATION	TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
SUPERSTRUCTURE NEAT STAINLESS STEEL BARS																					
SW0401	6	4		49-08	199	SIDEWALK	1	49-08													
SW0402	51	4		5-02	176	SIDEWALK	1	5-02													
SW0403	8	4		2-00	11	SIDEWALK	1	2-00													
SW0404	8	4		2-06	14	SIDEWALK	1	2-06													
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					400																

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMEN-SION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMEN-SION	FROM FT-IN	TO FT-IN	VARY BY FT-IN

BENDING DIAGRAM



Type 1

NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft^3.

If fabrication of deck slab bar is not possible for length detailed and multiple bars are required, bars shall have the least number of Class B splices possible. Splices shall be located approximately at points of contraflexure and splices in alternate bars shall be located in different bays.

Straight bars (top and bottom) may be substituted for truss bars (SB series) in the deck superstructure at no extra cost to the Department.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:51:11 -05'00'
LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE SUPERSTRUCTURE

Designed: GWK	Date	Plan No.	Sheet No.
Drawn: WH	Dec. 2012	291-81	38 of 56
Checked: EMS			

DGN
B291B038

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	——	RSTP-5401 (944)	123	0123-151-139, B604	39

REINFORCING STEEL SCHEDULE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN		WEIGHT (LBS.)	LOCATION
ABUTMENT A FOOTING							
AF0501	105	5	2 1/2	12-10		1399	FOOTING
AF0702	9	7	5 1/4	25-07	TO 27-05	487	FOOTING
AF0803	9	8		21-00	TO 22-10	527	FOOTING
AF0704	9	7	5 1/4	29-09		546	FOOTING
AF0805	9	8		27-06		659	FOOTING
AF0506	4	5	2 1/2	11-11	TO 12-11	51	FOOTING
AF0607	6	6	4 1/2	9-10	TO 11-04	95	FOOTING
AF0508	6	5		6-10	TO 8-03 1/2	47	FOOTING
AF0609	4	6	4 1/2	11-03		67	FOOTING
AF0510	8	5	2 1/2	11-07	TO 11-09	97	FOOTING
AF0611	6	6	4 1/2	10-05		94	FOOTING
AF0512	6	5		7-07		47	FOOTING
AF0613	4	6		20-11	TO 22-09	131	FOOTING
AF0614	4	6		27-06		165	FOOTING
AF0615	8	6		20-11		251	FOOTING
AF0616	8	6		27-11		335	FOOTING
AF0517	51	5	2 1/2	9-05		498	FOOTING
AF0618	2	6	4 1/2	7-09		23	FOOTING
AF0619	2	6	4 1/2	9-09		29	FOOTING
AF0520	49	5		3-09		192	FOOTING
AF0621	58	6		7-06		653	FOOTING
AF0522	4	5	3 3/4	6-08		28	FOOTING
AF0523	2	5	3 3/4	6-10		14	FOOTING
AF0524	4	5	3 3/4	4-11		20	FOOTING
AF0525	2	5	3 3/4	5-11		12	FOOTING
AF0626	6	6		6-09		61	FOOTING
AF0527	3	5	3 3/4	4-06		14	FOOTING
AF0528	2	5	3 3/4	6-02		13	FOOTING
AF0629	6	6		8-00		72	FOOTING
AF0630	2	6	4 1/2	11-03		34	FOOTING
AF0731	9	7		5-09		106	FOOTING
AF0732	9	7		6-03		115	FOOTING
AF0833	9	8		5-05		130	FOOTING
AF0834	9	8		5-11		142	FOOTING
AF0635	12	6		5-03		59	FOOTING
AF0636	12	6		3-09		68	FOOTING
AF0639	3	6	4 1/2	7-07		34	FOOTING
AF0540	4	5	2 1/2	13-01	TO 13-05	55	FOOTING
AF0641	2	6	4 1/2	8-07		26	FOOTING
TOTAL WEIGHT IN PRECEDING GROUP OF BARS						7398	

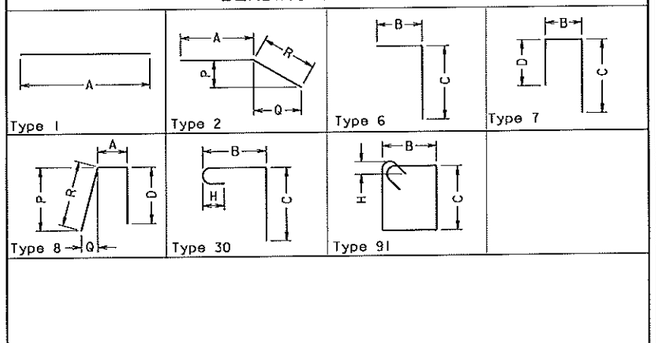
DIMENSION TABLE

TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
91		3-06 3/4	2-07 1/2					3 5/8						
7		VARY	2-05	2-05										
1	VARY													
6		2-05	27-05 1/4											
1	27-05 1/4													
91		VARY	2-05 5/8					3 5/8						
7		VARY	1-00	2-03 1/2										
1	VARY			2-09	1-03 3/4	4-09 3/4	4-11 5/8							
8	3-07 3/4													
91		VARY	2-05 5/8					3 5/8						
7		7-05	1-00	2-03 1/2										
1	7-07													
1	VARY													
1	27-05 1/4													
1	20-11													
1	27-11													
7		7	4-06	4-06										
2	3-00				4-07 1/2	1-05 1/2	4-10							
6		5-00	4-10											
1	3-09													
1	7-06													
30		1-06 1/2	4-08					5						
6		2-03	4-08											
6		1-00 1/2	4-00											
6		1-00 1/2	5-00											
1	6-09													
6		1-00 1/2	3-07											
6		1-00 1/2	5-03											
1	8-00													
2	3-10				7-01 3/8	2-05 1/4	7-06							
1	5-09													
1	6-03													
1	5-05													
1	5-11													
1	3-03													
1	3-09													
2	3-10				3-07 3/4	1-03	3-10							
91		VARY	2-05 5/8					3 5/8						
7		5-05 3/4	1-08	1-08										

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN
AF0702	1	B	21-01 1/4	22-11 1/4	2 3/4				
AF0803	1	A	21-00	22-10	2 3/4				
AF0506	1	B	3-03	3-09	2				
AF0607	1	B	6-10	8-03 1/2	3 1/2				
AF0508	1	A	6-10	8-03 1/2	3 1/2				
AF0510	2	B	3-01	3-02 1/8	0 3/8				
AF0613	2	A	20-11	22-09	1-10				
AF0540	1	B	3-10	4-00 1/4	0 3/4				

BENDING DIAGRAM



NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft.^{3}

Barmarks AF0731, AF0833, and AF0635 have couplers at one end.
Barmarks AF0732, AF0834, and AF0636 have one end threaded for couplers.
See sheet 11 for details.

COMMONWEALTH OF VIRGINIA
EFREN MASSO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:52:39 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
Revisions		

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE
ABUTMENT A

Designed: ....GMK.	Date	Plan No.	Sheet No.
Drawn: .....MM.	Dec. 2012	291-81	39 of 56
Checked: ....RH..			

DGN

b2918039

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	40

REINFORCING STEEL SCHEDULE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN		WEIGHT (LBS.)	LOCATION
ABUTMENT A NEAT - LOW CARBON / CHROMIUM							
AW0502	47	5	2 1/2	7-10		384	BACKWALL
AW0503	49	5	3 3/4	7-11		402	STEM
AW0504	6	5	2 1/2	10-00		63	STEM
AH0501	4	5	3 3/4	24-06		102	STEM
AH0502	3	5	3 3/4	22-00		69	STEM
AH0503	5	5	3 3/4	20-10		108	STEM
AH0504	2	5	3 3/4	21-04		44	STEM
AH0505	4	5		27-09		116	STEM
AH0506	3	5	3 3/4	29-00		91	STEM
AH0507	5	5		27-09		144	STEM
AH0508	2	5		26-10		56	STEM
AH0409	3	4		20-09		41	BACKWALL
AH0410	3	4	3	20-10		42	BACKWALL
AH0411	6	4		27-09		111	BACKWALL
AH0512	4	5	3 3/4	27-03		114	STEM
AH0513	4	5	3 3/4	29-10		124	STEM
AH0414	7	4	2	5-11		27	BACKWALL
AH0515	18	5		2-07		48	STEM
AH0516	18	5		2-07		48	STEM
AH0417	6	4		2-01		8	BACKWALL
AH0418	6	4		2-01		8	BACKWALL
AH0519	6	5	3 3/4	4-02		26	STEM
AH0420	3	4	3	2-03		4	BACKWALL
AS0502	45	5	2 1/2	4-10		227	STEM
AW0601	6	6	4 1/2	14-09		133	WINGWALL 2
AW0602	5	6	4 1/2	6-09	TO 14-00	78	WINGWALL 2
AW0503	6	5		12-06		78	WINGWALL 2
AW0504	2	5		9-01		19	WINGWALL 2
AW0605	10	6	4 1/2	12-02	TO 13-10	195	WINGWALL 2
AW0606	7	6	4 1/2	6-05	TO 8-05	78	WINGWALL 2
AW0607	6	6	4 1/2	13-07		122	WINGWALL 2
AW0608	4	6	4 1/2	7-07	TO 8-09	49	WINGWALL 2
AW0509	3	5	3 3/4	9-02	TO 14-07	37	WINGWALL 2
AW0410	7	4	2	4-08		21	WINGWALL 2
AW0411	12	4		1-11		15	WINGWALL 2
AW0412	1	4		5-01		3	WINGWALL 2
AW0413	1	4		12-07		8	WINGWALL 2
AW0514	1	5	3 3/4	7-03		8	WINGWALL 2
AW0515	1	5	3 3/4	9-09		10	WINGWALL 2
AW0516	3	5	3 3/4	5-07		17	WINGWALL 1
AW0517	1	5		12-01		13	WINGWALL 1
AW0518	5	5	3 3/4	10-03		53	WINGWALL 1
AW0519	2	5		6-06		14	WINGWALL 1
AW0520	1	5	3 3/4	3-08		4	WINGWALL 1
AW0521	5	5	2 1/2	9-02		66	WINGWALL 1
AW0622	6	6	4 1/2	10-5		93	WINGWALL 1
AW0623	4	6	4 1/2	11-10		71	WINGWALL 1
AW0624	4	6	4 1/2	16-08		100	WINGWALL 1
AW0625	1	6	4 1/2	14-00		21	WINGWALL 1
AW0626	3	6	4 1/2	8-01	TO 10-10	42	WINGWALL 1
AW0627	2	6	4 1/2	6-11		21	WINGWALL 1
AW0528	1	5		8-04		9	WINGWALL 1
AW0529	2	5	3 3/4	5-06	TO 6-11	13	WINGWALL 1
AW0530	2	5		9-02		19	WINGWALL 1
AW0631	4	6	4 1/2	7-07	TO 10-00	53	WINGWALL 1
AW0532	4	5	2 1/2	6-06	TO 9-06	33	WINGWALL 1
AW0433	9	4		1-11		11	WINGWALL 1
AW0634	9	6	4 1/2	7-00		94	WINGWALL 2
AW0535	2	5		6-01		13	WINGWALL 1
AW0436	6	4	3	3-10		15	STEM/SIDEWALK
AW0437	2	4		5-02		7	STEM/SIDEWALK
AW0638	1	6	4 1/2	14-00		21	WINGWALL 2
AW0639	1	6	4 1/2	15-11		24	WINGWALL 1
TOTAL WEIGHT IN PRECEDING GROUP OF BARS						4075	
ABUTMENT A NEAT - SOLID STAINLESS							
AW0540	8	5	2 1/2	4-04		36	WINGWALL/RAIL
AW0541	64	5		3-06		234	WINGWALL/RAIL
AW0542	8	5	2 1/2	5-05		45	WINGWALL/RAIL
AW0543	2	5	2 1/2	6-02		13	BACKWALL/RAIL
AW0544	2	5	3 3/4	3-10		8	BACKWALL/RAIL
TOTAL WEIGHT IN PRECEDING GROUP OF BARS						335	

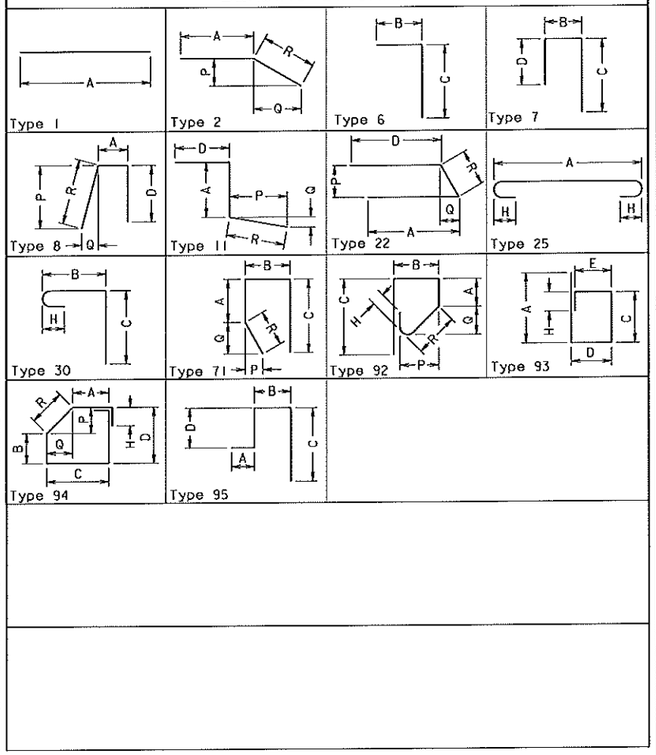
DIMENSION TABLE

TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
7		6 1/2	4-06	3-00										
30		2-08	4-09					5						
7		6 1/2	5-02	4-06										
7		1-06 5/8	20-08 1/4	2-06										
6		2-08 1/2	19-04 5/8											
2	19-08				5	1-00 3/4	1-01 1/2							
6		10	20-07											
1	27-08 1/4													
6		2-08 1/2	26-04 5/8											
1	27-08 1/4													
1	26-10													
1	20-08													
2	19-08													
1	27-08 1/4				4 7/8	1-00 3/4	1-01 1/2							
7		19-06	3-06	4-06										
6		3-06	26-05 1/4	2-03										
22	2-03				7 1/2	1-02 3/8	1-03 5/8							
1	2-07													
1	2-07													
1	2-01													
1	2-01													
7		1-11 1/8	1-03	1-03										
1		5 1/8	1-00	1-00										
71	8 3/4	1-02 1/2	1-03		1-04 1/2	1-04	1-10 5/8							
8	12-03			1-08 3/4	11 5/8	3 5/8	1-00							
6		11 3/4	VARY											
1	12-05 1/8													
1	9-01													
92	3-08 1/8	1-03 1/2	VARY		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
93	VARY		VARY	1-00 1/2	1-00 1/2			7 1/8						
92	3-08 1/8	1-03 1/2	6-06		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
93	VARY		VARY	1-00 1/2	1-00 1/2	VARY	VARY	7 1/8						
8	1-07 7/8			2-03	VARY									
7		5 1/8	2-02	2-02										
1	1-10 1/2													
1	5-01													
1	12-07													
7		4-00 1/2	1-08 3/4	1-08 3/4										
7		8-00 1/2	11 3/4	11 3/4										
6		1-06 1/2	4-01 1/2											
1	12-01													
2	9-00				1-02 3/8	4 7/8	1-03							
1	6-06													
6		11 3/4	2-09											
94	1-11 1/8	1-02 1/8	2-06 1/2	1-09 1/2	7 3/8	7 3/8	10 3/8	5 5/8						
92	1-11 1/8	1-03 1/2	5-01		1-04	1-03 1/2	1-09 7/8	4 1/2						
11	12-05	1-03 1/2	6-06	1-08 3/4	2-07 1/2	10 3/4	2-09	4 1/2						
11	10-05 1/2			11 3/4	2-07 1/2	10 3/4	2-09							
6		11 3/4	VARY											
6		11 3/4	6-01											
1	8-03 1/2													
6		11	VARY											
1	9-02													
93	VARY		VARY	1-00 1/2	1-00 1/2			7 1/8						
7		1-00 1/2	VARY	VARY										
1	1-10 1/2													
25	5-07							6						
1	6-01													
7		6 1/2	1-09	1-09										
1	5-02													
8	12-03 1/8			11 3/4	11 5/8	3 5/8	1-00							
11	12-05			11 3/4	2-07 1/2	10 3/4	2-09							
7		6	2-00	2-00										
1	3-06													
7		6	2-06 1/2	2-06 1/2										
95	10	6	2-06 1/2	2-06 1/2				5						
30		1-00 1/2	2-03 1/4											

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN
AW0602	1	C	5-11	13-02	1-09 3/4				
AW0605	1	C	5-01	6-09 1/4	2 1/4				
AW0606	1	A	2-08	3-08	2	C	1-08 1/8	2-08 1/8	2
AW0608	1	A	3-09 5/8	4-04 3/4	2 3/8	C	1-08 1/2	2-03 5/8	2 3/8
AW0509	1	P	1-07 7/8	3-03 3/8	9 3/4	Q	5-01 3/8	10-03 1/8	2-06 7/8
		R	5-04 3/8	10-09 1/8	2-08 3/8				
AW0626	1	C	7-02 1/2	9-11 1/2	1-04 1/2				
AW0529	1	C	4-08	6-00 3/4	1-04 3/4				
AW0631	1	A	4-00	5-02 1/4	4 3/4	C	1-06	2-08 1/4	4 3/4
AW0532	1	C	2-10	4-04	6	D	2-10	4-04	6

BENDING DIAGRAM



NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft.^{3}

Barmarks AH0515 and AH0417 have couplers at one end.
Barmarks AH0516 and AH0418 have one end threaded for couplers.
See sheet 11 for details.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:53:55 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE
ABUTMENT A

Designed: CMK	Date	Plan No.	Sheet No.
Drawn: MH	Dec. 2012	291-81	40 of 56
Checked: HH			

DGN
b2518 1040

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	41

REINFORCING STEEL SCHEDULE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN	WEIGHT (LBS.)	LOCATION
ABUTMENT B FOOTING						
AF0501	114	5	2 1/2	12-10	1519	FOOTING
AF0702	9	7	5 1/4	26-03	482	FOOTING
AF0803	9	8		21-09	521	FOOTING
AF0704	9	7	5 1/4	30-11	568	FOOTING
AF0805	9	8		28-09	689	FOOTING
AF0506	1	5		7-06	8	FOOTING
AF0607	6	6	4 1/2	11-01	100	FOOTING
AF0508	6	5		8-01	51	FOOTING
AF0509	2	5	3 3/4	10-01	21	FOOTING
AF0510	18	5	2 1/2	11-11	222	FOOTING
AF0611	6	6	4 1/2	11-06	103	FOOTING
AF0512	6	5		8-06	53	FOOTING
AF0613	4	6		21-07	130	FOOTING
AF0614	4	6		28-09	172	FOOTING
AF0615	8	6		21-09	260	FOOTING
AF0616	8	6		28-09	344	FOOTING
AF0517	53	5	2 1/2	9-05	518	FOOTING
AF0618	4	6	4 1/2	9-09	58	FOOTING
AF0519	2	5	3 3/4	9-08	20	FOOTING
AF0520	61	5		4-03	270	FOOTING
AF0621	51	6		6-03	479	FOOTING
AF0522	4	5	3 3/4	5-06	23	FOOTING
AF0523	2	5	3 3/4	5-08	12	FOOTING
AF0524	4	5	3 3/4	3-01	13	FOOTING
AF0525	2	5	3 3/4	3-08	8	FOOTING
AF0626	6	6		5-02	47	FOOTING
AF0527	6	5	3 3/4	2-09 TO 4-09	23	FOOTING
AF0528	1	5		6-07	7	FOOTING
AF0629	7	6		5-10	61	FOOTING
AF0730	9	7		5-09	106	FOOTING
AF0731	9	7		5-09	106	FOOTING
AF0832	9	8		5-05	130	FOOTING
AF0833	9	8		5-05	130	FOOTING
AF0634	12	6		3-03	59	FOOTING
AF0635	12	6		3-03	59	FOOTING
AF0641	2	6	4 1/2	8-07	26	FOOTING
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					7396	

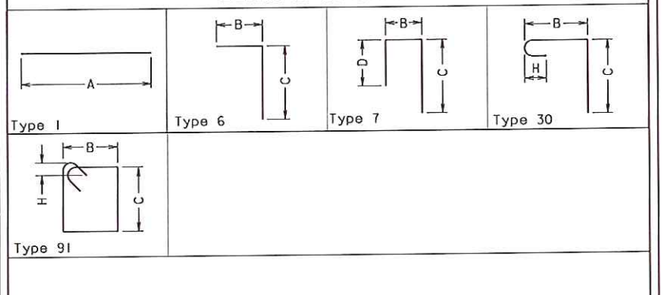
DIMENSION TABLE

TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
91		3-06 3/4	2-07 1/2	2-05				3 5/8						
7		21-09	2-05											
1	21-08													
6		2-05	28-08											
1	28-08													
1	7-06													
7		8-01	1-00	2-03 1/2										
1	8-01													
6		1-08	8-06											
91		3-03	2-05 5/8					3 5/8						
7		8-06	1-00	2-03 1/2										
1	8-06													
1	21-07													
1	28-09													
1	21-08													
1	28-08													
7		7	4-06	4-06										
6		5-00	4-10											
6		1-08	8-01											
1	4-03													
1	6-03													
30		1-06 1/2	3-05 1/4					5						
6		2-03	3-05											
6		1-00 1/2	2-01 1/4											
6		1-00 1/2	2-08 1/4											
1	5-02													
6		1-00 1/2	VARY											
1	6-07													
1	5-10													
1	5-09													
1	5-09													
1	5-05													
1	5-05													
1	3-03													
1	3-03													
7		5-05 3/4	1-08	1-08										

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN
AF0527	2	C	1-10	3-10	1-00				

BENDING DIAGRAM



NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft^3.

Barmarks AF0730, AF0832, and AF0634 have couplers at one end.
Barmarks AF0731, AF0833, and AF0635 have one end threaded for couplers.
See sheet 16 for details.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:55:41 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE ABUTMENT B

Designed: GMX.	Date	Plan No.	Sheet No.
Drawn: MH.	Dec. 2012	291-81	41 of 56
Checked: HH.			

DGN

B29181041

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	42

REINFORCING STEEL SCHEDULE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN		WEIGHT (LBS.)	LOCATION
ABUTMENT B NEAT - LOW CARBON / CHROMIUM							
AW0502	47	5	2 1/2	7-10		384	BACKWALL
AW0503	49	5	3 3/4	6-05		325	STEM
AW0504	4	5	2 1/2	10-00		42	STEM
AH0501	3	5	3 3/4	24-06		77	STEM
AH0502	3	5	3 3/4	22-00		69	STEM
AH0503	4	5	3 3/4	20-10		87	STEM
AH0504	2	5	3 3/4	21-07		45	STEM
AH0505	3	5	3 3/4	31-06		98	STEM
AH0506	3	5	3 3/4	29-00		91	STEM
AH0507	4	5	3 3/4	27-10		116	STEM
AH0508	2	5	3 3/4	27-10		58	STEM
AH0409	6	4		20-03		81	BACKWALL
AH0410	14	4	3	3-03		30	BACKWALL
AH0411	6	4		27-03		109	BACKWALL
AH0512	4	5	3 3/4	25-08		107	STEM
AH0513	4	5	3 3/4	29-10		124	STEM
AH0515	16	5		2-07		43	STEM
AH0516	16	5		2-07		43	STEM
AH0417	6	4		2-01		8	BACKWALL
AH0418	6	4		2-01		8	BACKWALL
AH0519	5	5	3 3/4	4-02		22	STEM
AH0420	3	4	3	2-03		4	BACKWALL
AS0502	47	5	2 1/2	4-10		237	STEM
AW0601	6	6	4 1/2	16-04		147	WINGWALL 4
AW0602	3	6	4 1/2	14-05		65	WINGWALL 4
AW0503	5	5	3 3/4	14-02		88	WINGWALL 4
AW0504	2	5		13-07		28	WINGWALL 4
AW0605	4	6	4 1/2	12-09		77	WINGWALL 4
AW0506	5	5	2 1/2	7-00		36	WINGWALL 4
AW0607	6	6	4 1/2	12-09		115	WINGWALL 4
AW0608	4	6	4 1/2	6-02		37	WINGWALL 4
AW0509	5	5	2 1/2	12-09		68	WINGWALL 4
AW0411	12	4		1-11		15	WINGWALL 4
AW0412	1	4		5-07		4	WINGWALL 4
AW0413	1	4		12-03		8	WINGWALL 4
AW0514	1	5	3 3/4	4-11		5	WINGWALL 4
AW0515	1	5	3 3/4	8-11		9	WINGWALL 4
AW0516	3	5	3 3/4	6-07		20	WINGWALL 3
AW0517	1	5		12-04		13	WINGWALL 3
AW0518	5	5	3 3/4	10-01		52	WINGWALL 3
AW0619	1	6	4 1/2	16-06		25	WINGWALL 3
AW0520	1	5	3 3/4	8-04		9	WINGWALL 3
AW0521	7	5	2 1/2	9-02		66	WINGWALL 3
AW0622	2	6	4 1/2	9-05	TO 9-06	29	WINGWALL 3
AW0623	7	6	4 1/2	10-00		106	WINGWALL 3
AW0624	4	6	4 1/2	17-03		103	WINGWALL 3
AW0625	1	6	4 1/2	11-10		18	WINGWALL 3
AW0627	2	6	4 1/2	7-08		23	WINGWALL 3
AW0529	1	5	3 3/4	6-02		6	WINGWALL 3
AW0530	2	5		8-03		17	WINGWALL 3
AW0631	2	6	4 1/2	6-08	TO 6-10	20	WINGWALL 3
AW0532	6	5	2 1/2	5-09	TO 7-11	43	WINGWALL 3
AW0433	7	4		1-11		9	WINGWALL 3
AW0534	3	5		6-09		21	WINGWALL 4
AW0436	6	4	3	3-10		15	STEM/SIDEWALK
AW0437	2	4		5-02		7	STEM/SIDEWALK
TOTAL WEIGHT IN PRECEDING GROUP OF BARS						3513	

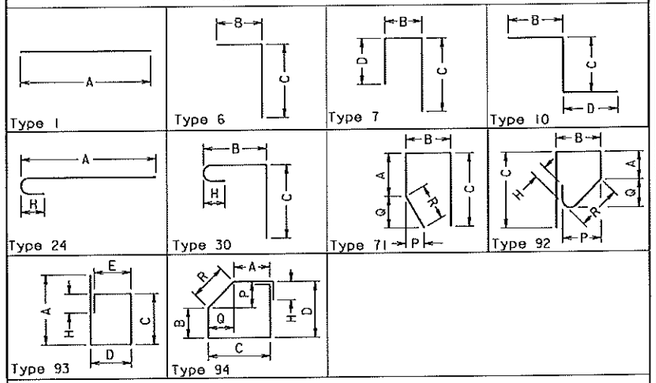
DIMENSION TABLE

TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
7		6 1/2	4-06	3-00				5						
30		2-08	3-03											
7		6 1/2	5-02	4-06										
7		1-06 5/8	20-08 1/4	2-06										
7		1-11 1/8	19-05 1/4	10										
6		10	20-01 1/2											
7		20-01 1/2	10	10										
7		1-06 5/8	27-08 1/4	2-06										
7		1-11 1/8	26-05 1/4	10										
6		10	27-01 1/2											
6		10	27-01 1/2											
1	20-02 1/4													
24	2-09							4 1/2						
1	27-02 1/4													
7		19-06	3-02	3-03										
6		3-06	26-04 5/8											
1	2-07													
1	2-07													
1	2-01													
1	2-01													
7		1-11 1/8	1-03	1-03										
7		5 1/8	1-00	1-00										
71	8 3/4	1-02 1/2	1-03		1-04 1/2	1-04	1-10 5/8							
10		1-08 3/4	12-01 3/4	2-09										
6		11 3/4	13-07											
6		2-02	12-01											
1	13-07													
92	3-08 1/8	1-03 1/2	5-08		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
93	3-00		1-08 1/4	1-00 1/2	1-00 1/2			7 1/8						
92	3-08 1/8	1-03 1/2	5-08 1/2		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
93	3-00		1-01 1/4	1-00 1/2	1-00 1/2			7 1/8						
92	3-08 1/8	1-03 1/2	5-06 3/4		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
1	1-10 1/2													
1	5-06 1/4													
1	12-02 1/2													
6		4-00 1/2	11 7/8											
6		8-00 1/2	11 3/4											
6		11 7/8	5-07 3/4											
1	12-04													
6		2-02	8-00											
10		11 3/4	13-01	2-09										
6		11 7/8	7-05 5/8											
94	1-11 1/8	1-02 1/8	2-06 1/2	1-09 1/2	7 3/8	7 3/8	10 1/2	5 5/8						
92	1-11 1/8	1-03 1/2	VARY		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
92	1-11 1/8	1-03 1/2	4-10		1-03 1/2	1-03 1/2	1-09 7/8	4 1/2						
10		1-08	13-01	2-09										
10		11 3/4	8-05	2-09										
6		11 3/4	6-10											
6		11 3/4	5-03											
1	8-03													
93	3-03		VARY	1-00 1/2	1-00 1/2			7 1/8						
7		1-00 1/2	VARY	VARY										
1	1-10 1/2													
1	6-09													
7		6 1/2	1-09	1-09										
1	5-02													

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN
AW0622	1	C	4-01	4-02 1/2	1 1/2				
AW0631	1	C	1-04 1/4	1-05 3/4	1 1/2				
AW0532	1	C	2-05 3/8	3-06 1/2	2 5/8	D	2-05 3/8	3-06 1/2	2 5/8

BENDING DIAGRAM



NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft^3.

Barmarks AH0515 and AH0417 have couplers at one end.
Barmarks AH0516 and AH0418 have one end threaded for couplers.
See sheet 16 for details.

COMMONWEALTH OF VIRGINIA
EFREN MAXIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:57:31 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE
ABUTMENT B

Designed: GMS	Date	Plan No.	Sheet No.
Drawn: MM	Dec. 2012	291-81	42 of 56
Checked: HH			

DGN

b29181042

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	43

REINFORCING STEEL SCHEDULE

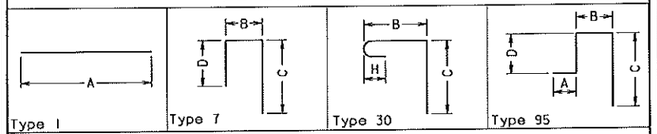
DIMENSION TABLE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN	WEIGHT (LBS.)	LOCATION	TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
ABUTMENT B NEAT - SOLID STAINLESS																					
AW0540	8	5	2 1/2	4-04	36	WINGWALL/RAIL	7		6	2-00	2-00										
AW0541	64	5		3-06	234	WINGWALL/RAIL	1	3-06													
AW0542	8	5	2 1/2	5-05	45	WINGWALL/RAIL	7		6	2-06 1/2	2-06 1/2										
AW0543	2	5	2 1/2	5-11	12	BACKWALL/RAIL	95	10	6	2-06 1/2	2-06 1/2										
AW0544	2	5	3 3/4	3-10	8	BACKWALL/RAIL	30		1-00 1/2	2-03 1/2					5						
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					334																

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMEN-SION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMEN-SION	FROM FT-IN	TO FT-IN	VARY BY FT-IN

BENDING DIAGRAM



NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft^3.

COMMONWEALTH OF VIRGINIA
EFREN MASSIMO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 13:58:49 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE ABUTMENT B

Designed: EMS.	Date	Plan No.	Sheet No.
Drawn: MM.	Dec. 2012	291-81	43 of 56
Checked: EMS.			

DGN

B29181043

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	----	RSTP-5401 (944)	123	0123-151-139, B604	44

REINFORCING STEEL SCHEDULE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN	WEIGHT (LBS.)	LOCATION
RETAINING WALL A NEAT						
WV0601	29	6		10-07	461	STEM
WV0502	29	5		10-07	320	STEM
WV0603	10	6		10-04	155	STEM
WV0504	10	5		10-04	108	STEM
WH0401	24	4		37-02	596	STEM
WL0401	4	4		4-00	11	STEM
WL0402	4	4		3-00	8	STEM
WL0403	8	4		2-00	11	STEM
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					1669	
RETAINING WALL A FOOTING						
WF0601	39	6	4 1/2	7-01	413	FOOTING
WF0502	39	5	3 3/4	9-00	364	FOOTING
WF0603	39	6		7-06	439	FOOTING
WF0404	18	4		36-04 1/2 TO 37-03	443	FOOTING
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					1659	

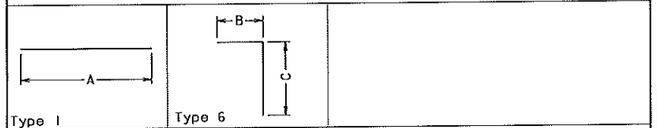
DIMENSION TABLE

TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
1	10-07													
1	10-07													
1	10-04													
1	10-04													
1	37-02													
1	4-00													
1	3-00													
1	2-00													
6		2-08 1/2	4-06											
6		5-08	3-05											
1	7-06													
1	VARY													

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMEN-SION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMEN-SION	FROM FT-IN	TO FT-IN	VARY BY FT-IN
WF0404	2	A	36-04 1/2	37-03	1 1/4				

BENDING DIAGRAM



NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft.^{3}

Efren M Sebastian
2013.02.04 14:00:06 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

REINFORCING STEEL SCHEDULE RETAINING WALL A

Designed: ....GMK.	Date	Plan No.	Sheet No.
Drawn: .....MA.			
Checked: .....EMS.	Dec. 2012	291-81	44 of 56

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	——	RSTP-5401 (944)	123	0123-151-139, B604	45

REINFORCING STEEL SCHEDULE

MARK	NO.	BAR SIZE	PIN DIA. FT-IN	LENGTH FT-IN	WEIGHT (LBS.)	LOCATION
RETAINING WALL B NEAT						
WV0401	21	4		8-02	115	STEM
WV0402	58	4		7-02	278	STEM
WV0403	57	4		6-05	244	STEM
WH0401	20	4		7-09	104	STEM
WH0402	18	4		24-00	289	STEM
WH0403	16	4		23-09	254	STEM
WH0404	16	4	3	5-00	53	STEM
WH0405	14	4	3	5-00	47	STEM
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					1383	
RETAINING WALL B FOOTING						
WF0401	77	4	3	6-04	323	FOOTING
WF0402	34	4	3	8-01	183	FOOTING
WF0403	25	4	3	7-07	126	FOOTING
WF0404	42	4		6-00	168	FOOTING
WF0405	32	4		5-06	118	FOOTING
WF0406	16	4		7-09	83	FOOTING
WF0407	16	4		24-02	258	FOOTING
WF0408	14	4		23-00	215	FOOTING
WF0409	16	4	3	5-00	53	FOOTING
WF0410	14	4	3	5-02	48	FOOTING
TOTAL WEIGHT IN PRECEDING GROUP OF BARS					1575	

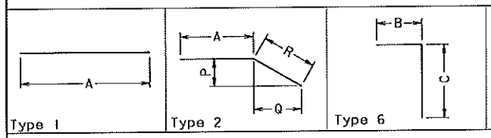
DIMENSION TABLE

TYPE	A FT-IN	B FT-IN	C FT-IN	D FT-IN	E P FT-IN	F Q FT-IN	G R FT-IN	H FT-IN	I S FT-IN	J T FT-IN	K U FT-IN	L FT-IN	V FT-IN	N
1	8-02													
1	7-02													
1	6-05													
1	7-09													
1	24-00													
1	23-09													
2	2-06				4 1/4	2-05 3/4	2-06							
2	2-06				4 3/8	2-05 3/4	2-06							
6		2-04 1/2	4-00											
6		4-06	3-08											
6		3-11 3/4	3-08											
1	6-00													
1	5-06													
1	7-09													
1	24-02													
1	23-00													
2	2-06				4 1/4	2-05 3/4	2-06							
2	2-08				4 3/8	2-05 3/4	2-06							

DIMENSION VARIATION TABLE

MARK	NO. EA. LEN.	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN	DIMENSION	FROM FT-IN	TO FT-IN	VARY BY FT-IN

BENDING DIAGRAM



Type 1 Type 2 Type 6

NOTES:

Dimensions in Bending Diagram are out-to-out of bars.

Weights in schedule are based on density of 490 lb/ft.^{3}

No.	Description	Date
	Revisions	

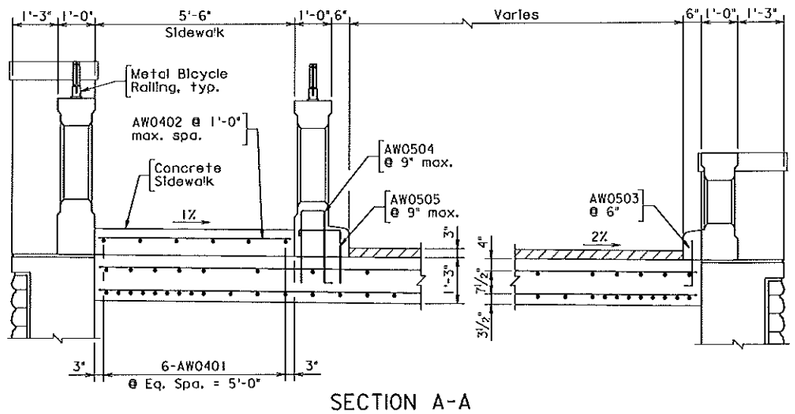
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

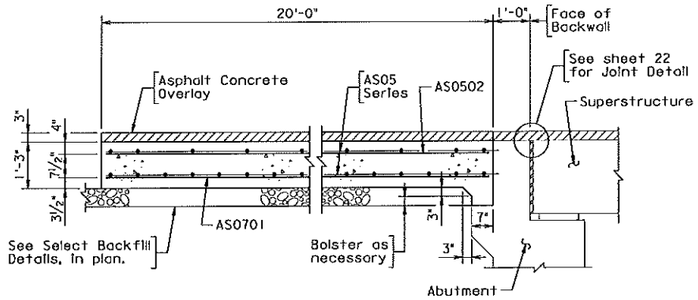
REINFORCING STEEL SCHEDULE
RETAINING WALL B

Designed: ....CMK.	Date	Plan No.	Sheet No.
Drawn: .....MK.	Dec. 2012	291-81	45 of 56
Checked: ....EMS.			

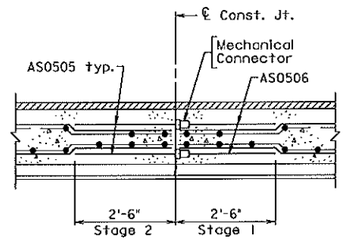
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	46



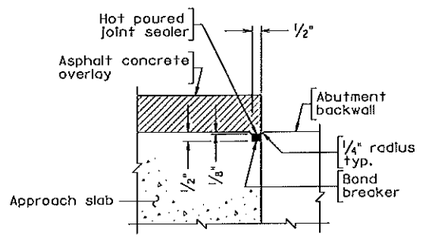
SECTION A-A
Scale: ½" = 1'-0"



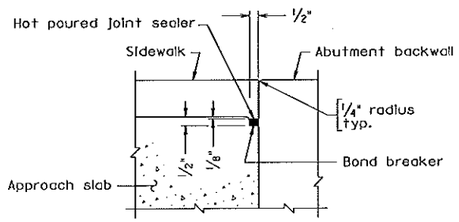
SECTION B-B
Scale: ½" = 1'-0"



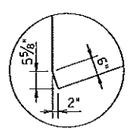
SECTION C-C
Not to Scale



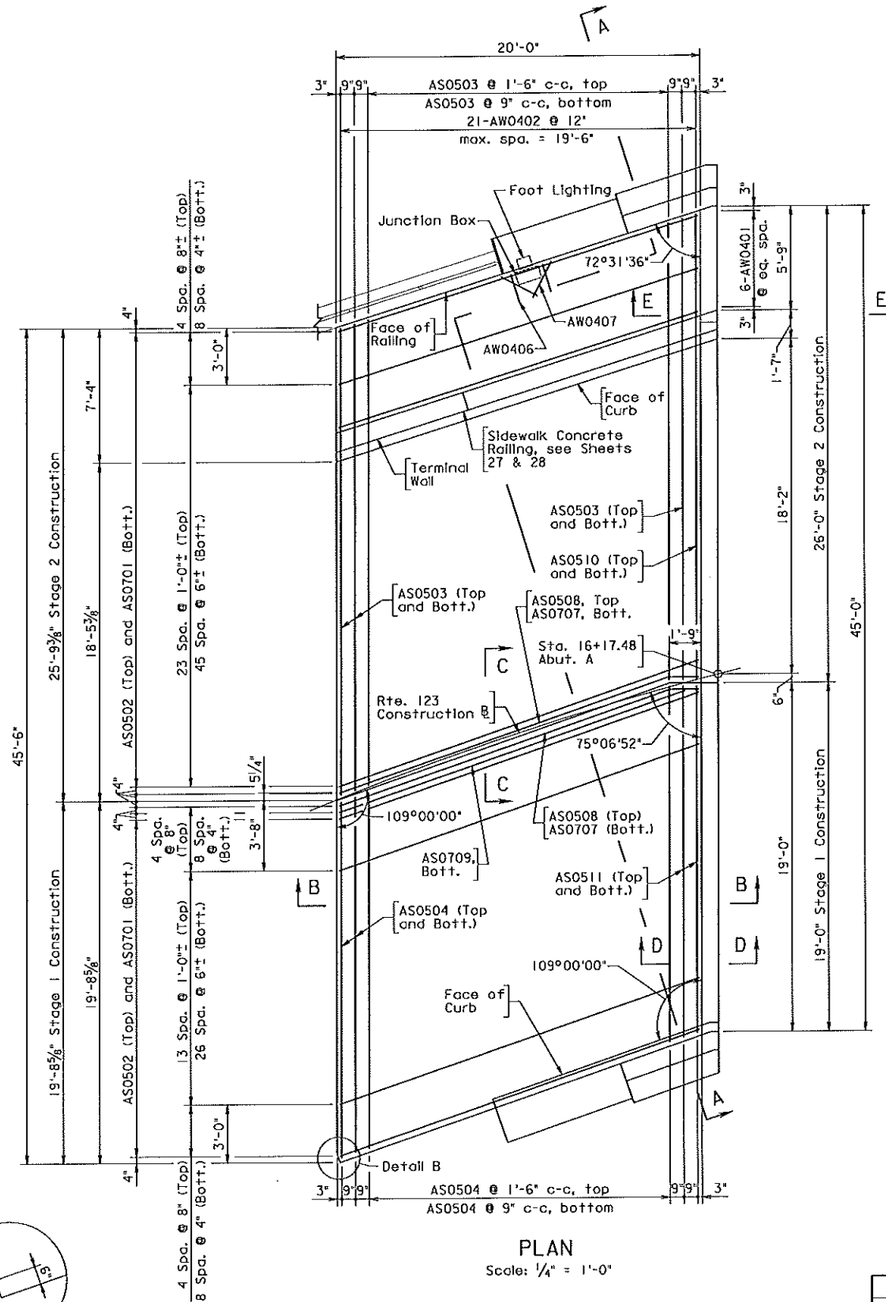
SECTION D-D
Scale: 3" = 1'-0"



SECTION E-E
Scale: 3" = 1'-0"



DETAIL B
Scale: ½" = 1'-0"



PLAN
Scale: ¼" = 1'-0"

Notes:

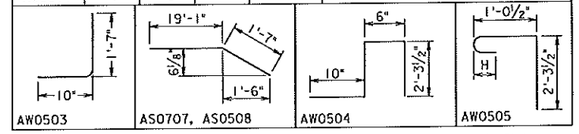
All joints that are to be sealed shall be free of cracked and spalled areas and their faces shall be free of all foreign matter, curing compound, oils, greases and dirt. All faces must be sandblasted or brushed with a mechanical rotary wire brush. Just prior to sealing, the joint shall be blown out with oil-free compressed air.

Deformed reinforcing bars shall conform to ASTM A615, Grade 60. All reinforcing bar dimensions except for bending diagram are to centers of bars.

Prime aggregate base material with 0.35 gal. per sq. yd. Liquid Asphalt Material Type RC-70, RC-250 or MC-250 if aggregate base is exposed for more than 2 weeks.

REINFORCING STEEL SCHEDULE

Mark	No.	Size	Pin ø	Length	Location
AW0401	6	#4	——	20'-8"	Sidewalk longitudinal
AW0402	21	#4	——	5'-5"	Sidewalk transverse
AW0503	25	#5	3¾"	2'-4"	Curb
AW0504	30	#5	2½"	5'-8"	Railing Dowels
AW0505	30	#5	3¾"	3'-10"	Railing Dowels
AW0506	2	#4	——	2'-0"	Sidewalk bars @ Junction box
AW0507	2	#4	——	2'-6"	Sidewalk bars @ Junction box
AS0701	96	#7	——	20'-8"	Bottom longitudinal
AS0502	50	#5	——	20'-8"	Top longitudinal
AS0503	41	#5	——	25'-3"	Top and bottom transverse
AS0504	39	#5	——	19'-4"	Top and bottom transverse
AS0505	43	#5	——	2'-6"	Dowels
AS0506	43	#5	——	2'-6"	Dowels (with Mech'l Connector)
AS0707	2	#7	5¼"	20'-8"	Bottom longitudinal at con. jt.
AS0508	2	#5	3¾"	20'-8"	Top longitudinal at con. jt.
AS0709	1	#7	——	20'-1"	Bottom longitudinal
AS0510	2	#5	——	25'-7"	Top and bottom transverse
AS0511	4	#5	——	18'-9"	Top and bottom transverse



Reinforcing steel schedule shown is for Abutment A Approach Slab only. For Abutment B Approach Slab, see Sheet 47.

ESTIMATED QUANTITIES

	Concrete Class A4 Bridge Approach Slab CY ⊗	Reinforcing Steel Bridge Approach Slab LB ⊗	Asphalt Concrete Type SM-9.5D Ton
Abutment A	45.5**	8050**	15
Abutment B	45.2**	7610**	15
Totals	90.7	15,660	30

⊗ Denotes items to be paid for on basis of plan quantities in accordance with current Road and Bridge Specifications.

** Includes quantities for concrete sidewalk and east curb on the approach slab.

COMMONWEALTH OF VIRGINIA
EFREN MASIKO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 14:03:26 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

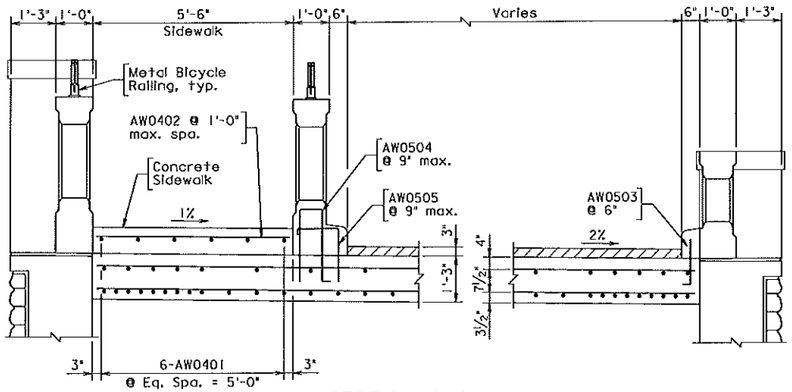
APPROACH SLAB ABUTMENT A

Designed: GWK	Date	Plan No.	Sheet No.
Drawn: WJ	Dec. 2012	291-81	46 of 56
Checked: EMS			

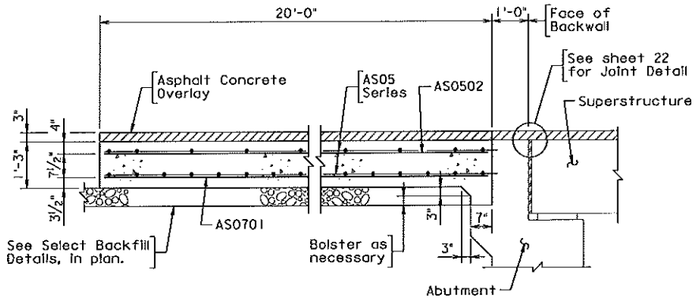
Scale: As shown

b29181046

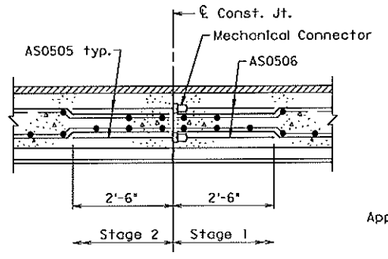
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	47



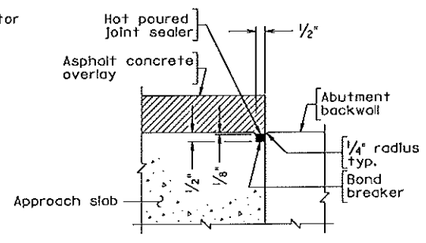
SECTION A-A
Scale: ½" = 1'-0"



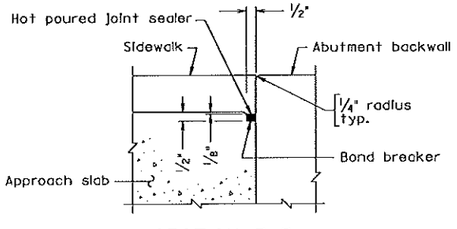
SECTION B-B
Scale: ½" = 1'-0"



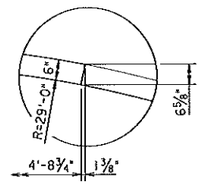
SECTION C-C
Not to Scale



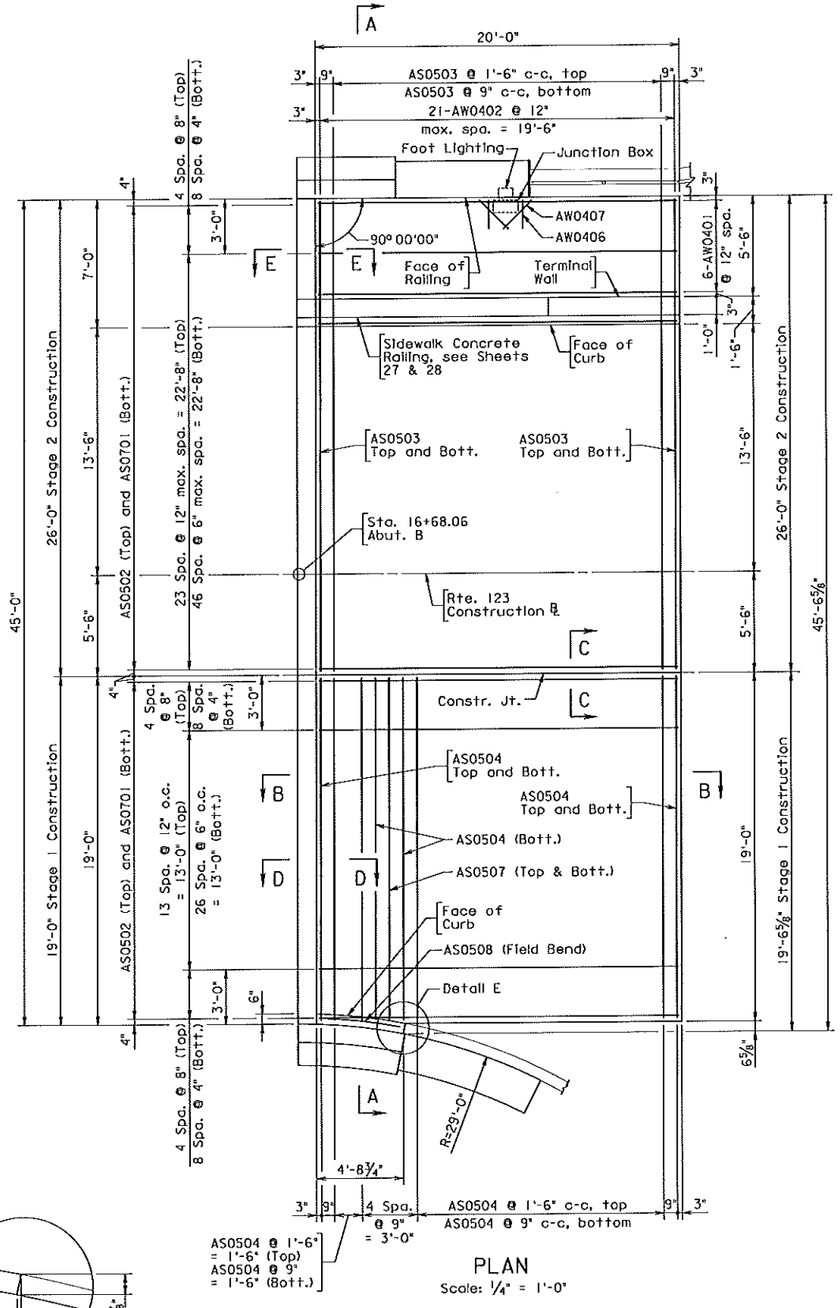
SECTION D-D
Scale: 3" = 1'-0"



SECTION E-E
Scale: 3" = 1'-0"



DETAIL E
Scale: ½" = 1'-0"



PLAN
Scale: ¼" = 1'-0"

Notes:

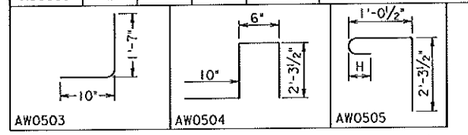
All joints that are to be sealed shall be free of cracked and spalled areas and their faces shall be free of all foreign matter, curing compound, oils, greases and dirt. All faces must be sandblasted or brushed with a mechanical rotary wire brush, just prior to sealing, the joint shall be blown out with oil-free compressed air.

Deformed reinforcing bars shall conform to ASTM A615, Grade 60. All reinforcing bar dimensions except for bending diagram are to centers of bars.

Prime aggregate base material with 0.35 gal. per sq. yd. Liquid Asphalt Material Type RC-70, RC-250 or MC-250 if aggregate base is exposed for more than 2 weeks.

REINFORCING STEEL SCHEDULE

Mark	No.	Size	Pin ø	Length	Location
AW0401	6	#4	—	19'-8"	Sidewalk longitudinal
AW0402	21	#4	—	5'-2"	Sidewalk transverse
AW0503	10	#5	3¾"	2'-4"	Curb
AW0504	29	#5	2½"	5'-8"	Railing Dowels
AW0505	29	#5	3¾"	3'-10"	Railing Dowels
AW0406	2	#4	—	2'-0"	Sidewalk bars @ Junction Box
AW0407	2	#4	—	2'-6"	Sidewalk bars @ Junction Box
AS0701	98	#7	—	19'-8"	Bottom longitudinal
AS0502	50	#5	—	19'-8"	Top longitudinal
AS0503	42	#5	—	25'-8"	Top and bottom transverse
AS0504	40	#5	—	18'-8"	Top and bottom transverse
AS0505	42	#5	—	2'-6"	Dowels
AS0506	42	#5	—	2'-6"	Dowels (with Mech'l Connector)
AS0507	2	#5	—	19'-1"	Top and bottom transverse
AS0508	2	#5	—	4'-5"	Top and bottom longitudinal



Reinforcing steel schedule shown is for Abutment B Approach Slab only. For Abutment A Approach Slab, see Sheet 46.

Scale: As shown

COMMONWEALTH OF VIRGINIA
EFREN MASINO SEBASTIAN
Lic. No. 20717
PROFESSIONAL ENGINEER

Efren M Sebastian
2013.02.04 14:04:38 -05'00'

LPA/BAKER
FALLS CHURCH, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

APPROACH SLAB ABUTMENT B

Designed: CVK	Date	Plan No.	Sheet No.
Drawn: VM	Dec. 2012	291-81	47 of 56
Checked: EMS			

©DGN©

B291810047

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	48

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT A

B-1
PAGE 1 OF 1

STATION: OFFSET:
NORTHING: 6995071.51 ft Eastings: 11822409.37 ft
SURFACE ELEVATION: 358.64 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 5/22/10 – 5/22/10
Drilling Method(s): 2 1/4" HSA
SPT Method: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Keating

GROUND WATER
NOT ENCOUNTERED DURING DRILLING
NO LONG TERM MEASUREMENTS TAKEN

FIELD DESCRIPTION OF STRATA

0.0 / 358.64
ASPHALT: 17" ASPH

1.42 / 357.22
AGGREGATE BASE: #, CRA

1.92 / 356.72
FILL, sampled as gray and dark gray silty gravel with sand FL

5.0 / 353.64
POSSIBLE FILL, sampled as brown and dark yellowish brown sandy silt, trace to with quartz fragments, moist FL

8.0 / 350.64
Dense brown and reddish brown poorly graded fine to coarse SAND with silt and quartz rock fragments, moist at wet SP-SM

12.0 / 346.64
Very stiff to very hard yellowish brown, light gray, and tan sandy SILT, trace mica, moist ML

30.0 / 328.64
Boring terminated at 30'

LAB DATA

LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	FINES CONTENT - #200 (%)
LL	PI		
33	NP	13.0	60.6

REMARKS: Rig Type: CME 45C

PAGE 1 OF 1
B-1

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT A

B-2
PAGE 1 OF 1

STATION: OFFSET:
NORTHING: 6995060.9 ft Eastings: 11822451.63 ft
SURFACE ELEVATION: 354.44 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 5/21/10 – 5/21/10
Drilling Method(s): 2 1/4" HSA
SPT Method: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Keating

GROUND WATER
FIRST ENCOUNTERED AT 13.0 ft DEPTH
STABILIZED AT 8.5 ft AFTER 25 HOURS

FIELD DESCRIPTION OF STRATA

0.0 / 354.44
TOPSOIL 2": TOPS

0.17 / 354.27
FILL, sampled as brown silt with fine to medium sand, trace rock fragments, moist FL

3.5 / 351.44
POSSIBLE FILL, sampled as dark gray and orange-brown silt, trace fine to medium sand, rock fragments, and roots, moist to wet
(layers of gray silty fine to medium sand) FL

8.0 / 346.44
Loose brown and brownish yellow silty fine to coarse SAND with rock fragments, organics, and root matter, moist SM

12.0 / 342.44
Stiff to hard tan, light yellowish brown, and light gray sandy SILT, trace mica, moist ML

30.0 / 324.44
Boring terminated at 30'

LAB DATA

LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	FINES CONTENT - #200 (%)
LL	PI		
32	NP	17.8	43.0
36	NP	22.2	63.6

REMARKS: Rig Type: CME 45C

PAGE 1 OF 1
B-2

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT A

P-3
PAGE 1 OF 1

STATION: OFFSET:
NORTHING: 6995039.89 ft Eastings: 11822411.71 ft
SURFACE ELEVATION: 358.92 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/14/10 – 8/14/10
Drilling Method(s): 3 1/4" HSA
SPT Method: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Loggers: Darryl Keating

GROUND WATER
FIRST ENCOUNTERED AT 22.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

FIELD DESCRIPTION OF STRATA

0.0 / 358.92
ASPHALT: 13.25" ASPH

1.6 / 357.32
AGGREGATE BASE: #, CRA

2.1 / 356.82
FILL, sampled as orange-brown, reddish brown, and gray silty fine to coarse sand with rock fragments, moist FL

6.0 / 352.92
FILL, sampled as dark gray silt with fine sand, trace organics and wood debris fragments, moist to wet FL

12.0 / 346.92
Brownish yellow SILT with fine to medium sand, trace mica, moist to wet ML

33.0 / 325.92
Hard yellowish brown and orange-brown sandy SILT, trace mica and rock fragments, moist ML

39.5 / 319.42
WEATHERED ROCK, sampled as orange-brown, yellowish brown, and gray silty fine to coarse sand, trace to with rock fragments, moist (WR)

43.8 / 315.12
Boring terminated at 43.8'

LAB DATA

LIQUID LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)
LL	PI	
		18.5
		14.3
		38.9
		11.3

REMARKS: Rig Type: CME 45C

PAGE 1 OF 1
P-3

DGN

b29181048

A copy of the original signed geotechnical submittal is on file in the District Office.

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by the Department in establishing design controls for the project. The Department has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. The Department does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, the Department does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

The boring logs are made available to bidders in order that they may have access to subsurface data identical to that which is possessed by the Department, and are not intended as a substitute for personal investigation, interpretation and judgment by the bidders.

Scale: As shown

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ENGINEERING GEOLOGY - I

Designed: CKT	Date	Plan No.	Sheet No.
Drawn: CKT	Dec. 2012	291-81	48 of 56
Checked: WCG			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	——	RSTP-5401 (944)	123	0123-151-139, B604	49

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT A

R-1
PAGE 1 OF 2

STATION: OFFSET:
NORTHING: 6995058.23 ft Easting: 11822406.35 ft
SURFACE ELEVATION: 355.81 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/20/11 - 8/20/11
Drilling Method(s): 3 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Kesling

GROUND WATER
▼ FIRST ENCOUNTERED AT 20.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

FIELD DESCRIPTION OF STRATA

0.0 / 355.81
ASPHALT: 14" ASPH

0.17 / 354.64
AGGREGATE BASE: 8" CBR

1.87 / 354.14
FILL, sampled as recycled asphalt, moist FL

3.5 / 352.31
POSSIBLE FILL, sampled as tan-brown, brown and black SILT with sand, moist FL

8.0 / 347.81
Stiff gray and brown sandy SILT, trace rock fragments, moist ML

12.0 / 343.81
Medium dense gray, brown, and tan-brown silty fine to coarse SAND with rock fragments, moist to wet SM

27.0 / 328.81
Medium dense mottled white, brown, olive, and black silty fine to medium SAND, trace rock fragments, moist SM

39.0 / 316.81

REMARKS: Rig Type: CME 45C

PAGE 1 OF 2
R-1

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT A

R-1
PAGE 2 OF 2

STATION: OFFSET:
NORTHING: 6995058.23 ft Easting: 11822406.35 ft
SURFACE ELEVATION: 355.81 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/20/11 - 8/20/11
Drilling Method(s): 3 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Kesling

GROUND WATER
▼ FIRST ENCOUNTERED AT 20.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

FIELD DESCRIPTION OF STRATA

WEATHERED ROCK, sampled as white, gray, and brown silty gravel with sand, moist WR

43.6 / 307.31
BEDROCK, sampled as gray and white SCHIST, soft, highly weathered, highly fractured SCH

50.6 / 305.31
BEDROCK, sampled as gray and white SCHIST, soft to moderately hard, highly to moderately weathered, moderately fractured SCH

55.6 / 300.31
BEDROCK, sampled as gray and white SCHIST, moderately hard to hard, moderately weathered, moderately fractured SCH

60.6 / 295.31
BEDROCK, sampled as gray and white SCHIST, moderately hard to hard, moderately weathered, moderately fractured SCH

65.6 / 290.31
Boring terminated at 65.6'

REMARKS: Rig Type: CME 45C

PAGE 2 OF 2
R-1

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT B

B-3
PAGE 1 OF 1

STATION: OFFSET:
NORTHING: 6995107.55 ft Easting: 11822447.32 ft
SURFACE ELEVATION: 354.78 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 5/21/10 - 5/21/10
Drilling Method(s): 2 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Kesling

GROUND WATER
▼ FIRST ENCOUNTERED AT 20.0 ft DEPTH
▼ STABILIZED AT 8.0 ft AFTER 193 HOURS

LAB DATA

FIELD DESCRIPTION OF STRATA

0.0 / 354.78
TOPSOIL: 4" TSOIL

0.33 / 354.45
FILL, sampled as brown, brownish yellow, and dark gray silt with fine to medium sand, trace root matter, moist to wet
(Possible of brown lean clay) FL

5.5 / 349.28
Very loose gray and dark yellowish brown silty fine to coarse SAND, trace rock fragments, wet SM

8.0 / 346.78
Stiff to very stiff yellowish brown, tan, and light gray sandy SILT, trace mica, moist ML

22.0 / 332.78
WEATHERED ROCK, sampled as tan, yellowish brown, and light gray sandy silt, trace rock fragments, moist WR

28.0 / 326.78
Boring terminated at 28'

REMARKS: Rig Type: CME 45C

PAGE 1 OF 1
B-3

A copy of the original signed geotechnical submittal is on file in the District Office.

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by the Department in establishing design controls for the project. The Department has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. The Department does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, the Department does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

The boring logs are made available to bidders in order that they may have access to subsurface data identical to that which is possessed by the Department, and are not intended as a substitute for personal investigation, interpretation and judgment by the bidders.

Scale: As shown

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ENGINEERING GEOLOGY - 2

Designed: CKT	Date	Plan No.	Sheet No.
Drawn: CKT	Dec. 2012	291-81	49 of 56
Checked: MCS			

©DGN9

b291810 49

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	50

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT B

B-4
PAGE 1 OF 1

STATION: OFFSET: 7 feet east
NORTHING: 6955113.68 ft Easting: 11832417.51 ft
SURFACE ELEVATION: 357.92 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 5/22/10 – 5/22/10
Drilling Method(s): 2 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Keating

GROUND WATER
NOT ENCOUNTERED DURING DRILLING
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

FIELD DESCRIPTION OF STRATA

0.0 / 357.92
ASPHALT: 12" ASPH

1.0 / 356.92
AGGREGATE BASE: 8" CBA

1.5 / 356.42
FILL, sampled as light brown, brownish yellow and gray silt with fine to medium sand, trace to with rock fragments, trace mica, moist FL

5.0 / 352.92
POSSIBLE FILL, sampled as brown and brownish yellow silt with fine medium sand, trace rock fragments, moist FL

8.0 / 349.92
Medium dense gray and olive-brown silty fine to medium SAND, trace mica, moist to wet SM

12.0 / 345.92
Very stiff to hard yellowish brown, light gray, orange-brown, and tan sandy SILT, trace mica, moist to wet ML

33.0 / 327.92
Boring terminated at 33'

REMARKS: Rig Type: CME 45C

PAGE 1 OF 1
B-4

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT B

P-4
PAGE 1 OF 2

STATION: OFFSET:
NORTHING: 6955128.1 ft Easting: 11832413.08 ft
SURFACE ELEVATION: 357.8 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/14/10 – 8/14/10
Drilling Method(s): 3 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Keating

GROUND WATER
FIRST ENCOUNTERED AT 37.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

FIELD DESCRIPTION OF STRATA

0.0 / 357.8
ASPHALT: 15" ASPH

1.25 / 356.55
AGGREGATE BASE: 8" CBA

1.75 / 356.05
FILL, sampled as brown, reddish brown, and gray silty fine to coarse SAND with rock fragments, trace mica, moist FL

5.5 / 352.3
FILL, sampled as gray sandy silt, trace mica, organics, and wood debris, moist to wet FL

12.0 / 345.8
Orange-brown and yellowish brown SILT with fine sand, trace mica, moist ML

32.0 / 325.8
Very hard yellowish brown sandy SILT, trace to with rock fragments, moist (layers of white silty sand) ML

37.0 / 320.8
Hard yellowish brown, orange-brown, and white sandy SILT, trace mica and rock fragments, moist to wet ML

REMARKS: Rig Type: CME 45C

PAGE 1 OF 2
P-4

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT B

P-4
PAGE 2 OF 2

STATION: OFFSET:
NORTHING: 6955128.1 ft Easting: 11832413.08 ft
SURFACE ELEVATION: 357.8 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/14/10 – 8/14/10
Drilling Method(s): 3 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Keating

GROUND WATER
FIRST ENCOUNTERED AT 37.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

FIELD DESCRIPTION OF STRATA

42.0 / 315.8
WEATHERED ROCK, sampled as orange-brown silty fine to coarse sand, trace to with rock fragments, moist to wet WR

47.4 / 310.4
Boring terminated at 47.4'

REMARKS: Rig Type: CME 45C

PAGE 2 OF 2
P-4

A copy of the original signed geotechnical submittal is on file in the District Office.

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by the Department in establishing design controls for the project. The Department has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. The Department does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, the Department does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

The boring logs are made available to bidders in order that they may have access to subsurface data identical to that which is possessed by the Department, and are not intended as a substitute for personal investigation, interpretation and judgment by the bidders.

Scale: As shown

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ENGINEERING GEOLOGY - 3

Designed: CKT	Date	Plan No.	Sheet No.
Drawn: CKT	Dec. 2012	291-81	50 of 56
Checked: MCS			

©DGN6

B291810050

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	51

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT B

R-2
PAGE 1 OF 2

STATION: OFFSET:
NORTHING: 5935111.21 ft Eastings: 11822443.95 ft
SURFACE ELEVATION: 355.91 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/18/11 - 8/18/11
Drilling Method(s): 3 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Kesling

GROUND WATER
▽ FIRST ENCOUNTERED AT 29.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

DEPTH (ft)	ELEVATION (ft)	SOIL: STANDARD PENETRATION TEST / RANGE BLWS	SOIL: SOIL RECOVERY (in)	SOIL: SAMPLE LEGEND	SOIL: SAMPLE INTERVAL	ROCK: CORE RECOVERY (in)	ROCK: ROCK QUALITY DESIGNATION	ROCK: DIP°: STRATA	ROCK: DIP°: JOINTS	STRATA LEGEND	FIELD DESCRIPTION OF STRATA	LAB DATA: LIQUID LIMIT LL	LAB DATA: PLASTICITY INDEX PI	LAB DATA: MOISTURE CONTENT (%)
0	355										0.0 / 355.91 Probed Down to 29 feet			
2														
4														
6	350													
8														
10	345													
12														
14														
16	340													
18														
20	335													
22														
24														
26	330													
28														
30	325	25	19		30						29.0 / 326.91 WEATHERED ROCK, sampled as mottled white, gray, black, and yellowish brown silty fine to medium sand, trace rock fragments, moist XWR			
32														
34	320	50/3	17		34									
36														
38														
40		50/3	17		39									
42														

Remarks: Rig Type: CME 45C.

PAGE 1 OF 2
R-2

BURGESS & NIPLE

PROJECT #: 0123-151-139-PE101
LOCATION: City of Fairfax
STRUCTURE: ABUTMENT B

R-2
PAGE 2 OF 2

STATION: OFFSET:
NORTHING: 5935111.21 ft Eastings: 11822443.95 ft
SURFACE ELEVATION: 355.91 ft COORD. DATUM: VA North

FIELD DATA

Date(s) Drilled: 8/18/11 - 8/18/11
Drilling Method(s): 3 1/4" HSA
SPT Methods: Automatic Hammer
Other Test(s):
Driller: Jimmy Cove
Logger: Darryl Kesling

GROUND WATER
▽ FIRST ENCOUNTERED AT 29.0 ft DEPTH
NO LONG TERM MEASUREMENTS TAKEN

LAB DATA

DEPTH (ft)	ELEVATION (ft)	SOIL: STANDARD PENETRATION TEST / RANGE BLWS	SOIL: SOIL RECOVERY (in)	SOIL: SAMPLE LEGEND	SOIL: SAMPLE INTERVAL	ROCK: CORE RECOVERY (in)	ROCK: ROCK QUALITY DESIGNATION	ROCK: DIP°: STRATA	ROCK: DIP°: JOINTS	STRATA LEGEND	FIELD DESCRIPTION OF STRATA	LAB DATA: LIQUID LIMIT LL	LAB DATA: PLASTICITY INDEX PI	LAB DATA: MOISTURE CONTENT (%)
42	315													
44		50/5	17		44 44.5									
46	310													
48		50/5	17		49 49.5									
50	305													
52		50/2	10		54 54.167						52.0 / 303.91 WEATHERED ROCK, sampled as gray, brown, and black rock fragments, moist XWR			
54														
56	300													
58		50/1	10		59 59.1						59.1 / 296.81 BEDROCK, sampled as decomposed SCHIST SCH			
60														
62	295													
64						10	6				64.1 / 291.81 BEDROCK, sampled as gray and white SCHIST, soft to moderately hard, moderately to slightly weathered, moderately fractured SCH			
66	290				64.1	10	48							
68					69.1						69.1 / 286.81 BEDROCK, sampled as gray and white SCHIST, moderately hard to hard, moderately to slightly weathered, highly to slightly fractured SCH			
70						10	35							
72	285										71.1 / 284.81 BEDROCK, sampled as gray and white SCHIST, moderately hard to hard, moderately to slightly weathered, highly to slightly fractured SCH			
74						10	36							
76	280				76.1						76.1 / 279.81 Boring Terminated at 76.1'			

Remarks: Rig Type: CME 45C.

PAGE 2 OF 2
R-2

A copy of the original signed geotechnical submittal is on file in the District Office.

The subsurface information shown on the boring logs in these plans was obtained with reasonable care and recorded in good faith solely for use by the Department in establishing design controls for the project. The Department has no reason to suspect that such information is not reasonably accurate as an approximate indication of the subsurface conditions at the sites where the borings were taken. The Department does not in any way warrant or guarantee that such data can be projected as indicative of conditions beyond the limits of the borings shown; and any such projections by bidders are purely interpretive and altogether speculative. Further, the Department does not in any way guarantee, either expressly or by implication, the sufficiency of the information for bid purposes.

The boring logs are made available to bidders in order that they may have access to subsurface data identical to that which is possessed by the Department, and are not intended as a substitute for personal investigation, interpretation and judgment by the bidders.

Scale: As shown

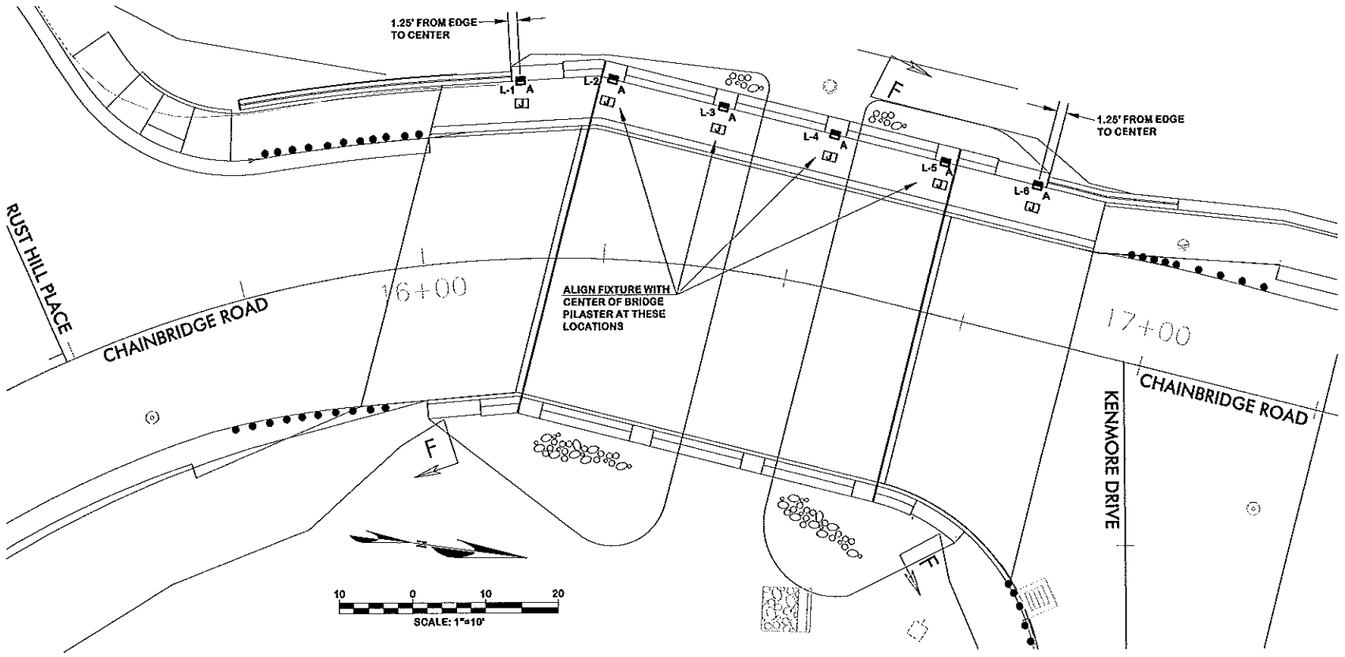
No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

ENGINEERING GEOLOGY - 4

Designed: CKT	Date	Plan No.	Sheet No.
Drawn: CKT	Dec. 2012	291-81	51 of 56
Checked: MCS			

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	———	RSTP-5401 (944)	123	0123-151-139, B604	52



ROADWAY BRIDGE LIGHTING LAYOUT

SCALE: 1"=10'

LIGHTING LAYOUT PLAN LEGEND

SYMBOL	DESCRIPTION
L-1 A	WALL MOUNT PEDESTRIAN PATH LIGHT FIXTURE IN BRIDGE PILASTER OR SIDEWALL. SUBSCRIPT "A" DENOTES LIGHT FIXTURE TYPE IN THE LIGHT FIXTURE SCHEDULE. SEE LIGHT FIXTURE SCHEDULE. SUBSCRIPT "L-1" DENOTES FIXTURE I.D. LUMINAIRE SHALL UTILIZE HIGH PRESSURE SODIUM LAMP WITH MAGNETIC HIGH POWER FACTOR BALLAST AND SHALL BE FLUSH MOUNT, LOUVER TYPE. SEE SCHEDULE FOR FIXTURE HEIGHT FROM SIDEWALK. LIGHT FIXTURE INSTALLATION LABOR AND MATERIALS SHALL BE PAID AS A PER EACH PAY ITEM FOR THE ROADWAY BRIDGE CONSTRUCTION.
J	FLUSH MOUNT ELECTRICAL JUNCTION BOX WITH COVER PLATE MOUNTED IN SIDEWALK. PROVIDE 3/4" CONDUIT STUBOUT RUN CONCEALED IN STRUCTURE TO LIGHT FIXTURE J-BOX ON PILASTER. LABOR AND MATERIALS FOR THIS WORK SHALL BE INCLUSIVE TO THE ROADWAY BRIDGE RAILING BID PRICE. SEE DRAWING 32 OF 56 "BRIDGE CONDUIT SYSTEM".

NOTE: SEE BRIDGE LIGHTING WIRING DIAGRAM FOR WIRING INSTALLATION INFORMATION FOR THESE FIXTURES. SEE LIGHTING DETAIL PLANS FOR FIXTURE INSTALLATION DETAILS.

SIGNS

b29181052

COMMONWEALTH OF VIRGINIA
1-4-13
GARY HAMILTON LOTT
Lic. No. 037458
PROFESSIONAL ENGINEER

LPA/BAKER
COLUMBIA, SC
ELECTRICAL ENGINEER

No.	Description	Date
	Revisions	

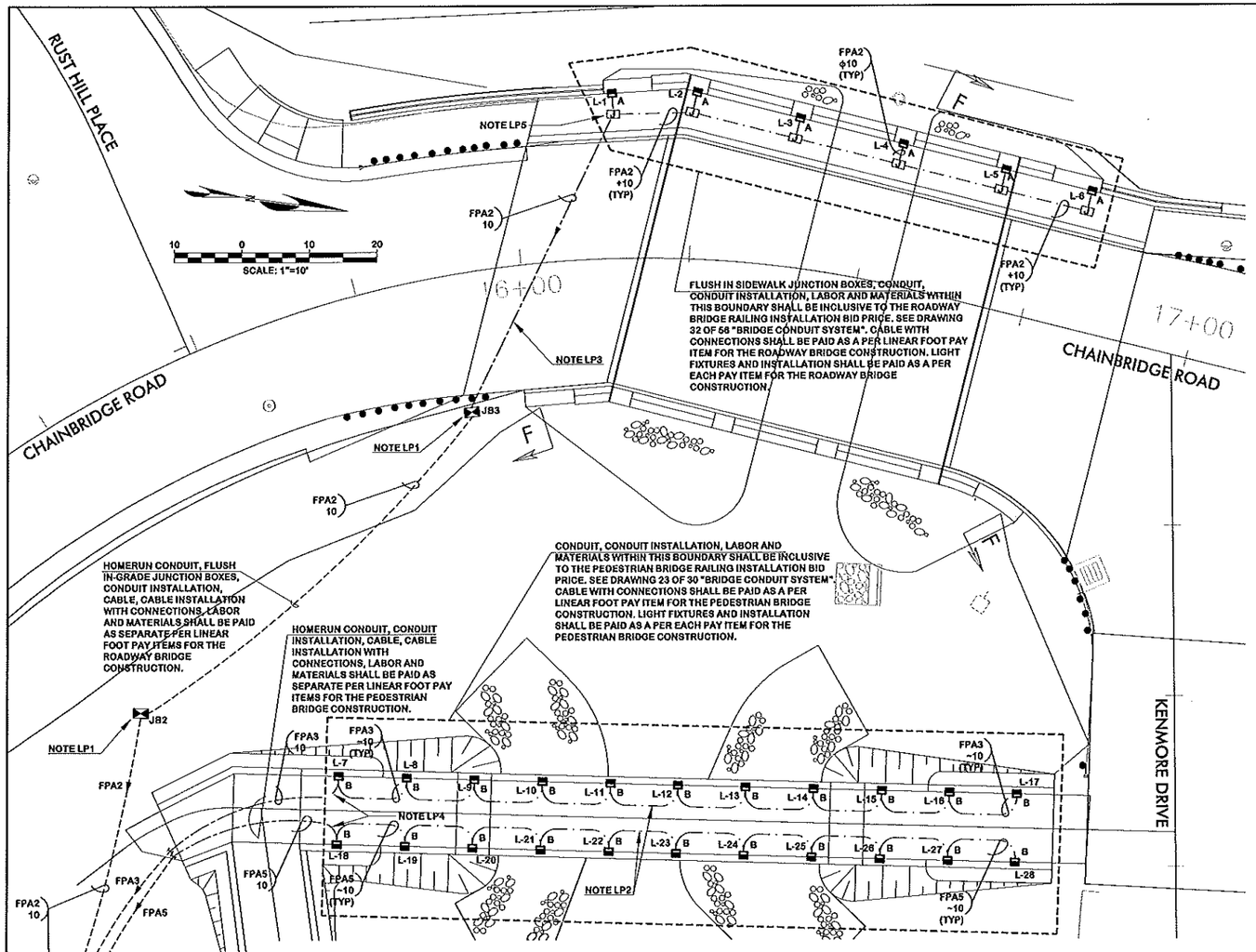
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

BRIDGE LIGHTING LAYOUT PLAN

Designed: FME/RES	Date	Plan No.	Sheet No.
Drawn: FME/MTW	Dec. 2012	291-81	52 of 56
Checked: GHL			

Scale: As shown

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	53



BRIDGE LIGHTING WIRING DIAGRAM

SCALE: 1"=10'

WIRING DIAGRAM LEGEND

SYMBOL	DESCRIPTION
L-1 A	WALL MOUNT PEDESTRIAN PATH LIGHT FIXTURE IN BRIDGE PILASTER OR SIDEWALL. SUBSCRIPT "A" DENOTES LIGHT FIXTURE TYPE IN THE LIGHT FIXTURE SCHEDULE. SEE LIGHT FIXTURE SCHEDULE. SUBSCRIPT "L-1" DENOTES FIXTURE I.D. LUMINAIRE SHALL UTILIZE HIGH PRESSURE SODIUM LAMP WITH MAGNETIC HIGH POWER FACTOR BALLAST AND SHALL BE FLUSH MOUNT, LOUVER TYPE. SEE SCHEDULE FOR FIXTURE HEIGHT FROM SIDEWALK.
	PROPOSED ELECTRICAL SERVICE/CONTROL CENTER EQUIPMENT WITH FIELD PANEL BOARD. SEE DETAILS.
JB1	ELECTRICAL JUNCTION BOX IN EARTH. ALPHANUMERIC DESIGNATION DENOTES JUNCTION BOX LOCATION FOR REFERENCE ONLY.
	FLUSH MOUNT ELECTRICAL JUNCTION BOX WITH COVER PLATE MOUNTED IN SIDEWALK. PROVIDE 3/4" CONDUIT STUB OUT RUN CONCEALED IN STRUCTURE TO LIGHT FIXTURE J-BOX ON PILASTER.
FPA1 10	PROPOSED BRANCH CIRCUIT. CONTROL SYSTEM (FPA), CIRCUIT I.D. NUMBER (1) PLAN SYMBOL (10) SEE TABLE A, THIS SHEET.
	CONDUIT AND WIRING TRENCHED IN EARTH UNDER NEW PROPOSED ASPHALT OR CONCRETE PAVEMENT, INSTALLED A MINIMUM OF 24" BELOW FINISHED GRADE. SIZE AS SHOWN.
	CONDUIT AND WIRING RUN CONCEALED IN BRIDGE STRUCTURE. SEE STRUCTURAL/BRIDGE PLANS FOR LOCATION AND CONDUIT ROUTING.
	CONDUIT AND WIRING TRENCHED IN EARTH, INSTALLED A MINIMUM OF 24" BELOW FINISHED GRADE. SIZE AS SHOWN.

WIRING PLAN NOTES

LP1 LOCATE HANDHOLE IN EARTH OUTSIDE OF PAVING OPERATION AREAS.

LP2 WIRING SHALL BE INSTALLED IN CONDUIT CONCEALED INSIDE BRIDGE STRUCTURE. CONDUIT/WIRING SHOWN OUTSIDE OF BRIDGE STRUCTURE ON PLAN SHEETS FOR CLARITY. SEE INSTALLATION DETAILS.

LP3 COORDINATE INSTALLATION OF CONDUITS UNDER NEW PAVEMENT WITH PROJECT STAGING TO ALLOW INTERCEPTION OF CONDUIT RUNS WHEN WORK AREAS CHANGE. SEE TRAFFIC CONTROL AND CONSTRUCTION STAGING PLAN SHEETS FOR DETAILS.

LP4 PROVIDE 1" TO 3/4" REDUCER AT FIRST LIGHT TO ALLOW 1" HOMERUN CONDUIT.

LP5 PROVIDE 2" TO 1" REDUCER AT JUNCTION BOX TO ALLOW 1" HOMERUN CONDUIT.

ABBREVIATIONS

MH	MOUNTING HEIGHT
PVC	PVC SCHEDULE 40 CONDUIT
C	CONDUIT
CKT	CIRCUIT
TS	TRADE SIZE
BKR	CIRCUIT BREAKER DESIGNATION
RGSC	RIGID GALVANIZED STEEL CONDUIT

GENERAL WIRING PLAN NOTES

GES1 ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODES HAVING JURISDICTION. WHERE CONFLICTS OCCUR, THE MORE STRINGENT SHALL APPLY.

GES2 BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER WITH TYPE "THHN/THWN-2" INSULATION RATED AT 600 VOLTS. CONDUCTORS #10 AND SMALLER SHALL BE SOLID.

GES3 SHOULD ANY EXISTING ACTIVE WIRING OR OTHER UTILITIES BE CUT BY NEW TRENCHING, SUCH SHALL BE REPAIRED (IN MANNER APPROVED BY THE ENGINEER AND OWNER) AND LEFT IN OPERATING CONDITION AT NO ADDITIONAL COST TO THE OWNER.

GES4 THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS.

GES5 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.

GES6 ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.

GES7 CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING UTILITY COMPANIES TO IDENTIFY AND LOCATE ANY UNDERGROUND UTILITIES AND/OR CABLE WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL ASSIST UTILITY COMPANY IN EFFORTS TO FIELD VERIFY UNDERGROUND UTILITIES.

GES8 ALL EXCAVATION WITHIN 3 FT. OF TELEPHONE COMPANY AND POWER COMPANY CABLES SHALL BE BY HAND DIGGING.

GES9 SEE LANDSCAPING AND OTHER UTILITY PLANS PRIOR TO UNDERGROUND CONDUIT INSTALLATION AND ROUTE CONDUITS TO AVOID WITH TREE PLANTING AND OTHER UTILITIES.

GES10 CONTRACTOR SHALL VISIT SITE TO DETERMINE EXISTING CONDITIONS PRIOR TO SUBMITTING BID.

GES11 DO NOT SCALE THESE DRAWINGS. ROUGHING IN SHALL BE DONE FROM FIELD CONDITIONS AND DIMENSIONS ON ROADWAY DRAWINGS AND EQUIPMENT SHOP DRAWINGS. CONTRACTOR SHALL FIELD VERIFY ALL ITEMS.

GES12 CONDUITS RUN EXPOSED SHALL BE FULL WEIGHT RIGID GALVANIZED STEEL WITH BONDED PVC COATING.

GES13 PROVIDE PHOTOCELL "ON" AT DUSK, "OFF" AT DAWN CONTROL OF LIGHT FIXTURES VIA TWO (2) - 2P, 30A CONTACTORS INSTALLED IN A CONTROL CENTER CABINET. SEE VDOT INSTALLATION DETAILS.

GES14 PROVIDE 100 AMP, 120/240V, 3W, 1ϕ, 60 HZ SERVICE. SEE VDOT ELECTRIC SERVICE DETAILS.

GES15 ALL PEDESTRIAN PATH LIGHT FIXTURES SHALL BE UL LISTED FOR WET LOCATION INSTALLATION.

TABLE "A"
CIRCUITRY CONDUCTOR CONDUIT TYPE & SIZE

PLAN SYMBOL	DESCRIPTION		ITEM
10	2 #10 1 #10G TS 1"	2 AWG SIZE 10 CONDUCTORS 1 AWG SIZE 10 GROUNDING CONDUCTOR TRADE SIZE 1" PVC CONDUIT	2 - 10 W/G BRANCH CIRCUIT IN TRADE SIZE 1" CONDUIT
+10 SEE NOTE 3	2 #10 1 #10G TS 2"	2 AWG SIZE 10 CONDUCTORS 1 AWG SIZE 10 GROUNDING CONDUCTOR CIRCUIT RUN IN 2" PVC CONDUIT INSIDE STRUCTURE	2 - 10 W/G BRANCH CIRCUIT IN 2" STRUCTURE CONDUIT
*10	3 #10 1 #10G TS 1"	3 AWG SIZE 10 CONDUCTORS 1 AWG SIZE 10 GROUNDING CONDUCTOR MULTIPLE CIRCUITS RUN IN A COMMON 1" PVC CONDUIT	3 - 10 W/G BRANCH CIRCUITS IN COMMON 1" CONDUIT
~10 SEE NOTE 2	2 #10 1 #10G TS 3/4"	2 AWG SIZE 10 CONDUCTORS 1 AWG SIZE 10 GROUNDING CONDUCTOR CIRCUIT RUN IN 3/4" PVC CONDUIT INSIDE STRUCTURE	2 - 10 W/G BRANCH CIRCUIT IN 3/4" STRUCTURE CONDUIT
Ø10 SEE NOTE 3	2 #10 1 #10G TS 3/4"	2 AWG SIZE 10 CONDUCTORS 1 AWG SIZE 10 GROUNDING CONDUCTOR CIRCUIT RUN IN 3/4" RGSC CONDUIT INSIDE STRUCTURE	2 - 10 W/G BRANCH CIRCUIT IN 3/4" STRUCTURE CONDUIT

NOTES:
1. WHERE MULTIPLE CIRCUITS ARE SHOWN RUN IN A COMMON 1" CONDUIT, ONLY ONE(1) EQUIPMENT GROUND IS REQUIRED. THE GROUND CONDUCTOR SIZE SHALL BE FOR THE LARGEST SINGLE BRANCH CIRCUIT SIZE RUN THROUGH DUCT.
2. CONDUIT, CONDUIT INSTALLATION, LABOR AND MATERIALS SHALL BE INCLUSIVE TO THE PEDESTRIAN BRIDGE RAILING INSTALLATION BID PRICE. SEE DRAWING 23 OF 30 "BRIDGE CONDUIT SYSTEM". CABLE WITH CONNECTIONS SHALL BE PAID AS A PER LINEAR FOOT PAY ITEM FOR THE PEDESTRIAN BRIDGE CONSTRUCTION.
3. CONDUIT, CONDUIT INSTALLATION, LABOR AND MATERIALS SHALL BE INCLUSIVE TO THE ROADWAY BRIDGE RAILING INSTALLATION BID PRICE. SEE DRAWING 32 OF 56 "BRIDGE CONDUIT SYSTEM". CABLE WITH CONNECTIONS SHALL BE PAID AS A PER LINEAR FOOT PAY ITEM FOR THE ROADWAY BRIDGE CONSTRUCTION.

NOTE: CONVERT TO METAL CONDUIT AND PROVIDE CONDUIT EXPANSION COUPLINGS AT ALL LOCATIONS WHERE CONDUITS PASS THROUGH EXPANSION/CONTRACTION JOINTS. METAL CONDUIT AND EXPANSION COUPLINGS SHALL BE INCLUSIVE TO THE ASSOCIATED PEDESTRIAN OR ROADWAY BRIDGE RAILING BID PRICE.

LOAD SCHEDULE
120V 1Ø, 3 WIRE — FIELD PANEL "FPA"

CKT. ID (BKR)	FIXTURE TYPE "A"	FIXTURE TYPE "B"	KW	AMPS	BREAKER SIZE (AMPS)
FPA2	L-1, L-2, L-3, L-4, L-5, L-6		0.42	3.5	20
FPA3		L-7, L-8, L-9, L-10, L-11, L-12, L-13, L-14, L-15, L-16, L-17	0.77	6.4	20
FPA5		L-18, L-19, L-20, L-21, L-22, L-23, L-24, L-25, L-26, L-27, L-28	0.77	6.4	20
SPARE					
TOTAL	6	22	1.98	16.3	

1-4-13
COMMONWEALTH OF VIRGINIA
GARY HAMILTON LOTT
Lic. No. 037458
PROFESSIONAL ENGINEER

LPA/BAKER
COLUMBIA, SC
ELECTRICAL ENGINEER

Scale: As shown

No.	Description	Date
	Revisions	

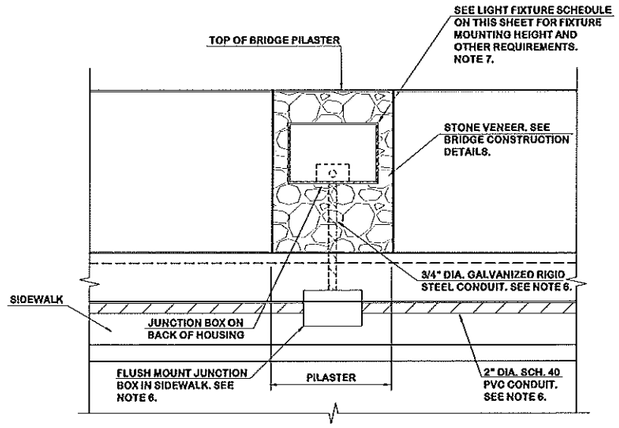
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

BRIDGE LIGHTING WIRING DIAGRAM

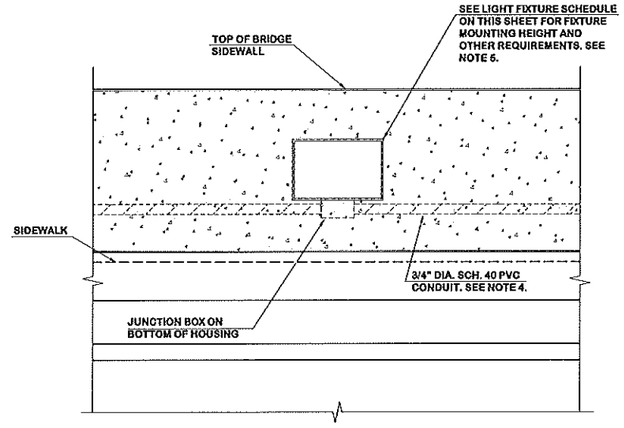
Designed: FME/RES
Drawn: FME/MTW
Checked: GHL

Date	Plan No.	Sheet No.
Dec. 2012	291-81	53 of 56

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	54



TYPICAL LIGHT FIXTURE "A" - ROADWAY BRIDGE
ELEVATION VIEW
N.T.S.



TYPICAL LIGHT FIXTURE "B" - PEDESTRIAN BRIDGE
ELEVATION VIEW
N.T.S.

NOTE: CONVERT TO METAL CONDUIT AND PROVIDE CONDUIT EXPANSION COUPLINGS AT ALL LOCATIONS WHERE CONDUITS PASS THROUGH EXPANSION/CONTRACTION JOINTS. SEE NOTES 4 AND 6.

LIGHT FIXTURE SCHEDULE

TYPE	VOLTAGE	DESCRIPTION	LAMP
A	120 VOLT	SQUARE RECESSED AISLE LIGHT FIXTURE WITH LOUVERED FACE CONSISTING OF 50 WATT HIGH PRESSURE SODIUM LAMP, FLAT GLASS LENS AND WITH 120 VOLT BALLAST. PROVIDE CIRCUIT IDENTIFICATION LABELS OF EACH CONDUCTOR IN JUNCTION BOX AT EACH LIGHT LOCATION. FIXTURE SHALL BE GARDCO LIGHTING NO. 944-C-50HPS-LV-120-SC OR APPROVED EQUALS. LUMINAIRE SHALL HAVE MAGNETIC HIGH POWER FACTOR BALLAST. MAXIMUM INPUT AMPERES SHALL NOT EXCEED NORMAL OPERATING AMPERES. FIXTURE FINISH SHALL BE AS SELECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MOUNTING HEIGHT OF THE LIGHT FIXTURE SHALL BE TWO FEET (2 FT.) ABOVE THE FINISHED CONCRETE SIDEWALK TO THE CENTERLINE OF THE LIGHT FIXTURE. SEE DETAIL ON THIS SHEET FOR LIGHT FIXTURE MOUNTING HEIGHT MEASUREMENT. ANY PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED TO ENGINEER WITH SAMPLES AND PHOTOMETRIC CALCULATIONS ON A 5'x5' GRID USING A 0.75 LIGHT LOSS FACTOR. THE LIGHT FIXTURE AND LIGHT FIXTURE INSTALLATION PER EACH PAY ITEM SHALL BE INCLUSIVE OF ALL LABOR AND MATERIALS FOR LIGHT FIXTURE INSTALLED ON THE ROADWAY BRIDGE STRUCTURE.	1/50W/HPS
B	120 VOLT	SQUARE RECESSED AISLE LIGHT FIXTURE WITH LOUVERED FACE CONSISTING OF 50 WATT HIGH PRESSURE SODIUM LAMP, FLAT GLASS LENS AND WITH 120 VOLT BALLAST. PROVIDE CIRCUIT IDENTIFICATION LABELS OF EACH CONDUCTOR IN JUNCTION BOX AT EACH LIGHT LOCATION. FIXTURE SHALL BE GARDCO LIGHTING NO. 944-C-50HPS-LV-120-SC OR APPROVED EQUALS. LUMINAIRE SHALL HAVE MAGNETIC HIGH POWER FACTOR BALLAST. MAXIMUM INPUT AMPERES SHALL NOT EXCEED NORMAL OPERATING AMPERES. FIXTURE FINISH SHALL BE AS SELECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MOUNTING HEIGHT OF THE LIGHT FIXTURE SHALL BE ONE FOOT (1 FT.) ABOVE THE FINISHED CONCRETE SIDEWALK TO THE CENTERLINE OF THE LIGHT FIXTURE. SEE DETAIL ON THIS SHEET FOR LIGHT FIXTURE MOUNTING HEIGHT MEASUREMENT. ANY PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED TO ENGINEER WITH SAMPLES AND PHOTOMETRIC CALCULATIONS ON A 5'x5' GRID USING A 0.75 LIGHT LOSS FACTOR. THE LIGHT FIXTURE AND LIGHT FIXTURE INSTALLATION PER EACH PAY ITEM SHALL BE INCLUSIVE OF ALL LABOR AND MATERIALS FOR LIGHT FIXTURE INSTALLED ON THE PEDESTRIAN BRIDGE STRUCTURE.	1/50W/HPS

NOTES:

1. DETAILS FOR ELECTRICAL SERVICE, CONTROLS AND EQUIPMENT INSTALLATION SHALL BE AS SHOWN IN THE VDOT STANDARD DRAWINGS "SE-8" AND "CCW-1" (TYPE C - SINGLE PHASE WIRING). SPECIFICATIONS FOR ELECTRICAL SERVICE, CONTROLS AND EQUIPMENT INSTALLATION SHALL BE AS SHOWN IN THE VDOT SPECIFICATION SECTIONS 238, 419, AND 705.
2. DETAILS FOR JUNCTION BOX IN EARTH INSTALLATION SHALL BE AS SHOWN IN THE VDOT STANDARD DRAWING "JB-S1,S2,S3". SPECIFICATIONS FOR JUNCTION BOX IN EARTH INSTALLATION SHALL BE AS SHOWN IN THE VDOT SPECIFICATION SECTIONS 238, 419, AND 705.
3. DETAILS FOR ELECTRICAL CONDUIT AND WIRING INSTALLATION SHALL BE AS SHOWN IN ON THE VDOT STANDARD DRAWING "ECI-1". SPECIFICATIONS FOR ELECTRICAL CONDUIT AND WIRING INSTALLATION SHALL BE AS SHOWN IN THE VDOT SPECIFICATION SECTIONS 238, 419, AND 705.
4. LABOR AND MATERIALS FOR THIS WORK SHALL BE INCLUSIVE TO THE PEDESTRIAN BRIDGE RAILING BID PRICE. SEE DRAWING 23 OF 30 "BRIDGE CONDUIT SYSTEM".
5. LABOR AND MATERIALS FOR THIS WORK SHALL BE INCLUSIVE TO THE PEDESTRIAN BRIDGE PER EACH PAY ITEM.
6. LABOR AND MATERIALS FOR THIS WORK SHALL BE INCLUSIVE TO THE ROADWAY BRIDGE RAILING BID PRICE. SEE DRAWING 32 OF 56 "BRIDGE CONDUIT SYSTEM".
7. LABOR AND MATERIALS FOR THIS WORK SHALL BE INCLUSIVE TO THE ROADWAY BRIDGE PER EACH PAY ITEM.

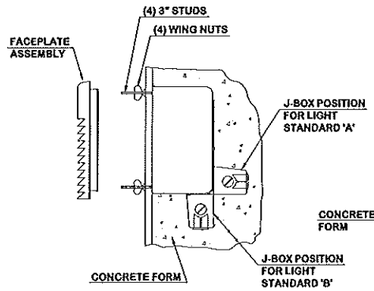


FIG. 1

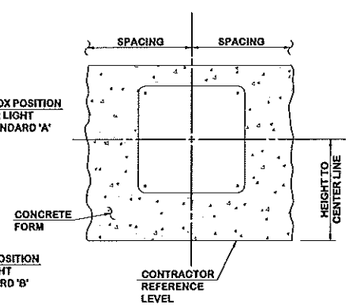


FIG. 2

LIGHT FIXTURE "B" INSTALLATION INSTRUCTIONS - IN CONCRETE

N.T.S.

NOTES:

1. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF LIGHT FIXTURE HOUSING AND J-BOX SUCH THAT FACEPLATE ASSEMBLY FITS TIGHT AGAINST VENEER OR CONCRETE FINISH. FINAL INSTALLATION SHALL BE WATERTIGHT.
2. TYPE "A" FIXTURE SHALL BE INSTALLED IN STONE VENEER FINISH. SEE ROADWAY BRIDGE CONSTRUCTION DRAWING 32 OF 56. CONTRACTOR SHALL COORDINATE WITH LIGHT FIXTURE SHOP DRAWING DIMENSIONS AND WITH ALL OTHER TRADES SUCH THAT INSTALLATION IS INSTALLED FLUSH AND WATERTIGHT.

COMMONWEALTH OF VIRGINIA
1-4-13
GARY HAMILTON LOTT
Lic. No. 037458
PROFESSIONAL ENGINEER

LPA/BAKER
COLUMBIA, SC
ELECTRICAL ENGINEER

No.	Description	Date
	Revisions	

Scale: As shown

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

LIGHTING DETAILS PLAN NO. 1

Designed: EME/RES	Date	Plan No.	Sheet No.
Drawn: EME/MTW	Dec. 2012	291-81	54 of 56
Checked: GHL			

SIGNS

b291 81 054

O:\ELECTRICAL\81 CLIENTS\VDOT\2013 Route 123 - Chain Bridge Road\DWG\SINGLE-PHASE\SIGNS-Details.dwg, 1/4/2013 2:04:21 PM, THAMM, Ron/Charlottesville

STATE	FEDERAL AID		STATE		SHEET
	ROUTE	PROJECT	ROUTE	PROJECT	NO.
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	55

ELECTRICAL SERVICE NOTES

E1. THE MAIN SERVICE DISCONNECT SWITCH (SAFETY SWITCH) SHALL BE 2P/100A/240V/SN/FU/NEMA 3R/HD. PROVIDE TWO (2) - 100 AMP DUAL ELEMENT TIME DELAY FUSES. PROVIDE OWNER WITH TWO SPARE FUSES. DISCONNECT SWITCH SHALL BE PAD LOCKABLE IN THE "ON" AND "OFF" POSITION.

E2. THE MAIN SERVICE CONDUCTORS SHALL 2 #2 AND 1 #2 NEUTRAL IN 1 1/2" CONDUIT. THE GROUND ELECTRODE CONDUCTOR SHALL BE #6 BARE STRANDED COPPER.

E3. TYPE "A" SERVICE SERVICE SHALL BE AS COORDINATED WITH THE SERVING UTILITY BY THE CONTRACTOR.

E4. THE SERVICE GROUND RODS AND SERVICE FLUSH IN-GRADE JUNCTION BOXES SHALL BE INCLUSIVE TO THE ELECTRICAL SERVICE INSTALLATION PAY ITEM.

E5. PROVIDE 100 AMP, 120/240V, 1 ϕ, 3W, 60 HZ SERVICE.

E6. WOOD SERVICE POLE SHALL MEET THE REQUIREMENTS OF THE SERVING UTILITY COMPANY.

SE-8

NOTES:

THIS STANDARD IS APPLICABLE FOR ALL ELECTRICAL SERVICES OTHER THAN 480Y/277.

NO OTHER CONDUCTORS SHALL BE RUN IN THE SAME CONDUIT WITH ELECTRICAL SERVICE CABLE.

WHEN 200 AMP OR GREATER SERVICE IS REQUIRED, SERVICE SHALL ENTER METER BASE ACCORDING TO UTILITY COMPANY STANDARD.

LOCAL POWER UTILITY COMPANY WILL INSTALL SERVICE POWER UTILITY CABLE FROM THEIR POWER SOURCE TO THE JUNCTION BOX AND MAKE REQUIRED SPLICES TO THE SERVICE CABLE COILED IN THE JUNCTION BOX.

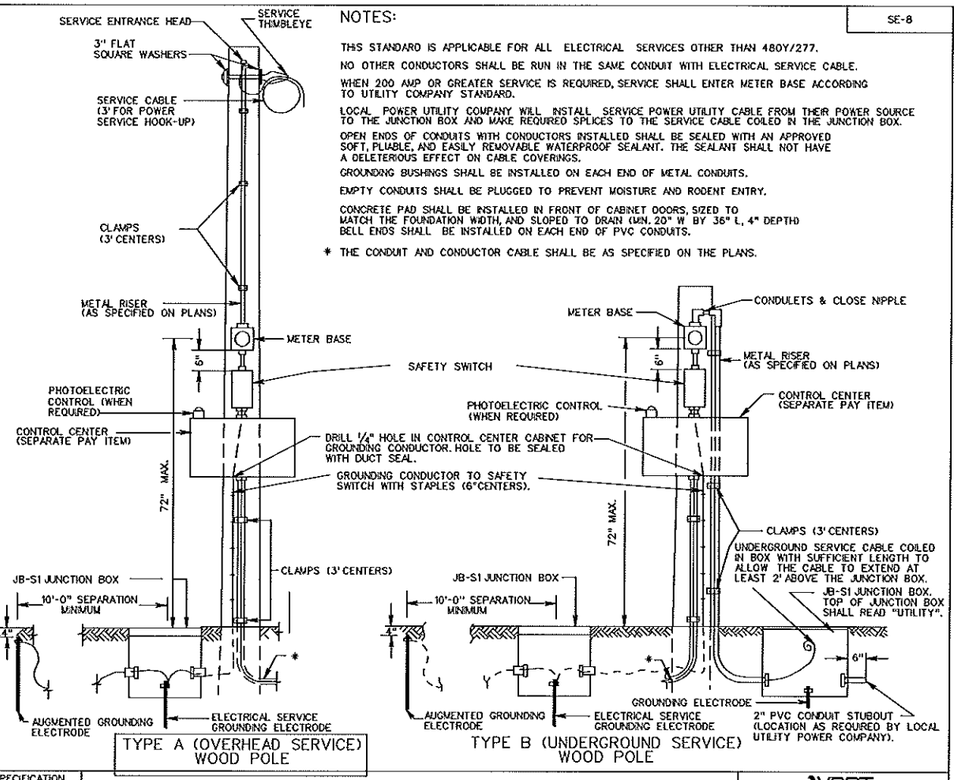
OPEN ENDS OF CONDUITS WITH CONDUCTORS INSTALLED SHALL BE SEALED WITH AN APPROVED SOFT, PLIABLE, AND EASILY REMOVABLE WATERPROOF SEALANT. THE SEALANT SHALL NOT HAVE A DELETERIOUS EFFECT ON CABLE COVERINGS.

GROUNDING BUSHINGS SHALL BE INSTALLED ON EACH END OF METAL CONDUITS.

EMPTY CONDUITS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.

CONCRETE PAD SHALL BE INSTALLED IN FRONT OF CABINET DOORS, SIZED TO MATCH THE FOUNDATION WIDTH, AND SLOPED TO DRAIN (MIN. 20" W BY 36" L, 4" DEPTH) BELL ENDS SHALL BE INSTALLED ON EACH END OF PVC CONDUITS.

* THE CONDUIT AND CONDUCTOR CABLE SHALL BE AS SPECIFIED ON THE PLANS.



SPECIFICATION REFERENCE	ELECTRICAL SERVICE INSTALLATION DETAILS VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS REVISION DATE / SHEET 1 OF 1
700		1312.80

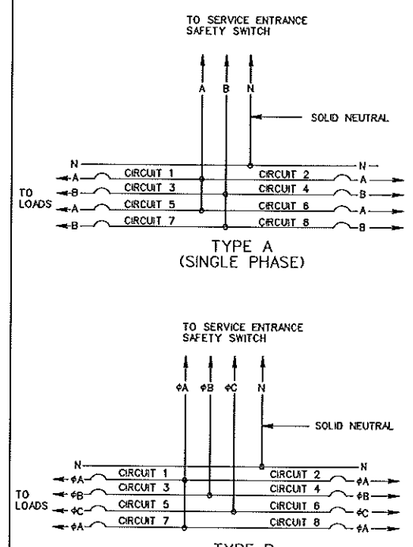
CONTROL CENTER NOTES

C1. BRANCH CIRCUIT BREAKERS SHALL BE 1P/20A/120V

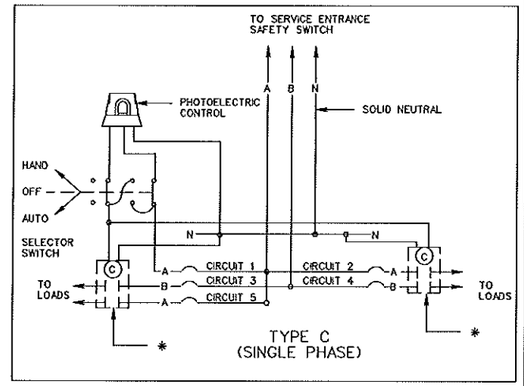
C2. PROVIDE TWO CONTACTORS. CONTACTORS SHALL BE 2P/30A/240V ELECTRICALLY HELD.

C3. PROVIDE TYPE "G" CONTROL CENTER. CONTROL CENTER ENCLOSURE SHALL BE NEMA 3R AND SHALL BE PAD LOCKABLE. PANEL BOARD SHALL BE NEMA 1, 120/240V, 1 ϕ, 3W WITH 100 AMP BUSSES. PANEL SHALL HAVE TWO (2) 1P/20A/120V SPARE CIRCUIT BREAKERS AND FIVE (5) 1P/20A/120V SPACES.

CCW-1

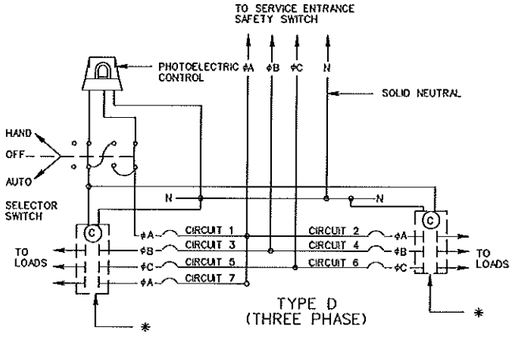


TYPE A
(SINGLE PHASE)



TYPE C
(SINGLE PHASE)

TYPE B
(THREE PHASE)



TYPE D
(THREE PHASE)

NOTES:

ALL CIRCUIT BREAKERS SHALL BE SINGLE POLE.

VOLTAGE AND AMPERAGE RATINGS OF CONTACTORS AND BREAKERS SHALL BE AS INDICATED ON THE PLANS.

NUMBER OF CIRCUITS SHOWN ARE TYPICAL. EXACT NUMBER REQUIRED SHALL BE AS INDICATED ON THE PLANS.

* CONTACTORS SHALL BE 2 POLES FOR SINGLE PHASE AND 3 POLES FOR THREE PHASE SERVICES. NUMBER OF CONTACTORS SHALL BE AS REQUIRED TO HANDLE THE NUMBER OF CIRCUITS ACTUALLY BEING UTILIZED.

VDOT ROAD AND BRIDGE STANDARDS	CONTROL CENTER WIRING DETAILS VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 4 / REVISION DATE 1314.10		700 705

SIGNS

b29181055

COMMONWEALTH OF VIRGINIA
1-4-13
GARY HAMILTON LOTT
Lic. No. 037458
PROFESSIONAL ENGINEER

LPA/BAKER
COLUMBIA, SC
ELECTRICAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

LIGHTING DETAILS PLAN NO. 2

Designed: FME/RES
Drawn: FME/MTW
Checked: GHL

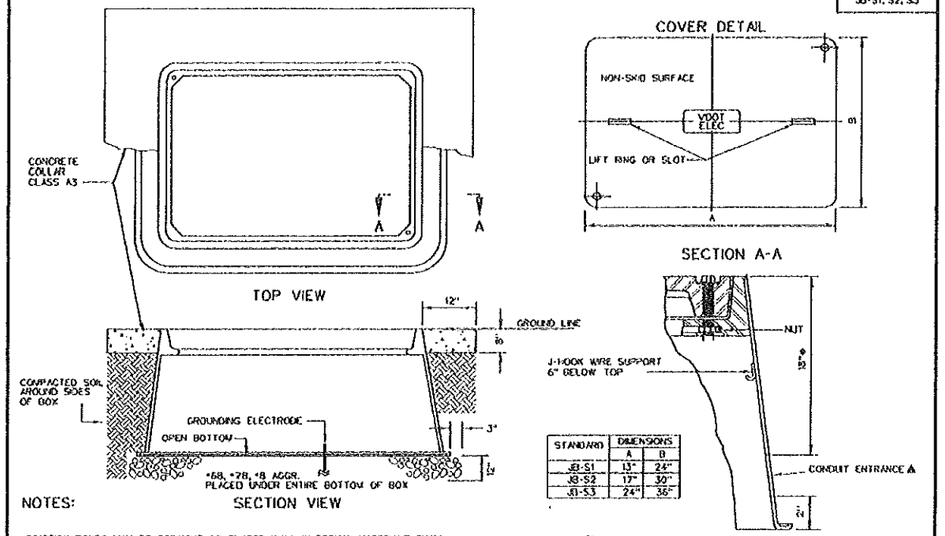
Date	Plan No.	Sheet No.
Dec. 2012	291-81	55 of 56

Scale: As shown

Q:\ELECTRICAL\01 CLIENTS\VDOT\2010 Route 123 - Chain Bridge Road\DWG\SINGLE-PHASE\SIGN-Details.dwg, 1/4/2013 2:05:07 PM, TWhite, PDF-Monitored.pc3

STATE	FEDERAL AID		STATE		SHEET
	ROUTE	PROJECT	ROUTE	PROJECT	NO.
VA.	—	RSTP-5401 (944)	123	0123-151-139, B604	56

JD-S1, S2, S3



STANDARD	DIMENSIONS	
	A	B
JB-S1	13"	24"
JB-S2	17"	30"
JB-S3	24"	36"

NOTES:

JUNCTION BOXES MAY BE STRAIGHT OR FLARED WALL IN DESIGN. MATERIALS SHALL CONFORM TO SECTION 238 OF THE ROAD & BRIDGE SPECIFICATIONS.

BELL ENDS SHALL BE INSTALLED ON THE ENDS OF PVC CONDUITS

GROUNDING BUSHINGS SHALL BE INSTALLED ON THE ENDS OF METAL CONDUITS.

BELL ENDS AND BUSHINGS SHALL BE PLUGGED TO PREVENT MOISTURE AND RODENT ENTRY.

*DEPTH OF CONDUIT ENTRANCE FOR USE OF MAGNETIC DETECTORS SHALL BE IN ACCORDANCE WITH STANDARD TD-2.

CONDUIT ENTRANCES SHALL BE LOCATED AS SHOWN ON THE PLANS.

THE COVER SHALL HAVE A NON-SKID SURFACE WITH LETTERS CAST IN THE DEPRESSION ON TOP, THE LETTERS "VDOT ELEC", "VDOT TRAF", "VDOT COMM" OR UTILITY AS APPLICABLE ARE TO BE 1" WIDE. COVERS USED FOR JUNCTION BOXES INSTALLED WITHIN MUNICIPALITIES AND NOT MAINTAINED BY VDOT SHALL NOT REQUIRE THE VDOT REFERENCE.

ALL JUNCTION BOXES SHALL BE INSTALLED WITH A GROUNDING ELECTRODE

TWO RECESSED ⅝" S.S. HEX HEAD BOLTS ARE REQUIRED FOR EACH COVER.

▲ A MINIMUM 2" DIAMETER CONDUIT ENTRANCE IS REQUIRED, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

J-HOOK WIRE SUPPORTS SHALL BE SECURELY ATTACHED TO THE JUNCTION BOX WITH A BOLT AND NUT WITH A NEOPRENE WASHER OR AN EXPANSION FITTING.

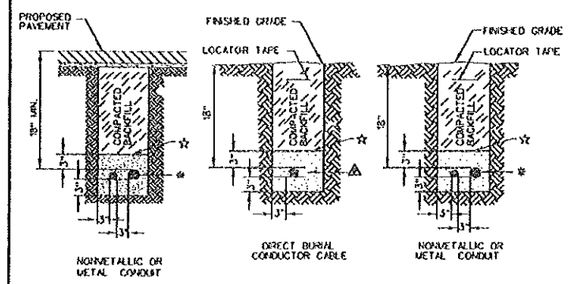
CONDUITS SHALL EXTEND 2" TO 3" MAX. INTO THE INSIDE WALL OF THE JUNCTION BOX.

THE JUNCTION BOX MAY BE A TWO PIECE DESIGN WITH THE TOP SECTION NO LESS THAN 17" IN DEPTH.

VOIDS RESULTING FROM ENTRANCE OF CONDUITS INTO JUNCTION BOXES SHALL BE COMPLETELY FILLED WITH AN APPROVED MATERIAL.

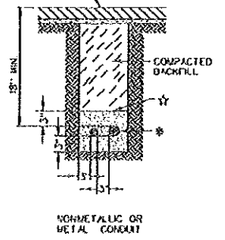
SPECIFICATION REFERENCE	JUNCTION BOX FOR NON-DELIBERATE TRAFFIC USE	VDOT ROAD AND BRIDGE STANDARDS
700 238	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE 6-15-09 · SHEET 1 OF 1 · 1317.20

EC1-1



NON - PAVEMENT AND PROPOSED PAVEMENT AREA INSTALLATION

EC1-2



EXISTING PAVEMENT AREA INSTALLATION

NOTES:

CONTRACTOR SHALL INSTALL A 4" MINIMUM TO 6" MAXIMUM WIDE RED PLASTIC LOCATOR TAPE 6" TO 8" BELOW FINISHED GRADE AND DIRECTLY ABOVE BURIED CONDUIT OR CONDUCTOR CABLES, EXCEPT UNDER PAVEMENT.

CONDUIT INSTALLED UNDER EXISTING OR PROPOSED ROADWAYS FOR DIRECT BURIED CABLES SHALL EXTEND 24" BEYOND THE PAVED SURFACE AND/OR SIDEWALK.

WHERE CONDUIT FOR POWER AND CONDUIT FOR COMMUNICATION ARE TO BE INSTALLED IN CLOSE PROXIMITY TO EACH OTHER, CONDUITS SHALL BE PLACED PARALLEL IN A COMMON TRENCH WITH NO LESS THAN 6" OF SEPARATION SEPARATION BETWEEN CONDUIT SYSTEMS.

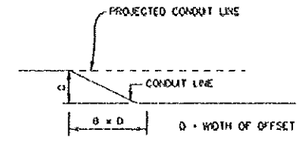
☆ BACKFILL MATERIAL BELOW THIS LEVEL SHALL BE SANDY FILL (FREE OF ANY STONES, CINDERS, WOOD, ROOTS, DEBRIS, ETC.)

ONE OR MORE CONDUITS AS REQUIRED.

△ ONE OR MORE CONDUCTOR CABLES AS REQUIRED.

OFFSETTING OF CONDUIT MAY BE USED FOR TIEING INTO EXISTING CONDUIT SYSTEMS OR BYPASSING OBSTRUCTIONS AS DIRECTED BY THE ENGINEER.

WHEN OFFSETTING CONDUIT TO BYPASS AN OBSTRUCTION, THE CONDUIT SHALL MAINTAIN A MINIMUM CLEARANCE OF 12" FROM THE CLOSEST POINT OF THE OBSTRUCTION.



METHOD OF OFFSETTING CONDUIT

VDOT ROAD AND BRIDGE STANDARDS	ELECTRICAL CONDUIT AND CONDUCTOR CABLE UNDERGROUND INSTALLATION	SPECIFICATION REFERENCE
SHEET 1 OF 1 · REVISION DATE 06-15-2009 · 1318.10	VIRGINIA DEPARTMENT OF TRANSPORTATION	700

COMMONWEALTH OF VIRGINIA
1-4-13
GARY HAMILTON LOTT
Lic. No. 037458
PROFESSIONAL ENGINEER

LPA/BAKER
COLUMBIA, SC
ELECTRICAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

LIGHTING DETAILS PLAN NO. 3

Designed: EME/RJS · Drawn: EME/MJW · Checked: GHL · Date: Dec. 2012 · Plan No. 291-81 · Sheet No. 56 of 56

Scale: As shown