M.B. ____, PG. 841

CITY OF ROANOKE:

Edward R. Tucker — May 10, 1989
AGENT, ROANOKE CITY PLANNING COMMISSION — DATE

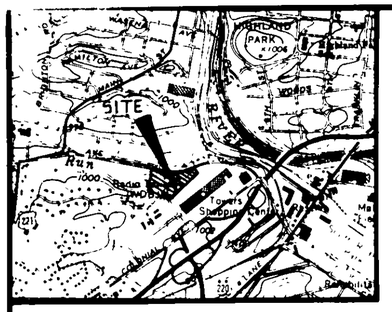
MAY 10 1989
CITY ENGINEER, ROANOKE, VIRGINIA — DATE

PLAT OF SURVEY OF THE PROPERTY OF TOWERS ASSOCIATES LIMITED PARTNERSHIP

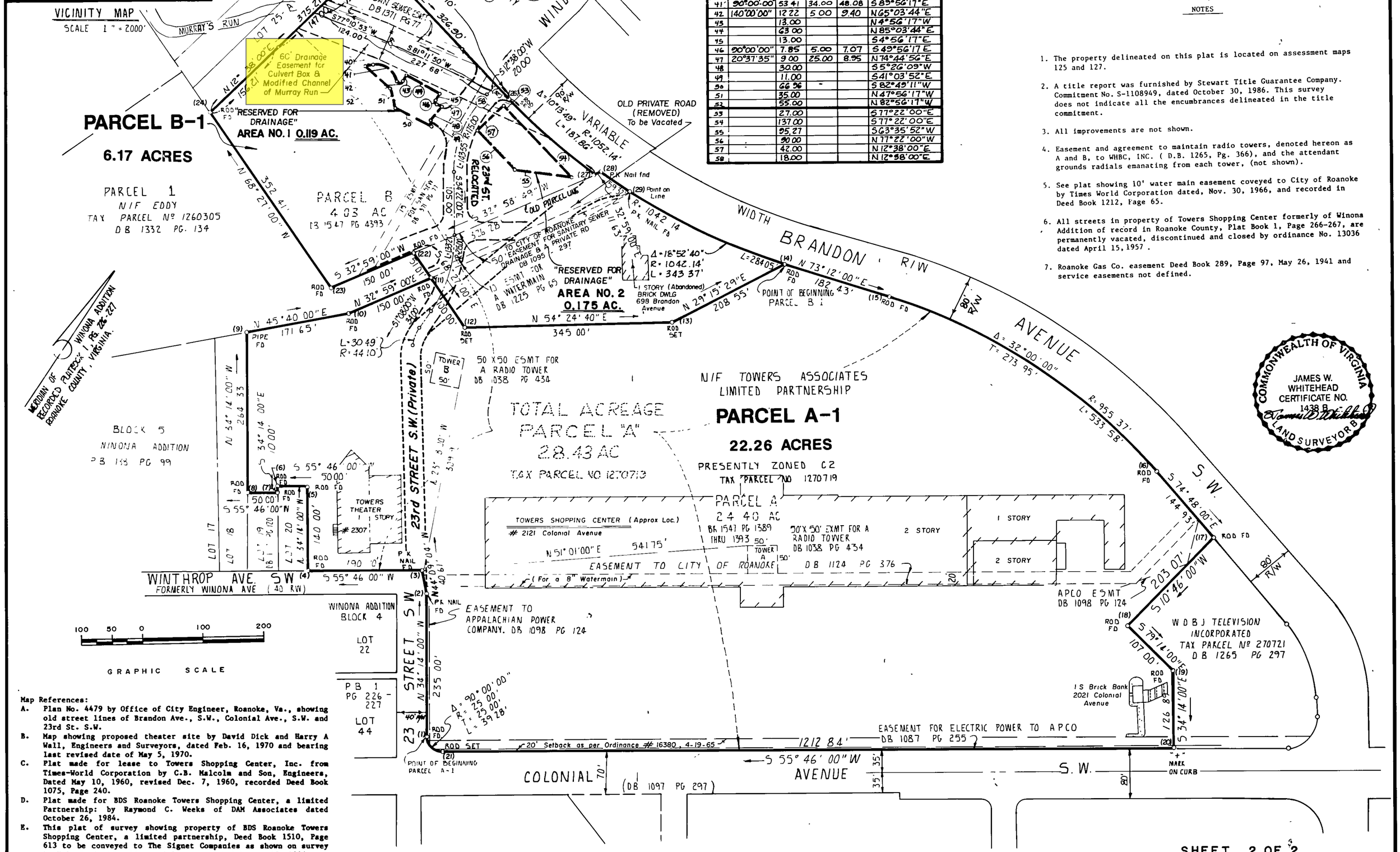
SHOWING THE SUBDIVISION OF PARCEL A, BEING A 28.43 ACRE TRACT OF LAND. CREATING HEREON NEW TRACT A-1 (22.26 AC.) AND B-1 (6.17 AC.)

CITY OF ROANOKE — VIRGINIA

FEB.2,1989



VICINITY MAP
SCALE 1" = 2000'



NO.	DELTA	(LENGTH) (ARC)	R	CH.	(BEARING) (CH. BEARING)
40		13.00			N45°03'44"E
41	90°00'00"	53.41	34.00	48.08	S85°56'17"E
42	140°00'00"	12.22	5.00	9.40	N65°03'44"E
43		13.00			N4°56'17"W
44		63.00			N85°03'44"E
45		13.00			S4°56'17"E
46	90°00'00"	7.85	5.00	7.07	S49°56'17"E
47	20°37'35"	9.00	25.00	8.95	N74°44'56"E
48		30.00			S5°26'09"W
49		11.00			S41°03'52"E
50		66.96	-		S82°49'11"W
51		35.00			N47°56'17"W
52		55.00			N82°56'17"W
53		27.00			S77°22'00"E
54		137.00			S77°22'00"E
55		95.27			S63°35'52"W
56		90.00			N77°22'00"W
57		42.00			N12°38'00"E
58		18.00			N12°58'00"E

NOTES

1. The property delineated on this plat is located on assessment maps 125 and 127.
2. A title report was furnished by Stewart Title Guarantee Company. Commitment No. S-1108949, dated October 30, 1986. This survey does not indicate all the encumbrances delineated in the title commitment.
3. All improvements are not shown.
4. Easement and agreement to maintain radio towers, denoted hereon as A and B, to WHBC, INC. (D.B. 1265, Pg. 366), and the attendant grounds radials emanating from each tower, (not shown).
5. See plat showing 10' water main easement coveyed to City of Roanoke by Times World Corporation dated, Nov. 30, 1966, and recorded in Deed Book 1212, Page 65.
6. All streets in property of Towers Shopping Center formerly of Winona Addition of record in Roanoke County, Plat Book 1, Page 266-267, are permanently vacated, discontinued and closed by ordinance No. 13036 dated April 15, 1957 .
7. Roanoke Gas Co. easement Deed Book 289, Page 97, May 26, 1941 and service easements not defined.

COMMONWEALTH OF VIRGINIA
JAMES W. WHITEHEAD
CERTIFICATE NO. 1438 B
LAND SURVEYOR B

Map References:

A. Plan No. 4479 by Office of City Engineer, Roanoke, Va., showing old street lines of Brandon Ave., S.W., Colonial Ave., S.W. and 23rd St. S.W.
B. Map showing proposed theater site by David Dick and Harry A Wall, Engineers and Surveyors, dated Feb. 16, 1970 and bearing last revised date of May 5, 1970.
C. Plat made for lease to Towers Shopping Center, Inc. from Times-World Corporation by C.B. Malcolm and Son, Engineers, Dated May 10, 1960, revised Dec. 7, 1960, recorded Deed Book 1075, Page 240.
D. Plat made for BDS Roanoke Towers Shopping Center, a limited Partnership: by Raymond C. Weeks of DAM Associates dated October 26, 1984.
E. This plat of survey showing property of BDS Roanoke Towers Shopping Center, a limited partnership, Deed Book 1510, Page 613 to be conveyed to The Signet Companies as shown on survey by Kyle D. Austin, Licensed Surveyor dated August 15, 1986.

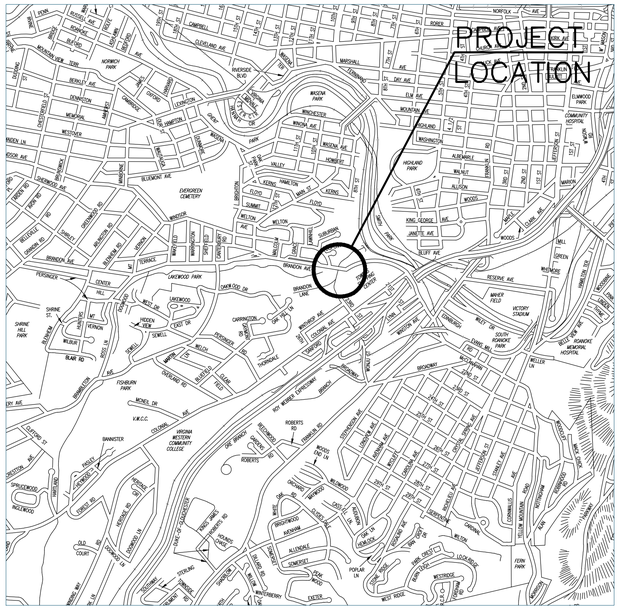
SHEET 2 OF 2

M. B. 1, PG. 841

REVISED BY: E. S. FAND 12-19-88 2-2-89

RP#144

PROJECT LOCATION MAP



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COMMISSION NUMBER: 3430F

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6/8/16
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COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

PROJECT NAME

BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION
PHASE 1 - PRECAST SUPERSTRUCTURE REPLACEMENT
PHASE 2 - UPSTREAM CAST-IN-PLACE CULVERT EXTENSION

CITY PLAN NUMBER: 6819

REVISION BY	DESCRIPTION:	DATE

APPROVED FOR CONSTRUCTION

CITY ENGINEER	DATE
DIRECTOR OF PUBLIC WORKS	DATE
ASSISTANT CITY MANAGER FOR OPERATIONS	DATE

TAX PARCEL NUMBER: 1250928

SHEET NUMBER: G-1 OF 18

BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

GENERAL NOTES:

WIDTH: 34'–7¾", EDGE TO EDGE OF SLAB
SPAN LAYOUT: 30'–0" SIMPLE SPAN PRECAST CONCRETE SLABS
CAPACITY: HL–93 LOADING
DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, 2012; AND VDOT MODIFICATIONS
STANDARDS: VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS, 2008

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROJECTION MANUAL, AUGUST 2011, AND LATEST REVISIONS. THIS PROJECT IS ALSO TO BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ROANOKE SPECIFICATIONS, THESE PLANS, AND THE VDOT ROAD AND BRIDGE SPECIFICATIONS DATED 2007, INCLUDING SPECIAL PROVISIONS.

THE CONTRACTOR SHALL NOTIFY THE CITY'S PROJECT MANAGER 24 HOURS BEFORE COMMENCING CONSTRUCTION.

THE PLAN SET IS INCOMPLETE UNLESS ACCOMPANIED BY THE CITY OF ROANOKE PROJECT MANUAL. LIKEWISE, THE PROJECT MANUAL IS INCOMPLETE UNLESS ACCOMPANIED BY THE PLANS.

DESIGN LOADING INCLUDES 10 PSF ALLOWANCE FOR CONSTRUCTION TOLERANCES AND CONSTRUCTION METHODS.

DESIGN LOADING INCLUDES 15 PSF ALLOWANCE FOR FUTURE WEARING SURFACE.

ALL REINFORCING STEEL SHALL BE DEFORMED AND SHALL CONFORM TO ASTM A615 GRADE 60 EXCEPT FOR REINFORCING STEELS NOTED AS CRR (CORROSION RESISTANT REINFORCEMENT) WHICH SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS NOTED IN THE SPECIAL PROVISIONS. 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 THE THREE CLASSES 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 CLASS(ES) OF CRR STEEL(S) REQUIRED ON THIS PROJECT IS/ARE NOTED ON PLAN SHEETS AND IN THE REINFORCING STEEL SCHEDULE. CORROSION RESISTANT REINFORCING STEEL, CLASS II OR CLASS III, MAY BE SUBSTITUTED FOR CLASS I. CORROSION RESISTANT REINFORCING STEEL, CLASS III, MAY BE SUBSTITUTED FOR CLASS II.

DECK SHALL BE WATERPROOFED IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. 405 AND SEC. 416 OF THE VDOT ROAD AND BRIDGE SPECIFICAITONS.

ALL PAVING SHALL BE PERFORMED IN SUCH A MANNER AS TO ELIMINATE FALSE GUTTERS AND/OR PONDED WATER.

ALL PAVEMENT MARKINGS AND TRAFFIC FLOW ARROWS SHOWN ON THE ROADWAY CONSTRUCTION PLANS ARE SCHEMATIC ONLY. THE ACTUAL LOCATION AND APPLICATION OF PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH SECTION 704 OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS, MUTCD 2009 EDITION, OR AS DIRECTED BY THE CITY OF ROANOKE.

CONSTRUCTION SURVEYING IS TO BE INCLUDED IN CONSTRUCTION STAKEOUT.

CONTRACTOR SHALL RE–SET ALL SPEED LIMIT SIGNS, TRAFFIC WARNING SIGNALS, MAIL BOXES, NEWSPAPER BOXES, AND ANY OTHER INCIDENTAL ITEMS AS REQUIRED.

CONTRACTOR SHALL TOPSOIL, MULCH AND SEED ALL DISTURBED AREAS NOT PAVED IN ACCORDANCE WITH THE SPECIFICATIONS.

CONTRACTOR SHALL SAWCUT ALL EXISTING PAVEMENT ABUTTING NEW CONSTRUCTION.

THE COST OF REMOVAL OF ALL EXISTING ITEMS LOCATED IN THE WORK AREA INCLUDING, BUT NOT LIMITED TO THE FOLLOWING, SHALL BE INCLUDED IN THE PRICE BID FOR DEMOLITION: SIDEWALK, CURB AND GUTTER, SMALL FOOTINGS, BLOCK AND MASONRY ITEMS, AND DRAINAGE STRUCTURES.

THE TEMPORARY EROSION AND SILTATION CONTROL MEASURES SHOWN ON THE PLANS ARE INTENDED TO PROVIDE A GENERAL PLAN FOR CONTROLLING EROSION AND SILTATION WITHIN THE PROJECT LIMITS. THE CONTRACTOR, IN CONJUNCTION WITH THE CITY'S PROJECT MANAGER, SHALL ADJUST THE LOCATION, QUANTITY AND TYPE OF EROSION AND SILTATION CONTROLS REQUIRED BASED ON THE CONTRACTOR'S SEQUENCE OF CONSTRUCTION AND ACTUAL FIELD CONDITIONS. ALL PERIMETER EROSION AND SILTATION CONTROLS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

UTILITY RELOCATIONS, ADJUSTMENTS, AND COORDINATION WITH UTILITY OWNERS IS REQUIRED.

CONTRACTOR SHALL CONTACT "MISS UTILITY" (1–800–552–7001) AT LEAST 48 HOURS BEFORE BEGINNING LAND DISTURBING ACTIVITIES TO OBTAIN FIELD UTILITY LOCATIONS. CERTAIN UTILITIES WITHIN THE VICINITY OF THE PROJECT AREA ARE SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION OF ALL UTILITIES AT HIS EXPENSE, INCLUDING WATER LATERALS, SANITARY SEWER LATERALS, GAS LATERALS ETC. AND LIGHTING SYSTEMS BEFORE PROCEEDING WITH WORK.

ALL UTILITIES, INCLUDING BUT NOT LIMITED TO GAS, STORM SEWER, OVERHEAD UTILITIES, ETC., WHICH ARE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED BY THE RESPECTIVE UTILITY COMPANY(S) AT THE EXPENSE OF THE CONTRACTOR.

ACCESS TO PRIVATE ENTRANCES SHALL BE MAINTAINED AT ALL TIMES.

THE EXISTING STRUCTURE IS DESIGNATED A TYPE B STRUCTURE IN ACCORDANCE WITH SEC. 411 OF THE VDOT ROAD AND BRIDGE SPECIFICAITONS.

BRIDGE NO. OF EXISTING BRIDGE, OCCUPYING THE 2ND, 3RD, AND 4TH NORTHERNMOST LANES OF BRANDON AVENUE, IS 128–8071 (FED. NO. 23543).
PLAN NO. OF EXISTING BRIDGE IS (4479–A).

B.M.: RAILROAD SPIKE SET IN AEP POWER POLE #227–7120 ELEVATION = 937.65'

CITY OF ROANOKE CONSTRUCTION NOTES:

NOTICE: ALL LANDOWNERS, DEVELOPERS AND CONTRACTORS

FAILURE TO COMPLY WITH THE CONSTRUCTION PROCEDURE REQUIREMENTS LISTED BELOW MAY RESULT IN THE COSTLY REMOVAL OF STRUCTURES, TIME DELAYS OR THE ISSUANCE OF A STOP WORK ORDER.

CONSTRUCTION PROCEDURE REQUIREMENTS

RIGHT–OF–WAY EXCAVATION PERMIT: PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION OR CONSTRUCTION WITHIN THE PUBLIC RIGHT–OF–WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT–OF–WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.

LAND DISTURBANCE PERMIT: AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.

PLANS AND PERMITS: A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPER CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.

LOCATION OF UTILITIES: THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

CONSTRUCTION ENTRANCE: THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION OF CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.

STREETS TO REMAIN CLEAN: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST, AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.

BARRICADES/DITCHES: THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPER AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.

PAVEMENT REPLACEMENT: THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE.

APPROVED PLANS/CONSTRUCTION CHANGES: ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.

FINAL ACCEPTANCE/CITY: THE OWNER OR DEVELOPER SHALL FURNISH THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FIELD SURVEYED FINAL CORRECT SET OF AS–BUILT PLANS OF THE NEWLY CONSTRUCTED STORM DRAIN AND/OR STORMWATER MANAGEMENT FACILITIES PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS–BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, US SURVEY FEET, DATUM NA 83, IN THE FORM OF 1 PAPER COPY AND 1 DIGITAL AUTOCAD FILE.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date

Issue Date: 08–JUNE–2016
Drawn By: MLF
Designed By: SRA
Checked By: CMT
Date: 6/8/16

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION
GENERAL NOTES AND CITY OF ROANOKE CONSTRUCTION NOTES
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: N/A
Commission Number: 3430F
Sheet No.: G-2

MAINTENANCE OF TRAFFIC NOTES AND DETAILS

1. ALL SIGNS, SIGN LAYOUT, TEMPORARY PAVEMENT MARKINGS, WORK ZONES AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITIONS OF THE VIRGINIA WORK AREA PROTECTION MANUAL, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE VIRGINIA SUPPLEMENT TO THE MUTCD, VDOT ROAD AND BRIDGE STANDARDS AND VDOT ROAD AND BRIDGE SPECIFICATIONS.
2. THE CONTRACTOR IS TO MAINTAIN TWO WAY TRAFFIC AND ACCESS TO ALL PROPERTIES DURING CONSTRUCTION OF THE PROJECT UNLESS OTHERWISE APPROVED BY THE CITY OF ROANOKE. FOR CONNECTIONS AND ENTRANCES, MINIMUM WIDTH SHALL BE EITHER NO LESS THAN EXISTING CONDITIONS OR 11'-0" MIN UNLESS OTHERWISE SHOWN ON PLANS.
3. THE CONTRACTOR SHALL SUBMIT A DETAILED MAINTENANCE OF TRAFFIC/SEQUENCE OF CONSTRUCTION PLAN FOR THIS PROJECT FOR REVIEW AND APPROVAL BY THE CITY OF ROANOKE. THE CONTRACTOR SHALL ALLOW A MINIMUM OF A TWO-WEEK REVIEW PERIOD. ANY MAJOR CHANGES IN PHASE OF CONSTRUCTION WILL REQUIRE APPROVAL BY THE CITY PROJECT MANAGER. MINOR ADJUSTMENTS OF THE MAINTENANCE OF TRAFFIC PLAN SHALL BE REVIEWED BY THE CITY PROJECT MANAGER. EMERGENCY VEHICLE ACCESS IS TO BE MAINTAINED AT ALL TIMES FOR LOCAL RESIDENTS AND BUSINESSES.
4. THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF ROANOKE'S PROJECT MANAGER AND FIRE AND RESCUE AS IT RELATES TO ALL ROAD CLOSURES OF ANY NATURE.
5. MAINTAIN TRAFFIC WITH AGGREGATE NO. 25 OR 26 FOR TEMPORARY TIES.
6. EXISTING SURFACE, AGGREGATE BASE, AND SUBBASE MATERIAL WHICH WILL BE DEMOLISHED OR OBLITERATED DURING CONSTRUCTION, AND WHICH IS SUITABLE FOR MAINTENANCE OF TRAFFIC, AS DETERMINED BY THE CITY, SHALL BE SALVAGED AND UTILIZED FOR MAINTENANCE OF TRAFFIC PRIOR TO THE USE OF COMMERCIAL MATERIAL. THE REMOVAL AND SALVAGING OF EXISTING SURFACES AND AGGREGATE BASE MATERIAL WILL BE INCLUDED IN THE LUMP SUM COST OF EXCAVATION.
7. THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE TO PREVENT PONDING OF WATER ON THE ROADWAY AND ADJACENT PROPERTIES. ANY TEMPORARY DRAINAGE STRUCTURES INSTALLED ON THE PROJECT ARE THE CONTRACTOR'S RESPONSIBILITY. THE COST OF SUCH STRUCTURES IS TO BE INCLUDED IN THE LUMP SUM COST OF EROSION AND SEDIMENT CONTROL.
8. ONCE CONSTRUCTION IS STARTED ON A PHASE, THE WORK WILL BE COMPLETED ON THAT PHASE BEFORE PROCEEDING TO THE NEXT PHASE, OR AS DIRECTED BY THE CITY OF ROANOKE.
9. THE CONTRACTOR SHALL INSTALL TEMPORARY PAVEMENT PATCHES OVER UTILITY AND DRAINAGE PIPE TRENCHES IN PAVED ROADWAY AND/OR SHOULDER AREAS TO MAINTAIN A SMOOTH, FIRM TRAVEL SURFACE. THE TEMPORARY SURFACE PATCH SHALL CONSIST OF ASPHALT CONCRETE BASE COURSE TYPE BM-25.0A INSTALLED AT A MINIMUM 4" THICKNESS.
10. ALL UTILITY AND STORM DRAINAGE ASPHALT PATCHES SHALL BE PLACED PRIOR TO THE END OF THE WORK WEEK (FRIDAY).
11. TEMPORARY SHORING WORK WILL NOT BE MEASURED FOR SEPARATE PAYMENT BUT WILL BE INCLUDED IN THE LUMP SUM PRICE FOR REGULAR EXCAVATION.
12. AT THE END OF EACH WORK DAY, ALL AREAS IMMEDIATELY ADJACENT TO TRAFFIC THAT ARE EXCAVATED BELOW EXISTING SURFACE AND NOT PROTECTED BY CONCRETE TRAFFIC SERVICE BARRIER SHALL BE BACKFILLED TO FORM AN APPROXIMATE 3:1 WEDGE AGAINST THE PAVEMENT SURFACE FOR THE SAFETY AND PROTECTION OF VEHICULAR TRAFFIC (SEE "TYP. WEDGE SECTION, THIS SHEET). THE COST OF PLACING AND REMOVING THE WEDGE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTENANCE OF TRAFFIC.
13. THE POSTED SPEED DURING CONSTRUCTION OF THIS PROJECT WILL BE 25 MPH.
14. M.O.T. SHALL BE IN ACCORDANCE WITH TTC-17.1, TTC-20.1, AND TTC-29.1 IN THE LATEST EDITION OF THE VIRGINIA WORK AREA PROTECTION MANUAL.
15. ALL CONSTRUCTION SIGNS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING FURNISHING, INSTALLING, ADJUSTING, MAINTAINING, AND REMOVING SIGNS AND POSTS PER THE PLANS, VDOT SPECIFICATIONS AND STANDARD DETAILS.
16. THE CONTRACTOR MAY WORK FROM 7:00AM TO 5:00PM, MONDAY THROUGH FRIDAY FROM THE COMMENCEMENT OF THE PROJECT TO THE FINAL ACCEPTANCE BY THE CITY, EXCEPT AS STATED IN NOTE 25 BELOW. CONTRACTOR MAY WORK ADDITIONAL HOURS PER DAY AND ADDITIONAL DAYS PER WEEK ONLY AFTER RECEIVING WRITTEN AGREEMENT FROM THE CITY OF ROANOKE'S PROJECT MANAGER. ADDITIONAL COSTS INCURRED BY THE CONTRACTOR FOR THESE HOURS SHALL BE INCIDENTAL TO LUMP SUM COST OF MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION.
17. THE CONTRACTOR SHALL PROVIDE TEMPORARY PAVEMENT MARKINGS AS REQUIRED BY THE PLANS FOR STAGING TRAFFIC.
18. PAINT, LIQUID ASPHALT, OR TAPE WILL NOT BE ALLOWED FOR ERADICATING EXIST PAVEMENT MARKINGS.
19. ALL SURFACE PAVEMENT SHALL BE PLACED IN A CONTINUOUS OPERATION AS A LAST STEP OF PAVEMENT CONSTRUCTION. CLEAN BASE COURSE AND PLACE NO TRACK TACK PRIOR TO PLACEMENT OF SURFACE PAVEMENT
20. DURING SPEED REDUCTIONS, ANY EXISTING CONFLICTING SPEED LIMIT SIGNS SHALL BE COVERED AS SPECIFIED IN 2011 VIRGINIA WORK AREA PROTECTION MANUAL.
21. DURING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL TEMPORARY PAVEMENT WITHIN THE WORK AREA. THE COST OF THIS WORK IS TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTENANCE OF TRAFFIC.
22. ALL EXISTING PAVEMENT MARKINGS AND MARKERS IN CONFLICT WITH CONSTRUCTION PAVEMENT MARKINGS AND MARKERS SHALL BE REMOVED OR COVERED WITH TYPE E BLACK TAPE DURING CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION, REMOVED PAVEMENT MARKINGS AND MARKERS SHALL BE REPLACED. THE COST OF REPLACEMENT OR REMOVAL OF TYPE E BLACK TAPE SHALL BE INCLUDED IN THE LUMP SUM COST OF MAINTENANCE OF TRAFFIC AND WORK AREA PROTECTION.
23. NO TRENCH SHALL BE LEFT OPEN AT THE END OF EACH WORKDAY UNLESS APPROVED BY THE CITY PROJECT MANAGER.
24. CONSTRUCTION PAVEMENT MARKERS SHALL BE INSTALLED AT 20'-0" SPACING IN TRANSITION (LANE DROP) OR LANE SHIFT AREAS, IF REQUIRED. THE COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTENANCE OF TRAFFIC.
25. MODIFICATION OF TRAFFIC CONTROL DEVICES REQUIRED WHEN MOVING FROM ONE STAGE OF CONSTRUCTION TO ANOTHER SHALL BE PERFORMED DURING NIGHT TIME HOURS.

MAINTENANCE OF TRAFFIC AND SEQUENCE OF CONSTRUCTION NARRATIVE:

(REFER TO THE 2011 VIRGINIA WORK AREA PROTECTION MANUAL FOR TEMPORARY TRAFFIC CONTROL (TTC) ITEMS NOTED.)

PHASE 1 PLAN (SHEETS C-3, C-3A, AND C-3B):

PROVIDE M.O.T. ACCORDING TO FIGURE TTC-17.1, INSIDE LANE CLOSURE OPERATION ON A FOUR LANE ROADWAY, AND FIGURE TTC-20.1, LANE CLOSURE OPERATIONS WITH TEMPORARY TRAFFIC BARRIER.

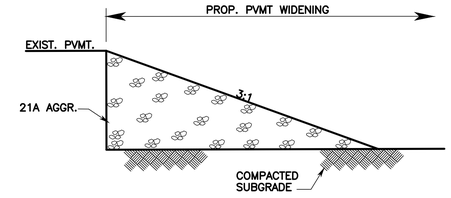
PROVIDE M.O.T. FIGURE TTC-17.1, ON BOTH DIRECTIONS (EAST AND WEST) OF BRANDON AVENUE.

BEGIN AND COMPLETE CONSTRUCTION OF NEW BRIDGE SUPERSTRUCTURE.

PHASE 2 PLAN (SHEET C-4):

PHASE 1 SHALL BE COMPLETED BEFORE STARTING PHASE 2.

PROVIDE M.O.T. ACCORDING TO FIGURE TTC-29.1, TURN LANE CLOSURE OPERATION. PROVIDE M.O.T. FIGURE TTC-29.1 TO CLOSE RIGHT TURN LANE ON BRANDON AVENUE ON TO 23RD. STREET. BEGIN AND COMPLETE CONSTRUCTION OF UPSTREAM BOX CULVERT EXTENSION WITH WINGWALLS IN MURRAY RUN.



TYPICAL WEDGE

NO SCALE

CONTRACTOR SHALL PROVIDE STONE WEDGE AGAINST EXIST. PAVEMENT AFTER EXCAVATION FOR NEW PAVEMENT AND AT THE END OF EACH WORK DAY.

COMMONWEALTH OF VIRGINIA
MICHAEL S. AGEE
Lic. No. 15232
6/8/16
REGISTERED PROFESSIONAL ENGINEER

Revisions	Date

Issue Date: 08-JUNE-2016

Drawn By: WCB

Designed By: RSM

Checked By: MSA

Date: 6/8/16

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

MAINTENANCE OF TRAFFIC NOTES AND DETAILS

CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: AS NOTED

Commission Number: 3430F

Sheet No.: C-1

Typical Traffic Control

Inside Lane Closure Operation on a Four-Lane Roadway

(Figure TTC-17.1)

NOTES

Standard:

1. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.*
4. *All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.*

Standard:

5. **Taper length (L) and channelizing device spacing shall be:**

Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.		

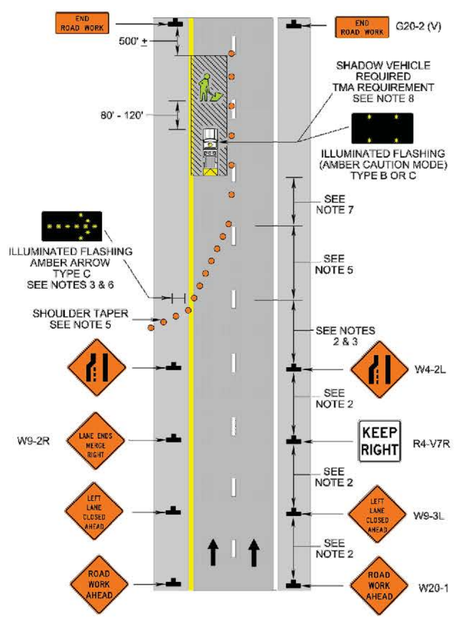
On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

6. **An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).**
7. **The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
8. **A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high intensity amber rotating, flashing, or[1] oscillating light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-mounted attenuator shall be used.**
9. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights but can be used to supplement the amber rotating, flashing, or[1] oscillating lights.**
10. **When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.**

1: Revision 1 – 4/1/2015

Inside Lane Closure Operation on a Four-Lane Roadway

(Figure TTC-17.1)



Typical Traffic Control

Lane Closure Operation with Temporary Traffic Barrier[1]

(Figure TTC-20.1)

NOTES

Guidance:

1. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
2. *SHOULDER CLOSED (W21-5a) signs should be used on Limited-Access Highways where there is no opportunity for disabled vehicles to pull off the roadway (see Figure TTC-6).*
3. *If drivers cannot see a pull-off area beyond the closed shoulder, information regarding the length of the shoulder closure should be provided in feet or miles, as appropriate.*
4. *An emergency pull-off area should be provided per Section 6G.18 and Temporary Traffic Control Figure TTC-8.*

Standard:

5. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**
6. **Group 2 channelizing device spacing shall be at the following:**

Location	Posted Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'

7. **Length of pavement marking transition (L) is equal to Posted Speed (S) times the Width of Transition (W) (Example: 55 mph x 12'=660'), 1000' minimum for Limited Access highways.**
8. **Barrier transition flare rate[1] shall be as follows:**

Speed Limit (mph)	Flare Rate[1]	Speed Limit (mph)	Flare Rate[1]	Speed Limit (mph)	Flare Rate[1]
70	22:1	55	17:1	40	13:1
65	20:1	50	16:1	35	11:1
60	19:1	45	14:1	≤30	10:1

When the barrier transition flare[1] is on a horizontal alignment, the total offset shall be prorated around the curve in lieu of a straight-line flare.

9. **End treatment of a barrier in order of preference:**
   a. **Where guardrail exists, attach to barrier with appropriate fixed object attachment.**
   b. **Where cut slope exists, bury barrier into cut slope and provide for drainage as needed.**
   c. **Extend end of barrier until it is beyond the established clear zone (see Figure 2 on Page A-4 of Appendix A for clear zone values).**
   d. **When barrier end is inside the established clear zone, attenuator service Type I or Type II shall be used. Refer to L&D special design drawings.**
10. **Barrier panels 8 inches in width and 12 inches in height shall be placed on top of the concrete barrier and spaced 80' on centers along the parallel or tangent sections and 40' on centers along the transition or taper sections. Reflectorized surface shall be fluorescent orange prismatic lens sheeting. The light at the beginning of the barrier run and at the breakpoint where the barrier becomes parallel to the roadway shall be a Type B flashing light. Barrier delineators shall be installed along the traffic side of the concrete barrier in-between and at the same spacing as the barrier panels approximately 24 inches up from the roadway surface.**

Guidance:

11. *Eradication of existing pavement markings should be as shown in Figure TTC-55.*

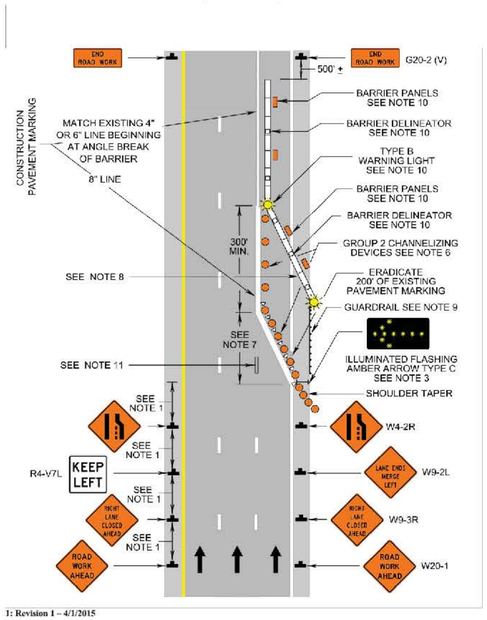
Option:

12. The barrier shown in this typical application is an example of one method that may be used to close a shoulder on a long-term project.

1: Revision 1 – 4/1/2015

Lane Closure Operation with Temporary Traffic Barrier[1]

(Figure TTC-20.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control

Turn Lane Closure Operation

(Figure TTC-29.1)

NOTES

Guidance:

1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:

2. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**
3. **To prevent accidental intrusion into the work area, channelizing device spacing shall not exceed 20' on centers.**

Option:

4. This layout may be used for either right or left turn lane closures.
5. For a high volume of turning movements, additional traffic control devices, such as signs (graphic NO LEFT TURN (R3-2) or LEFT LANE MUST TURN LEFT (R3-7L)), channelizing devices and vehicles may be used

Standard:

6. **Taper Length (L) shall be:**

Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
≤25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
Shoulder Taper = ⅓ L Minimum				

7. **Buffer Space Length shall be:**

Posted Speed Limit (mph)	Distance (Feet)[1]
≤20	115 – 120
25	155 – 165
30	200 – 210
35	250 – 260
40	305 – 325
45	360 – 380
50	425 – 445
55	500 – 530
60	570 – 600
65	645 – 675
70	730 – 760

Guidance:

8. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

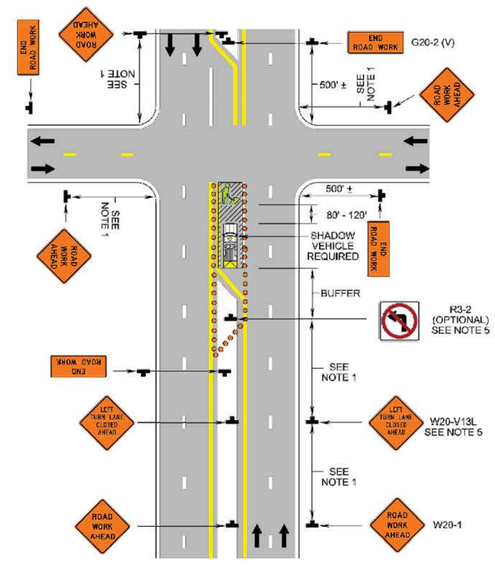
Support:

9. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

1: Revision 1 – 4/1/2015

Turn Lane Closure Operation

(Figure TTC-29.1)



COMMONWEALTH OF VIRGINIA
MICHAEL S. AGEE
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6/8/16
PROFESSIONAL ENGINEER

Revisions	Date

Issue Date: 08–JUNE–2016
Drawn By: WCB
Designed By: RSM
Checked By: MSA
Date: 6/8/16

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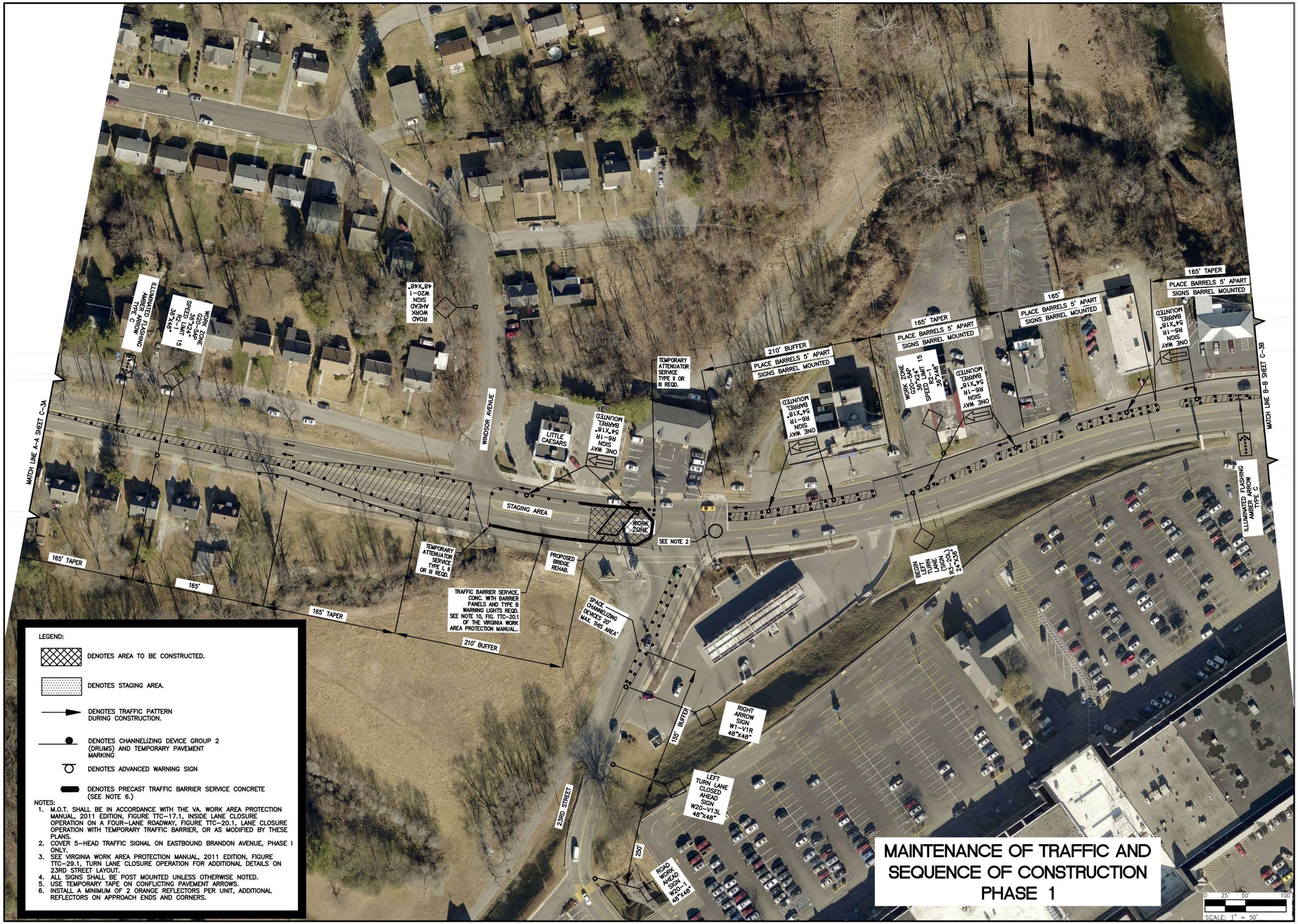
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

MAINTENANCE OF TRAFFIC DETAILS

CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: N/A
Commission Number: 3430F
Sheet No.: C-2



LEGEND:

- DENOTES AREA TO BE CONSTRUCTED.
- DENOTES STAGING AREA.
- DENOTES TRAFFIC PATTERN DURING CONSTRUCTION.
- DENOTES CHANNELIZING DEVICE GROUP 2 (DRUMS) AND TEMPORARY PAVEMENT MARKING
- DENOTES ADVANCED WARNING SIGN
- DENOTES PRECAST TRAFFIC BARRIER SERVICE CONCRETE (SEE NOTE 6.)

NOTES:

1. M.O.T. SHALL BE IN ACCORDANCE WITH THE VA. WORK AREA PROTECTION MANUAL, 2011 EDITION, FIGURE TTC-17.1, INSIDE LANE CLOSURE OPERATION ON A FOUR-LANE ROADWAY, FIGURE TTC-20.1, LANE CLOSURE OPERATION WITH TEMPORARY TRAFFIC BARRIER, OR AS MODIFIED BY THESE PLANS.
2. COVER 5-HEAD TRAFFIC SIGNAL ON EASTBOUND BRANDON AVENUE, PHASE I ONLY.
3. SEE VIRGINIA WORK AREA PROTECTION MANUAL, 2011 EDITION, FIGURE TTC-29.1, TURN LANE CLOSURE OPERATION FOR ADDITIONAL DETAILS ON 23RD STREET LAYOUT.
4. ALL SIGNS SHALL BE POST MOUNTED UNLESS OTHERWISE NOTED.
5. USE TEMPORARY TAPE ON CONFLICTING PAVEMENT ARROWS.
6. INSTALL A MINIMUM OF 2 ORANGE REFLECTORS PER UNIT, ADDITIONAL REFLECTORS ON APPROACH ENDS AND CORNERS.

MAINTENANCE OF TRAFFIC AND SEQUENCE OF CONSTRUCTION PHASE 1

COMMONWEALTH OF VIRGINIA
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6/8/16
PROFESSIONAL ENGINEER

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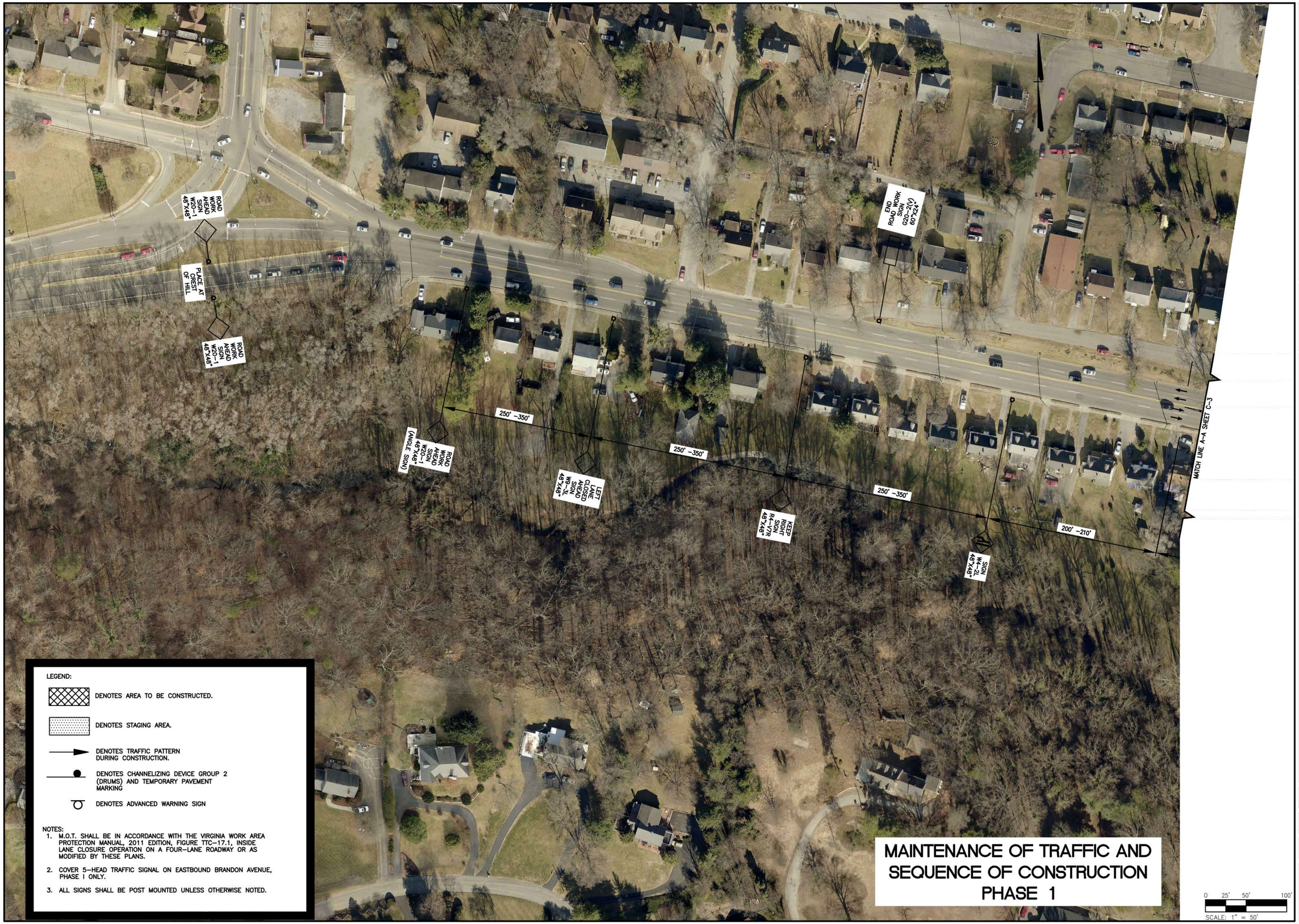
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION
M.O.T. – INSIDE LANE CLOSURE
(PHASE 1)
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: 1" = 50'
Commission Number: 3430F
Sheet No.: C-3



LEGEND:

- DENOTES AREA TO BE CONSTRUCTED.
- DENOTES STAGING AREA.
- DENOTES TRAFFIC PATTERN DURING CONSTRUCTION.
- DENOTES CHANNELIZING DEVICE GROUP 2 (DRUMS) AND TEMPORARY PAVEMENT MARKING
- DENOTES ADVANCED WARNING SIGN

NOTES:

1. M.O.T. SHALL BE IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL, 2011 EDITION, FIGURE TTC-17.1, INSIDE LANE CLOSURE OPERATION ON A FOUR-LANE ROADWAY OR AS MODIFIED BY THESE PLANS.
2. COVER 5-HEAD TRAFFIC SIGNAL ON EASTBOUND BRANDON AVENUE, PHASE I ONLY.
3. ALL SIGNS SHALL BE POST MOUNTED UNLESS OTHERWISE NOTED.

MAINTENANCE OF TRAFFIC AND SEQUENCE OF CONSTRUCTION PHASE 1

COMMONWEALTH OF VIRGINIA
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REGISTERED PROFESSIONAL ENGINEER

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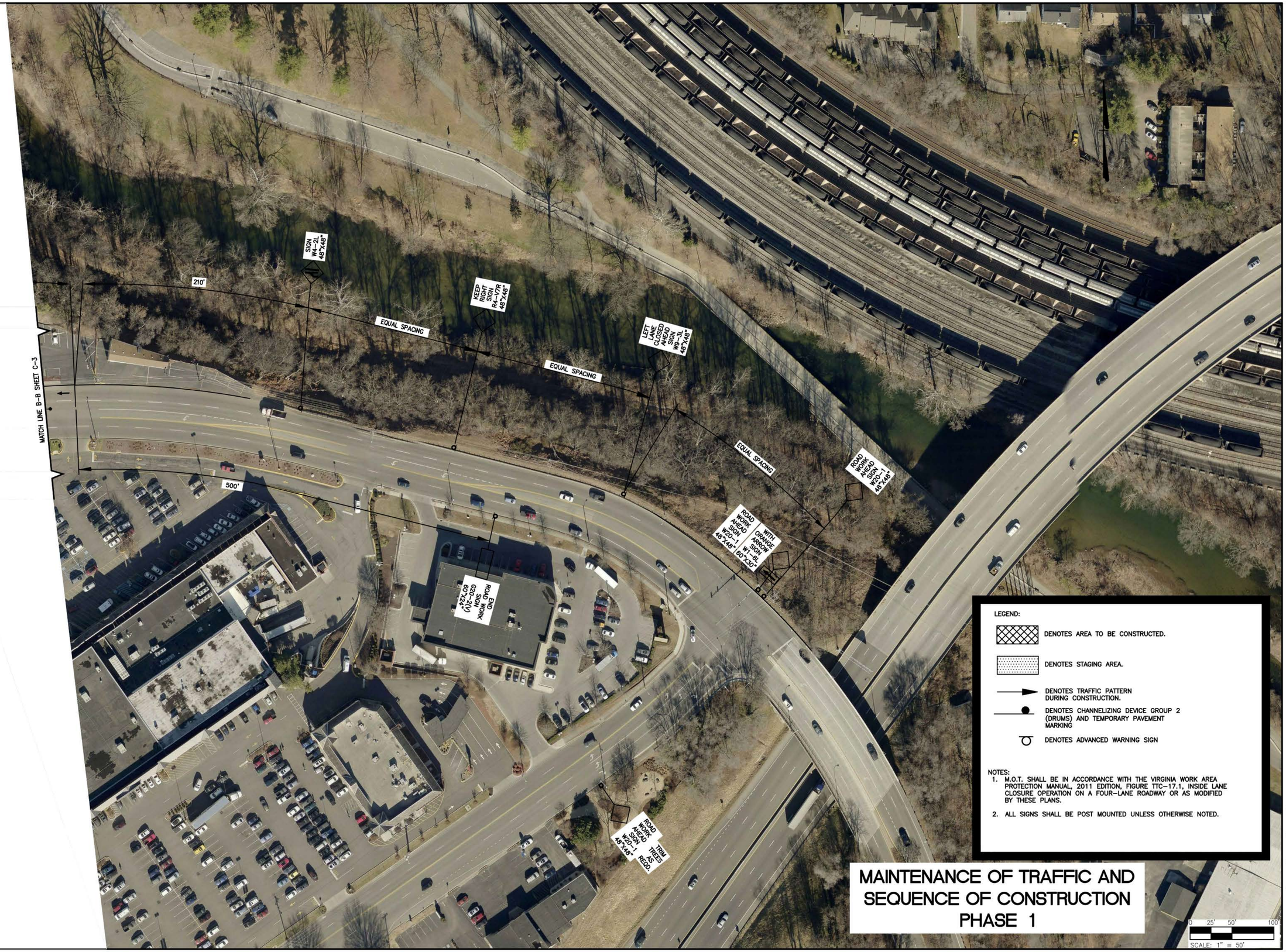
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION
M.O.T. - INSIDE LANE CLOSURE
(PHASE 1)
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: 1" = 50'
Commission Number: 3430F
Sheet No.: C-3A



MAINTENANCE OF TRAFFIC AND SEQUENCE OF CONSTRUCTION PHASE 1

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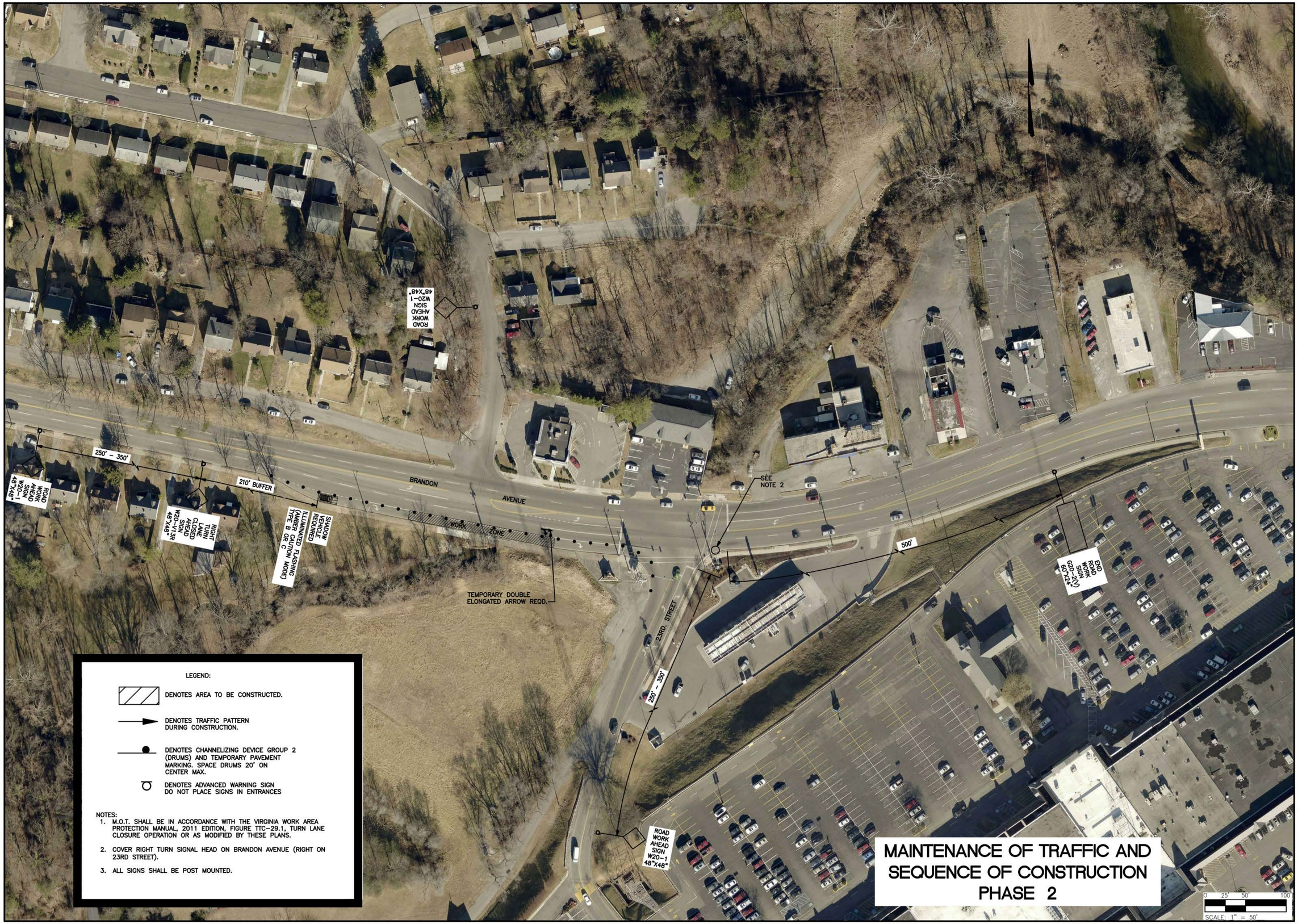
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION
M.O.T. – INSIDE LANE CLOSURE
(PHASE 1)
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: 1" = 50'
Commission Number: 3430F
Sheet No.: C-3B



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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

M.O.T.-RIGHT TURN LANE CLOSURE (PHASE 2)

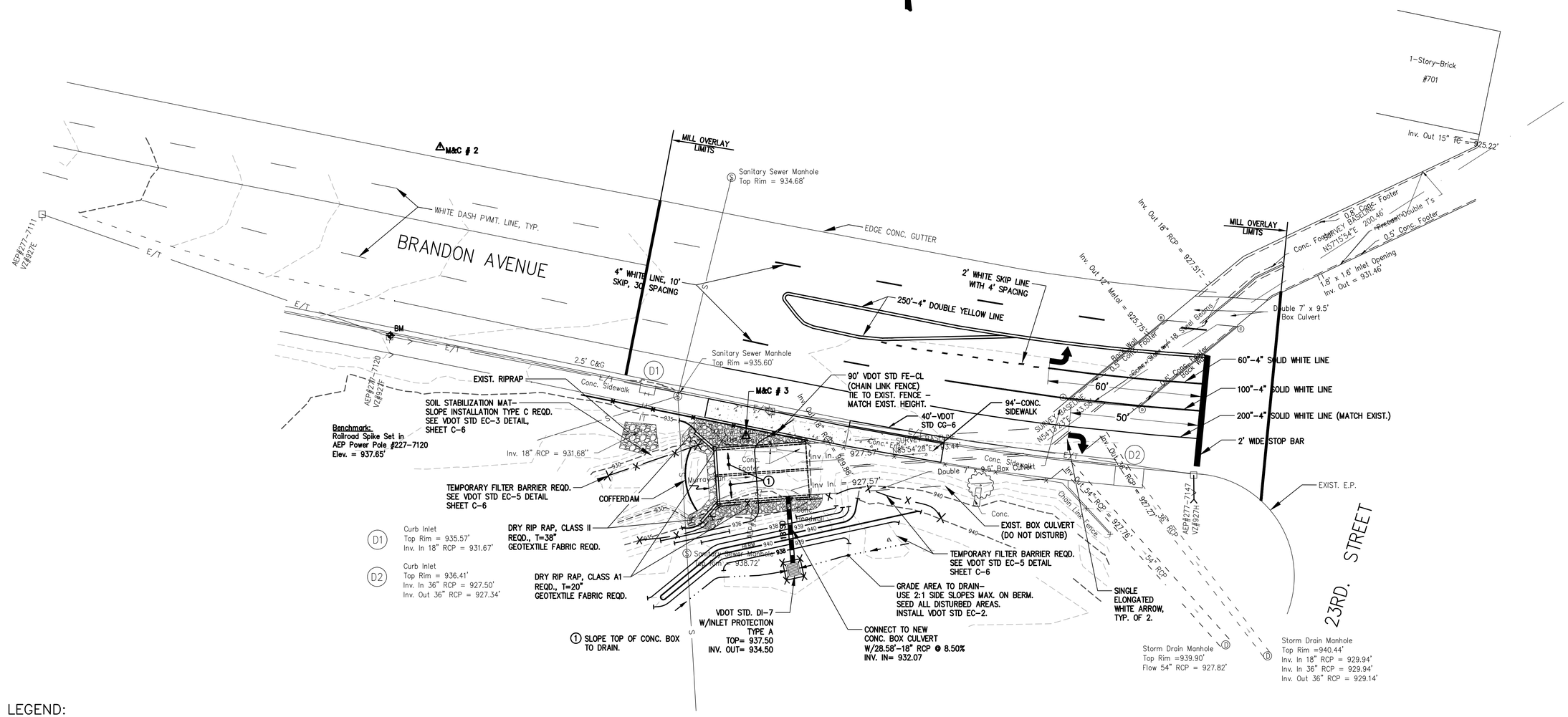
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: 1" = 50'

Commission Number: 3430F

Sheet No.: C-4



LEGEND:

DENOTES DRY RIP RAP

DENOTES TEMPORARY FILTER BARRIER

PROJECT CONTROL

M&C #2: N: 3620319.1468 E: 11057976.4873 ELEV: 937.056' (IP w/ CAP)
BEARING: S 46° 37' 59" E HDIST: 164.04'
M&C #3: N: 3620206.5071 E: 11058095.7382 ELEV: 935.245' (IP w/ CAP)

PROJECT LOCATION:
SOUTHWEST CORNER OF THE
INTERSECTION OF BRANDON AVENUE
AND 23RD. STREET S.W. ROANOKE, VA.

0 10' 20' 40'
SCALE: 1" = 20'

COMMONWEALTH OF VIRGINIA
MICHAEL S. AGEE
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6/8/16
PROFESSIONAL ENGINEER

Revisions	Date

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

FINAL PROPOSED CONDITIONS

CITY OF ROANOKE, VIRGINIA

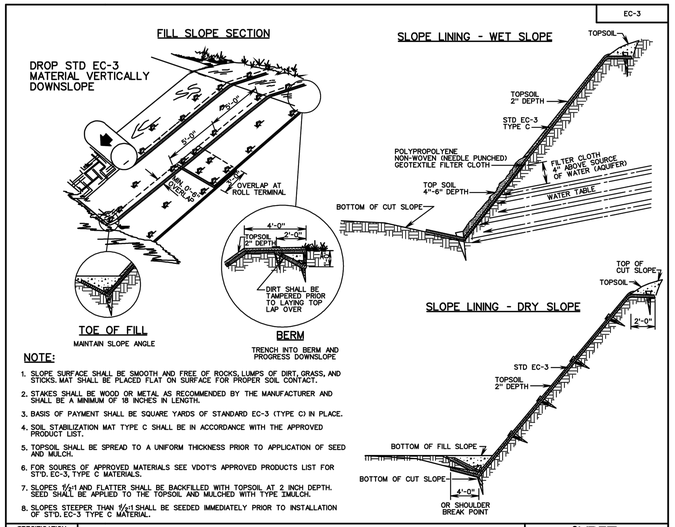
Vertical Scale: N/A

Horizontal Scale: 1" = 20'

Commission Number: 3430F

Sheet No.: C-5

EC-3



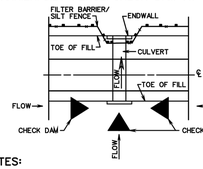
NOTE:

1. SLOPE SURFACE SHALL BE SMOOTH AND FREE OF ROCKS, LUMPS OF DIRT, GRASS, AND STICKS. MAT SHALL BE PLACED FLAT ON SURFACE FOR PROPER SOIL CONTACT.
2. STAKES SHALL BE WOOD OR METAL AS RECOMMENDED BY THE MANUFACTURER AND SHALL BE A MINIMUM OF 18 INCHES IN LENGTH.
3. BASIS OF PAYMENT SHALL BE SQUARE YARDS OF STANDARD EC-3 (TYPE C) IN PLACE.
4. SOIL STABILIZATION MAT TYPE C SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCT LIST.
5. TOPSOIL SHALL BE SPREAD TO A UNIFORM THICKNESS PRIOR TO APPLICATION OF SEED AND MULCH.
6. FOR SOURCES OF APPROVED MATERIALS SEE VDOT'S APPROVED PRODUCTS LIST FOR STD. EC-3, TYPE C MATERIALS.
7. SLOPES 5/4:1 AND FLATTER SHALL BE BACKFILLED WITH TOPSOIL AT 2 INCH DEPTH. SEED SHALL BE APPLIED TO THE TOPSOIL AND MULCHED WITH TYPE I MULCH.
8. SLOPES STEEPER THAN 5/4:1 SHALL BE SEEDED IMMEDIATELY PRIOR TO INSTALLATION OF STD. EC-3 TYPE C MATERIAL.

SPECIFICATION REFERENCE	SOIL STABILIZATION MAT - SLOPE INSTALLATION TYPE C	VDOT ROAD AND BRIDGE STANDARDS	
244 606	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE	SHEET 3 OF 3 113.05

EC-5

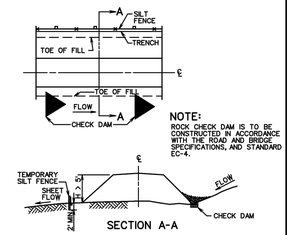
TYPICAL DETAIL FOR TEMPORARY FILTER BARRIER/SILT FENCE/CHECK DAM AT CULVERT



NOTES:

1. IF ANY PORTION OF FILL IS GREATER THAN 5', SILT FENCE IS REQUIRED. IF FILL HEIGHT IS LESS THAN 5', FILTER BARRIER IS REQUIRED.
2. ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.

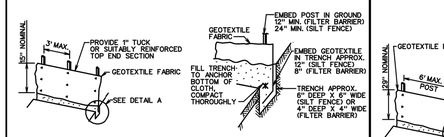
TYPICAL DETAIL FOR TEMPORARY SILT FENCE/CHECK DAM AT TOE OF FILL



NOTE:
ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.

SECTION A-A

TEMPORARY FILTER BARRIER

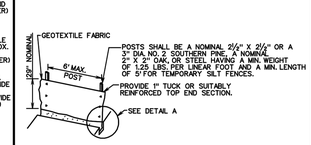


DETAIL A

NOTE:
SUPPORTS FOR TEMPORARY FILTER BARRIERS SHALL BE A NOMINAL 1" X 2" OR A 1½" DIA. NO. 2 SOUTHERN PINE OR OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.00 LBS. PER LINEAR FOOT.

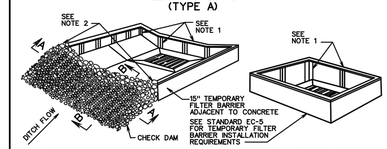
*SLICING IS AN APPROVED ALTERNATE METHOD TO TRENCHING

TEMPORARY SILT FENCE

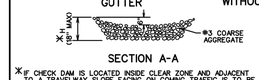


SPECIFICATION REFERENCE	TEMPORARY SILT BARRIERS FILTER BARRIER, SILT FENCE, AND BRUSH BARRIER	VDOT ROAD AND BRIDGE STANDARDS	
	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE	SHEET 1 OF 2 113.07

INLET PROTECTION (TYPE A)

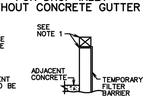


TYPICAL TREATMENT FOR DROP INLET WITH CONCRETE GUTTER

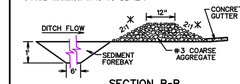


SECTION A-A

TYPICAL TREATMENT FOR DROP INLET WITHOUT CONCRETE GUTTER



*IF CHECK DAM IS LOCATED INSIDE CLEAR ZONE AND ADJACENT TO A TRAVELWAY, SLOPE FACING ON COMING TRAFFIC IS TO BE 6:1 AND MAXIMUM H IS TO BE 12".



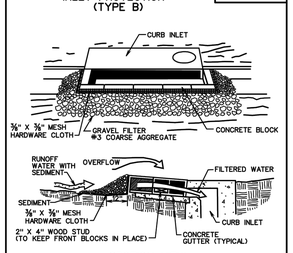
SECTION B-B

NOTES

1. POSTS AND TOP RAIL SHALL BE A NOMINAL 2½" X 2½" OR A 3" DIA. NO. 2 SOUTHERN PINE, A NOMINAL 2" X 2" OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.25 LBS. PER LINEAR FOOT AND A MIN. LENGTH OF 5' FOR TEMPORARY SILT FENCES.
2. END OF FILTER BARRIER TO BE EMBEDDED INTO AGGREGATE.
3. IF A DROP INLET IS LOCATED IN A SAG IN THE DITCH GRADE, A CHECK DAM IS REQUIRED FOR EACH SIDE OF THE INLET THAT RECEIVES DITCH FLOW.
4. WHERE DRAINAGE AREAS EXCEED ONE ACRE OR DITCH GRADE EXCEEDS 3%, A TEMPORARY SEDIMENT FOREBAY SHALL BE INSTALLED WITH MINIMUM DIMENSIONS OF 12" DEPTH, 2' WIDTH AND 6' LENGTH.

EC-6

INLET PROTECTION (TYPE B)



SECTION VIEW

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

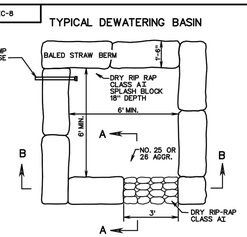
NOTE:

GEOTEXTILE PRODUCTS DESIGNED TO BE INSERTED INTO GRATED DROP INLETS OR DESIGNED TO COVER THE SLOTS OF SLOT DROP INLETS, THAT HAVE BEEN APPROVED FOR USE ON VDOT PROJECTS AND ARE FOUND ON VDOT'S SPEL LIST, MAY BE SUBSTITUTED FOR THE DROP INLET PROTECTION DEVICES DETAILED HEREON.

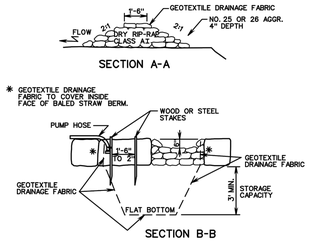
SPECIFICATION REFERENCE	INLET PROTECTION (TYPE A AND B)	VDOT ROAD AND BRIDGE STANDARDS	
107 242 303	VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE	SHEET 1 OF 2 113.09

EC-8

TYPICAL DEWATERING BASIN



PLAN



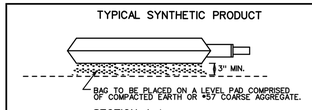
SECTION A-A

SECTION B-B

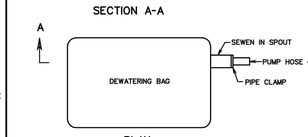
NOTES:

1. DEWATERING BASIN SIZE SHALL BE DETERMINED BY THE FORMULA 16 X GAL./MIN. OF PUMP = CU. FT. OF STORAGE CAPACITY.
2. THIS WORK SHALL CONSIST OF THE CONSTRUCTION OF A DEWATERING BASIN FOR THE PURPOSE OF RECEIVING SEDIMENT-LADENED WATER PUMPED FROM A CONSTRUCTION SITE TO ALLOW FOR FILTRATION BEFORE IT REENTERS THE WATERWAY. PUMPING INTO THESE BASINS SHALL CEASE WHEN THE FLOW FROM THE BASIN BECOMES SEDIMENT-LADENED.
3. SURFACE WATER FLOW SHALL BE DIVERTED AROUND THIS DEVICE.
4. THE OUTFALL FROM THE BASIN(S) SHALL HAVE A STABILIZED CONVEYANCE TO RECEIVING WATERS.
5. ONCE THE DEWATERING BASIN BECOMES FILLED TO HALF OF THE STORAGE CAPACITY, ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS.
6. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE ENGINEER APPROVES THEIR REMOVAL. GROUND CONTOURS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION UNLESS SPECIFICALLY APPROVED OTHERWISE BY THE ENGINEER.
7. SYNTHETIC PRODUCTS THAT HAVE BEEN APPROVED FOR USE ON VDOT PROJECTS AND FOUND ON VDOT'S SPEL LIST MAY BE USED IN LIEU OF THIS DESIGN. HOWEVER, VDOT WILL ONLY COMPENSATE THE CONTRACTOR UP TO THE BID PRICE PER EACH AT EACH SITE.

TYPICAL SYNTHETIC PRODUCT



SECTION A-A



PLAN

VDOT ROAD AND BRIDGE STANDARDS		DEWATERING BASIN	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE	VIRGINIA DEPARTMENT OF TRANSPORTATION	107 303
113.12			

CONSULTING ENGINEER
COMMONWEALTH OF VIRGINIA
MICHAEL S. AGEE
Lic. No. 15232
6/8/16

Revisions	Date

Issue Date: 08-JUNE-2016
Drawn By: WCB
Designed By: RSM
Checked By: MSA
Date: 6/8/16

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

EROSION AND SEDIMENT CONTROL DETAILS AND NOTES

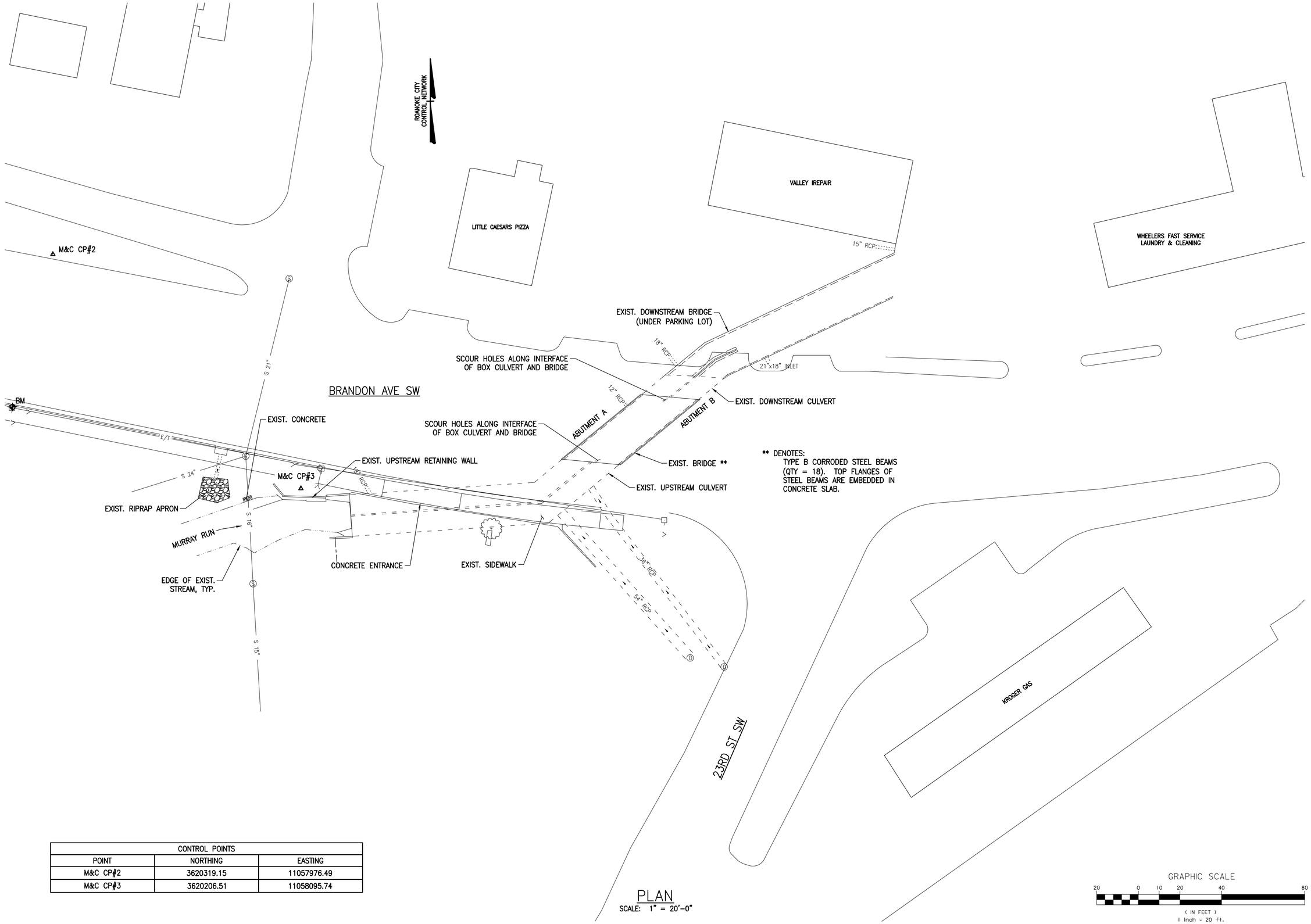
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: N/A

Commission Number: 3430F

Sheet No.: C-6



CONTROL POINTS		
POINT	NORTHING	EASTING
M&C CP#2	3620319.15	11057976.49
M&C CP#3	3620206.51	11058095.74

PLAN
SCALE: 1" = 20'-0"

COMMONWEALTH OF VIRGINIA
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Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

EXISTING CONDITIONS

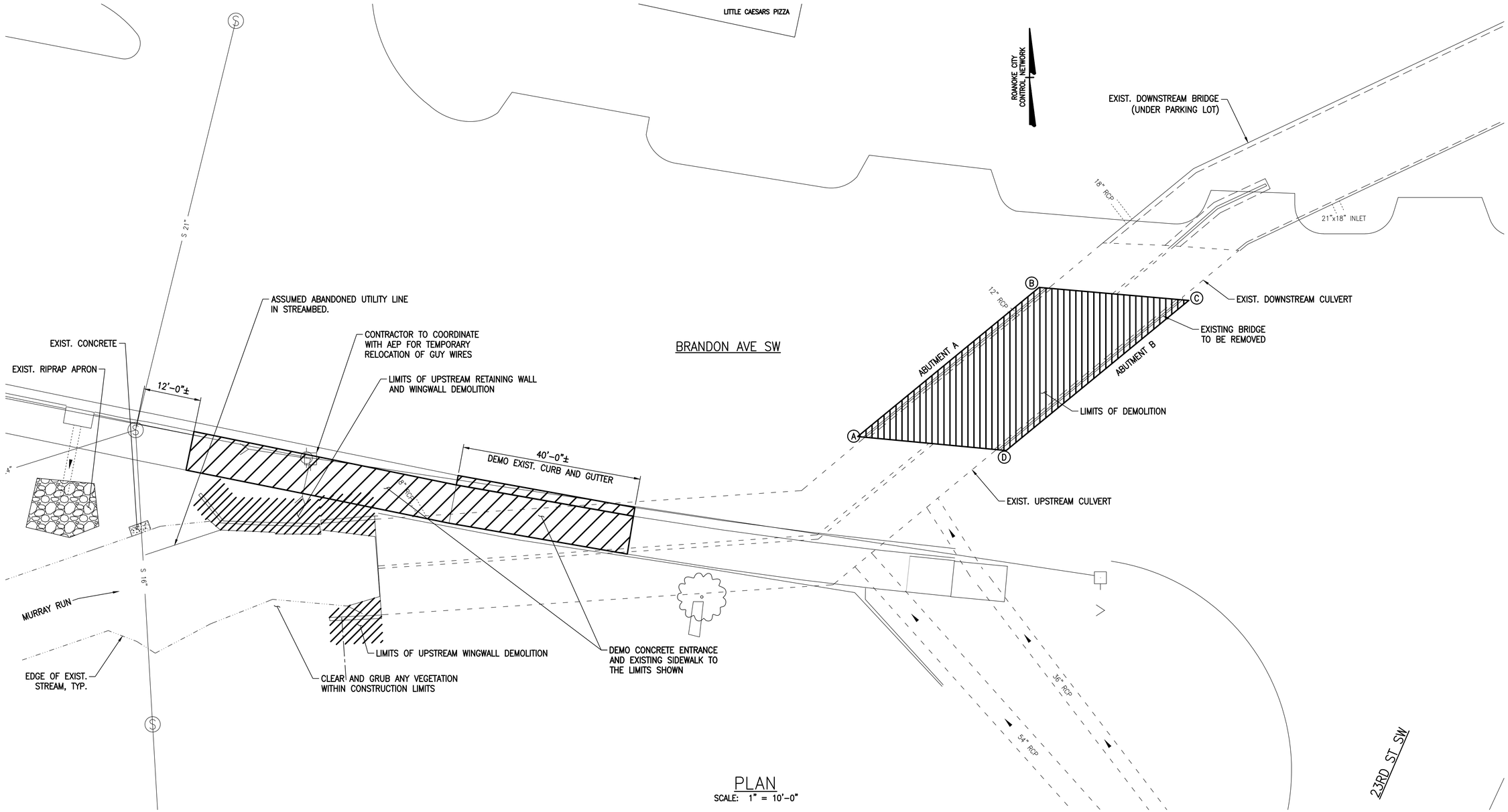
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: 1" = 20'-0"

Commission Number: 3430F

Sheet No.: S-1



PLAN

SCALE: 1" = 10'-0"

DEMOLITION / SEQUENCE OF CONSTRUCTION NOTES

EXISTING BRIDGE DEMOLITION (PHASE 1):

1. LOCATE LIMITS OF DEMOLITION AS SHOWN ON PLANS.
2. DEMOLISH EXISTING STRUCTURE AND ASPHALT PAVEMENT TO THE LIMITS SHOWN ON PLANS.
3. INSTALL PRECAST CONCRETE SLAB UNITS.
4. PLACE CONCRETE FOR CLOSURE POUR(S).
5. REPLACE ASPHALT PAVEMENT.

EXISTING CULVERT WINGWALL, RETAINING WALL, SIDEWALK, AND CURB AND GUTTER DEMOLITION (PHASE 2):

1. INSTALL TEMPORARY SHORING AS REQUIRED AND NOTED IN SHORING NOTES.
2. DEMOLISH EXISITING WINGWALLS, RETAINING WALL, SIDEWALK, AND CURB AND GUTTER WITHIN THE LIMITS SHOWN ON THE PLANS.
3. CONSTRUCT UPSTREAM CULVERT EXTENSION AND WINGWALLS AS SHOWN ON PLANS.
4. REMOVE TEMPORARY SHORING.
5. CONSTRUCT NEW SIDEWALK AND CURB AND GUTTER AS SHOWN ON PLANS.
6. TOPSOIL, MULCH AND SEED ALL DISTURBED AREAS.

SHORING NOTES

1. SHORING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL SUBMIT SHORING SYSTEM PLANS AND DESIGN COMPUTATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER, LICENSED IN THE COMMONWEALTH OF VIRGINIA, TO THE ENGINEER FOR REVIEW.
2. SHORING SHALL SUPPORT ALL LOADING PRESENT (DEAD, LIVE + IMPACT, EARTH, ETC.)
3. SHORING SHALL BE PROVIDED TO ENSURE ADJACENT ROADS, STRUCTURES, OR UTILITIES ARE NOT DAMAGED AND DO NOT SETTLE DURING EXCAVATION OPERATIONS. IF ANY DAMAGE OCCURS, DURING SHORING OPERATIONS, IT SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER(S).
4. AT A MINIMUM, SHORING IS REQUIRED FOR THE FOLLOWING:
   a. BEHIND BOTH WINGWALLS OF THE EXISTING UPSTREAM CULVERT
   b. BEHIND THE RETAINING WALL ADJACENT TO THE NORTH WINGWALL OF THE EXISTING UPSTREAM CULVERT
   c. BEHIND THE LIMITS OF THE PROPOSED UPSTREAM CULVERT EXTENSION AND ADJACENT WINGWALLS.
5. ADDITIONAL SHORING SHALL BE CHOSEN USING SOUND ENGINEERING PRINCIPLES BY THE DESIGNER OF THE SHORING SYSTEM.

LIMITS OF EXISTING BRIDGE DEMOLITION		
POINT	NORTHING	EASTING
A	3620220.71	11058219.76
B	3620251.82	11058257.60
C	3620249.10	11058288.81
D	3620217.78	11058250.72

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

DEMOLITION PLAN

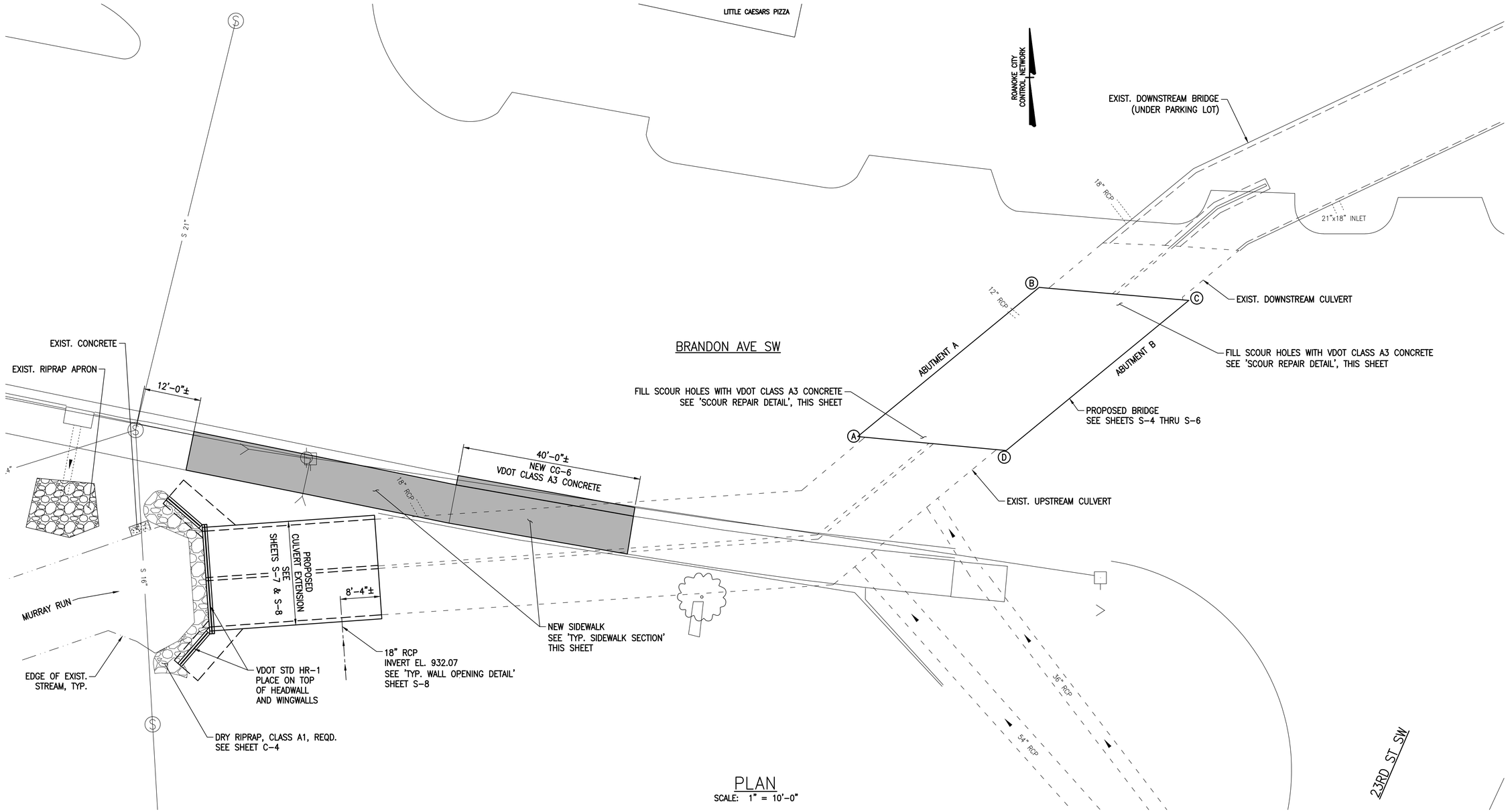
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: 1" = 10'-0"

Commission Number: 3430F

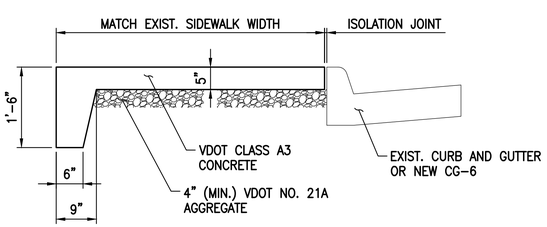
Sheet No.: S-2



PLAN

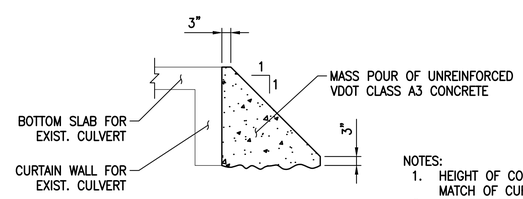
SCALE: 1" = 10'-0"

LIMITS OF PROPOSED BRIDGE		
POINT	NORTHING	EASTING
A	3620220.71	11058219.76
B	3620251.82	11058257.60
C	3620249.10	11058288.81
D	3620217.78	11058250.72



TYP. SIDEWALK SECTION

NOT TO SCALE



NOTES:
1. HEIGHT OF CONCRETE FOR SCOUR REPAIR SHALL MATCH OF CURTAIN WALL HEIGHT FOR EXIST. CULVERT.
2. EXPOSED FACE OF CONCRETE SHALL RECEIVE ROUGHENED SURFACE FINISH W/ ¼" MIN. PROFILE.

SCOUR REPAIR DETAIL

NOT TO SCALE

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

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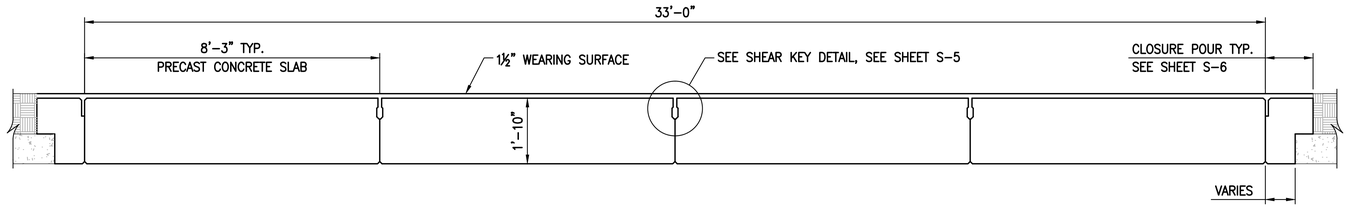
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

PROPOSED PLAN

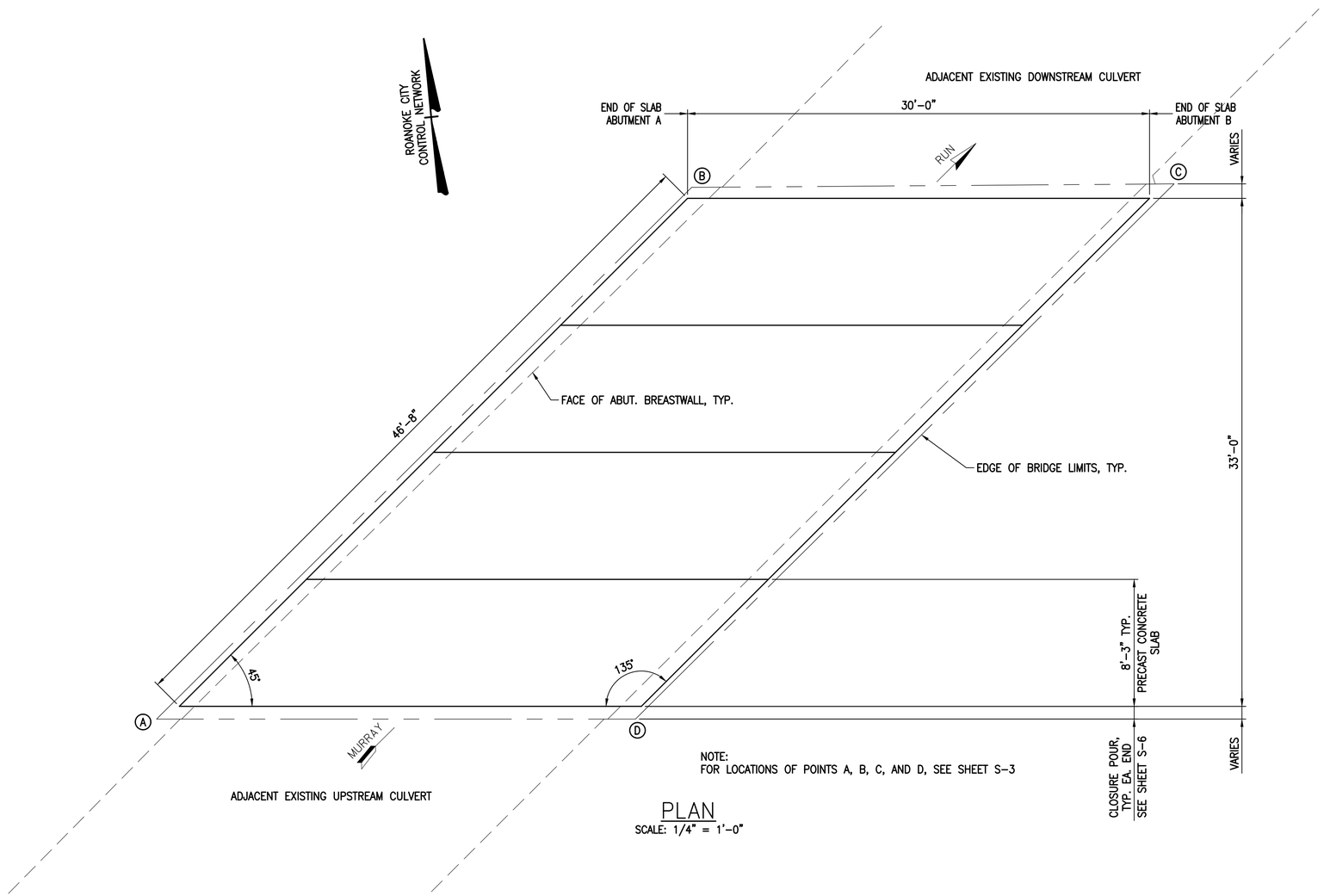
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: AS SHOWN
Commission Number: 3430F
Sheet No.: S-3



TYPICAL SECTION

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



NOTE:
FOR LOCATIONS OF POINTS A, B, C, AND D, SEE SHEET S-3

PLAN

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

GRAPHIC SCALE
1 0 1 2 4
(IN FEET)
1/4" Inch = 1 ft.

GRAPHIC SCALE
1 0 1 2 4
(IN FEET)
1/2" Inch = 1 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
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06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date
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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

BRIDGE PLAN AND TYPICAL SECTION

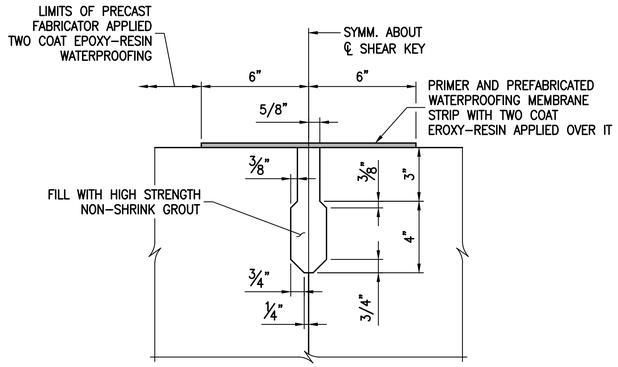
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: AS SHOWN

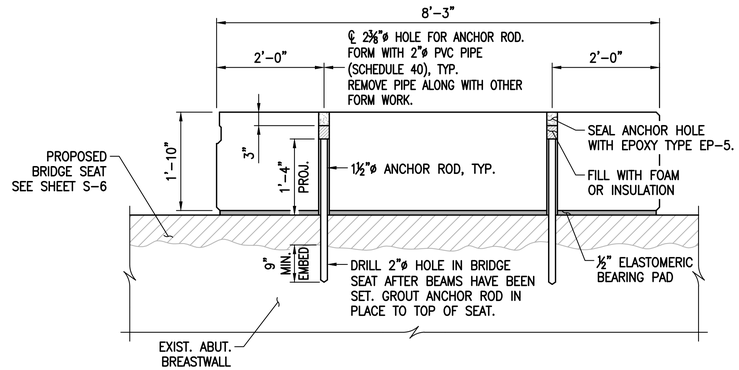
Commission Number: 3430F

Sheet No.: S-4



LONGITUDINAL SHEAR KEY DETAIL

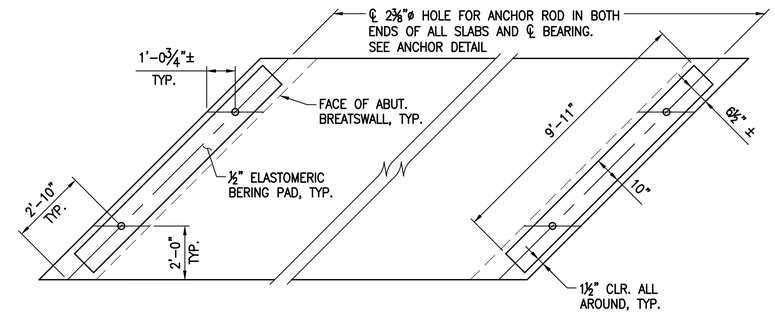
NOT TO SCALE



ANCHOR DETAIL

SCALE: 3/4" = 1'-0"

SECTION AT ℄ BEARING – (REINFORCING STEEL OMITTED FOR CLARITY)
ALL ANCHOR RODS SHALL BE CORROSION RESISTANT REINFORCING STEEL



PART PLAN OF BEARINGS

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

SHEAR KEY NOTES:

ALL KEYWAY SURFACES SHALL BE CLEANED OF ALL DIRT, LAITANCE AND LOOSE AGGREGATE BY MEANS OF SANDBLASTING AND PREWETTED WITH CLEAN WATER PRIOR TO THE GROUTING OF SHEAR KEYS.

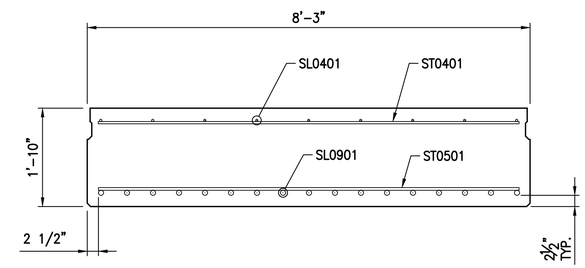
GROUT FOR THE SHEAR KEYS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 218 OF VDOT'S ROAD AND BRIDGE SPECIFICATIONS. GROUTING OF SHEAR KEYS SHALL BE DONE IN ONE CONTINUOUS OPERATION WITHOUT INTERRUPTION FOR THE ENTIRE LENGTH OF THE SHEAR KEYS FOR EACH SPAN.

WATERPROOFING SYSTEM FOR THE LONGITUDINAL SHEAR KEY SHALL NOT BE APPLIED UNTIL THE HIGH STRENGTH GROUT HAS CURED FOR SEVEN DAYS AND IS FREE OF ALL MOISTURE. SURFACES TO RECEIVE THE WATERFROOFING SYSTEM SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 416.03(b)(3) OF VDOT'S ROAD AND BRIDGE SPECIFICATIONS.

SLAB REINFORCING STEEL SCHEDULE (TOTAL 4 SLABS)

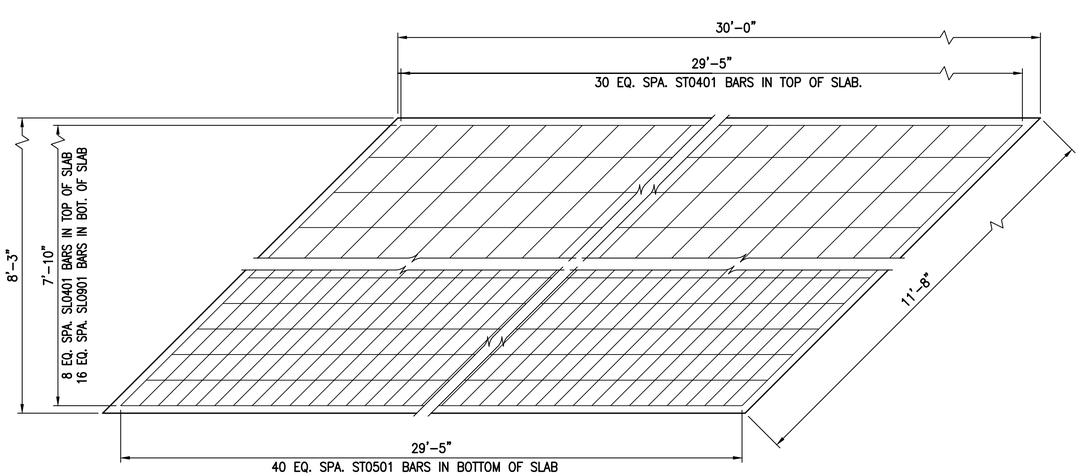
MARK	SIZE	NO.	LENGTH	PIN ø	LOCATION
SL0401	#4	36	29'-5"		SLAB
SL0901	#9	68	29'-5"		SLAB
ST0401	#4	124	11'-1"		SLAB
ST0501	#5	164	11'-1"		SLAB

NOTE: ALL REINFORCING STEEL SHALL BE CORROSION RESISTANT REINFORCING (CRR). SEE GENERAL NOTES.



TYPICAL PRECAST CONCRETE SLAB SECTION

SCALE: 3/4" = 1'-0"



SLAB REINFORCING PLAN

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

GRAPHIC SCALE
1 0 1 2 4
(IN FEET)
3/8" Inch = 1 ft.

GRAPHIC SCALE
1 0 1 2 4
(IN FEET)
1/2" Inch = 1 ft.

GRAPHIC SCALE
1 0 1 2 4
(IN FEET)
3/4" Inch = 1 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date

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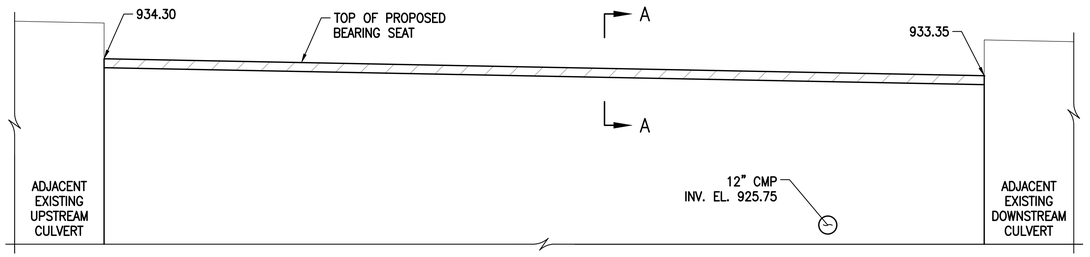
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

PRECAST CONCRETE SLAB DETAILS

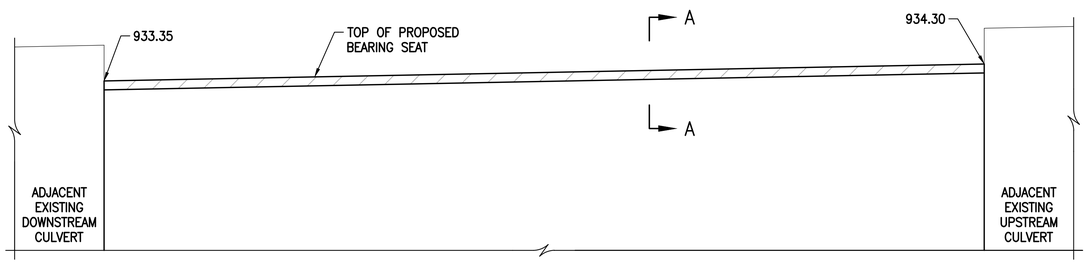
CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: AS SHOWN
Commission Number: 3430F
Sheet No.: S-5



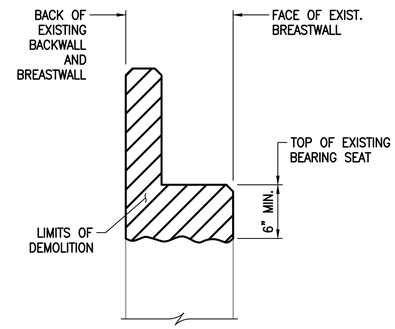
ABUTMENT A ELEVATION

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



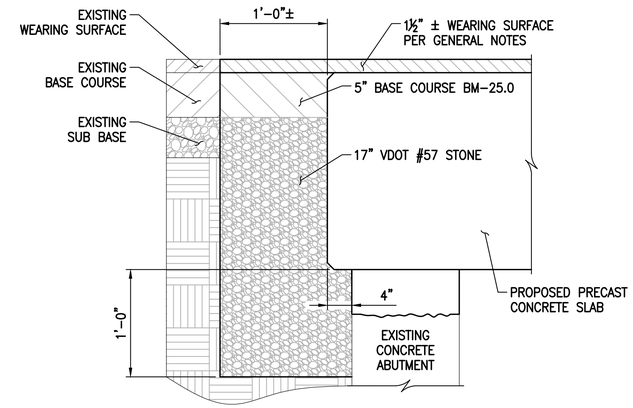
ABUTMENT B ELEVATION

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



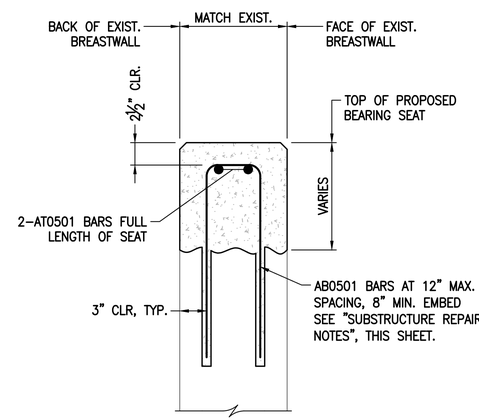
EXIST. ABUT. DEMOLITION SECTION

NOT TO SCALE



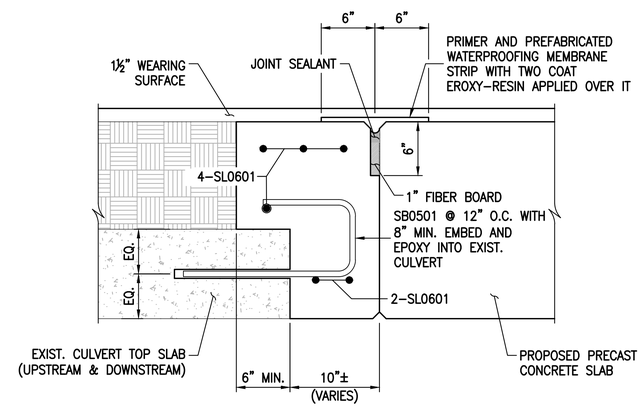
END OF BEAM ASPHALT REPAIR DETAIL

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



SECTION A-A

NOT TO SCALE



TYPICAL CLOSURE POUR DETAIL

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

SUBSTRUCTURE REPAIR NOTES:

SAW CUT 1" DEEP AND REMOVE TOP 6" (MIN.) OF THE EXISTING BREASTWALLS/BEARING SEATS TO THE LIMITS SHOWN IN ABUTMENT ELEVATIONS (THIS SHEET) IN ACCORDANCE WITH SPECIFICATIONS 412 AND 413 OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS. PROVIDE ROUGHENED SURFACE WITH ¼" MIN. PROFILE AND APPLY A VDOT APPROVED BONDING AGENT PRIOR TO PLACEMENT OF THE NEW CONCRETE.

DRILL ¾" DIA. HOLES 12" DEEP AND SET AS05 SERIES BARS IN EPOXY TYPE EP-5. ALL REINFORCING STEEL SHALL BE CORROSION RESISTANT REINFORCING (CRR). SEE GENERAL NOTES ON SHEET G-2.

ALL CONCRETE FOR PROPOSED BREASTWALL/BEARINING SEAT SHALL BE CONCRETE CLASS A4.

SUBSTRUCTURE AND CLOSURE POUR REINFORCING STEEL SCHEDULE

MARK	SIZE	NO.	LENGTH	PIN ø	LOCATION
AB0501	#5	96	4'-4"	2 1/2"	BEARING SEAT
AT0501	#5	8	25'-0"		BEARING SEAT
SB0501	#5	62	3'-0"	2 1/2"	CLOSURE POUR
SL0601	#6	12	29'-5"		CLOSURE POUR

GRAPHIC SCALE

1 0 1 2 4

(IN FEET)
1/4" Inch = 1 ft.

GRAPHIC SCALE

1 0.5 0 0.5 1 2

(IN FEET)
1-1/2" Inch = 1 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date

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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

MISCELLANEOUS BRIDGE DETAILS

CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

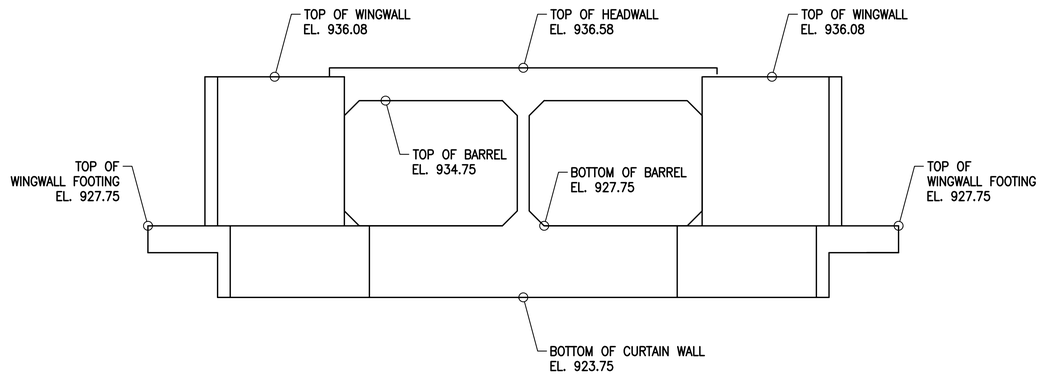
Horizontal Scale: AS SHOWN

Commission Number: 3430F

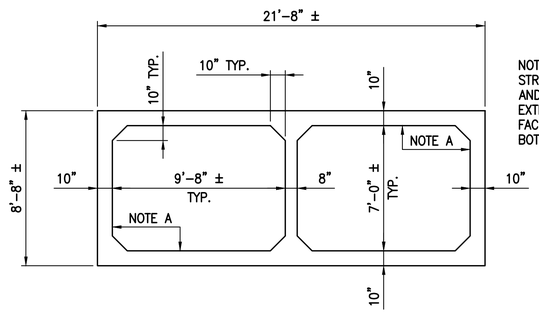
Sheet No.: S-6

CULVERT EXTENSION NOTES:

1. CAPACITY – AASHTO HL-93 LOADING.
   CONSTRUCTION – VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, 2007
   DESIGN – AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 5th EDITION 2010; 2011 INTERIM REVISIONS; AND VDOT MODIFICATIONS.
2. CONTRACTOR AND FABRICATOR SHALL FOLLOW ALL DESIGN INFORMATION FOR A 10'-0" (SPAN) x 8'-0" (HEIGHT) DOUBLE BOX CULVERT (VDOT STD BCD-02) AND GENERAL DETAILS (VDOT STD BCD-DT) AS DESCRIBED IN THE 2008 VDOT ROAD AND BRIDGE STANDARDS ALONG WITH ALL APPLICABLE VDOT REVISIONS PRIOR TO THE BID DATE, EXCEPT AS MODIFIED IN THE CONTRACT DRAWINGS AND SPECIFICATIONS.
3. CONTRACTOR AND FABRICATOR SHALL FOLLOW THE GENERAL DESIGN INFORMATION FOR A WINGWALL 'J' (VDOT STD BCW-11) AS DESCRIBED IN THE 2008 VDOT ROAD AND BRIDGE STANDARDS ALONG WITH ALL APPLICABLE VDOT REVISIONS PRIOR TO THE BID DATE, EXCEPT AS MODIFIED IN THE CONTRACT DRAWINGS AND SPECIFICATIONS. WINGWALL SHALL BE CAST DIRECTLY INTO BOX CULVERT.
4. ALL CONCRETE SHALL BE CLASS A4.
5. ALL REINFORCING STEEL FOR THE CULVERT SHALL BE LOW CARBON/CHROMIUM REINFORCING STEEL CONFORMING TO ASTM A1035.
6. ALL DEFORMED REINFORCING BARS FOR THE WINGWALLS SHALL CONFORM TO ASTM A615, GRADE 60.
7. ALL REINFORCING BAR DIMENSIONS ON THE DETAILED DRAWINGS ARE TO CENTER OF BARS EXCEPT WHERE OTHERWISE NOTED AND ARE SUBJECT TO FABRICATION AND CONSTRUCTION TOLERANCES. DIMENSIONS ON BAR DIAGRAMS ARE OUT-TO-OUT OF BARS. BARS ARE STRAIGHT UNLESS OTHERWISE SHOWN.
8. CONSTRUCTION JOINTS WITHIN THE NEW CULVERT EXTENSION SHALL BE CONSTRUCTED AND BONDED IN ACCORDANCE WITH THE CURRENT VDOT ROAD AND BRIDGE SPECIFICATIONS.
9. THE CULVERT DESIGN IS APPLICABLE TO THE FILL HEIGHT AND OTHER CONDITIONS INDICATED. ANY CHANGE IN THE CONDITIONS SHALL BE REPORTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION AND CONSTRUCTION.
10. ALL INFORMATION ON EXISTING CONDITIONS HAS BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES. THE ACTUAL AS BUILT CONSTRUCTION MAY DIFFER FROM WHAT IS ASSUMED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS, ELEVATIONS, AND GEOMETRY OF THE EXISTING STRUCTURE'S CONSTRUCTION PRIOR TO ANY TEMPORARY SHORING, DEMOLITION, OR COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE CITY PROJECT MANAGER OR THE ENGINEER OF ANY DISCREPANCIES.
11. THE CONTRACTOR SHALL TAKE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF UTILITIES. THE USE OF PROPERLY DESIGNED CRANE MATS MAY BE REQUIRED TO PROTECT UNDERGROUND UTILITY LINES (SANITARY, SEWER ETC.). ANY UTILITIES DAMAGED OR MISALIGNED SHALL BE REPAIRED OR REPLACED BY THE RESPECTIVE UTILITY COMPANY(S) AT THE SOLE EXPENSE OF THE CONTRACTOR.
12. ALL PROTRUDING REINFORCING STEEL IN THE TOP SLAB OF THE EXISTING CULVERT SHALL BE CUT AND REMOVED.
13. IF ROCK IS ENCOUNTERED BEFORE REACHING THE ELEVATION AT THE BOTTOM OF THE CURTAIN WALL, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. THE ENGINEER WILL DETERMINE THE SOUNDNESS OF THE BEDROCK AND THE ADJUSTED DEPTH OF THE CURTAIN WALL. NO ANCHORAGE IS REQUIRED.

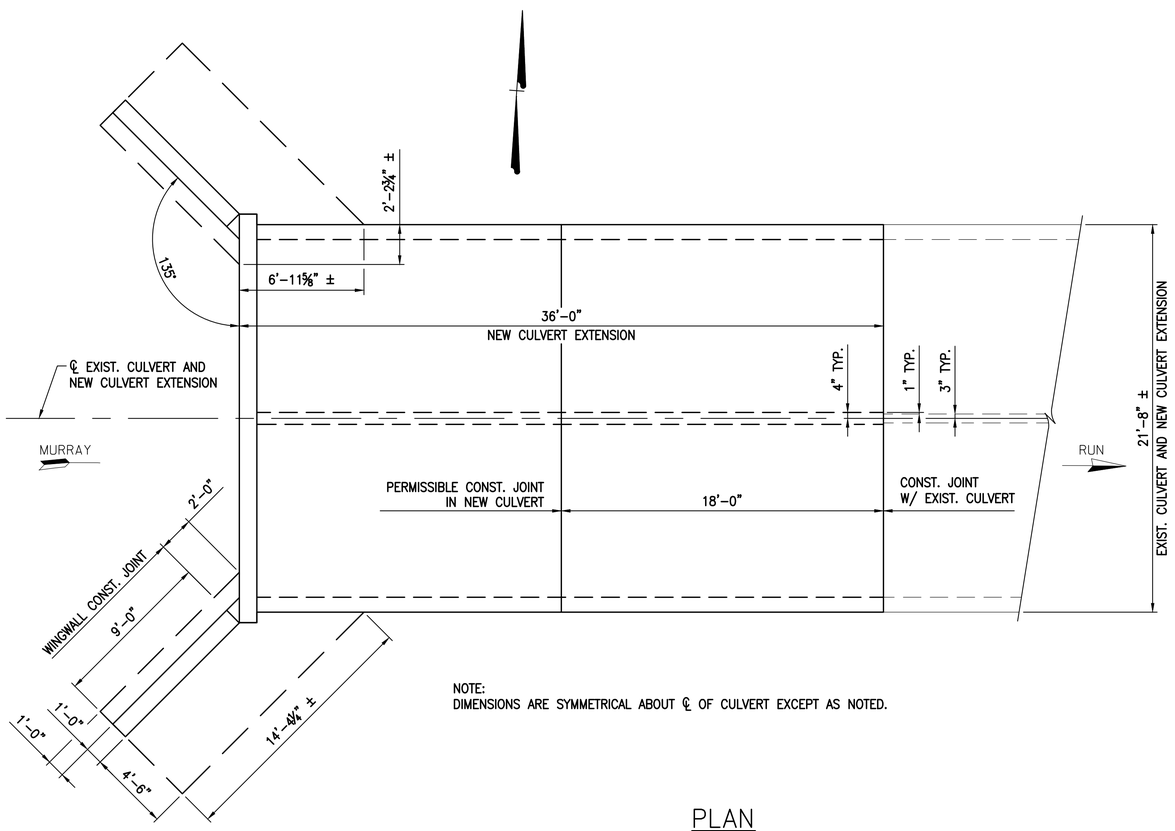


INLET ELEVATIONS
SCALE: 1/4" = 1'-0"



NOTE A:
STREAM FACE OF EXTERIOR WALLS, TOP SLAB, AND BOTTOM SLAB FOR NEW CULVERT EXTENSION SHALL BE FLUSH WITH STREAM FACE OF EXTERIOR WALLS, TOP SLAB, AND BOTTOM SLAB FOR EXISTING CULVERT.

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



NOTE:
DIMENSIONS ARE SYMMETRICAL ABOUT ℄ OF CULVERT EXCEPT AS NOTED.

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

GRAPHIC SCALE
1 0 1 2 4
(IN FEET)
1/4" Inch = 1 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
Lic. No. 039469
06/08/2016
PROFESSIONAL ENGINEER

Revisions	Date

Issue Date: 08-JUNE-2016
Drawn By: DKA
Designed By: SRA
Checked By: CMT
Date: 6/8/16

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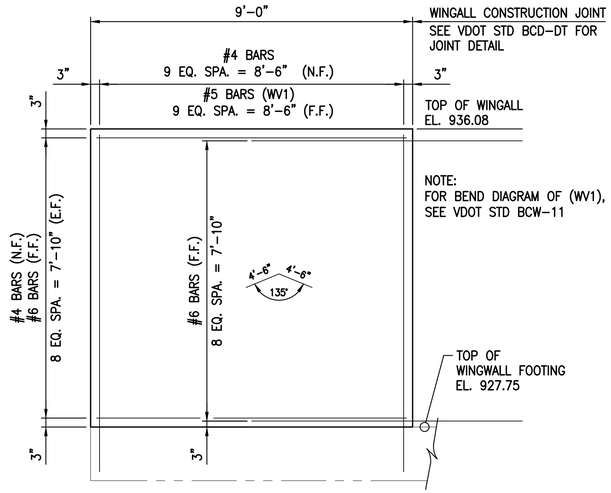
BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION
UPSTREAM CULVERT EXTENSION
PLAN, INLET ELEVATIONS AND NOTES
CITY OF ROANOKE, VIRGINIA

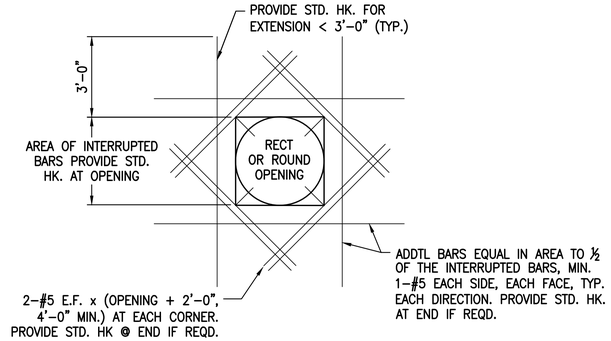
Vertical Scale: N/A
Horizontal Scale: AS SHOWN
Commission Number: 3430F
Sheet No.: S-7



TYP. WINGWALL ELEVATION

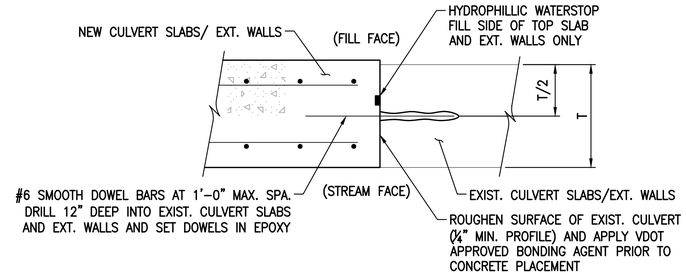
SCALE: 1/2" = 1'-0"

NOTE: NORTH WINGWALL IS SHOWN. SOUTH WINGWALL SIMILAR



TYP. WALL OPENING DETAIL

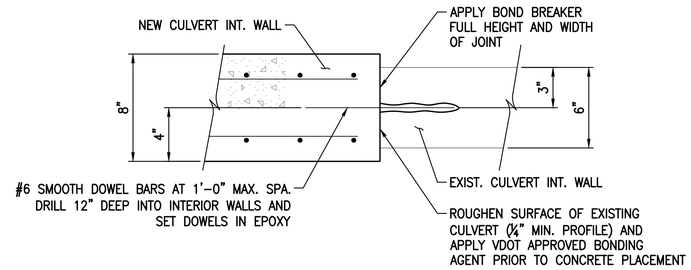
NOT TO SCALE



TYP. CONSTRUCTION JOINT DETAIL AT EXIST. CULVERT

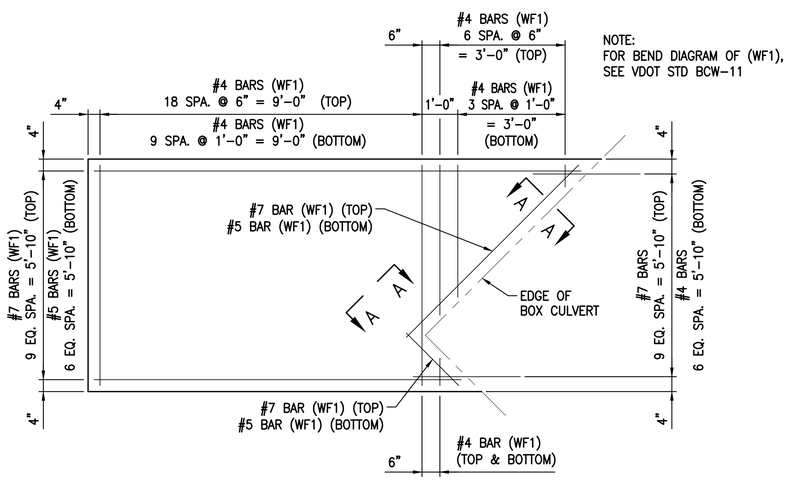
NOT TO SCALE

NOTE: DETAIL SHOWN IS FOR EXT. WALLS. TOP AND BOTTOM SLABS SIMILAR. MATCH EXIST. OPENING DIMENSIONS.



INT. WALL CONSTRUCTION JOINT DETAIL AT EXIST. CULVERT

NOT TO SCALE



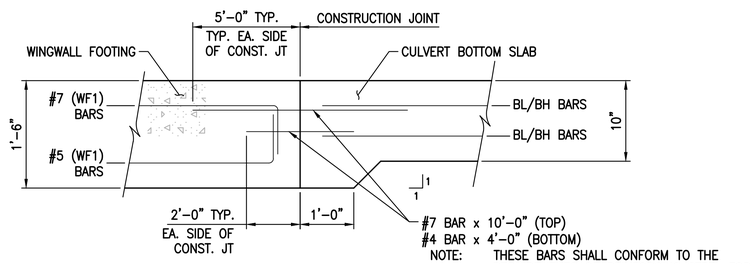
TYP. WINGWALL FOOTING PLAN

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

NOTE: NORTH FOOTING IS SHOWN. SOUTH FOOTING SIMILAR

CURTAIN WALL DETAILS

NOT TO SCALE



SECTION A-A

NOT TO SCALE

GRAPHIC SCALE

1 0 1 2 4

(IN FEET)

1/2" Inch = 1 ft.

COMMONWEALTH OF VIRGINIA
STEVEN R. ALVIS
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BRANDON AVENUE OVER MURRAY RUN BRIDGE REHABILITATION

UPSTREAM CULVERT EXTENSION DETAILS

CITY OF ROANOKE, VIRGINIA

Vertical Scale: N/A

Horizontal Scale: AS SHOWN

Commission Number: 3430F

Sheet No.: S-8