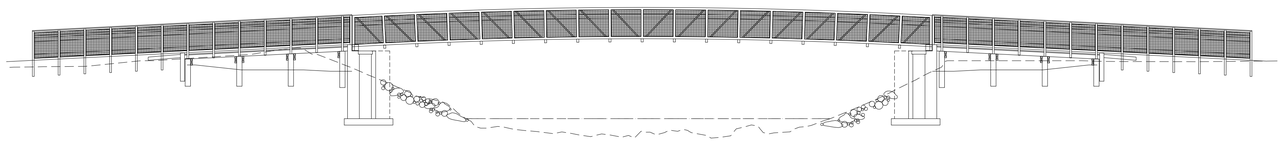
BEAVER DAM CREEK TRAIL & PEDESTRIAN BRIDGE - PHASE 1

DAMASCUS, VIRGINIA

STATE PROJECT NO.: EN99-205-101, PE101, C501
UPC 51977

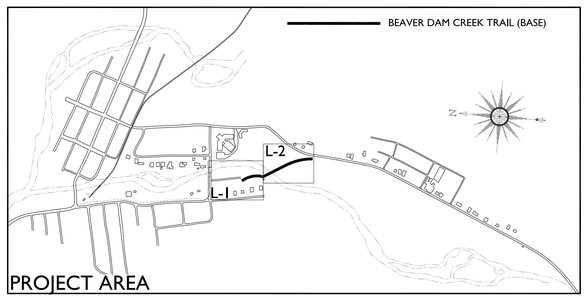


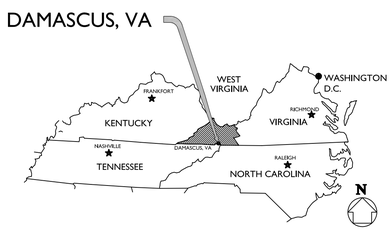
DATE: 21 APRIL 2017
CONSTRUCTION DOCUMENTS
BID SET

PROJECT DESCRIPTION

BASE BID:
BEAVER DAM CREEK TRAIL, LIBRARY TO LITTLE LEAGUE PARKING LOT

PROJECT LOCATION MAP





GENERAL NOTES

1. SPECIFICATIONS:

THESE CONSTRUCTION DOCUMENTS ARE TO BE ACCOMPANIED WITH THE PROJECT MANUAL.

CONSTRUCTION – VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, 2016, AND ROAD AND BRIDGE STANDARDS, 2016, UNLESS NOTED OTHERWISE AS A SPECIAL PROVISION IN THE PROJECT MANUAL.

DESIGN – AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 2002. AASHTO GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, 2009.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION WORK AREA PROTECTION MANUAL, 2011.

2. FIELD SURVEY INDICATING TOPOGRAPHIC MAPPING AND FIELD INFORMATION WAS PREPARED BY HOLBROOK SURVEYORS, (276) 669-6658, JANUARY, 2003.

3. THE EXISTENCE AND LOCATION OF EXISTING UTILITIES ARE NOT GUARANTEED AND SHALL BE INVESTIGATED AND FIELD VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. ANY DAMAGE DONE TO EXISTING UTILITIES AND FACILITIES SHALL BE REPAIRED WITH THE UTILITIES AND FACILITIES RESTORED TO AT LEAST THEIR ORIGINAL CONDITION.

4. OWNERSHIP OF DOCUMENTS – THIS DOCUMENT, INCLUDING THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF HILL STUDIO AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF HILL STUDIO.

GENERAL EROSION & SEDIMENT CONTROL NOTES

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST EDITION) AND VIRGINIA REGULATIONS 4VAC 50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE WHILE WORK IS BEING PERFORMED.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION AND SEDIMENT CONTROL PLAN AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. RECORDS OF ALL INSPECTIONS AND REPAIRS MADE TO EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE MAINTAINED BY THE CONTRACTOR.

ES-9: EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

ES-10: MATERIAL STOCKPILES SHALL BE CONTAINED WITHIN SEDIMENT BARRIERS. STOCKPILES THAT ARE TO REMAIN UNWORKED FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING WITHIN 7 DAYS AFTER COMPLETION OF STOCKPILING.

ES-11: TEMPORARY STABILIZATION SHALL BE INSTALLED WITHIN 7 DAYS ON DENUDED AREAS THAT ARE TO REMAIN DORMANT FOR GREATER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR. PERMANENT STABILIZATION SHALL BE INSTALLED WITHIN 7 DAYS OF FINAL STABILIZATION.

ES-12: ALL AREAS WHICH REQUIRE SEEDING SHALL BE "TOPSOILED" AND STABILIZED WITH MULCH IN ACCORDANCE WITH THE SPECIFICATIONS FOR THIS PROJECT.

OWNER:
GAVIN BLEVINS, TOWN MANAGER
TOWN OF DAMASCUS
208 WEST LAUREL AVENUE
DAMASCUS, VIRGINIA 24236

TEL: 800-628-4583

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION:

GAVIN BLEVINS
TOWN MANAGER, TOWN OF DAMASCUS, VIRGINIA

PREPARED BY:

HILL STUDIO
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Contact: David P. Hill, ASLA
Charlie Craig, Construction Administration
HSPC Project Number: 0172

STRUCTURAL ENGINEER:

THOMPSON & LITTON

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P.O. Box 1307
Wise, Virginia 24293

Contact: Steve Brooks, PE
Tel: (276) 328-2161

INDEX OF DRAWINGS

BEAVER DAM CREEK TRAIL AND PEDESTRIAN BRIDGE - PHASE I ◆ TOWN OF DAMASCUS, VIRGINIA ◆ BID SET ◆ DATE: 21 APRIL 2017 ◆ HSPC #0172

LEGEND

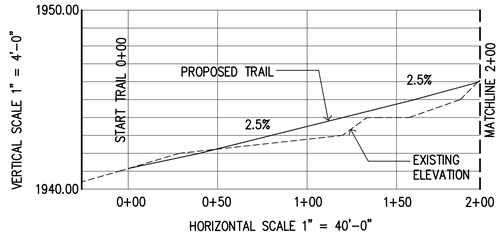
- SILT FENCE
- STREAM/ WATER EDGE
- PROPOSED ASPHALT TRAIL
- GRAVEL SURFACE
- NEW PEDESTRIAN FOOTBRIDGE
- PROPERTY LINE
- EDGE OF WOODS
- OVERHEAD UTILITY LINE (OU)
- TREE PROTECTION FENCE (TP)
- ODD NUMBERED 1' CONTOURS
- EVEN NUMBERED.1' CONTOURS
- PROPOSED 1' CONTOURS
- PROPOSED 5' CONTOURS
- PROPOSED CULVERT
- CENTERLINE
- SWALE LINE
- EDGE OF EXISTING ROAD
- EXISTING SPECIMEN TREES (26" WILD CHERRY)
- REMOVE TREE (FIELD VERIFY)
- EX. SPOT ELEV. + 2050.7
- PROPOSED SPOT ELEV. + 1991.5
- CABLE GUARDRAIL
- RIP RAP
- BOLLARDS & MILE MARKER POST
- SAFETY & TRAFFIC SIGNAGE (SEE DETAIL SHEET FOR SIGN TYPE) (B)
- PAINTED SIGNAGE: HIGHWAY CROSSING (XING HWY)
- MULTI-USE PATHWAY BICYCLE CROSSING (XING)
- EXISTING BENCH
- CULVERT INLET PROTECTION (CIP)
- OUTLET PROTECTION (OP)
- SOIL STABLIZATION BLANKET/MATTING (S.B.)

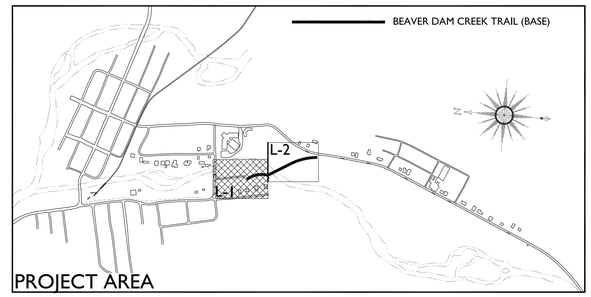
HORIZONTAL ALIGNMENT SURVEY DATA

LINE TABLE		
LINE	LENGTH	BEARING
L1	274.02	N31°30'57"W

CURVE TABLE		
CURVE	LENGTH	RADIUS
C1	187.19	229.80
C2	31.83	44.70
C3	349.69	650.00

TRAIL PROFILE





BEAVER DAM CREEK

TOWN OF DAMASCUS D.B. 713 PG. 321

TOWN OF DAMASCUS D.B. 710 PG. 168

TOWN OF DAMASCUS D.B. 582 PG. 155

TOWN OF DAMASCUS D.B. 716 PG. 294

TOWN OF DAMASCUS D.B. 708 PG. 477

TOWN OF DAMASCUS D.B. 708 PG. 599

TOWN OF DAMASCUS D.B. 729 PG. 677

TOWN OF DAMASCUS D.B. 711 PG. 716

TOWN OF DAMASCUS D.B. 713 PG. 597

TOWN OF DAMASCUS D.B. 716 PG. 31
17240.4 SQ. FT.
0.40 ACRES

TOWN OF DAMASCUS D.B. 713 PG. 783

DAVID & DONNA STINNARD P.B. 27 PG. 88

PAUL & SHELLEY GADOLA P.B. 23 PG. 177

BRENDA SMITH P.B. 906 PG. 192

HAROLD DEAN D.B. 970 PG. 412

RAILROAD R.O.W. - TOWN OF DAMASCUS D.B. 619 PG. 222

PROPERTY LINE

WILSON STREET

WATER STREET

EDGE OF PAVEMENT

EDGE OF GRAVEL

GRAVEL LOT

CONCRETE SLAB

CONCRETE WALK (OVERGROWN)

MANHOLE RIM ELEVATION: 1939.73'

GUY WIRE

POWER POLE (1002-B1-1052)

IRON PIPE(F)

IP(F)

IP(N)

CONTRACTOR SHALL WORK WITH THE TOWN OF DAMASCUS TO SECURE THIS AREA AS NORTH BANK STAGING AREA FOR BRIDGE CONSTRUCTION

NEW COMPACTED GRAVEL TRAIL, 10' WIDE

BEGIN BEAVER DAM CREEK TRAIL STA. 0+00 CONNECT TO EXISTING LIBRARY TRAIL

EXISTING LIBRARY TRAIL

VERIFY EXISTING GRADE IN FIELD

SHARP CURVE AHEAD WARNING SIGN, SIM. TO (B)

DISMOUNT TO CROSS BRIDGE SIGN, SIM. TO (B)

TBM-<BRIDGE NAIL IN BASE OF 32" POPLAR, 80'± NORTH OF PROPOSED BRIDGE> ELEVATION: 1946.45'

VEHICLE CONTROL BOLLARDS (3 L-3)

32" POPLAR

20" CHERRY

8" ELM

1946.14

C1/C2 RRC=1+87.19

BRIDGE DETAIL PLAN - SEE CIVIL SHEET C-1

MATCHLINE - STA. 2+00

1" = 20' (20' 10' 0 20' 40')

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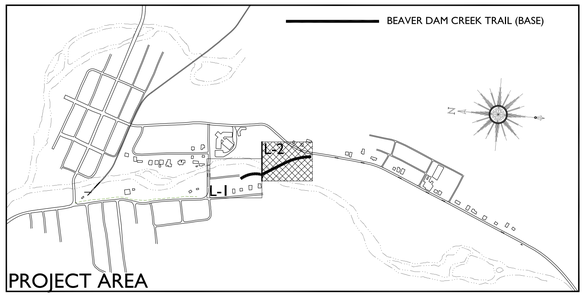
LAYOUT & GRADING PLAN
TOWN OF DAMASCUS, VIRGINIA
EN99-205-101, PE101, C501 UPC 51977

COMMONWEALTH OF VIRGINIA
DAVID P. HILL
21 APR 2017
No. 259
CERTIFIED LANDSCAPE ARCHITECT

Date: 21 APR 2017
Scale: 1" = 20'
Revisions:

Drawn By: MSL
Review By: CRC
Project No. 0172

L-1



SECONDARY ROUTE 716

EXISTING GUARDRAIL

R28.0'

37.1'

R.O.W. LINE

GRASS

POWER POLE (1002-2008)

R25.5'

TBM-<BRIDGE NAIL IN POWER POLE 1002-2008, 12'± WEST OF SHADY AVENUE> ELEVATION: 1951.23'

EDGE OF PAVEMENT

52.3'

2'X6' CATCH BASIN
GRATE ELEVATION: 1950.13'
INVERT ELEVATION: 1947.8'

REMOVE EXISTING GRAVEL – ADD TOPSOIL & SEED

NEW COMPACTED GRAVEL TRAIL, 10' WIDE

EXISTING CHAIN LINK FENCE

POWER POLE (1002-B2-141)

CONTRACTOR SHALL WORK WITH THE TOWN OF DAMASCUS TO SECURE THIS AREA AS SOUTH BANK STAGING AREA FOR BRIDGE CONSTRUCTION

EX. GRAVEL LOT

R25.3'

GUY WIRES

EXISTING 18" R.C.P.

DO NOT DISTURB

DUMPSTER TO BE RELOCATED BY TOWN OF DAMASCUS

5.0' EXTENT OF GRAVEL REMOVAL

EX. GRAVEL LOT
3.0' CLR. TO RAIL

BASEBALL FIELD HOUSE

BEGIN CABLE GUARDRAIL VDOT GR-2 STA. 24+30

REMOVE SECTION OF EXISTING FENCE TO ALLOW FOR TRAIL AND 3' CLR SHOULDERS

EDGE OF GRAVEL

CHAIN LINK FENCE

TOWN OF DAMASCUS D.B. 619 PG. 222

RAILROAD R.O.W. - TOWN OF DAMASCUS

MANHOLE
RIM ELEVATION: 1948.43'

TOWN OF DAMASCUS
PARCEL# 172B2-A-43C
RECORD# 19374 CARD 1

24+00 25+00 25+50 26+00 26+50

3" LOCUST

6" LOCUST

EXTENT OF GRAVEL REMOVAL

END CABLE GUARDRAIL VDOT GR-2 STA. 26+70

BICYCLE RACK PROVIDED BY TOWN, SELECTED BY LANDSCAPE ARCHITECT, NIC

END BASE BID STA. 26+87.3

FUTURE TRAIL EXTENSION, N.I.C.

GATE

PROPERTY LINE

BAYER CORPORATION
D.B. 1025 PG. 419

EXISTING PICNIC TABLES

EXISTING FENCE TO REMAIN

BATTING CAGE

VEHICLE CONTROL BOLLARDS (3 / L-3)

DISMOUNT TO CROSS BRIDGE SIGN & SHARP CURVE AHEAD WARNING SIGN, BOTH SIM. TO (B)

NEW COMPACTED GRAVEL TRAIL, 10' WIDE

22+50 23+00 23+50

CHAIN-LINK FENCE

MOBAY CHEMICAL CORP
D.B. 639 PG. 161

GRASS DRAIN

IN

MATCHLINE - STA. 2+00

FLOW

DEMO TREE

1948.50
1946.30

10" ASH

8" ELM

24" SYCAMORE

12" PAULONIA

CONCRETE SLAB

EXISTING FENCE TO REMAIN

CONCRETE BRIDGE ABUTMENT, TYP. EACH SIDE

VDOT CLASS A1 RIPRAP REQ'D, SEE DETAIL SHEET L-4

L1

21+00

90.0'

14' WIDE X 90' LENGTH PEDESTRIAN FOOTBRIDGE

DEMO TREES, TYP.

10" LOCUST

6" POPLAR

4" BIRCH

8" ASH

12" ASH

6" SYCAMORE

1948.50

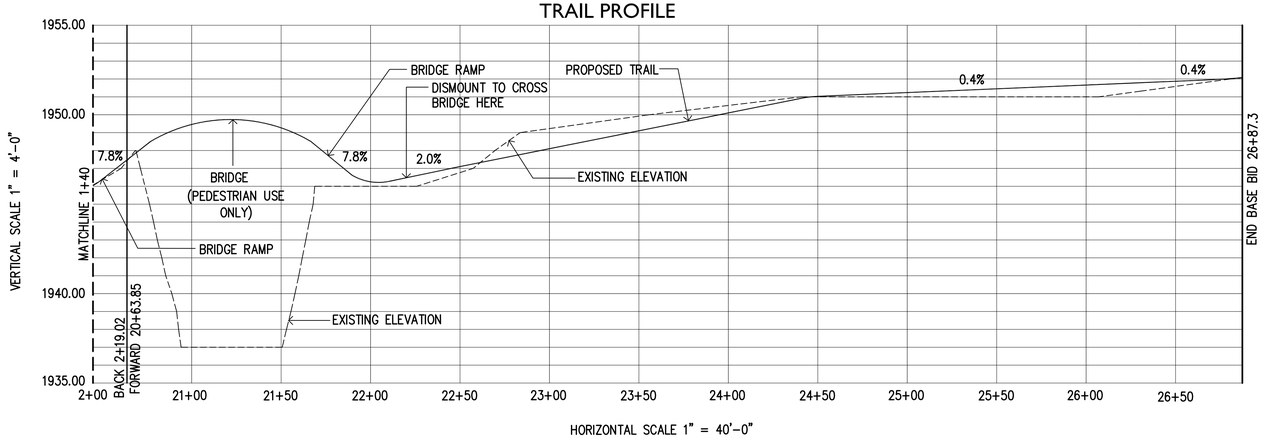
BACK 2+19.02
FORWARD 20+63.85

TOWN OF DAMASCUS
D.B. 713 PG. 783

BRIDGE DETAIL PLAN - SEE CIVIL SHEET C-1

SEE SHEET L-1 FOR LEGEND OF SYMBOLS

TRAIL PROFILE



1" = 20' (20' 10' 0 20' 40')

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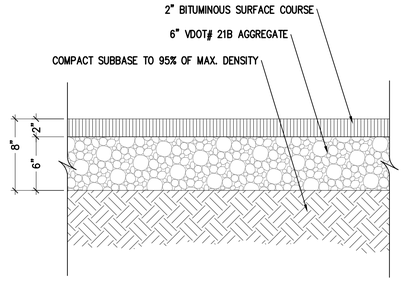
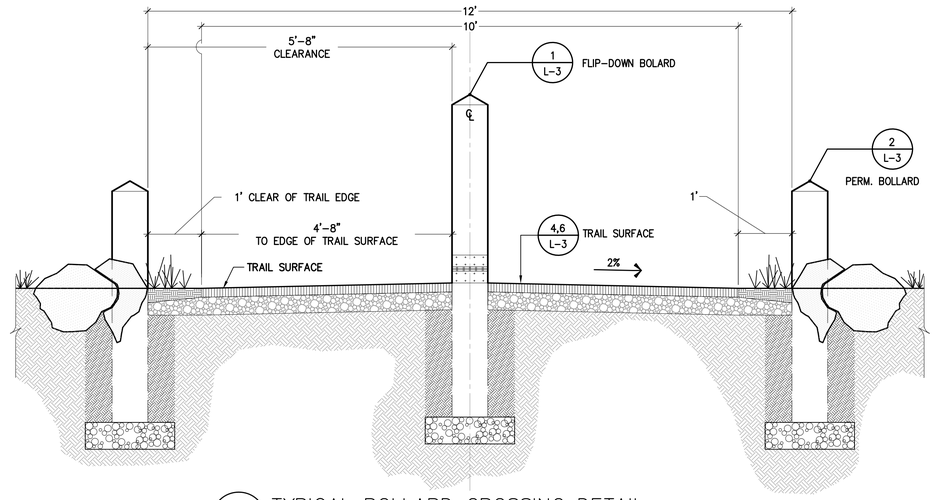
Review By: CRC
Project No. 0172

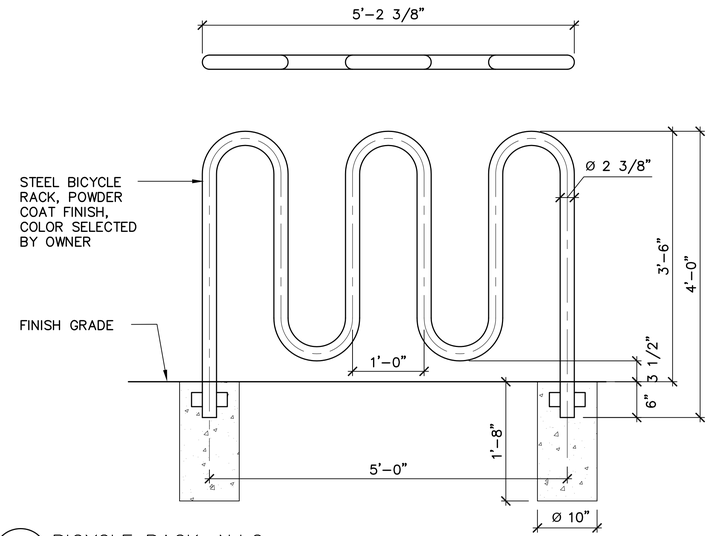
L-2



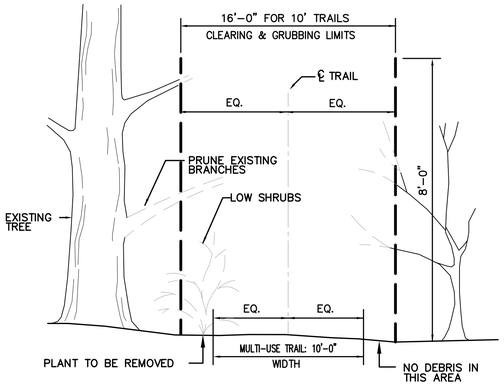
8 / L-3 ADDITIVE BID ITEM 1: ASPHALT/TRAIL PAVING DETAIL
Scale: 1-1/2" = 1' - 0"



3 / L-3 TYPICAL BOLLARD CROSSING DETAIL
Scale: 3/4" = 1' - 0"

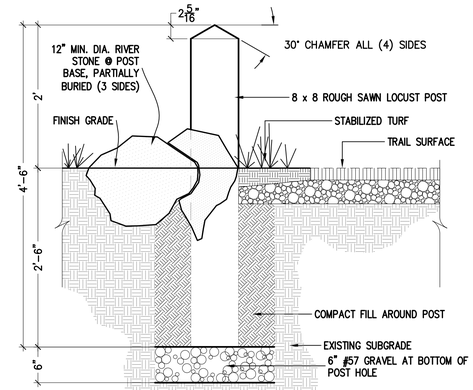


7 / L-3 BICYCLE RACK, N.I.C.
Scale: 1" = 1' - 0"

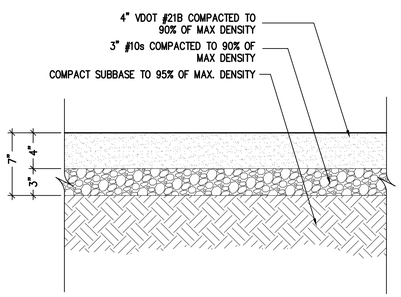


NOTE: TRAIL CLEARING IS 16'-0" UNLESS OTHERWISE NOTED ON PLANS OR AS DIRECTED IN FIELD BY LANDSCAPE ARCHITECT. SEE GRADING PLANS FOR LIMIT OF DISTURBANCE, TREE REMOVAL AND TREE PROTECTION FENCING.

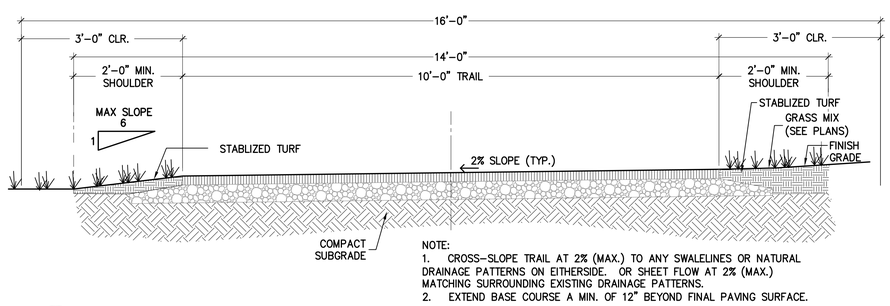
5 / L-3 TYP. CLEARING & GRUBBING DETAIL
Scale: NTS



2 / L-3 TYPICAL PERMANENT BOLLARD
Scale: 1" = 1'-0"

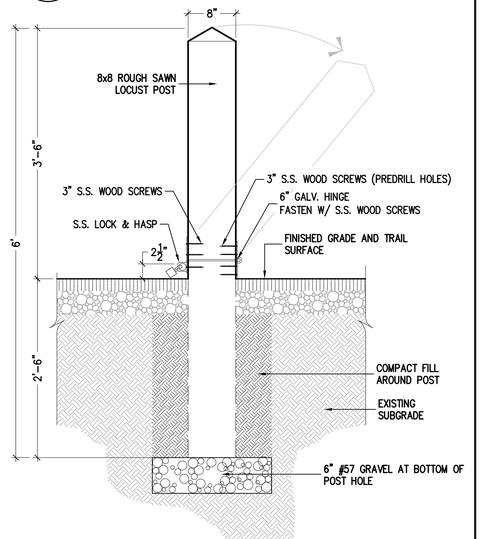


6 / L-3 COMPACTED GRAVEL TRAIL DETAIL
Scale: 1-1/2" = 1' - 0"



NOTE:
1. CROSS-SLOPE TRAIL AT 2% (MAX.) TO ANY SWALELINES OR NATURAL DRAINAGE PATTERNS ON EITHERSIDE. OR SHEET FLOW AT 2% (MAX.) MATCHING SURROUNDING EXISTING DRAINAGE PATTERNS.
2. EXTEND BASE COURSE A MIN. OF 12" BEYOND FINAL PAVING SURFACE.

4 / L-3 TRAIL PAVING SECTION
Scale: 3/4" = 1' - 0"



1 / L-3 TYP. FLIP-DOWN BOLLARD
Scale: 1" = 1'-0"

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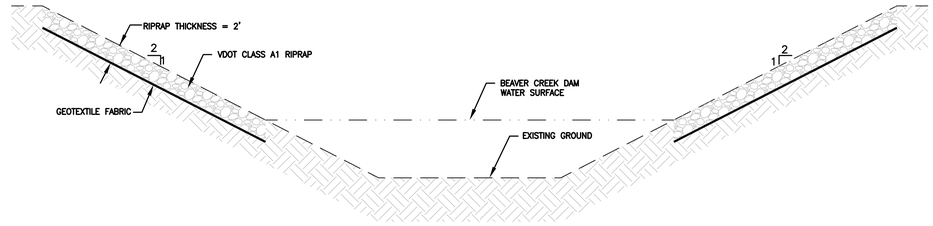
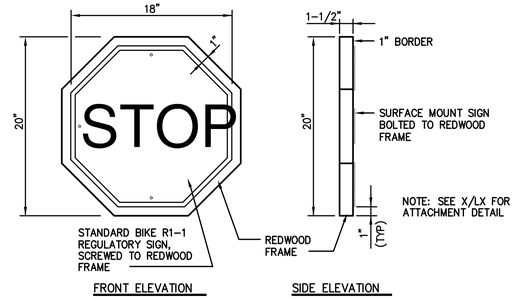
Revisions:

Drawn By: MSL
Review By:
Project No. 0172

L-3



1 / L-4 TYPICAL DETAIL – ABUTMENT RIPRAP
Scale: NTS



4 / L-4 TYPICAL SIGNAGE MATERIAL & TREATMENT
Scale: NTS

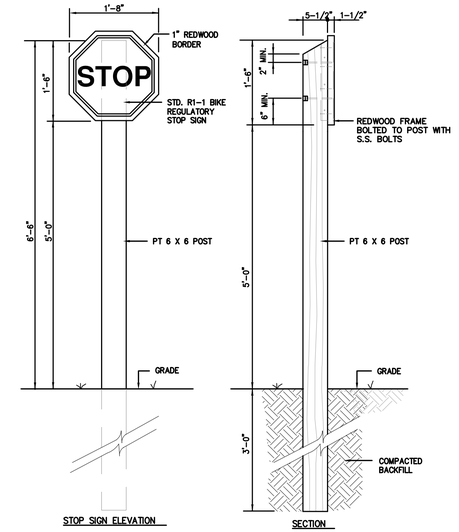
SIGNAGE LEGEND

B — NO MOTER VEHICLES SIGN (R5-3)
TRAIL SIGN, USE REDWOOD BACKING

DISMOUNT TO CROSS BRIDGE TRAIL
SIGN, USE REDWOOD BACKING

GENERAL NOTE: ALL SIGNS, SHALL USE 6"x6"
PRESSURE TREATED POST

5 / L-4 SIGNAGE TYPES
Scale: NTS



3 / L-4 TYPICAL SIGNAGE POST & ATTACHMENT
Scale: NTS

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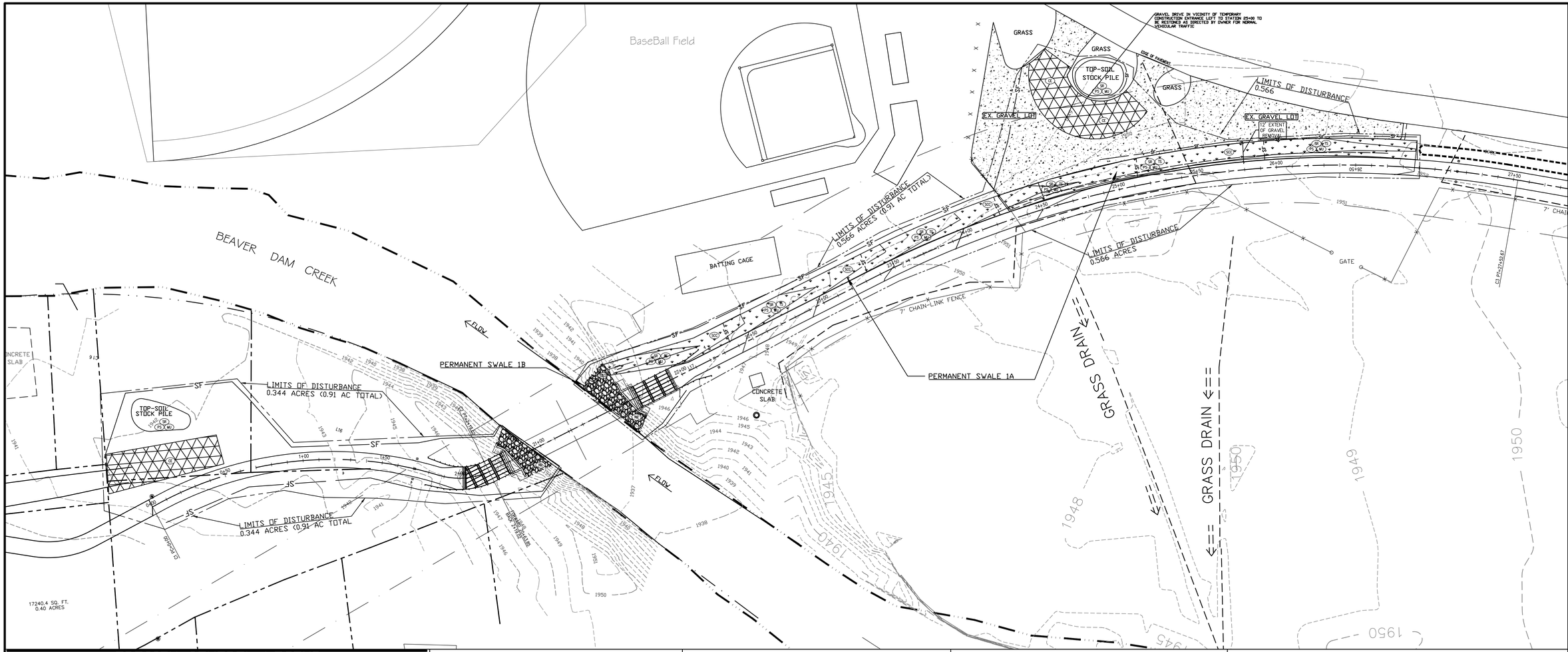
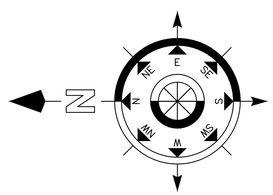
Project No. 0172

L-4



EROSION CONTROL LEGEND

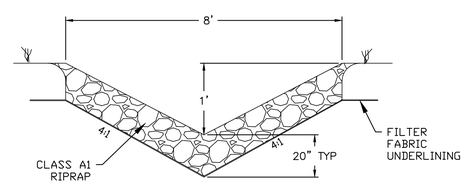
SYMBOL		DESCRIPTION	ST'D. & SPEC.	EST. QUANTITY
	CE	CONSTRUCTION ENTRANCE	3.02	2 EA.
—SF—	SF	SILT FENCE	3.05	1500'
	SCC	STORM CONVEYANCE CHANNEL	3.17	555' X 12'
	RR	RIPRAP	3.19	952 SF (120 TONS)
	SR	SURFACE ROUGHENING	3.29	8273 SF
	TS	TEMPORARY SEEDING	3.31	5123 SF
	PS	PERMANENT SEEDING	3.32	8273 SF
	MU	MULCHING	3.35	8273 SF
— — —		LIMITS OF DISTURBANCE		0.91 ACRES



1" = 30'-0"

30' 15' 0 30' 60'

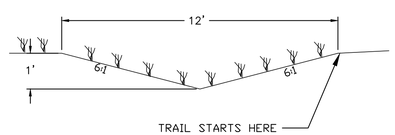
AVERAGE SLOPE OF 40% OVER 20'
STA: 21+40 - 21+60



SWALE 1B

NO SCALE

AVERAGE SLOPE OF 2% OVER 535'
STA: 21+60 - 26+67



SWALE 1A

NO SCALE

MAINTENANCE SCHEDULE FOR EROSION CONTROL DEVICES

3.02 TEMPORARY CONSTRUCTION ENTRANCE
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

3.05 SILT FENCE
SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

3.17 STORMWATER CONVEYANCE CHANNEL
DURING THE INITIAL ESTABLISHMENT, GRASS-LINED CHANNELS SHOULD BE REPAIRED IMMEDIATELY AND GRASS REESTABLISHED IF NECESSARY. AFTER GRASS HAS BECOME ESTABLISHED, THE CHANNEL SHOULD BE CHECKED PERIODICALLY TO DETERMINE IF THE GRASS IS WITHSTANDING FLOW VELOCITIES WITHOUT DAMAGE. IF THE CHANNEL IS TO BE MOWED, IT SHOULD BE DONE IN A MANNER THAT WILL NOT DAMAGE THE GRASS. RIPRAP-LINED CHANNELS SHOULD BE CHECKED PERIODICALLY TO ENSURE THAT SCOUR IS NOT OCCURRING BENEATH FABRIC UNDERLINING OF THE RIPRAP LAYER. THE CHANNEL SHOULD ALSO BE CHECKED TO DETERMINE THAT THE STONES ARE NOT DISLODGED BY LARGE FLOWS.

MAINTENANCE SCHEDULE FOR EROSION CONTROL DEVICES

3.19 RIPRAP
ONCE RIPRAP INSTALLATION HAS BEEN COMPLETED, IT SHOULD REQUIRE VERY LITTLE MAINTENANCE. IT SHOULD, HOWEVER, BE INSPECTED PERIODICALLY TO DETERMINE IF HIGH FLOWS HAVE CAUSED SCOUR BENEATH THE RIPRAP OR FILTER FABRIC OR DISLODGED ANY OF THE STONE. CARE MUST BE TAKEN TO PROPERLY CONTROL SEDIMENT-LADEN CONSTRUCTION RUNOFF WHICH MAY DRAIN TO THE POINT OF THE NEW INSTALLATION. IF REPAIRS ARE NEEDED, THEY SHOULD BE ACCOMPLISHED IMMEDIATELY.

3.31 TEMPORARY SEEDING
THE AREA SHALL BE CHECKED AFTER EVERY HEAVY RUN-OFF PRODUCING STORM EVENT OR DAILY DURING PROLONGED STORM EVENTS. ERODED OR WASHED-OUT AREAS NEED TO BE IMMEDIATELY REGRADED AND STABILIZED. DITCHES NEED TO BE CHECKED FOR SEDIMENT AND ANY ACCUMULATION OF SEDIMENT SHALL BE REMOVED TO RESTORE THE DITCH LINE TO DESIGN GRADE AND ELEVATION

3.32 PERMANENT SEEDING
EVEN WITH CAREFUL, WELL-PLANNED SEEDING OPERATIONS, FAILURES CAN OCCUR. WHEN IT IS CLEAR THAT PLANTS HAVE NOT GERMINATED ON AN AREA OR HAVE DIED, THESE AREAS MUST BE SEEDED IMMEDIATELY TO PREVENT EROSION DAMAGE. HOWEVER, IT IS EXTREMELY IMPORTANT TO DETERMINE FOR WHAT REASON GERMINATION DID NOT TAKE PLACE AND MAKE ANY CORRECTIVE ACTION NECESSARY PRIOR TO RESEEDING THE AREA. HEALTHY VEGETATION IS THE MOST EFFECTIVE EROSION CONTROL AVAILABLE.

3.35 MULCHING
ALL MULCHES AND SOIL COVERINGS SHOULD BE INSPECTED PERIODICALLY (PARTICULARLY AFTER RAINSTORMS) TO CHECK FOR EROSION. WHERE EROSION IS OBSERVED IN MULCHED AREAS, ADDITIONAL MULCH SHOULD BE APPLIED. NETS AND MATS SHOULD BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE-INSTALL NETTING OR MATTING AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. INSPECTIONS SHOULD TAKE PLACE UP UNTIL GRASSES ARE FIRMLY ESTABLISHED. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE; REPAIR AS NEEDED.

GENERAL EROSION & SEDIMENT CONTROL NOTES

ES-1 UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATION 9VAC25-840 EROSION AND SEDIMENT CONTROL REGULATIONS.
ES-2 THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
ES-3 ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
ES-4 A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
ES-5 PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO, OFF SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
ES-6 THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
ES-7 ALL DISTURBED AREAS ARE TO BE DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
ES-8 IF REQUIRED DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE. HOWEVER NO DEWATERING IS ANTICIPATED ON THIS PROJECT.
ES-9 THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES DAILY. A RECORD OF THE REPORT SHALL BE WITH THE COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
ES-10 THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF SEDIMENT THAT HAS BEEN TRANSPORTED ONTO PAVED OR PUBLIC ROADS AT A MINIMUM, TRACKING SHALL BE CLEANED BY THE END OF EACH WORK DAY.
ES-11 TEMPORARY/PERMANENT STABILIZATION OPERATIONS SHALL BE INITIATED WITHIN 7 DAYS AFTER REACHING FINAL GRADE OR UPON SUSPENSION OF GRADING OPERATIONS FOR ANTICIPATED DURATION OF GREATER THAN 14 DAYS OR UPON COMPLETION OF GRADING OPERATIONS FOR A SPECIFIC AREA.
ES-12 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOILS.

PILLAR
ENGINEERS · SURVEYORS · MANAGERS
3512 BRAMBLETON AVENUE, SUITE 5
ROANOKE, VA 24018
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COMMONWEALTH OF VIRGINIA
DAVID G. WRIGHT
Lic. No. 028520
6/24/2016
PROFESSIONAL ENGINEER

BEAVERDAM CREEK TRAIL & PED BRIDGE IN TOWN OF DAMASCUS VIRGINIA
BASE BID ONLY
PROJECT #EN99-205-101, PE101, C501; UPC 51977

DATE:	JUNE 24, 2016
DRAWN BY:	BWT
CHECKED BY:	DGW
JOB NUMBER:	161849

EROSION AND SEDIMENT PLANS, NOTES, AND DETAILS

ES 2.1

PILLAR ORIGINAL DOCUMENT SIZE = 18"x24"

MINIMUM STANDARDS CHECKLIST

MS-1 PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN 7 DAYS ONCE FINAL GRADE IS ACHIEVED OR IF SITE WILL REMAIN DORMANT FOR MORE THAN 1 YEAR. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS.

MS-2 SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING DEVICES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT.

MS-3 A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED.

MS-4 SEDIMENT CONTROLLING MEASURES SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL PRIOR TO UPSLOPE DISTURBANCE.

MS-5 STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

MS-6 SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES. B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

MS-7 SLOPES FOUND TO BE ERODING WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL HAVE ADDITIONAL STABILIZING MEASURES INCORPORATED.

MS-8 CONCENTRATED RUN-OFF SHALL NOT FLOW DOWN CUT SLOPES.

MS-9 WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

MS-10 ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT

MS-11 NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES SHALL HAVE ADEQUATE OUTLET PROTECTION AND PERMENANT OR TEMPORARY CHANNEL LINING INSTALLED.

MS-12 WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

MS-13 WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED. -NO LIVE WATERCOURSE CROSSING.

MS-14 ALL APPLICABLE FEDERAL, STATE AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

MS-15 THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

MS-16 UNDERGROUND UTILITY LINES SHALL NOT EXCEED 500 LINEAR FEET OF OPEN TRENCH, EXCAVATED MATERIAL WILL BE PLACED UPHILL, BACKFILL MATERIAL SHALL BE PROPERLY COMPACTED, EFFLUENT FROM DEWATERING DEVICES SHALL BE FILTERED, RESTABILIZATION WILL FOLLOW PLANS, AND APPLICABLE SAFETY REGULATIONS SHALL BE FOLLOWED.

MINIMUM STANDARDS CHECKLIST

MS-17 THE CONTRACTOR SHALL MAINTAIN ALL STREETS AND ROADWAYS FREE OF MUD AND DIRT, AND SHALL CONTROL ALL AIRBORNE POLLUTANTS AS NECESSARY. IF TRACKING OF SEDIMENT ONTO PAVED SURFACES OCCURS, THE CONTRACTOR SHALL CLEAN THE SURFACE THOROUGHLY AT THE END OF EACH DAY.

MS-18 TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR ARE OTHERWISE NO LONGER NEEDED. HOWEVER, NO ESC MEASURES WILL BE REMOVED WITHOUT PERMISSION OF THE VESC AUTHORITY.

MS-19 PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:

A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR

2) (A) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS. (B) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND (C) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:

1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR

2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;

3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PREDEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MANMADE CHANNEL; OR

4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.

D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.

F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.

G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.

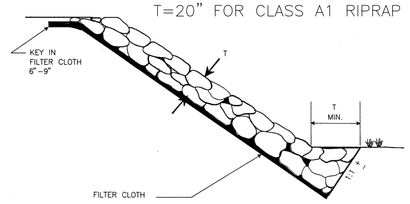
H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.

TOE REQUIREMENTS FOR BANK STABILIZATION

FILTER CLOTH UNDERLINER (PREFERRED)

T=20" FOR CLASS A1 RIPRAP



MINIMUM STANDARDS CHECKLIST

J. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

L. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO

I. DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS;

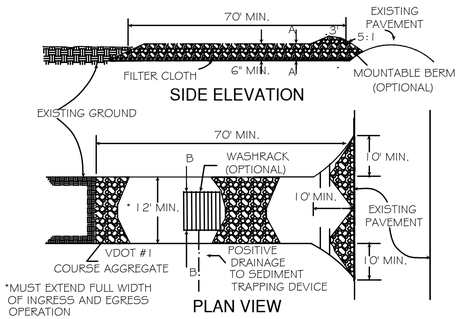
II. DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24- HOUR STORM; AND

III. REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 10.1-562 OR 10.1-570 OF THE ACT.

M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 10.1-561 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 10.1-603.2 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LANDDISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 4VAC50-60-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS.

N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.

STONE CONSTRUCTION ENTRANCE



SOURCE: ADAPTED from 1983 Maryland Standards for Soil erosion and Sediment Control, and Va. DSWC

PLATE 3.02-1

TABLE 3.32-C
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR APPALACHIAN/MOUNTAIN AREA

SEED[1]		
LAND USE	**SPECIES**	**APPLICATION RATES**
Minimum Care Lawn (Commercial or Residential)	Tall Fescue[1] Perennial Ryegrass[2] Kentucky Bluegrass[3]	90-100% 0-10% 0-10% TOTAL: 200-250 lbs.
High-Maintenance Lawn	Minimum of three (3) up to five (5) varieties of Kentucky Bluegrass from approved list for use in Virginia[1]	TOTAL: 125 lbs.
General Slope (3:1 or less)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3]	128 lbs. 2 lbs. 20 lbs. TOTAL: 150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3] Crownvetch[4]	108 lbs. 2 lbs. 20 lbs. 20 lbs. TOTAL: 150 lbs.

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://sudan.cses.vt.edu/html/Turf/turfpublications/publications2.html

2 - Perennial Ryegrass will germinate faster and at lower soil temperatures than Tall Fescues, thereby providing cover and erosion resistance for seedbed.

3 - Use seasonal nurse crop in accordance with seeding dates as stated below:

March, April - May 15th	Annual Rye
May 16th - August 15th	Foxtail Millet
August 16th - September, October	Annual Rye
November - February	Winter Rye

4 - All legume seed must be properly inoculated. If Flatpea is used, increase to 30 lbs/acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40 lbs/acre.

FERTILIZER & LIME

- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

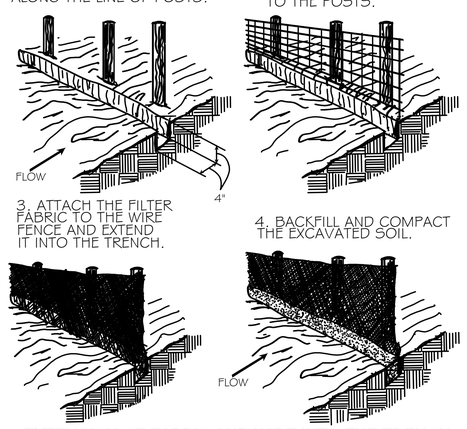
SEED		
APPLICATION DATES	**SPECIES**	**APPLICATION RATES**
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

FERTILIZER & LIME

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)



SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood & Wyant

PLATE 3.05-1

TABLE 3.35-A
ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES: Per Acre	RATES: Per 1000 sq. ft.	NOTES:
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

Source: Va. DSWC

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COMMONWEALTH OF VIRGINIA
DAVID G. WRIGHT
Lic. No. 028520
6/24/2016
PROFESSIONAL ENGINEER

BEAVERDAM CREEK TRAIL & PED BRIDGE IN TOWN OF DAMASCUS
BASE BID ONLY
PROJECT #EN99-205-101, PE101, C501; UPC 51977
VIRGINIA

DATE: JUNE 24, 2016
DRAWN BY: BWT
CHECKED BY: DGW
JOB NUMBER: 161849

EROSION AND SEDIMENT CONTROL DETAILS & NOTES CONT.

ES 2.2

N
80'±
IDGE)

FLOW

VEHICLE CONTROL BOLLARDS 3/L-3

DISMOUNT TO CROSS BRIDGE SIGN & SHARP CURVE AHEAD WARNING SIGN, BOTH SIM. TO B

NEW COMPACTED GRAVEL TRAIL, 10' WIDE

EXISTING 18" R.C.P.

DEMO TREE

1948.50
1946.30

22+50

22+00

14" ASH

8" ELM

24" SYCAMORE

B.M.

CONCRETE SLAB

12" PAULONIA

8" ELM

3/L-3

32" POPLAR

CONCRETE BRIDGE ABUTMENT, TYP. EACH SIDE

VDOT CLASS A1 RIPRAP REQ'D, SEE DETAIL SHEET L-4

℄

L1

21+50

6" POPLAR

10" LOCUST

C2 PT=2+19.02

8" ELM

12" SYCAMORE

4" BIRCH

21+00

14' WIDE X 90' LENGTH PEDESTRIAN FOOTBRIDGE

90.0'

1+50

10" OAK

8" ELM

ELM

DEMO TREES, TYP.

20" CHERRY

10.0'

2+00

12" PAULONIA

10" ASH

8" ASH

8" ASH

12" ASH

6" SYCAMORE

10" LOCUST

10" LOCUST

8" ASH

12" ASH

1946.14

1948.50

C1/C2 PRC=1+87.19

FORWARD BACK 2+19.02

20+63.85

DISMOUNT TO CROSS BRIDGE SIGN, SIM. TO B

B. 619 PG. 222

BRENDA SMITH

TOWN OF DAMASCUS
D.B. 713 PG. 783

1" = 10' 10' 5' 0 10' 20'

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BEAVER DAM CREEK TRAIL & BRIDGE – PHASE 1

BRIDGE SITE PLAN

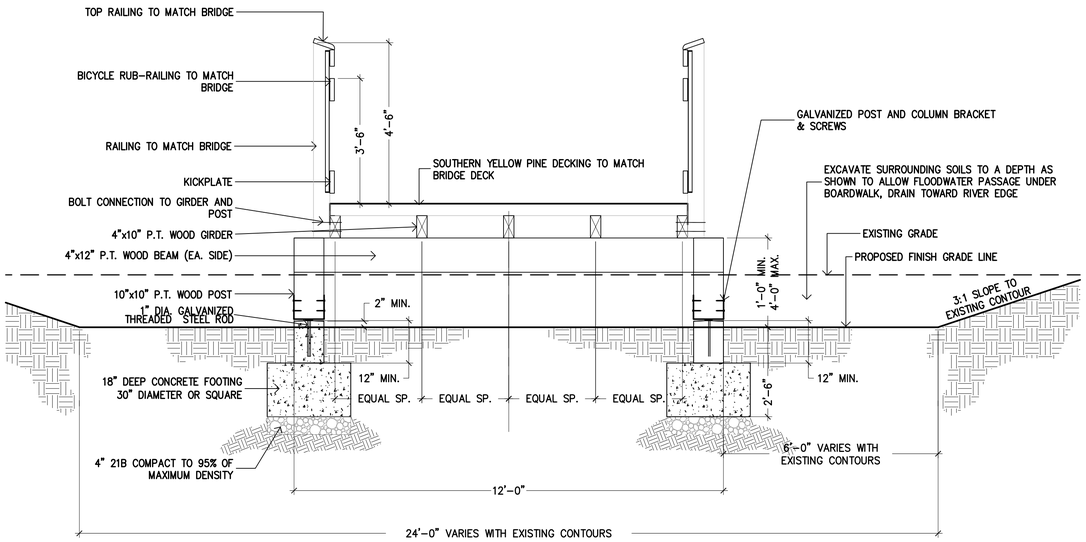
TOWN OF DAMASCUS, VIRGINIA
EN99-205-101, PE101, C501 UPC 51977

COMMONWEALTH OF VIRGINIA
DAVID P. HILL
21 APR 2017
No. 259
CERTIFIED LANDSCAPE ARCHITECT

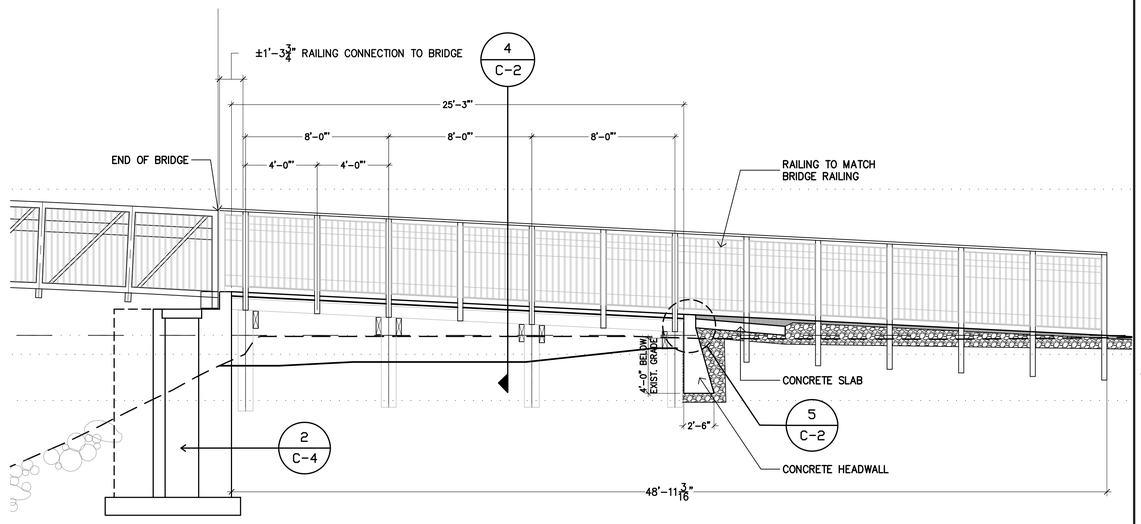
Date: 21 APR 2017
Scale: 1"=10'
Revisions:

Drawn By: MSL
Review By: CRC
Project No. 0172

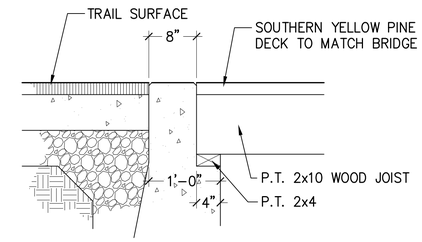
C-1



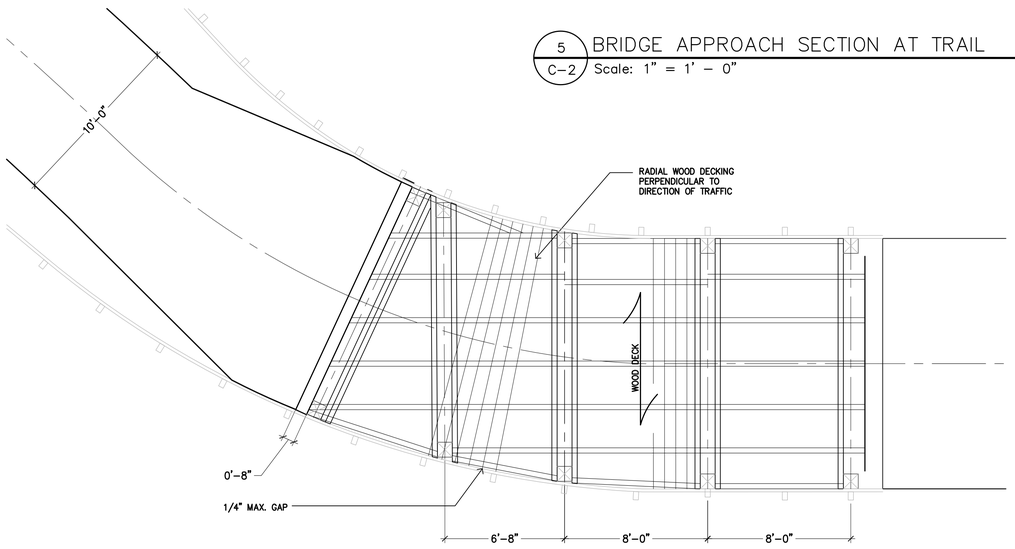
4 / C-2 BRIDGE APPROACH SECTION DETAIL
Scale: 1/2" = 1' – 0"



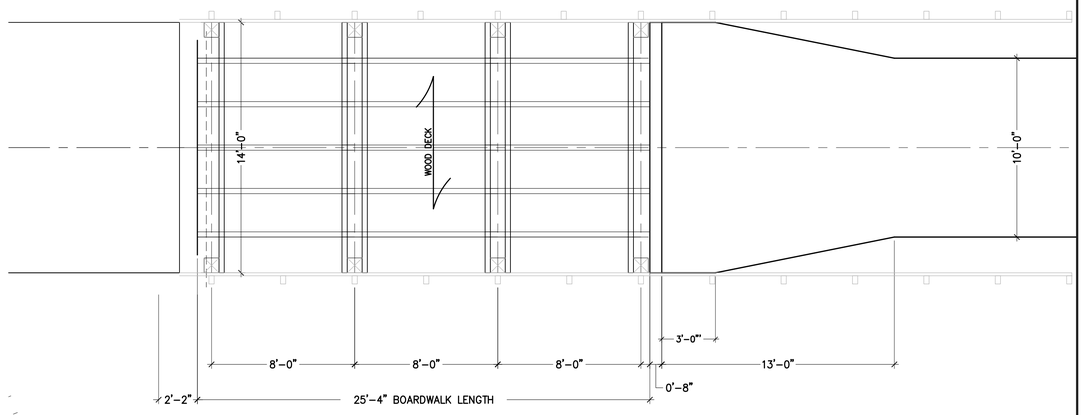
3 / C-2 BRIDGE APPROACH ELEVATION
Scale: 1/2" = 1' – 0"



5 / C-2 BRIDGE APPROACH SECTION AT TRAIL
Scale: 1" = 1' – 0"



2 / C-2 BRIDGE APPROACH RIVER LEFT
Scale: 1/4" = 1' – 0"



1 / C-2 BRIDGE APPROACH RIVER RIGHT
Scale: 1/4" = 1' – 0"

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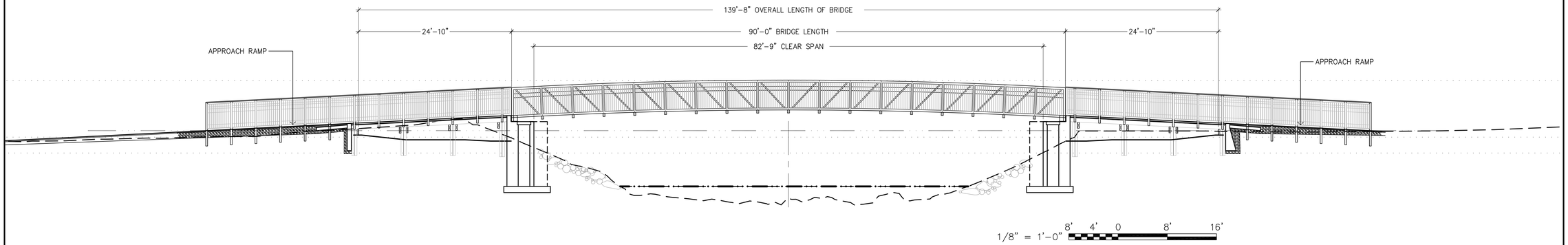
BEAVER DAM CREEK TRAIL & BRIDGE – PHASE 1
BRIDGE APPROACH DETAILS
TOWN OF DAMASCUS, VIRGINIA
EN99-205-101, PE101, C501
UPC 51977

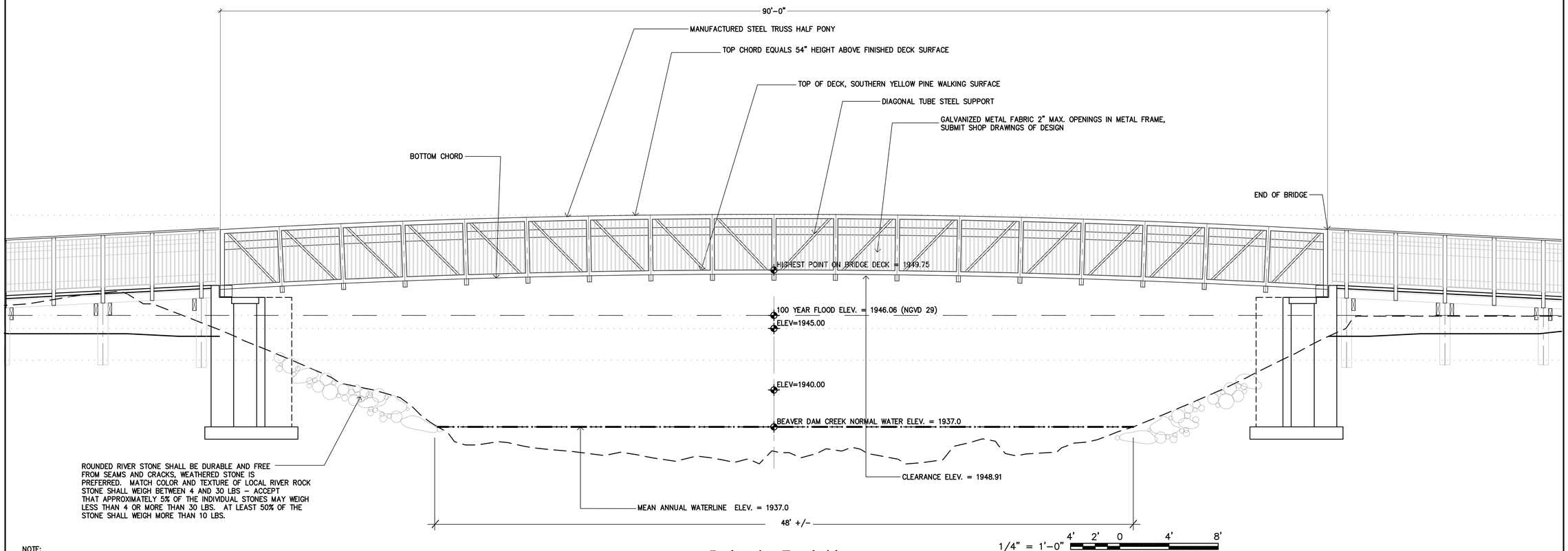
COMMONWEALTH OF VIRGINIA
DAVID P. HILL
21 APR 2017
No. 259
CERTIFIED LANDSCAPE ARCHITECT

Date: 21 APR 2017
Scale: AS NOTED
Revisions:

Drawn By: MSL
Review By:
Project No. 0172

C-2





NOTE:
INSTALL BRIDGE PER MANUFACTURER'S AND ENGINEER'S DESIGN AND SPECIFICATIONS.

Pedestrian Footbridge
Beaver Dam Creek

BASE LINE ELEV. = 1916

1 / C-3 BRIDGE ELEVATION – UPSTREAM VIEW
Scale: 1/4" = 1' – 0"

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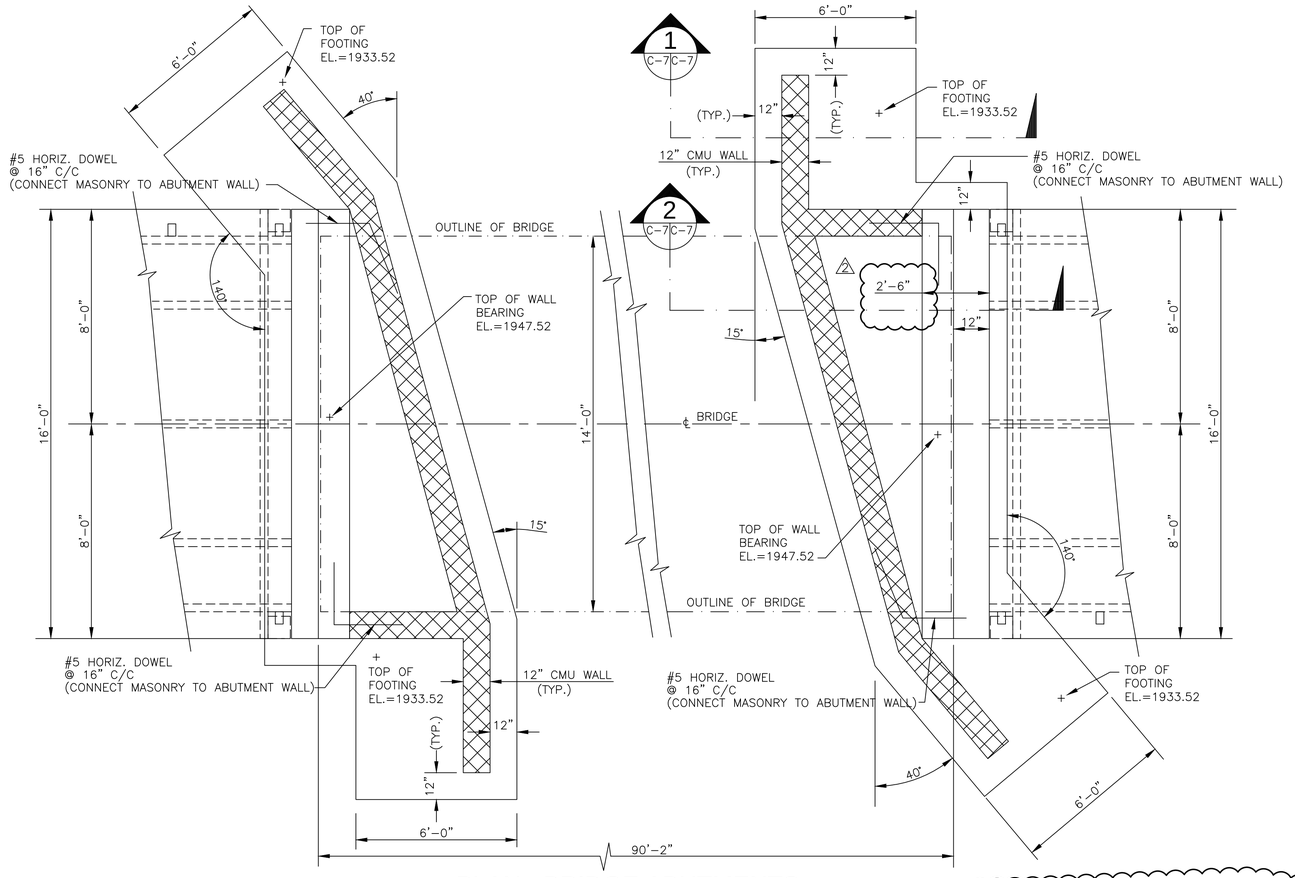
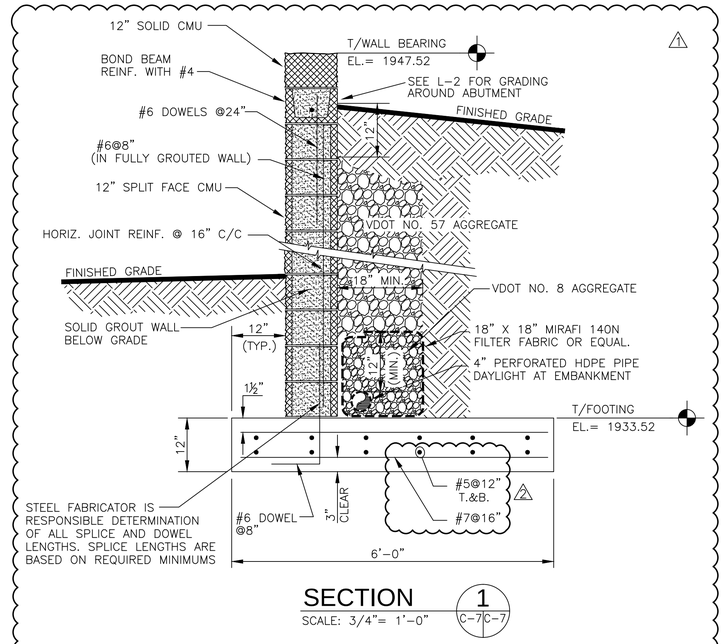
C-3



PLAN - BRIDGE ABUTMENTS

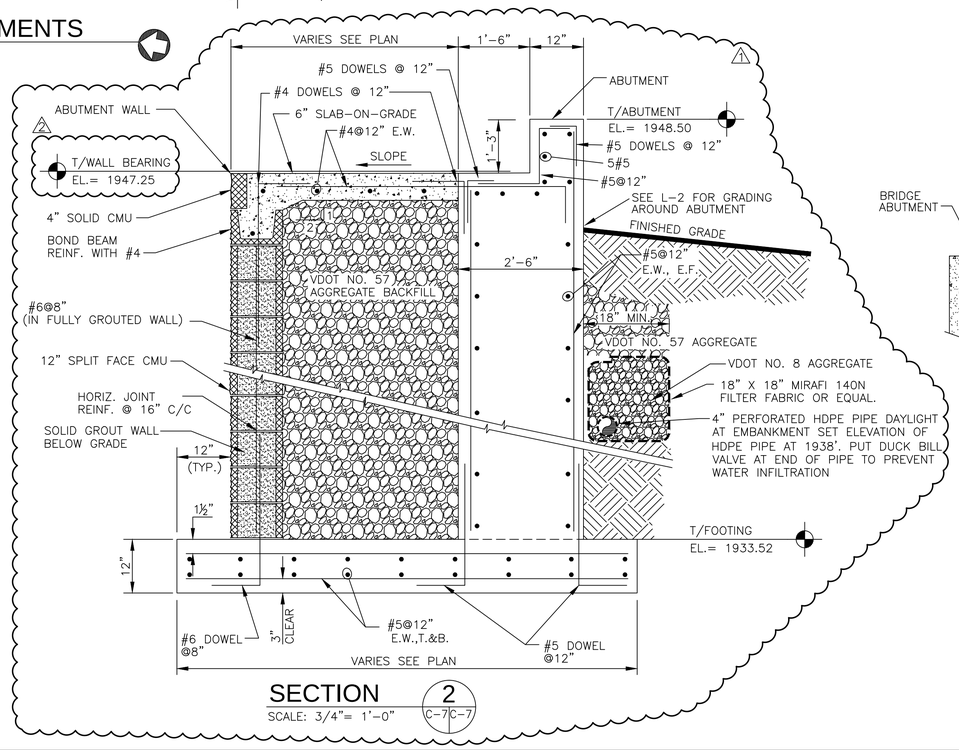
SCALE: 3/8"= 1'-0"



SECTION 1

C-7 C-7

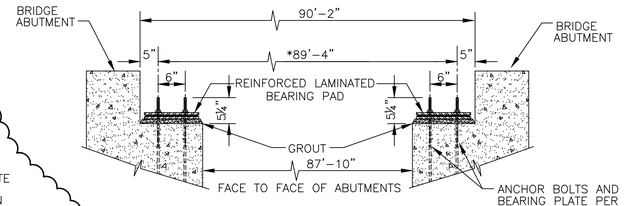
SCALE: 3/4"= 1'-0"



SECTION 2

C-7 C-7

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



* INDICATES DIMENSIONS TO BE FIELD VERIFIED AND DETERMINED BY BRIDGE FABRICATOR.

DETAIL - BRIDGE ABUTMENTS

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

GENERAL NOTES - CONCRETE

1. ALL FOOTINGS AND FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF. FOOTINGS ARE TO BEAR ON UNDISTURBED SOIL OR COMPACTED, ENGINEERED FILL. ALL FOOTING EXCAVATIONS SHALL BE APPROVED BY A QUALIFIED SOILS TECHNICIAN OR ENGINEER. REPORT ANY DISCREPANCIES WITH THE SOILS REPORT TO THE ENGINEER PRIOR TO PLACING CONCRETE.
2. UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS, ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI FOR FOUNDATIONS AND 4000 PSI FOR SLABS IN 28 DAYS.
3. UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL SHALL BE GRADE 60, DEFORMED BARS, CONFORMING TO ASTM A-615. REINFORCING STEEL TO BE WELDED SHALL BE ASTM A-706, DEFORMED. 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.
4. REINFORCING STEEL SHALL NOT BE WELDED UNLESS APPROVED BY THE ENGINEER.
5. UNLESS OTHERWISE NOTED, ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE AASHTO BRIDGE SPECS INCLUDING THE VDOT MODIFICATIONS AND THE VDOT ROAD AND BRIDGE SPECIFICATION.
6. ALL BAR SPLICES SHALL BE CLASS "B" TENSION SPLICES UNLESS OTHERWISE NOTED.
7. ALL EMBEDDED STRUCTURAL STEEL SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED. ANCHOR BOLTS SHALL BE GALVANIZED A-307 UNLESS OTHERWISE NOTED.
8. ALL ABUTMENT WALLS MUST BE SHORED PRIOR TO BACKFILLING. SHORES SHALL REMAIN IN PLACE UNTIL ALL SUPPORTING STRUCTURES ARE IN PLACE AND HAVE OBTAINED THEIR DESIGN STRENGTH.
9. CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" X 45 DEGREE CHAMFER UNLESS NOTED OTHERWISE.
10. THE CONTRACTOR SHALL INVESTIGATE ACTUAL LOCATIONS OF UNDERGROUND LINES AND UTILITIES BEFORE EXCAVATING AND ADVISE ENGINEER OF ANY VARIATIONS. ALL EXCAVATIONS NEAR THESE LINES TO BE CARRIED OUT WITH EXTREME CAUTION.
11. ALL ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.

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T&L PROJ. NO. 7689-00

BEAVER DAM CREEK TRAIL & BRIDGE
ABUTMENT PLAN & DETAILS
TOWN OF DAMASCUS, VIRGINIA
EN99-205-101, PE101, C501 UPC 51977

COMMONWEALTH OF VIRGINIA
STEVEN D. BROOKS
Lic. No.023336
9-30-13
PROFESSIONAL ENGINEER

Date: 9-30-2013
Scale: AS NOTED
Revisions:
BID SET
⚠ RESPONSE TO VDOT COMMENTS DATED APRIL 24, 2012
⚠ RESPONSE TO VDOT COMMENTS DATED

Drawn By: JFM, MLT
Review By: CAJ, SDP
Project No. 0172

C-7

2'-0" 12" 0 2'-0" 4'-0" 8'-0"
3/8"=1'-0"
12" 6" 0 1'-0" 2'-0" 4'-0"
3/4"=1'-0"
GRAPHIC SCALE