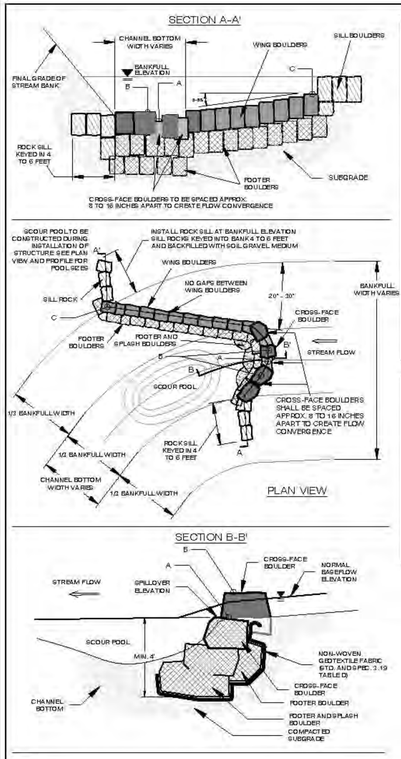

CONSTRUCTION SPECIFICATIONS

1. EXCAVATE TRENCH ALONG THE BOTTOM OF THE STREAM BED AND TO THE BANKFULL ELEVATION IN THE STREAMBANK FOR THE PLACEMENT OF THE WING OF THE VANE. THE TRENCH SHOULD BE 3 BANKFULL WIDTH AND TO THE DESIGN ANGLE FOR THE WING PORTION OF THE HOOK. PLACE THE HOOK ROCKS AT THE END OF THE VANE ARM IN ORDER TO ENCOURAGE LATERAL FLOW INTO THE EXCAVATED SCOUR POOL. NOTE: VANE WING MUST BE PROPERLY TIED INTO THE BANK AT BANKFULL ELEVATION.
2. PLACE ONE OR TWO COURSE OF FOOTER BOULDERS TO THE MINIMUM SPECIFIED FOOTER DEPTH.
3. PLACE VANE ROCKS ON TOP OF FOOTER ROCKS SO THAT THE VANE ROCK RESTS ON ONE HALF OF A FOOTER ROCK BELOW. OFFSET THE VANE ROCK IN THE UPSTREAM DIRECTION AND PLACE SO THEY SLOPE SLIGHTLY AGAINST THE FLOW DIRECTION.
4. EXTEND THE STRUCTURE INTO THE BANK (I.E. SILL ROCKS) AND ARMOUR UPSTREAM AND DOWNSTREAM FOR STABILITY WITH RIP RAP AND COMPACTED FILL MATERIALS.
5. AT THE BANKFULL ELEVATION, CREATE A SILL OF PLACED ROCK PERPENDICULAR TO THE STREAMBANK EXTENDING AWAY FROM THE VANE WING ARM. CONSTRUCT THE SILL PER VSRDM 4.5: CUT OFF SILLS AND LINEAR DEFLECTORS.
8. SEAL THE STRUCTURE ON THE UPSTREAM SIDE AS DESCRIBED BELOW.
7. EXCAVATE THE SCOUR POOL TO THE DESIGN DEPTH.

CONSTRUCTION GUIDELINES

1. ALWAYS USE AT LEAST TWO ROCKS FOR THE HOOK OF THE STRUCTURE.
2. PLACEMENT OF LARGE ROCK MAY REQUIRE A SMALL TRACK HOE.
3. THE ROCK MATERIAL SHOULD BE INSPECTED BEFORE IT IS PLACED.
4. STRUCTURES MUST BE SEALED WITH FILTER FABRIC AND PLACED OPEN CLASS FILTER AGGREGATE.
5. ENSURE NO LEAKAGE/FLOW UNDER OR AROUND THE STRUCTURE BY PROPERLY GRADING, SEALING, AND COMPACTING UNDER AND AROUND THE STRUCTURE.
6. AFTER INSTALLATION, CHECK PROPER FUNCTION/FLOW PATH BY OBSERVING FLOW OVER THE STRUCTURE.

BOULDER INFORMATION

	SPECIFICATION	TOTAL LENGTH OF UNIT	COMMENT
WING ROCKS	SEE BOULDER SIZING DETAIL & SPEC	TBD	20 - 30°
CROSS FACE		TBD	PERPENDICULAR TO FLOW
FOOTER BOULDERS		TBD	ALIGNED WITH VANE ROCKS (SUBMERGED)
ROCK SILL		TBD	PERPENDICULAR TO FLOW

DETAIL: PROPOSED J-HOOK (TYP.)

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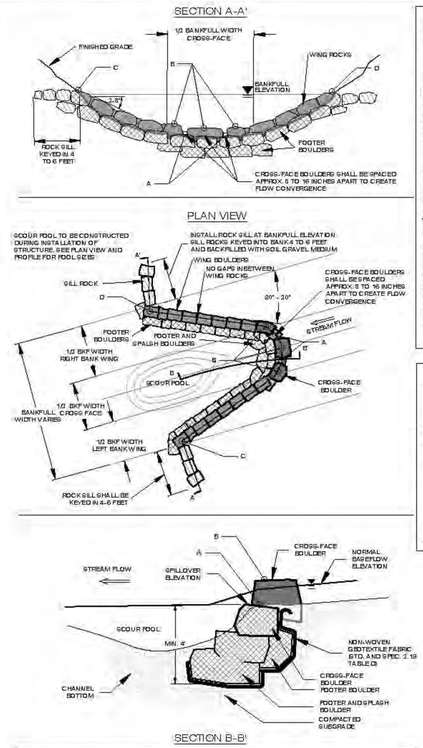

CONSTRUCTION SPECIFICATIONS

1. EXCAVATE TRENCH ALONG THE BOTTOM OF THE STREAM BED AND TO THE BANKFULL ELEVATION IN THE STREAMBANK FOR THE PLACEMENT OF THE WING OF THE VANE. THE TRENCH SHOULD BE 3 BANKFULL WIDTH AND TO THE DESIGN ANGLE FOR THE WING PORTION OF THE HOOK. PLACE THE HOOK ROCKS AT THE END OF THE VANE ARM IN ORDER TO ENCOURAGE LATERAL FLOW INTO THE EXCAVATED SCOUR POOL. NOTE: VANE WING MUST BE PROPERLY TIED INTO THE BANK AT BANKFULL ELEVATION.
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8. SEAL THE STRUCTURE ON THE UPSTREAM SIDE AS DESCRIBED BELOW.
7. EXCAVATE THE SCOUR POOL TO THE DESIGN DEPTH.

CONSTRUCTION GUIDELINES

1. ALWAYS USE AT LEAST TWO ROCKS FOR THE HOOK OF THE STRUCTURE.
2. PLACEMENT OF LARGE ROCK MAY REQUIRE A SMALL TRACK HOE.
3. THE ROCK MATERIAL SHOULD BE INSPECTED BEFORE IT IS PLACED.
4. STRUCTURES MUST BE SEALED WITH FILTER FABRIC AND PLACED OPEN CLASS FILTER AGGREGATE.
5. ENSURE NO LEAKAGE/FLOW UNDER OR AROUND THE STRUCTURE BY PROPERLY GRADING, SEALING, AND COMPACTING UNDER AND AROUND THE STRUCTURE.
6. AFTER INSTALLATION, CHECK PROPER FUNCTION/FLOW PATH BY OBSERVING FLOW OVER THE STRUCTURE.

BOULDER INFORMATION

	SPECIFICATION	TOTAL LENGTH OF UNIT	COMMENT
WING ROCKS (2x)	SEE BOULDER SIZING DETAIL & SPEC	TBD	20 - 30°
CROSS FACE		TBD	PERPENDICULAR TO FLOW
FOOTER BOULDERS		TBD	ALIGNED WITH VANE ROCKS (SUBMERGED)
ROCK SILL		TBD	PERPENDICULAR TO FLOW

DETAIL: PROPOSED CROSS-VANE (TYP.)

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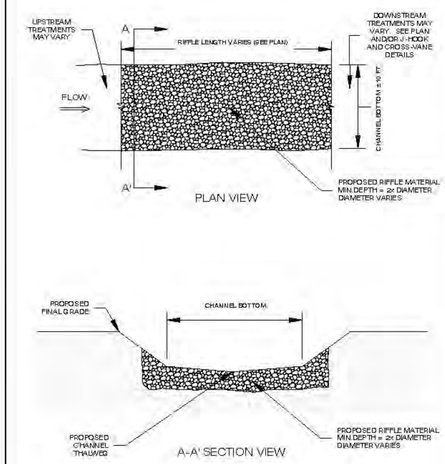

CONSTRUCTED RIFFLE DETAIL (TYP.)

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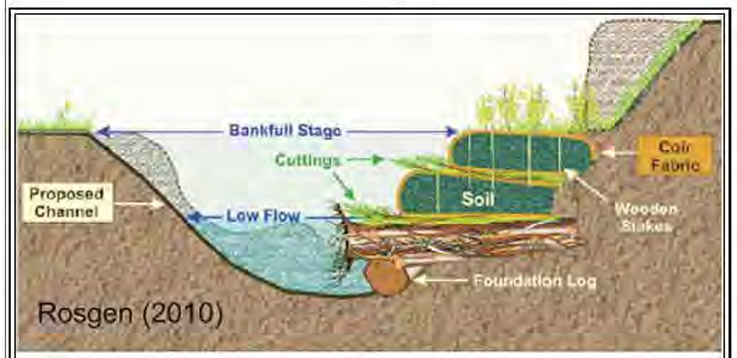

DETAIL: TOE WOOD

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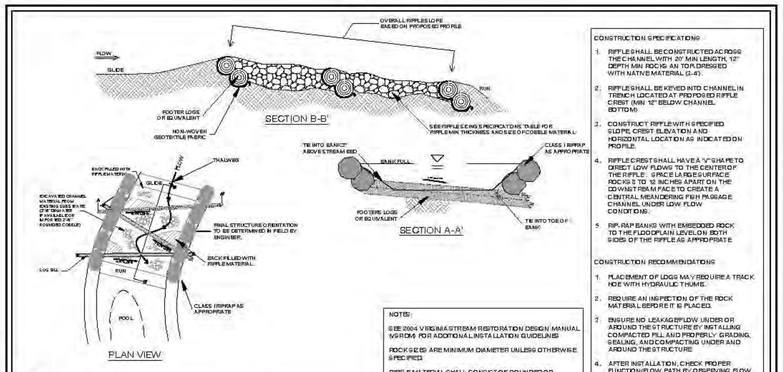

CONSTRUCTION SPECIFICATIONS

1. RIFFLE SHALL BE CONSTRUCTED ACROSS THE CHANNEL WITH 20' MIN LENGTH, 12" DEPTH MIN ROCKS AN TOP, DRESSED WITH NATIVE MATERIAL (3-4").
2. RIFFLE SHALL BE KEYED INTO CHANNEL IN TRENCH LOCATED AT PROPOSED RIFFLE CREST (MIN 12" BELOW CHANNEL BOTTOM)
2. CONSTRUCT RIFFLE WITH SPECIFIED SLOPE, CREST ELEVATION AND HORIZONTAL LOCATION AS INDICATED ON PROFILE.
4. RIFFLE CREST SHALL HAVE A "V" SHAPE TO DIRECT LOW FLOWS TO THE CENTER OF THE RIFFLE. SPACE LARGE SURFACE ROCKS 8 TO 16 INCHES APART ON THE DOWNSTREAM FACE TO CREATE A CENTRAL MEANDERING FISH PASSAGE CHANNEL UNDER LOW FLOW CONDITIONS.
5. RIP-RAP BANKS WITH EMBEDDED ROCK TO THE FLOODPLAIN LEVEL ON BOTH SIDES OF THE RIFFLE AS APPROPRIATE

CONSTRUCTION RECOMMENDATIONS

1. PLACEMENT OF LOGS MAY REQUIRE A TRACK HOE WITH HYDRAULIC THUMB.
2. REQUIRE AN INSPECTION OF THE ROCK MATERIAL BEFORE IT IS PLACED.
3. ENSURE NO LEAKAGE/FLOW UNDER OR AROUND THE STRUCTURE BY INSTALLING COMPACTED FILL AND PROPERLY GRADING, SEALING, AND COMPACTING UNDER AND AROUND THE STRUCTURE
4. AFTER INSTALLATION, CHECK PROPER FUNCTION/FLOW PATH BY OBSERVING FLOW OVER THE STRUCTURE.

NOTES:

SEE 2004 VIRGINIA STREAM RESTORATION DESIGN MANUAL VSRDM FOR ADDITIONAL INSTALLATION GUIDELINES

ROCK SIZES ARE MINIMUM DIAMETER UNLESS OTHERWISE SPECIFIED

RIFFLE MATERIAL SHALL CONSIST OF ROUNDED OR SLIGHTLY ANGULAR RIVER RUN COBBLE SIZED AS SPECIFIED ON PLAN AND PROFILE SHEETS

DETAIL: CONSTRUCTED RIFFLE WITH LOG SILLS

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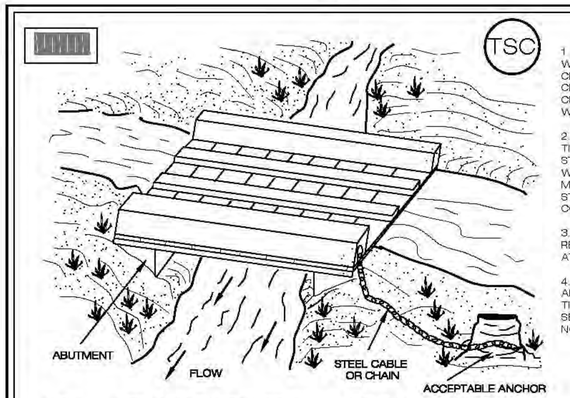

1. TIMBER MATTING SHALL BE USED WHERE CONSTRUCTION EQUIPMENT CROSSES THE BASE/LOW FLOW CHANNEL WITHIN THE STREAM CHANNEL OR ANY NON-TIDAL WETLANDS.

2. CONTRACTOR SHALL DESIGN THE TIMBER MATTING TO PROTECT THE STREAM CHANNEL BOTTOM OR WETLAND AREAS FROM VEHICLES. THE MATTING SHALL BE DESIGNED TO BE STABLE WHEN TRAVERSED BY CONSTRUCTION VEHICLES.

3. THE TIMBER MATTING WILL BE REMOVED FROM THE STREAM CHANNEL AT THE END OF EACH WORK DAY.

4. SILT FENCE SHALL BE INSTALLED ALONG BOTH BANKS ADJACENT TO THE TIMBER MATTING TO INSURE EXCESS SEDIMENT FROM THE CROSSING DOES NOT FLOW INTO THE CHANNEL.

TEMPORARY BRIDGE CROSSING

NTS

THESE DETAILS ARE PROVIDED AS EXAMPLES OF TYPICAL IN-STREAM STRUCTURES. ALL DETAILS WILL BE REVISED AND UPDATED FOR THE TURKEY RUN PROJECT ONCE THE CONSTRUCTION DRAWINGS ARE PREPARED.

WILLIAMSBURG ENVIRONMENTAL GROUP, INC.

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Environmental Consultants

EMERGENCY POLICE – FIRE – RESCUE 911

REVISED: DECEMBER, 2012

FAIRFAX COUNTY, VIRGINIA
DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES PLANNING & DESIGN DIVISION
12000 GOVERNMENT CENTER PARKWAY, SUITE 449 FAIRFAX, VA 22035-0052

STORMWATER PLANNING DIVISION
703-324-5500

TURKEY RUN STREAM RESTORATION
FINAL CONCEPT DESIGN
REPRESENTATIVE STRUCTURE DETAILS

REVISIONS	DESCRIPTION	BY	APPROVED	DATE

APPROVED BY THE PLANNING AND DESIGN DIVISION

CONTRACT NO. PROJECT NO.

SCALE VERT. 1" = N/A HORIZ. 1" = N/A

DESIGNED BY: DRAFTED BY: CHECKED BY:

SHEET 9 OF

FUND: 000