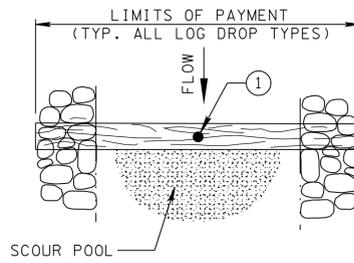
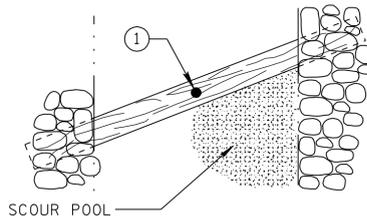


NOTE (1) : CONTROL POINT
SEE LOG DROP NOTE (B)

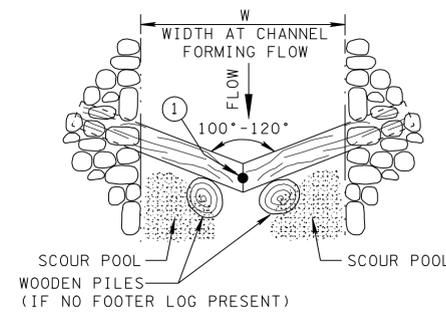
LOG DROP STRUCTURES



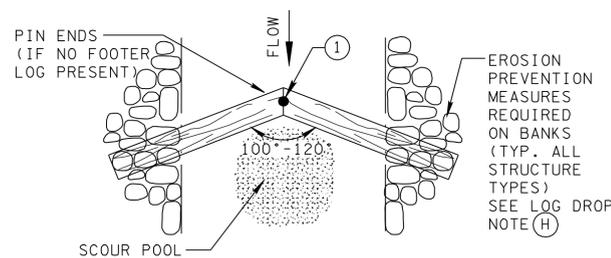
PLAN VIEW - STRAIGHT WEIR



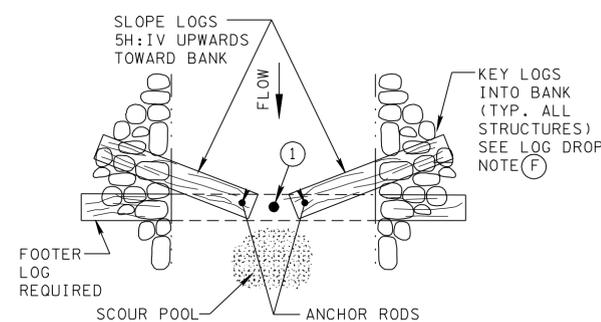
PLAN VIEW - DIAGONAL WEIR



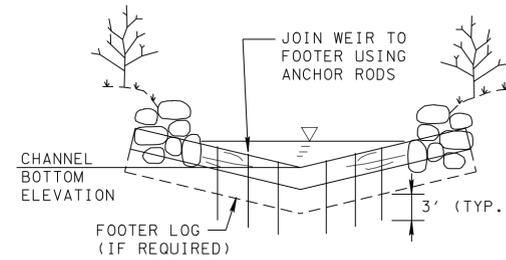
PLAN VIEW
"VEE" WEIR DOWNSTREAM



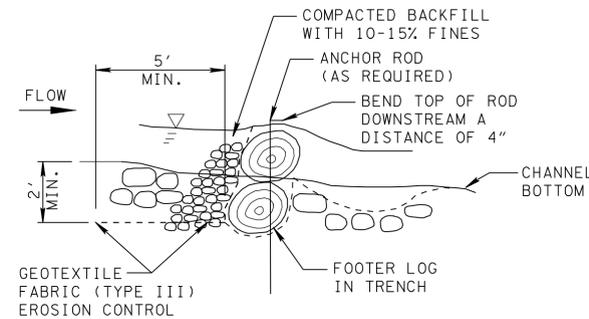
PLAN VIEW
"VEE" WEIR UPSTREAM



PLAN VIEW - "K" WEIR

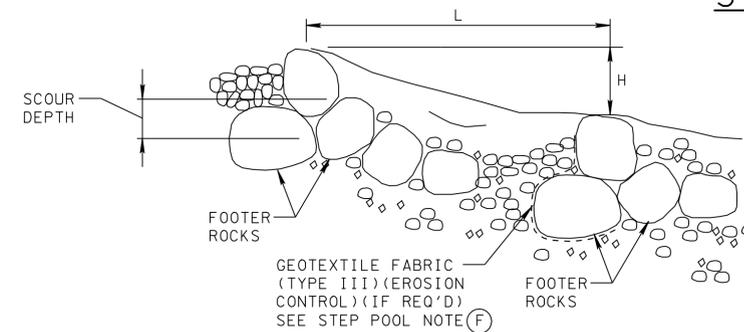


SECTION VIEW
OF "VEE" WEIR

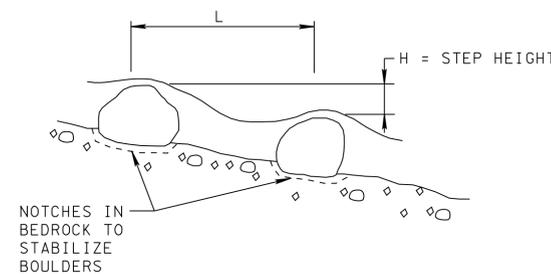


ELEVATION VIEW
DETAIL WITH FOOTER LOG
AND STRUCTURE SEALING

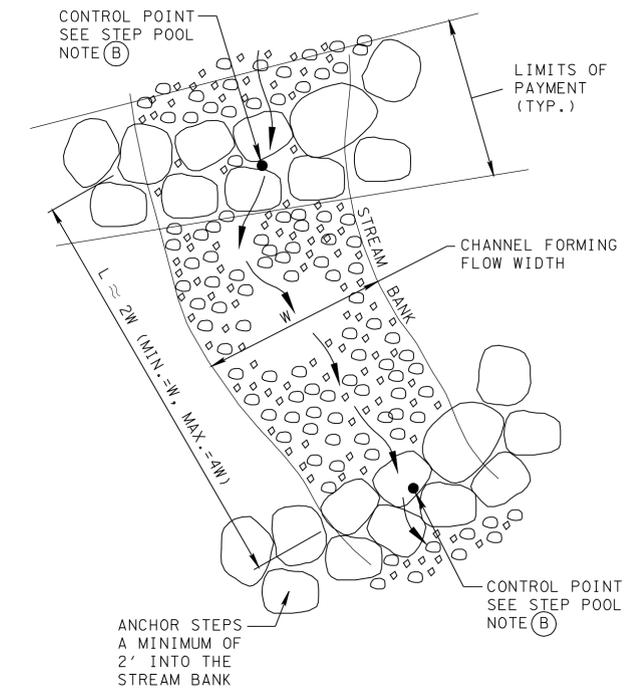
IF REQUIRED - SEE LOG DROP NOTE (G)



INSTALLATION IN
ALLUVIAL CHANNEL



INSTALLATION ON
BEDROCK CHANNEL



PLAN VIEW
STEP POOLS IN SERIES

LOG DROP GENERAL NOTES

- (A) LOG DROPS ARE HYDRAULIC CONTROL MEASURES THAT MAY BE USED TO MAINTAIN THE ELEVATION OF THE STREAM BED, DIRECT FLOWS AWAY FROM ERODIBLE CHANNEL BANKS, OR ENCOURAGE THE FORMATION OF SCOUR HOLES IN THE CHANNEL TO ENHANCE HABITAT. LOG DROPS MAY BE USED IN STREAMS WITH SLOPES RANGING FROM 1% TO 3%.
- (B) CONSTRUCT AT THE ELEVATIONS, STATIONS AND OFFSETS INDICATED ON THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS OR AS DIRECTED BY THE ENGINEER. "VEE" WEIRS MAY BE EITHER SYMMETRICAL (WITH THE APEX AT THE CENTER OF THE CHANNEL) OR ASYMMETRICAL. THE LOCATION OF THE APEX SHOULD ALSO BE INDICATED ON THE TABLE.
- (C) LOGS SHOULD BE TAKEN FROM LOCALLY AVAILABLE ROT-RESISTANT SPECIES SUCH AS CEDAR. THE MINIMUM LOG DIAMETER IS 16 INCHES.
- (D) FOOTER LOGS ARE OPTIONAL FOR ALL CONFIGURATIONS EXCEPT THE "K" WEIR. FOOTER LOGS SHOULD BE PROVIDED AS A CUTOFF WHERE THE DOWNSTREAM SCOUR HOLE WILL BE BELOW THE BOTTOM OF THE WEIR LOG. FOOTER LOGS MAY ALSO BE USED TO PROVIDE ADDITIONAL STABILITY FOR THE WEIR LOG AND SHOULD BE ATTACHED BY MEANS OF STEEL ANCHOR RODS CONSISTING OF NO. 6 REBAR.
- (E) STRAIGHT OR DIAGONAL WEIRS SHOULD BE EMBEDDED INTO THE CHANNEL BOTTOM TO A DEPTH EQUAL TO HALF OF THE LOG DIAMETER. THE FOOTER LOG OF A "K" WEIR AND THE VERTEX OF A "VEE" WEIR SHOULD BOTH BE AT THE CHANNEL BOTTOM ELEVATION. THE WEIR LOGS OF "VEE" AND "K" WEIRS SHOULD SLOPE UPWARD FROM THE CENTER OF THE CHANNEL INTO THE STREAM BANKS.
- (F) AT A MINIMUM, LOGS SHOULD BE KEYED INTO THE CHANNEL BANKS A DISTANCE EQUAL TO 0.4 X THE WIDTH (W) OF THE CHANNEL FORMING FLOW, BUT NO LESS THAN 5 FEET.
- (G) WHERE THE CHANNEL SUBSTRATE IS COMPOSED OF COARSE SEDIMENTS, THE STRUCTURE SHOULD BE SEALED TO ENCOURAGE LOW FLOWS TO PASS OVER THE LOG RATHER THAN THROUGH THE MATERIALS BENEATH IT. PLACE GEOTEXTILE FABRIC (TYPE III) (EROSION CONTROL) ON THE UPSTREAM FACE OF THE STRUCTURE AND BACKFILL WITH A SUITABLE COMPACTED MIXTURE OF GRAVEL AND FINE SEDIMENTS. ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- (H) THE BANK SLOPES ADJACENT TO THE WEIR SHOULD BE PROTECTED AGAINST EROSION BY THE PLACEMENT OF APPROPRIATE EROSION PREVENTION MEASURES SUCH AS VEGETATED RIPRAP, NATURAL BOULDERS, OR BRUSH MATRESSES.
- (I) LOG DROPS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:
209-03.35, STREAM MITIGATION - LOG DROP STRUCTURE, PER LINEAR FOOT
PAYMENT SHALL INCLUDE ALL MATERIAL AND LABOR NECESSARY FOR THE CONSTRUCTION OF THE LOG DROP STRUCTURE.

STEP POOL GENERAL NOTES

- (A) STEP POOLS ARE HYDRAULIC CONTROL MEASURES THAT MAY BE USED TO MAINTAIN GRADE, CONTROL FLOW VELOCITY, AND DISSIPATE ENERGY IN STREAMS WITH SLOPES GREATER THAN 3%.
- (B) STEP POOLS SHOULD BE CONSTRUCTED AT THE ELEVATIONS AND STATIONS INDICATED ON THE STREAM MITIGATION DATA TABLE IN THE PROJECT PLANS OR AS DIRECTED BY THE ENGINEER. MINIMUM REQUIRED BOULDER DIAMETER SHOULD ALSO BE INDICATED ON THE TABLE.
- (C) THE ROCKS USED TO CONSTRUCT A STEP POOL SHOULD BE SUFFICIENTLY FLAT AND BLOCKY TO ALLOW STACKING WITH LITTLE TO NO GAP WHEN THE ROCKS ARE BUTTED AGAINST EACH OTHER. LARGER ROCKS MAY BE REQUIRED FOR THE FOOTER ROCKS IN ORDER TO PROVIDE A STABLE BASE FOR THE STRUCTURE.
- (D) IN AN ALLUVIAL STREAM, THE LOWEST COURSE OF FOOTER ROCKS SHOULD BE PLACED BELOW THE SCOUR DEPTH PROVIDED IN THE STREAM MITIGATION DATA TABLE.
- (E) THE STEP HEIGHT (H) SHOULD BE NO MORE THAN 12 INCHES. IF THIS IS NOT POSSIBLE, SMALL GAPS SHOULD BE LEFT BETWEEN THE ROCKS.
- (F) WHERE THE CHANNEL SUBSTRATE IS SUFFICIENTLY FINE TO PASS BETWEEN THE ROCKS IN THE STEP POOL, THE STRUCTURE SHOULD BE PLACED ON A LAYER OF GEOTEXTILE FABRIC (TYPE III) (EROSION CONTROL) LOCATED UNDERNEATH AND ON THE UPSTREAM SIDE OF THE STRUCTURE. ABOVE THE FLOW LINE, A LAYER OF RIPRAP MAY BE USED TO HOLD THE FABRIC IN PLACE. THE REQUIRED CLASS OF MACHINED RIPRAP WILL BE INDICATED IN THE STREAM MITIGATION DATA TABLE. ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- (G) STEP POOLS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:
209-03.36 STREAM MITIGATION - STEP POOL PER EACH
PAYMENT SHALL INCLUDE ALL MATERIAL AND LABOR NECESSARY FOR THE CONSTRUCTION OF THE STEP POOL.

STREAM MITIGATION PLAN LEGEND: STEP POOL

STREAM MITIGATION PLAN LEGEND: STRAIGHT WEIR LOG DROP

STREAM MITIGATION PLAN LEGEND: DIAGONAL WEIR LOG DROP

STREAM MITIGATION PLAN LEGEND: "VEE" WEIR LOG DROP (SHOW ORIENTATION)

STREAM MITIGATION PLAN LEGEND: "K" WEIR LOG DROP

NOT TO SCALE

8-01-11

D-NSD-4

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOG DROPS
AND
STEP POOLS