Chapter 6

Stream Protection

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Temporary Stream Crossing (TSC)

Description

A bridge, culvert, or low water crossing (ford), constructed over a stream on a construction site to prevent turbidity and streambed disturbance caused by construction traffic. Stream crossings are generally applicable to flowing streams with drainage areas less than one square mile.

Installation

- Temporary stream crossings may require approvals from ADEM or the U. S. Army Corps of Engineers.
- Keep the number of stream crossings to a minimum and try to install the stream crossing during dry periods and relatively low flows.
- To minimize environmental damage, the order of preference for crossings is:
  (1) bridge
  (2) culvert
  (3) ford
- Ensure that equipment used near the stream is not leaking fluids.
- Fill placed for culvert or low water crossings should be of materials that will not erode during normal or high flows.

Bridge Crossing

- Bridges are specialized engineered structures.
- Install the bridge according to plans and specifications.
- Anchor or cable the bridge so it won't be moved by a flood.

Culvert Crossing

- Ensure the culvert has a firm foundation.
- Use pipe or pipes of the size and materials specified in the plans.
- The pipe should be long enough to extend at least 2 ft. past side slopes (3:1) of the earth fill.
- Manually compact the soil around the pipe in 4" – 6" lifts.
- Extend the fill to at least 2 ft. over the pipe.
- Grade the road so that flood flows go around the crossing and not over the pipe.
- Place ALDOT Coarse Aggregate No. 1 stone on the road surface over the pipe.
- Place outlet protection riprap as specified or needed.
- Immediately stabilize all disturbed ground around the culvert and along the stream/conveyance.

Low Water Crossing (Ford)

- Select a location so the crossing is perpendicular to the stream flow.
- Excavate foundation according to plans to ensure the final surface is "at grade" with the stream bed (no waterfall).
- Ensure the entrance and exit slopes are gentle (5:1 or flatter).

- Place geotextile, riprap, and wearing surface as specified.
- Immediately stabilize all disturbed ground around the low water crossing and along the stream/conveyance. Disturbed slopes should be seeded and matted with natural fiber materials (coir matting is preferable) as soon as possible.
- Seed mixes used for stabilization should contain only native species appropriate for use in riparian areas.
- Erosion control matting used for streambank stabilization should be trenched in along the upstream edge and top edge of the matting to prevent undercutting and/or slippage.

Maintenance

- Always store construction materials away from the stream.
- Inspect the crossing after rainfall events and repair erosion or damage as necessary.
- Remove debris, trash, and other materials that restrict flow from the culvert or bridge.
- Because crossings are temporary structures, they are generally removed after they are no longer needed. After removal, restore the stream to its original conditions and establish permanent vegetation.

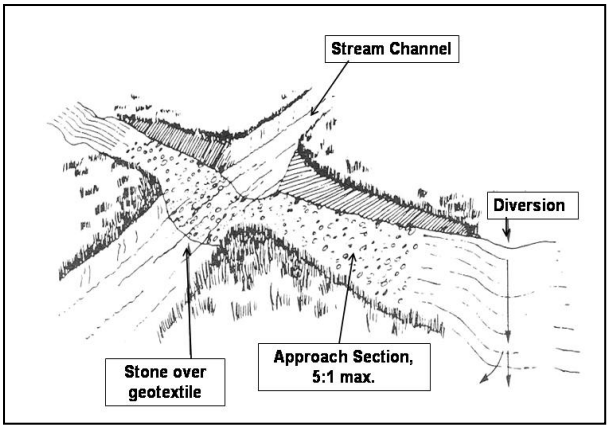

Figure TSC-1 Ford Stream Crossing

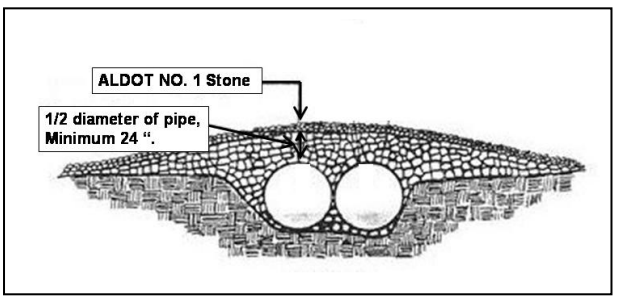

Figure TSC-2 Culvert Stream Crossing