

Project Title:

PIN:

**Category 6.a: New or Replacement Culvert Worksheet**

CIN:

**1) Check any/all statements that are true (indicates requirements from Category 6a are not met).**

- Proposed culvert(s) impedes Aquatic Life Movement or resolution of impediments is not resolved by the project. If checked complete boxes 2, 4, & 8.
- Culvert does not accommodate bank-full flows. If checked complete boxes 2, 5, 6, 7 & 8.
- Embedment of culvert < 20% of the culvert interior height. If checked complete boxes 2, 4, & 8.
- Channel dimension, pattern, and profile above/below the culvert will be altered. If checked complete boxes 2, 5, 6, 7 & 8.
- Temporary culvert in place for more than one construction season. If checked complete boxes 2 & 8.
- Culvert extension total length > 50% total length of existing culvert. If checked complete boxes 2, 5 & 8.
- Activity requires > 100 feet of stream relocation on either side of the culvert. If checked complete boxes 2, 6 & 8.

**2) Explain why each of the TRGP triggers exceeded (as described in statements checked above) are not practicable.**

**3) Request for variance** (check box if requesting variance)

- General Condition #3 (Aquatic Life Movement) is met? (Complete Boxes 2, 4, and 8)
- General Condition # 9 (Management of Water Flows) is met? (Complete Boxes 2, 5 and 6)
- Project is the Least Environmentally Damaging Practicable Alternative (LEDPA)?  
LEDPA determination is described previously in the "Impact Avoidance and Minimization" portion of the RFA package.

**4) Aquatic Life Movement**

**Will the culvert be installed with its invert embedded below the grade of the stream bed, as measured at the average low point, to a depth of a minimum of 20 % of the culvert vertical rise (height) throughout the length of the culvert?**

Yes:  No:  (If no, explain below)

Note: When not practicable to do so due to small culvert size, it is acceptable to allow natural deposition to cover the interior of the culvert bed following placement of the culvert invert to the 20% depth.

**Embedment Depth:**

**Maximum stream (low point) bottom depth measured from OHW in an adjacent reference (typical) stream reach:**

**Reference stream reach streambed particle size distribution; d16: d50 d84**

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Will the culvert allow for the passage of aquatic organisms native to that stream? Yes:  No:  (If no, explain below)

(Optional) Existing condition NAACC score: (Optional) Anticipated NAACC score:

Describe the effects the culvert would have on life history and movements of aquatic life native to the stream below.

Describe any mitigation measures that will be employed to minimize these effects below. Mitigation measures may include, but are not limited to baffles, weirs, roughened channels, and grade control structures.

5) Management of Water Flows

Will the culvert accommodate bankfull channel dimensions or 1.25x OHW channel dimensions?

Yes:  No:  (If no, explain below)

**Field measured reference stream reach location measurements:**

For new crossing locations, the average values from at least three measurements (project location and straight sections of the stream upstream and downstream) shall be used.

For replacement of an existing structure, the average values from at least two cross sections (straight sections of the stream upstream and downstream from the existing structure representative of the natural channel) shall be used.

**Bankfull Width: Average OHW channel width: Multiply OHW width by X 1.25:**

**2-year design storm channel width: Bankfull Depth:**

**Water Surface Slope (measured along a distance >20 bankfull widths from pool to pool or riffle crest to riffle crest):**

**Proposed in-culvert channel dimensions:**

**Bankfull Width: Average OHM channel width: 2-year design storm channel width:**

**Bankfull Depth: Culvert invert elevation slope:**

If the above cross section method was not practicable to use, an alternative method may be utilized. Include justification for the method used including the data used and an explanation as to how it provides an equivalent measure below.

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What flow/storm event is the proposed culvert designed to pass (2-year, 50-year, etc.)?

Describe the effects the culvert would have on management of low/base flows:

Are in-culvert channel dimensions and culvert slope included in plan sheets? Yes:  No:  (If no, explain below)

Sheet Number(s):

6) Will the proposed action result in a change of the dimension, pattern, and profile of the stream above or below the stream crossing? If so, describe the anticipated effects below.

7) Describe potential effects the proposed crossing would have on aquatic species movement. The culvert bed slope should be consistent with the slope of the adjacent stream channel:

8) Describe alternate measures that will be employed to minimize impacts to aquatic species movement: