



**General Site Isolation:**

- Maintain 100% of downstream flow at all times.
- Do not cause erosion.
- Relocate fish from within isolated area without harming them.
- Perform work / remove structure with minimum disturbance to bed, bank, and boundary of watercourse.
- Restore and stabilize stream banks, and the rest of the site, to permitted to acceptable standards.
- Ensure safety of personnel at all times.

**Overview of Site Preparation and Design for Dam and Pump (\*)**

**Fish Removal**

1. Install fish exclusion nets at upstream and downstream end of work area.
2. Conduct fish salvage/relocation. Follow conditions in Scientific Collection Permit.

**Site Isolation (after Fish Removal)**

3. Lay out hoses for water bypass operation and connect to pumps. Initiate bypass pumping:

Install submersible pump(s) with screened intakes upstream of the fish exclusion netting at upstream end of worksite.

- Pump intakes must not disturb the streambed. Pump intakes used in fish-bearing watercourses must be screened to prevent entrainment and impingement of fish.
- The pumping system is to be sized to accommodate any high flows. Monitor pumps at all times.

Maintain 100% of downstream flow at all times.

- Water entering the watercourse should be clear of sediment (equal or better water clarity than the receiving water).
4. Pump discharge area(s) should be lined with rock, geo-textile fabric or some other energy dissipating device to prevent erosion and the release of suspended sediments downstream. Pumped water must not cause erosion or introduce sediment into the channel. Remove the energy dissipating material when works are complete.

5. Install upstream dam (downstream of the upstream fish-isolation netting).

Construct isolation/coffer dams using clean, non-erodible materials such as sand/gravel bags.

Earthen berms should not be used for isolation.

- If sand bags are used, wrap / line upstream dam in heavy poly plastic for a better seal.

6. Install downstream dam at downstream construction limits (upstream of fish-isolation netting).

**Operation**

7. Allow water to drain from isolated section.
8. If standing water remains in work area, install dewatering pump within the isolated section. Treat discharge water prior to returning to watercourse.
9. Proceed with required work within isolated work area. Monitor pumps and downstream flows.
10. Avoid disturbance to the bed or banks of the creek.

**Post Construction**

11. All sediment laden water within the isolated area should be discharged to an upland vegetated area prior to removal of the isolation dams.
12. Upon completion of all work in isolated section remove downstream cofferdam.
13. Slowly remove upstream dam and allow water to re-enter channel previously isolated.
14. Remove sediment controls.
15. Remove dewatering pump and complete restoration.
16. All material must be completely removed from the channel and the streambed and bank profiles returned to pre-construction conditions at the end of the project.

(\*) If isolation is carried out during the restricted activity period, when fish are spawning or migrating, isolation must not be used for longer than three consecutive days, unless upstream and downstream migration is accommodated (i.e., bypass pumping would not provide fish passage – a lined bypass channel would be required).