



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU

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Application Status & Permit Copies: des.nh.gov/onestop



PERMIT APPLICATION - GUIDANCE DOCUMENT C STREAM CROSSINGS

PLEASE DO NOT SUBMIT THIS DOCUMENT WITH YOUR APPLICATION

The following stream crossing requirements are not required for projects qualifying for Minimum Impact Rule Env-Wt 303.04(z), below.

New Steam and/or Wetland Crossing for Single Family Residential, Noncommercial, Conservation or Agricultural Access
Env-Wt 303.04(z) Installation of a stream crossing and associated fill to permit vehicular access to a piece of property for a single family building lot, for noncommercial recreational uses including conservation projects, or for normal agricultural operations, provided:

1. The lot is not a result of a recent subdivision and subdivision of the lot is not proposed;
2. The total jurisdictional impact shall not exceed 3,000 square feet;
3. The roadway width at the crossing shall not exceed 20 feet;
4. The fill width, measured at toe of roadway side slopes, shall be minimized, for example, by making the sideslopes steeper and constructing walls, and not exceed 50 feet;
5. Fill for any single wetland crossing shall not exceed 60 feet in length, measured along the centerline of the proposed access way;
6. If crossing swamps or wet meadows, cross those that have no standing water for 10 months of the year.
7. If installing a NEW stream crossing, the contributing watershed size of the stream is equal to or less than 200 acres.
8. If repairing, rehabilitating or replacing a stream crossing, the contributing watershed of the stream is less than 640 acres. Determine your watershed size at USGS StreamStats: http://water.usgs.gov/osw/streamstats/new_hampshire.html
9. The project does not impact bogs, marshes, sand dunes, tidal wetlands, cedar swamps, undisturbed tidal buffer zone or involve any work within 50 feet of a salt marsh;
10. The project is not located in or within 100 feet of prime wetlands.
Prime Wetlands Link: http://des.nh.gov/organization/divisions/water/wetlands/prime_wetlands.htm
11. The proposed project has **not** been identified by Natural Heritage Bureau (NHB) as an exemplary natural community, and/or does not have documented occurrences of state or federally listed endangered or threatened species **OR** I have received information (the NHB DataCheck Results Letter) from NHB and/or the NH Fish and Game Department providing me with recommendations to avoid potential impacts. NHB DataCheck Link: https://www2.des.state.nh.us/nhb_datacheck/

TIER CLASSIFICATIONS:

Determine your watershed size at USGS StreamStats:
http://water.usgs.gov/osw/streamstats/new_hampshire.html

Tier 1: A tier one stream crossing shall be a crossing located on a watercourse where the contributing watershed is less than or equal to 200 acres.

Tier 2: A tier 2 stream crossing shall be a crossing located on a watercourse where the contributing watershed is greater than 200 acres and less than 640 acres.

Tier 3: A tier 3 stream crossing shall be a crossing located on any of the following:

1. On a watercourse where the contributing watershed more than 640 acres;

2. Within a Designated River corridor;

Designated River Link: <http://des.nh.gov/organization/divisions/water/wmb/rivers/designriv.htm>

3. On a watercourse that is listed on the surface water assessment 305(b) report in effect at the time of application as not attaining surface water quality standards for aquatic life based on one or more of the following:

- a.) Benthic macroinvertebrates index of biological integrity;
- b.) Habitat assessment;
- c.) Stream channel stability; or
- d.) Fish assemblage index or biological integrity

Impaired Waters Subset Link:

<http://des.nh.gov/organization/divisions/water/wetlands/documents/impairments-tier3.pdf>

4. Within a 100-year flood plain

NHOEP link: <http://www.nh.gov/oep/planning/programs/fmp/maps.htm>

5. In a jurisdictional area having any protected species or habitat

NHB DataCheck Link: https://www2.des.state.nh.us/nhb_datacheck/

6. In or within 100 feet of a wetland that has been designated by a municipality as a prime wetland pursuant to RSA 482-A:15, unless a waiver has been granted pursuant to RSA 482-A:11, IV(b)

Prime Wetlands Link: http://des.nh.gov/organization/divisions/water/wetlands/prime_wetlands.htm

Tier 3 Downgrade

The applicant for a project in which a stream crossing is categorized as tier 3 based solely on (3) or (4), above, may request that the crossing be categorized as a tier 1 or tier 2 stream crossing, as applicable based on watershed size if your project meets the following. Submit a written request confirming your project meets the criteria below:

- There are no impacts to the resource; or
- The impacts to the resource are specifically mitigated in accordance with Env-Wt 800.

If an applicant for a project in which a stream crossing is categorized as tier 3 based solely on (5), above, wishes to have the crossing categorized as tier one or tier 2 based on watershed size, the applicant shall:

- Consult with the NHB if any protected plant species or habitat is impacted or consult the NHF&G if any protected wildlife species or habitat is impacted; and
- Obtain recommendation from NHB or NHF&G, as applicable, for such a downgrade. Note: Mitigation may be necessary.

DESIGN CRITERIA & GENERAL DESIGN CONSIDERATIONS:

If your project doesn't meet the design criteria for your projects type or the general design considerations, review the Alternative Design section on pg. 6.

Tier 1 and Tier 2 Repair, Rehabilitation or Replacement Design Criteria

Minimum Impact Criteria: Provide confirmation the crossing:

- Does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure.
- Does not diminish the hydraulic capacity of the crossing;

- Does not diminish the capacity of the crossing to accommodate aquatic life passage.

Minor Impact Criteria: If your project doesn't meet the above minimum impact criteria (5-7), provide confirmation the crossing:

- Does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure.
- Not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing;
- Not cause an increase in the frequency of flooding or overtopping of banks.

New Tier 1 Design Criteria

- Provide confirmation the crossing is sized so as to accommodate the greater of:
- a. The 50-year frequency flood; or
 - b. Applicable federal, state, or local requirements;
- Be a span structure, pipe arch, open-bottom culvert, or closed-bottom culvert, with or without being embedded with stream simulation.

New Tier 2 and All Tier 3 Design Criteria (Env-Wt 904.03, 904.04, 904.05):

- Any new tier 2 stream crossing shall be a span structure, pipe arch embedded with stream simulation, open-bottom culvert with stream simulation, or closed-bottom culvert embedded with stream simulation
- Tier 3 stream crossings shall be a span structure or an open-bottomed culvert with stream simulation, not a closed-bottom culvert or pipe arch;
- In accordance with the NH Stream Crossing Guidelines, University of New Hampshire, May 2009, which can be downloaded for free at: <http://des.nh.gov/organization/divisions/water/wetlands/documents/nh-stream-crossings.pdf>;
- With the bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing;
- To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage;
- To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain;
- To accommodate the 100-year frequency flood, to ensure that:
- a. There is no increase in flood stages on abutting properties; and
 - b. Flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability;
- To simulate a natural stream channel;
- So as not to alter sediment transport competence.

General Design Considerations for all stream crossings (Env-Wt 904.01):

Stream crossings are required to meet the following design considerations. Attach responses to the following General Design Considerations to your application to confirm the crossing has been designed and constructed so as to:

- Not be a barrier to sediment transport;
- Prevent the restriction of high flows and maintain existing low flows;
- Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
- Not cause an increase in the frequency of flooding or overtopping of banks;
- Preserve watercourse connectivity where it currently exists;
- Restore watercourse connectivity where:
 - a. Connectivity previously was disrupted as a result of human activity(ies); and
 - b. Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing;
- Not cause erosion, aggradation, or scouring upstream or downstream of the crossing;
- Not cause water quality degradation;

STREAM CROSSING PLAN REQUIREMENTS:

Stream Crossing Plan Requirements (903.03(a))

- A USGS map with the approximate boundaries and size of the contributing watershed;

Plans showing the following information:

- The scale, north arrow, and at least 3 reference points outside of the construction disturbance area;
- Clearing limits showing all work areas covered by special project requirements with notes;
- Structure location with inlet and outlet inverts;
- Extent of channel excavation and filling;
- Road locations, including road edges and centerline;
- Channel work identified including bank erosion control features, grade control, and channel linings;
- Estimated drainage area at the crossing location;

Streambed details, with figures, which show the following:

- The distance from the top of the right bank to the top of the left bank;
- Approximate elevations, spacing, diameters, and locations of rocks for steps, bankline, and other channel rocks for roughness;
- Details for sediment retention structures, if any, within embedded structures; and

- A visual estimate of dominant channel materials upstream, downstream, and if applicable, within the existing crossing;

Existing crossing metrics, including:

- Existing riparian zone, including the extent and type of existing vegetation surrounding or in the stream bank;
- Existing crossing type and dimensions, including material, length, and dimensions; and
- Existing tailwater control, including its location and materials, and pool configuration;

The dewatering system, as follows:

- Estimates of the maximum flow anticipated during construction, including any summer storm estimates;
- Location, height, and width of the diversion dam;
- Sump locations, including estimate of necessary flow and sump capacity;
- Backwater prevention method; and
- Sediment treatment plan with methods, release point, and extent;

Erosion and pollution controls, as follows:

- Any additional methods of controlling erosion;
- A stormwater management plan, including but not limited to where to cover stockpiles and place straw bales;
- Pollution control methods for pumps, fuel stations, and equipment storage;

Footings, including the following:

- Estimate of bearing capacity;
- Footing depth and width for bottomless arch or bridge;

Structural details of the crossing, including the following:

- Structural section, gauge or thickness, and material, minimum and maximum cover limits;
- Structures, drawn to scale, on elevation view showing bed material location relative to structure, and special backfill zones;
- Structural excavation quantity and total excavation estimate.

Additional Tier 2 Stream and Tier 3 Crossing Plan Requirements (Env-Wt 904.03(f), 904.04(g)):

- Plans that are stamped by a professional engineer who is licensed under RSA 310-A to practice in New Hampshire

Additional Tier 3 Crossing Plan Requirements (Per Env-Wt 903.03(b)):

- Structure location including inlet and outlet inverts;
- Streambed details, with figures, which show the streambed simulation materials and its extent, depth and length within the crossing;
- Road locations, including road edges and centerline;

Channel Information:

- Bankfull width,
- Bankfull depth,
- Entrenchment ratio,
- Sinuosity,
- Flood prone width,
- Long profile that is 7-10 bankfull widths long with grade controls, pools and gradients shown,
- An appropriate reference reach cross section with channel details, reference reach pebble count, including a narrative explaining why the cross section is considered representative;
- Pebble count upstream, downstream, and if applicable, within the existing crossing;
- The hydraulic calculation for the bypass pipe or channel size, length and gradient.

Stream Crossing Alternative Designs (Env-Wt 904.09)

If the applicant believes that installing the structure or providing information specified in the applicable rule is not practicable (meaning available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes), the applicant may propose an alternative design. To request approval of an alternative design, the applicant shall submit a written request to the department, including:

- A technical report prepared by an environmental scientist or professional engineer that clearly:
- Demonstrates that adhering to the rules is not practicable; and
- That the alternative design meets the general design criteria specified in Env-Wt 904.01 to the maximum extent practicable.
- A new tier 2 crossing, a replacement tier 2 crossing that does not meet the requirements of Env-Wt 904.07, or a new or replacement tier 3 crossing shall also demonstrate that the proposed alternative meets the specific design criteria specified in Env-Wt 904.05 to the maximum extent practicable;
- Any replacement tier 2 stream crossing that does not meet the criteria listed on pg.'s 2 & 3 shall be a span structure, pipe arch embedded with stream simulation, open-bottom culvert with stream simulation, or closed-bottom culvert embedded with stream simulation

Note: Alternative designs may require mitigation (Env-Wt 904.02(e), 904.03(e), 904.04(f))