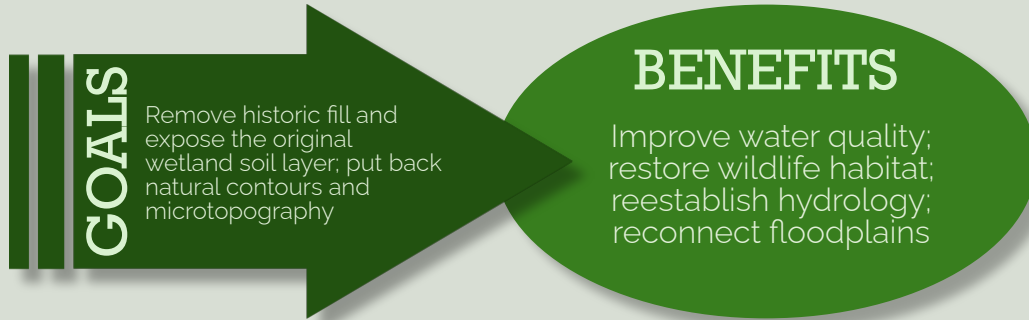


3.6 Remove Sediment and Fill

Wetlands have been historically filled with topsoil, gravel, concrete, rocks, and other waste, and then covered with soil. Another common practice was to construct berms along streams/rivers to prevent flooding of adjoining fields. Wetlands filled prior to the Vermont Wetland Rules are not violations and are good candidate projects for wetland restoration.



- 1 Determine Extent of Historic Fill
- 2 Identify Staging and Access
- 3 Identify Disposal Area
- 4 Excavate Fill and Recontour
- 5 Stabilize Site
- 6 Monitor for Success

DEFINITIONS

Floodplain: Level area of land next to a stream or river that floods.

Soil Auger: A hand-held steel rod attached to a large screw that can be used to take soil samples at various depths below the surface.

Solid Waste: Unnatural fill materials such as household garbage, plastic, tires, concrete, and scrap metal that are disposed of at a landfill.

Fill Removal



Finding native soil and removing sediment from a filled wetland



Pre-Construction Planning

Locate Underground Utilities

Mark locations of underground utilities in or adjacent to the excavation area.

Delineate Fill Area

Determine the nature and extent of the fill material to be excavated. Resources to assist with this task include historic and current aerial imagery, soil auger, posthole digger, and/or a backhoe.

Identify Disposal Area

Identify where the removed material will be disposed of (non-wetland/buffer location), depending on the nature of the fill.

Identify Staging Location

Find an onsite staging location for temporary storage of excavated fill material and parking of equipment.

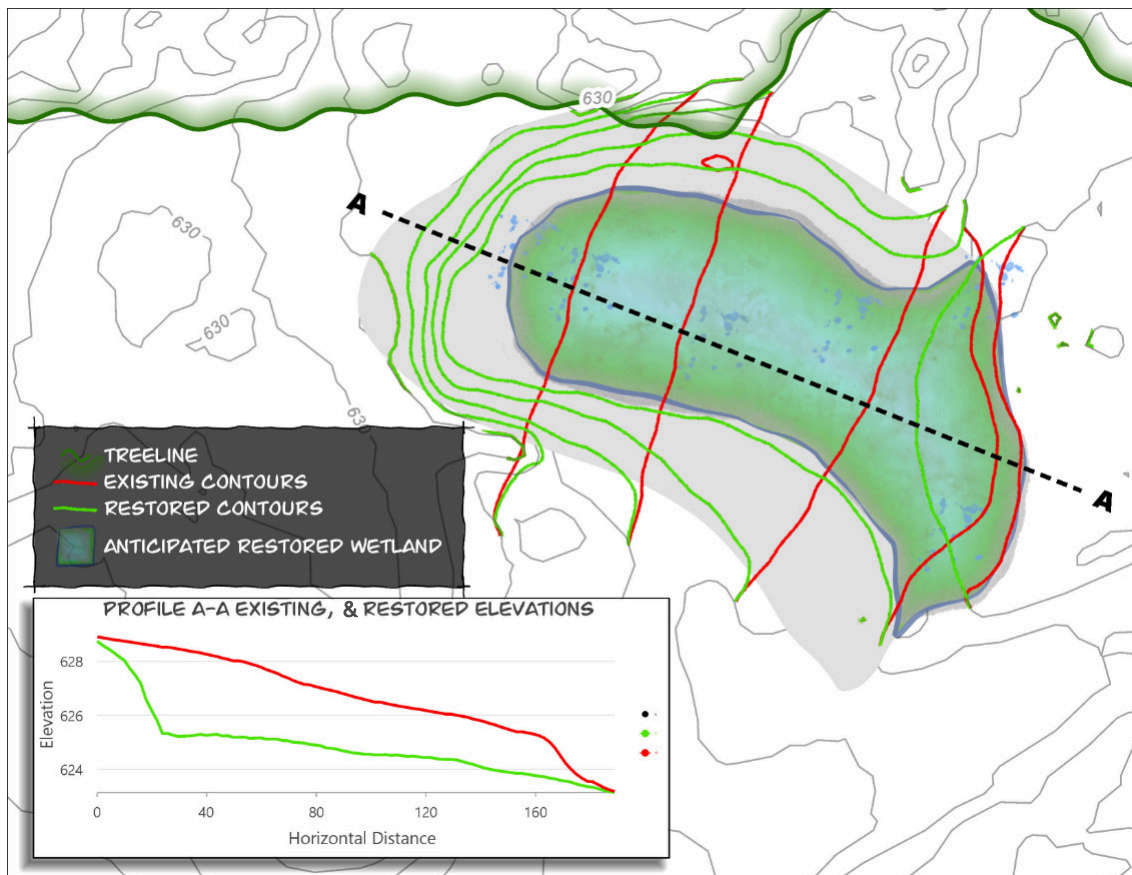
Identify Access Routes

Use of existing roads and trails without improvement is allowed. Temporary use of swamp mats is also allowed if removed within one growing season, provided their use meets the US Army Corps of Engineers General Permit conditions ([see Chapter 5](#)).

Select a Contractor & Equipment

Choose a contractor with previous experience working in wetlands and who has low ground pressure equipment such as a backhoe with wide tracks. Meet with the contractor to review project details including site access, staging location, and NNIS control/management procedures ([see Invasive Species Control and Management](#)). Plan work for dry field conditions.

Fill Removal Plan Example



Construction Sequencing

1. Flag the limits of the excavation area.
2. Install erosion control measures. Contained sites (depressions without outlets) do not generally need specific erosion control measures during construction. Uncontained sites of greater than 0.5 acres may require installation of silt fence at down slope extent to prevent discharge of sediment to sensitive resources (streams, wetlands) and/or neighboring properties.
3. Excavate the historically deposited fill. It is often easy to identify the native ground surface by looking for decomposing organic material (vegetation, woody stems). Encourage the contractor to work slowly so as not to excavate below that level. Leave the ground surface rough and instruct the contractor that a manicured final grade is not the goal. If all of the fill material is not being removed, or if the native ground surface is not identifiable, a more detailed plan for final grading will be needed. This will likely require site surveys and detailed site plans.
4. Dispose of fill material. Clean excavated material can be disposed of either on-site or off-site. Make sure that the disposal site is not located within wetland or wetland buffer resources. Solid waste needs to be disposed of at a certified landfill facility.

Securely stabilize the site through appropriate erosion control measures. Seed and mulch all disturbed soils. ([see Erosion Control Practices](#)).



Filled wetland before restoration



Post restoration-fill removed, rough finish incorporating boulders

Challenges and Solutions

- Hauling and disposing of waste material can be expensive: Identifying nearby disposal sites is most economical. Make sure disposal area is not in wetland or wetland buffer.
- Introduction of invasive species: If work crews are used, ask them to clean tools and boots, and to power-wash equipment before entering the restoration site. Work with your contractor to minimize soil disturbance.



Additional permitting may be required for the construction of new access roads or trails, for the stockpiling of soil in a wetland or wetland buffer, or for the addition of fill to a floodplain.

Complementary Practices:

