

3.10 Shallow Depressions/Scrapes

Many shallow, depressional wetlands have been filled by sedimentation from intensive land cultivation practices and other soil disturbing activities. Excavations within drained or altered wetlands improve wetland habitat by increasing wetland depths and providing microtopography. Depressions allow for water ponding which provides a degree of water storage capacity.



GOALS

Restore wetland hydrology and microtopography

BENEFITS

Diversified wildlife habitat; improved water quality; increased flood storage

- 1 Design Depression/Scrape Schematic
- 2 Stake out Depression/Scrape Locations
- 3 Identify Staging and Access
- 4 Excavate depressions
- 5 Stabilize Site
- 6 Monitor for Success

DEFINITIONS

Scrape: a slight excavation in a wetland that allows for open water ponding.

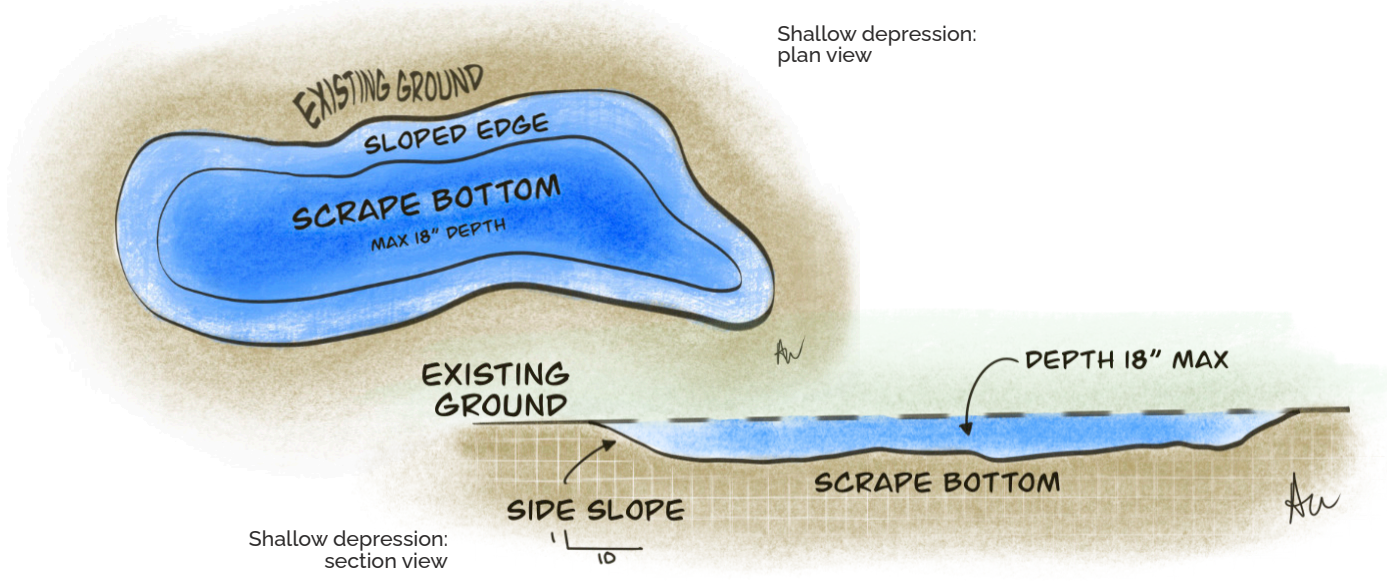


Construction of a shallow depression for wetland restoration in Bakersfield, VT-Construction in 2006, site conditions in 2011 and 2014. Ryan Creehan, USFWS



Shallow Depression/Scrape Specification

Depth	Maximum 18"
Slope	10:1 or flatter
Minimum Area	250 Square Feet



Pre-Construction Planning

Develop Schematic Plan

Specify an average density and spacing per acre of restoration. Random variations in shape, depth, and spacing are preferred.

Locate Underground Utilities

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

Spoils Removal Plan

Incorporate into other restoration elements. Spoils should not be shaped into a berm or disposed of in the restoration area, but intentionally incorporated into the restoration design. Excavated soils can be utilized to plug and/or fill ditches. The soil could also be loosely shaped into upland mounds, adding topographic diversity around the constructed depressions. Care should be taken to not obstruct floodwaters in known or potential floodplains.

Identify Staging Location

Find an upland location for temporary storage of materials and equipment parking.

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 use low ground pressure equipment such as an excavator with wide tracks. Meet with the contractor to review project details including site access and staging location, the specifications for depression construction, and NNIS control/management procedures ([see Invasive Species Control and Management](#)). Plan work for dry field conditions.



Construction Sequencing

1. Stake and flag excavation locations: Clusters of depressions with varying size/depth/dimension create greater habitat diversity.
2. Conduct surface stripping.
3. Clearing and grubbing of woody vegetation or other material.
4. Native materials may be harvested for use in replanting.
5. Topsoil is stripped away to expose sub-surface soils and stockpiled.
6. Excavate sub-surface soils and follow spoils removal plan.
7. Create irregular edges and undulating bottom depths.
8. Redistribute topsoil over the surface of the newly formed depression.
9. Finish grade should be semi-rough and not smooth.
10. Minimize excessive use and travel of construction equipment to avoid compaction of soils, working from interior to exterior of the restoration site.
11. Securely stabilize the restoration area through appropriate erosion control measures. Seed and mulch all disturbed soils. ([see Erosion Control](#)).



Topsoil containing NNIS species is not suitable for this restoration practice and should be removed from site.

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.

Challenges and Solutions

- Introduction of invasive species: If work crews are used, ask them to clean tools and boots and power-wash equipment before entering restoration site. Work with the contractor to minimize soil disturbance.

Complementary Practices:

