



## Water Resources Division Land Clearing Management

### Description

Land clearing is the removal of any existing material from a site, in preparing it for development. Land clearing can include the removal of trees and other vegetation, and grubbing, which is the excavation of stumps and roots.

In regulated wetlands, clearing trees and shrubs with heavy equipment is not allowed without a Michigan Department of Environmental Quality (MDEQ) permit. Trees and shrubs can be cut by hand without a permit, but stump removal requires a permit. If the land clearing activity is within 500 feet of a lake or stream or is greater than one (1) acre in size, then a local county or municipal Soil Erosion and Sedimentation Control (SESC) permit or Notice of Coverage may be required.

### Pollutants Controlled

Land clearing can expose soil to erosive forces. Use best management practices (BMP) (including [Grading Management](#)) which prevent erosion, in conjunction with proper land cleaning practices to keep soil on site. One essential BMP is the [Riparian Buffer](#), which includes the minimum width of natural vegetation to be left in place to protect water bodies. This is important because vegetation provides shade for rivers and other water bodies. When land clearing is done immediately adjacent to a water body, shade is reduced, which can result in increased water temperature. For some fish species, such as salmonids, even slight increases in water temperature can be lethal.

Other BMPs for soil erosion and sedimentation control will likely be necessary, based on the unique site characteristics associated with the area to be graded.

### Location

While sites with fine, dense soils (such as silt or clay) are potentially less susceptible to erosion (because they are more cohesive), if they do erode, the soil particles are actually more challenging to remove from runoff, because they are so fine, and do not easily settle out. Therefore, these sites may warrant additional erosion control BMPs to keep soils in place. Sites with steep slopes are more susceptible to erosion, and may also warrant additional BMPs. Refer to the [Critical Area Stabilization](#) BMP for information on protecting sites with fine, dense soils, or steep slopes.

## Companion & Alternate Practices

BMPs that may be needed in conjunction with land clearing include:

[Access Roads](#)  
[Critical Area Stabilization](#)  
[Slope/Shoreline Stabilization](#)  
[Riparian Buffer](#)  
[Silt Fence](#)  
[Staging and Scheduling](#)

## Planning

All land clearing operations shall be conducted in a manner that prevents (a) off-site erosion and sedimentation and (b) sediment discharges to lakes, streams, or wetlands.

Do not begin land clearing activities until the site has been assessed, and the trees which have been selected for cutting have been tagged. Clear large-scale sites in phases to allow second-phase work to proceed in the initially cleared area, while clearing proceeds in other areas on the site. Consider end uses to ensure that timing of the initial land clearing facilitates project goals. For example, if the goal is to vegetate a site, time the initial land clearing to account for revegetation during the construction season.

## Forestry Operations

For land clearing done as part of a forestry operation, follow the guidance in the MDNR/MDEQ [Sustainable Soil and Water Quality Practices on Forest Land](#) manual. As general guidance, develop plans which specify:

The kinds and locations of timber to be harvested;

- The locations of any haul roads or skid trails;
- The widths and locations of all riparian buffers;
- The methods of any proposed water crossings;
- The methods of disposing of all material which will not be harvested; and
- All BMPs which will be used to prevent erosion.

Although the silviculture activities in forestry operations in the state are currently exempt from the requirements of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, all other types of land clearing (including those mentioned in the following two sections) require an SESC permit or Notice of Coverage, if the operations are within 500 feet of a lake or stream, or are greater than one (1) acre in size. Additionally, the ancillary activities associate with forestry operations (access roads, storage yards, structures, etc.) also require Part 91 permits.

## Golf Courses and Other Land Uses

When developing land for golf courses or other uses, the preservation of existing trees and other vegetation can have multiple benefits. Not only can it create more aesthetically pleasing (and thus economically desirable) developments, it can also provide water quality benefit, by lessening the amount of potential erosion from earth change activities, and minimizing runoff through the interception and evapotranspiration of precipitation by the vegetation.

For golf courses, select final fairway edges based on tree species size, age, and condition, and on design intent and visual impact. If necessary, shift golf holes to preserve significant individual trees, and to avoid impact to critical or sensitive areas.

Identify and protect healthy trees following specifications in the [Tree Protection](#) BMP. Where possible, preserve a natural [Riparian Buffer](#) around graded areas, and adjacent to all water bodies, versus clearing the land to the water's edge.

1. If it is necessary to disturb land all the way up to the edge of any water bodies, use the [Silt Fence](#) BMP or other perimeter controls;
2. Stage the construction site so that only part of the site is being cleared at any given time. This will reduce the amount of time soil is exposed to erosive forces. Follow examples in the [Staging and Scheduling](#) BMP;
3. Diversions may be needed to intercept and divert runoff to [Stabilized Outlets](#).
4. Keep all debris out of surface water. If possible, leave some debris on the ground to decrease runoff and increase shade for seedlings. See the **Disposal Options** section on next page;
5. Temporarily seed exposed soil to prevent further erosion from the site. Follow specifications in the [Spoil Piles](#) and [Seeding](#) BMPs. Other BMPs may also be necessary to keep soil on the site.

## Grubbing

Grubbing is the removal by excavation of stumps and roots of any type of vegetation—grasses, shrubs, or trees. Note that grubbing can destabilize critical areas, which include steep slopes, areas where vegetation is difficult to establish (such as under heavy canopy), or areas that experience concentrated flow. Ensure that after vegetation has been removed, critical areas are stabilized.

When removing vegetation near a body of water, where possible, do not clear to the water's edge, but rather leave a vegetated [Riparian Buffer](#). If it is necessary to clear to the water's edge, remove vegetation by hand, and consider leaving roots and stumps in place to stabilize and preserve the bank.

## Tree Preservation

1. In forested wetlands, shallow-rooted species protect by each other from potential wind damage. Removing trees from a forested wetland increases the possibility of windthrow, which is the breaking or uprooting of trees by the wind. Shallow-rooted species are also protected by edge trees, which shield the windward sides of woodlots. Preserve as many edge trees as possible on the prevailing wind side of any cleared areas.
2. To protect trees that are being preserved on a site, exclude any activity (especially heavy equipment operation) from inside their drip lines, which are determined by extending the outer circumference of their canopies vertically downward to the ground. This will prevent direct contact with the trees, and will protect the roots from soil compaction or disruption. To ensure protection, install a sturdy, high-visibility barrier just outside the drip lines; refer to the [Tree Protection](#) BMP for details.
3. If trees must be removed, plan and conduct the work in whatever way minimizes the disruption caused by the activity, and the time any bare soil is exposed.

## Disposal Options

Where possible, reduce the volume of stumps, roots, logs, brush, limbs, tops, and other debris resulting from clearing or thinning operations, by processing the material with a chipping machine. Use the chips as mulch (see the [Mulching](#) BMP), as part of a landscaping plan, outside the right-of-way, or in other approved areas. Organic material may also be composted. See the [Organic Debris Disposal](#) BMP for more information on organic debris disposal options.

Note that tree tops, stumps, and field stone which are cleared and piled in suitable areas can improve habitat for wildlife such as rabbits, raccoons, snakes, salamanders, toads, and frogs.

## Maintenance

Land clearing itself requires no maintenance, other than the maintenance of the equipment used in the land clearing operation, and the maintenance of BMP controls used to prevent erosion and off-site sedimentation. [Tree Protection](#), which is an important part of land clearing, should be done throughout the clearing stages. It is also important to maintain all other temporary and permanent BMPS which are used in conjunction with the land clearing BMP to prevent soil erosion and sedimentation. This includes maintaining appropriate [Riparian Buffer](#) widths.

## Literature Cited

MDNR and MDEQ. 2009. [Sustainable Soil and Water Quality Practices on Forest Land Michigan.](#)

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