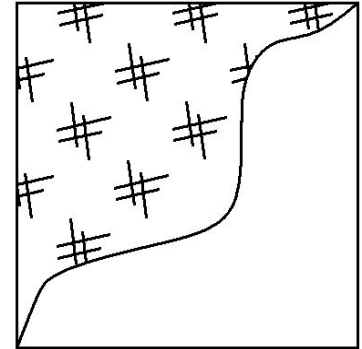


## EC-10 MULCH

For assistance, contact the District Environmental Planners and the Roadside Program Administrator at ITD Headquarters Maintenance Section.

Refer to: ITD Standards and Specifications for Highway Construction, Sections 212, 621, and 711.



**Standard Symbol**

### Definition and Purpose

- Mulching consists of applying a mixture of chipped or cut wood mulch, bark, or compost. Wood mulch is mostly applicable to landscape projects.
- The primary function of mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff.

### Appropriate Applications

Mulching is considered a temporary soil stabilization (erosion control) alternative in the following situations:

- As a stand-alone temporary surface cover on disturbed areas until soils can be prepared for revegetation and permanent vegetative cover can be established.
- As short-term, non-vegetative ground cover on slopes to reduce rainfall impact, decrease the velocity of sheet flow, settle out sediment, and reduce wind erosion.

### Limitations

- Mulch may introduce unwanted species. Green material has the potential for the presence of unwanted weeds and other plant materials.
- Chipped or cut wood does not withstand concentrated flows and is prone to sheet erosion.
- Delivery system is primarily by manual labor, although pneumatic application equipment is available.

BMP Objectives	
<input type="checkbox"/>	Perimeter Control
<input checked="" type="checkbox"/>	Slope Protection
<input checked="" type="checkbox"/>	Borrow and Stockpiles
<input checked="" type="checkbox"/>	Drainage Areas
<input type="checkbox"/>	Sediment Trapping
<input type="checkbox"/>	Stream Protection
<input checked="" type="checkbox"/>	Temporary Stabilizing
<input checked="" type="checkbox"/>	Permanent Stabilizing

- Mulch should not be applied in winds that cause unwanted or excessive spreading of the mulch.

### **Design Parameters**

There are many types of mulches, and selection of the appropriate type shall be based on the type of application and site conditions. Mulch use on construction projects may not be compatible with planned or future projects; therefore, the project team shall coordinate with state and local agencies.

Mulch shall be certified free of any Idaho noxious weeds and shall be certified by an accredited state laboratory.

### **Application Procedures**

Prior to application, after existing vegetation has been removed, roughen embankment and fill areas by rolling with a punching type roller or by track walking. The construction-application procedures for mulches vary significantly depending upon the type of mulching method specified. Two methods are highlighted here:

- Green material is produced by recycling vegetation trimmings such as chipped or cut shrubs and trees. Methods of application are generally by hand, although pneumatic methods are available. Materials composted must be indigenous. Noxious weeds shall not be composted. Compost shall not contain any viable noxious weed seed.
  - It can be used as a temporary ground cover with or without seeding.
  - The green material shall be evenly distributed on-site to a depth of not more than 2 in.
- Chipped or cut wood is suitable for ground cover in ornamental or revegetated plantings.
  - Is conditionally suitable; see note under Limitations section above.
  - Shall be distributed by hand or another method approved by the Engineer.
  - Shall be evenly distributed across the soil surface to a depth of 3 inches.
- Wood fiber mulches are suitable with seeding and plantings on revegetation projects. Wood fiber mulches can also be used and mixed with compost and applied as compost/wood mulch. Wood fiber mulches are applied with special hydroseeding or mulch blowing equipment. The amount of wood fiber mulch depends on the project. Typically for seedings, the application rate ranges from 100 yd<sup>3</sup>/ac (applied at 0.75 inch thickness) to 135 yd<sup>3</sup> (applied at 1 inch thickness). For seedlings, mulch application ranges from 400 yd<sup>3</sup> (applied at 3 inch thickness) to 540 yd<sup>3</sup> (applied at 4 inch thickness; the higher rate is only used in close proximity to the plants).
  - Long-fiber mulch – forms large air spaces and can be applied at a greater thickness which helps maintain surface soil moisture and humidity around germinating seeds and emerging seedlings. Long fiber mulch also allows sunlight penetration which enhances seed germination and seedling establishment.
  - Short-fiber – have smaller pores and form denser seed cover. Short-fiber mulch is typically applied thinly and offer less insulation for germinating seeds and emerging seedlings. Short-fiber mulches are effective as an erosion control cover

but are considered inferior to long-fiber mulches for germination and early seedling establishment.

- Mulch placement onto the traveled way, sidewalks, lined drainage channels, sound walls, and existing vegetation shall be avoided.
- All material must be removed prior to re-starting work on the slopes. In some cases, wood mulch may be incorporated into the soil if approved by the Engineer.
- Mulch material should come from indigenous plants only.

### **Maintenance and Inspection**

- Inspections shall be conducted as required by the NPDES permit or contract specifications.
- Regardless of the mulching technique selected, the key consideration in Maintenance and Inspection is that the mulch needs to last long enough to achieve erosion-control objectives. If the mulch is applied as a stand-alone erosion control method over disturbed areas (without seed), it shall last the length of time the site will remain barren or until final re-grading and revegetation.
- Where vegetation is not the ultimate cover, such as ornamental and landscape applications of bark or wood chips, maintenance shall focus on longevity and integrity of the mulch.

### **Qualified Products List Criteria**

See QPL Criteria 621.

All mulch products shall meet the State of Idaho State Department of Agriculture Seed Laboratory or the North American Weed Management Association (NAWMA) noxious weed-free certification requirements prior to approval. Certification shall be one of the following two certifications:

1. Certified Noxious Weed Free Testing performed by the State of Idaho State Department of Agriculture Seed Laboratory, Boise, Idaho (208)332-8630.  
<http://www.agri.state.id.us/Categories/PlantsInsects/NoxiousWeeds/nwffs.php>

or

2. Certified Noxious Weed Free Testing performed by the North American Weed Free Forage Program.  
<http://www.nawma.org/WFF/WFFStandards.pdf>

All mulch products shall also meet the following criteria:

- Shall be degradable and free of chemical printing ink, germination inhibitors, herbicide residue, chlorine bleach, rock, metal, plastic, and other materials detrimental to plant life.
- May have up to 5 percent by weight of photodegradable material.
- Shall be manufactured in such a manner that when agitated in slurry tanks with water, the fibers will become uniformly suspended, without clumping, to form a homogeneous slurry.
- All dyes shall be non-toxic to plants, animals, and aquatic life and shall not stain concrete or painted surfaces.
- Shall be furnished with a Material Safety Data Sheet (MSDS) that demonstrates that the product is not harmful to plants, animals, and aquatic life.

Laboratory and field testing results supporting the manufacturer's data shall meet the criteria in Table 1 below:

Table 1: Mulch Products, Qualified Products List Criteria

	Mulch Mixture
ASTM 7322 - Ability to Encourage Seed Germination and Plant Growth	200% min
ASTM 7367 - Water Holding Capacity	900% min
ASTM D 6818 - Wet Bond Strength	N/A
ASTM 7101 - EPA 2021.0 (96 hr LC50)	>100%
ASTM D 5338 - Plastic Aero Biodegradability	100%
ASTM D 2974 - Organic Material	90% min
ASTM D 6566 - Mass per Unit Area	N/A
ASTM D 6525 - Thickness	N/A
ASTM D 6567 - Ground Cover	N/A
ASTM 6459 - C Factor	0.15 max
EcoToxicity - EPA - 821 - R - 02-012 measuring acute toxicity of effluents. Test leachate from recommended application rate receiving 2 inches of rain per hour using static test for Non Observed-Adverse-Effect-Concentration (NOEC)	NOEC
Longevity	1-3 months