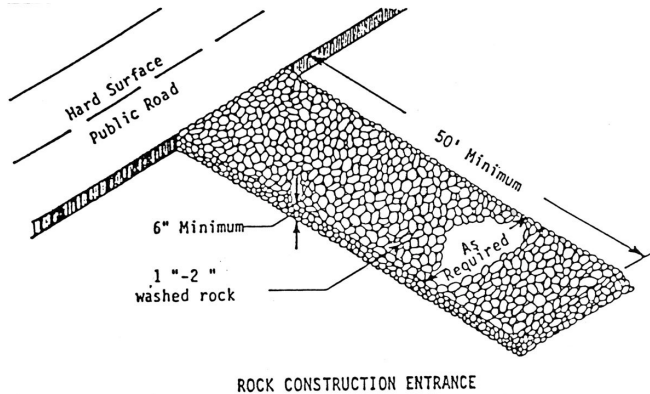


Construction Practices

Vehicle Tracking Pad



Description

A rock construction entrance pad may be necessary at construction access locations to reduce the amount of mud transported onto paved roads by vehicles or surface runoff. Rock construction entrance pads provide an area where mud can be removed by vehicle tires traveling over the gravel pad before entering public roads.

A construction entrance is a stabilized pad of aggregate over a geotextile base and is used to reduce the amount of mud tracked off-site with construction traffic.

A temporary construction entrance is a stone pad located where vehicles leave a construction site. The purpose of the stone pad is to provide an area where mud can be removed from tires before a vehicle leaves the site. The stone pad consists of clean rock designed in such a way that vehicle tires will sink in slightly. This helps remove mud from the tires as the vehicle passes over the pad. If a wash rack is used, it provides an area where vehicle tires can be washed.

Effectiveness

The effectiveness of temporary rock construction entrances for trapping sediment depends upon the length, depth of rock, frequency of use and maintenance, as well as the type of structure used. A newly installed rock construction entrance meeting the recommendations included here will be relatively effective for removing mud from tires before construction vehicles leave the site. However, once the rock voids become clogged with mud, the practice will not serve its intended purpose until the rock is replaced. Washing vehicle tires with pressurized water over a wash rack will increase the effectiveness of the tracking pad for removing mud.

Purpose

	Water Quantity
Flow attenuation	<input type="checkbox"/>
Runoff volume reduction	<input type="checkbox"/>
	Water Quality
Pollution prevention	
Soil erosion	<input checked="" type="checkbox"/>
Sediment control	<input checked="" type="checkbox"/>
Nutrient loading	<input checked="" type="checkbox"/>
Pollutant removal	
Total suspended sediment (TSS)	<input checked="" type="checkbox"/>
Total phosphorus (P)	<input checked="" type="checkbox"/>
Nitrogen (N)	<input checked="" type="checkbox"/>
Heavy metals	<input checked="" type="checkbox"/>
Floatables	<input type="checkbox"/>
Oil and grease	<input type="checkbox"/>
Other	
Fecal coliform	<input type="checkbox"/>
Biochemical oxygen demand (BOD)	<input type="checkbox"/>

<input checked="" type="checkbox"/>	Primary design benefit
<input checked="" type="checkbox"/>	Secondary design benefit
<input type="checkbox"/>	Little or no design benefit

Construction Practices

Vehicle Tracking Pad

Advantages

- Cost-effective
- Highly effective for erosion and sediment control

Limitations

- Muddy sites will require extensive maintenance of the vehicle tracking pad to ensure effective sediment removal.
- Gravel can become quickly saturated with mud in certain soils and moisture conditions

Requirements

Design

The aggregate is recommended to be 1- to 3-inch washed rock. The aggregate layer should be 6 inches thick and extend the full width of the ingress and egress areas. The rock pad should be at least 50 feet long. A geotechnical fabric may be used under the aggregate to minimize the migration of stone into the underlying soil by heavy vehicle loads.

If the majority of mud is not removed by vehicles traveling over the rock pad, the tires of the vehicle should be washed before entering a paved road. Wash water should be directed to a settling area to remove sediments. A wash rack installed on the rock pad may make washing more convenient and effective in removing sediment.

Specifications

- The rock used for gravel pads should be a minimum 1- to 3-inch size, such as MnDOT coarse aggregate.
- The aggregate should be placed in a layer at least 6 inches thick. Generally, the larger the aggregate, the better.
- The rock entrance should be at least 50 ft long; however, longer entrances may be required to adequately clean tires.
- Geotextile fabric may be needed under the rock to prevent migration of mud from the underlying soil into the stone.
- If tires are cleaned with water, the wash water should be directed to a suitable settling area.
- A wash rack installed on the rock pad may make washing more convenient and effective. The wash rack would consist of a heavy grating over a lowered area. The grating may be a prefabricated rack, such as a cattle guard, or it may be constructed on site of structural steel. In any case, the wash rack must be strong enough to support the vehicles that will cross it.
- Culvert - A pipe or culvert shall be constructed under the entrance if needed to prevent surface water flowing across the entrance from being directed out onto paved surfaces.
- Water Bar - A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.

Construction Practices

Vehicle Tracking Pad

Sequencing

A construction entrance should be used:

- where construction vehicles leave active construction areas onto surfaces where runoff is not checked by sediment controls;
- at all points of egress to public roads;
- where frequent vehicle and equipment and ingress/egress are expected such as at the entrance of individual building lots.
- to limit the number of access points onto the site (funnel all construction to the vehicle tracking pad exit).

A properly constructed vehicle tracking pad should not be relied upon to remove all the mud from construction traffic. Maintain a consistent speed on site and while travel off site over the tracking pad. The best approach to preventing off-site tracking is to keep vehicles that frequently enter and leave a site, away from muddy areas in the first place. Vehicles should be restricted to stabilized areas to the extent practical, and areas where frequent ingress/egress is expected should be stabilized.

It is always preferable to prevent mud from being deposited upon a road rather than cleaning the road off later. Mud on a road can create a safety hazard as well as a sediment pollution problem. In some cases, the action of tires moving over a gravel pad may not adequately clean tires. In those cases, the tires may need to be washed with water before the vehicle leaves the site. When water is used to wash tires, a wash rack will keep the driving surface mud-free. Wash water will need to be treated or recycled.

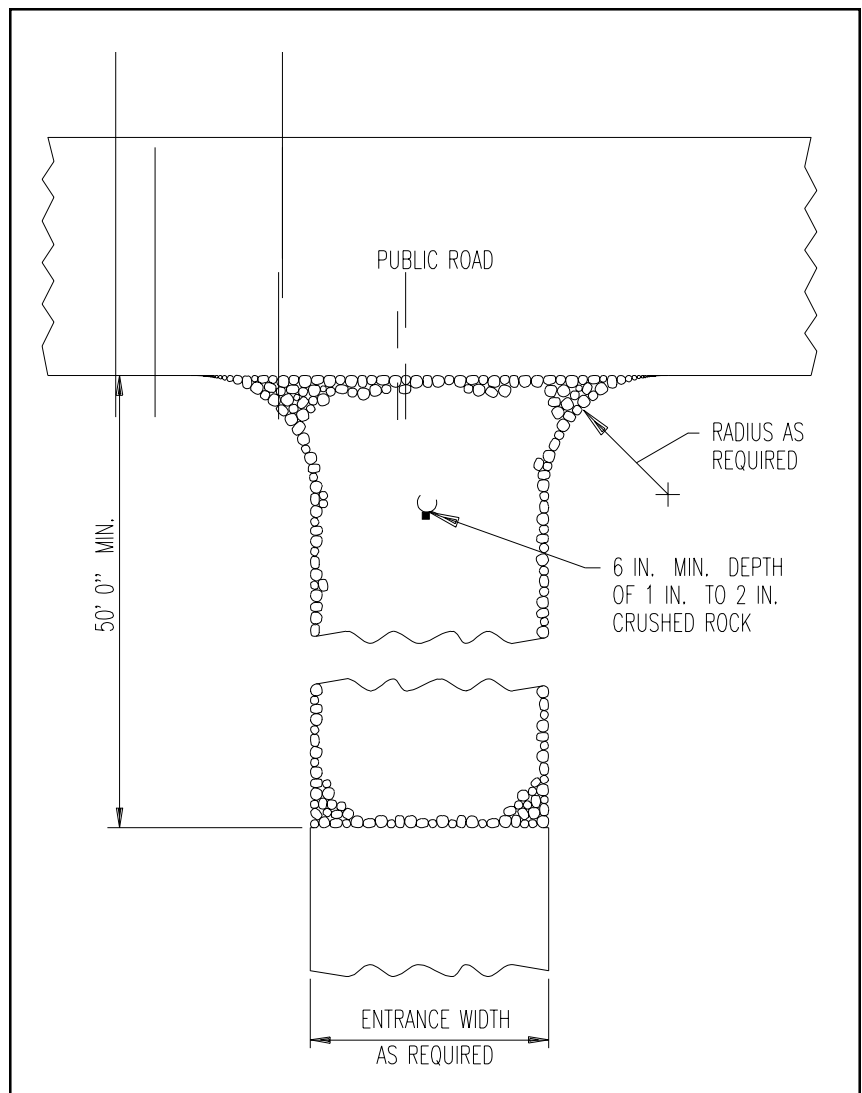


Figure 1: Vehicle Tracking Pad

Source: MPCA, 2000.

Construction Practices

Vehicle Tracking Pad

Requirements

Maintenance

- In addition to the vehicle tracking pad, it is recommended that a street sweeper and scraper be kept on site during construction operations and the street areas adjacent to the tracking pad should be cleaned daily at the end of each construction day.
- New rock should be added to the tracking pad whenever the existing rock becomes buried.
- If conditions on the site are such that the majority of the mud is not removed by the vehicles traveling over the gravel, then the tires of the vehicles should be washed before entering a public road.
- Wash water should be carried away from the entrance to a settling area to remove sediment. A wash rack may also be used to make washing more convenient and effective.
- The rock entrance pad needs maintenance to prevent tracking of mud onto paved roads. This may require periodic top-dressing with additional rock, or removal and reinstallation of the pad. Areas used for sediment trapping may also need to be cleaned out.
- Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately.
- The rock pad needs occasional maintenance to prevent the tracking of mud onto paved roads. This may require periodic top-dressing with additional rock or removal and reinstallation of the pad.

MnDOT Maintenance Requirements

- The Contractor shall minimize vehicle tracking of sediment or soil off site at locations where vehicles exit the construction site onto paved surfaces.
- Tracked sediment shall be removed from paved surfaces, which do not drain back into the construction site, within 24 hours (maximum) of discovery.

Sources

1. Minnesota Pollution Control Agency. 2000. *Protecting Water Quality in Urban Areas: Best Management Practices for Dealing with Storm Water Runoff from Urban, Suburban and Developing Areas of Minnesota*. Minneapolis.
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3. Mecklenburg, D. 1996. *Rainwater and Land Development*. Division of Soil and Water Conservation, Ohio Department of Natural Resources. Columbus.
4. Soil Conservation Service. 1987. "Temporary Rock Construction Entrance" fact sheet. United States Department of Agriculture, Washington, D.C.
5. Minnesota Department of Transportation. 2000. *Standard Specifications for Construction*. St. Paul.

Construction Practices

Vehicle Tracking Pad

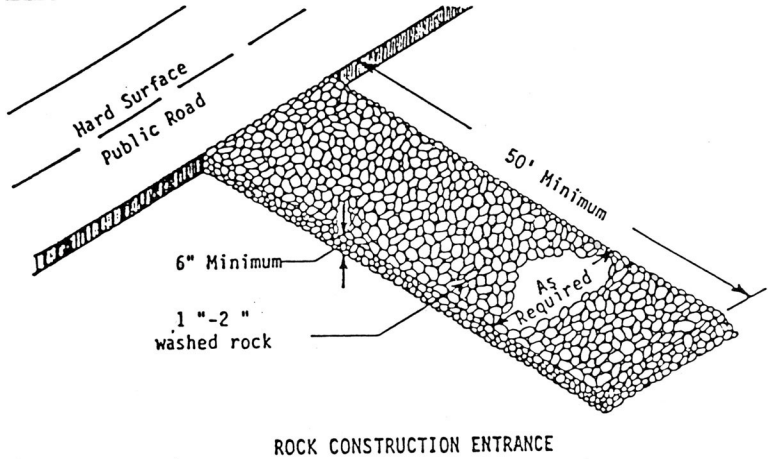


Figure 2: Vehicle Tracking Pad
Source: Soil Conservation Service, 1987

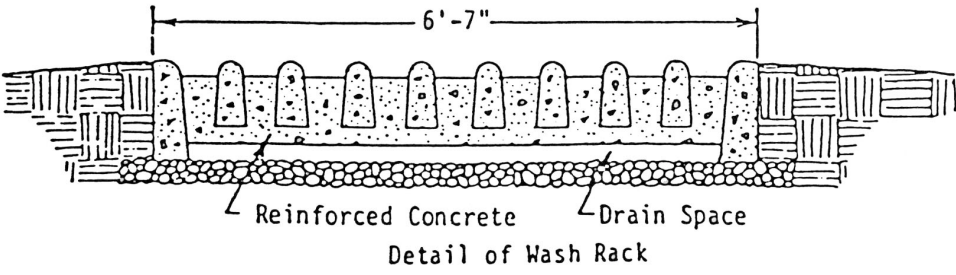


Figure 3: Wash Rack
Source: Soil Conservation Service, 1987.