

- At the boundary of sensitive areas, their buffers, and other areas required to be left uncleared
- As necessary to control vehicle access to and on the site

### ***Design and Installation Specifications***

- High-visibility plastic fence shall be composed of a high-density polyethylene (HDPE) material and shall be  $\geq 4$  feet in height. Posts for the fencing shall be steel or wood and placed every 6 feet on center (maximum) or as needed to ensure rigidity. The fencing shall be fastened to the post every 6 inches with a polyethylene tie. On long continuous lengths of fencing, a tension wire or rope shall be used as a top stringer to prevent sagging between posts. The fence color shall be high-visibility orange. The fence tensile strength shall be 360 pounds per foot (lb/ft) using the ASTM D4595 testing method.
- If appropriate, install fabric silt fence in accordance with BMP C233E (Silt Fence) to act as high-visibility fence. Silt fence shall be  $\geq 3$  feet high and must be highly visible to meet the requirements of this BMP.
- Metal fences shall be designed and installed according to the manufacturer's specifications.
- Metal fences shall be  $\geq 3$  feet high and must be highly visible.
- Fences shall not be wired or stapled to trees.

### ***Maintenance Standards***

If the fence has been damaged or visibility reduced, it shall be repaired or replaced immediately and visibility restored.

### ***BMP C105E: Stabilized Construction Access***

Stabilized construction entrances are established to reduce the amount of sediment transported onto paved roads by vehicles or equipment. This is done by constructing a stabilized pad of quarry spalls at entrances and exits for construction sites.

- Construction entrances shall be stabilized wherever traffic will be entering or leaving a construction site if paved roads or other paved areas are within 1,000 feet of the site.
- For residential subdivision construction sites, provide stabilized construction entrances for each residence, rather than only at the main subdivision entrance. Stabilized surfaces shall be of sufficient length/width to provide vehicle access/parking, based on lot size and configuration.
- On large commercial, highway, and road projects, the designer should include enough extra materials in the contract to allow for additional stabilized entrances not shown in the initial Construction Stormwater Pollution Prevention Plan (SWPPP). It is difficult to determine exactly where access to these projects will take place; additional materials will enable the contractor to install them where needed.

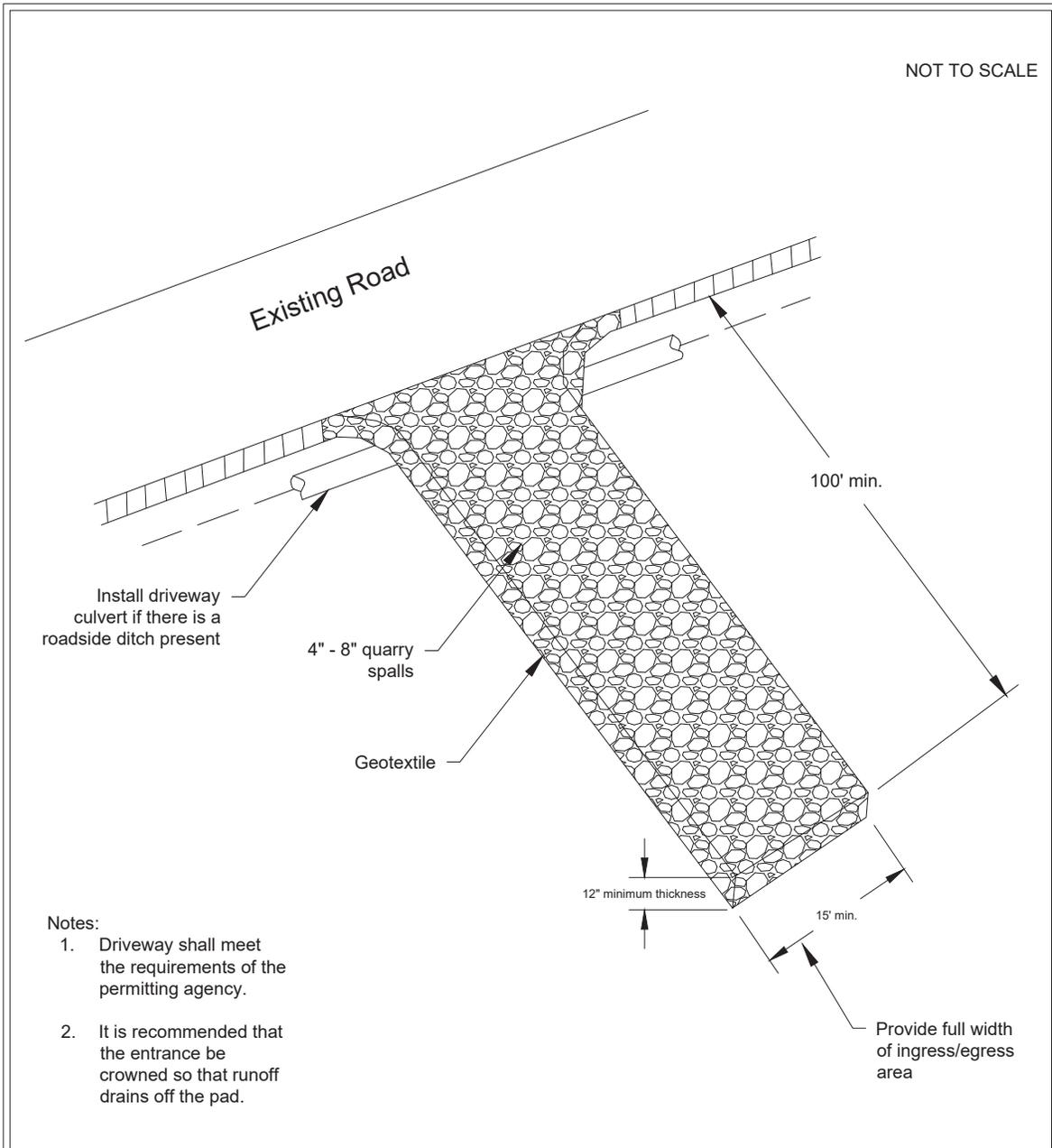
## ***Design and Installation***

- See [Figure 7.3: Stabilized Construction Entrance](#) for details.

**Note:** The 100-foot minimum length of the entrance shall be reduced to the maximum practicable size when the size or configuration of the site does not allow the full length (100 feet).

- Construct stabilized construction entrances with a 12-inch thick pad of 4- to 8-inch quarry spalls, a 4-inch course of asphalt treated base (ATB), or use existing pavement. Do not use crushed concrete, cement, or calcium chloride for construction entrance stabilization because these products increase pH levels in stormwater, and concrete discharge to surface waters of the state is prohibited.
- A separation geotextile shall be placed under the spalls to prevent fine sediment from pumping up into the rock pad. The geotextile shall meet the following standards listed in [Table 7.1: Stabilized Construction Entrance Geotextile Standards](#).

**Figure 7.3: Stabilized Construction Entrance**



## Stabilized Construction Entrance

Revised June 2016

Please see <http://www.ecy.wa.gov/copyright.html> for copyright notice including permissions, limitation of liability, and disclaimer.

**Table 7.1: Stabilized Construction Entrance Geotextile Standards**

Geotextile Property	Required Value
Grab Tensile Strength (ASTM D4751)	200 pounds per square inch (psi) minimum
Grab Tensile Elongation (ASTM D4632)	30% maximum
Mullen Burst Strength (ASTM D3786-80a)	400 psi minimum
Apparent Opening Size (ASTM D4751)	No. 20 to No. 45 (U.S. standard sieve size)

- Consider early installation of the first lift of asphalt in areas that will be paved; this can be used as a stabilized entrance. Also consider the installation of excess concrete as a stabilized entrance. During large concrete pours, excess concrete is often available for this purpose.
- Fencing (see [BMP C103E: High-Visibility Fence](#)) shall be installed as necessary to restrict traffic to the construction entrance.
- Whenever possible, the entrance shall be constructed on a firm, compacted subgrade. This can substantially increase the effectiveness of the pad and reduce the need for maintenance.
- Construction entrances should avoid crossing existing sidewalks and back of walk drains if at all possible. If a construction entrance must cross a sidewalk or back of walk drain, the full length of the sidewalk and back of walk drain must be covered and protected from sediment leaving the site.
- Alternative material specification:
  - The Washington State Department of Transportation (WSDOT) has raised safety concerns about the quarry spall rock specified in the second bullet in the Design and Installation subsection. WSDOT has noticed that rocks measuring 4 to 8 inches can become trapped between dually truck tires and subsequently released off-site at highway speeds. WSDOT has chosen to use a modified specification for the rock while continuously verifying that the stabilized construction entrance remains effective. To remain effective, the BMP must prevent sediment from migrating off-site. To date, there has been no performance testing to verify operation of this new specification. Local jurisdictions may use the alternative specification, but must perform increased off-site inspections
  - Stabilized construction entrances may use material that meets the requirements of the latest version of WSDOT's *Standard Specifications for Road, Bridge, and Municipal Construction* for ballast unless the alternative grading and quality requirements listed in [Table 7.2: Stabilized Construction Entrance Alternative Material Requirements](#) are used.

**Table 7.2: Stabilized Construction Entrance Alternative Material Requirements**

Sieve Size	Percentage Passing
2.5 inches	99 to 100
2 inch	65 to 100
3/4 inch	40 to 80
No. 4	5 maximum
No. 100	0 to 2
% Fracture	75 minimum
<p>Notes: All percentages are by weight.</p> <p>The sand equivalent value and dust ratio requirements do not apply.</p> <p>The fracture requirement shall be at least one fractured face and will apply the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.</p>	

### **Maintenance Standards**

Quarry spalls shall be added if the pad is no longer in accordance with the specifications.

- If the entrance is not preventing sediment from being tracked onto pavement, then alternative measures to keep the streets free of sediment shall be used. This may include replacement/cleaning of the existing quarry spalls, street sweeping, an increase in the dimensions of the entrance, or the installation of [BMP C106E: Wheel Wash](#).
- Any sediment that is tracked onto pavement shall be removed by shoveling or street sweeping. The sediment collected by sweeping shall be removed or stabilized on-site. The pavement shall not be cleaned by washing down the street, except when sweeping is ineffective and there is a threat to public safety. If it is necessary to wash the streets, the construction of a small sump to contain the washwater shall be considered. The sediment would then be washed into the sump where it can be controlled.
- Perform street sweeping by hand or with a high-efficiency sweeper. Do not use a non-high-efficiency mechanical sweeper because this creates dust and throws soils into storm systems or conveyance ditches.
- Any quarry spalls that are loosened from the pad, which end up on the roadway shall be removed immediately.
- If vehicles are entering or exiting the site at points other than the construction entrance(s) [BMP C103E: High-Visibility Fence](#) shall be installed to control traffic.
- Upon project completion and site stabilization, all construction accesses intended as permanent access for maintenance shall be permanently stabilized.

## ***Approved as Functionally Equivalent***

The Washington State Department of Ecology (Ecology) has approved products as able to meet the requirements of this BMP. The products did not pass through the Technology Assessment Protocol–Ecology (TAPE) process. Local jurisdictions may choose not to accept these products or may require additional testing prior to consideration for local use. Products that Ecology has approved as functionally equivalent are available for review on Ecology’s Emerging Stormwater Treatment Technologies (TAPE) web page at the following address:

<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies>

## **BMP C106E: Wheel Wash**

### ***Purpose***

Wheel washes reduce the amount of sediment transported onto paved roads by washing dirt from the wheels of motor vehicles prior to the motor vehicles leaving the construction site.

### ***Conditions of Use***

- Use a wheel wash when [BMP C105E: Stabilized Construction Access](#) is not preventing sediment from being tracked off-site.
- Wheel washing is generally an effective BMP when installed with careful attention to topography. For example, a wheel wash can be detrimental if installed at the top of a slope abutting a right-of-way where the water from the dripping truck can run unimpeded into the street.
- Pressure washing combined with an adequately sized and surfaced pad with direct drainage to a large 10- by 10-foot sump can be very effective.
- Wheel wash wastewater is process water and must be discharged to a separate on-site treatment system that prevents discharge to a receiving water or to the sanitary sewer with local sewer district approval.
- Wheel washes may use closed-loop recirculation systems to conserve water use.
- Wheel wash wastewater shall not include wastewater from concrete washout areas.
- When practical, the wheel wash should be placed in sequence with [BMP C105E: Stabilized Construction Access](#). Locate the wheel wash such that vehicles exiting the wheel wash will enter directly onto the stabilized construction entrance/exit. To achieve this, the entrance/exit may need to be extended beyond the standard installation to meet the exit of the wheel wash.

### ***Design and Installation Specifications***

- Suggested details are shown in [Figure 7.4: Wheel Wash](#). The local permitting authority may allow other designs. A minimum of 6 inches of asphalt treated base (ATB) over crushed base material or 8 inches over a good subgrade is recommended to pave the wheel wash.
- Use a low-clearance truck to test the wheel wash before paving. Either a belly dump or

lowboy will work well to test clearance.

- Keep the water level from 12 to 14 inches deep to avoid damage to truck hubs and filling the truck tongues with water.
- Midpoint spray nozzles are needed only in extremely muddy conditions.
- Wheel wash systems should be designed with a small grade change, 6 to 12 inches for a 10-foot-wide pond, to allow sediment to flow to the low side of the pond to help prevent resuspension of sediment. A drainpipe with a 2- to 3-foot riser should be installed on the low side of the pond to allow easy cleaning and refilling. Polymers may be used to promote coagulation and flocculation in a closed-loop system. Polyacrylamide (PAM) added to the wheel washwater at a rate of 0.25 to 0.5 pounds per 1,000 gallons of water increases effectiveness and reduces cleanup time. If PAM is already being used for dust or erosion control and is being applied by a water truck, the same truck can be used to change the washwater.

### ***Maintenance Standards***

- The wheel wash should start out each day with fresh water.
- The washwater for the wheel wash should be changed a minimum of once per day. On large earthwork jobs where more than 10 to 20 trucks per hour are expected, the wheel washwater will need to be changed more often.

### ***Approved as Functionally Equivalent***

The Washington State Department of Ecology (Ecology) has approved products as able to meet the requirements of this BMP. The products did not pass through the Technology Assessment Protocol–Ecology (TAPE) process. Local jurisdictions may choose not to accept these products or may require additional testing prior to consideration for local use. Products that Ecology has approved as functionally equivalent are available for review on Ecology’s Emerging Stormwater Treatment Technologies (TAPE) web page at the following address:

<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies>

**Figure 7.4: Wheel Wash**

