Model Construction SWPPP Worksheet

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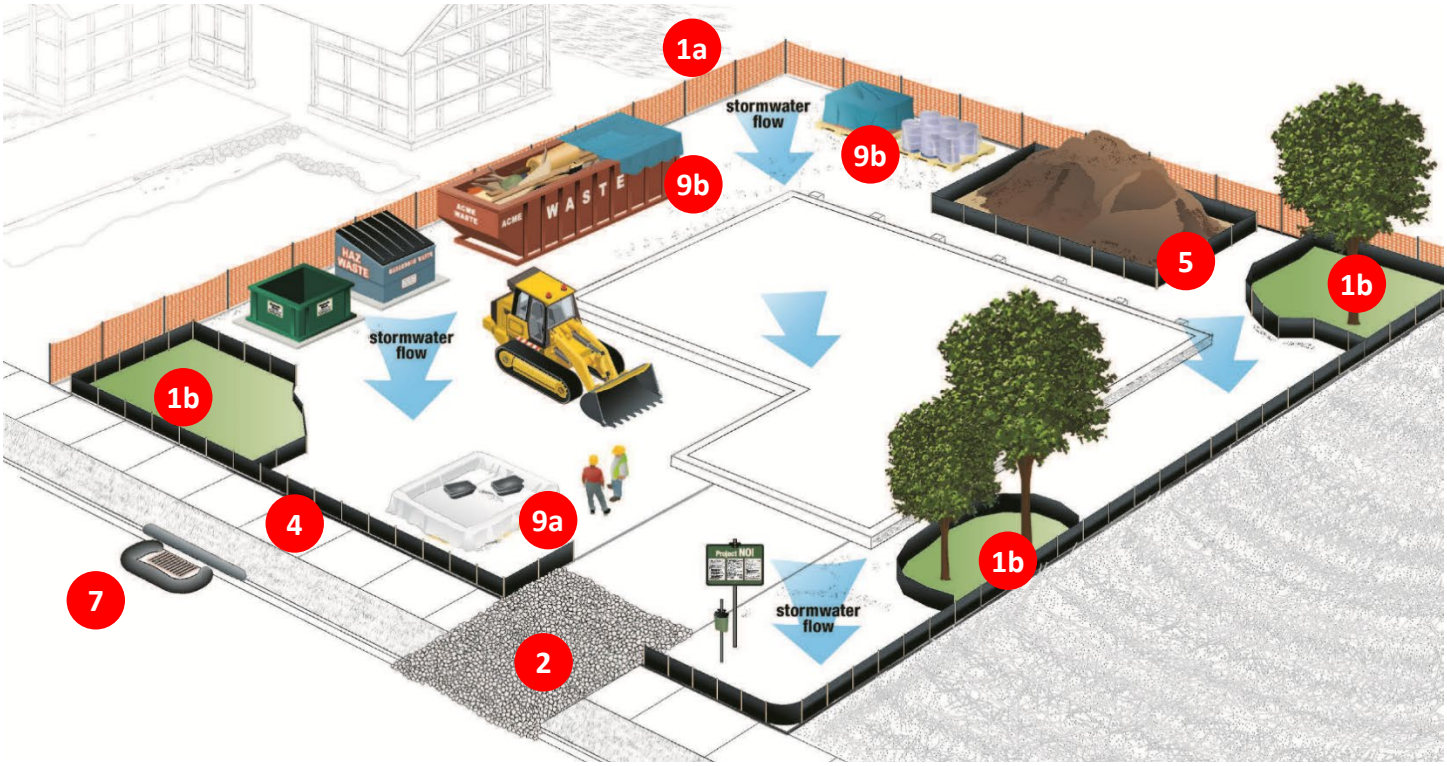
All Best Management Practices (BMPs) chosen from this packet **MUST** be drawn on your site plan and numbered accordingly. Please include all 10 pages of this worksheet with your application.

General Information

Project Name		**Parcel Size**	acres
Project Address		**Parcel Number**	
Property Owner		**Phone**	
Site Contact		**Phone**	
Project Description	*Describe the nature and purpose of the construction project. Include the total size of the area, any increase in existing impervious area; the total area expected to be disturbed by clearing, grading, excavation or other construction activities, including off-site borrow and fill areas; and the volumes of grading cut and fill that are proposed.*		

Best Management Practices Illustration

Turn the page to see information corresponding to each numbered circle below.



About this Pollution Prevention Plan

This is Skagit County's model Construction Stormwater Pollution Prevention Plan ("Construction SWPPP") intended to ensure your construction project minimizes erosion and does not contribute pollution, including sediment, to stormwater. This Model SWPPP is primarily intended for single-family residential construction.

This plan uses certain Best Management Practices ("BMPs") from the Stormwater Management Manual. Some detailed descriptions are included; the remainder are available at www.skagitcounty.net/stormwaterpermitting. The listed BMPs are the minimum necessary; **if erosion occurs, you must add additional BMPs as necessary to control it.**

You should include your Construction SWPPP in your contract with your builder. You must keep a copy of this SWPPP on the construction site or within reasonable access to the site for construction and inspection personnel at all times.

Property owners and contractors are responsible for ensuring all aspects of BMPs are followed, including those not shown on the detail sheets. This Construction SWPPP should be considered a living document and must be updated as needed to reflect site conditions.

1 Preserve Vegetation/Mark Clearing Limits

Before any land disturbance, including clearing and grading, **clearly mark** all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area. Retain natural vegetation in an undisturbed state to the maximum extent practical. Use these BMPs:

- C101 to preserve natural vegetation
- C102 to establish buffer zones around important vegetation you want to save
- **C103 High Visibility Fencing** to mark the boundaries of your buffers
- **C233 Silt Fence** to ensure sediment doesn't leave the site

2 Establish Construction Access

Construction vehicles can damage or compact soils, create sediment pollution, or track sediment onto public roads.

All equipment and vehicles that access the construction area **must** use an existing driveway or a stabilized construction entrance.

- Use BMP C105 Stabilized Construction Entrance wherever traffic will be entering or leaving a construction site if paved roads are within 1,000 ft of the site. Construct a 12-inch thick pad of 4-inch to 8-inch quarry spalls, a 4-inch course of asphalt treated base, or use existing pavement. Place a separation geotextile under the spalls to prevent fine sediment from pumping up into the rock pad. Install the construction entrance prior to any vehicles entering the site, at the location shown on the site plan. Create only one construction entrance per site.
- Use BMP **C103 High Visibility Fencing** to restrict traffic to the construction entrance.
- Remove any sediment that is tracked onto pavement by shoveling or street sweeping, and remove the collected sediment or stabilize it on site.

3 Control Flow Rates (not shown)

Stormwater on a cleared site can create significant flows that can damage downstream properties.

Protect properties and waterways downstream of the project site from erosion and the associated discharge of turbid waters. If your project is required to control flow rates, you must use the following BMPs as shown on the approved site plan:

- C203 Water Bars
- **C209 Outlet Protection**
- **C235 Straw Wattles**

4 Install Sediment Controls

When land is devegetated, stormwater can pick up sediment, a pollutant. BMPs can prevent sediment from leaving the site.

You must install sediment controls before land disturbance to effectively minimize and control the discharge of pollutants and sediments.

Use and properly install BMP **C233 Silt Fence.** You *must* bury the filter fabric as shown in the diagram in order for the BMP to be effective. You *must* repair the silt fence if it is damaged.

Consider the following additional BMPs:

- C231 Brush Barrier
- C232 Gravel Filter Berm
- **C234 Vegetated Strip**
- **C235 Straw Wattles**

Note that C230 Straw Bale Barrier is no longer an approved BMP.

5 Stabilize Soils

Leaving soils devegetated or exposed needlessly creates erosion and sediment problems.

- Stabilize all exposed soils whenever construction work will stop for more than two days at a time during the wet season (October 1 to April 30) or 7 days the rest of the year (the dry season).

- Stabilize all exposed soils at the end of the shift before a holiday or weekend.
- Stabilize all exposed soils with either vegetation, mat coverings, mulching, or in those areas to be paved, a compacted base material.
- Use BMP C123 Plastic Covering over all stockpiles with plastic or burlap if left unworked. Place sand-filled burlap or geotextile bags every 3 to 6 ft along seams and tie them together with twine to hold them in place.
- If you excavate soil for the foundation, backfill that soil against the foundation and grade it to drain away from the building. Once the disturbed landscape areas are graded, you must seed or sod the grass areas.

Consider the following additional BMPs:

- C120 Temporary and Permanent Seeding
- C121 Mulching
- C122 Nets and Blnakets
- C124 Sodding
- C125 Topsoiling/Composting
- C131 Gradient Terraces
- C140 Dust Control

6 Protect Slopes (not shown)

Slopes can be especially vulnerable to erosion, but BMPs can mitigate sediment problems.

Design and construct cut-and-fill slopes to minimize erosion. Use the following practices:

- Reduce continuous length of slope with terracing and diversions
- Reduce slope steepness
- Roughen slope surfaces
- Use BMP C123 Plastic Covering over all exposed slopes
- Use BMP C120 Temporary and Permanent Seeding as soon as possible on exposed slopes

Manage off-site stormwater (run-on) separately from stormwater generated onsite. Divert off-site stormwater or groundwater away from slopes and disturbed areas with interceptor dikes, pipes, or swales.

You may not create cut slopes over 4 feet high or slopes steeper than 2 feet horizontal to 1 foot vertical. Fill slopes may not exceed 4 feet high or 3 feet horizontal to 1 foot vertical. Slopes that exceed these criteria require engineering.

Consider the following additional BMPs:

- C121 Mulching
- C122 Nets and Blankets
- C124 Sodding
- C203 Water Bars
- C208 Triangular Silt Dike (Geotextile-Encased Check Dam

7 Protect Drain Inlets

Storm drains are designed to collect and transport clean stormwater, not water polluted with sediment or other pollutants. Storm drain inlets must be protected so that runoff does not enter the stormwater system without first being filtered or treated or both.

- Use BMP **C220 Storm Drain Inlet Protection** to protect all proposed and existing storm drain inlets during construction so that stormwater runoff does not enter the stormwater conveyance system without first being filtered or treated (or both) to remove sediment or other pollutants.
- Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).
- Keep all approach roads clean.
- Do not allow sediment and street wash water to enter storm drains without treatment.

8 Stabilize Channels and Outlets

Stormwater channels and outlets can themselves erode unless stabilized with rock or other armoring.

Design, construct, and stabilize all on-site conveyance channels to prevent erosion as needed. Use BMP **C209 Outlet Protection** to provide stabilization, including armoring material adequate to prevent erosion of outlets, adjacent streambanks, slopes, and downstream reaches at the outlets of all conveyance systems.

Consider the following additional BMPs:

- C122 Nets and Blankets
- C202 Channel Lining

9 Control Pollutants

Waste materials, demolition debris, and other pollutants that occur onsite during construction can contaminate the stormwater system unless managed. Cement and related products can modify the pH of stormwater.

Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment.

Anytime you pour concrete, perform washout of the concrete trucks following BMP C154 Concrete Washout Area at designated washout areas only. Locate washout areas at least 50 ft from sensitive areas such as storm drains, open ditches, or water bodies, including wetlands.

Clean contaminated surfaces immediately following any spill incident. Apply fertilizers and pesticides in a manner and at rates that will not result in loss of chemical via stormwater runoff.

Use the following additional BMPs:

- C151 Concrete Handling
- C152 Sawcutting and Surfacing Pollution Prevention
- C153 Material Storage, Delivery, and Containment

10 Control De-Watering (not shown)

De-watering water extracted from foundations, vaults, or trenches, has similar characteristics to stormwater runoff at the site and can cause the same impacts unless properly managed.

You may discharge clean, non-turbid de-watering, such as well-point ground water, to systems that are tributaries to, or directly into, surface waters if the de-watering flow does not cause erosion or flooding or interfere with the operation of the stormwater system.

Use the following BMPs:

- **C220 Storm Drain Inlet Protection**
- C236 Vegetative Filtration

11 Maintain BMPs (not shown)

All temporary and permanent erosion and sediment control BMPs must be maintained and repaired as needed to assure continued performance of their intended function.

During the dry season, inspect sediment control BMPs weekly or after a runoff-producing storm event. During the wet season, inspect BMPs daily. Use BMP C150 Materials on Hand to ensure you are ready for a heavy rain.

All temporary erosion and sediment control BMPs must be removed within 30 days after the County determines that the site is stabilized or after the temporary BMPs are no longer needed. Trapped sediment must be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation must be permanently stabilized.

12 Manage the Project (not shown)

Phasing a project, especially when revegetation occurs as part of each phase, can help prevent the transport of sediment from the site.

- Fully implement this Construction SWPPP at all times.
- Modify this Construction SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants to waters of the state.
- Inspect, maintain, and repair all BMPs as needed to ensure continued performance of their intended function.

13 Protect Low-Impact Development BMPs

Low-Impact Development techniques can be damaged if they are compacted or accumulate sediment during construction.

If there are any Low-Impact Development BMPs planned for the site:

- Use BMP **C103 High Visibility Fence** to exclude all construction and foot traffic from the infiltration, bio-retention, or rain garden areas.
- Protect all infiltration areas or bio-retention and rain garden BMPs from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into those areas.
- Use BMP **C233 Silt Fence** or **C234 Vegetated Strip** to control and avoid introducing sediment onto permeable pavements. Bury the bottom of the filter fabric at least 4 inches below the ground surface. **Backfill and tamp soil in place over the buried portion of the filter fabric, so that no flow can pass beneath the fence and scouring cannot occur.** Drive or place the fence posts into the ground at least 18 inches. A 12-inch minimum depth is allowed if topsoil or other soft subgrade soil is not present and 18 inches cannot be reached.
- If pavements are fouled with sediments or no longer pass an initial infiltration test, clean them using procedures from the Stormwater Manual or the manufacturer's procedures.

Consider the following additional BMPs:

- C102 Buffer Zones
- C208 Triangular Silt Dike
- C231 Brush Barrier

Temporary Erosion and Sediment Control Material Suppliers

This list is not meant to be all-inclusive; other supply sources may be available. Not all supplies may be available from one source. It is the responsibility of the person(s) doing the work to ensure they have the supplies they need, and they are installed correctly.

ACF West
Woodinville Corporate Center II
Building A #400
15540 Woodinville-Redmond Road
Woodinville, WA 98072
Phone: 425-415-6115 or 1-800-423-4567
www.acfwest.com

H.B. Jaeger
1687 Port Drive
Burlington, WA 98233
Phone: 360-707-5958
www.hbjaeger.com

Ferguson Supply
2010 Park Lane
Burlington, WA 98233
Phone: 360-707-2030
www.ferguson.com

Lefeber Turf Farm
15195 State Route 536
Mount Vernon, WA 98273
Phone: 360-428-4054
www.lefeberturf.com

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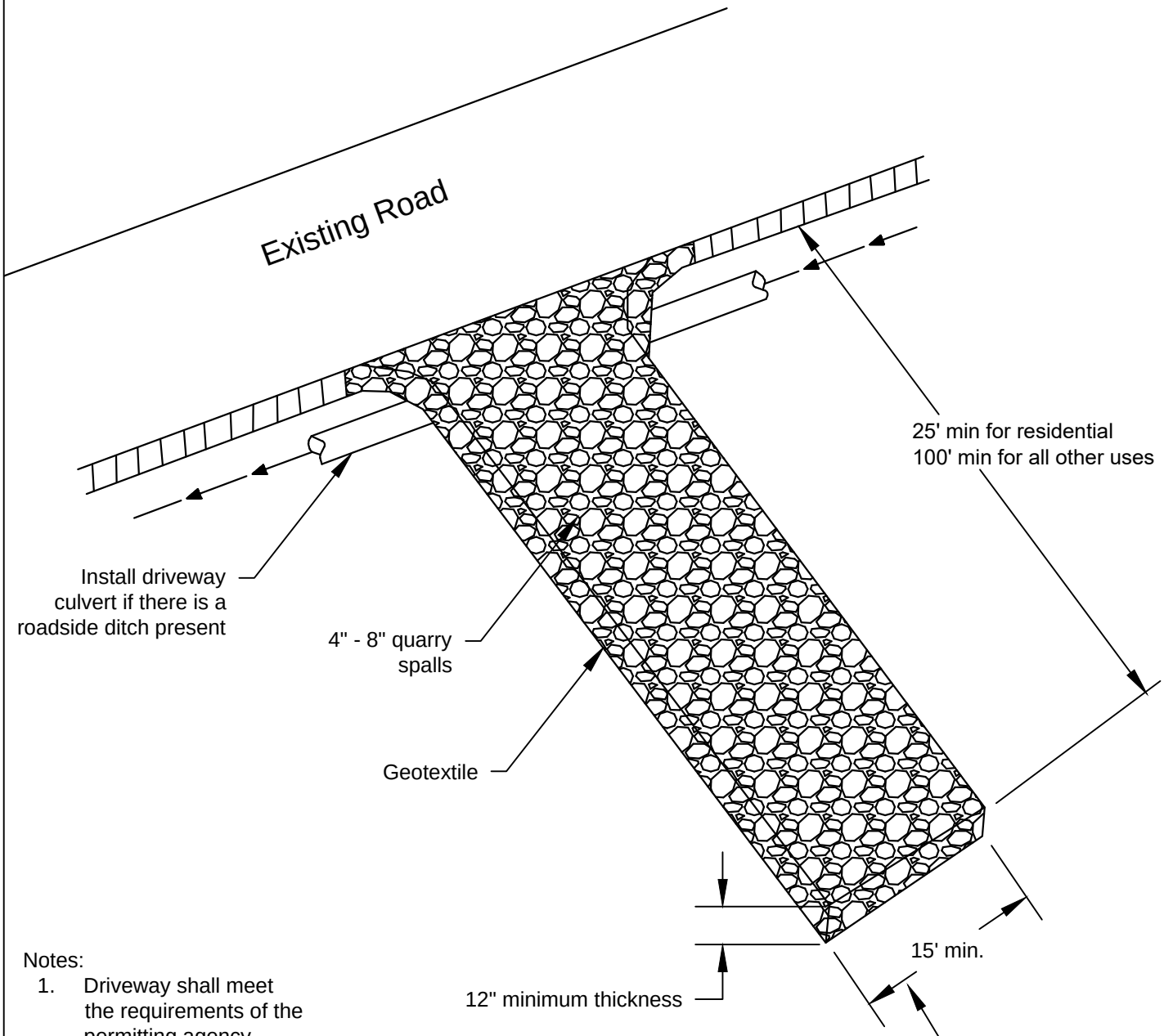

Notes:

1. Driveway shall meet the requirements of the permitting agency.
2. It is recommended that the entrance be crowned so that runoff drains off the pad.

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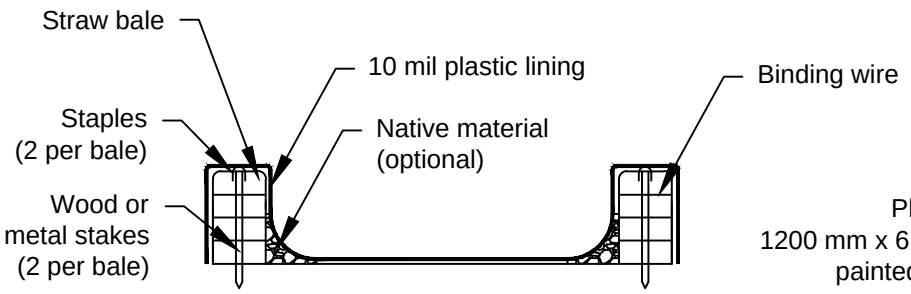
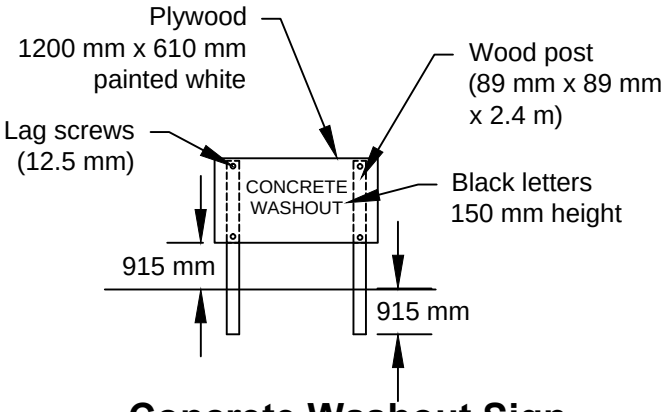
BMP C105--Figure II-4.1.1
Stabilized Construction Entrance

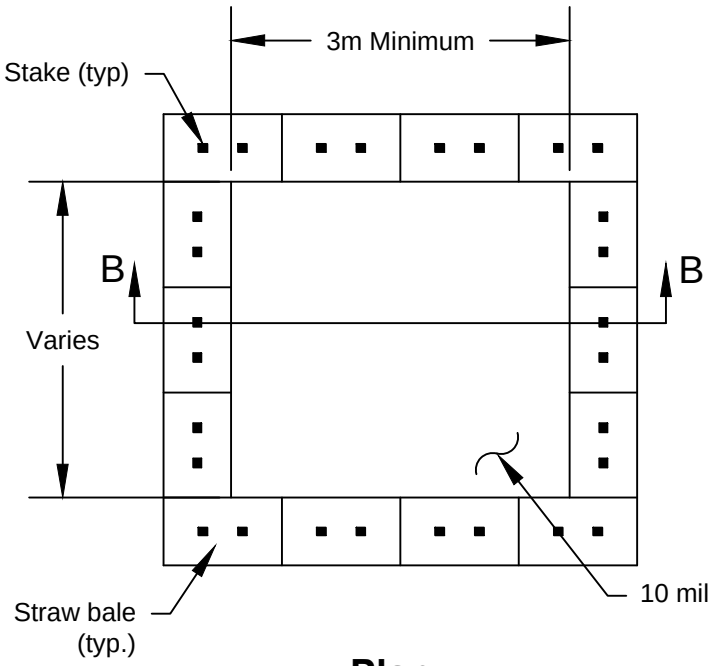
Revised June 2015



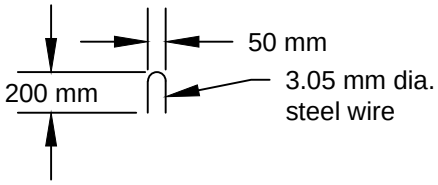
Section B-B



Concrete Washout Sign Detail (or equivalent)



Plan



Staple Detail

Notes:

1. Actual layout determined in the field.
2. The concrete washout sign shall be installed within 10 m of the temporary concrete washout facility.

Type "Above Grade" with Straw Bales

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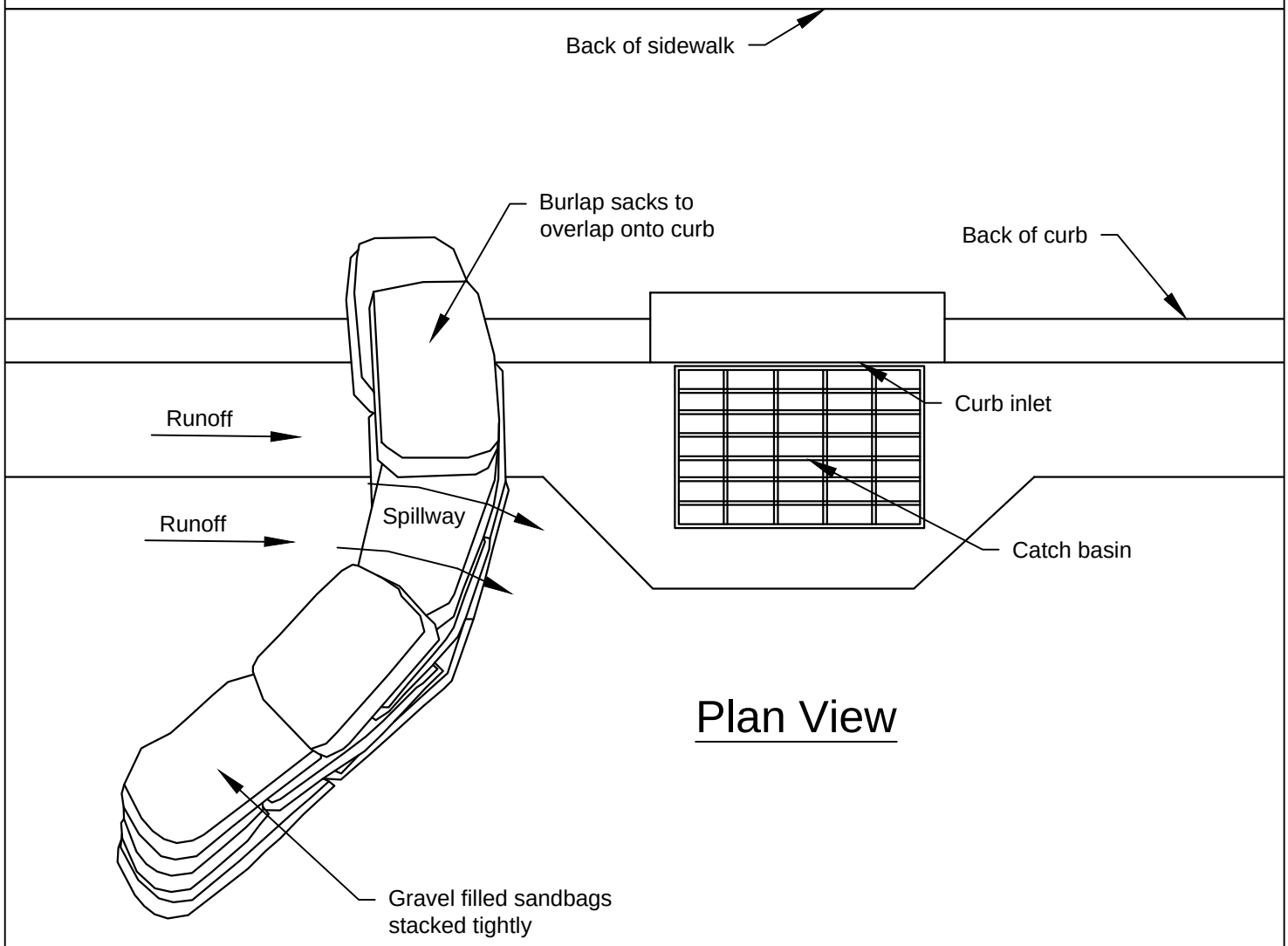
BMP C154--Figure II-4.1.7b
Concrete Washout Area

Revised June 2015



Plan View

Notes:

1. Place curb type sediment barriers on gently sloping street segments, where water can pond and allow sediment to separate from runoff.
2. Sandbags of either burlap or woven 'geotextile' fabric, are filled with gravel, layered and packed tightly.
3. Leave a one sandbag gap in the top row to provide a spillway for overflow.
4. Inspect barriers and remove sediment after each storm event. Sediment and gravel must be removed from the traveled way immediately.

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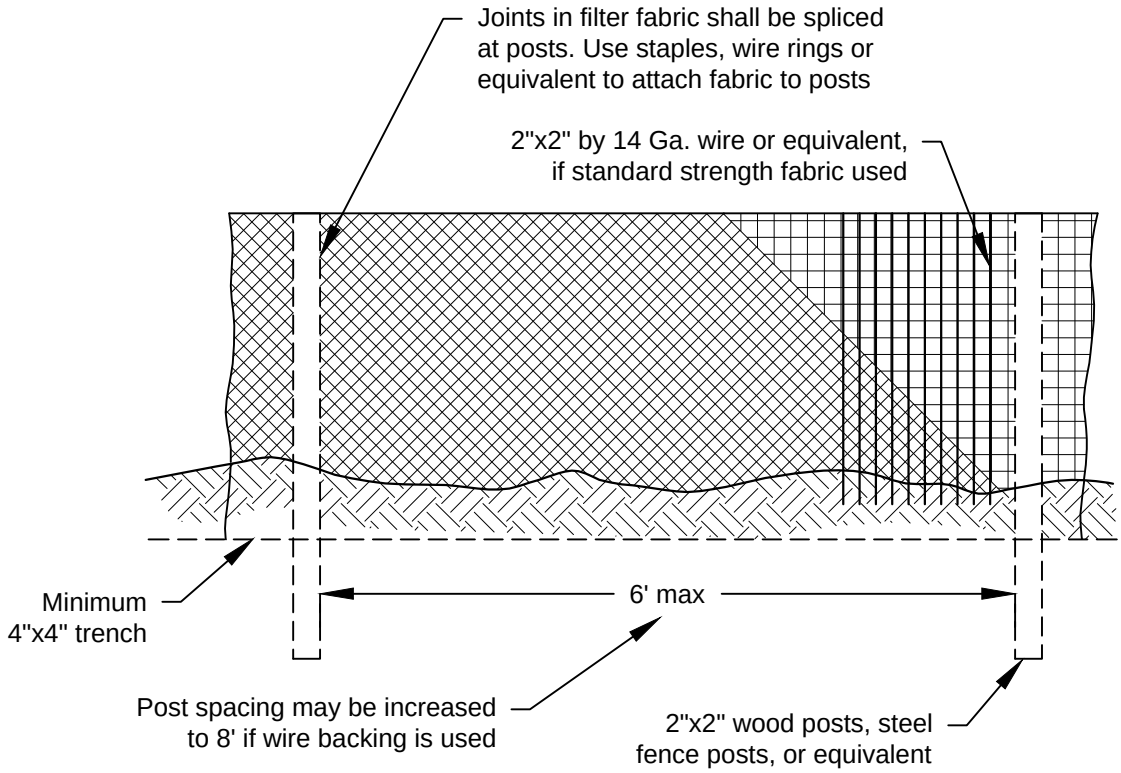
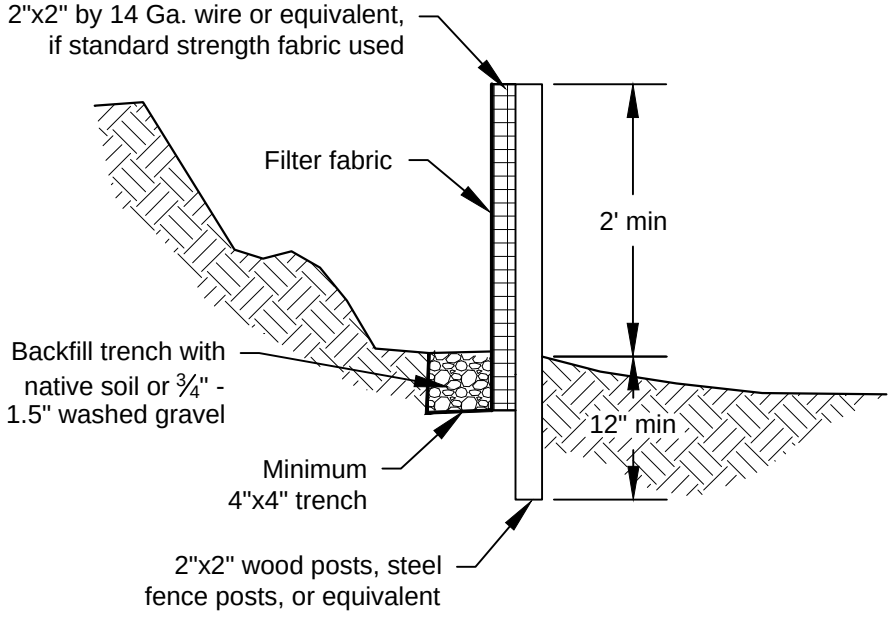
BMP C220--Figure II-4.2.10
Curb and Gutter Barrier

Revised September 2015





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BMP C233--Figure II-4.2.12
Silt Fence

Revised October 2014

BMP C235: Wattles

Purpose

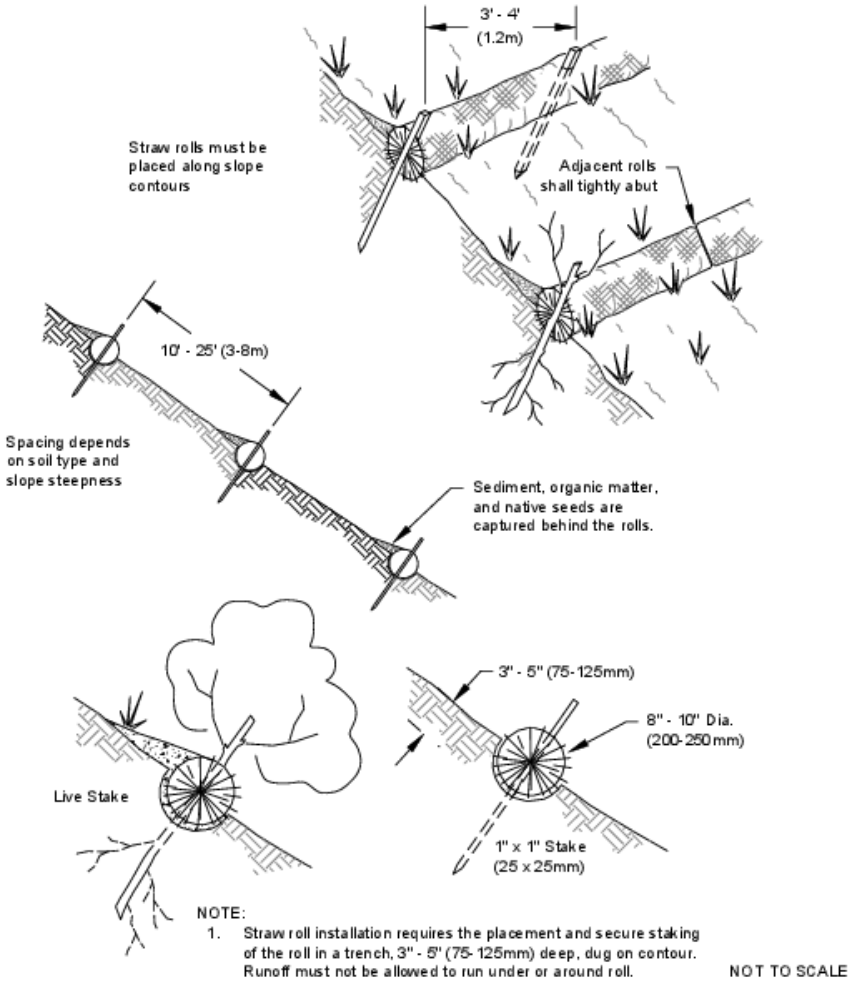
Wattles are temporary erosion and sediment control barriers consisting of straw, compost, or other material that is wrapped in biodegradable tubular plastic or similar encasing material. They reduce the velocity and can spread the flow of rill and sheet runoff, and can capture and retain sediment. Wattles are typically 8 to 10 inches in diameter and 25-30 feet in length. Wattles are placed in shallow trenches and staked along the contour of disturbed or newly constructed slopes.

Conditions of Use

- Use wattles:
  - In disturbed areas that require immediate erosion protection.
  - On exposed soils during the period of short construction delays, or over winter months.
  - On slopes requiring stabilization until permanent vegetation can be established.
- The material used dictates the effectiveness period of the wattle. Generally, Wattles are typically effective for one to two seasons.
- Prevent rilling beneath wattles by properly entrenching and abutting wattles together to prevent water from passing between them.

Design Criteria

- Install wattles perpendicular to the flow direction and parallel to the slope contour.
- Narrow trenches should be dug across the slope on contour to a depth of 3- to 5-inches on clay soils and soils with gradual slopes. On loose soils, steep slopes, and areas with high rainfall, the trenches should be dug to a depth of 5- to 7- inches, or 1/2 to 2/3 of the thickness of the wattle.
- Start building trenches and installing wattles from the base of the slope and work up. Spread excavated material evenly along the uphill slope and compacted using hand tamping or other methods.
- Construct trenches at intervals of 10- to 25-feet depending on the steepness of the slope, soil type, and rainfall. The steeper the slope the closer together the trenches.
- Install the wattles snugly into the trenches and abut tightly end to end. Do not overlap the ends.



- Install stakes at each end of the wattle, and at 4-foot centers along entire length of wattle.
- If required, install pilot holes for the stakes using a straight bar to drive holes through the wattle and into the soil.
- Wooden stakes should be approximately 3/4 x 3/4 x 24 inches min. Willow cuttings or 3/8-inch rebar can also be used for stakes.
- Stakes should be driven through the middle of the wattle, leaving 2 to 3 inches of the stake protruding above the wattle.

Maintenance Standards

- Wattles may require maintenance to ensure they are in contact with soil and thoroughly entrenched, especially after significant rainfall on steep sandy soils.
- Inspect the slope after significant storms and repair any areas where wattles are not tightly abutted or water has scoured beneath the wattles.

Approved as Equivalent

Ecology has approved products as able to meet the requirements of BMP C235, available for review at www.ecy.wa.gov/programs/wq/stormwater/newtech/equivalent.html