

Construction Stormwater Pollution Prevention (SWPP) Plan

1400 Alanna Dr. SE Short Subdivision

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Lacey, WA 98503
TPN 55260000800

City of Lacey Project No. _____
Olympic Engineering Project No. 21039

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All new development and redevelopment projects are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters.

General Requirements

Clearing and grading activities for developments shall be permitted only if conducted pursuant to an approved site development plan (e.g., subdivision approval) that establishes permitted areas of clearing, grading, cutting, and filling. These permitted clearing and grading areas and any other areas required to preserve critical or sensitive areas, buffers, native growth protection easements, or tree retention areas shall be delineated on the site plans and the development site.

The SWPP Plan shall be implemented beginning with initial land disturbance and until final stabilization. Sediment and Erosion control BMPs shall be consistent with the BMPs contained in Chapter 4 of Volume II of the Stormwater Management Manual for Western Washington (SMMWW).

Seasonal Work Limitations - From October 15 through April 1, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the local permitting authority that silt-laden runoff will be prevented from leaving the site through a combination of the following:

1. Site conditions including existing vegetative coverage, slope, soil type and proximity to receiving waters.
2. Limitations on activities and the extent of disturbed areas.
3. Proposed erosion and sediment control measures.

Note that projects performing work under a NPDES Construction Stormwater General Permit issued by Ecology may have more restrictive seasonal work limitations.

Project Requirements - Construction SWPPP Elements

In most cases, all of the following elements shall apply and be implemented throughout construction. Self-contained sites (discharges only to groundwater) must comply with all elements with the exception of Element 3: Control Flow Rates.

Element 1: Preserve Vegetation/Mark Clearing Limits

- Before beginning land disturbing activities, 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 the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable.

Element 2: Establish Construction Access

- Limit construction vehicle access and exit to one route, if possible.
- Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs, to minimize tracking of sediment onto public roads.

- Locate wheel wash or tire baths on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.
- If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pick up and transport the sediment to a controlled sediment disposal area.
- Conduct street washing only after sediment is removed in accordance with the above bullet.
- Control street wash wastewater by pumping back on-site, or otherwise prevent it from discharging into systems tributary to waters of the State.

Element 3: Control Flow Rates

- Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the velocity and peak volumetric flow rate of stormwater runoff from the project site.
- Where necessary to comply with the bullet above, construct stormwater retention or detention facilities as one of the first steps in grading. Assure that detention facilities function properly before constructing site improvements (e.g. impervious surfaces).
- If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

Element 4: Install Sediment Controls

- Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants.
- Construct sediment control BMPs (sediment ponds, traps, filters, etc.) as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.
- Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.
- Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard in Element #3, bullet #1.
- Locate BMPs intended to trap sediment on-site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.
- Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

Element 5: Stabilize Soils

- Stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of

polyacrylamide (PAM), the early application of gravel base early on areas to be paved, and dust control.

- Control stormwater volume and velocity within the site to minimize soil erosion.
- Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.
- Soils must not remain exposed and unworked for more than the time periods set forth below to prevent erosion: • During the dry season (April 2 – October 14): 7 days
- During the wet season (October 15 - April 1): 2 days
- Note that projects performing work under a NPDES Construction Stormwater General Permit issued by Ecology will have more restrictive time periods.
- Stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.
- Stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways and drainage channels.
- Minimize the amount of soil exposed during construction activity.
- Minimize the disturbance of steep slopes.
- Minimize soil compaction and, unless infeasible, preserve topsoil.

Element 6: Protect Slopes

- Design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (for example, track walking).
- Divert off-site stormwater (run-on) or ground water away from slopes and disturbed areas with interceptor dikes, pipes and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.
- At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion. • Temporary pipe slope drains must handle the peak 10-minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year and 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped" area.
- Place excavated material on the uphill side of trenches, consistent with safety and space considerations.
- Place check dams at regular intervals within constructed channels that are cut down a slope.

Element 7: Protect Drain Inlets

- Protect all storm drain inlets made operable during construction so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.
- 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).

Element 8: Stabilize Channels and Outlets

- Design, construct, and stabilize all on-site conveyance channels to prevent erosion from the following expected peak flows: • Channels must handle the peak volumetric flow rate calculated using a 10-minute time step from a Type 1A, 10- year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped" area.
- Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream reaches at the outlets of all conveyance systems.

Element 9: Control Pollutants

- Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants.
- Handle and dispose of all pollutants, including waste materials and demolition debris that occur on-site in a manner that does not cause contamination 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. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.
- Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.
- Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland application, or to the sanitary sewer, with local sewer district approval.
- Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.
- Use BMPs to prevent contamination of stormwater runoff by pH modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters.
- Adjust the pH of stormwater if necessary to prevent violations of water quality standards.
- Assure that washout of concrete trucks is performed off-site or in designated concrete washout areas only. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams. Do not dump excess concrete on-site, except in designated

concrete washout areas. Concrete spillage or concrete discharge to surface waters of the State is prohibited.

- Obtain written approval from Ecology before using chemical treatment other than CO₂ or dry ice to adjust pH.

Element 10: Control De-Watering

- Discharge foundation, vault, and trench de-watering water, which has similar characteristics to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.
- Discharge clean, non-turbid de-watering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Element #8, provided the de-watering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.
- Handle highly turbid or otherwise contaminated dewatering water separately from stormwater.
- Other treatment or disposal options may include:
 1. Infiltration.
 2. Transport off-site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.
 3. Ecology-approved on-site chemical treatment or other suitable treatment technologies.
 4. Sanitary or combined sewer discharge with local sewer district approval, if there is no other option.
 5. Use of a sedimentation bag that discharges to a ditch or swale for small volumes of localized dewatering.

Element 11: Maintain BMPs

- Maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.
- Remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

Element 12: Manage The Project

- Phase development projects to the maximum degree practicable and take into account seasonal work limitations.
- Inspection and monitoring – Inspect, maintain and repair all BMPs as needed to assure continued performance of their intended function. Projects regulated under the Construction Stormwater General Permit must conduct site inspections and monitoring in accordance with Special Condition S4 of the Construction Stormwater General Permit.
- Maintaining an updated construction SWPPP – Maintain, update, and implement the SWPPP.
- Projects that disturb one or more acres must have site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL). Project sites disturbing less than one acre may

have a CESCL or a person without CESCL certification conduct inspections. By the initiation of construction, the SWPPP must identify the CESCL or inspector, who must be present on-site or on-call at all times.

- The CESCL or inspector (project sites less than one acre) must have the skills to assess the:
 1. Site conditions and construction activities that could impact the quality of stormwater.
 2. Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

- The CESCL or inspector must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. They must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.
- Based on the results of the inspection, construction site operators must correct the problems identified by:
 - Reviewing the SWPPP for compliance with the 13 construction SWPPP elements and making appropriate revisions within seven (7) calendar days of the inspection.
- Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems not later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, the construction site operator may request an extension within the initial 10-day response period.
- Documenting BMP implementation and maintenance in the site log book (sites larger than 1 acre).
- The CESCL or inspector must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The CESCL or inspector may reduce the inspection frequency for temporary stabilized, inactive sites to once every calendar month.

Element 13: Protect Low Impact Development BMPs

- Protect all Bioretention and Rain Garden BMPs from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden BMPs. Restore the BMPs to their fully functioning condition if they accumulate sediment during construction. Restoring the BMP must include removal of sediment and any sediment-laden Bioretention/rain garden soils, and replacing the removed soils with soils meeting the design specification.
- Prevent compacting Bioretention and rain garden BMPs by excluding construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.
- Control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements or base materials.

- Pavement fouled with sediments or no longer passing an initial infiltration test must be cleaned using procedures in accordance with this manual or the manufacturer's procedures.
- Keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

Objective

To control erosion and prevent sediment and other pollutants from leaving the site during the construction phase of a project. To have fully functional stormwater facilities and BMPs for the developed site upon completion of construction.

Supplemental Guidelines

If a Construction SWPPP is found to be inadequate (with respect to erosion and sediment control requirements), then the Plan Approval Authority within the City shall require that other BMPs be implemented, as appropriate.

The Plan Approval Authority may allow development of generic Construction SWPPP's that apply to commonly conducted public road activities, such as road surface replacement, that trigger this core requirement. They may also develop an abbreviated SWPPP format for project sites that will disturb less than 1 acre.

Based on the information provided and/or local weather conditions, the local permitting authority may expand or restrict the seasonal limitation on site disturbance. The local permitting authority shall take enforcement action - such as a notice of violation, administrative order, penalty, or stop-work order under the following circumstances:

- If, during the course of any construction activity or soil disturbance during the seasonal limitation period, sediment leaves the construction site causing a violation of the surface water quality standard; or
- If clearing and grading limits or erosion and sediment control measures shown in the approved plan are not maintained.

Coordination with Utilities and Other Contractors - The primary project proponent shall evaluate, with input from utilities and other contractors, the stormwater management requirements for the entire project, including the utilities, when preparing the Construction SWPPP.