This master should be used by designers working on Port of Portland construction projects and by designers working for PDX tenants (“Tenants”). Usage notes highlight a few specific editing choices, however the entire section should be evaluated and edited to fit specific project needs.

Use this section for projects which involve ground disturbance activities. ESPC applies to COP’s program, but also to state requirements.

Section 015713 is a Port Environmental Affairs requirement. Revise articles as directed by the usage notes. Remaining articles should not be altered unless approved by Port Environmental Affairs.

SECTION 015713 - TEMPORARY EROSION, SEDIMENT, AND POLLUTION CONTROL

1. GENERAL
   * + 1. DESCRIPTION
          1. This section describes temporary measures and monitoring to control water pollution, soil erosion, and siltation. Erosion, sediment, and pollutant control (ESPC) devices or methods include the use of berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, sediment (filter) fences, grasses, slope drains, and other techniques.

Complete A according to specific project. Refer to City ESC manual for more information.

* + - 1. DESCRIPTION OF SOILS
      2. RELATED WORK SPECIFIED ELSEWHERE
         1. Section 024113, Site Demolition
         2. Section 312000, Site Clearing and Earthwork
         3. Section 312300, Trenching, Backfilling, and Compacting
         4. Section 329200, Clearing and Seeding

Periodically contact Dorothy Sperry to verify NPDES permit is still in effect (currently on administrative extension). Use B for all projects.

* + - 1. REFERENCES AND APPLICABLE CODES
         1. ASTM: American Society for Testing Materials

ASTM D4355: Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

ASTM D4491: Standard Test Methods for Water Permeability of Geotextiles by Permittivity

ASTM D4533: Standard Test Method for Trapezoid Tearing Strength of Geotextiles

ASTM D4632: Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

ASTM D4751: Standard Test Method for Determining Apparent Opening Size of a Geotextile

ASTM D6241: Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

* + - * 1. National Pollutant Discharge Elimination System (NPDES) General Permit 1200-CA dated September 15, 2022.

Delete the following two references if work is not within the City of Portland.

* + - * 1. City of Portland, Erosion Control Manual.
        2. City of Portland Title 10, Chapter 10.10 – 10.80.

Delete the following reference if not a Hillsboro project.

* + - * 1. Cleanwater Services Erosion Prevention and Sediment Control Planning and Design Manual.
        2. OR UIC: Oregon Underground Injection Control
        3. Oregon DEQ: Oregon Department of Environmental Quality
      1. PERMITS
         1. The Port is the administrator of the NPDES General Permit 1200-CA for the Discharge of Construction Site Runoff to Public Waters on projects performed by or for the Port on Port property. A copy of the permit and its regulations is on file at the Port’s Engineering offices. The Port is mandated by law to comply with this permit. The Contractor shall comply with the requirements of the permit.

Delete B if ESPC plan has not been submitted by the Port for prior approval. If retaining, edit B to reference appropriate permit agencies.

* + - * 1. The Port has attained City of Portland approval for the ESPC measures shown on the drawings. The Contractor shall satisfy all ESPC requirements set forth by the City of Portland.
      1. SUBMITTALS
         1. At the pre-construction meeting, submit the following supplemental ESPC information:

Construction start and completion dates.

Dates when ESPC measures will be in place.

Projected date of removal of erosion control structures (after soil is stabilized by vegetation or pavement).

Description of control procedures to prevent the discharge of all wash water from concrete trucks into the storm sewer system.

Description of procedures for prompt maintenance or repair of ESPC measures utilized on-site.

Description of clearing and grading practices, including a schedule of implementation, that will minimize the area of exposed soil throughout the duration of the project. (Whenever practicable, clearing and grading shall be phased to prevent exposed inactive areas from becoming a source of erosion.)

Description of best management practices that will be used to prevent or minimize storm water from being exposed to pollutants from spills, cleaning and maintenance activities, and waste handling activities. These pollutants include fuel, hydraulic fluid, and other oils from vehicles and machinery as well as debris, leftover paints, solvents, and glues from construction operations.

Name, title, and telephone number of designated employee to perform the Contractor’s inspection and monitoring of ESPC measures.

* + - * 1. Any requested changes or modifications to the ESPC measures shown on the drawings shall be submitted to the Port for approval prior to implementation. Upon request by the Port, the Contractor shall submit updated ESPC drawings which include the latest modifications.
        2. ESPC inspection records shall be submitted with the Contractor’s monthly request for payment.
      1. INJECTION WELLS
         1. The Department of Environmental Quality regulates underground injection, including dry wells and most stormwater injection wells. Use of injection systems shall comply with Oregon Underground Injection Control (UIC) rules. The Contractor is solely responsible for ensuring compliance with the UIC rules. In addition, the construction or use of any injection well is prohibited without prior written approval from the Port.

1. PRODUCTS
   * + 1. SEDIMENT FENCE
          1. Meet the requirements of ASTM D6461.
       2. INLET AND TRENCH DRAIN PROTECTION
          1. Geotextile filter fabric (nonwoven) for inlet and trench drain protection shall meet the following material specification requirements.

| PROPERTY | TEST METHOD | ENGLISH |
| --- | --- | --- |
| Grab Tensile Strength (minimum) Machine and Cross Machine Directions | ASTM D4632 | 200 lbs |
| Tear Strength (minimum) | ASTM D4533 | 80 lbs |
| Puncture Strength (minimum) | ASTM D6241 | 430 lbs |
| Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve | ASTM D4751 | 40 US Sieve |
| Permittivity (minimum) | ASTM D4491 | 0.50 Sec-1 |
| Ultraviolet Stability Retained Strength (minimum) @ 500 Hours | ASTM D4355 | 70% |

* + - 1. WATTLES
         1. General: Wattles shall be made of straw and shall meet the requirements below. Wrap the straw to a minimum density of 2.75 pounds per cubic foot in tubular netting.

For most projects, keep B and delete C. If wattles will be left in place at the end of the project, delete B and keep C.

* + - * 1. Plastic Netting:

8-inch to 10-inch diameter size.

Minimum strand thickness of 0.003 inch.

Knot thickness of 1/16 inch.

Weight of 0.35 ounces per foot ±10 percent.

Made from 85 percent high density polyethylene, 14 percent ethyl vinyl acetate, and 1 percent color for UV inhibition.

* + - * 1. Biodegradable Netting:

Biodegradable, clean, evenly woven, and free of encrusted concrete or other contaminating materials such as preservatives.

Free from cuts, tears, or weak places.

Minimum lifespan of 6 months and a maximum lifespan of no more than 24 months.

* + - * 1. Straw:

Use straw mulch prepared for non-hydroseeding applications from bentgrass, bluegrass, fescue or ryegrass singly or in combination. Cereal grain straw from barley, oat, or wheat may be allowed upon approval of the Port.

Provide straw that is not moldy, caked, decayed, or of otherwise low quality.

Submit certification from the supplier that the straw is free of noxious weed seeds or plant parts. Acceptable documentation is any one of the following:

The straw source is an “Oregon Certified Seed” field.

The straw is certified by a recognized program accepted by the Oregon Department of Agriculture as being weed free.

Seed lab test results of seed harvested from the straw meet minimum Oregon Certified Seed quality for weed seed content.

1. EXECUTION
   * + 1. GENERAL
          1. The implementation of the ESPC measures and the construction, performance monitoring, maintenance, replacement, and upgrading of the ESPC measures are the responsibility of the Contractor until all construction is completed and accepted and vegetation/landscaping is established.
          2. The ESPC measures shown on the drawings shall be constructed in conjunction with all clearing, grading, trenching, and earthwork activities and in a manner that ensures that sediment and sediment-laden water do not enter the drainage system, roadways, or violate applicable water quality standards.
          3. The ESPC measures shown on the drawings are the minimum requirements for anticipated site conditions and Contractor methods and sequences. During the construction period, the ESPC measures shall be upgraded as needed for unexpected conditions, storm events, or Contractor methods or sequences and to ensure that sediment and sediment-laden water do not leave the site.
          4. The Contractor shall be responsible for implementing temporary erosion control measures during construction to correct unforeseen conditions. The Contractor shall be responsible for additional erosion control due to the Contractor’s negligence, carelessness, or failure to install planned controls as a part of the work.

Use for work within the City of Portland.

* + - * 1. Implementation, construction, and maintenance of ESPC measures shall be in accordance with the City of Portland Erosion Control Manual.

Use for Hillsboro.

* + - * 1. Implementation, construction, and maintenance of ESPC measures shall be in accordance with the Cleanwater Services Erosion Prevention and Sediment Control Planning and Design Manual.
        2. Do not begin soil disturbance activities until ESPC measures are in place.
        3. Schedule and perform ground disturbance activities in order to minimize impact to the overall project.
        4. The erosion control drawings together with the supplemental ESPC information constitute the ESPC plan. A copy of the ESPC plan shall be retained on site and made available to the Port upon request.
        5. The Port has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, and to limit the surface area of erodible earth material exposed by excavation, borrow and fill, or embankment operations. The Port also has the authority to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment.
      1. CONSTRUCTION DETAILS

Delete A if project does not require City of Portland approval.

* + - * 1. Install and maintain all site public notification signs where shown on the drawings and keep signs easily readable from the public right-of-way throughout the duration of the ground-disturbing activities. Remove and dispose of signs upon completion of work.
        2. No visible or measurable erosion material or pollutant shall exit the construction site. Visible or measurable is defined as:

Deposits of mud, dirt, sediment or similar material exceeding 1/2 cubic foot in volume in any area of 100 square feet or less on public or private streets, adjacent property, or into the storm and surface water system, either by direct deposit, dripping, discharge, or as a result of the action of erosion.

Evidence of concentrated flows of water over bare soils; turbid or sediment laden flows; or evidence of on-site erosion such as rivulets on bare soil slopes, where the flow of water is not filtered or captured on the site.

Earth slides, mud flows, earth sloughing, or other earth movement which leaves the property.

* + - * 1. Employ all reasonable means and methods to control or divert upslope stormwater runoff away from cleared and grubbed areas, stockpiled materials, and other disturbed areas that will be open or stockpiled for periods longer than 2 weeks.
        2. Construction entrances, exits, and parking areas shall be graveled or paved to reduce the tracking of sediment onto public or private roads. Maintain for the duration of the project.
        3. Unpaved roads on the site shall be graveled or under other effective erosion and sediment control measures, either on the road or down gradient, to prevent sediment and sediment‑laden water from leaving the site.
        4. Preserve existing vegetation where practicable and revegetate open areas after grading or construction.
        5. Continuously secure or protect soil stockpiles from runoff and erosion throughout the project with temporary soil stabilization measures or protective cover.

Use for Hillsboro.

* + - * 1. Maintain and install sediment controls on all down gradient sides of the construction site for the duration of the work.
        2. Provide ongoing maintenance, repair, and restoration of ESPC measures to keep them continually functional. The following maintenance activities shall be included:

Visual or measurable amounts of sediment and pollutants that leave the site shall be cleaned up immediately and placed back on the site or properly disposed. Under no conditions shall sediment be intentionally washed into storm sewers or drainage ways.

Clean catch basin protection when design capacity has been reduced by 50 percent.

Remove sediment trapped by sediment fences before it reaches one third of the above‑ground fence height.

Remove trapped sediments from sediment basins when design capacity has been reduced by 50 percent.

* + - * 1. If fertilizers are used to establish vegetation, the application rates shall follow manufacturer’s guidelines and the application shall be done in a way that minimizes nutrient-laden runoff to receiving waters.

Use one of the following two paragraphs. The first is for all locations except Hillsboro. The second is for Hillsboro.

* + - * 1. If construction activities cease for 30 days or more, the entire site shall be stabilized using vegetation or a heavy mulch layer, temporary seeding, or another method that does not require germination to control erosion.
        2. If construction activities cease for 15 days or more on any significant portion of the work site, that portion of the site shall be stabilized using straw, compost, or other tackified covering that prevents soil and wind erosion.
        3. Any use of toxic or other hazardous materials shall include proper storage, application, and disposal.
        4. When trucking saturated soils from the site, either watertight trucks shall be used or loads shall be drained on-site until dripping has been reduced to minimize spillage on roads and streets.
        5. Clean all catch basins and inlets protected from sediment prior to paving and final acceptance. The cleaning operation shall not flush sediment laden water into the downstream system.

Edit to fit the project. Permanent soil stabilization is defined as any activity which, when the project is complete, leaves the soil stable. Examples of this are hydroseeding, pavement, formal landscaping, etc.

* + - * 1. ESPC measures installed during construction shall be removed when construction and site disturbance activity are complete and permanent soil stabilization is in place.
        2. Remove and dispose of waste and unused building material.

Use for Hillsboro.

* + - * 1. The Port will obtain DEQ approval for any treatment system or operational plan used to treat contaminated construction dewatering.

Use for Hillsboro.

* + - 1. TEMPORARY STABILIZATION DURING WET WEATHER PERIODS
         1. All exposed soils shall be covered during the wet weather period.
         2. The Contractor shall use temporary stabilization methods at the end of each work day if rainfall is forecasted in the next 24 hours.

Do not edit the following article except to make more stringent.

* + - 1. MONITORING AND REPORTING REQUIREMENTS
         1. The Contractor shall designate an employee to perform inspections of ESPC measures. Inspections shall be conducted by a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality, is knowledgeable in the correct installation of the erosion and sediment controls, and is able to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

For projects of five or more acres, inspections shall be conducted by a person certified in an erosion and sediment control program approved by Oregon DEQ including, but not limited to:

Certified Professional in Erosion and Sediment Control.

Certified Professional in Stormwater Quality.

Washington State Certified Erosion and Sediment Control Lead.

Rogue Valley Sewer Services Erosion and Sediment Control Certification.

* + - * 1. Inspect erosion control measures daily and maintain as necessary to ensure their continued functioning.
        2. For inactive periods of work, inspect ESPC measures at least once every 14 days and within 24 hours after any storm with precipitation greater than 0.5 inches per 24‑hour period.
        3. Visibly monitor stormwater runoff to evaluate the effectiveness of the erosion control measures or practices. If visible quantities of sediment are leaving the property, take corrective action immediately. Notify the Port of all corrections and violations.
        4. The Contractor shall keep a record of inspections. This record shall be made available to the Port upon request and shall be submitted with each request for payment.
        5. Visual inspections shall document the following information:

Inspection date, inspector’s name, weather conditions, and rainfall amount for past 24 hours (inches). (Rainfall information can be obtained from the nearest weather recording station.)

List observations of all best management practices (BMPs): Erosion and sediment controls, chemical and waste controls, locations where vehicles enter and exit the site, status of areas that employ temporary or final stabilization control, soil stockpile area, and non-stormwater controls.

At representative discharge location(s) from the construction site, conduct observation and document the quality of the discharge for any turbidity, color, sheen, or floating materials. If possible, in the receiving stream, observe and record color and turbidity or clarity upstream and downstream within 30 feet of the discharge from the site. For example, a sheen or floating material shall be noted as present/absent. If present, it may indicate possible spill and/or leakage from vehicles or materials storage. Observation for turbidity and color shall describe any apparent color, the clarity of the discharge, and apparent differences compared with the receiving stream.

If visual or measurable amounts of sediment are leaving the property, briefly explain the corrective measures taken to reduce the discharge and/or clean it up. Describe efforts to prevent future releases. The ESPC shall be amended accordingly.

If a site is inaccessible due to inclement weather, the inspection shall include observations at a relevant discharge point or downstream location, if practical.

END OF SECTION 015713