

# F.3 Erosion and Sediment Control

### F.3.1 E&S Plans

1. Verify that the E&S Plans meet all of the E&S Plan requirements listed in Appendix E, Table E-4. [Section 2.3.1]
2. Verify that the E&S Plans include all standard E&S notes listed in Appendix E, Table E-5. [Section 2.3.1]
3. Verify that the boundaries of, and total area encompassed by, the limit of earth disturbance are clearly indicated on the plans and that the area is consistent with the area provided on the PWD Stormwater Plan Review Online Technical Worksheet. [Section 2.3.1; Appendix E, Table E-4]
4. Verify that the limit of disturbance includes all off-site storm and utility connections. [Appendix E, Table E-4]
5. If a PA DEP NPDES Permit has not been applied for, verify that the limit of disturbance remains less than one acre. Site disturbance limits within approximately 10% of one acre are more likely to reach or exceed one acre during construction. Therefore, PWD recommends applying for a PA DEP NPDES Permit in such a situation. Should a site inspection reveal more than one acre of earth disturbance, the site will be required to apply for a PA DEP NPDES Permit. The site will be subject to the enforcement actions outlined in the Stormwater Regulations until the applicant receives an approved NPDES Permit. [Section 2.3.1]
6. Verify that soil compaction has been minimized, even in areas not proposed for infiltration SMPs, to the extent practicable. [Section 5.2.2]
7. Verify that the E&S Plans propose, in plan view, the location of any orange construction fence or silt fence proposed to protect and mark infiltration areas. [Section 5.2.2]
8. Verify that inlet protection is provided for all inlets owned by PWD that are located within one block of the project site on the plans. [Appendix E, Table E-5]
9. Verify that the E&S Plans propose silt fence and/or compost filter sock along all downward-sloping areas of the project site's perimeter. [Appendix E, Table E-4]
10. Verify that any proposed stockpile locations are clearly labeled on the plans. [Appendix E, Table E-4]
11. Verify that the E&S Plans propose silt fence surrounding any proposed stockpile areas. [Appendix E, Table E-4]
12. Verify the dimensions of the rock construction entrance. The minimum length is 50 feet, and the minimum width is 20 feet. [Appendix E, Table E-4]
13. Verify that the rock construction entrance is not located on top of any proposed infiltration practice. It may be necessary to phase the erosion and sediment control plan to avoid compaction of the infiltration area. [Section 5.2.2]
14. Verify that the E&S Plans propose tree protection fencing around existing trees that are proposed to remain and be used for tree disconnection credit. [Appendix E, Table E-4]

15. When compost filter socks are placed on paved surfaces, verify that the E&S Plans indicate that some objects of considerable mass (i.e. concrete blocks, sand bags, etc.) are to be used immediately downslope of the socks (at the same intervals as recommended by the sock manufacturer for stakes) in order to help hold them in place. [Appendix E, Table E-5]
16. Verify that the E&S Plans propose a concrete washout station. [Appendix E, Table E-4]
17. Verify that the E&S Plans propose dust control measures appropriate to the project. Refer to the City of Philadelphia Department of Public Health Air Management Services *Construction/Demolition/Earthworks Dust Control Requirements FAQ* for guidance. [Appendix E, Table E-4]

### **F.3.2 Sequence of Construction**

1. Verify that the E&S Plans include all standard sequence of construction notes listed in Appendix E, Table E-6. [Section 2.3.1]
2. Verify that sequences of construction are provided for both overall construction and the construction of each proposed individual SMP. [Section 2.3.1]
3. Verify that the sequence of construction properly identifies all stages of SMP construction for which a registered professional must document the specific elevations and measurements found on the SMP Construction Certification Form(s) within the Construction Certification Package. [Section 5.3.1]
4. For soil amendments, verify that the following sequence of construction is clearly noted on the plans. [Section 3.3.6]
  - a. Excavate two feet below the proposed infiltration bed invert elevation.
  - b. Manually grade and scarify the existing soil surface. The bottom of the infiltration bed shall be at a level grade. The existing subgrade shall not be compacted or subject to excessive construction equipment.
  - c. Place geotextile filter fabric immediately after approval of subgrade preparation in accordance with manufacturer's standards and recommendations.
  - d. Amend in-situ soil. [Provide instructions for amending the in-situ soil. Soil amendment media can include compost, mulch, manures, sand, and manufactured microbial solutions.] The project geotechnical engineer should be on-site to observe installation of soil amendments.
  - e. Place two feet of amended soil across the entire cross-section of the infiltration bed. Lightly compact each layer with light equipment, keeping equipment movement over storage bed subgrades to a minimum.
  - f. Perform infiltration testing of the amended soil layer. A minimum of three infiltration tests must be performed within the amended soil layer. The procedure used must be the double-ring infiltrometer test, soil sampling and characterization are also required, and all must be in compliance with the current Philadelphia Stormwater Management Guidance Manual. Prior to infiltration testing, PWD must be called (office: 215-685-6387) to schedule an observation. The engineer must provide a signed and sealed Geotechnical Report. All information must be submitted to PWD for review and approval before proceeding with construction. If soil amendments are installed, and the tested infiltration rate is determined to be outside of the PWD allowable range of 0.4 to ten inches per hour or varies significantly from the design infiltration rate, additional soil amendments and/or a system redesign will be required. Once the infiltration test results are reviewed and determined by PWD to be acceptable, proceed with installation of the infiltration practice.

- g. Soil amendments shall not be compacted or subject to excessive construction prior to the placement of geotextile and stone bed.
- h. Place geotextile and infiltration bed aggregate immediately after approval of soil amendment preparation to prevent accumulation of debris and sediment. Prevent runoff and sediment from entering the storage bed during the placement of the geotextile and aggregate bed.
- i. Place geotextile in accordance with manufacturer's standards and recommendations. Adjacent strips of filter fabric shall overlap a minimum of 16 inches. Fabric shall be secured at least four feet outside of bed.
- j. Install aggregate course in lifts of six to eight inches. Lightly compact each layer with light equipment, keeping equipment movement over storage bed subgrades to a minimum. If proposed, install storage structures (e.g., pipes, arches, crates, etc.) during stone bed placement. Install aggregate to grades indicated on the drawings.
- k. Complete surface grading above subsurface infiltration system, using suitable equipment to avoid excess compaction.

### F.3.3 E&S Details

1. Verify that an inlet protection detail is provided on the plans. Verify that appropriate inlet protection details are provided for inlets in the public right-of-way. For roadways maintenance purposes, PWD does not allow inlet protection that includes stone or berms to be used in the public right-of-way. [Section 2.3.1; Appendix E, Table E-4]
2. Verify that details for silt fence and/or compost filter socks are provided on the plans. Refer to Standard Details #4-1 and 4-7 through 4-10 of the *PA DEP Erosion and Sediment Pollution Control Program Manual* (2012 or latest) for guidance. [Section 2.3.1; Appendix E, Table E-4]
3. Verify that a rock filter outlet detail is provided on the plans. Refer to Standard Detail #4-6 of the *PA DEP Erosion and Sediment Pollution Control Program Manual* (2012 or latest) for guidance. [Section 2.3.1; Appendix E, Table E-4]
4. Verify that a rock construction entrance detail is provided on the plans. Refer to Standard Details #3-1 and 3-2 of the *PA DEP Erosion and Sediment Pollution Control Program Manual* (2012 or latest) for guidance. [Section 2.3.1; Appendix E, Table E-4]
5. Verify that a pumped water filter bag detail is provided on the plans. Refer to Standard Detail #3-16 of the *PA DEP Erosion and Sediment Pollution Control Program Manual* (2012 or latest) for guidance. [Section 2.3.1; Appendix E, Table E-4]
6. Verify that a concrete washout station detail is provided on the plans. Refer to Standard Detail #3-18 of the *PA DEP Erosion and Sediment Pollution Control Program Manual* (2012 or latest) for guidance. [Section 2.3.1; Appendix E, Table E-4]
7. If riprap is proposed, verify that the E&S Plans include a riprap detail which shows that geotextile or filter stone is provided for erosion protection of the soil beneath the riprap. Refer to Standard Details #9-1 through 9-3 of the *PA DEP Erosion and Sediment Pollution Control Program Manual* (2012 or latest) for guidance. [Appendix E, Table E-4]