Instructions
Sandbag Diversion Standard Detail

General Description

This standard detail is a potential add on sheet to a set of construction drawings for projects that will involve large areas of disturbed land. These are notes and specifications for typical installations of sandbag diversions to redirect flows around planned areas of disturbance that necessary for the installation of conservation practices. The ASTMs for geotextiles have been checked and accurate references to them have been made on the right side of the drawing. They are common industry standards. The quality of the geotextile used to make the sandbag is very important. Many bags in use by contractors are not sufficiently resistant to degradation by ultraviolet light to last the duration of normal construction. As they degrade and break open, the pollution control they provided fades. Actually getting a contractor to replace initial pollution control practices can be very difficult as they are focused on completing the primary work. A submittal from the contractor before approval of the sand bags to make sure the material will withstand the sunlight for the period of construction will prevent dispute

The notes on the 11" x 17" sheet cover the installation, the maintenance and the post construction removal of the sandbag diversion. This single sheet combined with location of sandbag diversion on the project plan view (construction drawings), if followed during construction, will help minimize the offsite environmental impacts resulting from installing a conservation practice or group of conservation practices (project).

A set of plans which include a sandbag diversion to keep the clean offsite water clean will likely result in faster issuance of permits which decreases the risk of project delay. If not done on the original drawings there may be a need for separate drawings to be provided by a contractor, a consultant, or NRCS as an add on service to the cooperator.

US EPA under authorities in the Clean Water Act may regulate pollution discharge from point sources through the NPDES (National Pollution Discharge Elimination) system. Often the authority/responsibility to do so is addressed with state or territorial regulations. The minimum threshold is 1 acre, but some jurisdictions use a smaller area of disturbance as the requirement for permits. http://www.gpo.gov/fdsys/pkg/FR-2014-03-06/pdf/2014-04612.pdf

NAICS, The North American Industrial Classification System is administered by the US Census Bureau http://www.census.gov/eos/www/naics/ . Most recent EPA rules indicate that the affected NAICS for the recent final rules are 236 and 237. 237 is defined as follows:

Sector 23 -- Construction[T]

237 Heavy and Civil Engineering Construction[T]

The Heavy and Civil Engineering Construction subsector comprises establishments whose primary activity is the construction of entire engineering projects (e.g., highways and dams), and specialty trade contractors, whose primary activity is the production of a specific component for such projects. Specialty trade contractors in Heavy and Civil Engineering Construction generally are performing activities that are specific to heavy and civil engineering construction projects and are not normally performed on buildings. The work performed may include new work, additions, alterations, or maintenance and repairs.

Specialty trade activities are classified in this subsector if the skills and equipment present are specific to heavy or civil engineering construction projects. For example, specialized equipment is needed to paint lines on highways. This equipment is not normally used in building applications so the activity is classified in this subsector. Traffic signal installation, while specific to highways, uses much of the same skills and equipment that are needed for electrical work in building projects and is therefore classified in Subsector 238, Specialty Trade Contractors.

Construction projects involving water resources (e.g., dredging and land drainage) and projects involving open space improvement (e.g., parks and trails) are included in this subsector. Establishments whose primary activity is the subdivision of land into individual building lots usually perform various additional site-improvement activities (e.g., road building and utility line installation) and are included in this subsector.

Establishments in this subsector are classified based on the types of structures that they construct. This classification reflects variations in the requirements of the underlying production processes.

Design Criteria and Specifics

The construction notes on the single sheet tell how to prepare the surface for the placement of the sandbags (diversion) and how to place the bags. If the requirements for stacking the bags are followed the diversion should withstand over topping. Each construction site is unique. For the diversion to be effective as a pollution control feature it is critical that it be placed properly on the site. The diversion intercepts water that would otherwise come through the construction site. Sandbags should be up slope from the area to be disturbed. For any sandbag diversion a determination of the watershed above the project site and an estimate for the amount of water to be diverted needs to be made (hydrology). Grade of the diversion and capacity of the diversion should address the amount of water predicted by the hydrology. Reasonable hydraulics can be performed by any one of several computer programs. When locating the diversion on the project site, which should be shown on the project's plan view, consider the outlet. The end of the diversion will experience greater flows of longer duration than normal while the diversion is in place. If the land slope in the area of the outlet is steep, it may be necessary to re-establish sheet flow off the end of the diversion to prevent formation of a gully.

It is recommended that notes on the project plan view or even the cover sheet reference the standard detail sheet.

Quantities will vary for this practice

1. Sandbags – see note 5 on the drawing sheet. The presumptive volume for the typical size sandbag used is about 0.375 cubic ft per bag. Utilize this volume per bag with the volume of sand computed below to estimate the number of bags needed for a particular installation.
2. Sand - Use rough estimates for the volume of the sandbag berm by computing the cross sectional area and then multiplying by the length. Then perform appropriate unit conversions to obtain cubic yards of sand. and trenching can readily be determined from the layout in plan view showing the location of the fence. It will be in Linear Feet and is unique to each project.

Limitations

The sandbags and pollution control included in a project are efforts to minimize off site environmental impacts and address the responsibilities of the regulatory authority for review and issuance of permits before the project is submitted. There may be requirements beyond a sandbag divers, e.g. silt fence, that are necessary from both a regulatory point of view and a responsible erosion control perspective. It's not possible to anticipate everything that needs to be done, but it is possible to carry a reasonable amount of information for addressing what is probably necessary to prevent offsite damages from installation of a conservation project.

Site Specific Additions

Show the sandbag on the plan view for the project. Cross reference the silt fence detail with the same note that identifies the silt fence.

Construction

The sandbag installation should be checked out to ensure the bags are where they are supposed to be, they are placed tightly next to each other, and that the finished ridge of the berm is uniform, i.e. gullies and irregularities in the ground are properly bridged. This should all be done prior to any other site disturbance.

Operation and Maintenance: The O &M plan for the for the sandbag diversion, which is expected to be in place only during construction is on the standard detail sheet. This includes removal.