

DEPARTMENT OF ECOLOGY

Shorelands & Environmental Assistance Program

MEMORANDUM

July 13, 2010

TO: Kelly Susewind, WQ Program Manager

THRU: Gordon White, SEA Program Manager

FROM: Kerry Carroll, WSDOT Liaison

SUBJECT: Guidance on Controlling Turbidity in Nearby Waters
From Ground Improvement Work for Seismic Events

Background:

Due to updated seismic design standards for bridges, contractors are conducting ground improvement work to provide subsurface stability in liquefaction areas. Stone Columns are a ground improvement technique that combines soil densification and partial replacement of unstable material with crushed rock. The operation includes injection of compressed air (approximately 200 psi) or water into the ground as a probe is vibrated to funnel aggregate to the end of the probe.

The subsurface vibration and high-pressure air injected into the ground causes noticeable percolation in open-water areas up to greater than 75' away from the activity. This percolation mobilizes sediments and organic material resting on the bed of open-water wetlands and streams, which causes or increases turbidity.

SEA program representatives and WQ program representatives met and agreed to the following approach to best define roles between the programs. SEA program representatives have also communicated the issue to U.S. Fish and Wildlife, NOAA Fisheries and WDFW representatives.

Issue:

The ground improvement work is being done in uplands, however it is having an in-water effect. The NPDES Construction Stormwater Permit provides coverage of the upland disturbances and runoff that may occur but the permit does not address turbidity generated in the water from this upland activity. SEA Program staff want to ensure that we have some oversight during this activity.

Guidance:

For the purposes of ground improvement work that use Stone Columns as the technique to provide soil stability, Ecology SEA and WQ programs will consider the disturbance of in place sediments as in-water work and therefore applicants would apply the WQ standard criteria for turbidity as provided in WAC 173-201A-200(1)(e)(i) for fresh water and WAC 173-201A-210(1)(e)(i) for marine waters. As required in the WAC, BMP's, such as the ones identified below, will be recommended and/or conditions of an individual 401, as necessary:

- Limit work within the allowed HPA fish window.
- Install floating silt curtains downstream or within a radius of allowed mixing, when possible.
- Use air injection as the preferred method over water injection when near waters. If water is used this increases the potential for turbid runoff to enter waters.
- Visually monitor nearby waters. If visual observation shows in place sediments being suspended due to air percolation from the activity, then physical monitoring will be conducted at the edge of the area of mixing identified in the standards.

As more knowledge and information is obtained while conducting this activity on future projects, this guidance may be amended to protect waters of the state.

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