

CONSTRUCTION ACTIVITIES
ENVIRONMENTAL PROTECTION & COMPLIANCE

Introduction

Construction activities can have an assortment of various environmental regulatory implications. Depending on the regulation, one or more agencies can have regulatory authority. The purpose of this SOP is to highlight those construction-related activities that can have implications pursuant to environmental protection regulations and which should trigger consultation with EHS early in the planning process. More detail is provided in the Guidance Manual (Demolition and Renovation Environmental Considerations) prepared by EHS for Facilities Planning & Construction and Facilities Management & Operations.

Water Quality Considerations

- Development/redevelopment of a site that disturbs $\frac{1}{2}$ acre or more of land must incorporate into the site design post-construction Best Management Practices (BMP) that are consistent with Low Impact Development (LID) principles. These post-construction BMPs must effectively retain the first $\frac{1}{2}$ inch of rainfall on the site. See, ***UNL Design Guidelines***.
- Development/redevelopment of a site that disturbs greater than 1 acre of land triggers the need for a “General NPDES Permit Authorizing Storm Water Discharges from Construction Sites to Waters of the State of Nebraska”. See EHS SOP, ***Construction Site NPDES Permits***.
- Development/redevelopment of a site that disturbs less than one-acre of land requires implementation of Best Management Practices to minimize the potential for sediment and pollutant loading to nearby waters during construction. See Appendix A.
- When de-watering accumulated stormwater or groundwater, certain procedures must be followed and in some instances a permit may be required. See EHS SOP, ***Dewatering***.
- Installation or modification of a livestock operation (including fisheries) may trigger onsite inspection by NDEQ prior to conduct of any work, and in some instances require a permit.
- Installation of a cooling tower that discharges to the storm sewer system is conditioned on issuance of a discharge permit by NDEQ.
- Installation of fountains, swimming pools, and spas that discharges to the storm sewer system is conditioned on issuance of a discharge permit by NDEQ.
- Installation of an open loop geothermal heat pump system is conditioned on issuance of a discharge permit by NDEQ.

- Construction or maintenance on a well where hydrostatic testing is conducted is conditioned on issuance of a discharge permit by NDEQ.
- Construction of on-site septic systems, french drains, and leach fields is conditioned on issuance of a discharge permit by NDEQ.
- Commercial cleaning of the exterior of buildings or other structures may require a discharge permit from NDEQ.
- Construction, demolition, dredging or filling on ponds, lakes, reservoirs, streams or wetlands will require a permit from the Army Corps of Engineers.
- Installation of fuel tanks or other tanks containing oil (including but not limited to petroleum based, animal, nut, and vegetable fats, oils, and greases, milk and milk products and ethanol by-products) may require installation permits as well as compliance with Oil Pollution Prevention regulatory requirements (depending on volume).
- Installing oil-water separators is conditioned on issuance of a discharge permit by NDEQ.

Air Quality Considerations

- If the project involves installation or moving of a generator, a permit must be obtained from LLCHD. Notify EHS before conducting any installation related work.
- If the project involves the installation of fuel-burning boilers, kilns, incinerators, space heaters, or cooling towers, etc., UNL may be required to seek a construction permit and amend existing air operating permits.
- If the project involves demolition of a structure or removal of a load-supporting structural member, it will be necessary to file an asbestos NESHAPS notification with NDEQ and LLCHD, regardless of whether asbestos is present (Nebraska Title 129).
- If the project involves the installation or removal of refrigeration equipment that contains greater than 50-pounds at full-charge, then EPA ozone protection regulations may be triggered.

Tanks

- If the project involves installation of an aboveground or buried tank, an installation permit is usually required. This includes tanks that are associated with generators.

Asbestos

- An asbestos survey must be completed by an accredited inspector prior to any activity that could disturb any building material that may contain asbestos regardless of the age of the structure/material.
- All asbestos projects (friable or non-friable) greater than three lineal or square feet require a project notification form to be filed with LLCHD.
- All asbestos projects, regardless of amount, must be conducted by accredited workers.

Paint Containing Lead and/or Other Heavy Metals

- Work that will disturb lead-containing paint in child-occupied facilities or target housing constructed prior to 1978 must be conducted by accredited workers/firms.
- Work that will disturb any type of specialty paint (e.g., coatings on tanks, hand-rails, industrial equipment, etc.) will require prior analysis to determine metals content.
- Work that will disturb pre-2008 consumer-like paint may require analysis to determine lead content.
- Painted building components removed individually and intended for disposal may require analysis to determine metal content and may require disposal as hazardous waste.
- Flame burning or torching of any painted surface will require prior analytical testing to determine the presence of heavy metals.

PCBs

- Removal, drainage, or refilling of pre-1980 transformers, capacitors, voltage regulators, switches, hydraulic systems and other equipment that may contain oils must have a determination of PCB content, and may trigger TSCA regulations for the work activity and disposal.
- Interior and exterior door caulk, window glazing and caulk, masonry and concrete joint sealants, HVAC duct sealants, roof sealants, elastomeric wall joints, waterproofing membranes, and rubber-like wall paints likely installed between 1950 through 1979 that will be disturbed as part of the project will likely require evaluation by EHS to determine whether PCBs are present.

Waste Disposal Considerations

- If the project will involve disposal of contaminated soils, a disposal permit will be required.
- If the project will involve cleaning of sumps, drain traps, basins, etc., testing of the recovered material may be required to facilitate proper disposal.
- Fluorescent lamps and ballasts, mercury-containing thermostats and switches, tritium exit lamps, smoke detectors, and PCB-contaminated items, and asbestos containing materials require specific disposal arrangements and permits. EHS must be involved in the process.
- Lead pipe, flashing, and similar materials must be recycled through a reputable scrap metal dealer.
- Aerosol cans, paints, thinners, strippers, degreasers, and other chemical wastes generated in the process require specific management and disposal must be coordinated through EHS.
- Use of fly ash is conditioned upon a site-specific determination by NDEQ that such use constitutes “beneficial use” and may require analytical testing of the fly ash.

See the EHS SOP, ***Management of Construction and Demolition Waste*** for additional waste considerations and guidance.

Appendix A

Common Construction Site Best Management Practices (BMPs)

The following table, adapted from information provided by the United States Environmental Protection Agency, includes a list of some commonly used construction site BMPs. Not all BMPs will be used at all sites, and not all potential BMPs appropriate for a given site appear in the list. This list is intended to enhance awareness of items/conditions that could, if not adequately protected/maintained, lead to adverse environmental impacts and/or compliance issues. This table forms the basis for EHS inspections of construction sites.

General refuse and construction/demolition waste	
Designate trash and bulk waste-collection areas on-site.	Clean up litter and debris from the construction site every day.
Recycle materials whenever possible (e.g., paper, wood, concrete, metal, and oil).	Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to further minimize the likelihood of contaminated discharges.
Sanitary and septic waste	
Provide restroom facilities on-site.	Maintain clean restroom facilities and empty porta-johns regularly (must be pumped by a licensed hauler, not discharged to the site).
Provide secondary containment pans under porta-johns, where possible.	Provide tie-downs or stake downs for porta-johns in areas of high winds
Hazardous and special wastes and materials	
Segregate and designate hazardous materials (i.e., paint, adhesives, etc.) and waste storage areas. Consult with EHS prior to generating hazardous waste on-site.	Provide for secondary containment of all hazardous materials and wastes stored on-site. Arrange for off-site transport and treatment of hazardous wastes at a licensed facility and only in coordination/consultation with EHS.
Inspect all containers of hazardous waste at least weekly to ensure container integrity.	Label all containers with appropriate descriptive wording to describe the contents. Keep containers securely closed.
Fueling and fleet/construction vehicles	
All fuel storage tanks stored on-site must have secondary containment (either integral or external to the AST). They may also require a permit.	Vehicles should be regularly inspected for leakage of fluids and promptly repaired. Spilled or leaked material and contaminated soils should be containerized for proper off-site disposal.
Report releases of hazardous substances, including oils, fuels, greases, lubricants, chemicals, etc., to EHS.	Maintain appropriately sized and equipped spill kits on site.
Use vehicles and equipment in a manner that prevents damage to erosion and sediment control devices.	
Construction site entrances and roads	
Identify, clearly mark, and implement stabilizing measures at one or two locations where vehicles will enter and exit the site.	Stabilize temporary roads by paving, and/or placement of large crushed rock, stone pads, or concrete.
If wash down or hose systems are used to remove mud from construction vehicles, divert run-off to a sediment trap.	As necessary, clean/sweep streets near the construction zone.
Ensure that the exit is at least 50 feet long (generally, the length of two dump trucks) and graded so runoff does not enter the adjacent street.	Replenish or replace aggregate if it becomes clogged with sediment.
Diversion ditches or berms	
Divert run-on and run-off away from disturbed areas.	Ensure that the diversion is protected from erosion, using vegetation, geotextiles, or other appropriate BMPs.

(Created 3/07; Revised 7/09, 8/09, 3/11)

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Divert sediment-laden water to a sediment-trapping structure.	Inspect diversions and berms, including any outlets, regularly and after each rainfall.
Remove accumulated sediment.	
Temporary seeding	
Seed and mulch area (the mulch provides temporary erosion protection by protecting the soil surface, moderating temperature, and retaining moisture while seeds germinate and grow).	Water regularly, if needed, to ensure quick growth.
Maintain backup BMPs, such as silt fence or settling ponds.	
Slope protection	
Use rolled erosion-control products on slopes steeper than 3 to 1 (horizontal to vertical) and in swales or long channels.	Trench the top of the blanket in to prevent run-off from flowing under the blanket.
Overlap the lower end of the top mat over the top of the downslope mat to ensure that run-off stays on top of the blankets and mats.	Install silt fence or fiber rolls to help control erosion on moderate slopes and install on level contours spaced at 10- to 20-foot intervals.
Staple blankets and mats according to specifications.	Periodically inspect for signs of erosion or failure, and repair as necessary. Continue inspecting until vegetation is established.
Storm drain inlet protection	
Storm drain inlet protection should be used not only for storm drains within the active construction project, but also for storm drains outside the project area that might receive storm water discharges from the project.	Install inlet protection as soon as storm drain inlets are installed and before land disturbance activities begin in areas with existing storm drain systems.
Design inlet protection to handle the volume of water from the area being drained.	Use in conjunction with other erosion prevention and sediment control BMPs— remember, inlet protection is a secondary BMP!
Inspect inlets frequently and after each rainfall. Remove accumulated sediment from around the device and check and remove any sediment that might have entered the inlet.	Replace or repair the inlet protection if it becomes damaged.
Perimeter control- Silt fences	
Install on the downslope perimeter of the project (it is often unnecessary to surround the entire site with silt fence). Sediment barriers can be used.	Use silt fence or fiber rolls to protect stream buffers, riparian areas, wetlands, or other waterways. Don't install in ditches, channels, or other areas of concentrated flow.
Trench in the silt fence on the uphill side (6 inches deep by 6 inches wide).	Install stakes on the downhill side of the fence or roll.
Curve the end of the silt fence or fiber roll up-gradient to help it contain run-off.	Do not install by running up and down a slope or hill.
Do not use silt fence or fiber rolls alone in areas that drain more than ¼ acre per 100 feet of fence.	Replace the silt fence or roll where it is worn, torn, or otherwise damaged.
Remove sediment when it reaches 1/3 of the height of the fence or ½ the height of the fiber roll.	Retrench or replace any silt fence or roll that is not properly anchored to the ground.
Sediment traps or basins	
Use a sediment basin for common drainage locations that serve an area with 10 or more acres disturbed at any one time.	Design to provide storage for the volume of run-off from the drainage area for at least a 2-year, 24-hour storm (or 3,600 cubic feet of storage per acre drained, which is enough to contain 1 inch of runoff, if the 2-year, 24-hour calculation has not been performed).
Locate at low-lying areas of the site and on the down-gradient side of bare soil areas where flows converge. Do not put sediment traps or basins in or immediately adjacent to flowing streams or other waterways.	Where a large sediment basin is not practical, use smaller sediment basins or sediment traps (or both).
Dewatering	
Obtain a dewatering permit if storm water is or will be pumped from any part of the site.	Never discharge muddy water into storm drains, streams, lakes, or wetlands unless the sediment has been removed before discharge.

(Created 3/07; Revised 7/09, 8/09, 3/11)

<p>Pump muddy water from excavated areas to a temporary or permanent sedimentation basin or to an area completely enclosed by silt fence in a flat vegetated area where discharges can infiltrate into the ground.</p>	
<p>Stockpiles</p>	
<p>Temporary stockpiles must be seeded, covered, or surrounded by properly installed silt fence, or have other controls in place to ensure material does not migrate from the designated stockpile area.</p>	<p>Stockpiles should never be placed on paved surfaces. Storage piles should not be placed in close proximity or up-slope from storm sewer inlets.</p>