

SALMON-SAFE INC.

**Report of the Assessment Team regarding
Salmon-Safe Certification of Lewis and Clark College,
Portland, Oregon**

January 15, 2013

RECOMMENDATION SUMMARY

The Salmon-Safe evaluation team recommends that Lewis and Clark College be awarded Salmon-Safe certification subject to three pre-conditions and eight conditions that are discussed in detail in this report.

BACKGROUND

In 2000, Salmon-Safe began an initiative to apply the Salmon-Safe label to urban restoration efforts and land management. Salmon-Safe implemented this initiative with the objective of significantly advancing urban restoration efforts while developing urban aquatic protection guidelines and a citizen education campaign that can be transported throughout the Northwest.

Working closely with independent scientists and a project team from the city of Portland, Salmon-Safe developed a comprehensive urban park system certification framework oriented toward reducing water quality and fish habitat impacts from park operation and management. In 2004, the Portland Park system became the first Salmon-Safe certified park system in the country. In 2005, Salmon-Safe expanded this urban effort to include corporate and university campuses. The urban park standards were revised to apply directly to campus situations. In 2005, Salmon-Safe certified Nike World Headquarters, the first corporate campus to be certified under the program, and has since certified Toyota, Portland State University, Oregon Convention Center, OMSI, and other campuses in Oregon and Washington.

An interdisciplinary team with expertise in salmon habitat and restoration, integrated pest management (IPM), and stormwater treatment conducts the certification evaluation for Salmon-Safe. The assessment team conducts a comprehensive assessment of the overall management policies and planning related to habitat and water quality protection of the campus. The team also conducts a field review of the campus management practices and habitat conditions to evaluate whether such management is consistent with Salmon-Safe's site-specific standards for avoiding harm to stream ecosystems.

OVERVIEW OF THE PROJECT

Lewis and Clark College (Lewis and Clark) is an approximately 130 acre college campus located in the hills of southwest Portland draining to the Willamette River to the west and Tryon Creek to the east. The campus includes lawns, shrub beds, walkways, and buildings typical of a college campus. The campus includes a relatively high proportion of native forest landscape for a college campus, including several forested stream ravines that bisect the area. Stormwater

drains to the city stormwater system as well as through 30 outfall pipes that mainly discharge to ravines.

Prior to Euro-American colonization, the hills of the Lewis and Clark campus were probably covered in old growth Douglas fir forest. Although the streams on campus are probably too small and high gradient to support salmonids, even in a pristine condition, these streams do drain to Tryon Creek and the Willamette River, and stormwater runoff from the campus has the potential to affect water quality and important migration and rearing habitat for juvenile and adult salmon in these systems.

CERTIFICATION EVALUATION OF LEWIS AND CLARK

Assessment Date

The field assessment and evaluation of Lewis and Clark took place on November 2, 2012.

Evaluation Team

The interdisciplinary evaluation team conducting the assessment and evaluation on behalf of Salmon-Safe was composed of the following individuals:

Peter Bahls: Aquatic Ecologist and Salmon Biologist, Northwest Watershed Institute. Mr. Bahls received an M.S. in Fisheries Science and Aquatic Ecology from Oregon State University, and a B.S. in Environmental Studies-Biology from Middlebury College, Vermont. He worked for six years as the salmon habitat biologist for the Port Gamble S'Klallam Tribe, followed by three years as the principal fish biologist for David Evans and Associates. In 2001 he founded Northwest Watershed Institute, a non-profit organization that provides scientific and technical assistance in watershed assessment and restoration. Mr. Bahls was the scientific lead for the development of Salmon-Safe's park and corporate campus standards and served as team leader for the Lewis and Clark assessment.

Carrie Foss: Urban IPM Director, WSU Puyallup. Ms. Foss manages the WSU IPM Certification Program and the Pesticide Safety Education Program in western Washington. Landscape maintenance personnel are trained in plant problem diagnosis, integrated pest management, personal safety and environmental protection through lectures and workshops. Carrie earned a Bachelor of Science degree in botany from the University of Washington and a Master of Science degree in plant pathology from the University of Hawaii. Her background includes plant problem diagnosis, research on beneficial microorganisms, and management strategies for turf and ornamental diseases.

Dr. Richard Horner: Stormwater management expert, University of Washington. Dr. Horner received engineering B.S. and M.S. degrees from the University of Pennsylvania and the Ph.D. in civil and environmental engineering from the University of Washington in 1978. Following 13 years of college teaching and professional practice, he joined the University of Washington research faculty in 1981, where he held appointments in Civil and Environmental Engineering, Landscape Architecture, and the Center for Urban Horticulture. His principal research interests involve analyzing the effects of human activities, especially in urban areas, on

freshwater ecosystems and solutions that protect these resources. Dr. Horner founded the Center for Urban Water Resources Management in 1990 to advance applied research and education in these areas. He is now emeritus research associate professor and splits his time between private practice and some continuing university research.

Assessment Process

Lewis and Clark staff assembled documentation that was reviewed by Salmon-Safe evaluation team members prior to, during, and after the field assessment phase of the assessment process. The evaluation team met with Lewis and Clark staff, including Amy Dvorak, Sustainability Coordinator, and Gabe Bishop, Landscape Manager. Over the course of the day-long review, the team walked primary campus, law school campus, and graduate campus with the staff responsible for managing all aspects of the grounds. At the end of the field review, the evaluation team members, supported by Salmon-Safe staff, met to review the certification criteria against notes taken during the process. On January 11, 2013, the team and Salmon-Safe staff finalized conditions for certification and reached a final unanimous decision on certification.

General Observations & Conclusions

In the judgment of the Salmon-Safe evaluation team, Lewis and Clark has done an exemplary job of providing the required documentation on irrigation, pesticides, and other management practices required for the assessment process. The team is also encouraged by the College's commitment to sustainability across its development projects and managed property as illustrated by its policy of meeting LEED-Silver requirements in new buildings and its addition of a sustainability manager to guide campus-wide environmental programs.

In addition, the team was pleased to see that Lewis and Clark is implementing the following environmental protection and site management initiatives consistent with Salmon-Safe certification -

Protecting and restoring habitats

- Stream ravines and some upland protected in native forest habitat.
- On-going restoration efforts to remove ivy and plant native species.
- Repair of 8 eroding stormwater outfalls along stream ravines.

Inventory and reporting

- Detailed survey and mapping data for streams, wetlands, drainage routes, and other features.
- Comprehensive reporting of landscape management practices, such as fertilizer and herbicide usage.

Conserving water

- Mulching of planting beds with compost made on site.
- Use of automated irrigation system.

Reducing use of fertilizers and pesticides

- Strategic implementation of low input landscape management including slow-release fertilizers, with plans to expand organic and pesticide-free areas from 15% to 30% of the campus.
- Extensive native landscaping and natural areas, with a relatively low amount of turf.

Stormwater runoff

- Implementing a new method to avoid drainage of the swimming pool to the stream ravine.
- Exemplary stormwater treatment and use of low impact development approach (LID) in recently constructed projects, including Holmes Dorm and the graduate school parking lot.

New construction

- On-going commitment to low impact development approach (LID) in potential new construction.

Education

- Including students in restoration and monitoring efforts on campus, including Salmon-Safe's Lewis & Clark assessment.

Opportunities for improvement

However, Lewis and Clark's management program and infrastructure require operational changes and further development of campus-wide management systems to fully meet Salmon-Safe standards. Major areas for improvement that are detailed in the conditions and recommendations include -

- Use of pesticides on Salmon-Safe's high-risk list needs to be phased out or reviewed as a possible variance by Salmon-Safe based on a more detailed justification and plan provided by Lewis and Clark as part of an expanded IPM program.
- Concise plans for water conservation, riparian restoration, fertilizer use, and stormwater treatment improvements need to be prepared in year one and implemented within the five-year certification cycle. These plans should identify conservation objectives, prioritize potential projects, and include maps of existing conditions and potential projects.
- Improvements at fueling and vehicle washing stations need to be made to ensure that stormwater runoff is not contaminated with pollutants from these activities.

The evaluation team recognizes that Lewis and Clark's role in providing a high-quality learning environment must be a primary focus for management of the site. This being said, we took note of an organizational motivation and enthusiasm to accomplish the primary mission in such a way as to benefit the receiving waters of Tryon Creek and the Willamette River, including native salmonid populations. The team is optimistic that Lewis and Clark have the ability to make the necessary adaptations toward forming a robust Salmon-Safe certified program.

RECOMMENDATIONS AND DISCUSSION

Certification Recommendation: The evaluation team recommends that Lewis and Clark be awarded Salmon-Safe certification subject to the three pre-conditions and eight conditions listed below.

In the opinion of the evaluation team, the following conditions must be met by Lewis and Clark to maintain Salmon-Safe certification. All conditions are subject to annual verification by Salmon-Safe. Timelines for accomplishing objectives are measured from the official date of Salmon-Safe certification.

Pre-Condition 1: Lewis and Clark shall provide a signed letter to Salmon-Safe stating that Lewis & Clark is not in violation of national, state, or local environmental laws, or associated administrative rules or requirements as determined by a regulatory agency in an enforcement action, per General Standard A.1.

Timeline: Compliance is a pre-condition of certification, then subject to annual verification by Salmon-Safe.

Pre-Condition 2: Lewis and Clark shall provide a signed letter to Salmon-Safe stating that a policy is in place requiring that the Site Master Plan or equivalent design guidelines for expansion or redevelopment of the campus are consistent with Salmon-Safe standards, per General Standard A.8 and Attachments A and B, model permanent and construction-phase stormwater standards.

Timeline: Compliance is a pre-condition of certification, then subject to annual verification by Salmon-Safe.

Pre-Condition 3: Lewis and Clark shall not allow use of pesticides with ingredients listed on Salmon-Safe's "high risk" pesticide list per Standard B.6.1.2 unless such use is justified in a written variance request approved by Salmon-Safe or as part of an integrated pest management plan approved by Salmon-Safe. Lewis and Clark has been applying several pesticides on the Salmon-Safe "high risk" list, including dichlobenil, oryzalin, and tryfluralin. Justification for use of a "high risk" pesticide includes demonstrating a clear need for use of the pesticide, that no safer alternatives exist, and that the methods of application (such as timing, location, and amount used) represent a negligible risk to water quality and fish habitat.

Timeline: Compliance is a pre-condition of certification, then subject to annual verification by Salmon-Safe.

Condition 1: Lewis and Clark College shall upgrade the pesticide storage areas to assure that no contamination of surface or groundwater by drainage, runoff, or leaching can occur. Fireproof construction with a sealed cement floor is best. A spill kit shall be available. The storage area shall be dry, well lit and well ventilated with exhaust fans to the outside. Containers and bags shall be kept closed and stored on metal shelving. A current inventory of pesticides shall be available. Remove and properly dispose of unwanted pesticides. A fire

extinguisher approved for chemical fires, first aid equipment, a decontamination station, and emergency telephone numbers should all be readily available.

Timeline: The pesticide storage areas shall be upgraded within one year, subject to annual verification of progress by Salmon-Safe.

Condition 2: Lewis and Clark shall prepare a spill prevention and response plan per B.6.32.

Timeline: The spill prevention and response plan shall be prepared and implemented within one year, subject to annual verification of progress by Salmon-Safe.

Condition 3: Lewis and Clark shall prepare and implement a riparian restoration plan for the forested stream ravines on campus. The plan shall provide a comprehensive strategy for control of non-native plants, particularly English ivy and holly. The assessment team recommends involving students in inventory and mapping, and prioritizing areas, and actual removal projects.

Timeline: The riparian restoration plan and stage one of its implementation shall be completed within one year, with full implementation of the plan completed within 5 years, subject to annual verification of progress by Salmon-Safe.

Condition 4: Lewis and Clark shall prepare and implement a water conservation plan as detailed in Standard B.3.2.3 that shows how and where irrigation use will be eliminated or reduced. The water conservation plan shall also include a drought management plan that details how significant reductions will be achieved during a drought. The conservation plan shall include irrigation use data presented as a simple graph and table that shows overall irrigation use by year. The plan also shall include a list and map(s) showing the proposed conservation projects, timelines, and budgets, and include consideration of the following types of projects -

- A. Rainwater harvest and storage for irrigation needs.
- B. Replacement of turf and high maintenance planting beds with drought-tolerant shrub beds, rain gardens, swales or other stormwater treatment features, where feasible.
- C. Additional use of wood chips or other mulch for landscape beds.

Timeline: Plan is due within one year, then subject to annual verification of progress by Salmon-Safe.

Condition 5: Lewis and Clark shall prepare and implement a fertilizer management plan that builds on the current zoned management system and uses various approaches to further decrease reliance on fertilizers per Standard B.6.2. In the interim, the plan shall reduce fertilizer applications on turf to no more than 4 pounds N per 1000 square feet per year, with no more than 0.5 lb/1000 square feet applications as specified in Salmon-Safe standards. The plan shall include soil testing at least twice per year for use in fertilizer management. Use of a mulching mower shall be considered as well as soil renovation for areas that will be maintained in turf. The plan shall also include a map that details fertilizer use by type of landscaping. No fertilizers shall be used in established shrub beds unless justified in the plan. Slow-release fertilizers and

compost shall be used instead of quick-release fertilizers. Lewis and Clark shall maintain records to document fertilizer usage consistent with Salmon-Safe standards.

Timeline: Plan and implement within one year, with full implementation of the plan within five years, subject to annual verification by Salmon-Safe.

Condition 6: Lewis and Clark shall evaluate opportunities for providing additional water quantity and quality treatment related to stormwater runoff on the site per Standard 4.1.4. Lewis and Clark shall prepare a summary report identifying and prioritizing such opportunities and a proposed timeline for completion. Perform a campus-wide feasibility assessment. The assessment shall detail where the stormwater drains (city separated, combined system, or surface runoff) and shall consider potential stormwater quantity reductions and quality improvements, irrigation water savings, present-value costs including capital investment and maintenance savings, and other benefits to the site's long-term operation. From this assessment, select projects providing improved stormwater management and other benefits.

Timeline: The stormwater plan must be submitted for approval by Salmon-Safe within one year. At least three priority stormwater projects identified in the plan shall be fully implemented within five years.

Condition 7: Lewis and Clark shall develop an alternative to draining vehicle washwater into the oil/water separator (which is not designed for all pollutants) and then to outfall. An alternative could be a canopied contained area on site or taking all vehicles to a commercial car wash.

Timeline: The plan for an improved vehicle wash station or other alternative must be approved by Salmon-Safe within one year and shall be fully implemented within five years.

Condition 8: Lewis and Clark shall install an overhead canopy in the fueling area, and, if necessary, screens to prevent wind-driven precipitation contact. Spill runoff from the fueling area needs to be prevented with a containment structure, such as a low profile "speed bump".

Timeline: The plan for improvements to the fueling area must be submitted for approval by Salmon-Safe within one year, with construction completed within 5 years.

Salmon-Safe Assessment Team's Additional Recommendations:

Recommendation 1: The Lewis and Clark Law School, as a leading environmental law school in the United States, has a unique opportunity to lead by example in terms of managing its site with the highest level of environmental stewardship, particularly regarding impacts of stormwater pollution, fertilizer, herbicide, and irrigation use. Because the landscapes around the Law School already contain much native vegetation, an incremental, "beyond Salmon-Safe" effort could eliminate herbicide, fertilizer and irrigation use entirely. Stormwater runoff from

the buildings and parking lots of the Law School to the headwaters of Tryon Creek can contribute to downstream flooding and pollution problems and extensive treatment options would be needed. The Salmon-Safe team recommends that a comprehensive assessment be conducted of the Law School campus area to identify opportunities to treat stormwater pollution, and eliminate fertilizer, pesticide and irrigation impacts.

The goals of a “beyond Salmon-Safe” approach at the Law School would include –

- 1) reduce stormwater runoff for the Law School campus area to pre-development conditions through infiltration in constructed rain gardens, rainwater harvesting, green roofs and/or other means.
- 2) Establish the Law School campus as an organically managed, pesticide free zone, as has occurred in other areas of campus, and with the Law School students and staff helping with some of the labor. Alternative weed and pest control methods should be used, such as heavy chip mulching of beds, expanded use of native planting areas, and hand weeding.
- 3) Eliminate use of well or city water for irrigation through a combination of methods, including mulched planting beds, greater use of native and drought tolerant shrubs and turf, and use of rainwater harvested water for any remaining irrigation needs.

Timeline – recommend that a comprehensive plan specific to the Law School, with a list of prioritized projects that together will meet the management goals outlined above should be developed within one year, with completion of the projects within five years as feasible given financial and other constraints.

Recommendation 2: Further engage students however possible in improving water quality and habitat on the campus through monitoring, inventory and planning and participation in restoration and stormwater treatment projects. Salmon-Safe is enthusiastic about transporting the student engagement ideas pioneered by Lewis & Clark to other certification candidate college campuses.

Recommendation 3: Advocate as feasible with the City of Portland for removal of the off-campus Tryon Creek culvert that is blocking salmonid passage into much of Tryon Creek.

Recommendation 4: Utilize students to determine locations and extent of ravine erosion (down cutting and widening) caused by campus discharges and the ultimate extent of travel of campus stormwater to receiving waters (Willamette River and Tryon Creek). Start by assembling existing data on erosion points. Confirm present status of those points. Develop a formal observational protocol and record-keeping system for ravine reconnaissance. Send student teams out in storms to determine campus discharge flow patterns and compare to other flows entering ravines. The overall objective is to identify the ravines delivering the most campus stormwater and eroded sediment to receiving waters, and then to use that information to identify campus areas that would be priorities for runoff reduction projects. Use the results to aid in planning stormwater management for renovated buildings, retrofits, and any new buildings. Also use results to plan ravine restoration as feasible.

CONCLUSIONS

Salmon-Safe and the Assessment Team commend Lewis and Clark for high-level performance in site environmental management and an intention to manage the campus to continue to improve water quality and salmon habitat.

We also extend appreciation and congratulations to Lewis and Clark staff and contractors for excellent work in preparing for the assessment and assisting the Assessment Team in its evaluation.

Model Long-Term Stormwater Management Plan for Lewis & Clark College

Introduction

Appendix A describes a model plan for long-term management of stormwater runoff for Lewis & Clark. High levels of impervious surface and drainage systems from roads, parking lots, buildings, and other surfaces reduce soil infiltration, and can increase the magnitude and frequency of peak flows in the receiving stream. Increased flooding can degrade stream habitat by eroding the channel bed and banks, scouring spawning gravels, and removing stream structures. Frequent flooding can also directly impact juvenile rearing salmonids that require stable, slower waters as over-wintering habitat. Stormwater from parking lots, roads, and landscapes can also be contaminated with oils, heavy metals, pesticides, and fertilizers (nutrients) that degrade the water quality of the receiving streams. This management category addresses practices to control stormwater runoff to reduce both water quantity and water quality impacts.

Goal

This plan has a single goal:

Any development or redevelopment project with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.

Objectives

Water quantity control – Implement low impact site design to the greatest possible extent in new development, redevelopment, and through retrofits. To the extent that low impact site design cannot prevent the generation of stormwater runoff peak flow rates and volumes greater than in an undeveloped condition, the campus implements effective measures to slow runoff originating from all drainage areas on the campus through infiltration, detention, or other means.

Water quality control – Implement low impact site design to the greatest possible extent in new development, redevelopment, and through retrofits. To the extent that low impact site design cannot prevent the generation of stormwater runoff containing pollutants, the campus implements effective measures to reduce contaminants in stormwater coming from all drainage areas on the campus through infiltration, constructed wetlands, wet ponds, extended-detention basins, bio-filtration swales and filter strips, filtration by sand or other media, or other means.

Plan Elements

I. *Inventory* – Narrative and mapping that summarize 1) campus land use, 2) an estimate of the percent of the campus with impervious surface (pavement and buildings), and 3) primary stormwater drainage routes, areas drained, and location of receiving stormwater drains and natural water bodies. The inventory should be based on aerial photographs and field knowledge of the campus and surrounding area.

2. *Low impact site design* –Low impact site design is a system of practices intended to reduce the quantity of stormwater runoff produced and improve the quality of the remaining runoff by controlling pollutants at their sources and utilizing or mimicking the hydrologic functioning of natural vegetation and soil in designing drainage systems, including the practices:

- Source control best management practices—minimizing pollutants; isolating pollutants from contact with rainfall or runoff by segregating, covering, containing, and/or enclosing pollutant-generating materials, wastes, and activities; conserving water to reduce non-stormwater discharges;
- Conserving natural areas including existing trees, other vegetation, and soils;
- Minimizing soil excavation and compaction and vegetation disturbance;
- Minimizing impervious rooftops and building footprints;
- Constructing streets, driveways, sidewalks, and parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised;
- Constructing low-traffic areas with permeable surfaces such as porous asphalt, open-graded Portland cement concrete, coarse granular materials, concrete or plastic unit pavers, and plastic grid systems (areas that should be considered for permeable surfaces include, but are not limited to, driveways, patio slabs, walkways and sidewalks, trails, alleys, and overflow or otherwise lightly-used parking lots);
- Draining runoff from roofs, pavements, and other impervious areas into one or more of the following natural drainage systems (* signifies with compost-amended soils as needed to maximize soil storage and infiltration)—bio-retention area*, also known as a rain garden; vegetated swale*; vegetated filter strip*; infiltration trench; roof rainwater collection cistern; vegetated roof;
- Maintaining natural drainage patterns (e.g., depressions, natural swales) as much as possible, and design drainage paths to increase the time before runoff leaves the site by—emphasizing sheet instead of concentrated flow; increasing the number and lengths of flow paths; maximizing non-hardened drainage conveyances; and maximizing vegetation in areas that generate and convey runoff.

Attachment B

Model Construction-Phase Stormwater Management Program for Lewis & Clark College

A. Erosion and sediment transport

Lewis & Clark shall manage construction sites to avoid, or minimize to the maximum extent possible, the release of sediments through the use of the following measures.

1. As the top priority emphasize construction management BMPs, such as:
 - Maintain existing vegetation cover, if it exists, as long as possible;
 - Perform ground-disturbing work in the season with smaller risk of erosion, and work off disturbed ground in the higher risk season.
 - Limit ground disturbance to the amount that can be effectively controlled temporarily in the event of rain.
 - Use natural depressions and planning excavation to drain runoff internally and isolate areas of potential sediment and other pollutant generation from draining off the site, so long as safe in large storms;
 - Schedule and coordinate rough grading, finish grading, and erosion control application to be completed in the shortest possible time overall and with the shortest possible lag between these work activities.
2. Stabilize with cover appropriate to site conditions, season, and future work plans, e.g.:
 - Rapidly stabilize disturbed areas that could drain off the site, and that will not be worked again, with permanent vegetation supplemented with highly effective temporary erosion controls until achievement of at least 90 percent vegetative soil cover.
 - Rapidly stabilize disturbed areas that could drain off the site, and that will not be worked again for more than three days, with highly effective temporary erosion controls.
 - If 0.1 inch of rain or more is predicted with a probability of 40 percent or greater, before rain falls stabilize or isolate disturbed areas that could drain off the site, and that are being actively worked or will be within three days, with measures that will prevent or minimize to the greatest extent possible the transport of sediment off the property.
3. As backup for cases where all of the above measures are used to the maximum extent possible but sediments still could be released from the site, consider the need for sediment collection systems including, but not limited to, conventional settling ponds and advanced sediment collection devices such as polymer-assisted sedimentation and advance sand filtration.
4. Specify emergency stabilization and/or runoff collection (e.g., using temporary depressions) procedures for areas of active work when rain is forecast.
5. If runoff can enter storm drains, use a perimeter control strategy as backup where some soil exposure will still occur, even with the best possible erosion control (above measures) or when there is discharge to a sensitive water body.
6. Specify flow control BMPs to prevent or minimize to the extent possible:
 - Flow of relatively clean off-site water over bare soil or potentially contaminated areas;
 - Flow of relatively clean intercepted groundwater over bare soil or potentially contaminated areas;

- High velocities of flow over relatively steep and/or long slopes, in excess of what erosion control coverings can withstand;
 - Erosion of channels by concentrated flows either by using channel lining, velocity control, or both.
7. Specify stabilization of construction entrance and exit areas, provision of a nearby tire and chassis wash for dirty vehicles leaving the site with a wash water sediment trap, and a sweeping plan.
 8. Specify construction road stabilization.
 9. Specify wind erosion control.

B. Other pollutants

Lewis & Clark shall manage construction sites to avoid the release of pollutants other than sediments by preventing contact between rainfall or runoff and potentially polluting construction materials, processes, wastes, and vehicle and equipment fluids by such measures as enclosures, covers, and containments, as well as berming to direct runoff.