

6.0 POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

New development and redevelopment projects that disturb one acre or more of land (including staging area) and smaller projects that have the potential to discharge pollutants to HIARNG’s MS4 are required to address post-construction runoff using a comprehensive approach focusing on LID principals. LID principals include preserving and recreating natural landscape features and minimizing imperviousness to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product.

The Post-Construction Stormwater Management in New Development and Redevelopment Program is complementary to HIARNG’s Construction Site Runoff Control Program in that permanent BMP (PBMP) designs are required per HIARNG’s Permit and will be incorporated into construction designs to reduce the discharge of pollutants after project completion. This section defines requirements and provides guidance for the project specific planning, selection, and design of PBMPs to minimize pollutants in post-construction runoff and minimize the amount of polluted runoff leaving the site.

TABLE 6-1 PBMPs

PBMP Type	PBMP Definition	PBMP Goal
LID	Stormwater management practices which seek to mimic a site’s predevelopment hydrology by minimizing disturbed areas and impervious cover. Practices include infiltration, storing, detaining, evapotranspiration, and/or biotreating stormwater runoff close to its source. LID employs principals such as preserving and recreating natural landscape features and minimizing impervious cover to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product. LID treatment measures include harvesting and use, infiltration, evapotranspiration, or biotreatment.	<i>Goal: Keep stormwater on site.</i>
Source Control	Source control BMPs are effective at stopping and/or redirecting pollutants prior to entering the MS4. A source control BMP can be a structural component of a planned site or procedural BMP.	<i>Goal: Keep pollutants from coming in contact with stormwater.</i>
Treatment Control	Engineered technologies designed to remove pollutants from runoff such as detention, filtration, settling, or separation.	<i>Goal: Remove pollutants from stormwater.</i>

The Post-Construction Stormwater Management in New Development and Redevelopment Program implements the following control measures to minimize stormwater impacts to the MEP and ensure permanent controls are in place for applicable projects:

- Review and accept plans for projects to ensure that appropriate PBMPs have been included in the project design and bid package, if applicable;
- Implement and use the AMD to track the inspection frequency and maintenance of PBMPs;
- Provide education and outreach materials to parties who apply for permits on the selection; design; installation; and, operation and maintenance of PBMPs; and,
- Provide annual training for all HIARNG staff and contractors responsible for inspecting PBMPs.

New development and redevelopment projects that result in land disturbance of one acre or more and smaller projects that have the potential to discharge pollutants to HIARNG’s MS4 are subject to this program.

New development refers to land disturbing activities; structural development, including construction or the installation of a building or structure, the creation of impervious surfaces; and land subdivision. Redevelopment is development that would create or add impervious surface area on an already developed site, including but not limited to expansion of a building footprint, addition or replacement of a structure, replacement of an impervious surface that is not part of a routine maintenance activity, and land disturbing activities related to structural or impervious surfaces.

6.1 STANDARD

Part D.1.e.(1) of the Permit requires HIARNG to continue to implement its standards for addressing PBMPs to LID requirements. The standards adopted for stormwater management in new development and redevelopment originate from a DoD policy memorandum issued on January 19, 2010, which requires the implementation of stormwater requirements under Section 438 of the Energy Independence and Security Act (EISA). The policy requires federal facility projects 5,000 square feet or more 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.”* The policy refers users to the Unified Facilities Criteria (UFC) 3-201-10 LID which has been adopted as HIARNG’s standard.

The goal of the standard is to ensure the management practices are prioritized to favor infiltration, evapotranspiration, or harvesting/reuse of stormwater followed by other practices that treat and release stormwater.

6.1.1 Exempt Projects

HIARNG exempts certain projects that pose a minimum risk of stormwater pollution. These projects may include, but are not limited to the following:

- Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of a facility;
- Trenching and resurfacing associated with utility work;

- Resurfacing (without grading) and reconfiguring surface parking lots;
- New sidewalk construction, pedestrian ramps, or bike lane on existing roads;
- Projects that return the area to pre-development runoff conditions;
- Replacement of damaged pavement; and,
- Emergency construction activities required to immediately protect public health and safety.

Designers may provide other justifications to the reason that PBMPs are not feasible at the site; however, HIARNG must approve these exemptions. HIARNG will provide a waiver to a project if exemption from PBMP implementation has been approved. Exempt projects should review the *Construction, Repair, and Maintenance Stormwater Best Management Practices Manual* to determine if additional pollution prevention measures may be required.

6.2 PLAN REVIEW AND APPROVAL

In accordance with Part D.1.e.(2) of the Permit, as a part of the plan review process described in the Construction Site Runoff Control Program, HIARNG will ensure that all required projects will include PBMPs in their designs, where feasible. If PBMPs are not feasible, a waiver may be granted by HIARNG if specific documentation is provided demonstrating PBMPs are not feasible. For design-bid-build projects, HIARNG will not award any construction contract until the project design has been reviewed and accepted to ensure appropriate PBMPs have been included. HIARNG will also review and approve design-build projects using the same standards as design-bid-build projects.

HIARNG's ENV is typically responsible for reviewing project design drawings at 30%, 60%, and 90% to assess potential stormwater impacts and verify inclusion of PBMPs. To facilitate the plan review for PBMPs, HIARNG will use a Design Review Checklist to verify project design compliance with their requirements. The Design Review Checklist is found in the appendices of the *Construction, Repair, and Maintenance Best Management Practice Manual*.

6.3 BMP OPERATION AND MAINTENANCE, AND INSPECTIONS DATABASE

In accordance with Part D.1.e.(3) of the Permit, PBMPs for public and private projects that discharge into HIARNG's MS4 are to be tracked and managed in the AMD. This database will be used to record PBMP information including:

- Type and number of LID practices;
- Type and number of Source Control BMPs;
- Type and number of Treatment Control BMPs;
- Longitude/Latitude coordinates of PBMPs using Global Positioning System and NAD83 or other Datum as long as the datum remains consistent;
- Photographs of PBMPs;
- Operation and maintenance requirements;

- Frequency of inspections and inspections performed; and,
- Frequency of maintenance and maintenance performed.

All stormwater treatment and PBMPs will be inspected at least once a year for proper operation, and maintenance will be performed as necessary.

6.4 EDUCATION AND TRAINING

In accordance with Part D.1.e.(4), training will be provided regularly, to include, as needed, developers, engineers, architects, consultants, construction contractors, excavators, and HIARNG personnel as well as all HIARNG staff and contractors responsible for inspecting PBMP and LID practices.

TABLE 6-2 EDUCATION AND TRAINING

Target Audience	Objective	Frequency
Project Proponents	Training and educational materials include information on selection, design, installation, operation, and maintenance of stormwater BMPs, structural controls, post construction BMPs, and LID practices.	Annually, or as needed.
Inspectors	<i>Construction, Repair, and Maintenance BMP Manual</i> and requirements for NPDES permit compliance.	Annually

6.5 MONITORING EFFECTIVENESS

The effectiveness of the HIARNG’s Post-Construction Stormwater Management in New Development and Redevelopment Program is measured by the contractor’s compliance with the revised standard UFC 3-210-10 and the Construction, Repair, and Maintenance BMP Manual. Any changes to the Post-Construction Stormwater Management in New Development and Redevelopment Program will be included in the Annual Report.

TABLE 6-3 IMPLEMENTATION SCHEDULE, ACTIVITY, AND MEASURABLE GOALS

Post-Construction Stormwater Management in New Development and Redevelopment				
BMP Description	BMP Activity	Measurable Goals	Responsible Department	Schedule
Part D.1.e.(2) Plan Review and Approval	Conduct construction plan reviews to ensure PBMPs and their long-term maintenance requirements are	Review 100% of Plans for post-construction BMPs.	ENV	Ongoing
Part D.1.e.(4) Education and Training	Provide annual training on targeted groups. Distribute educational materials.	Train 100% of all parties that apply for permits (i.e., developers, engineers, architects, consultants, construction contractors, excavators, and property owners)	ENV	Annually, As Needed