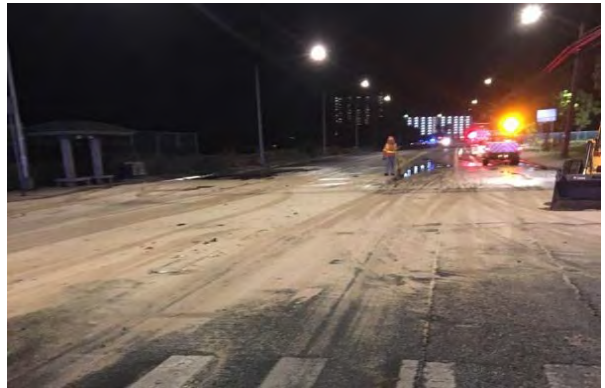


**Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual**



Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

BURIED UTILITY REPAIR AND INSTALLATION ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN BLUE:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Call 811 to ensure utilities have been properly located.
- Confirm the utility has been de-energized or turned-off prior to initiating repair.
- Protect stormwater drainage inlet structures and manholes with temporary BMP berms or drain inserts during repair or installation work.
- Barricade area to be excavated for repair or installation; Ensure that shoring equipment is available and used, if needed.



Store supplies and tools.

DURING WORK

- **DO NOT** stockpile materials near drains or surface waters.
- Cover or contain materials that have potential to leach or spill to the drainage system.
- Clean and sweep work area when repair activities are complete, or more often as needed.
- Water can be sprayed only as needed to control dust. **DO NOT** hose down areas to storm drains or surface waters.
- Collect and remove old asphalt/concrete and other debris; Dispose at Keehi Baseyard, as appropriate.



Expose the buried utility.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Work safely.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

CONCRETE WORK ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Avoid concrete work when heavy rain is falling or expected.
- Use drain inserts or temporary berms to protect storm drains and surface water within 25 feet of the project area. Maintain BMPs as needed.



Protect surface water.

DURING WORK

- Loose aggregate chunks and dust must be collected at the end of each workday, or more often if needed.
- Shovel or vacuum all slurry and remove from site.
- **DO NOT** hose down areas to a storm drain or into surface water.
- Accumulated runoff and solids must be collected and properly disposed of at the end of each workday, or as often as needed.
- Verify that materials that have the potential to leach or spill to the drainage system are covered, contained, or moved to an indoor location. Use BMPs as appropriate.



Do not hose down areas.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Clean up work site.

Storm Water Management Program (SWMP) Maintenance Activities Best Management Practices (BMP) Field Manual

CURB AND GUTTER REPLACEMENT ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

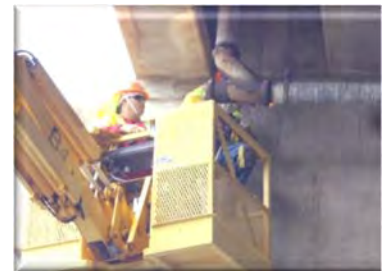
- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Place drop cloths in the area where any aboveground gutter work will occur.
- Protect stormwater drainage inlet structures and manholes with tarps, temporary BMP berms, or drain inserts during pipe cutting and any other activity where material could contaminate stormwater; maintain as needed.



Protect stormwater drainage.

DURING WORK

- **DO NOT** stockpile materials near drains or surface waters.
- **DO NOT** release anything other than clean water into storm drainage structures.
- Clean and sweep work area when replacement work is complete, or more often as needed.
- Collect and remove old curb and gutter material and dispose of properly at the Keehi Baseyard.



Repairing a gutter.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- If conducted off-site, tool cleaning must be done in a sink that drains to the sanitary sewer or parts washer.
- Call Supervisor or Environmental Support for assistance.



Repairing a curb.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

DEBRIS REMOVAL FROM THE ROAD

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Use caution when working, especially if the storm drain is on or near a major roadway. Use appropriate traffic control measures.
- Verify that equipment for the job is in proper working condition (e.g. no leaking fluids, damaged hydraulic lines, etc.).
- Use drain inserts or temporary berms to protect storm drains and surface water within 25 feet of the project area. Maintain BMPs as needed.



Use traffic safety measures.

DURING WORK

- Sweep or shovel debris into containers or trucks. Keep all containers, including dumpsters under cover or fit with a closed lid when not in use.
- If using machinery for larger debris, check equipment for oil leaks before use.
- Collect all debris and **DO NOT** stockpile adjacent to the surface water.
- **DO NOT** hose down debris to a storm drain or into surface water.
- Recycle and/or dispose of debris appropriately at the Keehi Baseyard.



Collect debris safely.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Clean up work site.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

LANDSCAPING & VEGETATION MANAGEMENT

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Verify that equipment for the job is in proper working condition (e.g. no leaking fluids, damaged hydraulic lines, etc.).
- Make sure tools and chemicals are stored and secured properly in work vehicles/trailers prior to leaving for the project site.
- When fueling gas tools, make sure the tool is turned off and note the location of the closest spill kit. **DO NOT** fuel near storm drains.



Remove and dispose of debris.

DURING WORK

- Sweep, gather, and remove any grass clippings or landscaping debris on paved surfaces.
- Herbicides should be applied per manufacturers instructions and not in excess.
- **DO NOT** apply herbicides if rain is expected.
- Take care to avoid herbicide application within 10-feet of a waterway (e.g. stream, shoreline, bridge, culvert).
- Be careful not to create exposed slopes from grass cutting/herbicide application activities that may lead to erosion/sediment control issues..



Prevent erosion.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Waste should be properly disposed of at a designated location.
- **DO NOT** dispose of green waste or clippings in waterways or storm drains.
- Call Supervisor or Environmental Support for assistance.



Remove grass clippings.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

LANDSLIDE CLEANING ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Use caution when working, especially if the storm drain is on or near a major roadway. Use appropriate traffic control measures.
- Ensure it is safe to work in and around landslide area.
- Verify that equipment for the job is in proper working condition (e.g. no leaking fluids, damaged hydraulic lines, etc.).
- Protect stormwater drainage inlet structures and manholes with temporary BMP berms or drain inserts to prevent stormwater contamination.



Use traffic safety measures.

DURING WORK

- In addition to street sweepers, water tankers, vacuum trucks and front-end loading quipment, have the following tools for this activity: shovel, broom, container/bag for debris.
- **DO NOT** use hose down debris into storm drains.
- **DO NOT** stockpile material near storm drains, surface waters, or in the road shoulder.
- If materials are stockpiled, use berms to keep it contained.
- Materials that require dewatering shall be transported to the Pearl City Baseyard Dewatering Area; complete appropriate recordkeeping requirements.



Shovel dirt and debris.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Dispose of waste at a designated area or at the Keehi Baseyard, as appropriate.
- Call Supervisor or Environmental Support for assistance.



Dispose of debris.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

PAINTING AND RELATED ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Protect stormwater drainage inlet structures and manholes with tarps, temporary BMP berms, or drain inserts during pipe cutting and any other activity where material could contaminate stormwater; maintain as needed.
- Set ground cloths or drop cloths underneath outdoor painting, scraping, chipping, and rust prevention works.
- Make sure tools and chemicals are stored and secured properly in work vehicles/trailers prior to leaving for the project site.



Use drop cloths.

DURING WORK

- Be careful to not misuse and overspray paints, finishes, and coatings.
- **DO NOT** conduct spraying, blasting, or sanding activities over open water or where wind may blow paint into water. If windy conditions are present, use a curtain to contain the activity.
- Wipe up spills with rags and other absorbent materials immediately.
- Whenever possible, conduct painting and related activities inside or in enclosed area.
- "Paint out" brushes as much a possible, rinse into a containment device (e.g. bucket) and dispose of it according to manufacturers instructions (e.g. safety data sheet).
- Accumulated solid wastes must be collected and properly disposed of at the end of each workday, or as often as needed.



Don appropriate PPE.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Call Supervisor or Environmental Support for assistance.



Protect storm drains.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

PAVING AND ROAD REPAIR ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN BLUE:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- **DO NOT** pave in the rain.
- Protect stormwater drainage inlet structures and manholes with tarps, temporary BMP berms, or drain inserts during paving operations, sawcutting, and any other activity where material could contaminate stormwater; maintain as needed.



Remove broken asphalt.

DURING WORK

- **DO NOT** stockpile materials near drains or surface waters.
- Verify that materials that have the potential to leach or spill to the drainage system are covered, contained, or moved to an indoor location. Use BMPs as appropriate.
- Clean and sweep work area when repair activities are complete, or more often as needed.
- Shovel or vacuum all slurry and remove from the site.
- Collect and remove old asphalt. Dispose at the Keehi Baseyard, if appropriate.



Clean up debris.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Complete repair work.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

REMOVING TIDAL SAND FROM ROADS

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Use caution when working, especially if the storm drain is on or near a major roadway. Use appropriate traffic control measures.
- Verify that equipment for the job is in proper working condition (e.g. no leaking fluids, damaged hydraulic lines, etc.).
- Protect stormwater drainage inlet structures and manholes with temporary BMP berms or drain inserts to prevent stormwater contamination.



Tidal sand on the road.

DURING WORK

- In addition to street sweepers, water tankers, vacuum trucks and front-end loading quipment, have the following tools for this activity: shovel, broom, container/bag for debris.
- Check the sand for debris and trash; dispose of trash properly.
- If the sand is clean, it may be returned directly to the beach.
- **DO NOT** stockpile sand, especially near storm drains, surface waters, or in the road shoulder.
- **DO NOT** return dirty sand to the beach; collect and dispose of dirty sand properly at the Keehi Baseyard.
- **DO NOT** use hose down sand into storm drains.



Tidal sand on the road.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Call Supervisor or Environmental Support for assistance.



Return clean sand to the beach.

Storm Water Management Program (SWMP) Maintenance Activities Best Management Practices (BMP) Field Manual

SAWCUTTING

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Avoid sawcutting when heavy rain is falling or expected.
- Use inserts or temporary berms to protect storm drains and surface water within 25 feet of the project area. Maintain BMPs as needed.



Use and maintain BMPs.

DURING WORK

- Loose aggregate chunks and dust must be collected at the end of each workday, or more often if needed.
- Shovel or vacuum all slurry and remove from the site.
- **DO NOT** hose down areas to a storm drain or into surface water.
- Verify that materials that have the potential to leach or spill to the drainage system are covered, contained, or moved to an indoor location. Use BMPs as appropriate.
- Accumulated runoff and solids must be collected and properly disposed of at the end of each workday, or as often as needed.



Do not hose down areas.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Clean up work site.

Storm Water Management Program (SWMP) Maintenance Activities Best Management Practices (BMP) Field Manual

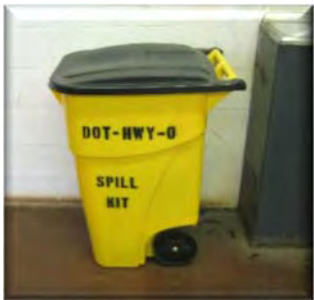
SPILL CLEANUP ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN BLUE:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Review the Safety Data Sheet of the product spilled to identify specific cleanup requirements.
- Ensure the source of the spill has been stopped; locate spill kit.
- Remove incompatible materials or other hazards from the area.
- Protect stormwater drainage inlet structures and manholes with temporary BMP berms or drain inserts to prevent stormwater contamination.
- Review the SWPCP Spill Response Plan to identify notification and recordkeeping requirements, if any.



Store spill kits in accessible locations.

DURING WORK

- Use absorbent booms to confine the spill perimeter.
- Use absorbent material and a broom or pads to clean the spill.
- **DO NOT** use water for cleaning.
- **DO NOT** stockpile spill cleanup materials near drains or surface waters.
- Collect and dispose of used cleanup materials and PPE properly.
- If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed must be disposed of in the appropriate area at the Keehi Baseyard.



Use absorbent material.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-spill conditions.
- Replenish spill kits, as needed.
- Complete Spill Response Documentation Form, if required.
- Call Supervisor or Environmental Support for assistance.



Collect used material.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

STORM DRAIN CLEANING

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN BLUE:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Avoid storm drain cleaning when heavy rain is falling or expected.
- Use caution when working, especially if the storm drain is on or near a major roadway. Use appropriate traffic control measures.
- Keep logs of the number of storm drains cleaned and amount of debris removed.
- Prevent any debris from discharging out of the stormwater system to surface waters. Use BMPs as appropriate.



Remove debris.

DURING WORK

- In addition to street sweepers, water tankers, vacuum trucks and front-end loading quipment, have the following tools for this activity: shovel, broom, container/bag for debris.
- **DO NOT** use hose down debris into storm drains.
- **DO NOT** stockpile material near storm drains, surface waters, or in the road shoulder.
- If materials are stockpiled, use berms to keep it contained.
- Materials that require dewatering shall be transported to the Pearl City Baseyard Dewatering Area; complete appropriate recordkeeping requirements.



Clean storm drain.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Properly dispose debris.

Storm Water Management Program (SWMP) Maintenance Activities Best Management Practices (BMP) Field Manual

STREAM CLEANING

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Use caution when working, especially if the stream is on or near a major roadway, if the banks are steep, or if the current is heavy.
- Use handtools (shovels and buckets) if possible, over mechanical equipment.
- If mechanical equipment is implemented, erosion and sediment control BMPs must be installed.
- Verify that equipment for the job is in proper working condition (e.g. no leaking fluids, damaged hydraulic lines, etc.).



Use and maintain BMPs.

DURING WORK

- **DO NOT** submerge machinery in a stream.
- Remove vegetation only when flow is blocked or excess sediments have accumulated.
- Collect all debris and **DO NOT** stockpile adjacent to the surface water; dispose of waste debris directly into a dump truck.
- Cover or contain materials that have potential to leach or spill to the drainage system or surface water.



Use and maintain BMPs .

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- Call Supervisor or Environmental Support for assistance.



Remove material from work site.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

STREET SWEEPING ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Use caution when working, especially if the storm drain is on or near a major roadway. Use appropriate traffic control measures.
- Verify that equipment for the job is in proper working condition (e.g. no leaking fluids, damaged hydraulic lines, etc.).



Inspect equipment before use.

DURING WORK

- Adjust brooms to maximize efficiency of sweeping operations.
- Operate sweeper at manufacturers recommended speed.
- Do not load hoppers beyond their capacity.
- **DO NOT** stockpile materials near storm drains, surface waters, or in the road shoulder.
- Use berms around any stockpile of materials to keep it contained.
- Sweep or vacuum visible sediment from baseyards and maintenance sites at the end of each workday, or as often as needed.



Use berms for stockpiling.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to pre-work conditions.
- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected, and properly disposed.
- Dispose of waste directly into dump trucks or in the designated location at the Keehi baseyard, as appropriate.
- Call Supervisor or Environmental Support for assistance.



Sweep or vacuum sediment.

Storm Water Management Program (SWMP)
Maintenance Activities Best Management Practices (BMP) Field Manual

VEHICLE CLEANING AND WASHING ACTIVITIES

APPLIES TO THE FOLLOWING MAINTENANCE CREWS SHADED IN **BLUE**:



PRE-WORK

- Review the Daily Workplace Hazard Assessment, don appropriate PPE, and follow appropriate HWY-O Safety Policies.
- Wash vehicles at the Pearl City, Waianae, or Windward Baseyard washracks or leave vehicles at the Keehi Baseyard for washing by the service contractor.
- At the Wahiawa and Hauula Baseyards, designate an appropriate, bermed wash area if washing is done onsite.
- Use phosphate-free, biodegradable soaps and the least hazardous cleaning products possible.
- Protect stormwater drainage inlet structures and manholes with temporary BMP berms or drain inserts to prevent stormwater contamination.



Protect stormwater drains.

DURING WORK

- Cleaning of tools and machinery on the work site must be performed in an area where the rinse water is controlled, collected and properly disposed.
- **DO NOT** conduct cleaning or washing activities near drains or surface waters.
- Perform routine maintenance of wash rack system, including oil water separator, to ensure proper functioning.
- Visually inspect the wash rack sump and oil water separator filtration system. Remove and properly dispose of accumulated sediment and debris from the sump.



Designate vehicle washing area.

POST-WORK

- Remove all equipment, materials, and supplies and restore site to original conditions once cleaning and washing activities are complete.
- Call Supervisor or Environmental Support for assistance.



Wash vehicles within containment.