State of Hawaii, Department of Transportation
Highways Division, Oahu District

WRITTEN BEST MANAGEMENT PRACTICES (BMP) PLAN

Submit the completed BMP PLAN to HWY-O as part of the Permit Packet

This "*Written Best Management Practices Plan*" (BMP Plan) is required to be submitted by applicants requesting a Permit to Perform Work Upon State Highways and/or submitting an Application & Permit for the Occupancy & Use of State Highway Right-of-Way (hereinafter, "Permit") to the State of Hawaii, Department of Transportation, Highways Division, Oahu District (HWY-O). The BMP Plan must identify the activities and measures to be undertaken to eliminate, minimize, or mitigate pollutants that are reasonably expected to be present during the course of each project. This is what you as the Contractor propose to do. You will be expected to conform to the measures proposed in this plan. Failure to conform may be basis for revocation of permits issued by HWY-O.

Instructions:

1) Review the BMP Plan.
2) Submit the completed BMP Plan as part of the permit application to HWY-O for review and acceptance.

PART I PROJECT INFORMATION

Construction Project and Contact Information

Please provide project and contact information in the spaces below.

Project Name:	
HDOT Route Number/Route Name:	
HDOT Permit Number:	
Contractor/Company Name:	

PART II SITE MANAGEMENT

Material Management

Materials such as oil, grease, form-release agents, concrete curing compounds, metal containers, and any hazardous material will be stored in a covered area, not exposed to rain water. Secondary-containment devices will be utilized for appropriate fluids, per state and federal regulations. Chemicals must be kept in their original labeled container and have an up-to-date inventory of materials delivered and stored on-site. Provide detail in the Construction BMP Checklist on the specific BMP that will be implemented to minimize storm water pollution.

Material Storage and Handling (SM-2)

- Designate on-site material storage areas located away from inlets, concentrated flows, and open waterbodies.
- Maintain accurate and up-to-date records of material delivered and stored on-site.
- Minimize on-site inventory.
- Keep storage areas clean and well organized.
- Store materials under cover or cover with impermeable material and place in secondary containment. Secondary containment must be able to retain 100% of the volume of the largest container or 10% of the aggregate total of all the containers being stored within the secondary containment, whichever is greater.
- An effort will be made to store only enough product required to do the job.
- Rack all metal materials, including galvanized metal and rebar, off the ground on proper dunnage, pallet, or similar materials and cover with an impermeable material.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and under cover, when possible.
- Chemicals, drums, or bagged materials will not be stored directly on the ground. Items must be racked off the ground and placed in secondary containment.
- Products shall be well-labeled and stored in their original containers.
- Do not stack containers higher than two. Containers may be stacked up to three if they are secured from tipping over through supportive means.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Form release agents, concrete curing compounds, paint, prime coat, tack coat, and other similar items will not be overapplied and shall not pollute storm water runoff.

- Manufacturer's recommendations for proper use and disposal will be followed.
- A daily inspection will be conducted to ensure proper use and disposal of materials on-site.

Hazardous Materials

- Products will be kept in their original containers unless they are not resealable.
- Original labels and safety data sheets will be retained as they contain important product information.
- If surplus product must be disposed of, manufacturer's specifications, and local and state recommended methods for proper disposal will be followed.

Petroleum Products

- All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Any asphalt substances used on-site will be applied according to the manufacturer's recommendations.

Fertilizers

- Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer.
- Once applied, fertilizer will be worked into the soil to limit exposure to storm water.
- Storage will be in a covered shed.
- The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

Paints

- All containers will be tightly sealed and stored when not required for use.
- Excess paint will not be discharged to the highway drainage system and instead will be properly disposed of according to manufacturer's instructions and state and local regulations.

Stockpile Management (SM-3)

- The Contractor will ensure that stockpiles are located a minimum of 50 feet, or as far as practicable, away from concentrated runoff, drainage systems, or open waterbodies.
- Stockpiles shall be covered with plastic or similar impermeable material.
- Stockpiles of paving materials cannot be placed directly on the ground and must be placed on plastic or similar impermeable material.
- Perimeter controls such as silt fence or compost filter socks shall be placed around the base of the stockpile.

Spill Prevention and Control (SM-10)

- Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Ample materials and equipment necessary for spill cleanup will be kept in the material storage area on-site or be readily accessible for potential spills.
- All spills will be cleaned up immediately after discovery, and spilled and cleanup material will be disposed of properly. Do not hose down or bury the spill.
- The spill area will be kept well ventilated and personnel will wear appropriate personal protective equipment to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included by the designated representative.

Staging Areas (SM-16)

- Perimeter controls will be installed around the staging area to divert storm water run-on and runoff.
- Construction vehicles and equipment that are not active must be stationed entirely on geotextile filter fabric with plastic installed underneath and surrounded with perimeter controls.

- Drip pans will be placed under vehicles and equipment to capture potential drips and spills. If tracking is observed, a construction entrance/exit shall be installed. The Contractor will select 3- to 6-inch diameter aggregate to install on top of geotextile filter fabric at a depth of 12 inches or as recommended by the Soils Engineer.
- Contractor will phase staging areas to minimize the duration of exposed soil.
- When the project is complete and BMPs are ready to be pulled, Contractor will seed or mulch area(s) to stabilize disturbed areas.

Waste Management

All types of waste will be managed appropriately in HDOT's ROW. Provide detail in the Construction BMP Checklist on the proposed BMPs to be implemented to minimize storm water pollution. Littering on the project site is prohibited. *All waste shall be disposed of properly in accordance with local, state, and federal regulations.*

Concrete Waste (SM-4)

- Concrete trucks will be allowed to washout drums on-site only at a designated location adjacent to the work area, away from drainage areas and receiving waterbodies.
- A concrete washout bin that is designed to securely contain concrete wash water and solids will be used.
- The Contractor will remove the concrete washout bin once the wash water has evaporated and the solids have hardened or as deemed acceptable by the Project Engineer.
- Concrete washouts must be changed or not used after reaching 75% capacity or 4-inch freeboard, whichever is more stringent.
- The Contractor will vacuum, with a wet-dry vacuum, concrete dust and slurry generated from sawcutting operations and dispose of properly.
- Sweepings from exposed aggregate concrete will not be washed into the street or storm drain.

Solid Waste (SM-6)

- All waste material will be collected in a sufficiently sized, watertight, and securely covered container that meets all city and state solid waste management regulations.
- Waste containers should be an adequate distance away from any drainage systems and open waterbodies.
- Waste containers must be covered with impermeable material at the end of the day during active construction and when it is not in use.
- Solid waste containers should be emptied weekly and when 2/3 full by the trash hauling Contractor.
- No construction waste materials will be buried on-site.
- Do not dispose of chemicals and toxic liquid wastes in solid waste containers.
- Contractors must immediately clean up spills or leaks that originate from site.

Sanitary Waste (SM-7)

- Temporary sanitary waste systems shall be well-maintained and scheduled for regular waste disposal and servicing, according to the manufacturer's recommendations.
- Position portable toilets so that they are secured and will not be tipped or knocked over.
- Sanitary facilities should be located in a convenient location away from drainage facilities, receiving waters, and local traffic.

Hazardous Materials and Waste (SM-9)

- All hazardous waste materials will be disposed of in accordance with local, state, and federal regulation and by the manufacturer's specifications.
- Toxic liquid waste and chemicals should not be discarded in containers allocated for construction and demolition (C&D) waste.
- Dispose of hazardous waste containers once all the product has been used.
- All spills, free products, or storm water captured in a secondary containment shall be immediately removed and properly disposed of.

- Do not mix wastes.
- Periodic waste collection should be scheduled to prevent overflow of containers.

Vehicle and Equipment Management

Limited vehicle and equipment management activities are permitted in HDOT's ROW. Provide detail in the Construction BMP Checklist on the specific BMP that will be implemented to minimize storm water pollution.

Vehicle and Equipment Parking

- Parking vehicles and equipment should be in designated areas.
- Drip pans will be placed under vehicles and equipment to capture potential drips and spills.
- Construction vehicles and equipment that are not active must be stationed entirely on geotextile filter fabric with plastic installed underneath.

Vehicle and Equipment Cleaning (SM-11)

- Removing sediment from tracks, tires, etc. must be performed in a designated area
- The use of soaps, solvents, and detergents to clean vehicles and equipment will not be allowed.

Vehicle and Equipment Maintenance (SM-12)

- The Contractor will not perform maintenance activities of vehicles or large equipment on the project site.
- Maintenance of smaller equipment such as "jumping jacks" may be performed on-site.
- Drip protection must be in place under vehicles/equipment that are being refueled.
- Any equipment which breaks down at the project site will be transported offsite and out of HDOT's ROW for repairs.
- Leaking vehicles and equipment are not allowed on-site.

Vehicle and Equipment Refueling (SM-13)

- The Contractor will not perform fueling activities of vehicles or large equipment on the project site.
- Fueling of smaller equipment such as "jumping jacks" may be performed on-site.
- The Contractor's personnel must be trained in proper fueling, spill containment, and cleanup practices.

PART IV EROSION & SEDIMENT CONTROL PRACTICES

Erosion Control

Please indicate if any of the following erosion control BMPs will be implemented in or immediately adjacent to HDOT's ROW. If yes, provide detail in the Construction BMP Checklist on the specific BMP that will be implemented to minimize storm water pollution.

Dust Control (SM-19)

- Dust control practices must be applied to site conditions that cause dust.
- Wet suppression (watering), chemical binders, or gravel asphalt surfacing may be applied, as necessary, to suppress dust.
- The Contractor will not overspray water for dust control purposes.

Graded or Dressed Areas

- The Contractor will stabilize all disturbed areas immediately after the area is graded or dressed.
- Mulch and/or seed will be applied per manufacturer's specifications.
- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.

Temporary Drains, Swales, and Ditches (EC-5)

- Direct runoff around unstable or disturbed areas to a stabilized water course, drainage pipe, or channel.
- Divert sediment-laden runoff to a sediment trapping device.

Outlet Protection (EC-8)

- Place geotextile filter fabric between aggregate being used as outlet protection and the underlying soil to prevent soil movement.

Slope Protection (EC-9)

- Slope interceptors shall be placed along exposed or disturbed slopes at required intervals based on slope inclination.

Geotextiles and Mats (EC-11)

- Install matting to disturbed soils and areas where vegetation has been removed.
- Install matting immediately after the areas is seeded and fertilized.
- Matting must maintain direct contact with soil to prevent rills, gullies, and undermining.
- Follow manufacturer's specifications on overlapping and stake spacing requirements
- Adhere to manufacturer's specifications for anchorage requirements.

Seeding & Planting (EC-12)

- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.
- Prepare the soil/ground prior to seeding and planting.
- Keep records of application dates, type(s), amount of fertilized used, and the areas covered.
- Avoid the use of invasive species.
- Temporary vegetative stabilization will be coordinated with permanent vegetative stabilization.
- Temporary irrigation will be employed for seeded/planted areas where initial establishment of vegetation is difficult.
- Install non-vegetative erosion controls that provide cover to the seeded/planted area while vegetation is becoming established.
- Install perimeter controls around seeded/planted areas while vegetation is becoming established.

Mulching (temporary/permanent) (EC-13 to EC-16)

- Apply mulch to keep seeds in place and to moderate soil moisture and temperature until seeds start to germinate and grow.
- Apply mulch at manufacturer's recommended rate to ensure uniform, effective cover.
- Avoid spraying mulch onto sidewalks, lined drainage channels, roads, and existing vegetation.

Tree/Vegetation Protection (SM-17)

- Identify land to be disturbed to avoid damaging existing vegetation that is not meant to be disturbed.
- Establish setback distances defined by devices such as berms, fencing, or signs.
- Designate limits of root system (tree drip line) and avoid storing construction equipment, vehicles, and stockpiles under the tree drip line.

Final Stabilization

- Soil stabilization must be initiated immediately whenever earth-disturbing activities have permanently ceased or have temporarily ceased for a period of 14 or more calendar days.
- The 14-calendar day timeframe above begins counting as soon as it is known that construction work on a portion of the site will be temporarily ceased.
- Stabilization activities must be completed as soon as practicable, but no later than 14 days after the initiation of soil stabilization measures. For sites discharging to impaired waters, stabilization activities must be completed no later than 7 calendar days after the initiation of soil stabilization measures.
- Uniform, non-invasive, perennial vegetation, which provides 70% of the coverage that was provided by vegetation prior to commencing earth-disturbing activities must be established in order for stabilization to be complete.
- Photos should be taken of any areas that will be disturbed prior to construction and before installing BMPs to provide evidence of the amount of vegetation in the area prior to commencing earth-disturbing activities.
- Temporary erosion and sediment controls for exposed/disturbed areas must not be removed until stabilization is deemed complete by the project inspector.

Sediment Control

Please indicate if any of the following sediment control BMPs will be implemented in or immediately adjacent to HDOT's ROW. If yes, provide detail in the Construction BMP Checklist on the specific BMP that will be implemented to minimize storm water pollution.

Perimeter Controls

- The Contractor must select and install perimeter control suitable for the project perimeters.
- All BMPs used for perimeter control must be installed before any earth-disturbing activity and on all down-gradient perimeters.
- Temporary perimeter controls must be installed around exposed or disturbed areas where stabilization measures have been initiated.
- The Contractor or designated representative is responsible to regularly inspect and maintain all perimeter control BMPs for effective performance.

Compost Filter Sock/Berm (SC-6)

- Compost filter socks can be used as temporary perimeter control devices to intercept and filter sediment in sheet flow.
- The compost filter sock must be at least an 8-inch diameter mesh tube filled with compost that complies with city, state, and federal requirements.
- Ends of compost filter socks must be turned uphill to prevent flow from running around the ends.
- The Contractor is responsible to maintain compost filter socks and berms for proper function. Tears and rips that expose compost media must be repaired immediately.
- Remove sediment which has accumulated to within 1/2 of the sock/berm height.
- At completion of project, filter sock material, including the compost, shall be removed from the site and disposed of properly.

Silt Fence or Filter Fabric Fence (SC-7)

- Silt fence will be a permeable geotextile filter fabric with a minimum width of 36 inches.
- The Contractor will excavate a trench, 6 inches wide by 6 inches deep, along the silt fence line.
- The bottom of the silt fence must be keyed-in a minimum of 12 inches before backfilling.
- Stakes will be spaced 6 feet apart and driven securely into the ground a minimum depth of 18 inches.
- Silt fence must be overlapped between adjoining segments or may be overlapped, wrapped, and rolled.
- Ends of the silt fence must be turned uphill to prevent flow from running around the ends.
- Built-up sediment must be removed when it has reached 1/3 the height of the fence.

Inlet Protection (SC-1)

- All storm drain inlets, both within the project limits and beyond the project limits, that has the potential to receive sediment-laden runoff from the project must be protected.
- Drainage area should not exceed 1 acre.
- The Contractor is responsible to allow an adequate area for water to pond without encroaching into the roadway subject to traffic.
- BMPs are placed upgradient to effectively control sediment-laden runoff.
- Inlet protection will be regularly inspected and maintained for proper performance. Remove accumulated sediment when it reaches 1/2 of the filter height.
- Inlet protection devices can be removed in the event of flood conditions where safety or loss of property is of concern or to prevent erosion, but must immediately be installed following the storm.

Check Dams (SC-3)

- Check dams must be lower in the middle than the ends to prevent water from running around the ends. The bottom of the upstream check dam should be at the same elevation as the top of the downstream check dam to promote to formation of small pools between check dams.

Temporary Sediment Trap (SC-4)

- Construct sediment trap prior to engaging in clearing, grubbing, or gradient activities.
- Construct sediment trap by excavating ground or construct an earthen embankment to create a containment area.
- Compact earthen embankment by traversing with construction equipment or similar method to improve strength of embankment and prevent any partial collapses.

Temporary Sediment Basin (SC-5)

- Construct sediment basin prior to clearing, grubbing, or grading activities.
- Sediment basins shall be designed to allow 70-80% of the sediment to settle during a 24- to 40-hour detention time.
- Construct sediment basin by excavating ground or constructing an embankment of compacted soil.

Construction Road Stabilization (SC-10)

- Construction roads shall consist of aggregate, asphalt cement, or concrete.
- If aggregate is used, construction road shall consist of 2- to 3-inch aggregate installed on top of geotextile filter fabric at a depth of 4 inches.
- The Contractor will remove the aggregate and geotextile filter fabric upon completion of the project, and will restore the area to a condition equal to, or better than, prior to disturbance.

Stabilized Construction Entrance/Exit (SC-11)

- A stabilized construction egress is required if vehicle tracking of sediment is prevalent on adjacent roadways.
- Construction entrance shall consist of 3- to 6-inch diameter aggregate installed on top of geotextile filter fabric at a depth of 12 inches.
- Paved road(s) adjacent to the site entrance will be cleaned within 24 hours, by sweeping or vacuuming, to remove visible sediment accumulated on paved roadways.
- No hosing down or water trucks will be used to wash debris from the roadway.
- The Contractor will remove the aggregate and filter fabric upon completion of the project, and will restore the area to a condition equal to, or better than, prior to disturbance.
- Dump trucks hauling material to and from the construction site will be covered with a tarpaulin or comparable material to prevent waste and debris from being ejected during hauling operations.

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PART V INSPECTION AND MAINTENANCE

BMP Inspection and Maintenance

Regular inspections and maintenance of temporary construction BMPs is required for construction activities occurring in or immediately adjacent to HDOT's ROW.

Inspections

- The contractor is required to perform and document inspections of temporary construction BMPs at least once every 7 calendar days and within 24 hours of any rainfall of 0.25 inches or greater. Inspections are only required during the project's normal working hours.
- The Contractor will maintain the inspection and maintenance report on file. The inspection and maintenance report will be made available when requested by HDOT.
- The Contractor will select a qualified representative who will be responsible for inspections and completing the inspection report.
- All incidents shall be reported and documented.

Maintenance

- All measures will be maintained in good working order. If a repair is necessary, it will be initiated and completed within 24 hours of the inspection.
- The Contractor will select a qualified representative who will be responsible for maintenance and repair activities.

Training

- Personnel selected for the inspection and maintenance responsibilities will receive training from the Contractor. They will be trained to inspect and maintain site-management, erosion, and sediment controls used on-site.

HDOT Comments: