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Project Managers, Planners, & Engineers
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KALANIANAOLE HIGHWAY IMPROVEMENTS PHASE 1
CWB-NOI CBMP Plan

Attachment A.9
Item 3.2 – Best Management Practice Product Data Sheet

Attachment A.9 – Item 3.2 Best Management Practice Product Data Sheet

3.2.1 BMP Description : Water for Dust Control	
Installation Schedule:	• *Minimize exposed areas through the schedule of construction activities* • *Utilize vegetation, mulching, sprinkling, and stone/gravel layering to quickly stabilize primary entrances/ exits prior to commencement of construction* • *Anticipate the prevailing wind direction to minimize the amount of dust generated* • *Do not over-spray water for dust control purposes* • *Direct construction vehicular traffic to stabilized roadways* • *Comply with the 2005 Hawaii standard specifications for road and bridge in sections 209 and 620.*
Maintenance and Inspection:	• *Inspect construction site periodically and after rain to identify areas requiring installation, repair, or replacement of additional BMPs to cover bare ground or redirect off-site runoff.*
Product Specification Reference:	• *Manufacturer – GeoTech Solutions, Inc.* • *Product – Soil Sement* • *Model Number- (Contact Troy at troyo@geotechsolutions.com or 808-677-1580)* • *Or approved equal*

3.2.2 BMP Description: Drain Inlet Protection	

Installation Schedule:	• *Five types of inlet protection are described below.*
	  o *Geotextile Filter Fabric Fence: Applicable to drainage basins less than one acre and with less than a 5 percent slope.*
	  o *Block and Stone Filter: Applicable to flows exceeding 0.5 cfs.*
	  o *Stone and Wire Mesh Filter: Applicable to curb or drop inlets subjected to traffic from construction equipment.*
	  o *Sandbag Barrier: Applicable to sloped, paved streets; creates a small sediment trap upstream of inlets.*
	  o *Excavated Drop Inlet Sediment Trap: Applicable to areas requiring overflow capability due to expected high flows; an excavated area around the inlet which detains runoff and allows sediment to settle.*
	• *In addition to the methods of inlet protection described above, there are other effective methods and proprietary devices, which may also be used.*
	• *Limit to drainage areas less than one acre, unless a sediment trap intercepts the runoff prior to the inlet protection device.*
	• *Provide an area for water to pond around inlet without flooding nearby structures and property.*
	• *Inspections and maintenance*
	• *Other proprietary devices may be used and shall be installed per manufacturer's recommendations.*

Maintenance and Inspection:	• *Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.* • *Immediately replace clogged geotextile filter fabric or stone filters.* • *Remove accumulated sediment when depth reaches half of the filter height or half of the sediment trap depth.* • *Remove inlet protection after stabilization of upstream soils and sweeping of streets is completed. Properly dispose of trapped sediment.*
Product Specification Reference:	• *Manufacturer: New Pig* • *Product: Curb- Style Drain Insert Plus* • *Model Number: FLT214* • *Or approved equal*

3.2.3 BMP Description*: *Silt Fence	
Installation Schedule:	• *Primarily use where sheet flow occurs.* • *Install silt fence along or parallel to contours.* • *Ends of silt fence shall be turned uphill and the geotextiles should be overlapped.* • *Silt fence posts shall be driven 14 inches minimum into the trench (see silt fence detail) and the geotextile filter fabric shall be embedded a minimum of 6 inches vertically into the ground or install according to manufacturer's recommendation.*
Maintenance and Inspection:	• *Inspect weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall.* • *Repair or replace damaged fence or posts.* • *Remove accumulated sediment when depth reaches 1/3 the barrier height.*
Product Specification Reference:	• *Manufacturer: Granite Environmental* • *Product: Silt Fence* • *Model Number: Call for Details (+1-772-646-0597 or toll free at (888- 703-9889)* • *Or approved equal*

3.2.4 BMP Description*: *Construction Exit Wash Water	
Installation Schedule:	• *Grade the stabilized entrance/exit to prevent runoff from discharging off-site.* • *Direct runoff to a sediment trap or basin prior to discharge.* • *Construct stabilized entrance/exit on level ground where possible.* • *Provide ample turning radii.* • *Crushed aggregate free of fine material shall be 3 to 6 inches in size. The use of crushed asphalt concrete (AC) is not allowed.* • *Depth of aggregate shall be 12 inches thick or as recommended by the soils engineer. Contractor is responsible to design stabilized construction entrances/exit to support heaviest vehicles and equipment that will use it.* • *Place geotextile filter fabric beneath the aggregate.* • *Dimensions shall be a minimum of 50 feet in length and 30 feet in width. If project site layout will not accommodate minimum dimensions identify additional BMPs to minimize tire tracking.*
Maintenance and Inspection:	• *Inspect construction entrance/exit weekly during dry periods as well as within 24 hours of any rainfall of 0.5 inch or greater which occurs in a 24-hour period and daily during periods of prolonged rainfall for damage.* • *Remove deposited sediment from adjacent roadways or paved areas within 24 hours.* • *Replenish surface aggregate periodically.* • *Upon project completion, all construction entrances/exits shall be removed by the contractor and restore the area to the condition approved by the Engineer.*
Product Specification Reference:	• *Manufacturer – Ameron* • *Product – Surge Material* • *Model Number - (Contact Sand Island Sales Dept.)* *7:30 am - 4:15 pm, M – F* *Phone: (808) 832-9245* *Fax: (808) 832-9470* *Email: sales@ameronhawaii.com* • *Or approved equal*

3.2.5 BMP Description*: *Solid Waste Management	
Installation Schedule:	• *Inform trash-hauling contractors that only watertight dumpsites are acceptable for on-site use.* • *Locate containers in a covered area or in a secondary containment* • *Plan for additional containers and more frequent pickup during the demolition phase.* • *Collect trash daily, especially during rainy and windy conditions* • *Remove solid waste promptly* • *Make sure that toxic wastes and chemicals are not disposed of in dumpsters designated for construction debris* • *Do not hose out dumpsters on the construction site.* • *Arrange for regular waste collection before containers overflow. Construction debris and waste shall be removed from the site biweekly or more frequently as needed* • *Clean up immediately if a container does spill* • *Prioritize removal of litter and debris from drainage grates, trash racks, and ditch lines to prevent clogging of the storm drainage system* • *Provide trash receptacles in the contractor's yard, field trailer areas and at locations where workers congregate* • *Collect and place litter from work areas within the construction limits of the project site in watertight dumpsters. Do not place collected litter and debris next to drain inlets, storm drain systems, or watercourses* • *Provide dumpsters of sufficient size and number to contain solid waste generate by the project* • *Prevent storm water runon from contacting solid waste through use of berms or other temporary diversion structures or through the use of measures to elevate waste for site surfaces* • *Locate waste storage areas at least 50' away from drainage facilities and water courses, and not within area prone to flooding or ponding.* • *Securely cover construction planting waste not stored in watertight dumpsters with tarps or plastic, except during fair weather.* • *Separate contaminated clean up materials from C&D wastes. Contamination may be from hazardous substances, friable asbestos, waste paint, solvents, sealers, or adhesives.* • *Inert fill material shall not contain vegetation, organic material, or other solid waste.* • *Inert fill materials shall not be mixed with other C&D waste.*
Maintenance and Inspection:	• *Inspect and verify that activity based BMPs are in place prior to the commencement of associated activities. Inspect weekly during the rain y season and of two-week intervals in the non-rainy season to verify continued BMP implementation* • *Inspect construction waste and recycling areas regularly.* • *Inspect BMPs subject to non-storm water discharge daily while non-storm water discharges occur.* • *Schedule solid waste collection regularly.* • *Schedule recycling activities based on construction/demolition phases.*

	• *Inspect construction waste and recycling areas regularly for signs of contamination*
Product Specification Reference:	• *Manufacturer- Rolloffs Hawaii* • *Product- 40 Cubic Yard Rolloff Can* • *Model Number- Contact Rolloffs Hawaii, LLC at (808) 664-1504 for details* • *Or approved equal*

3.2.6 BMP Description: ***Sanitary Waste Management***	
Installation Schedule:	• *Locate sanitary facilities in a convenient place away from drainage facilities.* • *Untreated wastewater shall not be discharged to the ground or buried.* • *Comply with the State of Hawaii, Department of Health requirements when using an on-site disposal system such as a septic system.* • *Avoid illicit discharges by properly connecting temporary sanitary facilities to the sanitary sewer system.* • *Sanitary/septic systems discharging to the sanitary sewer shall comply with the local wastewater treatment plant requirements.* • *A licensed service provider shall maintain sanitary/septic facilities in good working order.* • *Schedule regular waste collection by a licensed transporter.*
Maintenance and Inspection:	• *Inspect and maintain facilities regularly.* • *Schedule regular waste collection.* • *Prevent illicit discharges.*
Product Specification Reference:	• *Manufacturer- Paradise Lua Inc.* • *Product- Hale Luas Standard Portable Toilet* • *Model Number- Contact Paradise Luas Inc. at (808) 668-6885 for details* • *Or approved equal*

3.2.7 BMP Description*: *Construction Staging Area	
Installation Schedule:	• *Provide training for employees and contractors on proper material delivery and storage practices and procedures.* • *Designate on-site material delivery and storage areas. Areas shall be located near construction entrances and away from watercourses. Earth berms or other containment measures shall surround storage areas.* • *Flammable materials shall comply with the fire codes of Honolulu. Contact the local Fire Marshal for site specific requirements. Refer to the Flammable and Combustible Liquid Code, NFPA30 for more information.* • *Maintain accurate and up to date records of material delivered and stored on-site.* • *Minimize on-site inventory.* • *Retain a complete set of material safety data sheets on-site.* • *Minimize handling of hazardous materials.* • *Store materials under cover during the rainy season.* • *Store chemicals, drum, and bagged materials on a pallet and when possible, under cover in secondary containment.* • *If drums must be stored in an uncovered area, place them at a slight angle to minimize ponding of rainwater on the lids to minimize corrosion.* • *Hazardous chemicals shall be well-labeled and stored in the original containers.* • *Employees with emergency spill cleanup training shall be present during unloading of dangerous materials or liquid chemicals.* • *Any significant residual materials remaining on the ground after the completion of construction shall be removed and properly disposed. If the residual materials contaminate the soil, then the contaminated soil shall also be removed and properly disposed.*
Maintenance and Inspection:	• *Storage areas shall be clean and well organized.* • *An ample supply of spill cleanup materials shall be kept with work crew supplies.* • *Conduct weekly inspections of material containers for corrosion.* • *Conduct weekly inspections of storage areas which may require repair or replacement.*
Product Specification Reference:	N/A

3.2.8 BMP Description*: *Concrete Truck Wash Water	
Installation Schedule:	• *Properly store concrete materials away from runoff and under cover.* • *Avoid mixing excess concrete, if possible. Discard excess concrete in the designated area.* • *Wash concrete-coated vehicles or equipment off-site or in the designated wash area. Locate on-site concrete wash area a minimum of 50 feet away from storm drain inlets, open drainage facilities, or water bodies. Runoff from the on-site concrete wash area shall be contained in a temporary pit or level bermed area where the concrete can set.* • *Temporary pit shall be lined with plastic to prevent seepage of the wash water into the ground. Allow wash water to evaporate or collect wash water and all concrete debris in a concrete washout system bin.* • *Break up and properly dispose of hardened concrete from wash area.* • *Collect and properly dispose of aggregate concrete sweepings.* • *Provide concrete waste management training for employees and contractors.*
Maintenance and Inspection:	• *Inspect concrete wash areas for damage and repair as necessary.* • *Regularly remove and dispose hardened concrete.* • *Monitor contractors to ensure proper concrete waste management measures are implemented.*
Product Specification Reference:	N/A

3.2.9 BMP Description*: *Vehicle and Equipment Maintenance	
Installation Schedule:	• *Prevent excessive accumulation of oil and grease by keeping vehicles and equipment clean.* • *Use off-site repair and maintenance facilities where practical.* • *Provide an ample supply of readily accessible spill cleanup materials.* • *If maintenance must occur on-site, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from storm water run-on and runoff, and should be located at least 50' from downstream drainage facilities and water courses* • *Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in dedicated maintenance area.* • *Place a stockpile of spill cleanup materials where it will be readily accessible* • *Spill kits or other spill protection devices are required in all fueling trucks and fueling areas.* • *Use absorbent materials in small spills, and remove the absorbent materials promptly and dispose of properly. Do not hose down or bury small spills.* • *Segregate and recycle wastes such as greases, used oil, antifreeze cleaning solutions, hydraulic fluid, etc…Provide secondary containment and covers for these materials if stored on-site* • *Train employees and subcontractors in proper maintenance and spill clean-up procedures* • *Consider using portable tents or covers for maintenance areas for long term projects if maintenance can't be performed on-site* • *Promptly dispose of used oils, fluids, lubricants and spill cleanup materials* • *Do not place used oil in a dumpster or pour into a storm drain watercourse*
Maintenance and Inspection:	• *Regularly inspect vehicle and maintenance areas.* • *Incoming vehicles and equipment shall be checked for leaks. Leaking vehicles and equipment shall not be allowed on-site.* • *Inspect and verify that activity based BMPs are in place prior to the commencement of associated activities. Inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation* • *Inspect BMPs subject to non-storm water discharges daily*

	while non-storm water discharges occur • *Keep ample supplies of spill cleanup materials onsite* • *Maintain waste fluid containers in leak proof containers* • *Inspect vehicles and equipment once each day of use. Repair leaks immediately or remove the problem vehicle(s) or equipment from the project site.* • *Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.*
Product Specification Reference:	N/A

3.2.10 BMP Description: ***Saw Cutting Slurry***	
Installation Schedule:	• *Slurry and cuttings shall be vacuumed during cutting and surfacing operations.* • *Slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight.* • *Slurry and cuttings shall not drain to any natural or constructed drainage conveyance.* • *Collected slurry and cuttings shall be disposed of in a manner that does not violate groundwater or surface water quality standards.* • *Process water that is generated during hydro-demolition, surface roughening or similar operations shall not drain to any natural or constructed drainage conveyance and shall be disposed of in a manner that does not violate groundwater or surface water quality standards.* • *Cleaning waste material and demolition debris shall be handled and disposed of in a manner that does not cause contamination of water. If the area is swept with a pick-up sweeper, the material must be hauled out of the area to an appropriate disposal site.*
Maintenance and Inspection:	• *The Saw Cutting Slurry shall not be allowed to enter the sewer, storm drain, or any other natural outlet.* • *Use as little cooling water as possible during saw-cutting.* • *Vacuum saw-cut slurry, then dispose of into a holding area until the slurry dries and the remainder disposed into an approved facility in accordance with State and Federal Laws.*
Product Specification Reference:	N/A

3.2.11 BMP Description*: *Concrete Curing Water	
Installation Schedule:	• *Avoid over spray of curing compounds.* • *Minimize the drift of chemical cure as much as possible by applying the curing compound close to the concrete surface.* • *Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.* • *Use proper storage and handling techniques for concrete curing compounds.* • *Protect drain inlets prior to the application of curing compounds.*
Maintenance and Inspection:	• *Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.* • *Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.* • *Inspect cure containers and spraying equipment for leaks.* • *No discharge of concrete curing water is allowed to be discharged to State waters.*
Product Specification Reference:	N/A

3.2.12 BMP Description: ***Seeding and Planting –*** *Seeding of grasses and plantings of trees, shrubs, vines and ground covers provide long term stabilization of soil*

Installation Schedule:	*Grasses:* *• Ground preparation: fertilize and mechanically stabilize the soil.* *• Tolerant of short-term temperature extremes and waterlogged soil conditions.* *• Appropriate soil conditions: shallow soil base, good drainage, slope 2:1 or flatter.* *• Develop well and quickly from seeds.* *• Mowing, irrigating, and fertilizing are vital for promoting vigorous grass, growth.* *Trees and Shrubs:* *• Selection Criteria: vigor, species, size, shape & wildlife food source.* *• Soil conditions: select species appropriate for soil, drainage & acidity.* *• Other Factors: wind/exposure, and irrigation needs.* *Vines and Ground Covers:* *• Ground preparation: lime and fertilizer preparation.* *• Use proper seeding rates.* *• Appropriate soil conditions: drainage, acidity, slopes.* *• Generally avoid species requiring irrigation.*
Maintenance and Inspection:	*• Shrubs and trees must be adequately watered and fertilized and if needed pruned.* *• Grasses may need to be watered and mowed.*
Product Specification Reference:	N/A

3.2.13 BMP Description*: *Hazardous Waste	
Installation Schedule:	• *Store wastes in sealed containers constructed of suitable material* • *All hazardous waste shall be stored, transported and disposed as required.* • *Temporary containment facilities for storing waste containers shall:* o *Provide for a spill containment volume equal to 1.5 times the volume of all containers able to contain precipitation from a 25-year storm event, plus the greater of 10% aggregate volume of all containers.* o *Be impervious to the materials stored for a minimum contact time of 72 hours.* o *Be maintained free of accumulated rain water and spills. In the event of spills or leaks, place into drums after each rainfall.* o *Provide sufficient separation between stored containers to allow for spill cleanup and emergency response access* o *Not store incompatible materials, such as chlorine and ammonia, in the same facility.* o *Be covered during non-working days and prior to rain events.* • *Store containers of dry waste on pallets if not water tight* • *Do not over-apply herbicides and pesticides. Prepare only the amount needed and follow the recommended usage instructions.* • *Designate hazardous waste storage areas on-site away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.* • *Segregate potentially hazardous waste from non-hazardous construction debris.* • *Clearly label all hazardous waste containers with waste being stored and date of accumulation.* • *Place hazardous waste containers in secondary containment.* • *Do not allow potentially hazardous waste to accumulate on the ground.* • *Do not mix wastes* • *Use all the product before disposing of the container* • *Do not remove the original product label as it contains important safety information.* • *Train employees and sub-contractors in proper hazardous waste management, storage, and disposal*
Maintenance and Inspection:	• *Inspect and verify that activity based BMPs are in place prior to the commencement of associated activities. Inspect weekly during the rainy season and of two week intervals in the non-rainy season*

	to verify continued BMP implementation. • *Inspect BMPS subject to non-storm water discharge daily while non-storm wate discharges occur* • *Collect hazardous wastes regularly* • *Foreman or construction supervisor shall monitor onsite hazardous waste storage and disposal procedures* • *Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored* • *Perimeter controls, containment structures, covers and liners should be repaired or replaced as needed to maintain proper function* • *Hazardous spills should be cleaned up and reported in conformance with the applicable MSDS and the instructions posted at the project site.*
Product Specification Reference:	N/A

3.2.14 BMP Description: ***Irrigation Water***	
Installation Schedule:	• *Direct water from offsite sources around or through a construction site, in a way that minimizes contact with the construction site* • *Discharges from water line flushing should be reused for landscaping purposes when feasible* • *Shut off the water source to broken lines, sprinklers, or valves as soon as possible to prevent excess water flow* • *Recommend installation of rain shut-off devices and precision sprinkler heads for irrigation systems* • *Protect downstream storm water drainage systems and watercourses from water pumped or bailed from trenches excavated to repair water lines* • *Inspect irrigated areas within the construction limits for excess watering. Adjust water times and schedules to ensure that the appropriate amount of water is being used, and to minimize runoff.*
Maintenance and Inspection:	• *Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. Inspect weekly during the rainy season, and at two-week intervals in the non-rainy season.* • *Inspect BMPs subject to non-storm water discharges daily while non-storm water discharges occur* • *Repair broken lines as soon as possible* • *Inspect irrigated areas regularly for signs of erosion and/or discharge*
Product Specification Reference:	N/A

3.2.15 BMP Description*: *Paving Operations	
Installation Schedule:	• *Avoid paving during the wet season when feasible.* • *Reschedule paving activities if rain is in the forecast* • *Train employees and sub-contractors in pollution prevention and reduction* • *Store materials away from drainage courses to prevent storm water runon* • *Protect drainage courses by employing BMPs to divert runoff or to trap and filter sediment* • *Avoid applying tack or prime coats if rain is expected. Place BMPs to trap and filter oil sheen. Use multiple lines of BMPs to protect drain inlets* • *Stockpile material removed from roadways away from drain inlets, drainage ditches and water courses.* • *Do not allow sand or gravel placed over new asphalt to wash into storm drains, streets, or streams. Vacuum or sweep loose sand and gravel and properly dispose of this waste.* • *Old asphalt must be disposed of properly. Collect and remove all broken asphalt form the site.* • *Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent material.* • *Paving equipment parked on-site should be parked over plastic to prevent soil contamination* • *Clean asphalt coated equipment offsite whenever possible.*
Maintenance and Inspection:	• *Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. Inspect weekly during the rainy season and at two-week intervals in the non-rainy season.* • *Keep ample supplies of drip pans or absorbent materials onsite* • *Inspect and maintain machinery regularly to minimize leaks and drips*
Product Specification Reference:	N/A

3.2.16 BMP Description*: *Stockpile Management	
Installation Schedule:	• *Provide adequate setback from waterways. Locate stockpiles a minimum of 50ft. away from concentrated flows of storm water drainage courses and inlets* • *Provide diversions to keep runoff away from stockpiles* • *Provide silt fences at the toe of the stockpile to mitigate runoff during rain events and to protect from stormwater runon* • *Cover, grass or provide other stabilization measures* • *Provide adequate setback distance from lot lines* • *Provide silt basins where required* • *All stockpiles shall be protected with a temporary linear sediment barrier prior to the onset of precipitation* • *Stockpiles of "cold mix" shall be placed on and covered with plastic or comparable material to the onset of precipitation*
Maintenance and Inspection:	• *Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. Inspect weekly during the rainy season and at two-week intervals in the non-rainy season.* • *Repair and/or replace perimeter controls and covers as needed to keep them functioning properly*
Product Specification Reference:	N/A