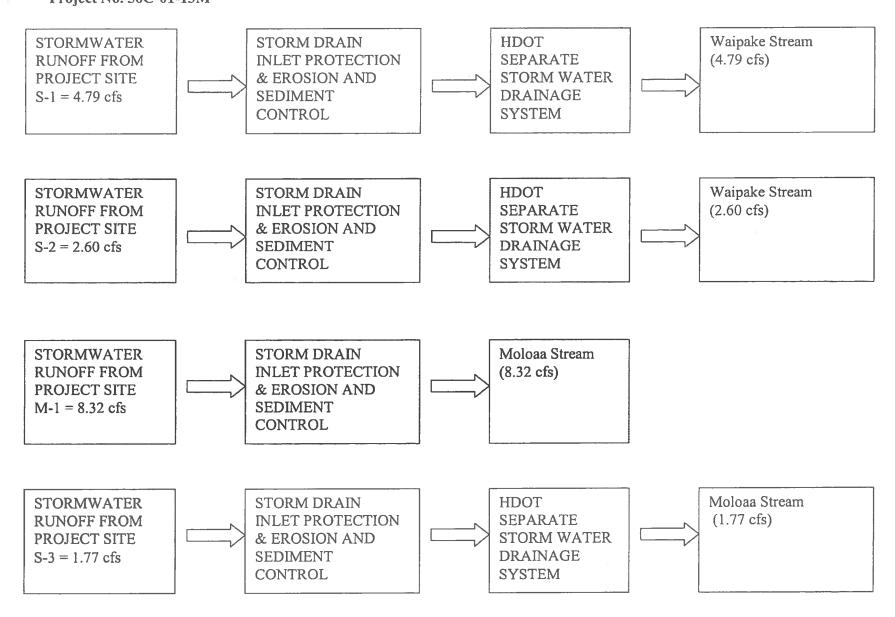
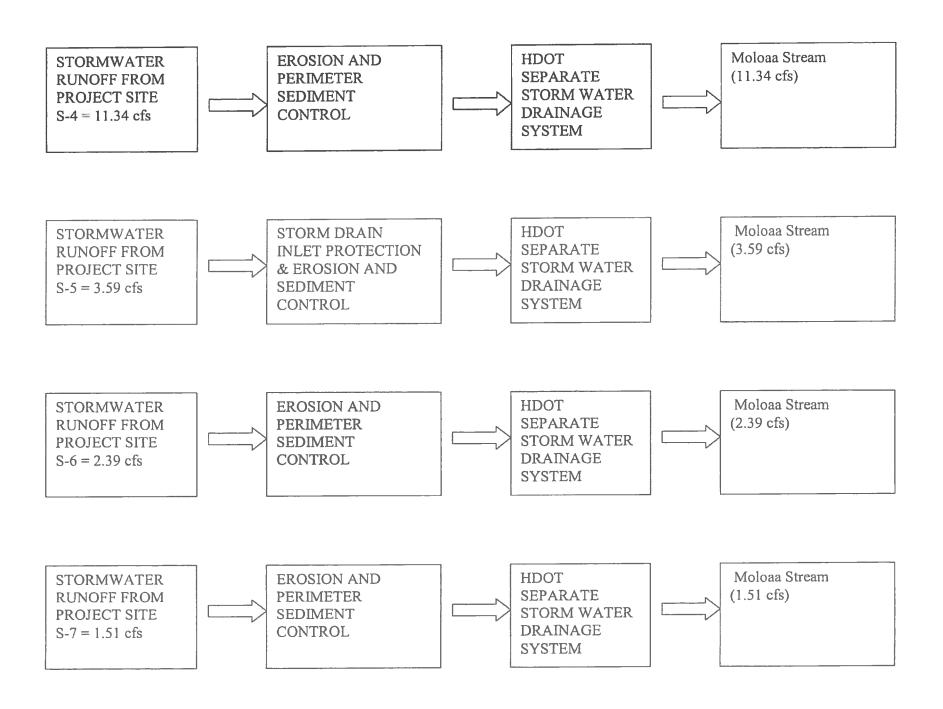
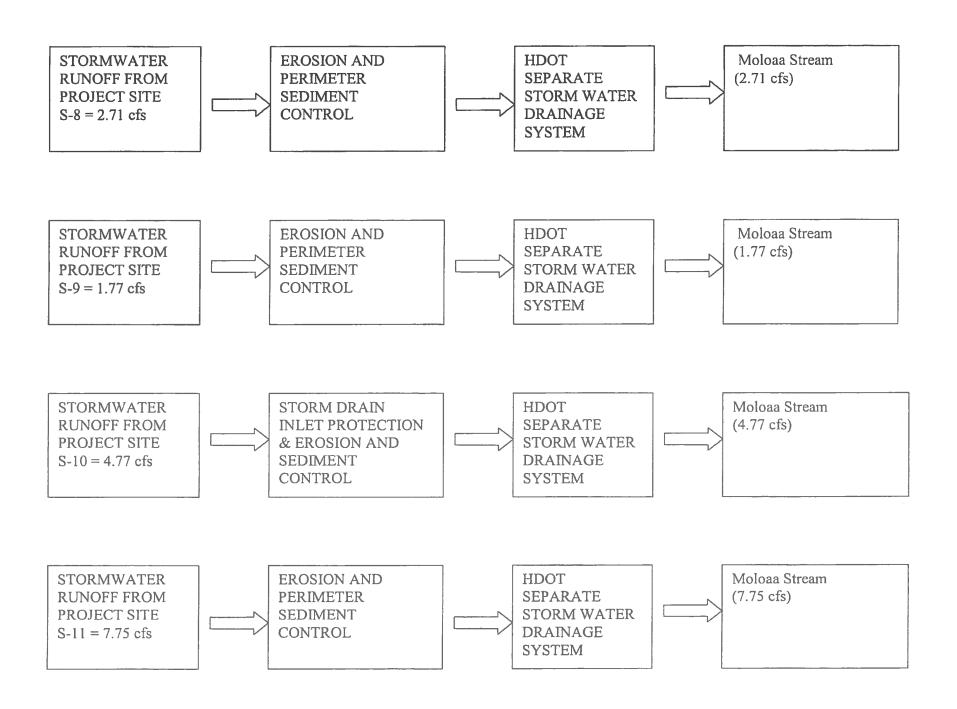
Attachment A-3 Flow Charts

FLOW CHART FOR KUHIO HIGHWAY RESURFACING, VIC. OF SOUTH KOOLOA ROAD TO KAPUNA ROAD, MILE POST 16.88 TO MILE POST 18.95 Project No. 56C-01-13M







Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
	SM-3 for additional requirements.	
Soil erosion from the disturbed areas	 Provide Soil Stabilization, Slope Protection, Storm Drain Inlet Protection SC-2, Perimeter Controls and Sediment Barriers, Sediment Basins and Detention Ponds, Check Dams SC-9, Level Spreader SC-10, Paving Operations SM-19, Construction Road Stabilization EC- 1, Controlling Storm Water Flowing Onto and Through the Project, Post- 	Soil Stabilization 1. SM-21 Topsoil Management 2. EC-5 Seeding and Planting 3. EC-6 Mulching 4. EC-7 Geotextiles and Mats
	Construction BMPs, and Non- Structural BMPs (Employee Training SM-1, Scheduling SM-14, Location	Slope Protection 1. EC-5 Seeding
	of Potential Sources of Sediment SM-15, Preservation of Existing Vegetation SM-16).	and Planting 2. EC-6 Mulching 3. EC-7 Geotextiles
	Delineate, and clearly mark off, with flags, tape, or other similar marking device all natural buffer areas defined in the SWPPP.	and Mats 4. EC-9 Slope Roughening, Terracing, and Rounding
	Preserve native topsoil where practicable.	5. SC-11 Slope Drains and Subsurface
-	In areas where vegetative stabilization will occur, restrict vehicle/equipment use in areas to avoid soil compaction or condition soil to promote vegetative growth.	Drains 6. SC-12 Top and Toe of Slope Diversion Ditches and Berms
	For Storm Drain Inlet Protection, clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes	SC-2 Storm Drain Inlet Protection
G.	clogged, and/or performance is compromised.Where there is evidence of	Perimeter Controls and Sediment Barriers 1. SC-1 Silt

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
	sediment accumulation adjacent to the inlet protection measure, remove the deposited sediment by the end of the same day in which it is found or by the end of the following day if removal by the same day is not feasible. Sediment basins shall be designed and maintained in accordance with HAR 11-55. Minimize disturbance on steep slopes (Greater than 15% in grade). If disturbance of steep slopes are unavoidable, phase disturbances and use stabilization techniques designed for steep grades. For temporary drains and swales use velocity dissipation devices within and at the outlet to minimize erosive flow velocities.	Fence 2. SC-5 Vegetated Filter Strips and Buffers 3. SC-8 Compost Filter Berm 4. SC-13 Sandbag Barrier 5. SC-14 Brush or Rock Filter Sediment Basins and Detention Ponds 1. SC-15 Sediment Trap 2. SC-16 Sediment Basin SC-9 Check Dams SC-9 Check Dams SC-10 Level Spreader SM-19 Paving Operations EC-1 Construction Road Stabilization Controlling Storm Water Flowing onto and Through the Project 1. EC-8 Run-On Diversion 2. SC-6 Earth Dike 3. SC-7

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
		Temporary Drains and Swales
V		Post Construction BMPs
		 EC-4 Flared Culvert End Sections SC-3 Rip-Rap and Gabion Inflow Protection SC-4 Outlet Protection and Velocity Dissipation Devices SM-21 Topsoil Management
		Non-Structural BMPs 1. SM-1 Employee Training 2. SM-14 Scheduling 3. SM-15 Location of Potential Sources of Sediment 4. SM-16 Preservation of Existing Vegetation

Pollutant	Appropriate Site-Specific BMP to be	ВМР
Source	Implemented	Requirements
Sediment from soil stockpiles	 Locate stockpiles a minimum of 50 feet or as far as practicable from concentrated runoff or outside of any natural buffers identified on the SWPPP. Place bagged materials on pallets and under cover. Provide physical diversion to 	See Protection of Stockpiles Section SM-4. Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls
	protect stockpiles from concentrated runoff.	where applicable.
	Cover stockpiles with plastic or comparable material when practicable.	
	Place silt fence, fiber filtration tubes, or straw wattles around stockpiles.	
	Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any storm water conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or state water.	£
	 Unless infeasible, contain and securely protect stockpiles from the wind. 	
	 Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable. 	
	See Protection of Stockpiles Section SM-4 for additional requirements.	
Emulsified asphalt or prime/tack coat	 Provide training for employees and contractors on proper material delivery and storage practices and procedures. Restrict paving operations during wet weather to prevent paving materials from being discharged. 	See Material Delivery and Storage Section SM-2 and Material Use Section SM- 3, Paving

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
	 Use asphalt emulsions such as prime coat when possible. Protect drain inlet structures and manholes during application of tack coat, seal coat, slurry seal, and fog seal. Keep ample supplies of drip pans and absorbent materials on site. Inspect inlet protection devices. See Material Delivery and Storage Section SM-2 and Paving Operations Section SM-19 for additional requirements. Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable. 	Operations Section SM-19, Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls where applicable.

Materials associated with painting, such as paint and paint wash solvent Hazardous chemicals shall a well-labeled and stored in origin containers. Keep ample supply of clean materials on site. Dispose container only after the product has been used. Remove as much paint from brushes on painted surface. Rinse from water-based pair shall be discharged into the sar sewer system where possible. not, direct all washwater into a proof container or leak-proof pic	Delivery and Storage Section SM-2, Material Use Section SM- 3, Hazardous Waste Management Section SM-9, witary Waste Management, Spill leak- Prevention and
 associated with painting, such as paint and paint wash solvent Meep ample supply of clean materials on site. Dispose container only after the product has been used. Remove as much paint from brushes on painted surface. Rinse from water-based pair shall be discharged into the sair sewer system where possible. not, direct all washwater into a proof container or leak-proof pix 	Delivery and Storage Section SM-2, Material Use Section SM- 3, Hazardous Waste Management Section SM-9, waste If Management, Spill leak- Prevention and
container or pit must be designed that no overflows can occur due inadequate sizing or precipitation. Locate on-site wash area a minimum of 50 feet away or as practicable from storm drain inless open drainage facilities, or water bodies. Do not dump liquid wastess the storm drainage system. Filter and re-use solvents and thinners. Dispose of oil-based paints residue as a hazardous waste. Ensure collection, removal, disposal of hazardous waste complies with regulations. Immediately clean up spills a leaks. Properly store paints, solver and epoxy compounds. Properly store and dispose materials generated from painting and structure repair and constructivities. Mix paints in a covered and	Control Section SM-10, and Structure Construction and Painting Section SM-20, Protect Storm Drain Inlets SC-2, and Perimeter Sediment Controls where applicable. and

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
	minimize adverse impacts from spills. Do not apply traffic paint or	
	 thermoplastic if rain is forecasted. See Material Delivery and Storage Section SM-2, Material Use SM-3, Waste Management, Hazardous Waste Management Section SM-9, Waste Management, Spill Prevention and Control Section SM-10, and Structure Construction and Painting Section SM-20 for additional requirements. 	
	Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.	

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
Industrial chemicals, fertilizers, and/or pesticides	 Hazardous chemicals shall be well-labeled and stored in original containers. Keep ample supply of cleanup materials on site. Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge. Dispose container only after all of the product has been used. Retain a complete set of material safety data sheets on site. Store industrial chemicals in water-tight containers and provide either cover or secondary containment. Provide cover when storing fertilizers or pesticides to prevent these chemicals from coming into contact with rainwater. Restrict amount of pesticide prepared to quantity necessary for the current application. Do not apply fertilizers or pesticides during or just before a rain event. Do not apply to stormwater conveyance channels with flowing water. Comply with fertilizer and pesticide manufacturer's recommended usage instructions. Follow federal, state, and local laws regarding fertilizer application. Do not dispose of toxic liquid wastes (solvents, used oils, and paints) or chemicals (additives, 	See Material Delivery and Storage Section SM-2, Material Use Section SM- 3, and Hazardous Waste Management Section SM-9, and Spill Prevention and Control SM- 10

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
	 acids, and curing compounds) in dumpsters allocated for construction debris. Ensure collection, removal, and disposal of hazardous waste complies with regulations. Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler. See Material Delivery and Storage Section SM2, Material Use SM-3, and Waste Management, Hazardous Waste Management Section SM-9 for additional requirements. 	
Hazardous waste (Batteries, Solvents, Treated Lumber, etc.)	 Do not dispose of toxic materials in dumpsters allocated for construction debris. Ensure collection, removal, and disposal of hazardous waste complies with regulations. Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler. 	See Hazardous Waste Management Section SM-9 and Vehicle and Equipment Maintenance SM- 12
	 Segregate and recycle wastes from vehicle/equipment maintenance activities such as used oil or oil filters, greases, cleaning solutions, antifreeze, automotive batteries, and hydraulic and transmission fluids. Store waste in sealed containers, which are constructed of suitable materials to prevent leakage and corrosion, and which are labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, and local requirements. 	

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
	 All containers stored outside shall be kept away from surface waters and within appropriately-sized secondary containment (e.g., spill berms, decks, spill containment pallets). Provide cover if possible. Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or a 	
	continuation of an ongoing discharge. Ensure collection, removal, and disposal of hazardous waste complies with manufacturer's recommendations and is in compliance with federal, state, and local requirements. See Hazardous Waste Management Section SM-9 and Vehicle and Equipment Management, Vehicle and Equipment Equipment Maintenance SM-12 for additional requirements.	

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
Metals and Building Materials	 Inspect construction waste and recycling areas regularly. Schedule solid waste collection regularly. If building materials or metals are stored on site (such as rebar or galvanized poles) store under cover under tarps or in containers. Minimize the amount of material stored on site. Do not stockpile uncovered metals or other building materials in close proximity to discharge points. 	See Solid Waste Management Section SM-6
	 See Solid Waste Management Section SM-6 for additional requirements. 	
Contaminated Soil	 See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Waste Management Section SM-9 for additional requirements. 	See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Waste Management Section SM-9
	 At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheets. 	
Dust Control Water	 Do not over spray water for dust control purposes which will result in runoff from the area. 	See Dust Control Section SM-18
	 Apply water as conditions require. 	
	 Washing down of debris or dirt into drainage, sewage systems, or State waters is not allowed. 	
п	 See Dust Control Section SM-18 for additional requirements. 	
	STP-056-1(057)	

Pollutant	Appropriate Site-Specific BMP to be	ВМР
Source	Implemented	Requirements
Concrete Truck Wash Water	 Disposal of concrete truck wash water via percolation is prohibited. Wash concrete-coated vehicles or equipment off-site or in the designated wash area. 	See Waste Management, Concrete Waste Management Section SM-5
	Locate on-site wash area a minimum of 50 feet away or as far as practicable 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.	
	Design the area so that no overflow can occur due to inadequate wash area sizing or precipitation.	
	The temporary pit shall be lined with plastic to prevent seepage of wash water into the ground.	
	Allow wash water to evaporate or collect wash water and all concrete debris in a concrete washout system bin.	
	Do not dump liquid wastes into storm drainage system.	
	Dispose of liquid and solid concrete wastes in compliance with federal, state, and local standards.	
	See Waste Management, Concrete Waste Management Section SM-5 for additional requirements.	

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
Sediment Track- Out	 Include Stabilized Construction Entrance at all points that exit onto paved roads. A sediment trapping device is required if a wash rack is used in conjunction with the stabilized construction entrance/exit. 	See Stabilized Construction Entrance Section EC-2
	The pavement shall not be cleaned by washing down the street.	
	If sweeping is ineffective or it is necessary to wash the streets, wash water must be contained either by construction of a sump, diverting the water to an acceptable disposal area, or vacuuming the wash water.	
	Use BMPs for adjacent drainage structures.	
	Remove sediment tracked onto the street by the end of the day in which the track-out occurs.	-
	Restrict vehicle use to properly designated exit points.	
	Include additional BMPs which remove sediment prior to exit when minimum dimensions can not be met.	
	See Stabilized Construction Entrance Section EC-2 for additional requirements.	
Irrigation Water	 Consider irrigation requirements. Where possible, avoid species 	See Seeding and Planting Section EC-5 and
	which require irrigation. Design timing and application STP-056-1(057)	California

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
	methods of irrigation water to eliminate the runoff of excess irrigation water into the storm water drainage system.	Stormwater BMP Handbook SD-12 Efficient Irrigation
	See Seeding and Planting Section EC-5 and California Stormwater BMP Handbook SD-12 Efficient Irrigation at http://stormwaterhawaii.com/contract ors/ contractors_BMPmanual.aspx under Irrigation Water for additional requirements.	

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
Hydrotesting Effluent	If work includes removing, relocation or installing waterlines, and Contractor elects to flush waterline or discharge hydrotesting effluent into State waters or drainage systems, the Contractor shall prepare and obtain HDOT acceptance of a NOI/NPDES Permit Form F application for HDOT submittal to DOH CWB at least 30 calendar days prior to the start of Hydrotesting Activities if necessary. Site-Specific BMPs will be included in the NOI/NPDES Permit Form F submittal.	Site-Specific BMPs will be included in the NOI/NPDES Permit Form F submittal.
Dewatering Effluent	 If excavation or backfilling operations require dewatering, and Contractor elects to discharge dewatering effluent into State waters or existing drainage systems, Contractor shall prepare and obtain HDOT acceptance of a NOI/NPDES Permit Form G application for HDOT submittal to DOH CWB at least 30 calendar days prior to the start of Dewatering Activities if necessary. See Site Planning and General Practices, Dewatering Operations Section SM-17 for additional requirements. 	See Dewatering Operations SM- 17. Site-Specific BMPs will be included in the NOI/NPDES Permit Form G submittal.
Saw-cutting Slurry	 Saw cut slurry shall be removed from the site by vacuuming. Provide storm drain protection during saw cutting. See Paving 	See Paving Operations Section SM-19, Storm Drain Inlet

Pollutant	Appropriate Site-Specific BMP to be	BMP
Source	Implemented	Requirements
	Operations Section SM-19 for additional requirements. • Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.	Protection SC-2, Perimeter sediment controls where applicable
Concrete Curing Water	 Avoid overspraying of curing compounds. Apply an amount of compound that covers the surface, but does not allow any runoff of the compound. See California Stormwater BMP Handbook NS-12 Concrete Curing at http://stormwaterhawaii.com/contract ors/ contractors_BMPmanual.aspx under Concrete Curing for additional requirements. 	See California Stormwater BMP Handbook NS-12 Concrete Curing
Plaster Waste Water	 Direct all washwater into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation. Locate on-site wash area a minimum of 50 feet away or as far as practicable from storm drain inlets, open drainage facilities, or water bodies. 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 	See Material Delivery and Storage Section SM-2, Material Use Section SM- 3, and Hazardous Waste Management Section SM-9

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
	disposed of. Plaster waste water shall not be allowed to flow into drainage structures or State waters.	_
	See Material Delivery and Storage Section SM-2, Material Use SM-3, and Hazardous Waste Management Section SM-9 for additional requirements.	

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
Water-Jet Wash Water	 For Water-Jet Wash Water used to clean vehicles, use off site wash racks or commercial washing facilities when practical. See Vehicle and Equipment Cleaning Section SM-11 for additional information. 	See Vehicle and Equipment Cleaning Section SM-11
	For Water-Jet Wash Water used to clean impervious surfaces, the runoff shall not be allowed to flow into drainage structures or State Waters.	
Sanitary/Septic Waste	 Locate Sanitary facilities in a convenient place away from drainage facilities. Position sanitary facilities so they 	See Sanitary/Septic Waste Section SM-7.
	are secure and will not be tipped over or knocked down.	
	Wastewater shall not be discharged to the ground or buried.	
	A licensed service provider shall maintain sanitary/septic facilities in good working order.	
2	Schedule regular waste collection by a licensed transporter.	
	See Sanitary/Septic Waste Section SM-7 for additional requirements.	

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END OF SECTION 209