

PROCEDURES FOR THE CONTROL OF RUNOFF INTO STORM DRAINS AND WATERCOURSES



Implementation of the procedures contained herein is a condition of all Public Works permits and all Building permits.

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A. INTRODUCTION

Storm water runoff and other water discharges from construction sites contribute to our ocean and creeks being polluted. Preventing these pollutants from entering the storm water system is vital to clean creeks and open beaches. The City of Santa Barbara Municipal Code Title 16 prohibits the discharge of any pollutants into the storm water system. The following procedures are intended to implement Title 16 on all construction projects.

B. STANDARD SPECIFICATIONS

The work covered by this specification section, Procedures for the Control of Runoff Into Storm Drains and Watercourses, shall be performed in accordance with the Standard Specifications for Public Works Construction (current edition) of the Southern California Chapter American Public Works Association; with the Caltrans Best Management Practices (BMP's) Manual; and with the Caltrans Standard Specifications (current edition), where referenced herein.

In case of conflict between the other references cited above and this specification section, Procedures for the Control of Runoff Into Storm Drains and Watercourses, this specification section shall control.

Copies of the Caltrans Construction Site Best Management Practices (BMP) Field Manual and Troubleshooting Guide may be obtained by logging onto the Caltrans web site at <http://www.dot.ca.gov>.

Prior to construction, the contractor and lead foreman will be required to meet with the City's Water Resources Specialist, to discuss implementation of this program for the project. Please allow two hours for this meeting.

C. STREET SWEEPING AND VACUUMING

Definition and Purpose

Practices to remove tracked sediment to prevent the sediment from entering a storm drain or watercourse.

Appropriate Applications

These practices are implemented anywhere sediment is tracked from the project site onto public or private paved roads, typically at points of egress.

Standards and Specifications

- a. Do not use kick brooms or sweeper attachments.
- b. Visible sediment tracking shall be swept and vacuumed on a daily basis.
- c. Do not sweep up any unknown substance or any object that may be potentially hazardous
- d. Adjust brooms frequently; maximize efficiency of sweeping operations.
- e. After storm drain protection measures are implemented, and sweeping is finished, the street may be washed down.

D. SANDBAG BARRIERS

Definition and Purpose

A sandbag barrier is a temporary linear sediment barrier consisting of stacked sandbags, designed to intercept and slow the flow of sediment-laden sheet flow runoff. Sandbag barriers allow sediment to settle from runoff before water leaves the construction site. Straw wattles or fiber rolls can also be used for this purpose. Sandbags can also be used where flows are moderately concentrated, such as ditches, swales, and storm drain inlets.

Appropriate Applications

Around stockpiles.

To divert or direct flow or create a temporary sediment basin.

Along the perimeter of vehicle and equipment fueling and maintenance areas or chemical storage areas.

To capture and detain non-storm water flows until proper cleaning operations occur.

To temporarily close or continue broken, damaged or incomplete curbs.

To prevent sediment from washing on to roads

Standards and Specifications

Sandbag Material: Sandbag shall be woven polypropylene, polyethylene or polyamide fabric, minimum unit weight 135 g/m² (four ounces per square yard), mullen burst strength exceeding 2,070 kPa (300 psi) in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355. Use of burlap is acceptable for short term use. (less than 2 weeks)

Sandbag Size: Each sand-filled bag shall have a length of 450 mm (18 in), width of 300 mm (12 in), thickness of 75 mm (3 in), and mass of approximately 15 kg (33 lb.). Bag dimensions are nominal, and may vary based on locally available materials. Alternative bag sizes shall be submitted to the Engineer for approval prior to deployment.

Fill Material: All sandbag fill material shall be non-cohesive, Class I or Class 2 permeable material free from clay and deleterious material, conforming to the provisions in Section 68-1.025 "Permeable Material," of the Caltrans Standard Specifications. The requirements for the Durability Index and Sand Equivalent do not apply. Fill material is subject to approval by the Engineer.

Maintenance and Inspection

Contractor shall inspect sandbag barriers before and after each use.

Inspect sandbag barriers for sediment accumulations and remove sediments when accumulation reaches one-third the barrier height. Removed sediment shall be incorporated in the project at locations designated by the Engineer or disposed of in conformance with the Standard Specifications.

Remove sandbags when no longer needed. Remove and dispose of sediment accumulation, clean, re-grade, and stabilize the area

E. STORM DRAIN INLET PROTECTION

Definition and Purpose

Devices used at storm drain inlets that are subject to runoff from construction activities to detain and/or to filter sediment-laden runoff to allow sediment to settle and/or to filter sediment prior to discharge of storm water into storm water drainage systems or watercourses.

Appropriate Applications

Where ponding will not encroach into highway traffic.

Where sediment laden surface runoff has the potential to enter an inlet.

Whenever street is washed down

For dewatering purposes.

Standards and Specifications

Identify existing and/or planned storm drain inlets that have the potential to receive sediment-laden surface runoff. If storm drain inlet protection is needed, use Type 3 D1 protection or other approved measures.

DI Protection Type 3 – Sandbag Barrier – The sandbag barrier (Type 3) is illustrated on Page A-7. Flow from a severe storm shall not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct sandbags in accordance with “Sandbag Barrier”.

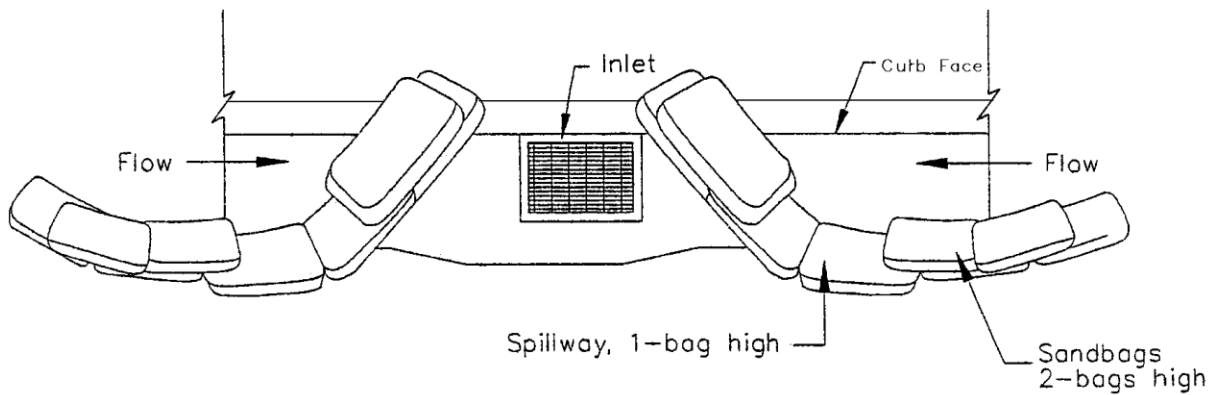
Inspect bags for holes, gashes, and snags.

Check sandbags for proper arrangement or displacement (per attached detail) Remove the sediment behind the barrier when it reaches one-third the height of the barrier. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.

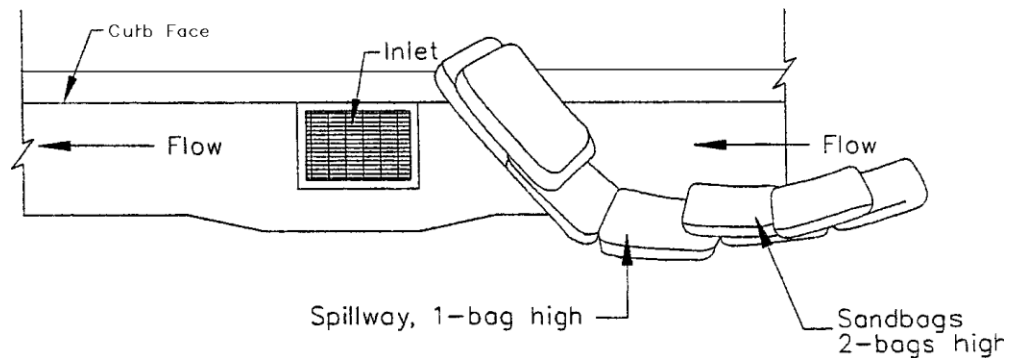
Remove all inlet protection devices when the inlet protection is no longer needed.

Clean and/or re-grade area around the inlet as appropriate, and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final inspection.

Storm Drain Inlet Protection; (continued)



TYPICAL PROTECTION FOR INLET ON SUMP



TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:

1. Intended for short-term use.
2. Use to filter non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed.
5. Not applicable in areas with high silts and clays without filter fabric.
6. Silt or sediment must be removed and disposed of in accordance with the Standard Specifications after operations are completed. Washing into storm drains is prohibited.

F. STABILIZED CONSTRUCTION ENTRANCE/EXIT

Definition and Purpose

A stabilized construction access is a defined point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Appropriate Applications

Use at construction sites where dirt or mud has the potential to be tracked onto public roads.

Use at construction sites where dust is a problem during dry weather conditions.

Standards and Specifications

Limit the points of entrance/exit to the construction site.

Limit speed of vehicles to control dust.

Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.

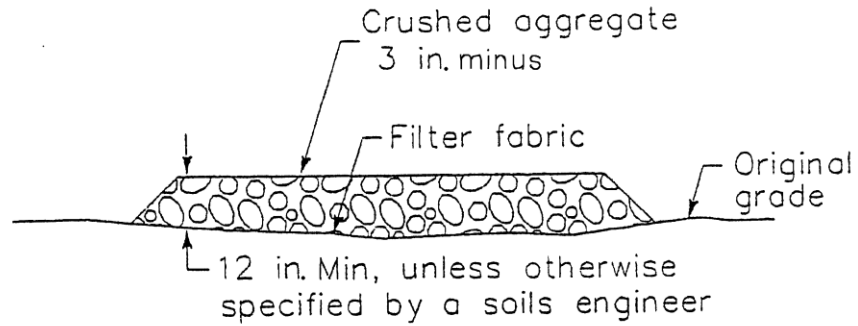
Route runoff from stabilized entrances/exits through an approved sediment-trapping device before discharge.

Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. The use of asphalt concrete (AC) grindings for stabilized construction access/roadway is not allowed. Use Type I.

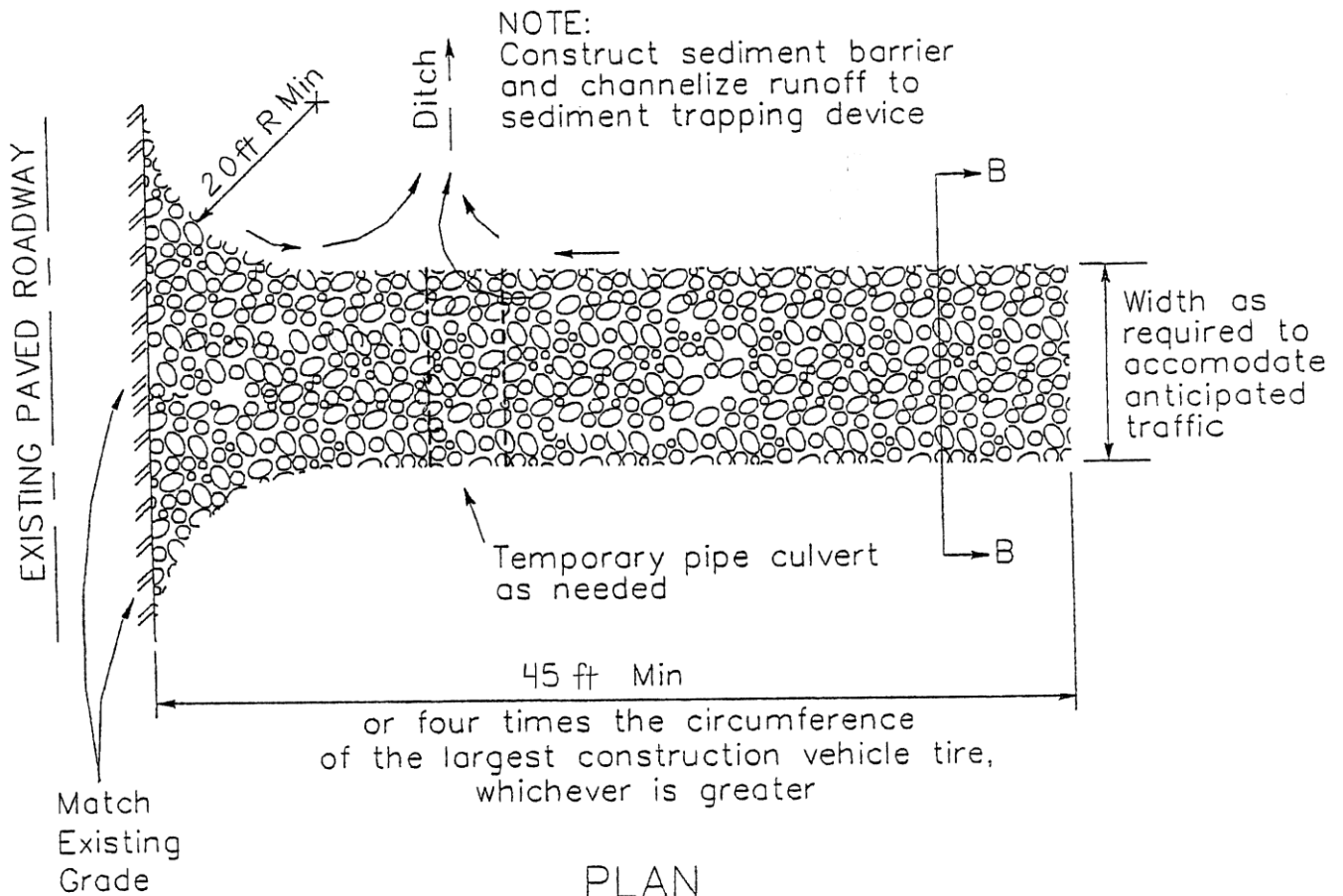
If aggregate is selected, place crushed aggregate over geo-textile fabric to at least 300 mm (12 in) depth, or place aggregate to a depth recommended by a geotechnical soils engineer. A crushed aggregate of 75 mm (3 inch minus) shall be used, with the gradation percentage approved by the engineer.

All employees, subcontractors, and suppliers shall be required to utilize the stabilized construction access.

Stabilized Construction Entrance/Exit (Type 1)



SECTION B-B
NTS



G. WATER CONSERVATION PRACTICES

Definition and Purpose

Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and/or the transport of pollutants offsite.

Appropriate Applications

Water conservation practices are implemented wherever water is used.

Applies to all construction projects.

Standards and Specifications

Keep water equipment in good working condition.

Repair water leaks promptly.

- c. Do not use water or toxic agents to clean construction areas. Paved areas shall be swept and vacuumed.
- d. Direct non-contaminated construction water runoff to areas where it can soak into the ground.

Apply water for dust control in accordance with the Caltrans Standard Specifications.

H. DEWATERING OPERATIONS

Definition and Purpose

Dewatering operations are practices that manage the discharge of pollutants from groundwater and accumulated precipitation dewatering operations. This section does not apply to work within watercourses, where other, more specific, rules apply.

Appropriate Applications

Removal of uncontaminated groundwater.

Removal of accumulated rainwater from work areas.

Standards and Specifications

Contractor shall provide 48 hours notification to the Engineer of planned discharges.

Discharges must comply with regional and watershed-specific discharge requirements.

Ensure that dewatering discharges do not cause erosion at the discharge point.

A filtration device may be substituted for a desilting basin or sediment trap if the Contractor can demonstrate, to the Engineer's satisfaction, that the filtration device provides equivalent or greater removal of suspended solids than the basin.

Filter bags may be used for small-scale dewatering operations.

I. PAVING AND GRINDING OPERATIONS

Definition and Purpose

Procedures that minimize pollution of storm water runoff during paving operations, including new paving and preparation of existing paved surfaces for overlays.

Appropriate Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute storm water runoff or discharge to the storm drain system or watercourses.

Standards and Specifications

Substances used to coat asphalt transport trucks and asphalt spreading equipment shall not contain soap and shall be non-foaming and non-toxic.

Place drip pans or absorbent materials under paving equipment while not in use, to catch and/or contain drips and leaks. See also "Liquid Waste Management".

When paving involves asphaltic concrete (AC), the following steps shall be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials.

Do not wash sand or gravel from new asphalt into storm drains, streets, and creeks. Sweeping or other means of removal from the site shall be utilized.

AC grindings, pieces, or chunks used in embankments or shoulder backing must not be allowed to enter any storm drains or watercourses.

Collect and remove all broken asphalt and recycle when practical; otherwise, dispose in accordance with the Caltrans Standard Specification 7-1.13.

Any AC chunks and pieces used in embankments must be placed above the water table and covered by at least 0.3m (1 ft) of material.

Use only non-toxic substances to coat asphalt transport trucks and asphalt spreading equipment.

Drainage inlet structures and manholes shall be covered with filter fabric or tape during application of seal coat, tack coat, slurry seal, and/or fog seal.

Seal coat, tack coat, slurry seal, or fog seal shall not be applied if rainfall is predicted to occur during the application or curing period.

Clean asphalt coated equipment off-site. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in "Solid Waste Management". Any cleaning on site shall follow the section of this specification "Vehicle and Equipment Cleaning".

Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect and return to aggregate base stockpile, or dispose of properly.

Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in "Concrete Waste Management", or pump the water to the sanitary sewer if allowed by the local wastewater authority.

Do not allow saw-cut Portland Concrete Cement (PCC or AC) slurry to enter storm drains or watercourses. Residue from grinding operations shall be picked up by means of a vacuum attachment to the grinding machine, shall not be allowed to flow across the pavement, and shall not be left on the surface of the pavement. See also the sections of this specification "Concrete Waste Management", and "Liquid Waste Management".

When approved by the Engineer, stockpile material removed from roadways shall be kept away from drain inlets, drainage ditches, and watercourses.

Do not transfer or load bituminous material near drain inlets, the storm water drainage system or watercourses.

J. ILLICIT CONNECTION/ILLEGAL DISCHARGES

Definition and Purpose

Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents to the Engineer.

Appropriate Applications

Illicit connection/illegal discharge detection and reporting is applicable anytime an illicit discharge is discovered or illegally dumped material is found on the construction site.

Standards and Specifications

Contractor shall inspect the site before beginning the job for evidence of illicit connections or illegal dumping or discharges, and shall promptly notify the Project Engineer of such conditions.

Contractor shall inspect the site regularly during project execution for evidence of illicit connections or illegal dumping or discharges.

Contractor shall observe site perimeter for evidence or potential of illicitly discharged or illegally dumped material that may enter the job site.

Contractor shall inspect the site regularly during the project for pungent odors coming from the drainage systems.

Contractor shall inspect the site regularly for discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes.

Contractor shall inspect the site regularly for abnormal water flow during the dry weather season.

Contractor shall inspect the site regularly for unusual flows in subdrain systems used for dewatering.

Contractor shall inspect the site regularly for excessive sediment deposits, particularly adjacent to or near active off-site construction projects.

K. POTABLE WATER/IRRIGATION

Definition and Purpose

Potable Water/Irrigation consists of practices and procedures to reduce the possibility for the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing.

Appropriate Applications

Implement this Policy whenever the above activities or discharges occur at or enter a construction site.

Standards and Specifications

Where possible, direct water from off-site sources around or through a construction site in a way that minimizes contact with the construction site.

Shut off the water source to broken lines, sprinklers, or valves as soon as possible to prevent excess water flow.

Protect downstream storm water drainage systems and watercourses from water pumped or bailed from trenches excavated to repair water lines using storm drain inlet protection measures.

Inspect irrigated areas within the construction limits for excess watering. Adjust watering times and schedules to ensure that the appropriate amount of water is being used and to minimize runoff.

Repair broken water lines as soon as possible or as directed by the Engineer.

L. VEHICLE EQUIPMENT AND CLEANING

Definition and Purpose

Procedures and practices used to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning operations to storm drain system or to watercourses.

Appropriate Applications

These procedures are applied on all construction sites where vehicle and equipment cleaning is performed.

Standards and Specifications

On-site vehicle and equipment washing is prohibited.

Cleaning of vehicles and equipment with soap, solvents or steam shall not occur on the project site unless the Engineer has been notified in advance and the resulting wastes are fully contained and disposed of outside the street right-of-way in conformance with the provisions in Section 7-1.13 of the Caltrans Standard Specifications. Resulting wastes shall not be discharged or buried within the street right-of-way.

Vehicle and equipment wash water shall be contained for percolation or evaporative drying away from storm drain inlets or watercourses and shall not be discharged within the street right-of-way.

All vehicles/equipment that regularly enter and leave the construction site must be cleaned off-site.

When vehicle/equipment washing/cleaning must occur on-site, and the operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area shall have the following characteristics:

Located away from storm drain inlets, drainage facilities, or watercourses.

Paved with concrete or asphalt and bermed to contain wash waters and to prevent run-on and runoff.

Configured with a sump to allow collection and disposal of wash water.

Wash waters shall not be discharged to storm drains or watercourses.

M. VEHICLE AND EQUIPMENT FUELING

Definition and Purpose

Procedures and practices to minimize or eliminate the discharge of fuel spills and leaks into the storm drain system or to watercourses.

Appropriate Applications

These procedures are applied on all construction sites where vehicle and equipment fueling takes place.

Standards and Specifications

On-site vehicle and equipment fueling shall only be used where it's impractical to send vehicles and equipment off-site for fueling.

When fueling must occur on-site, the contractor shall select and designate an area to be used, subject to approval of the Engineer.

Equipment being fueled shall never be left unattended.

Absorbent spill clean-up materials and spill kits shall be available in fueling areas and on fueling trucks and shall be disposed of properly after use. The contractor shall notify the personnel performing fueling of the location of cleanup materials and spill kits.

Drip pans or absorbent pads shall be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.

Dedicated fueling areas shall be protected from storm water run-on and runoff, and shall be located at least 15 m (50') from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas.

Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut-off to control drips. Fueling operations shall not be left unattended.

Protect fueling areas with berms and/or dikes to prevent run-on, runoff, and to contain spills.

Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Pollution Control District (APCD).

Fuel tanks shall not be "topped off."

Vehicles and equipment shall be inspected by the contractor on each day of use for leaks. Leaks shall be repaired immediately or problem vehicles or equipment shall be removed from the project site.

Absorbent materials shall be used on small spills instead of hosing down or burying techniques.

Mobile fueling of construction equipment throughout the site shall be minimized. Whenever practical, equipment shall be transported to the designated fueling area.

N. VEHICLE AND EQUIPMENT MAINTENANCE

Definition and Purpose

Procedures and practices to minimize or eliminate the discharge of pollutants to the storm drain system or to watercourses from vehicle and equipment maintenance procedures.

Appropriate Applications

These procedures are applied on all construction projects where an on-site yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Standards and Specifications

Drip pans or absorbent pads shall be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.

All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices. Contractor instruct all personnel involved in fueling operations in proper use of spill kits and related devices.

Dedicated maintenance areas shall be protected from storm water run-on and runoff, and shall be located at least 15 m (50') from downstream drainage facilities and watercourses.

Absorbent spill clean-up materials shall be available in maintenance areas and shall be disposed of properly after use. Substances used to coat asphalt transport trucks and asphalt spreading equipment shall be non-toxic. Drainage inlet structures and manholes shall be covered with filter fabric when seal coat, tack coat, slurry seal, or fog seal is applied to adjacent surfaces.

Use off-site maintenance facilities.

Properly dispose of used oils, fluids, lubricants and spill cleanup materials.

Do not dump fuels and lubricants onto the ground.

Do not place used oil in a dumpster or pour into a storm drain or watercourse.

Properly dispose of or recycle used batteries.

Do not bury used tires.

Repair leaks of fluids and oil immediately.

Provide spill containment dikes or secondary containment around stored oil and chemical drums.

Vehicles and equipment shall be inspected on each day of use. Leaks shall be repaired immediately or the problem vehicle(s) or equipment shall be removed from the project site.

Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

O. STOCKPILE MAINTENANCE

Definition and Purpose

Procedures and practices to reduce or eliminate pollution of storm water from stockpiles of soil, and paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub-base or pre-mixed aggregate and asphalt binder (also called "cold mix" asphalt).

Appropriate Applications

Implemented in all projects that stockpile soil and paving materials.

Standards and Specifications

Protection of stockpiles is a year-round requirement.

Locate stockpiles away from concentrated flows of storm water, drainage courses, and inlets.

Protect all stockpiles from silt run-off by using a temporary perimeter sediment barrier such as silt fences, sandbag barriers, or straw wattles (fiber rolls).

During the rainy season, soil stockpiles shall be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.

During the non-rainy season, soil stockpiles shall be either covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub-base shall be either covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of "cold mix" shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.

P. SPILL PREVENTION AND CONTROL

Definition and Purpose

These are procedures and practices implemented to prevent and control spills in a manner that minimizes or prevents the discharge of spilled material to the drainage system or watercourses.

Appropriate Application

This Policy applies to all construction projects. Spill control procedures are implemented anytime chemicals and/or hazardous substances are stored. Substances may include, but are not limited to:

Fuels

Lubricants

Other petroleum distillates

Standards and Specifications

To the extent that it doesn't compromise clean up activities, spills shall be covered and protected from storm water run-on during rainfall.

Spills shall not be buried or washed with water.

Water used for cleaning and decontamination shall not be allowed to enter storm drains or watercourses and shall be collected and disposed of in accordance with "Liquid Waste Management".

Water overflow or minor water spillage shall be contained and shall not be allowed to discharge into drainage facilities or watercourses.

Clean up and Storage Procedures

Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

Use absorbent materials on small spills. Do not hose down or bury.

Semi-significant spills still can be controlled by the first responder along with the aid of the other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Clean up spills immediately.

If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Q. SOLID WASTE MANAGEMENT

Definition and Purpose

These are procedures and practices to minimize or eliminate the discharge of pollutants to the drainage system or to watercourses as a result of the creation, stockpiling, and removal of construction site wastes.

Appropriate Applications

a. Solid wastes include but are not limited to:

Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam and other materials used to transport and package construction materials.

i. Highway planting wastes, including vegetative material, plant containers, and packaging materials.

ii. Litter, including food containers, beverage cans, coffee cups, paper bags, plastic wrappers, and smoking materials, including litter generated by the public.

Standards and Specifications

Littering on the project site shall be prohibited.

To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines shall be performed weekly.

Trash receptacles shall be provided in the Contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.

Litter from work areas within the construction limits of the project site shall be collected and placed in water tight dumpsters at least weekly regardless of whether the litter was generated by the Contractor, the public, or others. Collected litter and debris shall not be placed in or next to drain inlets, storm water drainage systems or watercourses.

Storm water run-on shall be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.

Solid waste storage areas shall be located at least 15 m (50') from drainage facilities and watercourses and shall not be located in areas prone to flooding or ponding.

Dumpster washout on the project site is not allowed.

Toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) shall not be disposed of in dumpsters.

R. CONCRETE WASTE MANAGEMENT

Definition and Purpose

These are procedures and practices that are implemented to minimize or eliminate the discharge of concrete waste materials to the storm drain system or to watercourses.

Appropriate Applications

Concrete waste management practices are implemented on construction projects where concrete is used as a construction material or where concrete dust and debris result from demolition activities.

Where slurries containing Portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from sawcutting, coring, grinding, grooving, and hydro-concrete demolition.

Where concrete trucks and other concrete-coated equipment are washed on site, when approved by the Engineer. See also Vehicle and Equipment Cleaning.

Where mortar-mixing stations exist.

Standards and Specifications

PCC and AC waste shall not be allowed to enter storm drains or watercourses.

PCC and AC waste shall be collected and disposed of outside the highway right-of-way in conformance with section 7-1.13 of the Caltrans Standard Specifications or placed in a temporary concrete washout facility.

Below grade concrete washout facilities are typical. Above grade facilities are used if excavation is not practical.

Do not allow slurry residue from wet coring or saw-cutting AC or PCC to enter storm drains or receiving waters by:

Placing temporary berms or sandbags around coring or saw-cutting locations to capture and contain slurry runoff.

Placing straw bales, straw wattles (fiber rolls), sandbags, or gravel dams around inlets to prevent slurry from entering storm drains.

Vacuum slurry residue and dispose.

Temporary concrete washout facilities shall be located a minimum of 15 m (50 ft) from storm drain inlets, open drainage facilities, and watercourses, unless determined unfeasible by the engineer. Each facility shall be located away from construction traffic or access areas to prevent disturbance or tracking.

Temporary concrete washout facilities shall be constructed above grade or below grade at the option of the Contractor. Temporary concrete washout facilities shall be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.

Temporary washout facilities shall have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.

Perform washout of concrete trucks in designated areas only.

Once concrete wastes are washed into the designated area and allowed to harden, the concrete shall be broken up, removed, and disposed of per "Solid Waste Management".

Temporary concrete washout facilities shall be constructed as shown on the plans, with a recommended minimum length and minimum width of 3 m (10'), but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. The length and width of a facility may be increased, at the Contractor's expense, upon approval of the engineer.

Existing facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.

S. SANITARY/SEPTIC WASTE MANAGEMENT

Definition and Purpose

Procedures and practices to minimize or eliminate the discharge of construction site sanitary/septic waste materials to the storm drain system or to watercourses.

Appropriate Applications

Sanitary/septic waste management practices are implemented on all construction sites that use temporary or portable sanitary/septic waste systems.

Standards and Specifications

a. Temporary sanitary facilities shall be located away from drainage facilities, watercourses, and from traffic circulation. When subjected to high winds or risk of high winds, as determined by the Engineer, temporary sanitary facilities shall be secured to prevent overturning.

b. Wastewater shall not be discharged or buried within the street right-of-way.

a. Ensure that sanitary/septic facilities are maintained in good working order by a licensed service.

d. Use only reputable, licensed sanitary/septic waste haulers.

T. LIQUID WASTE MANAGEMENT

I. Definition and Purpose

Procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

II. Appropriate Applications

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous liquid wastes.

a. Drilling slurries and drilling fluids.

b. Grease-free and oil-free wastewater and rinse water.

c. Dredgings.

d. Other non-storm water liquid discharges not permitted by separate permits.

III. Standards and Specifications

a. Drilling residue and drilling fluids shall not be allowed to enter storm drains and watercourses and shall be disposed of outside the street right-of-way as approved by the engineer.

b. Liquid wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, shall be contained and not allowed to flow into drainage channels or receiving waters prior to treatment.

c. Contain liquid wastes in a controlled area, such a holding pit, sediment basin, or portable tank.

d. Containment devices must be structurally sound and leak free.

e. Do not locate containment areas or devices where accidental release of the contained liquid can threaten health or safety, or discharge to water bodies, channels, ground water, or storm drains.

f. Capture all liquid wastes running off a surface that has the potential to affect the storm drainage system, such as wash water and rinse water from cleaning walls or pavement.

g. Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept flows and direct them to a containment area for capture.

- h. If the liquid waste is sediment laden, use a sediment trap for capturing and treating the liquid waste stream, or capture in a containment device and allow sediment to settle.
- i. If necessary, further treat liquid wastes prior to disposal. Treatment may include, though is not limited to, sedimentation, filtration, and chemical neutralization.