

ATTACHMENT C

This attachment illustrates the minimum construction phase BMPs required for high and medium threat sites, as applicable.

www.coronado.ca.us

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Storm Water Help Desk: (619) 522-2653

City of Coronado

Minimum Storm Water Best Management Practices (BMPs) for Construction.

Applicable to all medium threat and high threat projects:

1. Minimum BMPs are to be implemented for all projects and are shown with a “√”.
2. Select additional BMPs to be used based on the specific project conditions by marking with an “X’ in the second column.
3. Include completed table in the project drawings.
4. Add BMP locations and CASQA No. from the table to project drawings. Consult the CASQA Stormwater Best Management Practice Handbook for complete BMP details and information at: www.casqa.org/resources/bmp-handbooks. Only 2009 or later versions of the CASQA BMP Fact Sheets are valid.
5. Selected BMP shall be implemented and represent the minimum requirements and obligation of the project owner and/or contractor. Additional BMPs may be required and should be implemented if threatened or actual discharge of sediment and/or pollutants is identified.
6. BMP selection and type is subject to City inspection and enforcement.

Wind and Tracking Control			
Used to prevent and reduce dust nuisance and tracking sediment off-site by equipment and vehicles			
BMP Name	Mark with “X’ if used	Description	CASQA Reference No.
Wind Erosion Control	√	Most erosion BMPs are also suitable to protect against wind erosion. Watering is effective for short-term dust control. Excessive watering can cause erosion and create runoff	WE-1
Stabilized Construction Entrance / Exit	√	Used at construction sites where expose soil is part of the access path for construction vehicles onto public or private street or alley	TC-1

Erosion Control

All graded or cleared areas with exposed soil and stockpiles left un-disturbed or without actual construction work taking place for more than 14 calendar days shall implement erosion control measures on all exposed soils. Projects shall apply EC-1 and EC-2, and select one or more of BMPs EC-3 through EC-8 and/or EC-14 through EC-16.

Erosion control BMPs shall be used to the extent practical and to prevent erosion of soil on the project site. Sites that cannot practically implement Erosion Control shall select all appropriate Sediment Control BMPs to provide equivalent control of pollutant discharges.

BMP Name	Mark with "X" if used	Description	CASQA Reference No.
Scheduling	√	Use project scheduling and management to reduce erosion potential. Minimize activities including demolition and grading during rainy season	EC-1
Preservation of Existing Vegetation		Used on most projects to minimize erosion	EC-2
Hydraulic Mulch		Temporary, stand-alone BMP, suitable for disturbed areas until permanent stabilization is established	EC-3
Hydroseeding		Temporary protection for disturbed areas until permanent stabilization is incorporated that will be re-disturbed	EC-4
Soil Binders		Temporary protection for areas where grading will resume	EC-5
Straw Mulch		Temporary protection for disturbed areas until permanent stabilization is incorporated that will be re-disturbed	EC-6
Geotextile & Mats		Applied to slopes with high erosion potential with low vegetation. Also used for swales, and high traffic areas	EC-7
Wood Mulching		Temporary, stand-alone BMP, suitable for disturbed areas until permanent stabilization is established	EC-8
Earth Dikes and Drainage Swales		Used to divert runoff flows from one area to another	EC-9
Slope Drains		Used to intercept concentrated flows and convey to another point or area	EC-11
Compost Blanket		Used on slopes and disturbed areas until permanent stabilization is established	EC-14
Soil Preparation / Roughening		Used to establish permanent vegetation on disturbed soil. Used with other soil stabilization methods. Roughening is also track walking a slope	EC-15
Non-vegetative Stabilization		Temporary or permanent stabilization of areas prone to erosion using a variety of materials (DG, mulch, geotextile, mats, gravel, soil binders)	EC-16

Sediment Control

Sediment control is required on all projects until final occupancy approval is issued by the City.
Sediment controls may need to be added or increased during rainy weather.

Select at minimum one perimeter control (SE-1, SE-5, SE-6, SE-8, SE-13 or SE-14).

Sites that cannot practically implement Erosion Control shall select all appropriate Sediment Control BMPs to provide equivalent control of pollutant discharges.

BMP Name	Mark with "X" if used	Description	CASQA Reference No.
Silt Fence		Applied for perimeter control and sheet flow discharge, and around inlets	SE-1
Check Dam		Used to reduce channel (small) flow velocity, or in swales, or ditches	SE-3
Fiber Rolls		Used for perimeter control, slope transitions, along the toe, top or face of the slope to shorten slope length. Suitable for inlet protection.	SE-5
Gravel Bag Berm		Used for perimeter control, and along the toe, top or face of the slope to shorten the slope length. Also suitable as inlet protection and temporary stockpiles	SE-6
Street Sweeping and Vacuuming	√	Used on public or private streets/alleys near the entrance/exit to the project site, and prior to final paving. Sweeping applies to sidewalks and curb and gutters at or adjacent to the project site	SE-7
Sandbag Barrier		Used on perimeter control, along the toe, top or face of the slope to shorten slope length. As inlet protection and temporary stockpiles	SE-8
Storm Drain Inlet Protection	√	Used with geotextile under inlet grates, gravel bags, and fiber rolls	SE-9
Compost Sock and Berms		Used for perimeter control, along the toe, top or face of the slope to shorten the slope length. Inlet protection. Temporary stockpiles	SE-13
Biofilter Bags		Used for perimeter control, along the toe, top or face of the slope to shorten the slope length. Inlet protection. Temporary stockpiles	SE-14

Non-Stormwater Management

Installed or used to prevent pollutants discharges off-site by controlling contact with rain or flowing water at the source.

BMP Name	Mark with "X" if used	Description	CASQA Reference No.
Water Conservation Practices	✓	Applied at all sites and all water sources (metered, trucked, piped, etc.)	NS-1
Dewatering Operations		Applied to non-stormwater discharges, including groundwater, cofferdams, diversions	NS-2
Paving and Grinding Operations		Used for paving, surfacing, resurfacing, saw cutting, and similar activities	NS-3
Clear Water Diversion		Installed to isolate construction activities within or near water (streambank stabilization, abutment, bridge, pier, culvert, etc.)	NS-5
Illegal Connection / Discharge	✓	Applicable to any illicit connection or discharge illegal or not, at any time	NS-6
Potable Water / Irrigation	✓	Used at project sites with irrigation or irrigation runoff from off-site	NS-7
Vehicle and Equipment Cleaning	✓	Used at all project sites with vehicle and equipment cleaning activities	NS-8
Vehicle and Equipment Fueling	✓	Applicable to all construction sites with vehicle and equipment fueling activities	NS-9
Vehicle and Equipment Maintenance	✓	Applicable to all construction sites with vehicle and equipment fueling activities	NS-10
Pile Driving Operations		Applicable to all construction sites near or adjacent to a water or groundwater sources. May include dewatering activities	NS-11
Concrete Curing	✓	Used on all projects with Portland Cement Concrete and concrete curing chemicals exposed to rainfall, runoff, or run-on that may leave the site.	NS-12
Concrete Finishing	✓	Used on all projects with Portland Cement Concrete and concrete curing chemicals exposed to rainfall, runoff, or run-on that may leave the site.	NS-13
Material Over Water		Applies to materials and equipment used on barges, boats, docks, and other work platforms over or adjacent to water.	NS-14
Demolition Adjacent to Water		Applied to demolition or removal work of bridges, concrete channels, or any other structure near or adjacent to water.	NS-15

Non-Stormwater Management

Installed or used to prevent pollutants discharges off-site by controlling contact with rain or flowing water at the source.

Water Conservation Practices **NS-1**

Applied at all sites and all water sources (metered, trucked, piped, etc.).

Dewatering Operations **NS-2**

Applied to non-stormwater discharges, including groundwater, coffer-dams, diversions.

Paving and Grinding Operations **NS-3**

Used for paving, surfacing, resurfacing, sawcutting, and similar activities.

Temporary Stream Crossing **NS-4**

Installed at perennial and intermittent stream crossings, and channels with construction traffic.

Clear Water Diversion **NS-5**

Installed to isolate construction activities within or near water (streambank stabilization, abutment, bridge, pier, culvert, etc.).

Illicit Connection / Discharge **NS-6**

Applicable to any illicit connection or discharge illegal or not, at any time.

Potable Water / Irrigation **NS-7**

Used at project sites with irrigation or irrigation runoff from off-site.

Vehicle and Equipment Cleaning **NS-8**

Used at all project sites with vehicle and equipment cleaning activities.

Vehicle and Equipment Fueling **NS-9**

Applicable to all construction sites with vehicle and equipment fueling activities.

Vehicle and Equipment Maintenance **NS-10**

Applicable to all construction sites with vehicle and equipment fueling activities.

Pile Driving Operations **NS-11**

Applicable to all construction sites near or adjacent to a water or ground-water sources . May include dewatering activities.

Concrete Curing **NS-12**

Used on all projects with Portland Cement Concrete and concrete curing chemicals exposed to rainfall, runoff, or runoff that may leave the site.

Concrete Finishing **NS-13**

Used on all projects with concrete finishing operations.

Non-Stormwater Management (continued)

Material Over Water **NS-14**

Applies to materials and equipment used on barges, boats, docks, and other work platforms over or adjacent to water.

Demolition Adjacent to Water **NS-15**

Applied to demolition or removal work of bridges, concrete channels, or any other structure near or adjacent to water.

Temporary Batch Plants **NS-16**

Applied to all construction sites with temporary batch plants and general concrete use.

Wind Erosion Control

Consists of applying water or other materials for dust nuisance.

Wind Erosion Control **WE-1**

Most erosion BMPs are also suitable to protect against wind erosion. Watering is effective for short-term dust control. Excessive watering can

Tracking Control

Used to prevent and reduce tracking sediment off-site by equipment and vehicles.

Stabilized Construction Entrance / Exit **TC-1**

Used at construction sites where tracking onto public or private roads.

Stabilized Construction Roadway **TC-2**

Used for temporary construction traffic and offsite road access, roadways or road detours.

Entrance / Outlet Tire Wash **TC-3**

Used at sites with dirt and mud tracking onto public or private roads may occur.

◆ *This BMP Reference Card was prepared using the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook Portal: Construction (November 2010) at: www.cabmphandbooks.com*

◆ *Consult the CASQA Stormwater Best Management Practice Handbook for complete BMP details and information.*



City of Coronado

Sustainable solutions to enhance your environmental stewardship and compliance

Construction BMP Reference Card

Construction BMPs shall be implemented to control erosion and sediment at all projects with land disturbance (demolition, grubbing, grading, etc.).

Non-Stormwater Management BMPs or good housekeeping BMPs shall be implemented as needed.

PUBLIC SERVICES DEPARTMENT

Contact us:
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Help Desk: (619) 522-2653

Erosion Control

BMPs typically used to protect the soil's surface from rainfall and minimize the soil particles that are mobilized by the impact of rainfall, flowing water, or wind.

Scheduling	EC-1
Applied to reduce erosion potential should be incorporated.	
Preservation of Existing Vegetation	EC-2
Used on most projects, and larger projects with steep slopes.	
Hydraulic Mulch	EC-3
Temporary, stand alone BMP, suitable for disturbed areas until permanent stabilization is established.	
Hydroseeding	EC-4
Temporary protection for disturbed areas until permanent stabilization is incorporated that will be re-disturbed.	
Soil Binders	EC-5
Temporary protection for areas where grading will resume.	
Straw Mulch	EC-6
Temporary protection for disturbed areas until permanent stabilization is incorporated that will be re-disturbed.	
Geotextiles & Mats	EC-7
Applied to slopes with high erosion potential with low vegetation. Also used for stream banks, swales, and channels.	
Wood Mulching	EC-8
Temporary, stand alone BMP, suitable for disturbed areas until permanent stabilization is established.	
Earth Dikes and Drainage Swales	EC-9
Used to divert runoff flows from one area to another.	
Velocity Dissipation Devices	EC-10
Used at outlets of culverts, conduits, or channels.	
Slope Drains	EC-11
Used to intercept concentrated flows and convey to another point or area.	
Streambank Stabilization	EC-12
Applied on disturbed soil within stream channels or riparian areas. Uses many of the BMPs cited above for stabilization.	
Compost Blanket	EC-14
Used on slopes and disturbed areas until permanent stabilization is established.	

Erosion Control (continued)

Soil Preparation / Roughening
 Used to establish permanent vegetation on disturbed soil. Used with other soil stabilization methods. Roughening is also track walking a slope.

Non-Vegetative Stabilization **EC-16**
 Temporary or permanent stabilization of areas prone to erosion using a variety of materials (DG, mulch, geotextile, mats, gravel, soil binders).

Waste Management & Materials Pollution

BMPs installed or used to prevent pollutant discharges off-site by controlling contact with rain or flowing water at the source.

Material Delivery and Storage **WM-1**
 Applied to projects with delivery and storage of materials (soil binders, fuel, oils, grease, pesticides, herbicides, fertilizers, plaster, detergents, asphalt, concrete, chemicals, paints, solvents, adhesives, lime, acids, etc.).

Material Use **WM-2**
 Applied to projects where materials are used (soil binders, pesticides, herbicides, fertilizers, detergents, plaster, fuel, oils, grease, asphalt, concrete, chemicals, paints, solvents, adhesives, lime, acids, glues, etc.).

Stockpile Management **WM-3**
 Used for soil and material stockpiles at all project sites.

Spill Prevention and Control **WM-4**
 Applied to project sites where materials are used (soil binders, pesticides, herbicides, fertilizers, detergents, plaster, fuel, oils, grease, asphalt, concrete, chemicals, paints, solvents, adhesives, lime, acids, glues, etc.).

Solid Waste Management **WM-5**
 Suitable for all projects generating solid waste (landscaping, rubble, masonry, plumbing, scrap, packaging materials, domestic waste, etc.).

Hazardous Waste Management **WM-6**
 Applied to projects with hazardous waste (pesticides, herbicides, fertilizers, septic waste, asphalt, concrete, paint, solvents, roofing tar, etc.).

Contaminated Soil Management **WM-7**
 Applied to contaminated soil remediation or removal due to spills, illicit discharges, leaks, or past uses, including underground storage tanks.

Concrete Waste Management **WM-8**
 Applied at all construction sites with concrete use.

Sanitary / Septic Waste Management **WM-9**
 Installed at all sites with temporary or portable sanitary or septic systems.

Liquid Waste Management **WM-10**
 Applied at all construction sites with non-hazardous, liquids (drilling slurries and fluids, dredging, rinse water, wastewater, etc.).

Sediment Control

Intended to trap soil particles (sediment) dislodged by rain, flowing water, or wind.

Silt Fence **SE-1**
 Applied for perimeter control and sheet flow discharge, and around inlets.

Sediment Basin **SE-2**
 Used on larger projects and if grading takes place during the rainy season. Feasible on sites with post-construction detention basins.

Sediment Trap **SE-3**
 Used for applications such as the project perimeter, upslope of drain inlet protection, and smaller projects in lieu of a sediment basin.

Check Dam **SE-4**
 Used to reduce channel (small) flow velocity, or in swales, or ditches.

Fiber Rolls **SE-5**
 Used for perimeter control, slope transitions, along the toe, top or face of the slope to shorten slope length. Suitable for inlet protection.

Gravel Bag Berm **SE-6**
 Used for perimeter control, and along the toe, top or face of the slope to shorten the slope length. Also suitable as inlet protection and temporary stockpiles.

Street Sweeping and Vacuuming **SE-7**
 Used on public or private streets near the entrance / exit to the project site, and prior to final paving.

Sandbag Barrier **SE-8**
 Used on perimeter control, along the toe, top or face of the slope to shorten slope length. As inlet protection and temporary stockpiles.

Straw Bale Barrier **SE-9**
 Used for perimeter control, and along the toe, top or face of the slope to shorten the slope length.

Storm Drain Inlet Protection **SE-10**
 Used with geotextile under inlet grates, gravel bags, and fiber rolls.

Active Treatment Systems **SE-11**
 Used to reduce turbidity and pollutants for discharge to sediment and turbidity sensitive waters are located downstream of the project.

Temporary Silt Dike **SE-12**
 Used for perimeter control, inlet protection and stockpiles.

Compost Sock and Berms **SE-13**
 Used for perimeter control, along the toe, top or face of the slope to shorten the slope length. Inlet protection. Temporary stockpiles.

Biofilter Bags **SE-14**
 Used for perimeter control, along the toe, top or face of the slope to shorten the slope length. Inlet protection. Temporary stockpiles.

BEST MANAGEMENT PRACTICES

SITE OVERVIEW

Protecting clean air and clean water improves our quality of life and preserves the local environment for our children and future generations.

Unintentional spills at work sites can flow into storm drains and pollute the ocean or bay. These spills are prohibited by law.

The following drawing illustrates Best Management Practices (BMPs) that must be used at all construction sites in the City to protect storm drains and minimize pollution.

PAINT AND STUCCO

All paint and stucco materials stored on the site must be contained and covered. It is illegal for contractors to wash out paint brushes in the street or dump any residues in the sewer or the storm drain. Paint brushes and spray guns shall be washed/cleaned out into a hazardous materials drum or back into its original container and disposed of properly.

PERIMETER CONTROLS

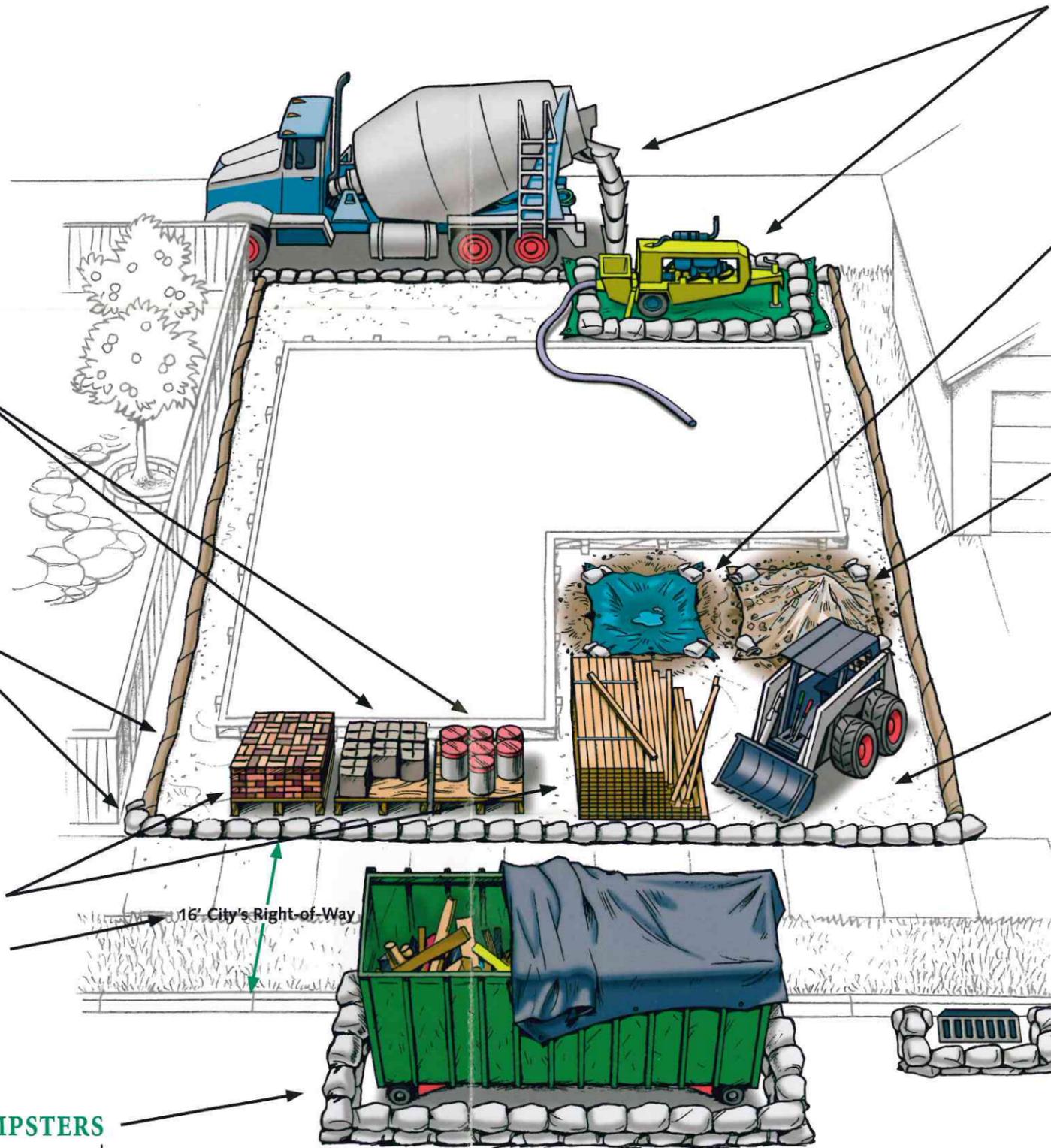
Gravel bags, silt fences and straw wattles are acceptable perimeter controls, and shall be used to surround the entire site. Avoid running over perimeter controls with vehicles or heavy equipment, as they can damage the materials. Keep extra absorbent materials and/or a wet/dry vacuum on site to quickly pick up unintended spills. Sites must also be checked and maintained daily.

BUILDING MATERIALS/STAGING AREAS

Construction materials must be stored on site at all times. The only exception is if you have a right-of-way permit. The City's right-of-way is generally 16' from the face of the curb to the private property line. Building materials should always be covered when not in use to prevent run-off caused by wind or rain. To apply for a right-of-way permit, contact the Engineering and Project Development Department at 619.522.7383.

DUMPSTERS

Always cover dumpsters with a rollback tarp. Areas around dumpsters should be swept daily. Perimeter controls should also surround dumpsters. If dumpsters are kept on the street, right-of-way permits are needed for them.



CONCRETE TRUCKS/PUMPERS

Right-of-way permits are required for concrete pumpers parked in public streets or alleys. Pumpers must be surrounded by perimeter controls, such as gravel bags, sand bags or straw wattles. Tarps also must be placed beneath concrete pumpers at all times. Residual materials must be cleaned up as well.

WASHOUT AREA

The disposal of "wet" construction materials should be handled in the washout area. This includes paint, stucco and concrete. Use a sand berm and tarp to collect evaporation and prevent run-off in nearby areas. The washout area must be checked and maintained daily to ensure compliance.

DIRT AND GRADING

Mounds of dirt or gravel should be stored on site and sprayed daily with water to prevent excessive dust. These materials should also be covered each day with a tarp, coconut mat or other form of protection. Visqueen and/or tarps must be available and on site to cover 125% of exposed areas during the rainy season (October – April).

EARTHMOVING EQUIPMENT

All earthmoving equipment should be stored on site. Maintenance should also be conducted on the site, and tracks and trails left by equipment leading to and from the site should be cleaned up immediately.

STORM DRAINS

Storm drains must be protected at all times with perimeter controls, such as sand bags, gravel bags or straw wattles.



CITY OF CORONADO

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Questions? Contact the Public Services Department – 619.522.7380