

Appendix

C

COUNTY OF SAN DIEGO BMP DESIGN MANUAL

Baseline BMP Fact Sheets for Site Design and Source Control

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

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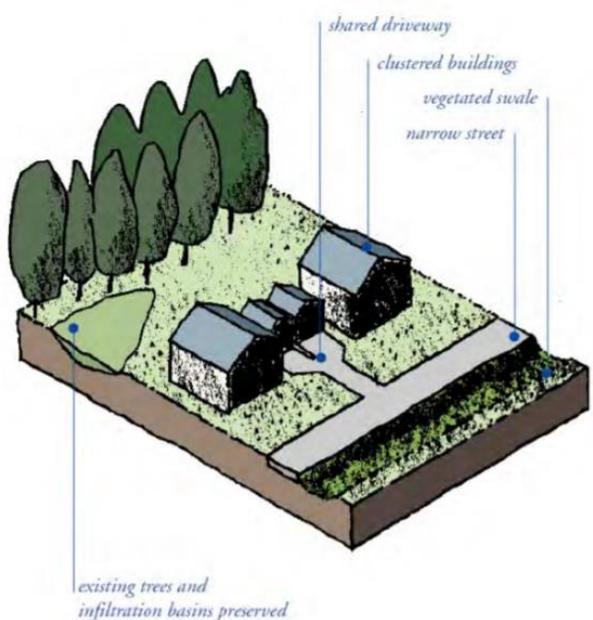
Appendix C Baseline BMP Fact Sheets for Site Design and Source Control

The following fact sheets were developed to assist the project applicants with designing BMPs to meet Site Design and Source Control MS4 Permit requirements.

MS4 Category	Baseline BMP Fact Sheet	BMP ID	Page
Site Design	BL-1: Existing Natural Site Features	SD-G: Conserve Natural Features SD-H: Buffers	C-2
Site Design	BL-2: Outdoor Impervious Areas	SD-B: <i>Impervious Area Dispersion</i> SD-I: Permeable Surfaces	C-8
Site Design	BL-3: Rooftop Areas	SD-B: <i>Impervious Area Dispersion</i> SD-C: <i>Green Roofs</i> SD-E: <i>Rain Barrels</i>	C-13
Site Design	BL-4: Landscaped Areas	SD-K: Sustainable Landscaping	C-16
Source Control	BL-5: Work and Storage Areas	SC-A: Overhead Covering SC-B: Berms and Grade Breaks SC-C: Wind Protection	C-19
Source Control	BL-6: Mgt of Storm Water Discharges	SC-D: Sanitary Sewer SC-E: Containment Areas	C-28
Source Control	BL-7: Mgt of Non-Storm Water Discharges	SC-F: Storm Drain Signage SC-G: Educational BMP Signage	C-35

*BMP IDs *in italics* have a standalone fact sheet in Appendix E

BL-1: Existing Natural Site Features



MS4 Permit Category

Site Design

BMP IDs

SD-G: Conserve Natural

Features

SD-H: Buffers

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(5) requires baseline BMPs where feasible and applicable for the following types of natural site features:

- **Natural waterbodies¹** can include any significant accumulation of water on a project site. This includes both larger bodies, such as lakes and rivers, and smaller features such as intermittent and ephemeral streams, creeks, swales, springs, ponds, and wetlands. Applicants should account for any feature containing water for any portion of the year -- even if the feature is usually dry.

Note: If existing waterbodies can't be avoided, consultations with the US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife may be required along with their respective permits. Development in or near Waters of the U.S. may be subject to Clean Water Act Section 401 Water Quality Certification requirements. Consult the Army Corps of Engineers regarding any work potentially impacting Waters of the U.S. or for determining if a waterbody is a Water of the U.S.

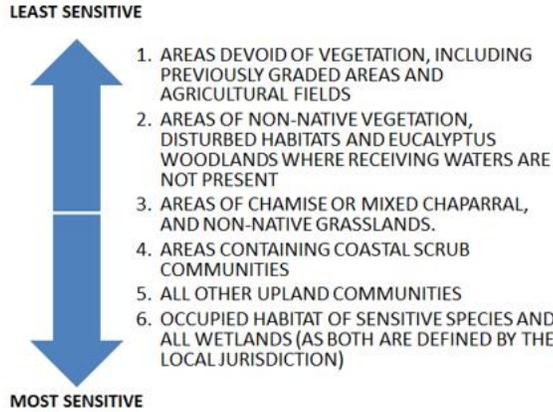
- **Natural storage reservoirs and drainage corridors.** *Storage reservoirs* are areas where rainfall and runoff flow downhill and collect in low points such as valleys, basins, and other depressions in the landscape. Storage reservoirs can also include areas of permeable soils in topographic depressions. These features may or may not also be waterbodies. *Drainage corridors*

¹ For PDPs, Structural BMPs may not be located within a waterbody.

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are areas where concentrated or channelized runoff flows from higher elevation to lower elevation on the site. Examples include channels, creeks, swales and gullies. Flows can also concentrate around grade breaks (steep changes in elevation) such as banks and hillsides.

- **Natural areas, soils, and vegetation (including trees)** include undisturbed areas with beneficial soils and vegetation such as undeveloped hillsides, meadows, other non-agricultural vegetated areas, or riparian habitat. Preserving natural features such as existing trees, other vegetation, and soils will decrease the amount of storm water that leaves the project site and reduce its long-term impacts.



SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above:

- SD-G: Conserve natural features
- SD-H: Buffers

These baseline BMPs are documented in Table 1, Section A of the PDP and Standard SWQMP Templates as shown below.

A. BMPs for Existing Natural Site Features (See Fact Sheet BL-1)		
<i>1. Check the boxes below for each existing feature on the site.</i>	<i>2. Select the BMPs to be implemented for each identified feature. Explain why any BMP not selected is infeasible in Table 3.</i>	
	Conserve natural features (SD-G)	Provide buffers around waterbodies (SD-H)
<input type="checkbox"/> Natural waterbodies	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Natural storage reservoirs & drainage corridors	<input type="checkbox"/>	---
<input type="checkbox"/> Natural areas, soils, & vegetation (incl. trees)	<input type="checkbox"/>	---

SD-G: CONSERVE NATURAL AREAS

Description

Conservation means preserving, maintaining, or enhancing existing natural areas and features. For example, avoiding the removal of trees, or incorporating an existing stream or other open space area(s) into the project design. Leaving soil, vegetation, and other natural features in place promotes natural processes that help reduce runoff and aid in pollutant uptake. Natural areas are often well suited to retain rainwater through infiltration and evapotranspiration, allowing the project to maintain the predevelopment time of concentration and peak flow rate of runoff. Designs that emphasize natural features are often environmentally preferable and can be more appealing to buyers.

Design Considerations

- **Identify and avoid natural features:** Identify features as early as possible to allow the development to be designed around them. This limits overall impacts during and after construction and can avoid unnecessary redesign costs.

Natural features have formed over time in response to existing conditions (location, climate, soil type, etc.). Allow them to function naturally by avoiding removal or modification.

- Locate buildings, driveways, and other impervious features away from natural features. Where possible concentrate development in the least sensitive portions of the site.
- Avoid areas containing sensitive plant or animal species. Areas such as wetlands, biological open space areas, biological mitigation sites, streams, floodplains, and vegetation communities (coastal sage scrub, intact forest, etc.) may require additional regulatory protections.

Where possible, conserve areas with the highest ecological or water quality value. Avoid development in areas with thick, undisturbed vegetation because these areas tend to foster ecological diversity and protect water quality. Likewise, native trees and shrubs provide aesthetic, recreational, and air quality benefits.

- **Maintain existing site drainage and hydrology:** Maintain existing drainage patterns and pathways, topographical depressions, and potential storage areas to maximize natural infiltration and preserve the predevelopment hydrologic characteristics of the site. Avoid creating new concentrated discharge points on hillsides or other locations where drainage is not naturally concentrated. Diversion (changing the discharge location of stormwater runoff from a given land area from one concentration point to another, thereby increasing the area draining to an existing feature) can significantly impact drainage, even without the addition of new impervious area. Even small modifications can significantly impact drainage. Pay special attention to changes in the rates, duration, and volume of flows directed to storage reservoirs and drainage corridors. Increased flows can overwhelm existing natural features, potentially causing flooding, oversaturation, or other unintended consequences in downstream areas.
- **Restore or improve impacted features:** In some cases, existing features are impacted or degraded prior to development of the site. For example, previous use of the site may have caused a loss of vegetation and subsequent erosion of open space areas. Even if these areas

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are conserved in the final design, replanting or restoration may be necessary to ensure they function properly.

- **Prevent construction phase impacts to soils:** Natural site features can be particularly vulnerable during grading and construction. Isolate these features as necessary to prevent access by construction equipment and personnel (e.g., by staking or fencing off areas). Also consider minimizing grading as practicable.

Plan Requirements

For each required construction plan, provide the information indicated below for each applicable feature or BMP.

SD-G: Conserve Natural Areas
Plan View Requirements
<ul style="list-style-type: none"> • Show locations and boundaries of the features (or portions of features) to be conserved • Label features with BMP ID: SD-G
Detail Sheets
N/A
Typical Construction Notes
<ul style="list-style-type: none"> • USE A CONSTRUCTION FENCE OR SILT FENCE AROUND THE CONSERVED AREAS TO PREVENT CONSTRUCTION EQUIPMENT FROM ENTERING.

Maintenance Considerations

During construction of the project, fences that have been placed to prevent construction equipment from entering conserved areas must be maintained. After construction of the project is complete, generally conservation and protection of natural features does not require routine maintenance because the features are intended to remain in their natural condition. The following may be required in accordance with applicable maintenance plans or observations:

- Removal of trash and debris;
- Landscaping only when necessary to restore or improve impacted features; and
- Other maintenance activities indicated in applicable maintenance plans or in accordance with observations.

Also consider the following:

- Maintenance of areas with sensitive plants and animals may be subject to restrictions or requirements imposed by federal, state, and local laws

SD-H: BUFFERS

Description

Buffers are measures to limit access or prevent impacts to natural features. They are encouraged for all features but required for conserved waterbodies where feasible. Buffers can be effective in protecting resources from pollutants; increased runoff flows; physical disturbances from pedestrian use; vehicle parking; or equipment storage; or other potential stressors. Depending on site characteristics and the project layout, the following options should be considered.

Design Considerations

- **Buffer zones** provide physical separation between natural features and adjacent land uses or pollutant sources. Buffer zones such as a strip of landscape between a development and protected feature can effectively retain or transform pollutants and flows to produce a more favorable environment for natural systems. Buffer zones must be provided for natural water bodies whenever technically feasible. When buffer zones are not technically feasible, other types of buffers, such as access restrictions must be considered.
- **Setbacks** are buffer zones that establish minimum distances between pollutant sources and resources. For example, Waters of the U.S. typically require from 50 to 200 feet of separation from potential sources. Setbacks can be maintained landscaping or vegetated areas that provide passive treatment of runoff from a development before it reaches the protected feature.
- **Access restrictions** are buffers that protect an area from intrusion or activity (walking, driving, parking, etc.) either through physical barriers such as fences, walls, or vegetation (trees, etc.), or through legal restrictions such as easements or covenants. Physical barriers can be styled to suit the development architecture while providing the desired level of restriction.
- **Hydraulic disconnection** uses curbs, berms, grading, etc. to prevent natural areas from receiving storm water or non-storm water flows from upgradient sources. However, stormwater runoff that has been redirected from a natural area via hydraulic disconnection must ultimately be returned to the system in a safe, non-erosive manner, such as an outfall placed downstream of the protected area in a location that the runoff would have naturally arrived at without redirection. The design of these features should be part of the site drainage plan, with structures appropriately sized for the anticipated runoff.
- **Different buffer types** or combinations of those listed above may be proposed.

Plan Requirements

For each required construction plan, provide the information indicated below for each applicable feature or BMP.

SD-H: Buffers
Plan View Requirements
<ul style="list-style-type: none"> • Show locations and boundaries of buffers • Label features with BMP ID: SD-H

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Detail Sheets
N/A
Typical Construction Notes
<ul style="list-style-type: none">• A SETBACK OF 50 TO 200 FEET IS REQUIRED FOR DEVELOPMENT ADJACENT TO WATERS OF THE U.S.. NO STRUCTURAL BMPs ARE TO BE PLACED IN BUFFER AREAS.• USE A CONSTRUCTION FENCE OR SILT FENCE AROUND THE BUFFER ZONE TO PREVENT CONSTRUCTION EQUIPMENT FROM ENTERING.

Maintenance Considerations

During construction of the project, fences that have been placed to prevent construction equipment from entering buffer zones must be maintained. After construction of the project is complete, the following may be required in accordance with applicable maintenance plans or observations:

- Removal of trash and debris;
- Landscaping; and
- Other maintenance activities indicated in applicable maintenance plans or in accordance with observations.

Also consider the following:

- Maintenance of areas with sensitive plants and animals may be subject to restrictions or requirements imposed by federal, state, and local laws;
- Buffer areas may be maintained as part of normal landscaping practices unless other requirements apply;
- Maintenance of physical structures associated with buffers (fences, walls, curbs, berms, etc.) can be addressed as part of the normal facilities maintenance.

BL-2: Outdoor Impervious Area



Source: County of San Diego's Green Street Guidelines

MS4 Permit Category

Site Design

BMP IDs

SD-B: Impervious Area

Dispersion

SD-I: Permeable Surfaces

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(5) requires baseline BMPs to minimize impervious areas where applicable and feasible for the following common types of outdoor impervious features.

- **Streets and roads** include public or private access routes used to transport automobiles, trucks, motorcycles, bicycles, and other vehicles. Surfaces in this category include alleys and street parking, but not driveways. They are traditionally paved with concrete or asphalt.
- **Sidewalks & walkways** include surfaces intended for pedestrian uses (walking, wheelchairs, etc.). Sidewalks are often at the side of a street, road, or structure, while walkways (including paved footpaths and trails) may occur throughout a property.
- **Parking areas & lots** includes any area, space, or lot designated for the temporary or long-term parking or storage of automobiles or other vehicles. They do not include parking areas within streets or roads.
- **Driveways** are surfaces that provide vehicles access from offsite to a building or other portion of the property. Unlike streets and roads, driveways normally serve a single property and are privately owned.
- **Patios, decks, & courtyards** are outdoor areas, typically unroofed, associated with a building, and supporting outdoor use (walking, gathering, leisure, etc.). They may be adjacent to or independent of other structures. They are normally exposed to the elements
- **Hardcourt recreation areas** are impermeable surfaces intended primarily for sports or recreation. Examples include basketball, tennis, or volleyball courts, and playgrounds.
- **Other proposed outdoor impervious features not otherwise listed.**

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SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above:

- SD-B: Impervious Area Dispersion
- SD-I: Permeable Surfaces

These baseline BMPs are documented in Table 1, Section B of the PDP and Standard SWQMP Templates as shown below.

B. BMPs for Common Impervious Outdoor Site Features (See Fact Sheet BL-2)			
<i>1. Check the boxes below for each proposed feature.</i>	<i>2. Select the BMPs to be implemented for each proposed feature. If neither BMP SD-B nor SD-I is selected for a feature, explain why both BMPs are infeasible in Table 3.</i>		
	Direct runoff to pervious areas (SD-B)	Construct surfaces from permeable materials (SD-I)	Minimize the size of impervious areas
<input type="checkbox"/> Streets and roads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <i>Check this box to confirm that all impervious areas on the site will be minimized where feasible.</i> <i>If this box is not checked, identify the surfaces that cannot be minimized in Table 3, and explain why it is infeasible to do so.</i>
<input type="checkbox"/> Sidewalks & walkways	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Parking areas & lots	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Driveways	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Patios, decks, & courtyards	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Hardcourt recreation areas	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	

a. Direct runoff to pervious areas (SD-B)

For impervious surfaces covered in this Fact Sheet, impervious area dispersion refers to the practice of effectively disconnecting impervious areas from directly draining to the storm drain system by routing runoff from impervious areas such as walkways, and driveways onto the surface of adjacent pervious areas. The intent is to slow runoff discharges and reduce volumes and sources of pollutants. Dispersion with partial or full infiltration results in significant volume reduction by means of infiltration, retention and evapotranspiration. PDPs may claim Design Capture Volume (DCV) reductions if dispersion areas meet specific design criteria described in Fact Sheet SD-B. However, dispersion should still be implemented where applicable and feasible even when the area available for dispersion does not meet the criteria to claim DVC reduction.

Typical dispersion components include:

- An impervious surface from which runoff flows will be routed with minimal piping to limit concentrated inflows;
- Splash blocks, flow spreaders, or other means of dispersing concentrated flows and providing energy dissipation as needed;
- Dedicated pervious area, typically vegetated, with soil infiltration capacity for partial or full infiltration;
- Mulch, compost and/or soil amendments to improve water retention, vegetation support, maintain infiltration rates and enhance treatment of routed flows; and

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- Overflow route for excess flows to be conveyed from dispersion area to the storm drain.

Impervious area dispersion primarily functions as a site design BMP for reducing the effective imperviousness of a site by providing partial or full infiltration of the flows that are routed to pervious dispersion areas and otherwise slowing down excess flows that eventually reach the storm drain system. For PDPs, this can significantly reduce the DCV and flow control requirements for the site.

b. Construct surfaces from permeable materials (SD-I)

See BMP ID SD-I Permeable Surfaces below.

c. Minimize the size of impervious areas

Minimizing the overall impervious area created by a development project can reduce the impacts of environmental degradation on receiving waterbodies. Implementing this practice limits the potential for both transportation of pollutants in runoff and increased risk of erosion due to increased flows associated with impervious development.

This BMP applies broadly to any traditionally impervious areas associated with land development including streets and roads, sidewalks and walkways, parking lots, driveways, patios, decks, courtyards, hardcourt recreation areas, and the building footprints.

SD-I: PERMEABLE SURFACES

Description

This BMP consists of substituting permeable (or pervious) materials in the place of traditionally impervious materials in a development. Using permeable materials on a development site helps reduce the overall effective impervious area, thereby decreasing total runoff volume and better mimicking predevelopment hydrologic characteristics when compared to the same development using traditional impervious materials. Limiting the total runoff volume from a site has a significant impact on storm water quality by limiting the total amount of pollutants transported offsite to receiving waterbodies.

Design Considerations

Features constructed of materials like concrete, asphalt, and grouted pavers have higher runoff factors (C) causing a higher percentage of rain falling on them to become runoff. Substituting other more porous materials such as decomposed granite, cobbles, crushed aggregate, and soils (natural, compacted, or amended), which have lower runoff factors than impervious materials, can greatly reduce the amount of runoff from a project. See Appendix B, Section B.1.3 for runoff factors (C) for a variety of different construction materials. For PDPs, use of more porous materials with lower runoff factors where feasible within the project can reduce the total design capture volume (DCV) for the project.

Permeable materials should be used for outdoor hard surfaces wherever it is feasible to do so.

Applicants should consider the feasibility of using permeable materials for all impervious surfaces proposed as part of the project. All permeable surfaces that have potential traffic loading shall be designed by a civil engineer.

Typical non-engineered permeable surfaces that shall be designed and labeled with SD-I are the following:

- Decomposed Granite
- Cobbles
- Crushed Aggregate
- Reinforced Geotextile Features

Typical engineered permeable surfaces that shall be designed and labeled with SD-D (*Existing Fact Sheet in Appendix E*) are the following:

- Modular Paver Units or Paver Blocks
- Pervious Concrete
- Porous Asphalt
- Turf Pavers

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Plan Requirements

For each required construction plan, provide the information indicated below for each applicable feature or BMP.

SD-I: Permeable Surfaces
Plan View Requirements
<ul style="list-style-type: none">• Show locations and boundaries of the features (or portions of features) constructed of permeable material.• Label non-engineered permeable surfaces with BMP ID: SD-I• Label engineered permeable surfaces with BMP ID: SD-D
Detail Sheets
<ul style="list-style-type: none">• Varies depending on permeable surface.• Engineered permeable surfaces must include a cross section showing and clearly labeling all required layers (e.g., paver blocks, bedding, filter course, etc.) from pavement surface to subgrade; and include specifications for each material layer that is required as part of the engineered permeable surface.
Typical Construction Notes
<ul style="list-style-type: none">• Varies depending on permeable surface

Maintenance Considerations

Routine maintenance of permeable surfaces includes: removal of materials such as trash and debris accumulated on the surface, inspect tributary area for exposed soil or other sources of sediment and apply stabilization measures to sediment source areas. Apply source control measures as applicable to sources of litter or debris. Engineered permeable pavement surfaces (SD-D) require routine preventive vacuum/regenerative air sweeping.

BL-3: Rooftop Areas



Source: County of San Diego's Climate Action Plan

MS4 Permit Category

Site Design (SD)

BMP IDs

SD-B: Impervious Area

Dispersion

SD-C: Green Roofs

SD-E: Rain Barrels

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(5) requires baseline BMPs for common outdoor impervious features. **Rooftop Areas** include all permanent, impervious coverings on buildings or other structures (e.g., patios or decks) within the project footprint. Rooftops normally account for much of the runoff generated on a typical project. Coverings need only be counted as rooftops if rainfall will flow over or across them rather than passing through to the ground (e.g., permeable shade coverings need not be considered as rooftops).

SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above:

- SD-B: Impervious Area Dispersion
- SD-C: Green Roofs
- SD-E: Rain Barrels

These baseline BMPs are documented in Table 1, Section C of the PDP and Standard SWQMP template as shown below:

C. <input type="checkbox"/> BMPs for Rooftop Areas: <i>Check this box if rooftop areas are proposed and select at least one BMP below. If none of the BMPs is selected, explain why all are infeasible in Table 3.</i> (See Fact Sheet BL-3)		
1. Direct runoff to pervious areas (SD-B) <input type="checkbox"/>	2. Install green roofs (SD-C) <input type="checkbox"/>	3. Install rain barrels (SD-E) <input type="checkbox"/>

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a. Direct Runoff to Pervious Areas (SD-B)

For rooftop areas, impervious area dispersion refers to the practice of effectively disconnecting the rooftop from directly draining to the storm drain system by routing runoff onto the surface of adjacent pervious areas. The intent is to slow runoff discharges and reduce volumes. Dispersion with partial or full infiltration results in significant volume reduction by means of infiltration, retention and evapotranspiration. Priority Development Projects (PDPs) may claim Design Capture Volume (DCV) reductions if dispersion areas meet specific design criteria described in Fact Sheet SD-B. However, dispersion should still be implemented where applicable and feasible even when the area available for dispersion does not meet the criteria to claim DCV reduction.

Typical dispersion components for rooftop areas include:

- A rooftop surface from which runoff flows will be routed using downspout disconnection to limit concentrated inflows;
- Splash blocks, flow spreaders, or other means of dispersing concentrated flows and providing energy dissipation as needed;
- Dedicated pervious area, typically vegetated, with soil infiltration capacity for partial or full infiltration;
- Optional mulch, compost and/or soil amendments to improve water retention, vegetation support, maintain infiltration rates and enhance treatment of routed flows; and
- Overflow route for excess flows to be conveyed from dispersion area to the storm drain.

Impervious area dispersion primarily functions as a site design BMP for reducing the effective imperviousness of a site by providing partial or full infiltration of the flows that are routed to pervious dispersion areas and otherwise slowing down excess flows that eventually reach the storm drain system. For PDPs, this can significantly reduce the DCV and flow control requirements for the site.

b. Install Green Roofs (SD-C)

Green Roofs are rooftops covered with vegetation and a growing medium over a waterproofing membrane. They reduce runoff volumes and rates, treat storm water pollutants through filtration and plant uptake, provide additional landscape amenity, and create wildlife habitat. Additionally, green roofs reduce the heat island effect and provide acoustical control, air filtration and oxygen production. In terms of building design, they can protect against ultraviolet rays and extend the roof lifetime, as well as increase the building insulation, thereby decreasing heating and cooling costs.

Typical green roof components include, from top to bottom:

- Vegetation that is appropriate to the type of green roof system, climate, and watering conditions;
- Media layer (planting mix or engineered media) capable of supporting vegetation growth;
- Filter fabric to prevent migration of fines (soils) into the drainage layer;
- Optional drainage layer to convey excess runoff;
- Optional root barrier;

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- Optional insulation layer;
- Waterproof membrane; and
- Structural roof support capable of withstanding the additional weight of a green roof.

See **Fact Sheet SD-C** for additional detailed information on Green Roofs.

c. Install Rain Barrels (SD-E)

Rain barrels are containers that can capture rooftop runoff and store it for future use. With controlled timing and volume release, the captured rainwater can be used for irrigation or alternative grey water between storm events, thereby reducing runoff volumes and associated pollutants to downstream waterbodies. Rain barrels tend to be smaller systems, less than 100 gallons, and have low installation costs. Treatment can be achieved when rain barrels are used as part of a treatment train along with other BMPs that use captured flows in applications that do not result in discharges into the storm drain system. Rooftops are the ideal tributary areas for rain barrels.

Rain barrels can be used as a site design feature to reduce the effective impervious area of the site by removing roof runoff from the site discharge. This can reduce the DCV and flow control requirements for the site.

See **Fact Sheet SD-E** for additional detailed information on Rain Barrels.

BL-4: Landscaped Areas



Source: San Diego Sustainable Landscapes Guidelines

MS4 Permit Category

Site Design (SD)

BMP IDs

SD-K: Sustainable Landscaping

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(5) requires baseline BMPs for landscaped areas. A landscape includes all planting areas, turf areas (artificial or natural), and water features in a landscape design. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

Landscaped Areas includes SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above:

SD-K: Sustainable Landscaping

These baseline BMPs are documented in Table 1, Section D of the PDP and Standard SWQMP template as shown below:

D. **BMPs for Landscaped Areas:** Check this box if landscaping is proposed. Both BMPs are required where applicable. Explain inapplicability or infeasibility for BMPs not selected in Table 3. **(See Fact Sheet BL-4)**

2. Sustainable Landscaping (SD-K)

SD-K: SUSTAINABLE LANDSCAPING

Description

Sustainable landscaping uses native and drought tolerant plant species to limit the total water demand of landscaped areas and create a living sponge to soak up rainfall. Native and drought tolerant plants are well suited to the long-term climate in San Diego County; able to withstand extended dry periods and typically require less water to remain healthy compared to non-native alternatives. An additional benefit is reduced need for fertilizer and/or pesticides.

Sustainable landscaping must be evaluated for all landscaped areas of a project to meet Storm Water Quality Management Plan (SWQMP) requirements and should also be considered for any plantings associated with natural areas or areas identified for revegetation.

Design Considerations

The [San Diego Sustainable Landscape Guidelines](#) provide a detailed watershed friendly approach to landscaping. These guidelines will guide you through important principles such as:

- Selecting drought tolerant and native plants for San Diego County.
- Creating healthy soils to encourage moisture retention.
- Designing water efficient irrigation systems that reduce the likelihood of irrigation runoff.

The [County’s Landscape Ordinance](#) generally applies to any new construction for which the County issues a building permit or a discretionary review where the aggregate landscaped area is 500 square feet or more to obtain outdoor water use authorization. The [Water Efficient Landscape Design Manual](#) explains how people can comply with the County’s Landscape Ordinance by detailing water efficient irrigation systems, drought tolerant plant selection, fire-resistant designs, and other considerations.

Plan Requirements

For each required construction plan, provide the information indicated below for each applicable feature or BMP.

SD-K: Sustainable Landscaping
Plan View Requirements
<ul style="list-style-type: none"> • Show locations and boundaries of the features (or portions of features) designed as Sustainable Landscaping. • Label Sustainable Landscaping with BMP ID: SD-K
Detail Sheets
<ul style="list-style-type: none"> • Shall be shown on Landscape Plans if applicable.
Typical Construction Notes
<ul style="list-style-type: none"> • Grading plans need to refer to the approved landscape plan for construction notes.

Maintenance Considerations

Routine maintenance of the landscaped areas is essential to making them sustainable. The following are some maintenance considerations after installation:

- Maintain 2” – 4” of mulch and/or compost add more annually
- Practice Integrated Pest Management
- Check and adjust irrigation to eliminate runoff
- Regularly flush drip irrigation lines.
- Move drip irrigation and add emitters as tree growth occurs in order to maintain the wetting zone at outside edge of tree canopy (Dripline)

BL-5: Work and Storage Areas



MS4 Permit Category

Source Control (SC)

BMP IDs

SC-A: Overhead Covering

SC-B: Berms and Grade Breaks

SC-C: Wind Protection

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(4) requires baseline BMPs for the following common types of outdoor work areas.

- Trash and refuse storage,
- Materials and equipment storage,
- Loading and unloading,
- Fueling,
- Maintenance and repair,
- Vehicle and equipment cleaning, and
- Other areas, not identified above, that have the potential to generate pollutants.

SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above. All three of these BMPs should be implemented together in all areas where storage of materials and trash will be located:

- SC-A: Overhead Covering
- SC-B: Berm and Grade Breaks
- SC-C: Wind Protection

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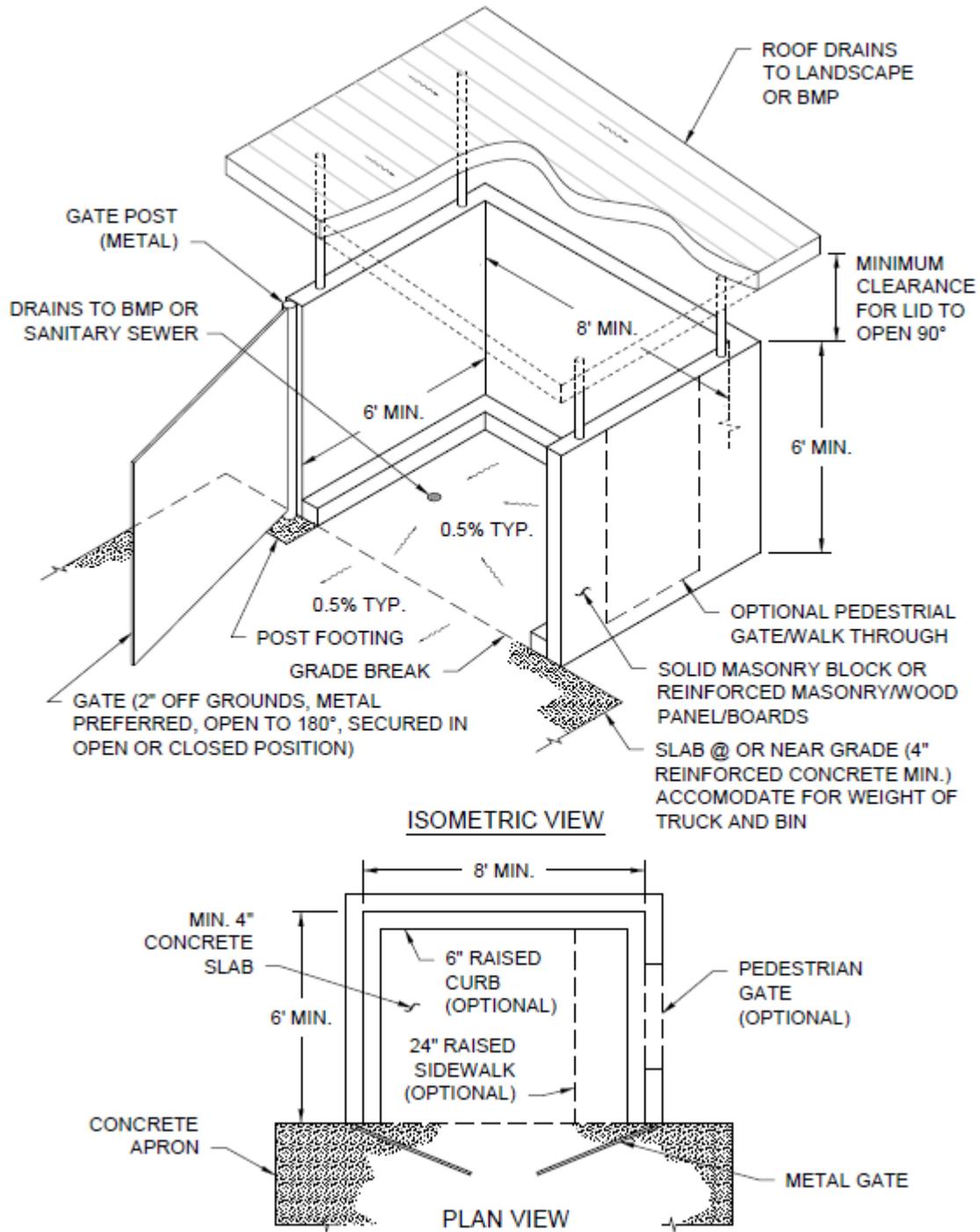
These baseline BMPs are documented in Table 2, Section A of the PDP and Standard SWQMP templates as shown below:

Table 2 – Baseline BMPs for Pollutant-generating Sources

<input type="checkbox"/> If this is a Small Residential Project, check this box and skip the rest of this table.							
A. Management of Stormwater Discharges							
1. Identify all proposed outdoor work areas below <i>(☐ Check here if none are proposed)</i>	2. Which BMPs will be used to prevent materials from contacting rainfall or runoff? <i>(See Fact Sheet BL-5)</i> <i>(Select all feasible BMPs for each work area²)</i>			3. Where will runoff from the work area be routed? <i>(See Fact Sheet BL-6)</i> <i>(Select one or more option for each work area)</i>			
	Overhead covering (rooftops, etc.) (SC-A)	Berms and grade breaks (SC-B)	Wind protection (screens, etc.) (SC-C)	Sanitary sewer³ (SC-D)	Containment Areas (SC-E)	Stormwater S-BMP or SSD-BMP⁴	Other⁵
<input type="checkbox"/> Trash & Refuse Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Materials & Equipment Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Loading & Unloading	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Fueling	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Maintenance & Repair	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Vehicle & Equipment Cleaning	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A typical isometric and plan view of a trash enclosure is shown on the next page.

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control



Typical Isometric and Plan View of a Trash Enclosure BMP

SC-A: OVERHEAD COVERING

Description

The Roofs or other permanent covers can be constructed over outdoor areas where pollutant-generating materials or activities are concentrated. This helps prevent rainfall from contacting materials and carrying pollutants with it into the storm drain system.

This BMP can be applied to any material or activity that will regularly be located in the same place on a site and contact with rainfall would result in pollutants being transported by storm water.

Temporary covers, such as tarps, are not considered part of this BMP but may also be an effective solution for preventing contact with rainwater when permanent covers are not feasible. For example, for pollutant-generating materials or activities that are not regularly located in the same place on a site.

Note: Permanent overhead structures must comply with the County of San Diego Consolidated Fire Code.

Design Considerations

- When initially planning a site, identify any area on the site where a pollutant-generating activity will regularly be occurring in a specific location or where pollutant-generating materials will be stored in a designated area. Consider constructing permanent overhead coverage for these areas, if feasible.
- Typical structures include roofs, awnings, and permanent canopies. Design covers with sufficient overhang to help prevent rain from contacting materials even when there are moderate winds.
- When designing permanent overhead coverage for these areas, the cover must extend at least to the edge of the berm or grade break and ideally will extend slightly beyond it.
- Projects are required to construct trash enclosures meeting various design requirements, one of which is a roof that fully covers the enclosure and is sufficiently high to allow dumpster lids to open to the full 90-degree position.
- If a downspout is used to drain a rooftop or cover over a designated washing, fueling, or trash area, it should be routed away from the designated area to avoid run-on.

Many food service facilities have storage bins for used cooking oil (i.e. “grease bins”). Storing these bins indoors, when done in accordance with County Health Department regulations, is preferable from a storm water pollution perspective. When grease bins must be stored outdoors, permanent roofs or awnings may be used when compliant with the fire code. Outdoor cooking areas may be designed with fire code compliant roofs or awnings as well.

Plan Requirements

SC-A: Overhead Covering

Plan View Requirements

- Show locations and boundaries of the features (or portions of features) designed with overhead covering
- Label with BMP ID: SC-A

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

Detail Sheets
<ul style="list-style-type: none">• Provide details in the applicable plan set where the feature is being designed and constructed.
Typical Construction Notes
<ul style="list-style-type: none">• Storage of non-hazardous liquids must be covered by a roof and be contained by berms, dikes, liners, or vaults.• Storage of hazardous materials and wastes must be in compliance with local, state and federal hazardous materials regulations, ordinances and hazardous materials management plan for the site.

Maintenance Considerations

Repair permanent covers as needed should any damage occur.

SC-B: BERMS AND GRADE BREAKS

Description

Berms and grade breaks can be used to physically separate designated storage and activity areas and prevent storm water surface flows from transporting pollutants from these areas to the storm drain system. A berm or grade break can prevent run-on from flowing through a pollutant generating area and becoming contaminated. Additionally, berms and grade breaks can effectively prevent contaminated water or spilled liquids from leaving a designated pollutant-generating area when the area is designed with a sump or sewer connection; reducing the likelihood of an illicit discharge of pollutants.

This BMP can be applied to any material or activity that will regularly be located in the same place on a site and where storm water surface flows would be likely to pick up pollutants from the work or storage area and transport them to the storm drain system.

Areas for activities, such as washing or fueling, must be designed with berms or grade breaks around their perimeters to ensure that runoff from these activities does not drain to the storm drain system or receiving waters.

Design Considerations

When initially planning a site, identify any area on the site where a pollutant generating activity will regularly be occurring in a specific location or where pollutant-generating materials will be stored in a designated area. If storm water run-on flowing through this area would be likely to pick up pollutants and carry them to a storm drain, consider modifying the site grading or construct a berm around the area to route run-on around the area.

Constructing concrete slab and curbing around an area is often an effective way to prevent run-on from contacting materials. Lower, rounded berms can also be constructed and are often better suited for areas where vehicular access is needed. Alternatively, strategic grading of a site may achieve the same benefits without requiring construction of berms. For example, locating an activity or storage area on an elevated pad or other high point can prevent run-on from entering the area. Whether using berming or grading, the feature should be designed with sufficient height to be able to redirect anticipated flows at the site. Strategically designing surface drainage features, such as ribbon gutters, in conjunction with the planned berms and/or grade breaks can help minimize the risk of breaching.

Berms and grade breaks should also be considered for areas where water or other liquids are meant to be contained within a designated space. Designing a berm or grade break around such an area is important not only for keeping run-on out of the area, but also for ensuring that any water within the area flows to the designated sewer drain or sump rather than flowing to a storm drain outside the area. When designing washing areas, ensure that the berm or grade break has sufficient height to contain the anticipated volumes of wash water. Also ensure that the berm or grade break is positioned far enough away from the anticipated wash area so that all incidental sprays fall within the designated area. For drive-thru style car washes, consider that incidental sprays and drips are likely to fall on the areas immediately adjacent to the car wash entrance and exit. Design the car wash entrance and exit areas with grade breaks or berms to ensure that incidental drips and spills are directed back to the car wash clarifier rather than flowing to nearby storm drains. Berms can also be used around designated

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

liquid storage areas. These berms should be constructed with sufficient height to contain the volume of liquids that could potentially be spilled in the area.

Plan Requirements

SC-B: Berms and Grade Breaks
Plan View Requirements
<ul style="list-style-type: none">• Show locations and boundaries of the features (or portions of features) designed with Berm and Grade Breaks• Label with BMP ID: SC-B
Detail Sheets
<ul style="list-style-type: none">• Provide details in the applicable plan set where the feature is being designed and constructed.
Typical Construction Notes
<ul style="list-style-type: none">• [Related to Berms]: Varies depending on type of berm.• [Related to Grade Breaks]: Where designated on plan, grade breaks shall be provided around activity areas to prevent storm water run-on.

Maintenance Considerations

Minimal maintenance is typically required for berms and grade breaks.

- Periodically clean bermed areas to reduce the chance of contaminated storm water discharges.
- Inspect and repair or reconstruct berms if they are damaged or begin to deteriorate.

SC-C: WIND PROTECTION

Description

Windbreaks are physical barriers that block wind, preventing it from impacting designated areas. They can be used to protect storage or collection areas where materials might be transported by wind. This prevents wind from blowing lightweight materials out of the designated storage area to adjacent areas where they would be more likely to be washed into a storm drain.

This BMP can be implemented wherever there is a designated area for storage of a material that is light enough to be blown away by wind. Trash storage areas are the most common areas for implementation of this BMP, as litter around trash receptacles can easily be transported by wind. Windbreaks should also be considered for protecting material storage areas whenever the stored material is lightweight. Windbreaks can also be used around outdoor work areas where work activities may generate powders or dust or where extremely lightweight materials, such as expanded polystyrene foam may be present.

Design Considerations

Identify whether the materials anticipated to be on the site can be transported by wind. If these materials will be used or stored in a designated outdoor location, consider building windbreaks to protect the area. Windbreaks can be solid walls that completely block wind, or they may be semi-solid barriers such as fences or screens that allow airflow but still trap and prevent transport of materials when used to create an enclosure around the materials. Privacy windscreens can be added to chain link fences to provide wind protection. Solid walls can also serve a dual purpose as both a windbreak and as protection against run-on. All areas shall have secured lids and/or coverings to close when not in use.

Since wind may come from different directions, it is optimal to place wind breaks on all sides of a storage area. This can be accomplished by placing fixed walls on three sides and having a gate on the fourth side. Where it is not feasible to place windbreaks on all sides of a storage area, it is often still possible to place them on three sides, leaving one side open to allow access. For example, designated stockpile storage areas may be designed with walls on three sides and one open side to allow clear access for vehicles or equipment.

At large trash-generating facilities, trash areas should be designed with three solid-sided walls and a solid gate on the fourth side.

Plan Requirements

SC-C: Wind Protection
Plan View Requirements
<ul style="list-style-type: none"> • Show locations and boundaries of the features (or portions of features) designed with Wind Protection • Label Wind Protection with BMP ID: SC-C
Detail Sheets
<ul style="list-style-type: none"> • Provide details in the applicable plan set where the feature is being designed and constructed.

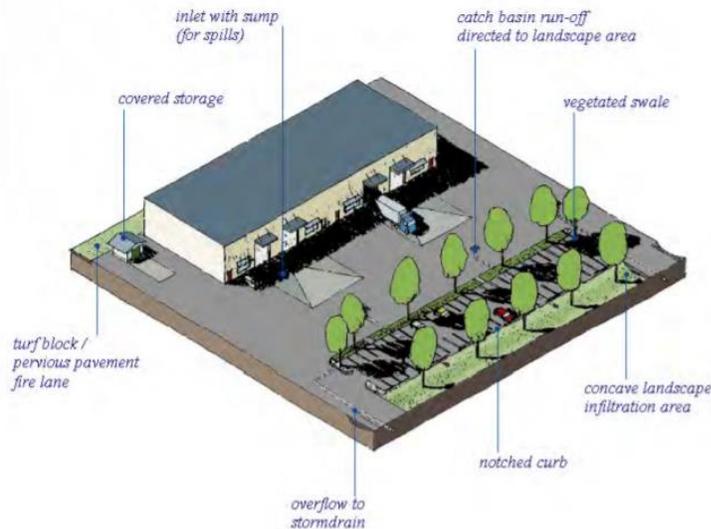
Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

Typical Construction Notes
<ul style="list-style-type: none">• Varies depending on type of enclosure.

Maintenance Considerations

Windbreaks should be repaired or reconstructed if they are damaged or begin to deteriorate.

BL-6: Management of Storm Water Discharges



MS4 Permit Category

Source Control (SC)

BMP IDs

SC-D: Sanitary Sewer

SC-E: Containment Areas

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(4) requires baseline BMPs to prevent illicit discharge into the storm drain system. This Fact Sheet describes baseline Best Management Practices (BMPs) for managing storm water discharges originating from outdoor work areas. While the baseline BMPs described in Fact Sheet BL-5, Work and Storage Areas (Baseline BMPs for Outdoor Work Areas) are intended to effectively minimize pollutant generation from work areas, projects must also be designed to ensure that storm water runoff generated from these areas is properly managed.

The discharge options described below apply to the following types of outdoor work areas:

- Trash and refuse storage,
- Materials and equipment storage,
- Loading and unloading,
- Fueling,
- Maintenance and repair,
- Vehicle and equipment cleaning, and
- Other areas, not identified above, that have the potential to generate pollutants.

SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above:

- SC-D: Sanitary Sewers
- SC-E: Containment Areas
- Storm Water S-BMP or SSD-BMP

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

These baseline BMPs are documented in Table 2, Section A.3 of the PDP and Standard SWQMP template:

Table 2 – Baseline BMPs for Pollutant-generating Sources

<input type="checkbox"/> If this is a Small Residential Project, check this box and skip the rest of this table.							
A. Management of Stormwater Discharges							
1. Identify all proposed outdoor work areas below <i>(☐ Check here if none are proposed)</i>	2. Which BMPs will be used to prevent materials from contacting rainfall or runoff? <i>(See Fact Sheet BL-5)</i> <i>(Select all feasible BMPs for each work area²)</i>			3. Where will runoff from the work area be routed? <i>(See Fact Sheet BL-6)</i> <i>(Select one or more option for each work area)</i>			
	Overhead covering (rooftops, etc.) (SC-A)	Berms and grade breaks (SC-B)	Wind protection (screens, etc.) (SC-C)	Sanitary sewer³ (SC-D)	Containment Areas (SC-E)	Stormwater S-BMP or SSD-BMP⁴	Other⁵
<input type="checkbox"/> Trash & Refuse Storage <input type="checkbox"/> Materials & Equipment Storage <input type="checkbox"/> Loading & Unloading <input type="checkbox"/> Fueling <input type="checkbox"/> Maintenance & Repair <input type="checkbox"/> Vehicle & Equipment Cleaning <input type="checkbox"/> Other:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

SC-D: SANITARY SEWER

Description

One option for eliminating pollutant discharges to the MS4 or receiving waters is to route storm water flows from the work area to the sanitary sewer. Discharges to the sanitary sewer are treated at a publicly owned treatment facility.

This option should be considered for any pollutant source (e.g., material storage area or activity) that has the potential to routinely generate liquid waste with a high concentration of storm water pollutants.

Connections to sanitary sewer may only be allowed with approval by Sanitary Sewer Agency with authority over the proposed receiving sanitary sewer. See additional information below.

Design Considerations

Unless otherwise noted, the following guidelines assume that discharges to the sanitary sewer are approved.

- Pollutant sources with piping and/or collection systems designed to convey waste, waste byproducts, or wash water, or with a defined discharge point, should be connected to sanitary sewer through a direct connection to the facility sanitary plumbing.
- Pollutant sources that are permanent with passive discharge systems, such as interior floor drains and sumps, drain lines, and water feature overflows should be connected to sanitary sewer through a direct connection to the facility sanitary plumbing.
- Pollutant sources occupying a defined area, such as trash and refuse areas, material and equipment storage, loading and unloading areas, fueling, maintenance and repair, vehicle and equipment cleaning, and outdoor food preparation areas may drain to a sump within the area that is connected to sanitary sewer through a direct connection to the facility sanitary plumbing. Every effort should be made to prevent discharges of storm water to the sanitary sewer. Therefore, outdoor areas connected to sewer should be protected from direct rainfall and from storm water run-on.

Note: Work areas should not be discharged to an onsite wastewater treatment system (e.g. septic) unless the system is specifically designed to accommodate them. This includes being designed to handle the increased flow volumes and rates as well as being designed to process the particular type of pollutant in its anticipated concentrations. These systems are typically designed specifically for household waste. Introduction of additional flows or pollutant types outside the originally intended design can result in failure of the onsite wastewater treatments system and lead to significant public health issues.

All approved connections are subject to the design and pretreatment requirements (e.g. clarifiers or oil-water separators for wash racks and interior floor drains) of the applicable approving agency. A list of agencies is provided below for reference.

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

County of San Diego Sanitary Sewer Agencies

Water District and Address	Telephone and Website
Borrego Water District 806 Palm Canyon Dr. Borrego Springs, CA 92004	(760)-767-5806 www.borregowd.org
City of Vista (Including Buena Sanitation District and Shadowridge) 200 Civic Center Dr. Vista, CA 92084	(760)-643-2804 www.cityofvista.com
Fallbrook Public Utility District 990 East Mission Rd. Fallbrook, CA 92028	(760)-728-1125 www.fpud.com
Leucadia Wastewater District 1960 La Costa Ave. Carlsbad, CA 92009	(760)-728-1125 www.lwwd.org
Olivenhain Municipal Water District (Including 4S Ranch and Rancho Cielo) 1966 Olivenhain Rd. Encinitas, CA 92024	(760)-753-6466 www.olivenhain.com
Otay Water District 2554 Sweetwater Springs Blvd. Spring Valley, CA 91978	(619)-670-2222 www.otaywater.gov
Padre Dam Municipal Water District 9300 Fanita Pkwy. Santee, CA 92072	(619)-258-4635 www.padredam.org
Pauma Valley Community Services District 33129 Cole Grade Rd. Pauma Valley, CA 92061	(760)-742-1909 www.yuimamwd.com
Rainbow Municipal Water District 3707 Old Highway 395 Fallbrook, CA 92028	(760)-728-1178 www.rainbowmwd.com
Ramona Municipal Water District 105 Earlham St. Ramona, CA 92065	(760)-789-1330 www.rmwd.org
Vallecitos Water District 201 Vallecitos de Oro San Marcos, CA 92069	(760)-744-0460 www.vwd.org
Valley Center Municipal Water District 29300 Valley Center Valley Center, CA 92082	(760)-749-1600 www.vcmwd.org
County Sanitation Districts Alpine/Julian/Lakeside/Pine Valley Spring Valley/Winter Gardens	(858)-514-4990 https://www.sandiegocounty.gov/dpw
Private Sewer Districts (Dudek & Associates) Fairbanks Ranch Rancho/Santa Fe CSD Whispering Palms	(760)-942-5147 www.dudek.com

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

Plan Requirements

SC-D: Sanitary Sewer
Plan View Requirements
<ul style="list-style-type: none">• Show locations and boundaries of the features (or portions of features) discharging to Sanitary Sewer• Label with BMP ID: SC-D
Detail Sheets
<ul style="list-style-type: none">• Provide details in the applicable plan set where the feature is being designed and construction. Typically shown on utility sheet on building plan
Typical Construction Notes
<ul style="list-style-type: none">• “FEATURE (E.G. FUELING AREA, ETC)” SHALL BE PLUMBED TO SANITARY SEWER WITH APPROVAL FROM LOCAL SANITARY SEWER AGENCY [INSERT NAME OF LOCAL SANITARY SEWER AGENCY].

Maintenance Considerations

All approved connections are subject to the design, pretreatment and maintenance requirements (e.g. clarifiers or oil-water separators for wash racks and interior floor drains) of the applicable approving agency.

SC-E: CONTAINMENT AREAS

Description

Containment areas are specifically designed storage or activity areas that prevent spills, leaks, and other discharges, that would otherwise pollute storm water, from leaving the designated area. Spills leaks and other discharges from storage and activity areas can have high concentrations of pollutants that will contaminate storm water and impact receiving waterbodies if allowed to discharge from the site.

This BMP can be applied to any material or activity that will regularly be located in the same place on a site that could reasonably experience or result in spills, leaks, or other discharges.

Design Considerations

When initially planning a site, identify any area on the site where a pollutant generating activity will regularly be occurring in a specific location or where pollutant-generating materials will be stored in a designated area. If these pollutant-generating activities or materials could result in spills, leaks, or other discharges consider constructing or providing containment for the area.

Containment areas should be designed to hold the entire volume of spilled, leaked, or discharged material without overflowing.

Containment of a pollutant-generating activity can be accomplished by berming the area with a concrete curb, or other sealed linear barrier that prevents all material from flowing out of the area. Individual liquid storage containers can be effectively contained using manufactured containment pallets or sheds.

Containment areas should be completely isolated from storm drains. Do not construct storm drain inlets within containment areas, and do not allow site drainage to be directed through a containment area. If approved by the permitting sanitary sewer agency (refer to SC-D: Discharge to Sanitary Sewer), a containment area may be drained to the facility sanitary sewer plumbing. Designing containment around a pollutant-generating area is important for ensuring that any water within the area flows to the designated sewer drain rather than flowing to a storm drain outside the area.

Design of washing areas should ensure that containment has sufficient height to accommodate the anticipated volumes of wash water. Also ensure that the containment barrier is positioned far enough away from the anticipated wash area so that all incidental sprays fall within the designated area. For drive-thru style car washes, consider that incidental sprays and drips are likely to fall on the areas immediately adjacent to the car wash entrance and exit. Design the car wash entrance and exit with grade breaks or berms to ensure that incidental drips and spills are directed back to the car wash clarifier rather than flowing to nearby storm drains.

Plan Requirements

SC-E: Containment Areas
Plan View Requirements
<ul style="list-style-type: none"> • Show locations and boundaries of the features (or portions of features) that discharge to containment areas. • Label with BMP ID: SC-E

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

Detail Sheets
<ul style="list-style-type: none">• Provide details in the applicable plan set where the feature is being designed and constructed.
Typical Construction Notes
<ul style="list-style-type: none">• VARIES DEPENDING ON TYPE OF CONTAINMENT.

Maintenance Considerations

Containment areas should be kept clean of spills, leaks and debris as they occur and repaired or reconstructed if they are damaged or begin to deteriorate.

BL-7: Management of Non-Storm Water Discharges



MS4 Permit Category

Source Control (SC)

BMP IDs

SC-F: Storm Drain Signage

SC-G: Educational BMP Signage

TYPICAL STORM DRAIN SIGNAGE

Applicable Site Features

County Watershed Protection Ordinance (WPO) Section 67.811(a)(4) requires baseline BMPs for the management of non-storm water discharges to prevent illicit discharges from entering the storm drain system. This Fact Sheet describes baseline BMPs for the labeling of all storm drain inlets and catch basins; educational signage; and practices for interior work surfaces, floor drains and sumps, drain lines, and fire sprinkler test water.

SWQMP Baseline BMP Requirements

The following baseline BMPs are required where applicable and feasible for the features described above:

a. Storm Drain Inlets and Catch Basins (SC-F)

See BMP ID SC-F: Storm Drain Signage (SC-F) below.

b. Educational BMP signage (SC-G)

See BMP ID SC-G: Educational BMP Signage (SC-G) below.

c. Interior work surfaces, floor drains & sumps

All interior work surfaces, floor drains and sumps shall not be directly connected to the MS4 or receiving waters. All discharges should be directed to sanitary sewer, if feasible, and with approvals by the Sanitary Sewer Agency with authority over the proposed receiving sanitary sewer.

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

d. Drain lines (e.g., air conditioning, boiler, etc.)

All drain lines shall not be directly connected to the MS4 or receiving waters. All discharges should be directed to sanitary sewer, if feasible, and with approvals by the Sanitary Sewer Agency with authority over the proposed receiving sanitary sewer, or discharge to landscaped areas on site.

e. Fire sprinkler test water

Fire sprinkler test water shall not be directly connected to the MS4 or receiving waters. Please click on the following fact sheet for additional information:



[https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED PROTECTION PROGRAM/watershedpdf/IndustComm/English/Fire Sprinkler Maintenance.pdf](https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/IndustComm/English/Fire_Sprinkler_Maintenance.pdf)

These baseline BMPs are documented in Table 2, Section B of the PDP and Standard SWQMP template as shown below:

B. Prevention of Non-stormwater Discharges (See Fact Sheet BL-7)		
Select one option for each feature below:		
• Storm drain inlets and catch basins ...	<input type="checkbox"/> are not proposed	<input type="checkbox"/> will be labeled with stenciling or signage to discourage dumping (SC-F)
• Educational BMP Signage...	<input type="checkbox"/> are not proposed	<input type="checkbox"/> will be labeled with educational signage for BMP (SC-G)
• Interior work surfaces, floor drains, & sumps ...	<input type="checkbox"/> are not proposed	<input type="checkbox"/> will not discharge directly or indirectly to the MS4 or receiving waters
• Drain lines (e.g., air conditioning, boiler, etc.) ...	<input type="checkbox"/> are not proposed	<input type="checkbox"/> will not discharge directly or indirectly to the MS4 or receiving waters
• Fire sprinkler test water ...	<input type="checkbox"/> are not proposed	<input type="checkbox"/> will not discharge directly or indirectly to the MS4 or receiving waters

SC-F: STORM DRAIN SIGNAGE

Description

Storm drain signs and stencils are visible source controls typically placed adjacent to inlets. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signage must be provided for all storm water conveyance system inlets and catch basins within the project area. Storm drain signage may include concrete stamping, concrete painting, placards, or other methods approved by the County. These may be modified and used as educational pieces promoting improved water quality. In addition to storm drain signage at storm water conveyance system inlets and catch basins, applicants are encouraged to post signs and prohibitive language (with graphical icons) which prohibit illegal dumping at trailheads, parks, building entrances, and public access points along channels and creeks within the project area.

Design Considerations

Storm drain stenciling and signage may be implemented using a painted stencil or a sign or placard affixed to the structure. Signage should be located in plain sight of someone observing a storm drain inlet. The signage may include a combination of graphics and prohibitive language that identifies the inlet as a storm drain, prohibits dumping, and explains that storm drains discharge directly to receiving waterbodies.

Stencils and placards can be purchased from a number of suppliers. In the San Diego area, the non-profit organization, I Love A Clean San Diego, loans out stencil sets for labeling storm drains. They can be contacted at (619) 291-0103 or found online at <https://ilacsd.org>.

Plan Requirements

SC-F: STORM DRAIN SIGNAGE
Plan View Requirements
<ul style="list-style-type: none"> • Label each storm drain with BMP ID: SC-F
Detail Sheets
<ul style="list-style-type: none"> • Provide details on grading or improvement plans associated with the construction of applicable inlet or drainage feature.
Typical Construction Notes
<ul style="list-style-type: none"> • MARK ALL INLETS WITH THE WORDS “NO DUMPING DRAINS TO WATERWAYS” OR SIMILAR. SEE STENCIL TEMPLATE PROVIDED ON THE SHEET.

Maintenance Considerations

Signage should be repainted or replaced if it is damaged or begins to deteriorate.

SC-G: EDUCATIONAL BMP SIGNAGE

Description

Educational BMP Signage are visible source controls typically placed adjacent to a source control, site design, or structural BMP. Signage educates workers, homeowners and/or the public to raise awareness of storm water issues and educate about the benefits of these watershed protection measures.

Educational BMP Signage is an effective source control BMP to alert the public of the function and maintenance requirements of the BMPs. Below are some typical types of Educational BMP Signage:

1. **Temporary BMP Signage:** The purpose of temporary BMP signage is to alert contractors during construction that this permanent BMP has been completed and to ensure this BMP does not get disturbed during subsequent grading and building construction activities. It is good practice to divert sediment-laden water to temporary construction BMPs (e.g., sediment traps, etc.) around the permanent structural BMP until all drainage areas have been stabilized. If sediment and/or construction activities infringe on the permanent BMP, the facility will most likely need to be rehabilitated prior to project close-out. Figure 1 below provides a typical temporary BMP signage for use during the construction process that reads “Boundary of Structural Best Management Practice: Bioretention Basin. DO NOT DISTURB”
2. **Model Home BMP Signage:** Educational BMP Signage for model homes provides future homeowners a description of the benefits and responsibilities of the BMPs constructed on their property. It also provides the maintenance requirements to ensure long-term function of the BMP. Educational BMP Signage for permanent BMPs should include the following; vegetation type, maintenance requirements, design components and link to the County website with resources on maintenance for permanent BMPs. For additional guidance please refer to the County’s Landscape Ordinance Section 86.718(b).
3. **Interpretive BMP Signage:** This type of signage provides permanent Educational BMP Signage for the public to detail how BMPs benefit the local waterways. Figure 2 below provides an example of this type of interpretative BMP signage for a permanent BMP. This type of signage would be typically beneficial in public areas and applicable to municipal facilities (such as parks and public buildings), as well as commercial and industrial facilities to educate the public.

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

Figure 1: Temporary Structural BMP Signage



Figure 2: Permanent Interpretive BMP Signage

Design Considerations

Temporary BMP Signage should be designed to be highly visible to construction crews. Materials should ensure the sign is effective through planned construction activities within the drainage area to the permanent BMP.

Model Home Signage would typically be designed by the homebuilder to incorporate the characteristics of the development project. Signs should clearly provide the function of the permanent BMP and maintenance requirements of the prospective buyers of the property.

Interpretive BMP Signage should be constructed of materials that can withstand long-term placement for the lifecycle of the permanent BMP. Language should emphasize the positive impacts these facilities have to local receiving waters along with design renderings of the facility. Local partnerships and owner information are also important design considerations for this type of signage.

Signage should alert the private owner or public of the function of the permanent BMP, indicate prohibited activities that cause premature clogging, and provide typical maintenance requirements.

Plan Requirements

SC-G: PERMANENT BMP SIGNAGE
Plan View Requirements
<ul style="list-style-type: none"> • Label with BMP ID: SC-G
Detail Sheets
<ul style="list-style-type: none"> • Provide details in the applicable plan set of signage design and language.

Appendix C: Baseline BMP Fact Sheets for Site Design and Source Control

Typical Construction Notes

- TEMPORARY BMP SIGNAGE SHALL BE INSTALLED WITH THE WORDS “ BOUNDARY OF STRUCTURAL BEST MANAGEMENT PRACTICE. DO NOT DISTURB” OR SIMILAR. SEE SIGNAGE TEMPLATE PROVIDED ON SHEET [INSERT SHEET NUMBER]
- MODEL HOME BMP SIGNAGE SHALL BE INSTALLED WITH THE WORDS “A STRUCTURAL BMP IS A PERMANENT STORM WATER QUALITY FEATURE OF THIS PROPERTY THAT REQUIRES MAINTENANCE AND ANNUAL REPORTING REQUIREMENTS WITH THE COUNTY OF SAN DIEGO” OR SIMILAR. SEE SIGNAGE TEMPLATE PROVIDED ON SHEET [INSERT SHEET NUMBER]
- INTERPRETIVE BMP SIGNAGE REQUIRES APPROVAL BY OWNER PRIOR TO INSTALLATION.

Maintenance Considerations

Signage should be repainted or replaced if it is damaged or begins to deteriorate.

Temporary BMP Signage may be removed once all contributing drainage areas have been completed and stabilized and all permits within the drainage area have been closed out. Signage should only be removed with the approval of County staff.

Model Home BMP Signage may be removed once occupancy of model homes have been granted by PDS Building. Signage shall only be removed with the approval of County staff.