

## C.1 Compliance with Discharge Prohibitions and Receiving Waters Limitations

The Permittees shall comply with Discharge Prohibitions A.1 and A.2 and Receiving Water Limitations B.1 and B.2 through the timely implementation of control measures and other actions as specified in Provisions C.2 through C.15. Compliance with Provisions C.9 through C.14 of this Order, which prescribe requirements and compliance schedules for Permittees to manage their cause and contributions to violation of water quality standards or to prevent violation of water quality standards for pesticides, trash, mercury, polychlorinated biphenyls (PCBs), copper, and bacteria, shall constitute compliance with Receiving Water Limitations B.1 and B.2 for these pollutants in receiving waters identified in the provisions. Compliance with Provision C.10, which prescribes requirements and compliance schedules for Permittees to manage their discharges of trash, shall constitute compliance with Discharge Prohibitions A.2 for discharges of trash. If exceedance(s) of water quality standards or water quality objectives (collectively, WQSs), except for exceedances of WQSs for pesticides, trash, mercury, PCBs, and bacteria that are managed pursuant to Provisions C.9 through C.14, persist in other receiving waters, the Permittees shall comply with the following procedure:

- C.1.a Upon a determination by either the Permittee(s) or the Water Board that discharges are causing or contributing to an exceedance of an applicable WQS, the Permittee(s) shall notify, within no more than 30 days, and thereafter submit a report to the Water Board that describes controls or best management practices (BMPs) that are currently being implemented, and the current level of implementation, and additional controls or BMPs that will be implemented, and/or an increased level of implementation, to prevent or reduce the discharge of pollutants that are causing or contributing to the exceedance of WQSs. The report may be submitted in conjunction with the Annual Report, unless the Water Board directs an earlier submittal and shall constitute a request to the Water Board for amendment of this NPDES Permit. The report and application for amendment shall include an implementation schedule. The Water Board may require modifications to the report and application for amendment; and
- C.1.b Submit any modifications to the report required by the Water Board within 30 days of notification.

As long as Permittees have complied with the procedures set forth above, they do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Water Board to develop additional control measures and BMPs and reinitiate the Permit amendment process.

## C.2. Municipal Operations

The purpose of this provision is to ensure implementation of appropriate BMPs by all Permittees to control and reduce non-stormwater and polluted stormwater discharges to storm drains and watercourses during operation, inspection, and routine repair and maintenance activities of municipal facilities and infrastructure.

### C.2.a. Street and Road Repair and Maintenance

**i. Task Description** – Asphalt/Concrete Removal, Cutting, Installation, and Repair  
The Permittees shall implement appropriate BMPs at street and road repair and/or maintenance sites to control debris and waste materials during road and parking lot installation, repaving, or repair maintenance activities, such as those described in the California Stormwater Quality Association's Handbook for Municipal Operations.

**ii. Implementation Levels**

- (1) The Permittees shall require proper management of concrete slurry and wastewater, asphalt, pavement cutting, and other street and road maintenance materials and wastewater to avoid discharge to storm drains from such work sites. The Permittees shall coordinate with sanitary sewer agencies to determine if disposal to the sanitary sewer system is available for the wastewater generated from these activities provided that appropriate approvals and pretreatment standards are met.
- (2) The Permittees shall require sweeping and/or vacuuming to remove debris, concrete, or sediment residues from such work sites upon completion of work. The Permittees shall require cleanup of all construction remains, spills, and leaks using dry methods (e.g., absorbent materials, rags, pads, and vacuuming), as described in the Bay Area Stormwater Management Agencies Association's (BASMAA's) Blueprint for a Clean Bay.

**iii. Reporting** – The Permittees shall report on implementation of and compliance with these BMPs in the Annual Report.

### C.2.b. Sidewalk/Plaza Maintenance and Pavement Washing

**i. Task Description** – The Permittees shall implement and require to be implemented BMPs that prohibit the discharge of polluted wash water and non-stormwater to storm drains for pavement washing, mobile cleaning, pressure wash operations in such locations as parking lots and garages, trash areas, gas station fueling areas, and sidewalk and plaza cleaning. The Permittees shall implement the BMPs included in BASMAA's Mobile Surface Cleaner Program. The Permittees shall coordinate with sanitary sewer agencies to determine if disposal to the sanitary sewer is available for the wastewater generated from these activities provided that appropriate approvals and pretreatment standards are met.

- ii. **Reporting** – The Permittees shall report on implementation of and compliance with these BMPs in their Annual Report.

**C.2.c. Bridge and Structure Maintenance and Graffiti Removal**

**i. Task Description**

- (1) The Permittees shall implement appropriate BMPs to prevent polluted stormwater and non-stormwater discharges from bridges and structural maintenance activities directly over water or into storm drains.
- (2) The Permittees shall implement BMPs for graffiti removal that prevent non-stormwater and wash water discharges into storm drains.

**ii. Implementation Levels**

- (1) The Permittees shall prevent all debris, including structural materials and coating debris, such as paint chips, or other debris and pollutants generated in bridge and structure maintenance or graffiti removal from entering storm drains or water courses.
- (2) The Permittees shall protect nearby storm drain inlets before removing graffiti from walls, signs, sidewalks, or other structures. The Permittees shall prevent any discharge of debris, cleaning compound waste, paint waste, or wash water due to graffiti removal from entering storm drains or watercourses.
- (3) The Permittees shall use proper disposal methods for wastes generated from these activities. The Permittees shall train their employees and/or specify in contracts the proper capture and disposal methods for the wastes generated.

- iii. **Reporting** – The Permittees shall report on implementation of and compliance with these BMPs in their Annual Report.

**C.2.d. Stormwater Pump Stations**

- i. **Task Description** –The Permittees shall implement measures to operate, inspect, and maintain stormwater pump stations to eliminate non-stormwater discharges containing pollutants, and to reduce pollutant loads in stormwater discharges to comply with WQSs.

- ii. **Implementation Levels** – The Permittees shall comply with the following at Permittee-owned or -operated pump stations:

- (1) Implement corrective actions, such as continuous pumping at a low flow rate, aeration, or other appropriate methods to maintain dissolved oxygen (DO) concentrations of the discharge above 3 milligrams per liter (mg/L). Corrective actions do not need to be implemented on discharges from pump stations that remain in the stormwater collection system or infiltrate into a dry creek immediately downstream.

- (2) Ensure that pump stations are free from debris and trash and replace any oil absorbent booms, as needed, and investigate and abate illicit discharges.
- (3) The Permittees shall maintain records of inspection, maintenance, and implementation of corrective actions at Permittee-owned or -operated pumped stations. These records shall be made available to Water Boards staff or its representatives during inspections and audits, or otherwise upon request.

**C.2.e. Rural Public Works Construction and Maintenance**

**i. Task Description – Rural Road and Public Works Construction and Maintenance**

For the purpose of this provision, rural means any watershed or portion thereof that is developed with large lot home-sites, such as one acre or larger, or with primarily agricultural, grazing, or open space uses. The Permittees shall implement and require contractors to implement BMPs for erosion and sediment control during and after construction for maintenance activities on rural roads, particularly in or adjacent to stream channels or wetlands. The Permittees shall notify the Water Board, the California Department of Fish and Wildlife, and the U.S. Army Corps of Engineers, where applicable, and obtain appropriate agency permits for rural public works activities before work in or near creeks and wetlands.

**ii. Implementation Level**

- (1) The Permittees shall continue to implement BMPs for erosion and sediment control measures during construction and maintenance activities on rural roads, including developing and implementing appropriate training and technical assistance resources for rural public works activities.
- (2) The Permittees shall implement appropriate BMPs for the following activities. BMPs shall minimize impacts on streams and wetlands in the course of rural road and public works maintenance and construction activities:
  - (a) Road design, construction, maintenance, and repairs in rural areas that prevent and control road-related erosion and sediment transport;
  - (b) Identification and prioritization of rural road maintenance on the basis of soil erosion potential, slope steepness, and stream habitat resources;
  - (c) Construction of roads and culverts that do not impact creek functions. New or replaced culverts shall not create a migratory fish passage barrier, where migratory fish are present, or lead to stream instability;
  - (d) Implementation of an inspection program to maintain rural roads' structural integrity and prevent impacts to water quality;

- (e) Maintenance of rural roads adjacent to streams and riparian habitat to reduce erosion, replace damaging shotgun culverts and address excessive erosion;
  - (f) Re-grading of unpaved rural roads to slope outward where consistent with road engineering safety standards, and installation of water bars as appropriate; and
  - (g) Replacement of existing culverts or design of new culverts or bridge crossings shall use measures to reduce erosion, provide fish passage, and maintain natural stream geomorphology in a stable manner.
- (3) The Permittees shall incorporate existing training and guidance on permitting requirements for rural public works activities so as to stress the importance of proper planning and construction to avoid water quality impacts.
  - (4) The Permittees shall provide training incorporating these BMPs to rural public works maintenance staff at least twice within this Permit term.
- iii. Reporting** – The Permittees shall report on the implementation of and compliance with BMPs for the rural public works construction and maintenance activities in their Annual Report, including reporting on increased maintenance in priority areas.

**C.2.f. Corporation Yard BMP Implementation**

**i. Task Description** – Corporation Yard Maintenance

- (1) The Permittees shall implement and maintain a site specific Stormwater Pollution Prevention Plan (SWPPP) for corporation yards, including municipal vehicle maintenance, heavy equipment, and maintenance vehicle parking areas, and material storage facilities, to comply with water quality standards. Each SWPPP shall incorporate all applicable BMPs that are described in the California Stormwater Quality Association's Handbook for Municipal Operations and the Caltrans Storm Water Quality Handbook Maintenance Staff Guide, May 2003, and its addenda, as appropriate.
- (2) The requirements in this provision shall apply only to facilities that are not covered under the State Board's Industrial Stormwater NPDES General Permit.

**ii. Implementation Level**

- (1) Implement BMPs to minimize pollutant discharges in stormwater and prohibit non-stormwater discharges, such as wash waters and street sweeper, vactor, and other related equipment wash water. Pollution control actions shall include, but not be limited to, good housekeeping practices, material and waste storage control, and vehicle leak and spill control.
- (2) Routinely inspect corporation yards to ensure that non-stormwater discharges are not entering the storm drain system and pollutant

discharges are prevented to the maximum extent practicable. At a minimum, each corporation yard shall be fully inspected each year between September 1<sup>st</sup> and September 30<sup>th</sup>.

- (3) Plumb all vehicle and equipment wash areas to the sanitary sewer after coordination with the local sanitary sewer agency and equip with a pretreatment device (if necessary) in accordance with the requirements of the local sanitary sewer agency.
  - (4) Use dry cleanup methods when cleaning debris and spills from corporation yards. If wet cleaning methods must be used (e.g., pressure washing), the Permittee shall ensure that wash water is collected and disposed in the sanitary sewer after coordination with the local sanitary sewer agency and in accordance with the requirements of the local sanitary sewer agency. Any private companies hired by the Permittee to perform cleaning activities on Permittee-owned property shall follow the same requirements. In areas where sanitary sewer connection is not available, the Permittees shall collect and haul the wash water to a municipal wastewater treatment plant, or implement appropriate BMPs and dispose of the wastewater to land in a manner that does not adversely impact surface water or groundwater.
  - (5) Outdoor storage areas containing pollutants shall be covered and/or bermed to prevent discharges of polluted stormwater runoff or run-on to storm drain inlets.
- iii. Reporting** – The Permittees shall list activities conducted in the corporation yard that have BMPs in the site specific SWPPP, date of inspections, the results of inspections, and any follow-up actions in their Annual Report.

### C.3. New Development and Redevelopment

The goal of Provision C.3 is for the Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.

#### C.3.a. New Development and Redevelopment Performance Standard Implementation

**i. Task Description** – At a minimum, each Permittee shall:

- (1) Have adequate legal authority to implement all requirements of Provision C.3;
- (2) Have adequate development review and permitting procedures to impose conditions of approval or other enforceable mechanisms to implement the requirements of Provision C.3. For projects discharging directly to CWA section 303(d)-listed waterbodies, conditions of approval must require that post-development runoff not exceed pre-development levels for such pollutants that are listed;
- (3) Evaluate potential water quality effects and identify appropriate mitigation measures when conducting environmental reviews, such as under CEQA;
- (4) Provide training adequate to implement the requirements of Provision C.3 for staff, including interdepartmental training;
- (5) Provide outreach adequate to implement the requirements of Provision C.3, including providing education materials to municipal staff, developers, contractors, construction site operators, and owner/builders, early in the planning process and as appropriate;
- (6) For all new development and redevelopment projects that are subject to the Permittee's planning, building, development, or other comparable review, but not regulated by Provision C.3, encourage the inclusion of adequate site design measures that may include minimizing land disturbance and impervious surfaces (especially parking lots); clustering of structures and pavement; directing roof runoff to vegetated areas; use of micro-detention, including distributed landscape-based detention; preservation of open space; protection and/or restoration of riparian areas and wetlands as project amenities;
- (7) For all new development and redevelopment projects that are subject to the Permittee's planning, building, development, or other comparable review, but not regulated by Provision C.3, encourage the inclusion of adequate source control measures to limit pollutant generation, discharge, and runoff. These source control measures should include:
  - Storm drain inlet stenciling.

- Landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, minimizes the use of pesticides and fertilizers, and incorporates appropriate sustainable landscaping practices and programs, such as Bay-Friendly Landscaping.
  - Appropriate covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas.
  - Covered trash, food waste, and compactor enclosures.
  - Plumbing of the following discharges to the sanitary sewer, subject to the local sanitary sewer agency's authority and standards:
    - Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants.
    - Dumpster drips from covered trash and food compactor enclosures.
    - Discharges from outdoor covered wash areas for vehicles, equipment, and accessories.
    - Swimming pool water, if discharge to onsite vegetated areas is not a feasible option.
    - Fire sprinkler test water, if discharge to onsite vegetated areas is not a feasible option.
- (8) Revise, as necessary, General Plans to integrate water quality and watershed protection with water supply, flood control, habitat protection, groundwater recharge, and other sustainable development principles and policies (e.g., referencing the Bay-Friendly Landscape Guidelines).
- iii. Reporting** – Provide a brief summary of the method(s) of implementation of Provisions C.3.a.i.(1)–(8) in the 2016 Annual Report.

### **C.3.b. Regulated Projects**

- i. Task Description** – The Permittees shall require all projects fitting the category descriptions listed in Provision C.3.b.ii below (hereinafter called Regulated Projects) to implement LID source control, site design, and stormwater treatment onsite or at a joint stormwater treatment facility<sup>1</sup> in accordance with Provisions C.3.c and C.3.d, unless the Provision C.3.e alternate compliance options are evoked. For adjacent Regulated Projects that will discharge runoff to a joint stormwater treatment facility, the treatment facility must be completed by the end of construction of the first Regulated Project that will be discharging runoff to the joint stormwater treatment facility.

Regulated Projects, as they are defined in this Provision, do not include detached single-family home projects that are not part of a larger plan of development.

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<sup>1</sup> **Joint stormwater treatment facility** – Stormwater treatment facility built to treat the combined runoff from two or more Regulated Projects,



**ii. Regulated Projects are defined in the following categories:**

**(1) Special Land Use Categories**

(a) **New Development or redevelopment projects** that fall into one of the categories listed below and that create and/or replace 5000 square feet or more of impervious surface (collectively over the entire project site). This category includes development projects of the following four types on public or private land that fall under the planning and building authority of a Permittee:

(i) Auto service facilities, described by the following Standard Industrial Classification (SIC) Codes: 5013, 5014, 5541, 7532-7534, and 7536-7539;

(ii) Retail gasoline outlets;

(iii) Restaurants (SIC Code 5812); or

(iv) Stand-alone uncovered parking lots and uncovered parking lots that are part of a development project if the parking lot creates and/or replaces 5,000 square feet or more of impervious surface. This category includes the top uncovered portion of parking structures, unless drainage from the uncovered portion is connected to the sanitary sewer along with the covered portions of the parking structure.

(b) For redevelopment projects in the categories specified in Provision C.3.b.ii.(1)(a)(i)-(iv), specific exclusions are:

(i) Interior remodels;

(ii) Routine maintenance or repair such as:

- roof or exterior wall surface replacement,
- pavement resurfacing within the existing footprint.

(c) Where a redevelopment project in the categories specified in Provision C.3.b.ii.(1)(a)(i)-(iv) results in an alteration of **50 percent or more** of the impervious surface of a previously existing development that was not subject to Provision C.3, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project).

(d) Where a redevelopment project in the categories specified in Provision C.3.b.ii.(1)(a)(i)-(iv) results in an alteration of **less than 50 percent** of the impervious surface of a previously existing development that was not subject to Provision C.3, only the new and/or replaced impervious surface of the project must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the new and/or replaced impervious surface of the project).

(2) **Other Development Projects**

New development projects that create 10,000 square feet or more of impervious surface (collectively over the entire project site) including commercial, industrial, residential housing subdivisions (i.e., detached single-family home subdivisions, multi-family attached subdivisions (town homes), condominiums, and apartments), mixed-use, and public projects. This category includes development projects on public or private land that fall under the planning and building authority of a Permittee. Detached single-family home projects that are not part of a larger plan of development are specifically excluded.

(3) **Other Redevelopment Projects**

Redevelopment projects that create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site) including commercial, industrial, residential housing subdivisions (i.e., detached single-family home subdivisions, multi-family attached subdivisions (town homes), condominiums, and apartments), mixed-use, and public projects. Redevelopment is any land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a site on which some past development has occurred. This category includes redevelopment projects on public or private land that fall under the planning and building authority of a Permittee.

Specific exclusions to this category are:

- Interior remodels.
- Routine maintenance or repair such as:
  - roof or exterior wall surface replacement, or
  - pavement resurfacing within the existing footprint.
- (a) Where a redevelopment project results in an alteration of **50 percent or more** of the impervious surface of a previously existing development that was not subject to Provision C.3, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire redevelopment project).
- (b) Where a redevelopment results in an alteration of **less than 50 percent** of the impervious surface of a previously existing development that was not subject to Provision C.3, only the new and/or replaced impervious surface of the project must be included in the treatment system design (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the new and/or replaced impervious surface of the project).

(4) **Road Projects**

Any of the following types of road projects that create 10,000 square feet or more of newly constructed impervious surface and that fall under the building and planning authority of a Permittee:

- (a) Construction of new streets or roads, including sidewalks and bicycle lanes built as part of the new streets or roads.
- (b) Widening of existing streets or roads with additional traffic lanes.
  - (i) Where the addition of traffic lanes results in an alteration of **more than 50 percent** of the impervious surface of an existing street or road within the project that was not subject to Provision C.3, **the entire project, consisting of all existing, new, and/or replaced impervious surfaces, shall be included in the treatment system design** (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from the entire street or road that had additional traffic lanes added).
  - (ii) Where the addition of traffic lanes results in an alteration of **less than 50 percent** of the impervious surface of an existing street or road within the project that was not subject to Provision C.3, **only the new and/or replaced impervious surface of the project must be included in the treatment system design** (i.e., stormwater treatment systems must be designed and sized to treat stormwater runoff from only the new traffic lanes). However, if the stormwater runoff from the existing traffic lanes and the added traffic lanes cannot be separated, any onsite treatment system shall be designed and sized to treat stormwater runoff from the entire street or road. If an offsite treatment system is installed or in-lieu fees paid in accordance with Provision C.3.e, the offsite treatment system or in-lieu fees must address only the stormwater runoff from the added traffic lanes.
- (c) Construction of impervious trails that are greater than 10 feet wide or are creek-side (within 50 feet of the top of bank).
- (d) Specific exclusions to Provisions C.3.b.ii.(4)(a)-(c) include the following:
  - Sidewalks built as part of new streets or roads and built to direct stormwater runoff to adjacent vegetated areas.
  - Bicycle lanes built as part of new streets or roads but are not hydraulically connected to the new streets or roads and that direct stormwater runoff to adjacent vegetated areas.
  - Impervious trails built to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas, preferably away from creeks or towards the outboard side of levees.

- Sidewalks, bicycle lanes, or trails constructed with permeable surfaces.<sup>2</sup>
- Caltrans highway projects and associated facilities.

### iii. Reporting

#### (1) Annual Reporting – C.3.b.ii. Regulated Projects

For each Regulated Project approved during the fiscal year reporting period, the following information shall be reported electronically in the fiscal year Annual Report, in tabular form (as set forth in the attached Provision C.3.b. Sample Reporting Table):

- (a) Project Name, Number, Location (cross streets), and Street Address;
- (b) Name of Developer, Phase No. (if project is being constructed in phases, each phase should have a separate entry), Project Type (e.g., commercial, industrial, multi-unit residential, mixed-use, public), and description;
- (c) Project watershed;
- (d) Total project site area and total area of land disturbed;
- (e) Total new impervious surface area and/or total replaced impervious surface area;
- (f) If redevelopment or road widening project, total pre-project impervious surface area and total post-project impervious surface area;
- (g) Status of project (e.g., application date, application deemed complete date, project approval date);
- (h) Source control measures;
- (i) Site design measures;
- (j) All post-construction stormwater treatment systems installed onsite, at a joint stormwater treatment facility, and/or at an offsite location;
- (k) Operation and maintenance responsibility mechanism for the life of the project;
- (l) Hydraulic Sizing Criteria used;
- (m) Alternative compliance measures for Regulated Project (if applicable)
  - (i) If alternative compliance will be provided at an offsite location in accordance with Provision C.3.e.i.(1), include information required in Provision C.3.b.v.(a) – (l) for the offsite project; and
  - (ii) If alternative compliance will be provided by paying in-lieu fees in accordance with Provision C.3.e.i.(2), provide information required in Provision C.3.b.v.(a) – (l) for the Regional Project. Additionally, provide a summary of the Regional Project's goals, duration, estimated completion date, total estimated cost

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<sup>2</sup> **Permeable surfaces** include pervious concrete, porous asphalt, unit pavers, and granular materials.

of the Regional Project, and estimated monetary contribution from the Regulated Project to the Regional Project; and

- (n) Hydromodification (HM) Controls (see Provision C.3.g.) – If not required, state why not. If required, state control method used.

### **C.3.c. Low Impact Development (LID)**

The goal of LID is to reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. LID employs principles such as preserving and recreating natural landscape features and minimizing imperviousness to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. Practices used to adhere to these LID principles include measures such as rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and planter/tree boxes.

#### **Task Description**

- i. The Permittees shall, at a minimum, implement the following LID requirements:

(1) **Source Control Requirements**

Require all Regulated Projects to implement source control measures onsite that at a minimum, shall include the following:

- (a) Minimization of stormwater pollutants of concern in urban runoff through measures that may include plumbing of the following discharges to the sanitary sewer, subject to the local sanitary sewer agency's authority and standards:
- Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants;
  - Dumpster drips from covered trash, food waste and compactor enclosures;
  - Discharges from covered outdoor wash areas for vehicles, equipment, and accessories;
  - Swimming pool water, if discharge to onsite vegetated areas is not a feasible option; and
  - Fire sprinkler test water, if discharge to onsite vegetated areas is not a feasible option;
- (b) Properly designed covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas;
- (c) Properly designed trash storage areas;
- (d) Landscaping that minimizes irrigation and runoff, promotes surface infiltration, minimizes the use of pesticides and fertilizers, and incorporates other appropriate sustainable landscaping practices and programs such as Bay-Friendly Landscaping;

- (e) Efficient irrigation systems; and
  - (f) Storm drain system stenciling or signage.
- (2) **Site Design and Stormwater Treatment Requirements**
- (a) Require each Regulated Project to implement at least the following design strategies onsite:
    - (i) Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;
    - (ii) Conserve natural areas, including existing trees, other vegetation, and soils;
    - (iii) Minimize impervious surfaces;
    - (iv) Minimize disturbances to natural drainages; and
    - (v) Minimize stormwater runoff by implementing one or more of the following site design measures:
      - Direct roof runoff into cisterns or rain barrels for reuse.
      - Direct roof runoff onto vegetated areas.
      - Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
      - Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
      - Construct sidewalks, walkways, and/or patios with permeable surfaces.
      - Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.
    - (vi) Permeable surfaces must be designed and installed in accordance with (*we intend to cite accepted design guidance for pervious pavement and pavers*).
  - (b) Require each Regulated Project to treat 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility.
    - (i) LID treatment measures are harvesting and re-use, infiltration, evapotranspiration, or biotreatment.
    - (ii) A properly engineered and maintained biotreatment system may be considered only if it is infeasible to implement harvesting and re-use, infiltration, or evapotranspiration at a project site. For each Regulated Project approved to install biotreatment systems,

- a Permittee shall document the basis of infeasibility used to establish technical and/or economic infeasibility.
- (iii) Infeasibility to implement harvesting and re-use, infiltration, or evapotranspiration at a project site may result from conditions including the following:
- Locations where seasonal high groundwater would be within 10 feet of the base of the LID treatment measure.
  - Locations within 100 feet of a groundwater well used for drinking water.
  - Development sites where pollutant mobilization in the soil or groundwater is a documented concern.
  - Locations with potential geotechnical hazards.
  - Smart growth and infill or redevelopment sites where the density and/or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement.
  - Locations with tight clay soils that significantly limit the infiltration of stormwater.
- (iv) Biotreatment (or bioretention) systems shall be designed to have a surface area no smaller than what is required to accommodate a 5 inches/hour stormwater runoff surface loading rate, and infiltrate runoff at a minimum of 5 inches per hour during the life of the facility. The soil media for biotreatment (or bioretention) systems shall be designed to sustain healthy, vigorous plant growth and maximize stormwater runoff retention and pollutant removal. Permittees shall ensure that Regulated Projects use biotreatment soil media that meet the minimum specifications set forth in Attachment L and any subsequent revisions developed and formally adopted as guidance by the Permittees collectively, subject to Executive Officer approval.
- (v) Green roofs may be considered biotreatment systems that treat roof runoff only if they meet certain minimum specifications. Permittees shall ensure that green roofs installed at Regulated Projects meet the following minimum specifications:
- (i) The green roof system planting media shall be sufficiently deep to provide capacity within the pore space of the media for the required runoff volume specified by Provision C.3.d.i.(1).
  - (ii) The green roof system planting media shall be sufficiently deep to support the long term health of the vegetation selected for the green roof, as specified by a landscape architect or other knowledgeable professional.

- (c) Require any Regulated Project that does not comply with Provision C.3.c.i.(2)(b) above to meet the requirements established in Provision C.3.e for alternative compliance.

**iii. Reporting**

For specific tasks listed above that are reported using the reporting tables required for Provision C.3.b.v, a reference to those tables will suffice.

**C.3.d. Numeric Sizing Criteria for Stormwater Treatment Systems**

- i. Task Description** – The Permittees shall require that stormwater treatment systems constructed for Regulated Projects meet at least one of the following hydraulic sizing design criteria:
  - (1) **Volume Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat stormwater runoff equal to:
    - (a) The maximized stormwater capture volume for the area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients set forth in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998), pages 175–178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or
    - (b) The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Section 5 of the California Stormwater Quality Association’s Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data.
  - (2) **Flow Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on flow capacity shall be sized to treat:
    - (a) 10 percent of the 50-year peak flowrate;
    - (b) The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
    - (c) The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.
  - (3) **Combination Flow and Volume Design Basis** – Treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.
- iv. Implementation Level** – The Permittees shall immediately require the controls in this task.



**Due Date for Full Implementation** – Immediate, including any development project approved prior to any Provision C.3. stormwater treatment requirements (under previous MS4 stormwater permits issued by the Board) that does not meet any of the numeric sizing criteria contained in Provision C.3.d.i, and that has not begun construction by the effective date of this Permit.

v. **Reporting** – Permittees shall use the reporting tables required in Provision C.3.b.v.

vi. **Limitations on Use of Infiltration Devices in Stormwater Treatment Systems**

- (1) For Regulated Projects, each Permittee shall review planned land use and proposed treatment design to verify that installed stormwater treatment systems with no under-drain, and that function primarily as infiltration devices, should not cause or contribute to the degradation of groundwater quality at project sites. An infiltration device is any structure that is deeper than wide and designed to infiltrate stormwater into the subsurface and, as designed, bypass the natural groundwater protection afforded by surface soil. Infiltration devices include dry wells, injection wells, and infiltration trenches (includes french drains).
- (2) For any Regulated Project that includes plans to install stormwater treatment systems which function primarily as infiltration devices, the Permittee shall require that:
  - (a) Appropriate pollution prevention and source control measures are implemented to protect groundwater at the project site, including the inclusion of a minimum of two feet of suitable soil to achieve a maximum 5 inches/hour infiltration rate for the infiltration system;
  - (b) Adequate maintenance is provided to maximize pollutant removal capabilities;
  - (c) The vertical distance from the base of any infiltration device to the seasonal high groundwater mark is at least 10 feet. (Note that some locations within the Permittees' jurisdictions are characterized by highly porous soils and/or high groundwater tables. In these areas, a greater vertical distance from the base of the infiltration device to the seasonal high groundwater mark may be appropriate, and treatment system approvals should be subject to a higher level of analysis that considers the potential for pollutants (such as from onsite chemical use), the level of pretreatment to be achieved, and other similar factors in the overall analysis of groundwater safety);
  - (d) Unless stormwater is first treated by a method other than infiltration, infiltration devices are not approved as treatment measures for runoff from areas of industrial or light industrial activity; areas subject to high vehicular traffic (i.e., 25,000 or greater average daily traffic on a main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet

storage areas (e.g., bus, truck); nurseries; and other land uses that pose a high threat to water quality;

- (e) Infiltration devices are not placed in the vicinity of known contamination sites unless it has been demonstrated that increased infiltration will not increase leaching of contaminants from soil, alter groundwater flow conditions affecting contaminant migration in groundwater, or adversely affect remedial activities; and
- (f) Infiltration devices are located a minimum of 100 feet horizontally away from any known water supply wells, septic systems, and underground storage tanks with hazardous materials. (Note that some locations within the Permittees' jurisdictions are characterized by highly porous soils and/or high groundwater tables. In these areas, a greater horizontal distance from the infiltration device to known water supply wells, septic systems, or underground storage tanks with hazardous materials may be appropriate, and treatment system approvals should be subject to a higher level of analysis that considers the potential for pollutants (such as from onsite chemical use), the level of pretreatment to be achieved, and other similar factors in the overall analysis of groundwater safety).

**C.3.e. Alternative or In-Lieu Compliance with Provision C.3.b.**

- i. The Permittees may allow a Regulated Project to provide alternative compliance with Provision C.3.b in accordance with one of the two options listed below:

(1) **Option 1: LID Treatment at an Offsite Location**

Treat a portion of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility **and** treat the remaining portion of the Provision C.3.d runoff with LID treatment measures at an offsite project in the same watershed. The offsite LID treatment measures must provide hydraulically-sized treatment (in accordance with Provision C.3.d) of an equivalent quantity of both stormwater runoff and pollutant loading and achieve a net environmental benefit.

(2) **Option 2: Payment of In-Lieu Fees**

Treat a portion of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility **and** pay equivalent in-lieu fees<sup>3</sup> to treat the remaining portion of the Provision

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<sup>3</sup> **In-lieu fees** – Monetary amount necessary to provide both hydraulically-sized treatment (in accordance with Provision C.3.d) with LID treatment measures of an equivalent quantity of stormwater runoff and pollutant loading, and a proportional share of the operation and maintenance costs of the Regional Project.

C.3.d runoff with LID treatment measures at a Regional Project.<sup>4</sup> The Regional Project must achieve a net environmental benefit.

- (3) For the alternative compliance options described in Provision C.3.e.i.(1) and (2) above, offsite and Regional Projects must be completed within three years after the end of construction of the Regulated Project. However, the timeline for completion of a Regional Project may be extended, up to five years after the completion of the Regulated Project, with prior Executive Officer approval. Executive Officer approval will be granted contingent upon a demonstration of good faith efforts to implement the Regional Project, such as having funds encumbered and applying for the appropriate regulatory permits.

## ii. Special Projects

- (1) When considered at the watershed scale, certain land development projects characterized as smart growth, high density, or transit-oriented development can either reduce existing impervious surfaces, or create less “accessory” impervious areas and automobile-related pollutant impacts. Incentive LID Treatment Reduction Credits approved by the Water Board may be applied to these Special Projects, which are Regulated Projects that meet the specific criteria listed below in Provision C.3.e.ii.(2). For any Special Project, the allowable incentive LID Treatment Reduction Credit is the maximum percentage of the amount of runoff identified in Provision C.3.d. for the Special Project’s drainage area, that may be treated with one or a combination of the following two types of non-LID treatment systems:

- Tree-box-type high flowrate biofilters
- Vault-based high flowrate media filters

The allowed LID Treatment Reduction Credit recognizes that density and space limitations for the Special Projects identified herein may make 100% LID treatment infeasible.

- (2) Prior to granting any LID Treatment Reduction Credits, Permittees must first establish all the following:
  - (a) The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project’s drainage area with LID treatment measures onsite;
  - (b) The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project’s drainage area with LID treatment measures offsite or paying in-lieu fees to treat 100% of the Provision C.3.d runoff with LID treatment measures at an offsite or Regional Project; and

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<sup>4</sup> **Regional Project** – A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does.

- (c) The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with some combination of LID treatment measures onsite, offsite, and/or paying in-lieu fees towards at an offsite or Regional Project.

For each Special Project, a Permittee shall document the basis of infeasibility used to establish technical and/or economic infeasibility.

Under Provision C.3.e.vi, each Permittee is required to report on the infeasibility of 100% LID treatment in each scenario described in Provision C.3.e.ii.(2)(a)-(c) above, for each of the Special Projects for which LID Treatment Reduction Credit was applied.

(3) Category A Special Project Criteria

- (a) To be considered a Category A Special Project, a Regulated Project must meet all of the following criteria:

- (i) Be built as part of a Permittee's stated objective to preserve or enhance a pedestrian-oriented type of urban design.
- (ii) Be located in a Permittee's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district.
- (iii) Create and/or replace one half acre or less of impervious surface area.
- (iv) Include no surface parking, except for incidental surface parking. Incidental surface parking is allowed only for emergency vehicle access, Americans with Disabilities Act (ADA) accessibility, and passenger and freight loading zones.
- (v) Have at least 85% coverage for the entire project site by permanent structures. The remaining 15% portion of the site is to be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping, and stormwater treatment.

- (b) Any Category A Special Project may qualify for 100% LID Treatment Reduction Credit, which would allow the Category A Special Project to treat up to 100% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.

(4) Category B Special Project Criteria

- (a) To be considered a Category B Special Project, a Regulated Project must meet all of the following criteria:

- (i) Be built as part of a Permittee's stated objective to preserve or enhance a pedestrian-oriented type of urban design.

- (ii) Be located in a Permittee's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district.
  - (iii) Create and/or replace greater than one-half acre but no more than 2 acres of impervious surface area.
  - (iv) Include no surface parking, except for incidental surface parking. Incidental surface parking is allowed only for emergency vehicle access, ADA accessibility, and passenger and freight loading zones.
  - (v) Have at least 85% coverage for the entire project site by permanent structures. The remaining 15% portion of the site is to be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping, and stormwater treatment.
- (b) For any Category B Special Project, the maximum LID Treatment Reduction Credit allowed is determined based on the density achieved by the Project in accordance with the criteria listed below. Density is expressed in Floor Area Ratios (FARs<sup>5</sup>) for commercial development projects, in Dwelling Units per Acre (DU/Ac) for residential development projects, and in FARs and DU/Ac for mixed-use development projects.
- (i) 50% Maximum LID Treatment Reduction Credit
    - For any commercial or mixed-use Category B Special Project with a FAR of at least 2:1, up to 50% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area may be treated with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.
    - For any residential or mixed use Category B Special Project with a gross density<sup>6</sup> of at least 50 DU/Ac, up to 50% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area may be treated with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.
  - (ii) 75% Maximum LID Treatment Reduction Credit
    - For any commercial or mixed use Category B Special Project with a FAR of at least 3:1, up to 75% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area may

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<sup>5</sup> **Floor Area Ratio** – The Ratio of the total floor area on all floors of all buildings at a project site to the total project site area.

<sup>6</sup> **Gross Density** – The total number of residential units divided by the acreage of the entire site area, including land occupied by public right-of-ways, recreational, civic, commercial and other non-residential uses.

- be treated with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.
- For any residential or mixed use Category B Special Project with a gross density of at least 75 DU/Ac, up to 75% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area may be treated with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.
- (iii) 100% Maximum LID Treatment Reduction Credit
- For any commercial or mixed use Category B Special Project with a FAR of at least 4:1, up to 100% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area may be treated with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.
  - For any residential or mixed use Category B Special Project with a gross density of at least 100 DU/Ac, up to 100% of the amount of runoff identified in Provision C.3.d. for the Project's drainage area may be treated with either one or a combination of the two types of non-LID treatment systems listed in Provision C.3.e.ii.(1) above.
- (5) Category C Special Project Criteria (Transit-Oriented Development)
- (a) Transit-Oriented Development refers to the clustering of homes, jobs, shops and services in close proximity to rail stations, ferry terminals or bus stops offering access to frequent, high-quality transit services. This pattern typically involves compact development and a mixing of different land uses, along with amenities like pedestrian-friendly streets. To be considered a Category C Special Project, a Regulated Project must meet all of the following criteria:
- (i) Be characterized as a non-auto-related land use project. That is, Category C specifically excludes any Regulated Project that is a stand-alone surface parking lot; car dealership; auto and truck rental facility with onsite surface storage; fast-food restaurant, bank or pharmacy with drive-through lanes; gas station, car wash, auto repair and service facility; or other auto-related project unrelated to the concept of Transit-Oriented Development.
  - (ii) If a commercial or mixed-use development project, achieve at least an FAR of 2:1.
  - (iii) If a residential or mixed-use development project, achieve at least a gross density of 25 DU/Ac.
- (b) For any Category C Special Project, the total maximum LID Treatment Reduction Credit allowed is the sum of three different types of credits that the Category C Special Project may qualify for, namely: Location, Density and Minimized Surface Parking Credits.

- (c) Location Credits
- (i) A Category C Special Project may qualify for the following Location Credits:
    - a. 50% Location Credit: Located within a ¼ mile radius of an existing or planned transit hub.
    - b. 25% Location Credit: Located within a ½ mile radius of an existing or planned transit hub.
    - c. 25% Location Credit: Located within a planned Priority Development Area (PDA), which is an infill development area formally designated by the Association of Bay Area Government's / Metropolitan Transportation Commission's FOCUS regional planning program. FOCUS is a regional incentive-based development and conservation strategy for the San Francisco Bay Area.
  - (ii) Only one Location Credit may be used by an individual Category C Special Project, even if the project qualifies for multiple Location Credits.
  - (iii) At least 50% or more of a Category C Special Project's site must be located within the ¼ or ½ mile radius of an existing or planned transit hub to qualify for the corresponding Location Credits listed above. One hundred percent of a Category C Special Project's site must be located within a PDA to qualify for the corresponding Location Credit listed above.
  - (iv) Transit hub is defined as a rail, light rail, or commuter rail station, ferry terminal, or bus transfer station served by three or more bus routes (i.e., a bus stop with no supporting services does not qualify). A planned transit hub is a station on the MTC's Regional Transit Expansion Program list, per MTC's Resolution 3434 (revised April 2006), which is a regional priority funding plan for future transit stations in the San Francisco Bay Area.
- (d) Density Credits: To qualify for any Density Credits, a Category C Special Project must first qualify for one of the Location Credits listed in Provision C.3.e.ii.(4)(c) above.
- (i) A Category C Special Project that is a commercial or mixed-use development project may qualify for the following Density Credits:
    - a. 10% Density Credit: Achieve an FAR of at least 2:1.
    - b. 20% Density Credit: Achieve an FAR of at least 4:1.
    - c. 30% Density Credit: Achieve an FAR of at least 6:1.
  - (ii) A Category C Special Project that is a residential or mixed-use development project may qualify for the following Density Credits:

- a. 10% Density Credit: Achieve a gross density of at least 30 DU/Ac.
  - b. 20% Density Credit: Achieve a gross density of at least 60 DU/Ac.
  - c. 30% Density Credit: Achieve a gross density of at least 100 DU/Ac.
- (iii) Commercial Category C Projects do not qualify for Density Credits based on DU/Ac and residential Category C Projects do not qualify for Density Credits based on FAR.
  - (iv) Only one Density Credit may be used by an individual Category C Special Project, even if the project qualifies for multiple Density Credits.
- (e) Minimized Surface Parking Credits: To qualify for any Minimized Surface Parking Credits, a Category C Special Project must first qualify for one of the Location Credits listed in Provision C.3.e.ii.(4)(c) above.
    - (i) A Category C Special Project may qualify for the following Minimized Surface Parking Credits:
      - a. 10% Minimized Surface Parking Credit: Have 10% or less of the total post-project impervious surface area dedicated to at-grade surface parking. The at-grade surface parking must be treated with LID treatment measures.
      - b. 20% Minimized Surface Parking Credit: Have no surface parking except for incidental surface parking. Incidental surface parking is allowed only for emergency vehicle access, ADA accessibility, and passenger and freight loading zones.
    - (ii) Only one Minimized Surface Parking Credit may be used by an individual Category C Special Project, even if the project qualifies for multiple Minimized Surface Parking Credits.
- (6) Any Regulated Project that meets all the criteria for multiple Special Projects Categories (i.e., a Regulated Project that may be characterized as a Category B or C Special Project) may only use the LID Treatment Reduction Credit allowed under one of the Special Projects Categories (i.e., a Regulated Project that may be characterized as a Category B or C Special Project may use the LID Treatment Reduction Credit allowed under Category B or Category C, but not the sum of both.)

### iii. Effective Date

- (1) Immediate for Provision C.3.e.i.
- (2) Immediate for Provision C.3.e.ii. until the Permit expiration date specified in Provision C.19. With development of Green Infrastructure Plans by



each Permittee and identification of potential green street projects in each jurisdiction (as required under Provision C.3.j) the need for LID Treatment Reduction Credits for Special Projects should diminish and disappear by the end of the Permit term. Therefore, LID Treatment Reduction Credits for Special Projects will no longer be allowed beyond this Permit term.

**iv. Implementation Level**

- (1) Provisions C.3.e.i-ii supersede any Alternative Compliance Policies previously approved by the Executive Officer
- (2) For all offsite projects and Regional Projects installed in accordance with Provision C.3.e.i-ii, the Permittees shall meet the Operation & Maintenance (O&M) requirements of Provision C.3.h.

**v. Reporting** – Annual reporting shall be done in conjunction with reporting requirements under Provision C.3.b.v.

Any Permittee choosing to require 100% LID treatment onsite for all Regulated Projects and not allow alternative compliance under Provision C.3.e, shall include a statement to that effect in each Annual Report.

**vi. Reporting on Special Projects**

- (1) Permittees shall track any identified potential Special Projects, including those projects that have submitted planning applications but that have not received final discretionary approval.
- (2) In each Annual Report, Permittees shall report to the Water Board on these tracked potential Special Projects using Table 3.1 found at the end of Provision C.3. All the required column entry information listed in Table 3.1 shall be reported for each potential Special Project. Any Permittee with no Special Projects shall so state.

For each Special Project listed in Table 3.1, Permittees shall include a narrative discussion of the feasibility or infeasibility of 100% LID treatment onsite, offsite, and at a Regional Project. The narrative discussion shall address each of the following:

- (a) The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures onsite.
- (b) The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with LID treatment measures offsite or paying in-lieu fees to treat 100% of the Provision C.3.d runoff with LID treatment measures at a Regional Project.
- (c) The infeasibility of treating 100% of the amount of runoff identified in Provision C.3.d for the Regulated Project's drainage area with some combination of LID treatment measures onsite, offsite, and/or paying in-lieu fees towards a Regional Project.

Both technical and economic feasibility or infeasibility shall be discussed, as applicable. The discussion shall also contain enough technical and/or economic detail to document the basis of infeasibility used.

- (3) Once a Special Project has final discretionary approval, it shall be reported in the Provision C.3.b. Reporting Table in the same reporting year that the project was approved. In addition to the column entries contained in the Provision C.3.b. Reporting Table, the Permittees shall provide the following supplemental information for each approved Special Project:
  - (a) Submittal Date: Date that a planning application for the Special Project was submitted.
  - (b) Description: Type of project, number of floors, number of units (commercial, mixed-use, residential), type of parking, and other relevant information.
  - (c) Site Acreage: Total site area in acres.
  - (d) Gross Density in DU/Ac: Number of dwelling units per acre.
  - (e) Density in FAR: Floor Area Ratio.
  - (f) Special Project Category: For each applicable Special Project Category, list the specific criteria applied to determine applicability. For each non-applicable Special Project Category, indicate n/a.
  - (g) LID Treatment Reduction Credit: For each applicable Special Project Category, state the maximum total LID Treatment Reduction Credit applied. For Category C Special Projects also list the individual Location, Density, and Minimized Surface Parking Credits applied.
  - (h) Stormwater Treatment Systems: List all proposed stormwater treatment systems and the corresponding percentage of the total amount of runoff identified in Provision C.3.d. for the Project's drainage area that will be treated by each treatment system.
  - (i) List of Non-LID Stormwater Treatment Systems: List all non-LID stormwater treatment systems approved. For each type of non-LID treatment system, indicate: (1) the percentage of the total amount of runoff identified in Provision C.3.d. for the Special Project's drainage area, and (2) whether the treatment system either meets minimum design criteria published by a government agency or received certification issued by a government agency, and reference the applicable criteria or certification.

#### **C.3.f. Alternative Certification of Stormwater Treatment Systems**

- i. **Task Description** – In lieu of reviewing a Regulated Project's adherence to Provision C.3.d, a Permittee may elect to have a third party conduct detailed review and certify the Regulated Project's adherence to Provision C.3.d. The third party reviewer must be a Civil Engineer or a Licensed Architect or Landscape Architect registered in the State of California, or staff of another Permittee subject to the requirements of this Permit.

- ii. **Implementation Level** – Any Permittee accepting third-party reviews must make a reasonable effort to ensure that the third party has no conflict of interest with regard to the Regulated Project in question. That is, any consultant or contractor (or his/her employees) hired to design and/or construct a stormwater treatment system for a Regulated Project shall not also be the certifying third party. The Permittee must verify that the third party certifying any Regulated Project has current training on stormwater treatment system design (within three years of the certification signature date) for water quality and understands the groundwater protection principles applicable to Regulated Project sites.

Training conducted by an organization with stormwater treatment system design expertise (such as a college or university, the American Society of Civil Engineers, American Society of Landscape Architects, American Public Works Association, California Water Environment Association (CWEA), BASMAA, National Association of Flood & Stormwater Management Agencies, California Stormwater Quality Association (CASQA), or the equivalent, may be considered qualifying training.

- iii. **Reporting** – Projects reviewed by third parties shall be noted in reporting tables for Provision C.3.b.

#### C.3.g. Hydromodification Management

- i. **Hydromodification Management (HM) Projects** are Regulated Projects that create and/or replace one acre or more of impervious surface and are not specifically excluded within the requirements of Attachments B–F. A project that does not increase impervious surface area over the pre-project condition is not an HM Project. All HM Projects shall meet the Hydromodification Management Standard of Provision C.3.g.ii.

- ii. **HM Standard**

Stormwater discharges from HM Projects shall not cause an increase in the erosion potential of the receiving stream over the pre-project (existing) condition. Increases in runoff flow and volume shall be managed so that post-project runoff shall not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force. The demonstration that post-project stormwater runoff does not exceed estimated pre-project runoff rates and durations shall include the following:

- (1) **Range of Flows to Control:** For Alameda, Contra Costa, San Mateo, and Santa Clara Permittees, HM controls shall be designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations from 10% of the pre-project 2-year peak

flow<sup>7</sup> up to the pre-project 10-year peak flow. For Fairfield-Suisun Permittees, HM controls shall be designed such that post-project stormwater discharge rates and durations shall match from 20 percent of the 2-year peak flow up to the pre-project 10-year peak flow.

- (2) **Goodness of Fit Criteria:** The post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control.
- (3) **Precipitation Data:** Precipitation data used in the modeling of HM controls shall, at a minimum, be 30 years of hourly rainfall data representative of the area being modeled. Where a longer rainfall record is available, the longer record shall be used.
- (4) **Calculating Post-Project Runoff:** Retention and detention basins shall be considered impervious surfaces for purposes of calculating post-project runoff. Pre- and post-project runoff shall be calculated and compared for the entire site, without separating or excluding areas that may be considered self-retaining.
- (5) **Existing HM Control Requirements:** The Water Board has adopted HM control requirements for all Permittees, and these adopted requirements are attached to this Order as listed below. The Permittees shall comply with all requirements in their own Permittee- specific Attachment, unless otherwise specified by this Order. In all cases, the HM Standard shall be achieved.
  - Attachment B for Alameda Permittees
  - Attachment C for Contra Costa Permittees
  - Attachment D for Fairfield-Suisun Permittees
  - Attachment E for San Mateo Permittees
  - Attachment F for Santa Clara Permittees
  - Attachment G for Vallejo Permittees

**iii.** Types of HM Controls

Projects shall meet the HM Standard using any of the following HM controls or a combination thereof.

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<sup>7</sup> Where referred to in this Order, the 2-year peak flow is determined using a flood frequency analysis based on USGS Bulletin 17 B to obtain the peak flow statistically expected to occur at a 2-year recurrence interval. In this analysis, the appropriate record of hourly rainfall data (e.g., 35-50 years of data) is run through a continuous simulation hydrologic model, the annual peak flows are identified, rank ordered, and the 2-year peak flow is estimated. Such models include USEPA's Hydrologic Simulation Program—Fortran (HSPF), U.S. Army Corps of Engineers' Hydrologic Engineering Center-Hydrologic Modeling System (HEC-HMS), and USEPA's Storm Water Management Model (SWMM).

- (1) **Onsite HM controls** are flow duration control structures and hydrologic source controls that collectively result in the HM Standard being met at the point(s) where stormwater runoff discharges from the project site.
- (2) **Regional HM controls** are flow duration control structures that collect stormwater runoff discharge from multiple projects (each of which shall incorporate hydrologic source control measures as well) and are designed such that the HM Standard is met for all the projects at the point where the regional HM control discharges.
- (3) **In-stream measures** shall be an option only where the stream, which receives runoff from the project, is already impacted by erosive flows and shows evidence of excessive sediment, erosion, deposition, or is a hardened channel.

In-stream measures involve modifying the receiving stream channel slope and geometry so that the stream can convey the new flow regime without increasing the potential for erosion and aggradation. In-stream measures are intended to improve long-term channel stability and prevent erosion by reducing the erosive forces imposed on the channel boundary.

In-stream measures, or a combination of in-stream and onsite controls, shall be designed to achieve the HM Standard from the point where the project(s) discharge(s) to the stream to the mouth of the stream or to achieve an equivalent degree of flow control mitigation (based on amount of impervious surface mitigated) as part of an in-stream project located in the same watershed. Designing in-stream controls requires a hydrologic and geomorphic evaluation (including a longitudinal profile) of the stream system downstream and upstream of the project. As with all in-stream activities, other regulatory permits must be obtained by the project proponent.<sup>8</sup>

#### iv. Reporting

For each HM Project approved during the reporting period, the following information shall be reported electronically in tabular form. This information shall be added to the required reporting information specified in Provision C.3.b.v.

- (1) Device(s) or method(s) used to meet the HM Standard, such as detention basin(s), bioretention unit(s), regional detention basin, or in-stream control;
- (2) Method used by the project proponent to design and size the device or method used to meet the HM Standard; and

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<sup>8</sup> In-stream control projects require a Stream Alteration Agreement from the California Department of Fish & Game, a CWA section 404 permit from the U.S. Army Corps of Engineers, and a section 401 certification from the Water Board. Early discussions with these agencies on the acceptability of an in-stream modification are necessary to avoid project delays or redesign.

- (3) Other information as required in the Permittee's existing HM requirements, as shown in Attachments B–G.

**C.3.h. Operation and Maintenance of Stormwater Treatment Systems**

- i. Task Description** – Each Permittee shall implement an Operation and Maintenance (O&M) Verification Program.
- ii. Implementation Level** – At a minimum, the O&M Verification Program shall include the following elements:
  - (1) Conditions of approval or other legally enforceable agreements or mechanisms for all Regulated Projects that, at a minimum, require at least one of the following from all project proponents and their successors in control of the Project or successors in fee title:
    - (a) The project proponent's signed statement accepting responsibility for the O&M of the installed onsite, joint, and/or offsite stormwater treatment system(s) and HM control(s) (if any) until such responsibility is legally transferred to another entity;
    - (b) Written conditions in the sales or lease agreements or deed for the project that requires the buyer or lessee to assume responsibility for the O&M of the onsite, joint, and/or offsite installed stormwater treatment system(s) and HM control(s) (if any) until such responsibility is legally transferred to another entity;
    - (c) Written text in project deeds, or conditions, covenants and restrictions (CCRs) for multi-unit residential projects that require the homeowners association or, if there is no association, each individual owner to assume responsibility for the O&M of the installed onsite, joint, and/or offsite stormwater treatment system(s) and HM control(s) (if any) until such responsibility is legally transferred to another entity; or
    - (d) Any other legally enforceable agreement or mechanism, such as recordation in the property deed, that assigns the O&M responsibility for the installed onsite, joint, and/or offsite treatment system(s) and HM control(s) (if any) to the project owner(s) or the Permittee.
  - (2) Coordination with the appropriate mosquito and vector control agency with jurisdiction to establish a protocol for notification of installed stormwater treatment systems and HM controls.
  - (3) Conditions of approval or other legally enforceable agreements or mechanisms for all Regulated Projects that require the granting of site access to all representatives of the Permittee, local mosquito and vector control agency staff, and Water Board staff, for the sole purpose of performing O&M inspections of the installed stormwater treatment system(s) and HM control(s) (if any).
  - (4) A database or equivalent tabular format of the following:

- (a) All pervious pavement or paver installations of 5000 square feet or more installed at smaller projects that do not trigger the Regulated Project impervious surface area thresholds.
  - (b) All pervious pavement or pavers installed at Regulated Projects, offsite, or at a joint or Regional Project.
  - (c) All stormwater treatment systems installed onsite at Regulated Projects, offsite, or at a joint or Regional Project.
  - (d) All HM controls installed onsite at Regulated Projects, offsite, or at a joint or Regional Project.
- (5) The database or equivalent tabular format required in Provision C.3.h.ii.(4) include the following information for each project:
- (a) Name and address of the project;
  - (b) Address and specific location(s) of the installed pervious pavement or paver installation, stormwater treatment systems, and/or HM controls, including those installed at smaller non-Regulated Projects (applicable to pervious pavement or paver installations only), Regulated Projects, offsite locations and at joint or Regional Projects built and/or funded (in-part or wholly) by the Regulated Project.
  - (c) Names of the owner(s) and operator(s) of the installed pervious pavement or paver installation, stormwater treatment systems, and/or HM controls;
  - (d) Specific description of the location (or a map showing the location) of the installed pervious pavement or pavers, stormwater treatment system(s), and HM control(s) (if any);
  - (e) Date(s) that the pervious pavement or pavers, stormwater treatment system(s), and HM controls (if any) is/are installed;
  - (f) Description of the type and size of the pervious pavement or pavers, stormwater treatment system(s), and HM control(s) (if any) installed;
  - (g) Responsible operator(s) of each pervious pavement or paver installation, stormwater treatment system, and HM control (if any);
  - (h) Dates and findings of inspections (routine and follow-up) of the pervious pavement or paver installation, stormwater treatment system(s), and HM control(s) (if any) by the Permittee; and
  - (i) Any problems and corrective or enforcement actions taken.
- (6) A prioritized O&M Inspection Plan for inspecting all pervious pavement or pavers of 5000 square feet or more installed at smaller non-Regulated Projects and all pervious pavement or paver installations, stormwater treatment systems and HM controls installed at Regulated Projects, offsite locations, and/or at joint or Regional Projects.

At a minimum, the O&M Inspection Plan must specify the following for each fiscal year:

- (a) Inspection by the Permittee of all newly installed pervious pavement or pavers of 5000 square feet or more (at smaller non-Regulated Projects) and all newly installed pervious pavement or paver installations, stormwater treatment systems, and HM controls (at Regulated Projects, offsite locations, and/or at joint or Regional Projects) at the time of installation to ensure approved plans have been followed;
  - (b) Inspection by the Permittee of at least 20 percent of the total number (at the end of the preceding fiscal year) of installed pervious pavement or pavers, stormwater treatment systems, and HM controls;
  - (c) Inspection by the Permittee of at least 20 percent of the total number (at the end of the preceding fiscal year) of installed vault-based stormwater treatment systems; and
  - (d) Inspection by the Permittee of all installed pervious pavement or pavers, stormwater treatment systems, and HM controls subject to Provision C.3, at least once every five years.
- (7) An Enforcement Response Plan (ERP) for all O&M inspections that serves as a reference document for inspection staff so that consistent enforcement actions can be taken to bring development projects into compliance. At a minimum, the ERP must contain the following:
- (a) Enforcement Procedures – A description of the Permittee’s procedures from the discovery of problems through the confirmation of implementation of corrective actions. This shall include guidance for recognizing common problems with the different types of pervious pavement or paver installation, stormwater treatment systems, and/or HM controls, remedies for the problems, and appropriate enforcement actions, follow-up inspections, and appropriate time periods for implementation of corrective actions, and the roles and responsibilities of staff responsible for implementing the ERP.
  - (b) Enforcement Tools and Field Scenarios – A discussion of the various, escalating enforcement tools appropriate for different field scenarios of problems identified with the pervious pavement or paver installation, stormwater treatment systems, and/or HM controls as well as for different types of inadequate response to enforcement actions taken.
  - (c) Timely Correction of Identified Problems – A description of the Permittee’s procedures for assigning due dates for corrective actions. Permittees shall require timely correction of all identified problems with the pervious pavement or paver installations, stormwater treatment systems, and/or HM controls.

Corrective actions shall be implemented no longer than 30 days after a problem is identified by an inspector. Corrective actions can be temporary and more time can be allowed for permanent corrective actions. If more than 30 days are required for compliance, a rationale



shall be recorded in the electronic database or equivalent tabular system.

**iii. Maintenance Approvals:** The Permittees shall ensure that all pervious pavement or pavers of 5,000 square feet or more, stormwater treatment systems, and HM controls installed onsite, offsite, or at a joint or Regional Project by development proponents are properly operated and maintained for the life of the projects. In cases where the responsible party for a pervious pavement or paver installation, stormwater treatment system or HM control has worked diligently and in good faith with the appropriate State and federal agencies to obtain approvals necessary to complete maintenance activities, but these approvals are not granted, the Permittees shall be deemed to be in compliance with this Provision. Permittees shall ensure that constructed wetlands installed by Regulated Projects and used for urban runoff treatment shall abide by the Water Board's Resolution No. 94-102: Policy on the Use of Constructed Wetlands for Urban Runoff Pollution Control and the O&M requirements contained therein.

**iv. Reporting**

- (1) For each Regulated Project inspected during the reporting period (fiscal year) the following information shall be reported to the Water Board electronically in tabular form as part of the Annual Report (as set forth in the Provision C.3.h. Sample Reporting Table attached):
  - Name of facility/site inspected.
  - Location (street address) of facility/site inspected.
  - Name of responsible operator for installed pervious pavement or pavers, stormwater treatment systems and HM controls.
  - For each inspection:
    - Date of inspection.
    - Type of inspection (e.g., initial, annual, follow-up, spot).
    - Type(s) of pervious pavement or pavers inspected.
    - Type(s) of stormwater treatment systems inspected (e.g., swale, bioretention unit, tree well, etc.) and an indication of whether the treatment system is an onsite, joint, or offsite system.
    - Type of HM controls inspected.
    - Inspection findings or results (e.g., proper installation, proper operation and maintenance, system not operating properly because of plugging, bypass of stormwater because of improper installation, maintenance required immediately, etc.).
    - Enforcement action(s) taken, if any (e.g., verbal warning, notice of violation, administrative citation, administrative order).
- (2) On an annual basis, before the wet season, provide a list of newly installed (installed within the reporting period) pervious pavement or pavers, stormwater treatment systems, and HM controls to the local mosquito and

vector control agency and the Water Board. This list shall include the facility locations and a description of the pervious pavement or pavers installations, stormwater treatment measures and HM controls installed.

- (3) Each Permittee shall report the following information in the Annual Report each year:
  - (a) A discussion of the inspection findings for the year and any common problems encountered with various types of treatment systems and/or HM controls. This discussion should include a general comparison to the inspection findings from the previous year.
  - (b) A discussion of the effectiveness of the Permittee's O&M Program and any proposed changes to improve the O&M Program (e.g., changes in prioritization plan or frequency of O&M inspections, other changes to improve effectiveness of program).

### **C.3.i. Required Site Design Measures for Small Projects and Detached Single-Family Home Projects**

**i. Task Description** – The Permittees shall require all development projects, which create and/or replace  $\geq 2500 \text{ ft}^2$  to  $< 10,000 \text{ ft}^2$  of impervious surface, and detached single-family home projects,<sup>9</sup> which create and/or replace 2,500 square feet or more of impervious surface, to install one or more of the following site design measures:

- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff onto vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.
- Construct bike lanes, driveways, and/or uncovered parking lots with permeable surfaces.<sup>2</sup>

This provision applies to all development projects that require approvals and/or permits issued under the Permittee's' planning, building, or other comparable authority.

**ii. Reporting** – On an annual basis, discuss the implementation of the requirements of Provision C.3.i, including ordinance revisions, permit conditions, development of standard specifications and/or guidance materials, and staff training.

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<sup>9</sup> **Detached single-family home project** – The building of one single new house or the addition and/or replacement of impervious surface to one single existing house, which is not part of a larger plan of development.

### **C.3.j. Green Infrastructure Planning and Implementation**

The Permittees shall complete and implement a Green Infrastructure Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements.

The plan is intended to serve as an implementation guide and reporting tool during this and subsequent Permit terms to provide reasonable assurance that urban runoff Total Maximum Daily Load (TMDL) wasteload allocations (e.g., for the San Francisco Bay mercury and PCBs TMDLs) will be met, and to set goals for reducing, over the long term, the adverse water quality impacts of urbanization and urban runoff on receiving waters. The plan also precludes expanding the definition of Regulated Projects prescribed in Provision C.3.b to include all new and redevelopment projects that create or replace 5,000 square feet or more of impervious surface areas and road projects that just replace existing impervious surface area. It also provides a mechanism to establish and implement alternative or in lieu compliance options for Regulated Projects and to account for and justify Special Projects in accordance with Provision C.3.e.

Over the long term, the plan is intended to describe how the Permittees will shift their impervious surfaces and storm drain infrastructure from gray, or traditional storm drain infrastructure where runoff flows directly into the storm drain and then the receiving water, to green—that is, to a more-resilient, sustainable system that slows runoff by dispersing it to vegetated areas, harvests and uses runoff, promotes infiltration and evapotranspiration, and uses bioretention and other green infrastructure practices to clean stormwater runoff.

The plan shall also identify means and methods to prioritize particular areas and projects within each Permittee's jurisdiction, at appropriate geographic and time scales, for implementation of green infrastructure projects. Further, it shall include means and methods to track the area within each Permittee's jurisdiction that is treated by green infrastructure controls and the amount of directly connected impervious area. As appropriate, it shall incorporate plans required elsewhere within this Permit, and specifically plans required for the monitoring of and to ensure appropriate reductions in trash and PCBs, mercury, and other pollutants.

The Permittees may comply with any requirement of this Provision through a collaborative effort.

#### **i. Green Infrastructure Program Plan Development**

Each Permittee shall:

- (1) Prepare a framework for development of its Green Infrastructure Plan and have the framework approved by the Permittee's governing body, mayor, city manager, or county manager by June 30, 2016.

- (2) Prepare a Green Infrastructure Plan, which contains the following elements:
  - (a) A mechanism (e.g., SFEI's GreenPlanIT tool) to prioritize and map areas for potential projects and planned projects, on a drainage-area-specific basis, for implementation over the following time schedules: from the date of plan preparation or July 2018, whichever is earlier, through: 2023 and 2028 (i.e., 5 and 10-year time horizons). The mechanism shall include criteria for prioritization (e.g., specific logistical constraints, water quality drivers (e.g., TMDLs), opportunities to treat runoff from private parcels in retrofitted street right-of-way, etc.) and outputs (e.g., maps, project lists, etc.) that can be incorporated into Permittees' long-term planning and capital improvement processes.
  - (b) Outputs from the mechanism described above, including, but not limited to, the prioritization criteria, maps, lists, and all other information, as appropriate. Individual project-specific reviews completed using this mechanism are not required to be submitted with the plan, but shall be made available upon request.
  - (c) Targets for the amount of impervious surface within the Permittees' jurisdiction to be retrofitted over the following time schedules: from the date of plan preparation or July 2018, whichever is earlier, through: 2023, 2028, 2043, and 2068 (i.e., 5-, 10-, 25-, and 50-year time horizons)
  - (d) A process for tracking and mapping completed projects, and making the information publically available (e.g., SFEI's GreenPlanIT tool).
  - (e) General guidelines for overall streetscape and project design and construction so that projects have a unified, complete design that implements the range of functions associated with the project. For example, for streets, these functions include street use for stormwater management, including treatment, safe pedestrian travel, use as public space, and for bicycle, transit, and vehicle movement. The guidelines should call for the Permittee to coordinate, for example, street improvement projects so that related improvements are constructed simultaneously to minimize conflicts that may impact green infrastructure.
  - (f) Standard specifications and, as appropriate, typical design details and related information necessary for the Permittee to incorporate green infrastructure into projects in its jurisdiction. The specifications shall be sufficient to address the different street and project types within a Permittee's jurisdiction, as defined by land use and transportation characteristics.
  - (g) Requirement(s) that projects be designed to meet the treatment and hydromodification sizing requirements in Provision C.3.d. Permittees may, collectively, propose a single approach with their Green Infrastructure Plan for how to proceed should project constraints

preclude fully meeting the C.3.d sizing requirements. Such an approach shall identify the specific constraints that would preclude meeting the sizing requirements and the design approach(es) to take in that situation, plus all other information, as appropriate (e.g., how to account for load reduction for the PCBs or mercury TMDLs).

- (h) A summary of the planning documents the Permittee has updated or otherwise modified to appropriately incorporate green infrastructure requirements, such as: General Plans, Specific Plans, Complete Streets Plans, Active Transportation Plans, Storm Drain Master Plans, Pavement Work Plans, Urban Forestry Plans, and other plans that may affect the future alignment, configuration, or design of impervious surfaces within the Permittee's jurisdiction, including, but not limited to, streets, alleys, parking lots, sidewalks, plazas, roofs, and drainage infrastructure. Permittees are expected to complete these modifications as a part of completing the Green Infrastructure Plan, and by not later than the end of the permit term.
  - (i) To the extent not addressed above, a workplan identifying how the Permittee will ensure that green infrastructure and low impact development measures are appropriately included in future plans (e.g., new or amended versions of the kinds of plans listed above).
  - (j) A workplan to complete prioritized projects identified as part of a Provision C.3.e Alternative Compliance program or part of Provision C.3.j Early Implementation.
  - (k) An evaluation of prioritized project funding options, including, but not limited to: Alternative Compliance funds; grant monies, including transportation project grants from federal, state, and local agencies; existing Permittee resources; new tax or other levies; and other sources of funds.
- (3) Adopt policies, ordinances, and/or other appropriate legal mechanisms to ensure implementation of the Green Infrastructure Plan in accordance with the requirements of this provision.
  - (4) Conduct outreach and education in accordance with the following:
    - (a) Conduct public outreach on the requirements of this provision, including outreach coordinated with adoption or revision of standard specifications and planning documents, and with the initiation and planning of infrastructure projects. Such outreach shall include general outreach and targeted outreach to and training for professionals involved in infrastructure planning and design.
    - (b) Train appropriate staff, including planning, engineering, public works maintenance, finance, fire/life safety, and management staff on the requirements of this provision and methods of implementation.
    - (c) Educate appropriate Permittee elected officials (e.g., mayors, city council members, County Supervisors, District Board Members, etc.) on the requirements of this provision and methods of implementation.

- (5) Report on Green Infrastructure Planning as follows:
  - (a) Each Permittee shall submit documentation that the its framework for development of its Green Infrastructure Plan was approved by its governing body, mayor, city manager, or county manager by June 30, 2016, with the 2016 Annual Report.
  - (b) Each Permittee shall submit its completed Green Infrastructure Plan with the 2019 Annual Report.
  - (c) Each Permittee shall submit documentation of its legal mechanisms to ensure implementation of its Green Infrastructure Plan with the 2019 Annual Report.
  - (d) Each Permittee shall submit a summary of its outreach and education efforts in each Annual Report.

**ii. Early Implementation of Green Infrastructure Projects (No Missed Opportunities)**

Each Permittee shall:

- (1) Prepare and maintain a list of green infrastructure projects that are already planned for implementation during the permit term and infrastructure projects planned for implementation during the permit term that have potential for green infrastructure measures.
- (2) Submit the list with each Annual Report and a summary of planning or implementation status for each green infrastructure project, and a summary of how each infrastructure project with green infrastructure potential will be implemented will include green infrastructure measures to the maximum extent practicable during the permit term. Where implementation of green infrastructure measures is not practicable, submit a brief description of the project and the reasons green infrastructure measures were impracticable to implement.

**iii. Participate in Processes to Promote Green Infrastructure**

- (1) The Permittees shall, individually or collectively, track processes, assemble and submit information, and provide informational materials and presentations as needed to assist relevant regional, state, and federal agencies to plan, design, and fund incorporation of green infrastructure measures into local infrastructure projects, including transportation projects. Issues to be addressed include coordinating the timing of funding from different sources, changes to standard designs and design criteria, ranking and prioritizing projects for funding, and implementation of cooperative in-lieu programs.
- (2) In each Annual Report, Permittees shall report on the goals and outcomes during the reporting year of work undertaken to participate in processes to promote green infrastructure.

- (3) In the 2019 Annual Report, Permittees shall submit a plan and schedule for new and ongoing efforts to participate in processes to promote green infrastructure.

**iv. Tracking and Reporting Progress**

- (1) The Permittees shall, individually or collectively, develop and implement regionally-consistent methods to track and report implementation of green infrastructure measures including treated area and connected and disconnected impervious area on both public and private parcels within their jurisdictions. The methods shall also address tracking needed to provide reasonable assurance that wasteload allocations for TMDLs, including the San Francisco Bay PCBs and mercury TMDLs, and reductions for trash, are being met.
- (2) In each Annual Report, Permittees shall report progress on development and implementation of the tracking methods.
- (3) In the 2019 Annual Report, Permittees shall submit the tracking methods and report implementation of green infrastructure measures including treated area, and connected and disconnected impervious area on both public and private parcels within their jurisdictions.

**Table 3.1 Standard Tracking and Reporting Form for Potential Special Projects**

<b>Project No.</b>	<b>Permittee</b>	<b>Address</b>	<b>Application Submittal Date</b>	<b>Description</b>	<b>Site Total Acreage</b>	<b>Gross Density DU/Ac</b>	<b>FAR</b>	<b>Special Project Category</b>	<b>LID Treatment Reduction Credit</b>	<b>Stormwater Treatment Systems</b>

**Project No:** Number of the Special Project as it appears in Table 3.1

**Permittee:** Name of the Permittee in whose jurisdiction the Special Project will be built.

**Address:** Address of the Special Project; if no street address, state the cross streets.

**Submittal Date:** Date that a planning application for the Special Project was submitted; if a planning application has not been submitted, include a projected application submittal date.

**Description:** Type of project (commercial, mixed-use, residential), number of floors, number of units, type of parking, and other relevant information.

**Site Acreage:** Total site area in acres.

**Gross Density in DU/Ac:** Number of dwelling units per acre.

**FAR:** Floor Area Ratio

**Special Project Category:** For each Special Project Category, indicate applicability. If a Category is applicable, list the specific criteria applied to determine applicability.

**LID Treatment Reduction Credit:** For each applicable Special Project Category, state the maximum total LID Treatment Reduction Credit available. For Category C Special Projects also list the individual Location, Density, and Minimized Surface Parking Credits available.

**Stormwater Treatment Systems:** List all proposed stormwater treatment systems and the corresponding percentage of the total amount of runoff identified in Provision C.3.d. for the Project’s drainage area that will be treated by each treatment system.



## C.4. Industrial and Commercial Site Controls

Each Permittee shall implement an industrial and commercial site control program at all sites that could reasonably be considered to cause or contribute to pollution of stormwater runoff, with inspections, effective follow-up, and enforcement to abate potential and actual discharges consistent with each Permittee's respective Enforcement Response Plan (ERP), in order to prevent discharge of pollutants and impacts on beneficial uses of receiving waters. Inspections shall confirm implementation of appropriate and effective BMPs and other pollutant controls by industrial and commercial site operators.

### C.4.a. Legal Authority for Effective Site Management

- i. **Task Description** – Permittees shall have sufficient legal enforcement authority to obtain effective stormwater pollutant control on industrial and commercial sites. Permittees shall have the ability to inspect, require effective stormwater pollutant control, and implement progressively stricter enforcement to achieve expedient compliance and pollutant abatement at commercial and industrial sites within their jurisdiction.
- ii. **Implementation Level** – Permittees shall have the legal authority to oversee, inspect, and require expedient compliance and pollution abatement at all industrial and commercial sites which may be reasonably considered to cause or contribute to pollution of stormwater runoff. Permittees shall have the legal authority to require implementation of appropriate BMPs at industrial and commercial facilities to address pollutant sources associated with outdoor process and manufacturing areas; outdoor material storage areas; outdoor waste storage and disposal areas; outdoor vehicle and equipment storage and maintenance areas; outdoor parking areas and access roads; outdoor wash areas; outdoor drainage from indoor areas, rooftop equipment; and contaminated and erodible surface areas; and other sources determined by the Permittees or Water Board Executive Officer to have a reasonable potential to contribute to pollution of stormwater runoff.

### C.4.b. Industrial and Commercial Business Inspection Plan (Inspection Plan)

- i. **Task Description** – Permittees shall continue to update and implement an Inspection Plan that will serve as a prioritized inspection workplan. This Inspection Plan will allow inspection staff to categorize the commercial and industrial sites within the Permittee's jurisdiction by pollutant threat and inspection frequency, change inspection frequency based on site performance, and add and remove sites as businesses open and close.
- ii. **Implementation Level**
  - (1) **Facilities For Prioritization Into Inspection Plan**

Commercial and industrial facilities with functional aspects and types described below, and other facilities identified by the Permittees as having the reasonable potential to contribute to pollution of stormwater runoff shall be prioritized for inspection on the basis of the potential for water quality impact using criteria such as pollutant sources on site, pollutants of

concern, proximity to a waterbody, violation history of the facility, and other relevant factors. The following are some of the functional aspects of businesses and types of businesses that shall be included in the Inspection Plan:

- (a) Sites that include the following types of functions that may produce pollutants when exposed to stormwater include, but are not limited to:
    - Outdoor process and manufacturing areas
    - Outdoor material storage areas
    - Outdoor waste storage and disposal areas
    - Outdoor vehicle and equipment storage and maintenance areas
    - Outdoor wash areas
    - Outdoor drainage from indoor areas
    - Rooftop equipment
    - Other sources determined by the Permittee or Water Board to have a reasonable potential to contribute to pollution of stormwater runoff.
  - (b) The following types of industrial and commercial businesses that have a reasonable likelihood to be sources of pollutants to stormwater and non-stormwater discharges:
    - Industrial facilities, as defined at 40 CFR 122.26(b)(14), including those subject to the Statewide NPDES General Permit for Stormwater Discharges Associated with Industrial Activity (hereinafter the Industrial General Permit);
    - Vehicle Salvage yards;
    - Metal and other recycled materials collection facilities, waste transfer facilities;
    - Vehicle mechanical repair, maintenance, fueling, or cleaning;
    - Building trades central facilities or yards, corporation yards;
    - Nurseries and greenhouses;
    - Building material retailers and storage;
    - Plastic manufacturers; and
    - Other facilities designated by the Permittee or Water Board to have a reasonable potential to contribute to pollution of stormwater runoff.
- (2) Inspection Plan – The Inspection Plan shall be updated annually and shall contain the following information:
- (a) A description of the process for prioritizing inspections and frequency of inspections. The prioritization criteria shall assign a more frequent inspection schedule to the highest priority facilities per Provision C.4.b.ii.(1). If any geographical areas are to be targeted for inspections

due to high potential for stormwater pollution, these areas should be indicated in the Inspection Plan.

- (b) Assign appropriate inspection frequency for each industrial and commercial facility based on the priority established in Provision C.4.b.ii.(2)(a) above, potential for contributing pollution to stormwater runoff, and commensurate with the threat to water quality.
  - (c) A mechanism to include newly opened businesses that warrant inspections.
  - (d) Total number and a list of all industrial and commercial facilities requiring inspections, within each Permittee's jurisdiction based on the prioritization criteria established in Provision C.4.(b)ii.(2)(a). This list shall be updated annually.
  - (e) List of facilities scheduled for inspection each fiscal year of the MRP permit term. Each fiscal year's inspection list shall be added to the Inspection Plan at the beginning of the fiscal year as part of the annual update. Previous fiscal years' inspection lists shall remain in the Inspection Plan.
- (3) Record Keeping – For each facility identified in Provision C.4.b.ii.(2)(d), the Permittee shall maintain a database or equivalent tabular system of at least the following information:
- (a) Name and address of the business and local business operator;
  - (b) A brief description of business activity or pollutant source, including SIC code. Examples: outdoor process/manufacturing areas, outdoor material storage areas, outdoor waste storage and disposal areas, outdoor vehicle and equipment storage and maintenance areas, outdoor parking areas and access roads, outdoor wash areas, rooftop equipment, outdoor drainage from indoor areas;
  - (c) Inspection priority and inspection frequency; and
  - (d) If coverage under the Industrial General Permit is required.
- iii. **Reporting** – The Permittees shall include the list of all industrial and commercial facilities requiring inspections identified in Provision C.4.b.ii.(2)(d).

#### **C.4.c. Enforcement Response Plan (ERP)**

- i. **Task Description** – Permittees shall implement and update, as needed, its ERP – a reference document for inspection staff to take consistent actions to achieve timely and effective compliance from all commercial and industrial site operators.
- ii. **Implementation Level** – The ERP shall contain the following:
  - (1) **Enforcement Procedures** – A description of the Permittee's procedures from the discovery of the problems through the confirmation of implementation of corrective actions. This shall include guidance for appropriate enforcement actions, follow-up inspections, referrals to

another agency, appropriate time periods for implementation of corrective actions, and the roles and responsibilities of staff responsible for implementing the ERP.

- (2) Enforcement Tools and Field Scenarios – A discussion of the various, escalating enforcement tools for different field scenarios, including but not limited to potential discharges (i.e., housekeeping issues, evidence of actual discharges, lack of Best Management Practices (BMPs), inadequate BMPs, inappropriate BMPs, no Storm Water Pollution Prevention Plan (SWPPP), an inadequate SWPPP, and not implementing a site specific SWPPP), actual discharges, non-compliance with previous enforcement actions, and sites with a history of potential and/or actual discharges.
- (3) Timely Correction of Potential and Actual Discharges – A description of the Permittee’s procedures for assigning due dates for corrective actions. Permittees shall require timely correction of all potential and actual discharges. Corrective actions shall be implemented before the next rain event but no longer than 10 business days after the potential and/or actual discharges are discovered. Corrective actions can be temporary and more time can be allowed for permanent corrective actions. If more than 10 business day are required for compliance, a rationale shall be recorded in the electronic database or equivalent tabular system.
- (4) Referral and Coordination with Other Agencies – Each Permittee shall enforce its stormwater ordinances to achieve compliance at sites with observed potential and actual discharges. For cases in which Permittee enforcement tools are inadequate to remedy the noncompliance, the Permittee shall refer the case to the Water Board, district attorney, or other relevant agencies for additional enforcement.

#### **C.4.d. Inspections**

- i. **Task Description** – Each Permittee shall conduct inspections according to the Inspection Plan in Provision C.4.b.ii.(2) and Enforcement Response Plan in Provision C.4.c.ii. to enforce its ordinance to prevent stormwater pollution.
- ii. **Implementation Level**
  - (1) Inspections – Inspections shall be conducted to include at least the following activities:
    - (a) Observations for appropriate BMPs to prevent stormwater runoff pollution or illicit discharge;
    - (b) Observations for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater;
    - (c) Observations for noncompliance with Permittee ordinances and other local requirements; and
    - (d) Verification of coverage under the Industrial General Permit, if applicable.

- (2) Record Keeping – Permittees shall maintain adequate records to demonstrate compliance and appropriate follow-up enforcement responses for facilities inspected. Permittees shall maintain an electronic database or equivalent tabular system that contains the following information regarding industrial and commercial site inspections:
  - (a) Name of facility/site inspected
  - (b) Inspection date
  - (c) Industrial General Permit coverage required (Yes or No)
  - (d) Compliance status
  - (e) Specific problems
  - (f) Type of enforcement (if applicable)
  - (g) Problem resolution date
  - (h) Additional comments

The electronic database or equivalent tabular system shall be made readily available to Water Board staff or its representative during inspections and audits.

- iii. **Reporting** – Permittees shall include the following information in each Annual Report:
  - (1) Number of inspections conducted;
  - (2) Number of each type of enforcement action, as listed in each Permittee’s ERP, issued;
  - (3) Number of enforcement actions fully resolved within 10 working days or otherwise deemed resolved in a longer, but still timely manner;
  - (4) Frequency and types of potential and actual discharges noted by business category; and
  - (5) A list of facilities that are required to have coverage under the Industrial General Permit, but have not filed for coverage.

#### **C.4.e. Staff Training**

- i. **Task Description** – Permittees shall provide focused training for industrial and commercial site inspectors and illicit discharge detection and elimination inspectors annually. Trainings may be Program-wide, Region-wide, or Permittee-specific.
- ii. **Implementation Level** – At a minimum, train inspections, within the 5-year of this Permit, in the following topics:
  - (1) Urban runoff pollution prevention;
  - (2) Inspection procedures
  - (3) Business Inspection Plan
  - (4) Enforcement Response Plan
  - (5) Illicit Discharge Detection, Elimination; and

- (6) Appropriate BMPs to be used at different industrial and commercial facilities.

iii. **Reporting** – The Permittees shall include the following information in each Annual Report:

- (1) Dates of training;
- (2) Training topics covered;
- (3) Percentage of industrial and commercial site inspectors attending training; and
- (4) Percentage of Illicit Discharge, Detection, and Elimination inspectors attending training.

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## C.5. Illicit Discharge Detection and Elimination

The purpose of this provision is to implement the illicit discharge prohibition and to ensure illicit discharges are detected and controlled that are not otherwise controlled under provisions C.4. – Industrial and Commercial Site Controls and C.6. – Construction Site Controls. Permittees shall implement an illicit discharge program that includes an active surveillance component and a centralized complaint collection and follow-up component to target illicit discharge and non-stormwater sources. Permittees shall maintain a complaint tracking and follow-up data system as their primary accountability reporting for this provision.

### C.5.a. Legal Authority

- i. **Task Description** – Permittees shall have the legal authority to prohibit and control illicit discharges and implement stricter enforcement to achieve expedient compliance.
- ii. **Implementation Level**
  - (1) Permittees shall have adequate legal authority to address stormwater and non-stormwater pollution associated with, but not limited to the following:
    - (a) Sewage;
    - (b) Discharges of wash water resulting from the cleaning of exterior surfaces and pavement, or the equipment and other facilities of any commercial business, or any other public or private facility;
    - (c) Discharges of runoff from material storage areas, including those containing chemicals, fuels, or other potentially polluting or hazardous materials;
    - (d) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
    - (e) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and
    - (f) Discharges of food-related wastes (e.g., grease, fish processing wastes, restaurant kitchen mat and trash bin wash water, etc.).
  - (2) Permittees shall have adequate legal authority to prohibit, discover through inspection and surveillance, and eliminate illicit connections and discharges to storm drains.
  - (3) Permittees shall have adequate legal authority to control the discharge of spills, dumping, or disposal of materials other than storm water to storm drains.

### C.5.b. Enforcement Response Plan (ERP)

- i. **Task Description** – Permittees shall implement and update, as needed, its ERP – a reference document for inspection staff to take consistent actions to achieve

timely and effective abatement of illicit discharges and compliance from responsible parties.

**ii. Implementation Level** – The ERP shall contain the following:

- (1) **Enforcement Procedures** – A description of the Permittee’s procedures from the discovery of a problem through the confirmation of implementation of corrective actions. This shall include guidance for appropriate enforcement actions, follow-up inspections, referrals to another agency, appropriate time periods for implementation of corrective actions, and the roles and responsibilities of staff responsible for implementing the ERP.
- (2) **Enforcement Tools and Field Scenarios** – A discussion of the various, escalating enforcement tools for different field scenarios, including, but not limited to potential discharges (i.e., housekeeping issues, evidence of actual discharges, lack of Best Management Practices (BMPs), inadequate BMPs, inappropriate BMPs, no Storm Water Pollution Prevention Plan (SWPPP), an inadequate SWPPP, and not implementing a site specific SWPPP), actual discharges, non-compliance with previous enforcement actions, and sites with a history of potential and/or actual discharges.
- (3) **Timely Correction of Potential and Actual Discharges** – A description of the Permittee’s procedures for assigning due dates for corrective actions. Each Permittee shall require timely correction of all potential and/or actual discharges. Corrective actions shall be required to be implemented before the next rain event, but no longer than 10 business days after the potential and/or actual discharges are discovered. Corrective actions can be temporary and more time can be allowed for permanent corrective actions. If more than 10 business days are required for compliance, a rationale shall be recorded in the electronic database or equivalent tabular system.

**C.5.c. Spill and Dumping Complaint Response Program**

**i. Task Description** – Permittee shall implement a spill and dumping complaint response program.

**ii. Implementation Level**

- (1) Permittee shall have a central contact point for the public and Permittee’s staff to report spills and dumping. At a minimum, this central contact point shall include a phone number. Permittee shall also include, as feasible, user friendly web reporting for spills and dumping.
- (2) Permittee shall publicize the phone number and web reporting address, if used, to internal Permittee’s staff and the public. The Permittee’s website shall be one of the places the central contact point is publicized. Permittee’s website shall be updated with the central contact point to report spills and dumping by June 30, 2016. This central contact point shall be readily searchable on the Permittee’s website.



- (3) Permittee shall maintain and update, as needed, a spill and dumping response flow chart and/or phone tree for Permittee's staff responsible for the spill and dumping response program. At a minimum, this flow chart and/or phone tree shall identify staff or positions responsible for receiving the complaints and investigating and abating the complaints.
- (4) Permittee shall maintain and update, as needed, a spill and dumping response flow chart and phone tree or contact list for internal use that shows the various responsible agencies and their contacts, who would be involved in illicit discharge incident response that goes beyond the Permittee's immediate capabilities.
- (5) Permittee shall conduct reactive inspections in response to spill and dumping reports and shall also conduct follow-up inspections, as needed, to ensure that corrective measures have been effectively implemented to achieve and maintain compliance.

**iii. Reporting** – Permittees shall provide the following information in the 2016 and 2019 Annual Reports:

- (1) The spill and dumping reporting phone number and the web address, if used;
- (2) A screen shot of the Permittee's website showing the central contact point; and
- (3) A discussion of how the central contact point – spill and dumping reporting phone number and if used, the web address – is being publicized to Permittees' staff and the public.

**C.5.d. Tracking and Case Follow-up**

**i. Task Description** – All incidents or discharges reported to the spill and dumping central contact point shall be logged to track follow-up and response through problem resolution. The data collected shall be sufficient to demonstrate escalating responses for repeated problems and inter/intra-agency coordination, where appropriate.

**ii. Implementation Level** – Maintain a water quality spill and dumping complaint tracking and follow-up in an electronic database or equivalent tabular system.

The spill and discharge complaint tracking system shall contain the following information:

- (1) Complaint information:
  - (a) Date and time of complaint
  - (b) Type of pollutant, and
  - (c) Problem Status (potential or actual discharge.)
- (2) Investigation information:
  - (a) Date and time started
  - (b) Type of pollutant

- (c) Entered storm drain and/or receiving water,
  - (d) Date and time abated, and
  - (e) Type of enforcement based on the Permittee's ERP
- (3) Response time (hours or days) from call to abatement.

The electronic database or equivalent tabular system shall be made available to Water Board staff or representatives during audits or inspections.

**iii. Reporting** – Permittees shall provide the following information in the Annual Report:

- (1) Number of discharges reported;
- (2) Number of discharges reaching storm drains and/or receiving waters;
- (3) Number discharges resolved in a timely manner; and
- (4) Summary of the major types of discharges.

**C.5.e. Control of Mobile Sources**

**i. Task Description** – Permittees shall have oversight and control of pollutants associated with mobile business sources.

**ii. Implementation Level** – Each Permittee shall implement a program to reduce the discharge of pollutants from mobile businesses.

- (1) The program shall include the following:
  - (a) Implementation of minimum standards and BMPs for each of the various types of mobile businesses such as automobile washing, power washing, steam cleaning, and carpet cleaning.
  - (b) Implementation of enforcement strategy, which specifically addresses the unique characteristics of mobile businesses.
  - (c) Updating, at least annually, mobile business inventories.
  - (d) Implementation of an outreach and education strategy to mobile businesses operating within the Permittee's jurisdiction.
  - (e) Inspection of mobile businesses, as needed.
- (2) Permittees should cooperate county-wide and/or region-wide with the implementation of their programs for mobile businesses, including sharing of mobile business inventories, BMP requirements, enforcement action information, and education.

**iii. Reporting**

- (1) In the 2016 Annual Report, each Permittee shall provide the following: (a) minimum standards and BMPs for each of the various types of mobile businesses; (b) its enforcement strategy; (c) list and summary of specific outreach events and education conducted since December 1, 2009 to the different types of mobile businesses operating within the Permittee's jurisdiction; (d) the number of inspections conducted at mobile cleaners'

businesses and/or job sites in 2015-2016; (e) the number and types of enforcement actions taken against each type of mobile businesses in 2015-2016; (f) a list of mobile cleaners operating within the Permittee's jurisdiction; and (g) county-wide or regional activities conducted, including sharing of mobile business inventories, BMP requirements, enforcement action information, and education.

- (2) In the 2019 Annual Report, each Permittee shall discuss at least the following: (a) changes to minimum standards and BMPs for each of the various types of mobile businesses since the 2016 Annual Report; (b) changes to the enforcement strategy; (c) minimum standards and BMPs developed for additional types of mobile businesses; (d) list and summary of specific outreach events and education conducted to each type of mobile businesses operating within the Permittee's jurisdiction in 2016-2017, 2017-2018, and 2018-2019; (e) the number of inspections conducted at mobile cleaners' businesses and/or job sites in 2016-2017, 2017-2018, and 2018-2019; (f) a list of mobile businesses operating within the Permittee's jurisdiction; and (g) the number and types of enforcement actions taken against each type of mobile businesses in 2016-2017, 2017-2018, and 2018-2019.

**C.5.f. Municipal Separate Storm Sewer System (MS4) Map**

- i. Task Description** – Each Permittee shall make the map(s) of its MS4 available.
- ii. Implementation Level** – Permittees shall make maps of the MS4 publicly available, either electronically or in hard copy. Public availability shall be made through a single point of contact that is convenient for the public, such as a staffed counter or web accessible maps. The MS4 map availability shall be publicized through Permittee directories and web pages.
- iii. Reporting** – In the 2016 and 2019 Annual Reports, Permittees shall discuss how they make MS4 maps available to the public and how they publicize the availability of the MS4 maps.

## C.6. Construction Site Control

Each Permittee shall implement a construction site inspection and control program at all construction sites, with follow-up and enforcement consistent with each Permittee's respective Enforcement Response Plan (ERP), to prevent construction site discharges of pollutants and impacts to beneficial uses of receiving waters. Inspections shall confirm implementation of appropriate and effective erosion and other construction pollutant controls by construction site operators/developers; and reporting shall demonstrate the effectiveness of this inspection and problem solution activity by the Permittees.

### C.6.a. Legal Authority for Effective Site Management

- i. **Task Description** – Permittees shall have the ability to require effective stormwater pollutant controls, and implement progressively stricter enforcement to achieve expedient compliance and clean up at all public and private construction sites.
- ii. **Implementation Level**
  - (1) Permittees shall have the legal authority to require at all construction sites year round effective erosion control, run-on and runoff control, sediment control, active treatment systems (as appropriate), good site management, and non-storm water management through all phases of construction (including, but not limited to site grading, building, and finishing of lots) until the site is fully stabilized by landscaping or the installation of permanent erosion control measures.
  - (2) Permittees shall have the legal authority to oversee, inspect, and require expedient compliance and clean up at all construction sites year round.

### C.6.b. Enforcement Response Plan (ERP)

- i. **Task Description** – Permittees shall implement and update, as needed, its ERP – a reference document for inspection staff to take consistent actions to achieve timely and effective compliance from all public and private construction site owners/operators.
- ii. **Implementation Level** – The ERP shall contain the following:
  - (1) **Enforcement Procedures** – A description of the Permittee's procedures from the discovery of the problems through the confirmation of implementation of corrective actions. This shall include guidance for appropriate enforcement actions, follow-up inspections, referrals to another agency, appropriate time periods for implementation of corrective actions, and the roles and responsibilities of staff responsible for implementing the ERP.
  - (2) **Enforcement Tools and Field Scenarios** – A discussion of the various, escalating enforcement tools for different field scenarios, including, but not limited to potential discharges (i.e., housekeeping issues, evidence of actual discharges, lack of Best Management Practices (BMPs), inadequate

BMPs, inappropriate BMPs, no Storm Water Pollution Prevention Plan (SWPPP), an inadequate SWPPP, and not implementing a SWPPP), actual discharges, non-compliance with previous enforcement actions, and sites with a history of potential and/or actual discharges.

- (3) Timely Correction of Potential and Actual Discharges – A description of the Permittee’s procedures for assigning due dates for corrective actions. Permittees shall require timely correction of all potential and actual discharges. Corrective actions shall be implemented before the next rain event, and no longer than 10 business days after the potential and/or actual discharges are discovered. Corrective actions can be temporary and more time can be allowed for permanent corrective actions. If more than 10 business days are required for compliance, a rationale shall be recorded in the electronic database or equivalent tabular system.

### **C.6.c. Best Management Practices Categories**

- i. Task Description** – Permittees shall require all construction sites to have site specific, and seasonally and phase-appropriate, effective Best Management Practices (BMPs) in the following six categories:

- Erosion Control
- Run-on and Run-off Control
- Sediment Control
- Active Treatment Systems (as necessary)
- Good Site Management
- Non Stormwater Management.

These BMP categories are listed in the Statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activities (hereinafter the Construction General Permit).

- ii. Implementation Level**

The BMPs targeting specific pollutants within the six categories listed in C.6.c.i. shall be site specific. Site specific BMPs targeting specific pollutants from the six categories listed in C.6.c.i. can be a combination of BMPs from:

- CASQA BMP Handbook, Construction, January 2009.
- Caltrans Stormwater Quality Handbooks, Construction Site Best Management Practices Manual, March 2003, and addenda.
- New BMPs available since the release of these Handbooks.

### **C.6.d. Plan Approval Process**

- i. Task Description** – Permittees shall review erosion control plans for consistency with local requirements and the appropriateness and adequacy of proposed BMPs for each site before issuance of grading permits for projects. Permittees shall also verify that sites disturbing one acre or more of land have obtained coverage under the Construction General Permit.

- ii. Implementation Level** – Before approval and issuance of local grading permits, each Permittee shall perform the following:
- (1) Review the site operator's/developer's erosion/pollution control plan or Stormwater Pollution Prevention Plan (SWPPP) to verify compliance with the Permittee's grading ordinance and other local requirements. Also review the site operator's/developer's erosion/pollution control plan or SWPPP to verify that seasonally appropriate and effective BMPs for the six categories listed in C.6.c.i. are planned;
  - (2) For sites disturbing one acre or more of soil, verify that the site operators/developers have obtained coverage under the Construction General Permit; and
  - (3) Provide construction stormwater management educational materials to site operators/developers, as appropriate.

**C.6.e. Inspections**

**i. Task Description** – Permittees shall conduct inspections to determine compliance with local ordinances (grading and stormwater) and determine the effectiveness of the BMPs in the six categories listed in C.6.c.i.; and Permittees shall require timely corrections of all actual and threatened violations of local ordinances observed.

**ii. Implementation Level**

**(1) Wet Season Notification**

By September 1st of each year, each Permittee shall remind all site developers and/or owners with grading permits and all site developers and/or owners disturbing one acre or more of soil to prepare for the upcoming wet season.

**(2) Frequency of Inspections**

Inspections shall be conducted monthly during the wet season<sup>1</sup> at the following sites:

- (a) All construction sites disturbing one or more acre of land; and
- (b) All hillside projects (based on Permittee's map of hillside development areas or criteria, or defined as  $\geq 5\%$  slope); and
- (c) High Priority Sites – Other sites determined by the Permittee or the Water Board as significant threats to water quality. In evaluating threat to water quality, the following factors shall be considered:
  - (i) Soil erosion potential or soil type;
  - (ii) Site slope;
  - (iii) Project size and type;
  - (iv) Sensitivity or receiving waterbodies;

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<sup>1</sup> For the purpose of inspections, the wet season is defined as October through April, but sites need to implement seasonally appropriate BMPs in the six categories listed in C.6.c.i throughout the year.

- (v) Proximity to receiving waterbodies;
- (vi) Non-stormwater discharges; and
- (vii) Any other relevant factors as determined by the local agency or the Water Board.

(3) **Contents of Inspections**

Inspections shall focus on the adequacy and effectiveness of the site specific BMPs implemented for the six categories listed in C.6.c.i. Permittees shall require timely corrections of all actual and potential problems observed. Inspections of construction sites shall include, but are not limited to, the following:

- (a) Assessment of compliance with Permittee's ordinances and permits related to urban runoff, including the implementation and maintenance of the verified erosion/pollution control plan or SWPPP (from C.6.d.ii.(1));
- (b) Assessment of the adequacy and effectiveness of the site specific BMPs implemented for the six categories listed in C.6.c.i.;
- (c) Visual observations for:
  - actual discharges of sediment and/or construction related materials into stormdrains and/or waterbodies.
  - evidence of sediment and/or construction related materials discharges into stormdrains and/or waterbodies.
  - illicit connections.
  - potential illicit connections.
- (d) Education on stormwater pollution prevention, as needed.

(4) **Tracking**

All inspections shall be recorded on a written or electronic inspection form. Inspectors shall follow the ERP for all actual and potential discharges discovered during the inspection.

Permittees shall track in an electronic database or tabular format all inspections. This electronic database or tabular format shall be made readily available during inspections and audits by the Water Board staff or its representatives. This electronic database or tabular format shall record the following information for each site inspection:

- (a) Site name;
- (b) Inspection date;
- (c) Weather during inspection;
- (d) Enforcement Response Level (Use ERP);
- (e) Problem(s) observed using Illicit Discharge and the six BMP categories listed in C.6.c.i.;
- (f) Specific Problem(s) (List the specific problem(s) within the BMP categories);

- (g) Resolution of Problems noted using the following three standardized categories: Problems Fixed, Need More Time, and Escalate Enforcement; and
- (h) Comments, which shall include all Rationales for Longer Compliance Time, all escalation in enforcement discussions, and any other information that may be relevant to that site inspection.

**iii. Reporting**

- (1) In the 2016 Annual Report, each Permittee shall certify the criteria it uses to determine hillside developments. If the Permittee is using maps of hillside developments areas or other written criteria, include a copy in the Annual Report.
- (2) In each Annual Report, each Permittee shall summarize the following information:
  - (a) Total number of active hillside sites disturbing less than one acre of soil requiring inspection;
  - (b) Total number of active sites disturbing 1 acre or more of soil;
  - (c) Total number of active sites disturbing less than one acre of soil requiring inspections;
  - (d) Total number of inspections conducted;
  - (e) Number of violations in each of the six categories listed in C.6.c.i.;
  - (f) Number of each type of enforcement action taken as listed in each Permittee's ERP;
  - (g) Number of discharges, actual and those inferred through evidence, of sediment or other construction related materials;
  - (h) Number of sites with discharges, actual and those inferred through evidence, of sediment or other construction related materials;
  - (i) Number of violations fully corrected prior to the next rain event but no longer than 10 business days after the violations are discovered or otherwise considered corrected in a timely, though longer period; and
- (3) In each Annual Report, each Permittee shall evaluate its respective electronic database or tabular format and the summaries produced in C.6.e.ii.(4) above. This evaluation shall include findings on the program's strength, comparison to previous years' results, as well as areas that need more focused education for site owners, operators, and developers the following year.
- (4) The Executive Officer may require that the information recorded and tracked by C.6.e.ii.(4) be submitted electronically or in a tabular format. Permittees shall submit the information within 10 working days of the Executive Officer's requirement. Submittal of the information in tabular form for the reporting year is not required in each Annual Report, but it is encouraged.



**C.6.f. Staff Training**

- i. Task Description** – Permittees shall provide training or access to training for staff conducting construction stormwater inspections.
- ii. Implementation Level** – Permittees shall provide training at least every other year to municipal staff responsible for conducting construction site stormwater inspections. Training topics shall include information on correct uses of specific BMPs, proper installation and maintenance of BMPs, Permit requirements, local requirements, and the ERP.
- iii. Reporting** – Permittees shall include in each Annual Report the following information: training topics covered, dates of training, and the percentage of Permittees’ inspectors attending each training. If there was no training in that year, so state.

We welcome input on alternative requirements for Provision C.7. that will result in meaningful and effective outreach actions.

## C.7. Public Information and Outreach

Each Permittee shall increase the knowledge of target audiences regarding the impacts of stormwater pollution on receiving waters and potential solutions to mitigate the problems caused; change the waste disposal and runoff pollution generation behavior of target audiences by encouraging implementation of appropriate solutions; and involve various citizens in mitigating the impacts of stormwater pollution.

### C.7.a. Storm Drain Inlet Marking

- i. **Task Description** – Permittees shall mark and maintain municipally-maintained storm drain inlets with an appropriate stormwater pollution prevention message, such as “No dumping, drains to Bay” or equivalent. For newly approved, privately maintained streets, Permittees shall require storm drain inlet markings with an appropriate stormwater pollution prevention message by the project developer upon construction. and maintenance of markings through the development maintenance entity. Markings shall be verified prior to acceptance of the project.
- ii. **Implementation Level**
  - (1) Inspect and maintain storm drain inlet markings of at least 80 percent of municipality maintained inlets to ensure they are legibly labeled with a no dumping message or equivalent once per permit term.
  - (2) Storm drain inlet markings of newly developed privately maintained streets shall be verified prior to acceptance of the project. Permittees shall require maintenance of the storm drain inlet markings through the development maintenance entity.
- iii. **Reporting** – In the 2020 Annual Report, each Permittee shall (1) state how many municipally-maintained storm drain inlets it has, (2) certify that at least 80 percent of municipality maintained storm drain inlet markings are legibly labeled with an appropriate stormwater pollution prevention message during the permit term; (3) include a picture of a labeled municipality maintained inlet; and (4) certify that all privately maintained streets that did not trigger the exemptions in Provision C.3.c.ii. had storm drain inlet markings verified prior to acceptance of the project and were required to maintain the storm drain inlet markings through the development maintenance entity.

### C.7.b. Advertising Campaigns

- i. **Task Description** – Permittees shall participate in or contribute to advertising campaigns on trash/litter in waterways and pesticides, with the goal of

significantly increasing overall awareness of stormwater runoff pollution prevention messages and behavior changes in target audiences.

**ii. Implementation Level**

- (1) Target a broad audience with two separate advertising campaigns, one focused on reducing trash/litter in waterways and one focused on reducing the impact of urban pesticides. The advertising campaigns may be coordinated regionally or county-wide.
- (2) Permittees shall conduct a pre-campaign survey and a post-campaign survey to identify and quantify the audiences' knowledge, trends, and attitudes and/or practices; and to measure the overall population's awareness of the messages and behavior changes achieved by the two advertising campaigns. These surveys may be done regionally or county-wide.

**iii. Reporting**

- (1) In the Annual Report following the pre-campaign survey, each Permittee (or the Countywide Program, if the survey was done county-wide or regionally) shall provide a report of the survey completed, which at a minimum, shall include the following:
  - A summary of how the survey was implemented.
  - A copy of the survey.
  - A copy of the survey results.
  - An analysis of the survey results.
  - A discussion of the outreach strategies based on the survey results.
  - A discussion of the planned or future advertising campaigns to influence awareness and behavior changes regarding trash/litter and pesticides.
- (2) In the Annual Report following the post campaign survey, each Permittee (or the Countywide Program, if survey was done county-wide or regionally) shall provide a report of the survey completed, which at minimum shall include the information required in the pre-campaign report (C.7.b.iii.(1)) and the following:
  - A discussion of the campaigns.
  - A discussion of the measurable changes in awareness and behavior achieved.
  - An update of outreach strategies based on the survey results.

**C.7.c. Media Relations – Use of Free Media**

- i. Task Description – Permittees shall participate in or contribute to a media relations campaign. Maximize use of free media/media coverage with the objective of significantly increasing the overall awareness of stormwater

pollution prevention messages and associated behavior change in target audiences, and to achieve public goals.

- ii. Implementation Level – Conduct a minimum of six pitches (e.g., press releases, public service announcements, and/or other means) per year at the county-wide program, regional, and/or local levels.
- iii. Reporting – In each Annual Report, each Permittee (or the Countywide Program, if the media relations campaign was done county-wide or regionally) shall include the details of each media pitch, such as the medium, date, and content of the pitch.

**C.7.d. Stormwater Point of Contact**

- i. Task Description – Permittees shall individually or collectively create and maintain a point of contact, e.g., a phone number or website, to provide the public with information on watershed characteristics and stormwater pollution prevention alternatives.
- ii. Implementation Level – Maintain and publicize one point of contact for information on stormwater issues. Permittees may combine this function with the complaint/spill contact required in C.5.
- iii. Reporting – In the 2010 Annual Report, each Permittee shall discuss how this point of contact is publicized and maintained. If any change occurs in this contact, report in subsequent annual report.

**C.7.e. Public Outreach Events**

- i. **Task Description** – Participate in and/or host events such as fairs, shows, and workshops (e.g., community events, street fairs, and farmers’ markets), to reach a broad spectrum of the community with both general and specific stormwater runoff pollution prevention messages. At a minimum, pollution prevention messages shall include encouraging residents to (1) wash cars at commercial car washing facilities, (2) use minimal detergent when washing cars, and (3) divert car washing runoff to landscaped area.
- ii. **Implementation Level** – Each Permittee shall annually participate and/or host the number of events according to its population, as shown in the table below:

**Table 7.1 Public Outreach Events<sup>1</sup>**

Permittee Population	Number of Outreach Events
< 10,000	2
10,001– 40,000	3
40,001 – 100,000	4

<sup>1</sup> Permittees may claim individual credits for all events in which their Countywide Program or BASMAA participates, supports, and/or hosts, which are publicized to reach the Permittees jurisdiction.

100,001 – 175,000	5
175,001 – 250,000	6
> 250,000	8
Non-population-based Permittees <sup>2</sup>	6

Should a public outreach event contain significant citizen involvement elements, the Permittee may claim credit for both Public Outreach Events (C.7.e.) and Citizen Involvement Events (C.7.g.).

- iii. **Reporting** – In each Annual Report, each Permittee shall list the events (name of event, event location, and event date) participated in and assess the effectiveness of efforts with appropriate measures (e.g., success at reaching a broad spectrum of the community, number of participants compared to previous years, post-event survey results, quantity/volume of materials cleaned up and comparisons to previous efforts).

**C.7.f. Watershed Stewardship Collaborative Efforts**

- i. **Task Description** – Permittees shall individually or collectively encourage and support watershed stewardship collaborative efforts of community groups such as the Contra Costa Watershed Forum, the Santa Clara Basin Watershed Management Initiative, “friends of creek” groups, and other organizations that benefit the health of the watershed, such as the Bay-Friendly Landscaping and Gardening Coalition. If no such organizations exist, encourage and support development of grassroots watershed groups or engagement of an existing group, such as a neighborhood association, in watershed stewardship activities. Coordinate with existing groups to further stewardship efforts.
- ii. **Implementation Level** – Annually demonstrate effort.
- iii. **Reporting** – In each Annual Report, each Permittee shall state the level of effort, describe the support given, state what efforts were undertaken and the results of these efforts, and provide an evaluation of the effectiveness of these efforts.

**C.7.g. Citizen Involvement Events**

- i. **Task Description** – Permittees shall individually or collectively, support citizen involvement events that provide the opportunity for citizens to directly participate in water quality and aquatic habitat improvement, such as creek/shore clean-ups, adopt-an-inlet/creek/beach programs, volunteer monitoring, service learning activities such as storm drain inlet marking, community riparian restoration activities, community grants, and other participation and/or host volunteer activities.

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<sup>2</sup> Alameda County Flood Control and Water Conservation District, Contra Costa Flood Control and Water Conservation District, Santa Clara Valley Water District, Vallejo Sanitation and Flood Control District, and Zone 7 of the Alameda County Flood Control and Water Conservation District

- ii. **Implementation Level** – Each Permittee shall annually sponsor and/or host the number of citizen involvement events according to its population, as shown in the table below:

**Table 7.2 Community Involvement Events<sup>3</sup>**

Permittee Population	Number of Involvement Events
< 10,000	1
10,001 – 40,000	1
40,001 – 100,000	2
100,001 – 175,000	3
175,001 – 250,000	4
> 250,000	5
Non-population-based Permittees	2

Should a citizen involvement event contain significant public outreach elements, the Permittee may claim credit for both Citizen Involvement Events (C.7.g.) and Public Outreach Events (C.7.e.).

- iii. **Reporting** – In each Annual Report, each Permittee shall list the events (name of event, event location, and event date) participated in and assess the effectiveness of efforts with appropriate measures (e.g., success at reaching a broad spectrum of the community, number of participants compared to previous years, post-event survey results, number of inlets/creeks/shores/parks/and such adopted, quantity/volume materials cleaned up, data trends, and comparisons to previous efforts).

**C.7.h. School-Age Children Outreach**

- i. **Task Description** – Permittees shall individually or collectively implement outreach activities designed to increase awareness of stormwater and/or watershed message(s) in school-age children (K through 12).
- ii. **Implementation Level** – Implement annually and demonstrate effectiveness of efforts through assessment.
- iii. **Reporting** – In each Annual Report, each Permittee shall state the level of effort, spectrum of children reached, and methods used, and provide an evaluation of the effectiveness of these efforts.

**C.7.i. Outreach to Municipal Officials**

- i. **Task Description** – Permittees shall conduct outreach to municipal officials. One alternative means of accomplishing this is through the use of the Nonpoint Education for Municipal Officials program (NEMO) to significantly increase overall awareness of stormwater and/or watershed message(s) among regional municipal officials.

<sup>3</sup> Permittees can claim individual credit for all events sponsored or hosted by their Countywide Program or BASMAA, which are publicized to reach the Permittee’s jurisdiction.

- ii. **Implementation Level** – At least once per permit cycle, or more often.
- iii. **Reporting** – Permittees shall summarize efforts in the 2020 Annual Report.

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## C.8. Water Quality Monitoring

### C.8.a. Compliance Options

All Permittees shall comply with all the monitoring requirements in this Provision. Permittees may choose any of the following mechanisms, or a combination of these mechanisms, to meet the monitoring requirements:

- i. **Regional Collaboration.** Permittees are encouraged to continue contributing to the Regional Monitoring Collaborative (RMC), which coordinates water quality monitoring conducted by all the Permittees. Permittees are encouraged to consider and assign additional duties to the RMC for purposes of increased efficiencies, particularly but not limited to reporting duties.
- ii. **Area-wide Stormwater Program.** Permittees may contribute to their countywide or area-wide Stormwater program, so that the Stormwater Program conducts monitoring on behalf of its members.
- iii. **Third-party Monitoring.** Permittees may use data collected by a third-party organization, such as the Water Board or Department of Pesticide Regulation, to fulfill a monitoring requirement, provided the data are demonstrated to meet the data quality objectives described in Provision C.8.b.

### C.8.b. Monitoring Protocols and Data Quality

Where applicable, monitoring data must be SWAMP comparable. Minimum data quality shall be consistent with the latest version of the SWAMP Quality Assurance Project Plan (QAPrP) for applicable parameters, including data quality objectives, field and laboratory blanks, field duplicates, laboratory spikes, and clean techniques, using the most recent SWAMP Standard Operating Procedures.

The BASMAA Regional Monitoring Coalition (RMC) Creek Status Monitoring Program Quality Assurance Project Plan (January 2014) and Standard Operating Procedures (January 2014) have been deemed by Water Board staff as SWAMP comparable. These documents may be updated to reflect the changing state-of-the-science with Executive Officer's approval.

### C.8.c. San Francisco Estuary Receiving Water Monitoring

With limited exceptions, urban runoff from the Permittees' jurisdictions ultimately discharges to the San Francisco Estuary. Monitoring of the Estuary is intended to answer questions<sup>1</sup> such as:

- Are chemical concentrations in the Estuary potentially at levels of potential concern and are associated impacts likely?

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<sup>1</sup> <http://www.sfei.org/rmp/objectives> (9/15/2014). While the stated objectives may change over time, the intent of this provision is for Permittees to continue contributing financially and as stakeholders in such a program as the RMP, which monitors the quality of San Francisco Bay.



- What are the concentrations and masses of contaminants in the Estuary and its segments?
- What are the sources, pathways, loadings, and processes leading to contaminant related impacts in the Estuary?
- Have the concentrations, masses, and associated impacts of contaminants in the Estuary increased or decreased?
- What are the projected concentrations, masses, and associated impacts of contaminants in the Estuary?

The Permittees shall participate in implementing an Estuary receiving water monitoring program, at a minimum equivalent to the San Francisco Estuary Regional Monitoring Program (RMP), by contributing their fair-share financially on an annual basis.

#### **C.8.d. Creek Status Monitoring**

Creek status monitoring is intended to assess the chemical, physical, and biological impacts of urban runoff on receiving waters. In particular, the monitoring required by this provision is intended to answer the following questions:

- Are water quality objectives, both numeric and narrative, being met in local receiving waters, including creeks, rivers and tributaries?
- Are conditions in local receiving waters supportive of or likely to be supportive of beneficial uses?

##### **i. Biological Assessment including Nutrients and General Water Quality Parameters**

- (1) Field and Laboratory Method – The Permittees shall conduct biological assessments (also referred to herein as bioassessments) in accordance with Surface Water Ambient Monitoring Program (SWAMP) Standard Operating Procedures<sup>2,3,4</sup> and shall include collection and reporting of in-stream biological and physical habitat data according to the *SWAMP*

<sup>2</sup> Ode, P.R. 2007. *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California*, State Water Board Surface Water Ambient Monitoring Program (SWAMP), as subsequently revised [[http://www.waterboards.ca.gov/water\\_issues/programs/swamp/docs/swamp\\_sop\\_bio.pdf](http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/swamp_sop_bio.pdf)].

<sup>3</sup> Current methods are documented in (1) *SWAMP Standard Operating Procedure (SOP) and Interim Guidance on Quality Assurance for SWAMP Bioassessments*, Memorandum to SWAMP Roundtable from Beverly H. van Buuren and Peter R. Ode, May 21, 2007, and (2) *Amendment to SWAMP Interim Guidance on Quality Assurance for SWAMP Bioassessments*, Memorandum to SWAMP Roundtable from Beverly H. van Buuren and Peter R. Ode, September 17, 2008 both available at [[http://www.waterboards.ca.gov/water\\_issues/programs/swamp/tools.shtml#methods](http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#methods)].

<sup>4</sup> The Standard Operating Procedure for algae sampling and evaluation is available in the following: Fetscher, A. and K. McLaughlin, May 16, 2008. *Incorporating Bioassessment Using Freshwater Algae into California's Surface Water Ambient Monitoring Program (SWAMP)*. Technical Report 563 and current SWAMP-approved updates to Standard Operating Procedures therein. Available at [[http://www.waterboards.ca.gov/water\\_issues/programs/swamp/docs/reports/563\\_periphyton\\_bioassessment.pdf](http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/563_periphyton_bioassessment.pdf)].

*Standard Operating Procedures for Bioassessment*<sup>3</sup>, including benthic algae, benthic macroinvertebrates, water chemistry, and full characterization of physical habitat. Bioassessment sampling method shall be multihabitat reach-wide. Macroinvertebrates shall be identified according to the *Standard Taxonomic Effort Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists* (except Chironomids should be identified to subfamily), using the most current SWAMP-approved method. For algae, the assessment shall include all analytes in the protocol including diatom and soft algae taxonomy, biomass (ash-free dry weight), chlorophyll a, pebble count algae information, and reach-wide algal percent cover. Physical Habitat (PHab) Assessment shall include the SWAMP full physical habitat characterization method.

- (2) The sampling crew shall be trained by a SWAMP-approved trainer and possess a Scientific Collection Permit from the California Department of Fish and Wildlife, and participate in a SWAMP-approved inter-calibration exercise at least once in the permit term. The Discharger may modify its sampling procedures if these referenced procedures change during the Order term. In such case, the Discharger shall notify the Regional Water Board and follow the updated SWAMP procedures.
- (3) Macroinvertebrates shall be identified and classified according to the *Standard Taxonomic Effort (STE) Level I of the Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT)*<sup>5</sup> (except Chironomids should be identified to subfamily) using a fixed count of 600 organisms per sample. The laboratory shall follow the *SWAMP Standard Operating Procedures for Laboratory Processing and Identification of Benthic Macroinvertebrates in California*.<sup>6</sup> All quality assurance and quality control steps specified in the *SWAMP Quality Assurance Program Plan*<sup>1</sup> shall be performed.
- (4) Bioassessment sampling requires the collection of general water quality parameters and nutrients at the site when biological samples are collected. General water quality parameters include measuring temperature, dissolved oxygen, pH, and specific conductance using a sonde. Nutrients include total ammonia, nitrate, nitrite, total Kjeldahl nitrogen, total nitrogen (calculated), dissolved orthophosphate and total phosphorous, silica and chloride.
- (5) In conducting the required bioassessment monitoring, the Permittees shall take precautions to prevent the introduction or spread of aquatic invasive species.

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<sup>5</sup> The current SAFIT STEs (November 28, 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at [http://www.waterboards.ca.gov/water\\_issues/programs/swamp/safit.shtml](http://www.waterboards.ca.gov/water_issues/programs/swamp/safit.shtml). When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

<sup>6</sup> [http://www.waterboards.ca.gov/water\\_issues/programs/swamp/docs/bmi\\_lab\\_sop\\_final.pdf](http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/bmi_lab_sop_final.pdf).

- (6) Sample Design/Locations – The Permittees shall continue to use the probabilistic sample design developed in the previous permit term 2009-2014 to select sample locations. Also, Permittees shall continue to use the sampling site order and the rationale to exclude potential sites as previously defined by the sample design and reconnaissance standard operating procedures.
- (7) Frequency, Timeframe and Number of Sites – Sampling shall occur once per year during the appropriate index period (April 15- June 30) with consideration of antecedent rainfall. Sampling is a one-time grab sample for biological communities, nutrients, and general water quality collected on the same day.

Sampling Agency	Minimum Number of Samples
Alameda Permittees	20 per year
Santa Clara Permittees	20 per year
Contra Costa Permittees	10 per year
San Mateo Permittees	10 per year
Fairfield-Suisun Permittees	8 per 5-year period
Vallejo Permittees	4 per 5-year period

- (8) Follow Up – The Permittees shall consider sites scoring less than 0.795 according to the California Stream Condition Index<sup>7</sup> (CSCI) as potentially appropriate for a Stressor Source Identification (SSID) project as defined in C.8.e. Such a score indicates a substantially degraded biological community relative to reference conditions. A SSID project shall also be considered when there is a substantial difference in CSCI score observed at a location relative to upstream or downstream sites. If many samples show a degraded biological condition, sites where water quality is most likely to cause and contribute to this degradation may be prioritized by the Permittee for a SSID project.

**ii. Chlorine**

- (1) Field and Laboratory Method – Permittees shall collect a grab sample and analyze for free and total chlorine using methods specified in the BASMAA Regional Monitoring Coalition Creek Status Monitoring Program Standard Operating Procedures.
- (2) Sample Design/Locations – Sample locations may be selected by the Permittees to monitor locations near known or suspected potable water line breaks; to coincide with bioassessment sites; to coincide with creek restoration sites; or to resample a location where chlorine has been found in the past.
- (3) Frequency, Timeframe and Number of Samples – Samples shall be collected in spring or summer. Vallejo and Fairfield-Suisun Permittees

<sup>7</sup> Documentation for the CSCI and information on calculating scores can be found at [http://www.swrcb.ca.gov/plans\\_policies/biological\\_objective.shtml](http://www.swrcb.ca.gov/plans_policies/biological_objective.shtml).

each shall collect their samples by the end of the second year of the permit term.

Sampling Agency	Minimum Number of Locations Sampled
Alameda Permittees	20 per year
Santa Clara Permittees	20 per year
Contra Costa Permittees	10 per year
San Mateo Permittees	10 per year
Fairfield-Suisun Permittees	8 per 5-year period
Vallejo Permittees	4 per 5-year period

- (4) Follow Up – The Permittees shall immediately resample if the chlorine concentration is greater than 0.1 mg/L. If the resample is still greater than 0.1 mg/L, then resample 1-7 days later to document persistence of the exceedance. If third sample remain > 0.1 mg/L then report to local stormwater program or water purveyor to find source of chlorine.

**iii. Temperature**

- (1) Field Method – The Permittees shall monitor temperature of their streams using a digital temperature logger or equivalent.
- (2) Sample Design/Locations – The Permittees shall monitor stream reaches that are documented to support cold water fisheries and where either past data or best professional judgment indicates that temperatures may negatively affect that beneficial use.
- (3) Frequency, Timeframe and Number of Sites – Loggers shall be installed so that water temperatures are recorded at 60-minute intervals from April through September at the number of sites specified below.

Sampling Agency	Minimum Number of Stream Reaches Sampled
Alameda Permittees	8 per year
Santa Clara Permittees	8 per year
Contra Costa Permittees	4 per year
San Mateo Permittees	4 per year
Fairfield-Suisun Permittees	2 per 5-year period
Vallejo Permittees	2 per 5-year period

- (4) Follow Up – The Permittees shall consider conducting a SSID project when results in one water body (stream reach) exceed the applicable temperature trigger or demonstrate a spike in temperature with no obvious natural explanation. The temperature trigger is defined as a Maximum Weekly Average Temperature of 14.8°C for Coho and 17.0°C for a Steelhead stream, or any single instantaneous measurement above 24°C.<sup>8</sup>

<sup>8</sup> This weekly average trigger correspond to a 10% reduction in growth as listed in Table 7.3 in Sullivan K., Martin, D.J., Cardwell, R.D., Toll, J.E., Duke, S. 2000. *An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria*, Sustainable Ecosystem Institute). The 24°C acute threshold is cited on page THIS WILL GO INTO THE FACT SHEET

Permittees shall calculate the weekly average temperature by breaking the measurements into non-overlapping, 7-day periods. If two or more weekly average temperatures are above the appropriate Maximum Weekly Average Temperature trigger, the stream reach is suitable for a SSID.

**iv. Continuous Monitoring of Dissolved Oxygen, Temperature and pH**

- (1) Field and Laboratory Method – The Permittees shall monitor general water quality parameters of streams using a water quality sonde or equivalent. Parameters shall include dissolved oxygen (mg/L and % saturation), pH, specific conductance (µS), and temperature (°C).
- (2) Sample Design/Locations – The Permittees shall monitor stream reaches that are documented to support cold water fisheries and where either past data or best professional judgment indicates that general water quality parameters may negatively affect that beneficial use.
- (3) Frequency, Timeframe and Number of Sites – Sondes shall be installed so that parameters are recorded at 15-minute intervals over 1-2 weeks in the spring concurrent with bioassessment sampling and 1-2 weeks in summer at the same sites. The required number of samples is specified below.

Sampling Agency	Minimum Number of Sample Sites in Spring	Minimum Number of Sample Sites in Summer
Alameda Permittees	3 per year	3 per year
Santa Clara Permittees	3 per year	3 per year
Contra Costa Permittees	2 per year	2 per year
San Mateo Permittees	2 per year	2 per year
Fairfield-Suisun Permittees	2 per permit term	2 per 5-year period
Vallejo Permittees	2 per permit term	2 per 5-year period

- (4) Follow Up – The Permittees shall consider conducting a SSID project when results in one water body (stream reach) exceed the applicable temperature or dissolved oxygen trigger or demonstrate a spike in temperature or drop in dissolved oxygen with no obvious natural explanation. The Permittees shall calculate the weekly average temperature and dissolved oxygen by separating the measurements into non-overlapping, 7-day periods. The temperature trigger is defined as the Maximum Weekly Average Temperature of 14.8°C for Coho and 17.0°C for a Steelhead stream, or any single instantaneous measurement above 24°C.<sup>9</sup> If the average weekly temperature is above the appropriate Maximum Weekly Average Temperature trigger, the trigger is exceeded. A trigger is exceeded if 20% of instantaneous measurements for pH are < 6.5 or > 8.5. A trigger is exceeded if 20% of the instantaneous specific conductance readings are > 2000µS, or there is a spike in readings with no obvious natural explanation. A trigger is exceeded if 20% of instantaneous dissolved oxygen readings are > 7 mg/L in a cold water fishery stream.

v. **Toxicity in Water Column**

(1) Field and Laboratory Method – The Permittees shall collect grab samples of receiving (creek) water using applicable SWAMP comparable methodology. These samples shall be analyzed for the pollutants listed and by the methods described on Table 8.1.

Toxicity test biological endpoint data must be analyzed using the Test of Significant Toxicity (TST) t-test approach.<sup>9</sup> Each sample shall be subject to determination of “Pass” or “Fail” and “Percent Effect” from a single-effluent concentration chronic toxicity test at the in-stream waste concentration (IWC) (100% receiving water or 100% storm drain outfall effluent, as applicable) using the TST. The null hypothesis (H<sub>0</sub>) for the TST approach is: Mean IWC response ≤ 0.75 × Mean control response. A test result that rejects this null hypothesis is reported as “Pass.” A test result that does not reject this null hypothesis is reported as “Fail.” The relative “Percent Effect” at the IWC is defined and reported as: ((Mean control response – Mean IWC response) ÷ Mean control response) × 100.

**Table 8.1 Water Column Aquatic Toxicity Analytical Procedures**

<b>Organism</b>	<b>Units</b>	<b>Test</b>	<b>USEPA Protocol</b>
<i>Pimephales promelas</i> (Fathead Minnow)	Pass or Fail, % Effect (TST)	Larval Survival and Growth	EPA-821-R-02-013 <sup>10</sup> EPA 833-R-10-003 <sup>11</sup>
<i>Ceriodaphnia dubia</i> (Freshwater Amphipod)	Pass or Fail, % Effect (TST)	Survival and Production	EPA-821-R-02-013 EPA 833-R-10-003
<i>Hyalella Azteca</i> (Freshwater Amphipod)	Pass or Fail, % Effect (TST)	Survival	EPA-821-R-02-012 <sup>12</sup> EPA 833-R-10-003
<i>Chironomus dilutes</i> (midge)	Pass or Fail, % Effect (TST)	Survival	EPA-821-R-02-012 <sup>13</sup> EPA 833-R-10-003
<i>Selenastrum capricornutum</i> (Green Algae)	Pass or Fail, % Effect (TST)	Growth	EPA-821-R-02-013 EPA 833-R-10-003

<sup>9</sup> National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1, and Table A-1.

<sup>10</sup> Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/821/R-02/013, 2002; Table IA, 40 CFR Part 136.

<sup>11</sup> National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003) 2010.

<sup>12</sup> Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA/821/R-02/012, 2002; Table IA, 40 CFR Part 136).

<sup>13</sup> Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA/821/R-02/012, 2002; Table IA, 40 CFR Part 136).

- (2) Sample Design/Locations – Sample locations may be selected by the Permittees to monitor locations where toxicity could be likely; to coincide with bioassessment sites; to coincide with creek restoration sites; or to resample a location where toxicity has been found in the past.
- (3) Frequency, Timeframe and Number of Sites – The Permittees shall collect samples annually in the dry season. The required number of samples is specified below.

Sampling Agency	Minimum Number of Sample Sites <sup>a</sup>
Alameda Permittees	<del>3</del> 2 per year
Santa Clara Permittees	<del>3</del> 2 per year
Contra Costa Permittees	<del>2</del> 1 per year
San Mateo Permittees	<del>2</del> 1 per year
Fairfield-Suisun & Vallejo Permittees Collectively	1 per 5-year period

<sup>a</sup>In the case that a statewide coordinated pesticides and pesticides-related toxicity monitoring program begins collecting data on an ongoing basis during the permit term, the Permittees may request the Executive Officer reduce or eliminate this monitoring requirement accordingly.

- (4) Follow Up – The Permittees shall consider conducting a SSID project when a sample result indicates 50% or greater effects relative to the control for a chronic toxicity test, or 40% or greater effect relative to the control for an acute toxicity test.

**vi. Toxicity and Pollutants in Sediment**

- (1) Field and Laboratory Method – The Permittees shall collect grab samples of creek sediment using applicable SWAMP comparable methodology. These samples shall be analyzed for the pollutants listed and by the methods described on Table 8.2.

**Table 8.2 Sediment Toxicity & Pollutants Analytical Procedures**

Organism or Pollutant	Units	Test	Laboratory Method <sup>a</sup>
<i>Hyalella Azteca</i> (Freshwater amphipod)	Pass/Fail, % effect (TST)	Survival	EPA-821-R-02-012 <sup>14</sup> EPA 833-R-10-003
PCBs			
Mercury			MPSL-107 followed by MPSL-103
Pyrethroids <sup>b</sup> : bifenthrin, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin			EPA 3540C followed by EPA 8270D by NCI- GCMS
Carbaryl <sup>2</sup>			
Fipronil <sup>2</sup>			
Organochlorine pesticides <sup>2</sup> : Chlordane, Dieldrin, Sum DDD, Sum			

<sup>14</sup> *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002; Table IA, 40 CFR Part 136).

Organism or Pollutant	Units	Test	Laboratory Method <sup>a</sup>
DDE, Sum DDT, Endrin, Heptachlor epoxide, Lindane (gamma-BHC)			
Total PAHs			
Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Zinc			Modified EPA 3052M followed by EPA 200.8
Total organic carbon			
Grain size			Plumb, 1981

<sup>a</sup> Methods shown are from the SWAMP SPoT QAPP. When no protocol is listed, use RMC QAPrP methods.

<sup>b</sup> In the case that a statewide coordinated pesticides and pesticides-related toxicity monitoring program begins collecting data on an ongoing basis during the permit term, the Permittees may request the Executive Officer reduce or eliminate this monitoring requirement accordingly.

- (2) Sample Design/Locations – Samples shall be collected at fine-grained depositional, bottom of watershed locations. Such sample locations may be selected by the Permittees to monitor locations where toxicity could be likely, to coincide with bioassessment sites, or to resample a location where toxicity has been found in the past, for example.
- (3) Frequency, Timeframe and Number of Sites – The Permittees shall collect samples annually during the dry season. The required number of samples is specified below.

Sampling Agency	Minimum Number of Sample Sites
Alameda Permittees	<del>3</del> 2 per year
Santa Clara Permittees	<del>3</del> 2 per year
Contra Costa Permittees	<del>2</del> 1 per year
San Mateo Permittees	<del>2</del> 1 per year
Fairfield-Suisun & Vallejo Permittees Collectively	1 per 5-year period

- (4) Follow Up – The Permittees shall consider conducting a SSID project when a sample result indicates 50% or greater effects relative to the control for a chronic toxicity test, or 40% or greater effect relative to the control for an acute toxicity test. The Permittees shall consider conducting a SSID project when sample results indicate a pollutant is present at a concentration exceeding its water quality objective in the Basin Plan. For pollutants without WQOs, Permittees shall consider conducting a SSID project when sample results exceed PECs or TECs from MacDonald 2000.<sup>15</sup>

**vii. Pathogen Indicators**

- (1) Field and Laboratory Method – The Permittees shall collect and analyze samples for Enterococci and *E. coli* in accordance with the most recent U.S. EPA protocols.<sup>16</sup>

<sup>15</sup> TEC and PEC are found in MacDonald, D.D., G.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. *Archives of Environ. Contamination and Toxicology* 39(1):20–31.

<sup>16</sup> U.S. EPA protocols available at [http://water.epa.gov/scitech/methods/cwa/methods\\_index.cfm](http://water.epa.gov/scitech/methods/cwa/methods_index.cfm). Analytical methods listed here are also acceptable: [http://water.epa.gov/grants\\_funding/beachgrants/chapter4.cfm](http://water.epa.gov/grants_funding/beachgrants/chapter4.cfm)



- (2) Sample Design/Locations – The Permittees shall collect one or more samples in a creek and at an area where water-contact recreation is likely, or at an opportunistic location where there is potential to detect leaking sewerage infrastructure.
- (3) Frequency, Timeframe and Number of Sites – The Permittees shall collect samples in the dry season. The required number of samples is specified below.

Sampling Agency	Minimum Number of Sample Sites
Alameda Permittees	5 per year
Santa Clara Permittees	5 per year
Contra Costa Permittees	5 per year
San Mateo Permittees	5 per year
Fairfield-Suisun Permittees	3 per 5-year period
Vallejo Permittees	3 per 5-year period

- (4) Follow Up – If U.S. EPA’s statistical threshold value<sup>17</sup> for 36 per 1000 primary contact recreators is exceeded, the water body reach shall be considered for a Stressor/Source Identification project per C.8.e.

**C.8.e. Stressor/Source Identification (SSID) Projects**

When any Creek Status Monitoring result triggers follow up or potential follow up action as indicated within the provisions of C.8.d, the Permittees shall take the following actions, as also required by Provision C.1. If the trigger stressor or source is already known, proceed directly to step 2 below. Further explanation of the SSID project steps is provided in Appendix C.8-X. Permittees shall initiate the first follow up action as soon as possible, and no later than the second fiscal year after the sampling event that triggered the SSID Project.

- i. Conduct a site specific study (or non-site specific if the problem is wide-spread) in a stepwise process to identify and isolate the cause(s) of the trigger stressor/source. This study shall follow guidance for Toxicity Reduction Evaluations (TRE)<sup>18</sup> or Toxicity Identification Evaluations (TIE).<sup>19</sup> A TRE, as adapted for urban stormwater data, allows Permittees to use other sources of

<sup>17</sup> USEPA. 2012. *Recreational Water Quality Criteria*. Office of Water 820-F-12-058. Table 4.

<sup>18</sup> USEPA. August 1999. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*. EPA/833B-99/002. Office of Wastewater Management, Washington, D.C.

<sup>19</sup> Select TIE methods from the following references: For sediment: (1) Ho KT, Burgess R., Mount D, Norberg-King T, Hockett, RS. 2007. *Sediment toxicity identification evaluation: interstitial and whole methods for freshwater and marine sediments*. USEPA, Atlantic Ecology Division/Mid-Continental Ecology Division, Office of Research and Development, Narragansett, RI, or (2) Anderson, BS, Hunt, JW, Phillips, BM, Tjeerdema, RS. 2007. *Navigating the TMDL Process: Sediment Toxicity*. Final Report- 02-WSM-2. Water Environment Research Federation. 181 pp. For water column: (1) USEPA. 1991. *Methods for aquatic toxicity identification evaluations. Phase I Toxicity Characterization Procedures*. EPA 600/6-91/003. Office of Research and Development, Washington, DC., (2) USEPA. 1993. *Methods for aquatic toxicity identification evaluations. Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity*. EPA 600/R-92/080. Office of Research and Development, Washington, DC., or (3) USEPA. 1996. *Marine Toxicity Identification Evaluation (TIE), Phase I Guidance Document*. EPA/600/R-95/054. Office of Research and Development, Washington, DC.

information (such as industrial facility stormwater monitoring reports) in attempting to determine the trigger cause, potentially eliminating the need for a TIE. If a TRE does not result in identification of the stressor/source, Permittees shall conduct a TIE.

- ii. Identify and evaluate the effectiveness of options for controlling the cause(s) of the trigger stressor/source.
- iii. Implement one or more controls.
- iv. Confirm the reduction of the cause(s) of trigger stressor/source.
- v. Stressor/Source Identification Project Cap: Permittees who conduct this monitoring through a regional collaborative shall initiate a minimum of eight new Stressor/Source Identification projects during the Permit term. Because these SSIDs are being conducted through a regional collaborative, all SSID project reports shall be presented in a unified, regional-level reports when submitted to the Water Board.

If conducted through a stormwater countywide program, the Santa Clara and Alameda Permittees each shall be required to initiate no more than five (two for toxicity); the Contra Costa and San Mateo Permittees each shall be required to initiate no more than three (one for toxicity); and the Fairfield-Suisun and Vallejo Permittees each shall be required to initiate no more than one Stressor/Source Identification project(s) during the Permit term.

- vi. As long as Permittees have complied with the procedures set forth above, they do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed to do so by the Water Board.

#### **C.8.f. Pollutants of Concern Monitoring**

Pollutants of Concern (POC) monitoring is intended to assess inputs of Pollutants of Concern to the Bay from local tributaries and urban runoff, provide information to support implementation of TMDLs and other pollutant control strategies, assess progress toward achieving wasteload allocations (WLAs) for TMDLs and help resolve uncertainties associated with loading estimates and impairments associated with these pollutants.

In particular, monitoring required by this provision must be directed toward addressing the following five priority POC management information needs:

1. **Source Identification** - identifying which sources or watershed source areas provide the greatest opportunities for reductions of POCs in urban stormwater runoff;
2. **Contributions to Bay Impairment** - identifying which watershed source areas contribute most to the impairment of San Francisco Bay beneficial uses (due to source intensity and sensitivity of discharge location);

3. **Management Action Effectiveness** - providing support for planning future management actions or evaluating the effectiveness or impacts of existing management actions;
4. **Loads and Status** - providing information on POC loads, concentrations, and presence in local tributaries or urban stormwater discharges; and
5. **Trends** - evaluating trends in POC loading to the Bay and POC concentrations in urban stormwater discharges or local tributaries over time.

Not all information needs apply to all POCs (see Table 8.4 below for details).

- i. **Sampling Methods** – The Permittees shall implement or cause to be implemented the monitoring components shown in Table 8.3 in order to address each of the five POC management information needs.

**Table 8.3 POC Monitoring Methods**

Monitoring Type	Information Need	Monitoring Methods
1	Identify Source Areas	Monitoring methods to identify watershed sources of POCs should include: <ul style="list-style-type: none"> <li>• Collection and analysis of POCs on sediments in urban stormwater runoff that are transported through MS4s or receiving waters during stormwater runoff events; or</li> <li>• Collection and analysis of POCs on bedded sediments deposited in MS4s or receiving waters; or</li> <li>• Collection and analysis of POCs in stormwater runoff or bedded sediments on source area properties (e.g. private property); or,</li> <li>• Other monitoring methods designed to identify specific sources or uses of POCs (e.g., caulk in roadways or building materials) or watershed source areas.</li> </ul>
2	Identify watershed areas contributing most to Bay impairment	Monitoring methods to identify watershed areas contributing most to Bay impairment should include: <ul style="list-style-type: none"> <li>• Methods described for Monitoring Type #1; or</li> <li>• Collection of small fish tissue (or equivalent indicator) near tributary confluences with the Bay and analysis for POCs; or</li> <li>• Collection of bedded sediments near tributary confluences with the Bay and analysis for POCs</li> </ul>
3	Provide support for future or existing management actions	Monitoring methods to support future or existing management actions should include: <ul style="list-style-type: none"> <li>• Methods described for Monitoring Type #1, with a focus on monitoring the effectiveness of specific management actions in reducing or avoiding POCs in MS4 discharges.</li> </ul>
4	Provide information on POC loads, concentrations, or presence / absence	Monitoring methods to provide information on POC loads, concentrations or presence/absence should include: <ul style="list-style-type: none"> <li>• Methods described for Monitoring Type #1, in combination with quantitative modeling associated with quantifying POC loads from MS4s or small tributaries to the Bay.</li> </ul>
5	Evaluate POC	Monitoring methods to provide information on trends in POC

Monitoring Type	Information Need	Monitoring Methods
	trends	loads and concentrations overtime may include: Methods described for Monitoring Type #1 or #2.

- ii. **Parameters and Monitoring Frequency** – The Permittees shall conduct POC monitoring consistent with the monitoring intensity and frequency specified in Table 8.4. Monitoring frequencies are described as the total and minimum number of samples that Permittees within a countywide Stormwater Program shall collectively collect and analyze in a Water Year (October 1 – September 30). Minimum number of samples that Permittees within a countywide Stormwater Program shall collect by the end of the fourth Water Year (i.e., September 30, 2019) to address each monitoring type are also specified.

**Table 8.4 POC Monitoring Parameters, Effort and Type**

Pollutant of Concern	Total Samples <sup>1</sup> Collected/Analyzed (yearly minimum) for each Countywide Program: Alameda, Contra Costa, Santa Clara, and San Mateo	Minimum Number of Samples for each Monitoring Type <sup>2</sup>
<b>Polychlorinated Biphenyls (PCBs)</b>	80 (8)	8 samples minimum for monitoring types 1-5
<b>Total Mercury</b>	80 (8)	8 samples minimum for monitoring types 1-5
<b>Copper</b>	20 (2)	4 samples minimum for monitoring types 4-5
<b>Pesticides:</b> Pyrethroids (water and sediment): bifenthrin, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin Indoxacarb Fipronil Carbaryl (in sediments)	20 (2) for each	4 samples minimum for monitoring types 4-5
<b>Toxicity:</b> Water Column (during storms) Sediment (wet season, not necessarily during storms)	<del>20</del> <u>10</u> (21) for each	20 samples for monitoring type 4
<b>Emerging Contaminants:</b> Perfluorooctane Sulfonates (PFOS, in sediment) Perfluoroalkyl sulfonates (PFAS, in sediment) Alternative flame retardants	See footnote 3	See footnote 3
<b>Ancillary Parameters<sup>4</sup>:</b> Total organic carbon Suspended sediments (SSC)	as necessary to address management questions for other POCs – see footnote 4	

Hardness		
<b>Nutrients:</b> Ammonium, Nitrate, Nitrite, Total Kjeldahl Nitrogen, Orthophosphate, Total Phosphorus (all nutrients collected together for each sample)	20 (2) for each nutrient species	20 samples for monitoring type 4 for each nutrient species.

<sup>1</sup>This column indicates the total number of samples, across all applicable monitoring types (i.e., monitoring types 1-5 from Table 8.3), that must be collected during the permit term. The number in parentheses indicates the minimum number of samples that must be collected, across all applicable monitoring types, during each of the five years of the permit. For example, 80 total samples must be collected for both total PCBs and mercury by each set of Santa Clara County, San Mateo County, Alameda County, and Contra Costa County Permittees during the term of the permit. There must be a minimum of 8 PCBs samples collected during every year of the permit, including the final year.

<sup>2</sup>This column indicates the monitoring types from Table 8.3 that are applicable to this POC along with the minimum number of samples that shall be collected by each set of Permittees (i.e., Santa Clara County, San Mateo County, Alameda County, and Contra Costa County) to address the applicable monitoring types by the end of year four of the permit. For example, each set of Permittees (i.e., Santa Clara County, San Mateo County, Alameda County, and Contra Costa County) must collect and analyze at least 8 samples to address monitoring types 1-5 in Table 8.3 for both total PCBs and total mercury. Some collected samples may address multiple management questions.

<sup>3</sup>The Permittees shall conduct or cause to be conducted a special study that addresses relevant management information needs for emerging contaminants. The special study would address at least PFOS, PFAS, and alternative flame retardants being used to replace PBDEs. The study would identify the relevant alternative flame retardants to assess and the appropriate media in which to monitor.

<sup>4</sup>Total Organic Carbon (TOC) data are not used independently. Rather, TOC can be useful for normalizing PCBs data collected in water and sediment. TOC shall be collected concurrently with PCBs data that should be normalized to TOC. Similarly, suspended sediment concentrations (SSC) samples should be collected and analyzed when water samples are collected that will be used to assess loads, loading trends, or BMP effectiveness for PCBs and Mercury. Hardness data are used in conjunction with copper concentrations collected in fresh water.

- iii. **POC Parameters and Analytical Methods** – Samples collected consistent with Table 8.4 shall be analyzed for parameters listed in Table 8.5. Permittees may use.

**Table 8.5 POC Analytes and Analytical Methods**

Pollutant of Concern	Matrix	Analyte(s)	Laboratory Analytical Methods <sup>1</sup>
Polychlorinated Biphenyls (PCBs)	Water	Total PCBs	USEPA 1668 (RMP 40)
		Total Organic Carbon	
		Suspended sediments (SSC)	

Pollutant of Concern	Matrix	Analyte(s)	Laboratory Analytical Methods <sup>1</sup>
	Bedded Sediment	Total PCBs	USEPA 1668 (RMP 40)
		Total organic carbon	
Mercury	Water	Total Mercury	
	Bedded Sediment	Total Mercury	
Copper	Water	Total Copper	
		Dissolved Copper	
		Hardness	
Pesticides <sup>2</sup>	Water	Pyrethroids: bifenthrin, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, permethrin Imidacloprid	
		Fipronil and Carbaryl (bedded sediment only)	
	Bedded Sediment	Total Organic Carbon	
Toxicity <sup>2</sup>	Water	<i>Pimephales promelas</i> (Fathead Minnow)	Use methods stated in Provision C.8.d.vi. and vii.
		<i>Ceriodaphnia dubia</i> & <i>Hyaella Azteca</i> (Freshwater Amphipod)	
		<i>Chironomus dilutes</i> (midge)	
		<i>Selenastrum capricornutum</i> (Green Algae)	
	Bedded Sediment	<i>Hyaella azteca</i>	
Nutrients	Water	Ammonium	
		Nitrate	
		Nitrite	
		Total Kjeldahl Nitrogen	
		Orthophosphate	
		Total Phosphorus	

<sup>1</sup>Where no method is listed, use RMC QAPrP methods alternative methods. Other analytical laboratory methods may be used provided that similar data quality is employed to answer the management information needs.

<sup>2</sup>In the case that a statewide coordinated pesticides and pesticides-related toxicity monitoring program begins collecting data on an ongoing basis during the permit term, the Permittees may request the Executive Officer reduce or eliminate this monitoring requirement accordingly.

**C.8.f. Reporting**

- i. **Water Quality Standard Exceedence** – When data collected pursuant to C.8.a.-C.8.f. indicate that discharges are causing or contributing to an exceedance of an applicable water quality standard, the Permittees shall notify the Water Board within no more than 30 days of such a determination and submit a follow up report in accordance with Provision C.1 requirements. This reporting requirement shall not apply to continuing or recurring exceedances of water quality standards previously reported to the Water Board or to

exceedances of pollutants that are to be addressed pursuant to Provisions C.8 through C.14 of this Order in accordance with Provision C.1.

- ii. **Electronic Reporting** – The Permittees shall submit to the California Environmental Data Exchange Network (CEDEN) all results from monitoring conducted pursuant to Provisions C.8.d. Creek Status, C.8.e. SSID Projects (as applicable), and C.8.f. Pollutants of Concern. Data that CEDEN cannot accept are exempt from this requirement.
  - (1) Data shall be submitted in SWAMP formats and with the quality controls required by CEDEN.
  - (2) Data collected during the foregoing October 1–September 30 period shall be submitted by March 15 of each year.
- iii. **Urban Creeks Monitoring Report** – The Permittees shall submit a comprehensive Creek Status Monitoring Report no later than March 15 of each year, reporting on all data collected during the foregoing October 1–September 30 period. Each Urban Creeks Monitoring Report shall contain summaries of Creek Status, SSID Projects, and Pollutants of Concern Monitoring including, as appropriate, the following:
  - (1) Immediately following the Table of Contents, a completed Water Year Summary Table that combines each Program’s monitoring sites, with a row for each site. The table columns contain: Site ID; creek name; land use; latitude; longitude; bioassessment, nutrient; chlorine; water column toxicity; sediment toxicity and chemistry; pathogens; temperature loggers; and general water quality (sonde data). For each site, check the parameters sampled. This will provide a summary of all Creek Status Monitoring conducted that water year.
  - (2) A SSID Update Table listing all the SSID Projects to be initiated, being conducted, or completed through the Regional Monitoring Collaborative. This table shall state the date the project was started; hyperlink to the project work plan; summary of work completed during the reporting year; follow-up actions taken or planned, with dates, to reduce the source or stressor; and responsible agency.
  - (3) For all data, a statement of the data quality;
  - (4) An analysis of the data, which shall include the following:
    - Identification and analysis of any trends in stormwater or receiving water quality;
    - Calculations of CSCI scores and physical habitat endpoints;
    - Comparison of CSCI scores to:
      - Each other;
      - Any applicable, available reference site(s);
      - Physical habitat endpoints.
  - (5) A discussion of the data for each monitoring program component, which shall:

- Discuss monitoring data relative to prior conditions, beneficial uses and applicable water quality standards as described in the Basin Plan, the Ocean Plan, or the California Toxics Rule or other applicable water quality control plans;
  - Where appropriate, develop hypotheses to investigate regarding pollutant sources, trends, and BMP effectiveness;
  - Identify and prioritize water quality problems;
  - Identify potential sources of water quality problems;
  - Describe follow-up actions;
  - Evaluate the effectiveness of existing control measures;
  - Identify management actions needed to address water quality problems.
- iv. Stressor/Source Identification Reports** – The Permittees shall submit a report on each completed SSID Project in a stand-alone format suitable for posting and distribution. Completed SSID Project reports shall be submitted no later than March 15 of the year following project completion.
- v. Integrated Monitoring Report** – No later than March 15 of the fifth year of the permit term, Permittees shall submit an Integrated Monitoring Report in lieu of the annual Creek Status Monitoring Report. This report will be part of the next Report of Waste Discharge for the reissuance of this Permit. The Integrated Monitoring Report shall report on all the data collected during the permit term and shall contain the following:
- (1) The Water Year Data Table, as described in Provision C.8.g.iii above, containing information pertaining to the fourth year monitoring data;
  - (2) The Integrated Monitoring Report shall include a comprehensive analysis of all data collected pursuant to Provision C.8. across years 1 through 4 of the permit, and may include other pertinent studies;
  - (3) For Pollutants of Concern, the report shall include methods, data, calculations, load estimates, and source estimates for each Pollutant of Concern Monitoring parameter;
  - (4) The Integrated Monitoring Report shall include a budget summary for each monitoring requirement and recommendations for future monitoring.
- vi. Standard Report Content** –All monitoring reports shall include the following:
- (1) The purpose of the monitoring and briefly describe the study design rationale;
  - (2) Quality Assurance/Quality Control summaries for sample collection and analytical methods, including a discussion of any limitations of the data;
  - (3) Brief descriptions of sampling protocols and analytical methods;
  - (4) Sample location description, including water body name and segment and latitude and longitude coordinates;



- (5) Sample ID, collection date (and time if relevant), media (e.g., water, filtered water, bed sediment, tissue);
- (6) Concentrations detected, measurement units, and detection limits;
- (7) Assessment, analysis, and interpretation of the data for each monitoring program component;
- (8) Pollutant load and concentration at each mass emissions station;
- (9) A listing of volunteer and other non-Permittee entities whose data are included in the report;
- (10) Assessment of compliance with applicable water quality standards;
- (11) A signed certification statement.

**C.8.g. Pacifica TMDL Implementation Monitoring – placeholder if needed**

**DRAFT**

### Stressor/Source Identification (SSID) Project Elements

Based in part on U.S. EPA's Causal Analysis/Diagnosis Decision Information System<sup>1</sup>

**Note: Permittee and Water Board staff have discussed development of guidance to clarify what a SSID project entails. This is Water Board staff's first effort to draft the guidance, and we provide it to Permittees as a discussion tool.**

Review WYcurrent Creek Status Monitoring results

- List all results that could potentially trigger follow up per provisions of MRP C.8.d.
- Long-term and Pollutant of Concern Monitoring results may be included as appropriate
- Maintain a running list of potential trigger results that includes data from WY2009 forward
- **Submit one list of all RMC potential trigger results in each Urban Creeks Monitoring Report** [decide if we truly want/need this]

Select follow up projects (SSIDs) from the trigger list

- Selection criteria shall include analyte (for a variety of analytes); magnitude and frequency of threshold exceedance; potential for lesson learned; geographical coverage; etc.
- Prioritize sites with many data points, spatially and temporally. Prioritize water quality problems for which management actions are likely to reduce the problem
- Engage municipal personnel and/or others (e.g., park staff) who may have useful knowledge of problem either during the selection process or immediately after follow up projects are selected, as appropriate

Begin SSID project

- An SSID project is begun when the problem location is resampled to confirm the continued presence of the problem or a decision is made to follow up with management action(s)
- As projects are begun, inform and engage municipal personnel who would have authority to direct management actions related to project
- Begin one or more SSID project region-wide annually until the number of projects specified in C.8.e.v. has been initiated in the permit term
- **Submit one list of all RMC SSID projects with projected or actual start date, as appropriate to the project, in each Urban Creeks Monitoring Report**

Project Step 1: Define the problem

- State the water quality issue (problem), including its nature, magnitude and temporal extent, to the extent known
- Estimate the geographic scope of the problem
- Describe the SSID project's objectives, including the management context within which the results of the investigation will be used
- **To the list of all RMC SSID projects submitted in each Urban Creeks Monitoring Report, as SSID problems are defined, add a very brief problem definition**

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<sup>1</sup> U.S. EPA (Environmental Protection Agency). 2010. Causal Analysis/Diagnosis Decision Information System (CADDIS). Office of Research and Development, Washington, DC. Available online at <http://www.epa.gov/caddis>. Last updated September 23, 2010.

Project Step 2: Evaluate data and identify candidate causes

- Evaluate data from the case and elsewhere (e.g., data in CEDEN, other previously collected data)
- Consider the problem within a watershed context and look at multiple types of related indicators, where possible (e.g., basic water quality data and biological assessment results)
- Discussion of this step can be found at [http://www.epa.gov/caddis/si\\_step3\\_indepth.html](http://www.epa.gov/caddis/si_step3_indepth.html)
- List candidate causes of the problem (e.g., biological stressors, pollutant sources, physical stressors) based on this evaluation and staff knowledge

Project Step 3: Determine whether management actions can be taken to reduce problem without further study. If so, skip to Project Step 5. If not, proceed to Project Step 4.

- For a biological stressor, study may be necessary to identify the probable cause before action can be taken
- For toxicity, the cause in urban areas in California is often pesticides. Over a five-year permit term, further study to determine the toxicant should be conducted for two toxicity problems in a minimum of two distinct geographic areas (e.g., east bay, south bay, peninsula). This will provide information on any changes in causes of toxicity and in pesticide usage. Further studies are not likely to provide “lessons learned;” instead, further toxicity problems should be followed up with enhanced management actions.
- For pollutant problems, including temperature, determine whether a probable source or cause is likely known and whether taking management action(s) could eliminate or minimize the problem without further study
- **On the list of RMC SSID projects, indicate which projects will receive direct follow up actions and which will receive further study. Submit the list in each Urban Creeks Monitoring Report.**

Project Step 4: Conduct Further Studies to Determine Cause of Stressor/Toxicity/Pollutant Source

- For physical habitat, physical pollutants (dissolved oxygen, pH, conductivity, temperature), nutrients, metals, pH and other stressors, generally follow the Causal Analysis/Diagnosis Decision Information System (CADDIS) at [http://www.epa.gov/caddis/si\\_step5\\_overview.html](http://www.epa.gov/caddis/si_step5_overview.html), Step 5: Identify Probable Causes
- For an SSID for toxicity, where there is no chemical pollutant associated with the toxic samples, conduct a Toxicity Identification Evaluation (TIE). Where chemical data indicate a pollutant, such as fipronil or a pyrethroid, are present in the sample location, it is not necessary to conduct a TIE, and the SSID would be considered complete
- For chemical or biological pollutants, identify the most likely cause of the water quality problem through laboratory studies using the most appropriate methods. For example, for pathogens, use the [California Microbial Source Identification Manual: A Tiered Approach to Identifying Fecal Pollution Sources to Beaches](#), 2013
- **Submit a work plan with schedule for the Causal Analysis, TIE, or source study in the Urban Creeks Monitoring Report within one calendar year of beginning a project.** Begin conducting the study as amended by comments from Water Board Monitoring staff by the following September
- Conduct the study on the schedule as agreed by Water Board Monitoring staff and proceed to Project Step 5. If all evidence indicates that management actions cannot reduce the water quality problem significantly, submit a summary report to the Water Board Monitoring staff for a determination of whether the SSID project is complete.

Project Step 5: Take Management Action to Abate Stressor/Toxicity/Pollutant Source

- Select and implement control measures/actions that are likely to minimize or eliminate the cause of the water quality problem
- When follow up action is not complex (e.g., communicate presence of chlorine to water distribution agency and follow up as needed), conduct the action as expeditiously as possible
- For complex actions, prepare a timeline of actions and responsible party(s). **Submit the timeline in the Urban Creeks Monitoring Report.** Continue to report on progress in completing follow up management actions annually.
- For complex projects that require planning for funding or construction, the action or construction shall begin within two calendar years of the date on which the project was begun; Upon request by Permittees, the Executive Officer may grant additional time to start construction.
- **On the list of RMC SSID projects, summarize SSID project follow up actions taken each year and submit with each Urban Creeks Monitoring Report**

Project Step 6: Monitor and reevaluate management actions

- Resample the project area over an appropriate timeframe to determine whether the water quality problem has been reduced or eliminated
- **On the list of RMC SSID projects, summarize SSID monitoring results each year and submit with each Urban Creeks Monitoring Report**

Project completion - An SSID project is complete when:

- resampling confirms the absence of the water quality problem the project addresses, or
- Project Step 4 and/or 5 are completed and all evidence indicates that the problem cannot be corrected by management action(s), and the Water Board Monitoring Contact concurs in writing with this conclusion

RMS SSID Summary Table – Example Format

SSID Project Description	Step 1 Problem Definition	Step 2 Evaluate Data & Probable Causes	Step 3 Decision Point	Step 4 Conduct SSID Study	Step 5 Take Management Actions	Step 6 Monitor & Reevaluate
Low DO, Camel Crk, Smallville						
Toxicity, Nursery Crk, Plantsville						
Etc						

## C.9. Pesticides Toxicity Control

To prevent the impairment of urban streams by pesticide-related toxicity, the Permittees shall implement a pesticide toxicity control program that addresses, within their jurisdictions, their own and others' use of pesticides that pose a threat to water quality and that have the potential to enter the municipal conveyance system.

This provision implements requirements of the TMDL for Diazinon and Pesticide-Related Toxicity for Urban Creeks in the region. The TMDL includes urban runoff allocations for Diazinon of 100 ng/l and for pesticide-related toxicity of 1.0 Acute Toxicity Units (TUa) and 1.0 Chronic Toxicity Units (TUc) to be met in urban creek waters. However, urban runoff management agencies (i.e., the Permittees) are not solely responsible for attaining the allocations because their authority to regulate pesticide use is constrained by federal and state law. Accordingly, the Permittees' requirements for addressing the allocations are set forth in the TMDL implementation plan and are included in this provision.

Urban-use pesticides of concern to water quality include: diamides (chlorantraniliprole, cyantraniliprole); fipronil and its degradates; indoxacarb, organophosphorous insecticides (chlorpyrifos, diazinon, and malathion); pyrethroids (metofluthrin, bifenthrin, cyfluthrin, beta-cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, and permethrin); carbamates (e.g., carbaryl, aldicarb).

### C.9.a. Maintain and Implement an Integrated Pest Management (IPM) Policy or Ordinance and Standard Operating Procedures

All Permittees have developed a pesticide toxicity control program for use of pesticides in municipal operations and on municipal property based on the concepts of IPM<sup>1</sup> and have adopted an IPM policy or ordinance and standard operating procedures to implement the policy or ordinance.

- i. **Task Description** – The Permittees shall implement their IPM policies or ordinances and standard operating procedures and update their IPM policies or ordinances and standard operating procedures as needed to ensure their use of pesticides do not cause or contribute to pesticide-caused toxicity in receiving waters.
- ii. **Implementation** - Each Permittee shall require municipal employees and contractors to adhere to its IPM policy or ordinance and standard operating procedures in all the Permittee's municipal operations and on all municipal property.

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<sup>1</sup> IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment. IPM techniques could include biological controls (e.g., ladybugs and other natural enemies or predators); physical or mechanical controls (e.g., hand labor or mowing, caulking entry points to buildings); cultural controls (e.g., mulching, alternative plant type selection, and enhanced cleaning and containment of food sources in buildings); and reduced risk chemical controls (e.g., soaps or oils).

iii. **Reporting**

- (1) In their Annual Reports, the Permittees shall certify they are implementing their IPM policy or ordinance and standard operating procedures, report trends in quantities and types of pesticide active ingredients used, and explain any increases in use of pesticides of concern to water quality as listed in the introduction section of this Provision.
- (2) In their Annual Reports, the Permittees shall provide a brief description of a minimum of three IPM actions implemented in the reporting year, focusing to the extent possible on new or enhanced actions taken.
- (3) IPM policies or ordinances and IPM standard operating procedures shall be submitted to the Water Board upon request.

**C.9.b. Train Municipal Employees**

i. **Task Description**– The Permittees shall ensure that all municipal employees who, within the scope of their duties, apply or use pesticides are trained in IPM practices and the Permittee’s IPM policy or ordinance and standard operating procedures. This training may also include other training opportunities such as Bay-Friendly Landscape Maintenance Training & Qualification Program and EcoWise Certified.

ii. **Reporting**

- (1) In their Annual Reports, the Permittees shall report the percentage of municipal employees who apply pesticides who have received training in their IPM policy or ordinance and IPM standard operating procedures within the last year. This report shall briefly describe the nature of the training, such as tailgate training provided by a Permittee’s IPM coordinator, IPM training through the Pesticide Applicators Professional Association, etc.
- (2) The Permittees shall submit training materials (e.g., course outline, date, and list of attendees) upon request.

**C.9.c. Require Contractors to Implement IPM**

i. **Task Description** – The Permittees shall hire IPM-certified contractors and include contract specifications requiring contractors to implement IPM, so that all contractors practice IPM on municipal properties. The Permittees shall observe contractor pesticide applications to verify that contractors implement their contract specifications in accordance with the Permittee’s IPM policies or ordinance and standard operating procedures. Contractor certification as a pest control advisor (PCA) alone is not evidence of IPM implementation, because PCA training is not necessarily based on IPM strategies. Similarly, IPM certifications that are awarded to a pest control company may not guarantee an individual employee will always use IPM strategies. Thus, periodic Permittee observation of contractor performance is necessary.

- ii. **Implementation** – Permittees shall observe contractor activities to verify full implementation of IPM techniques. This shall include, at a minimum, evaluation of lists of pesticides and amounts of active ingredient used.
- iii. **Reporting** – In their Annual Reports, the Permittees shall state how they verified contractor compliance with IPM policies and any actions taken or needed to correct contractor performance.

**C.9.d. Interface with County Agricultural Commissioners**

- i. **Task Description** – The Permittees shall maintain regular communications with county agricultural commissioners to (a) get input and assistance on urban pest management practices and use of pesticides, (b) inform them of water quality issues related to pesticides, and (c) report violations of pesticide regulations (e.g., illegal handling and applications of pesticides) associated with stormwater management, particularly the California Department of Pesticide Regulation surface water protection regulations for outdoor, nonagricultural use of pyrethroid pesticides by any person performing pest control for hire ([http://www.cdpr.ca.gov/docs/legbills/rulepkgs/11-004/text\\_final.pdf](http://www.cdpr.ca.gov/docs/legbills/rulepkgs/11-004/text_final.pdf)).
- ii. **Reporting** – In their Annual Reports, the Permittees shall briefly describe each of the three types of communications with county agricultural commissioners and report follow-up actions to correct violations of pesticide regulations.

**C.9.e. Public Outreach**

- i. **Task Description** – Permittees shall undertake outreach programs to (a) encourage communities within the Permittee’s jurisdiction to reduce their reliance on pesticides that threaten water quality; (b) encourage public and private landscape irrigation management that minimizes pesticide runoff; and (c) promote appropriate disposal of unused pesticides.
- ii. **Implementation** – The Permittees shall conduct each of the following:
  - (1) **Point of Purchase Outreach:** The Permittees shall:
    - Conduct outreach to consumers at the point of purchase;
    - Provide targeted information on proper pesticide use and disposal, potential adverse impacts on water quality, and less toxic methods of pest prevention and control; and
    - Participate in and provide resources for the “Our Water, Our World” program or a functionally equivalent pesticide use reduction outreach program.
  - (2) **Pest Control Contracting Outreach:** The Permittees shall conduct outreach to residents who use or contract for structural pest control by (a) explaining the links between pesticide usage and water quality; (b) providing information about EcoWise Certified IPM certification in structural pest management, or functionally equivalent certification program; and (c) disseminating tips for hiring structural pest control

operators, such as the tips prepared by the University of California Extension IPM Program (UC-IPM).

- (3) **Outreach to Pest Control Professionals:** The Permittees shall conduct outreach to pest control operators, urging them to promote IPM services to customers and to become IPM-certified by Ecowise Certified or functionally equivalent certification program. Permittees are encouraged to work with the Pesticide Applicators Professional Association; the California Association of Pest Control Advisors; California Department of Pesticide Regulation; county agricultural commissioners; UC-IPM; BASMAA; EcoWise Certified Program (or functionally equivalent certification program); Bio-integral Resource Center and others to promote IPM to PCOs.

- iii. **Reporting** – In each Annual Report, Permittees shall describe their actions taken in the three outreach categories above. Outreach conducted at the county or regional level shall be described in Annual Reports prepared at that respective level; reiteration in individual Permittee reports is discouraged. Reports shall include a brief description of outreach conducted in each of the three categories, including level of effort, messages and target audience. (The effectiveness of outreach efforts shall be evaluated only once in the Permit term, as required in Provision C.9.f.)

#### **C.9.f. Track and Participate in Relevant Regulatory Processes**

- i. **Task Description** – The Permittees shall conduct the following activities, which may be done at a county, regional, or state-wide level:
  - (1) The Permittees shall track U.S. EPA pesticide evaluation and registration activities as they relate to surface water quality, and, when necessary, encourage U.S. EPA to coordinate implementation of the Federal Insecticide, Fungicide, and Rodenticide Act and the CWA and to accommodate water quality concerns within its pesticide registration process;
  - (2) The Permittees shall track California Department of Pesticide Regulation (DPR) pesticide evaluation activities as they relate to surface water quality, and when necessary, encourage DPR to coordinate implementation of the California Food and Agriculture Code with the California Water Code and to accommodate water quality concerns within its pesticide evaluation process;
  - (3) The Permittees shall assemble and submit information (such as monitoring data) as needed to assist DPR and county agricultural commissioners in ensuring that pesticide applications comply with water quality standards; and
  - (4) As appropriate, the Permittees shall submit comment letters on U.S. EPA and DPR re-registration, re-evaluation, and other actions relating to pesticides of concern for water quality.



- ii. **Reporting** – In their Annual Reports, the Permittees shall summarize participation efforts, information submitted, and how regulatory actions were affected. Permittees who contribute to a county, regional, or state-wide effort shall submit one report at the county or regional level. Duplicate reporting is discouraged. Permittees who do not contribute to a regional or county-wide effort shall list their own participation efforts, information submitted, and how regulatory actions were affected.

**C.9.g. Evaluate Implementation of Pesticide Source Control Actions**

- i. **Task Description** – This task is necessary to gauge how effective the implementation actions taken by Permittees are in (a) achieving TMDL targets, and (b) avoiding future pesticide-related toxicity in urban creeks. Once during the permit term, Permittees shall conduct a thoughtful evaluation of their IPM efforts, how effective these efforts appear to be, and how they could be improved.
- ii. **Implementation** – The Permittees shall evaluate the effectiveness of the pesticide control measures implemented by their staff and contractors, evaluate attainment of pesticide concentration and toxicity targets for water and sediment from monitoring data (collected by Permittees, research agencies, and/or state agencies), and identify additions and/or improvements to existing control measures needed to attain targets, with an implementation time schedule.
- iii. **Reporting** – In their 2019 Annual Reports, the Permittees shall submit this evaluation, which shall include an assessment of the effectiveness of their IPM efforts required in Provisions C.9.a-e and g; a discussion of any improvements made in these efforts in the preceding five years; and any changes in water quality regarding pesticide toxicity in urban creeks. This evaluation shall also include a brief description of one or more pesticide-related area(s) the Permittee will focus on enhancing during the subsequent permit term. Work conducted at the county or regional level shall be evaluated at that respective level; reiteration in individual Permittee evaluation reports is discouraged.

## C. 10. Trash Load Reduction

The Permittees shall demonstrate compliance with Discharge Prohibition A.2 and trash-related Receiving Water Limitations through the timely implementation of control measures and other actions to reduce trash loads from municipal separate storm sewer systems (MS4s) in accordance with the requirements of this provision.

### C.10.a. Trash Reduction Requirements

Permittees shall implement trash load reduction control actions in accordance with the following schedule and trash generation area management requirements, including mandatory minimum full trash capture systems.

- i. **Schedule** - Permittees shall reduce trash discharges from 2009 levels to receiving waters in accordance with the following schedule:
  - a. 60% by July 1, 2016;
  - b. 70% by July 1, 2017;
  - c. 80% by July 1, 2019; and
  - d. 100%, or no adverse impact to receiving waters from trash, by July 1, 2022.
- ii. **Trash Generation Area Management** - Permittees shall demonstrate attainment of the C.10.a.i trash discharges percentage-reduction requirements by management of mapped trash generation areas within their jurisdictions delineated on Trash Generation Area Maps included with their Long Term Trash Reduction Plans, submitted in February 2014, or if revised, included in their 2015 Annual Reports. These maps, which provide the basis of 2009 trash discharge levels, delineate trash generation areas within Permittees' jurisdictions into the following trash generation rate categories:

Low = less than 2.5 gal/acre/yr;  
Medium = 7.5 gal/acre/yr;  
High = 30 gal/acre/yr; and  
Very High = greater than 100 gal/acre/yr.

Permittees also designated trash management areas on their maps, encompassing one or more trash generation areas, within which they will implement trash control actions.

- a. Permittees shall implement trash prevention and control actions, including full trash capture systems or other actions, or combinations of actions, with trash discharge control equivalent to or better than full trash capture systems, to reduce trash generation to a Low trash generation rate or better. The C.10.a.i percent reductions shall be demonstrated by percent of 2009 Very High, High, and Medium trash generation areas reduced to Low trash generation by the C.10.a.i schedule dates.
- b. Permittees shall ensure that private lands draining directly to their storm drain systems in Very High, High, and Medium trash generation areas are equipped with full trash capture systems or are managed with trash discharge control actions equivalent to or better than full trash capture systems. The latter shall be assessed with visual assessment consistent with C.10.b.ii.
- c. Permittees may claim higher percentage discharge reduction from 2009 from Very High generation areas reduced to Low ( $A_{VH-L}$ ) and High generation areas reduced to

Low ( $A_{H-L}$ ) trash compared to Medium trash generation areas reduced to Low ( $A_{M-L}$ ) to meet the required total percent area reduction ( $\%A_{T-L}$ ), e.g., 60% of ( $A_{VH} + A_H + A_M$ )<sub>2009</sub>, where ( $A_{VH} + A_H + A_M$ )<sub>2009</sub> is the sum of the area of each in 2009, based on the following formula:

$$\%A_{T-L} = 100 \times (12 \times A_{VH-L} + 4 \times A_{H-L} + A_{M-L}) / (A_{VH} + A_H + A_M)_{2009}$$

- iii. **Mandatory Minimum Full Trash Capture Systems** - Permittees shall install and maintain a mandatory minimum number of full trash capture devices, to treat runoff from an area equivalent to 30% of Retail/Wholesale Land that drains to the storm drain system within their jurisdictions. A population-based Permittee with a population less than 12,000 and retail/wholesale land less than 40 acres, or a population less than 2000, is exempt from this trash capture requirement. **Table XX** contains the minimum amount of drainage area that must be treated with full trash capture devices by each population-based Permittee, and the minimum number of trash capture devices required to be installed and maintained by non-population-based Permittees.

A full capture system is any single device or series of devices that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate resulting from a one-year, one-hour, storm in the sub-drainage area. The device(s) must also have a trash reservoir large enough to contain a reasonable amount of trash safely without overflowing trash into the overflow outlet between maintenance events.

#### **C.10.b. Demonstration of Trash Reduction Outcomes**

- i. **Full Trash Capture Systems** – Permittees shall maintain, and provide for inspection and review upon request, documentation of the design, operation, and maintenance of each of their full trash capture systems, including the mapped location and drainage area served by each system.
- a. The maintenance of each full capture device shall be adequate to prevent plugging, flooding, or a full condition of the device's trash reservoir.
- (i) Storm drain inlet type full trash capture devices in Low or Medium trash generation areas shall be maintained a minimum of once per year.
  - (ii) Storm drain inlet type full trash capture devices in High trash generation areas shall be maintained a minimum of twice per year.
  - (iii) Storm drain inlet type full trash capture devices in Very High trash generation areas will be maintained a minimum of 3 times per year.

If any such device is found plugged or full of trash when maintained, the maintenance frequency shall be doubled at a minimum, and subsequently adjusted so that it is maintained frequently enough that it neither plugs nor is full before being maintained. Permittees shall map and document the catchment area controlled by full trash capture devices.

- b. Permittees shall retain device specific maintenance records, including, at a minimum: the date(s) of maintenance, the capacity condition of the device at the time of maintenance (full and overflowing or with storage capacity remaining), any special problems such as flooding, screen blinding or plugging from leaves, plastic bags, or other debris causing overflow, damage reducing function, or other negative conditions.

Other information obtainable from the trash captured, such as brand name litter pointing to a particular source, leading to source control efforts, should be noted. A summary of this information shall be reported in each annual report which will be limited to the number of full capture devices maintained that exhibited a plugged or overflowing condition upon maintenance.

- c. Permittees shall certify annually that each of their full trash capture systems is operated and maintained to meet full trash capture system requirements. Drainage areas served by a full trash capture system will be considered equivalent or better than a Low trash generation area.
  
- ii. **Non-Full Trash Capture System Actions** - Permittees shall maintain, and provide for inspection and review upon request, documentation of non-full trash capture system trash control actions that verifies implementation of each action. Permittees shall also conduct assessment of the action that verifies effectiveness of the action or combination of actions and maintain, and provide for inspection and review upon request, documentation of assessments.
  - a. **Implementation Documentation** - Permittees shall maintain documentation of trash control actions that describes each action or combination of actions, the level of implementation, the timing and frequency of implementation, standard operating procedures if applicable, location(s) of implementation including mapped location(s) and drainage area(s) affected, tracking and enforcement procedures if applicable, and other information relevant to effective implementation of the action or combination of actions.
  - b. **Assessment** - Permittees shall conduct visual on-land assessment, including photo documentation, of each trash generation area within which it is implementing a trash control action or combination of actions to determine or verify the effectiveness of the action or combination of actions. Permittees may assess and account for one or more trash generation areas in a single trash management area within which a control action or combination of control actions is or will be implemented. The visual on-land assessment method used shall meet or exceed the following criteria:
    - (i) Conduct observations within a trash management area of the sidewalk, curb, and gutter, comparing the observations with a visual reference of trash and litter condition, as in the calibration example in **Attachment XX (On-land Assessment Calibration Photos)**. Low trash generation corresponds to the A photos, Moderate trash generation to the B photos, High trash generation to the C photos, and Very High trash generation to the D photos.
    - (ii) Conduct observations at randomly selected locations covering at least 10% of a trash management area's street miles; or conduct observations at strategic locations with justification they are representative of trash generation in the management area and they will represent the effectiveness of the control action(s) implemented or planned in the management area.
    - (iii) Conduct observations at a frequency consistent with known or estimated trash generation rate(s) within a trash management area and the time frequency of implementation of the control action(s) implemented or planned in the management area.

- (iv) Conduct observations for effectiveness approximately at the halfway point of the interval between instances of recurring trash control actions such as street sweeping and on-land cleanup.
- iii. **Receiving Water Observations** –Permittees shall conduct receiving water observations downstream from trash generation areas that have been converted to Low from Very High, High, or Moderate to Low or better trash generation areas.
  - a. The observations shall be sufficient to determine whether a Permittee’s trash control actions have effectively prevented trash from discharging into receiving waters, whether additional actions may be necessary associated with sources within a Permittee’s jurisdiction, or whether there are ongoing sources outside of the Permittee’s jurisdiction that are causing or contributing to adverse trash impacts in the receiving water(s).
  - b. The observations shall be conducted a minimum of twice per year until the C.10.b.ii.c.(1) determination has been observed and then confirmed with a subsequent observation, after which the frequency may be reduced to once per year.
  - c. A C.10.c Trash Hot Spot cleanup site downstream of a trash management area may serve as a receiving water observation site.

#### **C.10.c. Trash Hot Spot Selection and Cleanup**

Trash Hot Spots in receiving waters shall be cleaned annually to achieve the multiple benefits of abatement of impacts as mitigation and to learn more about the sources and transport routes of trash loading.

- ii. **Hot Spot Cleanup and Definition** – The Permittees shall clean selected Trash Hot Spots to a level of “no visual impact” at least one time per year for the term of the permit. Trash Hot Spots shall be at least 100 yards of creek length or 200 yards of shoreline length.
- iii. **Hot Spot Selection** – Permittees shall maintain the number of trash hot spots identified in the previous permit term, which are included in Attachment XX. Permittees may select new trash hot spot locations if past locations are no longer trash hotspots or if other locations may better align with trash management areas.
- iv. **Hot Spot Assessments** – The Permittees shall quantify the volume of material removed from each Trash Hot Spot cleanup and attempt to identify sources to the extent readily feasible. Documentation of the cleanup activity to be retained by the Permittee shall include the trash condition before and after cleanup of the entire hot spot using photo documentation with a minimum of one photo per 100 feet of hot spot length and the total volume of trash and litter removed from the hot spot. Permittees shall report the volume removed for the most recent five years of hot spot cleanup in each annual report, or if a new trash hot spot location is selected, Permittees shall report the volume removed for the years of cleanup of that hotspot.

#### **C.10.d. Trash Load Reduction Plans**

Each Permittee shall maintain, and provide for inspection and review upon request, a Trash Load Reduction Plan, including an implementation schedule to meet the C.10.a Trash Load Reduction requirements. A summary of any new revisions to the Plan shall be included in the

Annual Report. The Plan shall describe trash load reduction control actions being implemented or planned and the trash generation areas or trash management areas where the actions are or will be implemented, including jurisdiction-wide actions, such as source control ordinances

The Plans should also include actions to control sources outside of the Permittee's jurisdiction that are causing or contributing to adverse trash impacts in the receiving water(s). Permittee's that implement such control actions may account for them towards meeting the C.10.a Trash Load Reduction requirements as long as they can demonstrate the controls will be sustained and they quantify the sustained load reduction benefit relative to control actions in the trash generation areas or trash management areas in their jurisdiction that drained to the affected receiving water.

#### **C.10.e. Reporting**

Each Permittee shall provide the following in each Annual Report:

- ii. A summary of trash control actions within each trash management area, including the types of actions, levels of implementation, areal extent of implementation, and whether the actions are ongoing or new, including initiation date.
- iii. An updated Trash Generation Area map or maps and associated trash management areas including the locations and associated drainage areas of full trash capture systems and non-full trash capture system trash control actions, and the location of Trash Hot Spots, with highlight or other indication of any revisions or changes from the previous year map(s).
- iv. Certification that each of its full trash capture systems is operated and maintained to meet full trash capture system requirements, and describe any systems that did not meet full trash capture system requirements, for example due to plugging or overflowing, and corrective actions taken.
- v. An accounting of its non-full trash capture system trash control actions assessments by providing a summary description of assessments in each of its trash management areas, including the number and times of observations.
- vi. An accounting of progress toward or attainment of C.10.a.i trash discharge reduction milestone requirements using the C.10.a.ii trash generation area mapping methodology and formula. If a Permittee cannot demonstrate attainment of a required milestone, it shall submit a detailed plan with the Annual Report, or in advance of the Annual Report, that describes actions to comply with the required milestone in a timely manner. The plan shall consider additional full trash capture systems to attain the milestone.
- vii. C.10.b.iii receiving water observations, including the locations and times of observations and associated determinations.
- viii. The volume removed for the most recent five years of hot spot cleanup for each of its trash hot spots, or for the years of cleanup if a new trash hot spot location has been selected.

## C.11. Mercury Controls

The Permittees shall implement the following control programs for mercury. The Permittees shall perform the control measures (source control, treatment control or pollution prevention strategies) and provide reporting on those control measures according to the provisions below. Many of the control measures may be chosen primarily for the purpose of achieving PCBs load reductions, but substantial mercury load reductions may result as a tangential benefit and should be accounted for.

The purpose of this provision is to implement the urban runoff requirements of the San Francisco Bay mercury TMDL and reduce mercury loads to make substantial progress toward achieving the urban runoff mercury load allocations established for the TMDL. The aggregate, regionwide, urban runoff wasteload load allocation is 82 kg/yr. The TMDL implementation plan calls for attainment of the allocation by February 2028 and, as a way to measure progress, attainment of an interim loading milestone by February 2018 of 120 kg/yr, halfway between the current estimated load, 160 kg/yr, and the aggregate allocation. The Permittees may comply with any requirement of this provision through a collaborative effort.

### C.11.a. Implement Control Measures to Achieve Mercury Load Reductions.

- i. Task Description** – Permittees shall continue implementing existing or initiate new mercury source and treatment control measures and pollution prevention strategies to achieve mercury load reductions throughout the area covered by the permit.
- ii. Implementation level** – In order to comply with this provision element, Permittees shall:
  - (1) Identify the watersheds in which mercury control measures are currently being implemented and those in which new control measures will be implemented during the term of this permit (many or most may be the same watersheds as those identified for C.12.a.ii(1));
  - (2) Identify the control measures that are currently being implemented and those that will be implemented in each watershed (may be the same as those identified for C.12.a.ii(2)); and
  - (3) Submit a schedule of control measure implementation.
  - (4) Demonstrate achievement of load reductions by using the accounting methods established according to provision C.11.b.
- iii. Reporting**
  - (1) The Permittees shall report by February 1, 2016 a list of the watersheds (or portions therein) where mercury control measures are currently being implemented and those in which control measures will be implemented (C.11.a.ii(1)) during the term of this permit as well as the monitoring data and other information used to select these watersheds.

- (2) The Permittees shall report in their 2016 Annual Report the specific control measures (C.11.a.ii(2)) that are currently being implemented and those that will be implemented in watersheds identified under C.11.a.iii(1) and an implementation schedule (C.11.a.ii(3)) for these control measures. This report shall include:
  - a. The number, type, and locations and/or frequency (if applicable) of control measures;
  - b. The description, scope, and start date, of pollution prevention measures;
  - c. For each structural control and non-structural BMP, interim implementation progress milestones (e.g., construction milestones for structural BMPs or other relevant implementation milestones for structural and non-structural BMPs) and a schedule for milestone achievement; and
  - d. Clear statements of the responsibilities of each participating Permittee for implementation of pollution prevention or control measures.
- (3) Beginning with the 2017 Annual Report and continuing in all Annual Reports, Permittees shall update all the information required under C.11.a.iii(2) as necessary to account for new control measures implemented but not described in the 2016 Annual Report.

#### **C.11.b. Assess Mercury Load Reductions from Stormwater**

**Task Description** – The Permittees shall develop and implement an assessment methodology and data collection program to quantify mercury loads reduced through implementation of any and all pollution prevention, source control and treatment control efforts required by the provisions of this permit or load reductions achieved through other relevant efforts not explicitly required by the provisions of this permit. A reasonable foundation for the load reduction accounting system was submitted by Permittees in December 2013 in the Integrated Monitoring Report for the previous permit. This task element consists of updating the work from that document, justifying assumptions and selected parameters used to quantify the load reduction benefit for each type of control measure, and indicating what information will be collected and submitted to confirm the load reduction benefit for each unit of activity.

- i. **Implementation Level** – The Permittees shall quantify the mercury load reductions achieved through implementing pollution prevention, source control and treatment control efforts required by the provisions of this permit as well as mercury load reductions achieved through other relevant efforts not explicitly required by the provisions of this permit.
- ii. **Reporting**
  - (1) The Permittees shall submit, for Executive Officer approval, by April 1, 2016, a full description of the measurement and estimation methodology and rationale for the approaches used to assess mercury load reductions



achieved through mercury source control, stormwater treatment, green infrastructure projects, and other stormwater management measures implemented during the term of this permit.

For control measures that become operational at any time during year 5 of the permit term, the estimated load reduction credited to the Permittee for this control measure shall be the estimated mercury load removed during one full year of operation. For control measures requiring construction or installation of new infrastructure that are under construction but not fully operational as of the end of the permit term, one-half (50%) of the estimated mercury yearly load reduction shall be counted in year 5 with the remaining 50% load reduction credited during the future year that the infrastructure element is fully operational.

- (2) Beginning with the 2016 Annual Report, Permittees shall report annually the loads reduced using the approved estimation methodology to demonstrate cumulative mercury load reduced from each control measure implemented since the beginning of permit term. Permittees shall submit all supporting data and information necessary to substantiate the load reduction estimates, including appropriate reference to the control measures described in the reporting required under C.11.a.
- (3) In their 2018 and subsequent Annual Reports The Permittees shall submit, for Executive Officer approval, any updates, if necessary, to the measurement and estimation methodologies to assess mercury load reductions.

**C.11.c. Plan and Implement Green Infrastructure to reduce mercury loads –**

- i. Task Description** – Permittees shall implement green infrastructure projects during the term of the permit to achieve mercury load reductions of 48 g/year over the final three years of the permit term. Additionally, Permittees shall provide reasonable assurance of mercury load reductions of at least 10 kg/yr throughout the Permit area by 2040 through implementation of green infrastructure plans required by provision C.3.j.
- ii. Implementation level** – Permittees shall:
  - (1) Implement sufficient green infrastructure projects to achieve county-specific load reductions shown in Table 11.1 and demonstrate achievement of these load reductions by using the accounting methods established according to provision C.11.b.ii(1). Load reductions from green infrastructure projects implemented prior to the effective date of this permit may be counted toward the required green infrastructure reductions of this permit term if these projects were established or implemented during the last permit term, but load reductions from the activity were not realized or credited during the last permit term.

For all Permittees combined these county-specific average annual mercury load reductions from green infrastructure projects total 48 g/yr during each

of the final three years of the permit. The Countywide Urban Runoff Programs are responsible for specific portions of these Permit area totals shown in Table 11.1 below. The total expected mercury load reductions and county-specific expected mercury load reductions from green infrastructure projects are derived from an expected number of green infrastructure projects for each county (see Fact Sheet).

**Table 11.1 Expected Mercury Load Reductions via Green Infrastructure Implementation by County**

<b>County Program</b>	<b>Mercury Load Reduction (g/year) for final 3 years of permit through green infrastructure implementation</b>
Alameda	13
Contra Costa	10
San Mateo	12
Santa Clara	11
Solano (unincorporated, Suisun City, Vallejo, Fairfield)	2
<b>Totals</b>	<b>48</b>

Permittees shall provide reasonable assurance of future mercury load reductions by doing the following:

- (1) Quantify the relationship between areal extent of green infrastructure implementation and mercury load reductions. This quantification should take into consideration the scale of contamination of the treated area as well as the pollutant removal effectiveness of likely green infrastructure strategies.
- (2) Estimate the amount and characteristics of land area that will be treated through green infrastructure future years 2020, 2030, and 2040.
- (3) Estimate the amount of mercury load reductions that will result from green infrastructure implementation by future years 2020, 2030, and 2040.
- (4) Quantitatively demonstrate that mercury reductions of at least 10 kg/yr will be realized by 2040 through implementation of green infrastructure projects.
- (5) Ensure that the calculation methods, models, model inputs and modeling assumptions used to fulfill C.11.c.ii(1-4) have been validated through a peer review process.

**iii. Reporting**

- (1) The Permittees shall submit in their 2017 Annual Report (as part of reporting for C.11.b.ii(1)), the quantitative relationship between green

infrastructure implementation and mercury load reductions. This submittal shall include all data used and a full description of models and model inputs relied on to establish this relationship.

- (2) The Permittees shall submit in their 2019 Annual Report an estimate of the amount and characteristics of land area that will be treated through green infrastructure implementation by future years 2020, 2030, and 2040. This submittal shall include all data used and a full description of models and model inputs relied on to generate this estimate.
- (3) The Permittees shall submit in their 2019 Annual Report a demonstration with reasonable assurance that mercury reductions of at least 10 kg/yr will be realized by 2040 through implementation of green infrastructure projects. This submittal shall include all data used and a full description of models and model inputs relied on to make the demonstration and documentation of peer review of the reasonable assurance demonstration.
- (4) The Permittees shall submit as part of reporting for C.11.b.ii(2), beginning with their 2019 Annual Report an estimate of the amount of mercury load reductions result from green infrastructure implementation during term of the permit. This submittal shall include all data used and a full description of models and model inputs relied on to generate this estimate.

#### **C.11.d. Prepare Implementation Plan and Schedule to Achieve TMDL Allocations**

- i. Task Description** – Permittees shall prepare a plan and schedule for mercury control measure implementation and provide reasonable assurance that sufficient control measures will be implemented to attain the mercury TMDL wasteload allocations. This plan may share many elements of a similar plan developed for PCBs according to Provision C.12.d.
- ii. Implementation level** – Permittees shall prepare a mercury control measures implementation plan and provide reasonable assurance that the plan will result in mercury load reductions sufficient to attain the mercury TMDL wasteload allocations. The plan must:
  - (1) identify all technically and economically feasible mercury control measures (including green infrastructure projects) to be implemented; and
  - (2) include a schedule according to which these technically and economically feasible control measures will be fully implemented; and
  - (3) provide an evaluation and quantification of the mercury load reduction of such measures as well as an evaluation of costs, control measure efficiency and significant environmental impacts resulting from their implementation.
- iii. Reporting**
  - (1) Permittees shall submit the plan and schedule in the 2019 Annual Report.

#### **C.11.e. Implement a Risk Reduction Program**

- i. Task Description** – The Permittees shall conduct an ongoing risk reduction program to address public health impacts of mercury in San Francisco Bay/Delta fish. The fish risk reduction program shall take actions to reduce actual and potential health risks in those people and communities most likely to consume San Francisco Bay-caught fish, such as subsistence fishers and their families. The risk reduction framework developed in the previous permit term, which funded community based organizations to develop and deliver appropriate communications to appropriately targeted individuals and communities, is an appropriate approach.
- ii. Implementation Level** –
- (1) At a minimum, Permittees shall conduct or cause to be conducted an ongoing risk reduction program with the potential to reach 3000 individuals annually who are likely consumers of San Francisco Bay-caught fish. Permittees are encouraged to collaborate with San Francisco Bay industrial and wastewater discharger agencies in meeting this requirement.
  - (2) In year four of the permit term, Permittees shall evaluate the effectiveness of their risk reduction program.
- iii. Reporting** – The Permittees shall report on the status of the risk reduction program in each of their Annual Reports, including a brief description of actions taken, an estimate of the number of people reached, and why these people are deemed likely to consume Bay fish. The Permittees shall report the findings of the effectiveness evaluation of their risk reduction program in their Annual Report on year four of the permit term.

## C.12. Polychlorinated Biphenyls (PCBs) Controls

The Permittees shall implement the following control programs for PCBs. The Permittees shall implement PCBs control measures (source control, treatment control or pollution prevention strategies) in areas where benefits are most likely to accrue (focused implementation) and report on those control measures according to the provisions below. The provisions constitute implementation of the urban runoff requirements of the PCBs TMDL. Permittees must reduce PCBs loads by a specified amount during the term of the permit, thereby making substantial progress toward achieving the urban runoff PCBs load allocation. The aggregate, regionwide, urban runoff wasteload load allocation of 2 kg/yr (representing a load reduction from all urban runoff sources of approximately 18 kg/yr compared to loads estimated using data collected in 2003) should be achieved by March 2030. The Permittees may comply with any requirement of this Provision through a collaborative effort.

### C.12.a. Implement Control Measures to Achieve PCBs Load Reductions.

- i. **Task Description** – Permittees shall continue implementing existing or initiate new PCBs source and treatment control measures and pollution prevention strategies to achieve PCBs load reductions throughout the area covered by the permit.
- ii. **Implementation level** – In order to comply with this provision element, Permittees shall:
  - (1) Identify the watersheds in which PCBs control measures are currently being implemented and those in which new control measures will be implemented during the term of this permit,
  - (2) Identify the control measures that are currently being implemented and those that will be implemented in each watershed, and
  - (3) Submit a schedule of control measure implementation.
  - (4) Implement sufficient control measures to achieve county-specific load reductions shown in Table 12.1 and demonstrate achievement of these load reductions by using the accounting methods established according to provision C.12.b. Load reductions from control measures implemented prior to the effective date of this permit may be counted toward the required reductions of this permit term if these control measures were established or implemented during the last permit term, but load reductions from the activity were not realized or credited during the last permit term.

For all Permittees combined, these county-specific average annual PCBs load reductions total 0.5 kg/yr during each of the first two years of the permit and 3.0 kg/yr during each of the final three years of the permit. The Countywide Urban Runoff Programs are responsible for specific portions of these Permit area totals shown in Table 12.1 below. These county-specific expected load reductions allocate responsibility for load

reductions to individual county programs according to the same proportions used to establish county-specific load allocations in the PCBs TMDL.

**Table 12.1 Expected PCBs Load Reductions by County**

County Program	PCBs load reduction (g/year) during first two years of permit	PCBs Load Reduction (g/year) for final 3 years of permit
Alameda	160	940
Contra Costa	90	560
San Mateo	60	370
Santa Clara	160	940
Solano (unincorporated, Suisun City, Vallejo, Fairfield)	15	95
<b>Totals</b>	<b>500</b>	<b>3000</b>

Fairfield-Suisun constitutes approximately one-half the population of Solano County so the load reduction requirements for Fairfield-Suisun are one-half of those calculated for Solano County as a whole.

**iii. Reporting**

- (1) The Permittees shall report by February 1, 2016 a list of the watersheds (or portions therein) where PCBs control measures are currently being implemented and those in which control measures will be implemented (C.12.a.ii(1)) during the term of this permit as well as the monitoring data and other information used to select these watersheds.
- (2) The Permittees shall report in their 2016 Annual Report the specific control measures (C.12.a.ii(2)) that are currently being implemented and those that will be implemented in watersheds identified under C.12.a.iii(1) and an implementation schedule (C.12.a.ii(3)) for these control measures. This report shall include:
  - a. The number, type, and locations and/or frequency (if applicable) of control measures;
  - b. The description, scope, and start date, of pollution prevention measures;
  - c. For each structural control and non-structural BMP, interim implementation progress milestones (e.g., construction milestones for structural controls or other relevant implementation milestones for structural controls and non-structural BMPs) and a schedule for milestone achievement; and
  - d. Clear statements of the responsibilities of each participating Permittee for implementation of pollution prevention or control measures.
- (3) Beginning with the 2017 Annual Report and continuing in all Annual Reports, Permittees shall update all the information required under C.12.a.iii(2) as necessary to account for new control measures implemented but not described in the 2016 Annual Report.

### C.12.b. Assess PCB Load Reductions from Stormwater

**Task Description** – The Permittees shall develop and implement an assessment methodology and data collection program to quantify PCBs loads reduced through implementation of any and all pollution prevention, source control and treatment control efforts required by the provisions of this permit or load reductions achieved through other relevant efforts not explicitly required by the provisions of this permit. The Permittees shall use the assessment methodology to demonstrate progress toward the interim load reduction milestones to be achieved during the term of the permit and demonstrate progress toward attainment of the program area allocations. A reasonable foundation for the load reduction accounting system was submitted by Permittees in December 2013 in the Integrated Monitoring Report for the previous permit. This task element consists of updating the work from that document, justifying assumptions and selected parameters used to quantify the load reduction benefit for each type of control measure, and indicating what information will be collected and submitted to confirm the load reduction benefit for each unit of activity.

**i. Implementation Level** – The Permittees shall demonstrate progress toward and ultimate achievement of load reduction requirements stated in C.12.a.ii.(4). This shall be accomplished by quantifying the PCBs load reductions achieved through implementing pollution prevention, source control and treatment control efforts required by the provisions of this permit as well as PCBs load reductions achieved through other relevant efforts not explicitly required by the provisions of this permit.

**ii. Reporting**

- (1) The Permittees shall submit, for Executive Officer approval, by April 1, 2016, a full description of the measurement and estimation methodology and rationale for the approaches used to assess PCBs load reductions achieved through PCBs source control, stormwater treatment, green infrastructure projects, and other stormwater management measures implemented during the term of this permit. This methodology should justify the choices for parameters used to estimate load reduction benefits and identify the data that will be collected and submitted in support of any claim of load reduction benefit associated with implemented control measures.

For control measures that become operational at any time during year 5 of the permit term, the estimated load reduction credited to the Permittee for this control measure shall be the estimated PCBs load removed during one full year of operation. For control measures requiring construction or installation of new infrastructure that are under construction but not fully operational as of the end of the permit term, one-half (50%) of the estimated PCBs yearly load reduction shall be counted in year 5 with the remaining 50% load reduction credited during the future year that the infrastructure element is fully operational.

- (2) Beginning with the 2016 Annual Report, Permittees shall report annually the loads reduced using the approved estimation methodology to demonstrate cumulative PCBs load reduced from each control measure implemented since the beginning of permit term. Permittees shall submit all supporting data and information necessary to substantiate the load reduction estimates, including appropriate reference to the control measures described in the reporting required under C.12.a.
- (3) In their 2018 and subsequent Annual Reports the Permittees shall submit, for Executive Officer approval, any updates, if necessary, to the measurement and estimation methodologies to assess PCBs load reductions.

**C.12.c. Plan and Implement Green Infrastructure to reduce PCBs loads –**

**i. Task Description** – Permittees shall implement green infrastructure projects during the term of the permit to achieve PCBs load reductions of 120 g/year over the final three years of the permit term. Additionally, Permittees shall provide reasonable assurance of PCBs load reductions of at least 3 kg/yr throughout the Permit area by 2040 through implementation of green infrastructure plans required by Provision C.3.j.

**ii. Implementation level** – Permittees shall:

- (1) Implement sufficient green infrastructure projects to achieve county-specific load reductions shown in Table 12.2 and demonstrate achievement of these load reductions by using the accounting methods established according to provision C.12.b.ii(1). PCBs load reductions achieved through implementation of green infrastructure may be counted as part of the overall load reductions required during this permit term under C.12.a.ii(4). Load reductions from green infrastructure projects implemented prior to the effective date of this permit may be counted toward the required green infrastructure reductions of this permit term if these projects were established or implemented during the last permit term, but load reductions from the activity were not realized or credited during the last permit term.

For all Permittees combined, these county-specific average annual PCBs load reductions from green infrastructure projects total 120 g/yr during each of the final three years of the permit. The Countywide Urban Runoff Programs are responsible for specific portions of these Permit area totals shown in Table 12.2 below. The total expected PCBs load reductions and county-specific expected PCBs load reductions from green infrastructure projects are derived from an expected number of green infrastructure projects for each county (see Fact Sheet).



**Table 12.2 Expected PCBs Load Reductions via Green Infrastructure Implementation by County**

<b>County Program</b>	<b>PCBs Load Reduction (g/year) for final 3 years of permit through green infrastructure</b>
Alameda	32
Contra Costa	24
San Mateo	31
Santa Clara	27
Solano County (unincorporated, Suisun City, Vallejo, Fairfield)	6
<b>Totals</b>	<b>120</b>

- (2) Permittees shall provide reasonable assurance of future PCBs load reductions by doing the following:
  - a. Quantify the relationship between areal extent of green infrastructure implementation and PCBs load reductions, taking into consideration the scale of contamination of the treated area as well as the pollutant removal effectiveness of likely green infrastructure strategies.
  - b. Estimate the amount and characteristics of land area that will be treated through green infrastructure future years 2020, 2030, and 2040.
  - c. Estimate the amount of PCBs load reductions that will result from green infrastructure implementation by future years 2020, 2030, and 2040.
  - d. Quantitatively demonstrate that PCBs reductions of at least 3 kg/yr will be realized by 2040 through implementation of green infrastructure projects.
  - e. Ensure that the calculation methods, models, model inputs and modeling assumptions used to fulfill C.12.c.ii.(2)a.-d. have been validated through a peer review process.

**iii. Reporting**

- (1) The Permittees shall submit in their 2017 Annual Report, as part of reporting for C.12.b.ii(1), the quantitative relationship between green infrastructure implementation and PCBs load reductions. This submittal shall include all data used and a full description of models and model inputs relied on to establish this relationship.
- (2) The Permittees shall submit in their 2019 Annual Report an estimate of the amount and characteristics of land area that will be treated through green infrastructure implementation by future years 2020, 2030, and 2040. This submittal shall include all data used and a full description of models and model inputs relied on to generate this estimate.

- (3) The Permittees shall submit in their 2019 Annual Report a demonstration with reasonable assurance that PCBs reductions of at least 3 kg/yr will be realized by 2040 through implementation of green infrastructure projects. This submittal shall include all data used and a full description of models and model inputs relied on to make the demonstration and documentation of peer review of the reasonable assurance demonstration.
- (4) The Permittees shall submit as part of reporting for C.12.b.ii(2), beginning with their 2019 Annual Report an estimate of the amount of PCBs load reductions result from green infrastructure implementation during term of the permit. This submittal shall include all data used and a full description of models and model inputs relied on to generate this estimate.

**C.12.d. Prepare Implementation Plan and Schedule to Achieve TMDL Wasteload Allocations**

- i. Task Description** – Permittees shall prepare a plan and schedule for PCBs control measure implementation and provide reasonable assurance that sufficient control measures will be implemented to attain the PCBs TMDL wasteload allocations.
- ii. Implementation level** – Permittees shall prepare a PCBs control measures implementation plan and provide reasonable assurance that the plan will result in PCBs load reductions sufficient to attain the PCBs TMDL load allocations. The plan must:
  - (1) identify all technically and economically feasible PCBs control measures to be implemented (including green infrastructure projects); and
  - (2) include a schedule according to which these technically and economically feasible control measures will be fully implemented; and
  - (3) provide an evaluation and quantification of the PCBs load reduction of such measures as well as an evaluation of costs, control measure efficiency and significant environmental impacts resulting from their implementation.
- iii. Reporting**
  - (1) Permittees shall submit the plan and schedule in the 2019 Annual Report.

**C.12.e. Evaluate PCBs Presence in Caulks/Sealants Used in Storm Drain or Roadway Infrastructure in Public Rights-of-Way**

- i. Task Description** –Permittees shall collect samples of caulk and other sealants used in storm drains and between concrete curbs and street pavement and investigate whether PCBs are present in such material and in what concentrations. PCBs are most likely present in material applied during the 1970s so the focus of the investigations should be on structures installed during this era.
- ii. Implementation Level** –

Permittees shall collect at least 20 composite samples (throughout the Permit area) of the caulks and sealants used in storm drains or roadway infrastructure in public rights-of-way and analyze this material for PCBs in such a way as to be able to detect a minimum PCBs concentration of 200 parts per billion. This sampling and analysis will count toward partial fulfillment of the monitoring effort aimed at finding PCBs sources (see management information need in C.8.f).

**iii. Reporting –**

- (1) Permittees shall report on the results (including all data gathered) of this investigation no later than the 2017 Annual Reports.

**C.12.f. Manage PCB-Containing Materials and Wastes during Building Demolition and Renovation Activities**

**i. Task Description –** At the time of submittal of an application for a demolition or renovation (demo/reno) permit, the Permittees shall require the applicant or project proponent to determine whether PCBs are present in the structure and, if so, to take follow up actions prior to issuance of the permit. This requirement shall apply only to potential PCB-containing structures which are structures built or remodeled between the years 1950 and 1980. Single-family residential structures are excluded.

**ii. Implementation Level –**

At the start of the third year of the permit term and thereafter, before issuing a demo/reno permit for a potential PCB-containing structure, each Permittee shall require the permit applicant to do the following:

- (1) Sample caulking around concrete joints, masonry joints, doors, and windows. Sample exterior paint, mastics, glazing, and coating on acoustic tiles.
- (2) Have the samples analyzed for total PCBs. The lab should follow the approach referenced in U.S. EPA's PCB regulations, such as method 3500B/3540C from U.S. EPA's SW-846, Test Methods for Evaluating Solid Waste, for chemical extraction of PCBs. For analyzing extracts, Method 8082 from U.S. EPA's SW-846 or a method capable of detecting total PCBs at a concentration of 25 parts per million (for all PCBs in total) or less is appropriate.
- (3) In lieu of sampling and analysis, the demo/reno permit applicant may assume the building materials listed in C.12.f.ii.(1) contain PCBs at concentrations equal to or greater than 50 parts per million and manage these materials in accordance with U.S.EPA regulations.
- (4) Submit all analytical results, including the list of materials assumed to contain PCBs under C.12.f.ii.(3) where applicable, with the potential PCB-containing structure address and permit applicant contact information to the Permittee and to the Water Board.

- (5) Where PCBs are present or assumed present in any building material at a concentration equal to or greater than 50 parts per million, prior to issuance of a demo/reno permit the Permittee shall require and verify that the demo/reno proponent has a letter or email from U.S. EPA, Region IX or Water Board stating that PCBs-containing materials have been adequately removed.

**iii. Reporting –**

- (1) In their 2016 and 2017 Annual Reports, the Permittees shall summarize the steps they have taken to begin implementing this requirement, which could include developing ordinances or policies, obtaining information materials, updating or supplementing permit application forms, developing a tracking tool for potential PCB-containing structures, and training relevant staff as needed to comply with this sub-provision.
- (2) Beginning with their 2018 Annual Report, the Permittees shall list all potential PCB-containing structures that have applied for a demo/reno permit, with the current reporting year's applicants on top, with the potential PCB-containing structures address, project proponent contact information, and date of permit issuance for each project.

**C.12.g. Fate and Transport Study of PCBs: Urban Runoff Impact on San Francisco Bay Margins**

- i. Task Description** – The Permittees shall conduct or cause to be conducted studies aimed at better understanding the fate, transport, and biological uptake of PCBs discharged from urban runoff to San Francisco Bay margin areas.
- ii. Implementation Level** – The specific information needs include understanding the in-Bay transport of PCBs discharged in urban runoff, the sediment and food web PCBs concentrations in margin areas receiving urban runoff, the influence of urban runoff on the patterns of food web PCBs accumulation, especially in Bay margins, and the identification of drainages where urban runoff PCBs are particularly important in food web accumulation.
- iii. Reporting** – The Permittees shall submit in their 2016 Annual Report a workplan describing the specific manner in which these information needs will be accomplished and describing the studies to be performed with a preliminary schedule. The Permittees shall report on status of the studies in their 2017 Annual Report. The Permittees shall report in the March 15, 2019 Integrated Monitoring Report the findings and results of the studies completed, planned, or in progress as well as implications of studies on potential control measures to be investigated, piloted or implemented in future permit cycles.

**C.12.h. Implement a Risk Reduction Program**

- i. Task Description** – The Permittees shall conduct an ongoing risk reduction program to address public health impacts of PCBs in San Francisco Bay/Delta fish. The fish risk reduction program shall take actions to reduce actual and

potential health risks in those people and communities most likely to consume San Francisco Bay-caught fish, such as subsistence fishers and their families. The risk reduction framework developed in the previous permit term, which funded community based organizations to develop and deliver appropriate communications to appropriately targeted individuals and communities, is an appropriate approach.

**ii. Implementation Level –**

- (1) At a minimum, Permittees shall conduct or cause to be conducted an ongoing risk reduction program with the potential to reach 3000 individuals annually who are likely consumers of San Francisco Bay-caught fish. Permittees are encouraged to collaborate with San Francisco Bay industrial and wastewater discharger agencies in meeting this requirement.
- (2) In year four of the permit term, Permittees shall evaluate the effectiveness of their risk reduction program.

**iii. Reporting –** The Permittees shall report on the status of the risk reduction program in each of their Annual Reports, including a brief description of actions taken, an estimate of the number of people reached, and why these people are deemed likely to consume Bay fish. The Permittees shall report the findings of the effectiveness evaluation of their risk reduction program in their 2019 Annual Report.

### C.13. Copper Controls

The control program for copper is detailed below. The Permittees shall implement the control measures and accomplish the reporting on those control measures according to the provisions below. The purpose of these provisions is to implement the control measures identified in the Basin Plan amendment necessary to support the copper site-specific objectives in San Francisco Bay. The Permittees may comply with any requirement of C.13 Provisions through a collaborative effort.

#### C.13.a. Manage Waste Generated from Cleaning and Treating of Copper Architectural Features, Including Copper Roofs, during Construction and Post-Construction.

- i. **Task Description** – The Permittees shall prohibit the discharge of wastewater to storm drains generated from the installation, cleaning, treating, and washing of the surface of copper architectural features, including copper roofs.
- ii. **Implementation Level**
  - (1) The Permittees shall require, when issuing building permits, use of appropriate BMPs for managing waste during and post-construction
  - (2) The Permittees shall educate installers and operators on appropriate BMPs for managing copper-containing wastes.
  - (3) The Permittees shall enforce against noncompliance.
- iii. **Reporting**
  - (1) In the 2016 Annual Report, the Permittees shall certify that legal authority currently exists to prohibit the discharge of wastewater to storm drains generated from the installation, cleaning, treating, and washing of copper architectural features, including copper roofs.
  - (2) In the 2016 Annual Report, the Permittees shall report how copper architectural features are addressed through the issuance of building permits.
  - (3) The Permittees shall report annually permitting and enforcement activities.

#### C.13.b. Manage Discharges from Pools, Spas, and Fountains that Contain Copper-Based Chemicals

- i. **Task Description** – Permittees shall prohibit discharges to storm drains from pools, spas, and fountains that contain copper-based chemicals.
- ii. **Implementation Level** – The Permittees shall either: 1) require installation of a sanitary sewer discharge connection for pools, spas, and fountains, including connection for filter backwash, with a proper permit from the POTWs; or 2) require diversion of discharge for use in landscaping or irrigation.

**iii. Reporting**

- (1) In the 2016 Annual Report, the Permittees shall certify that legal authority currently exists to prohibit the discharges to storm drains of water containing copper-based chemicals from pools, spas, and fountains.
- (2) In the 2016 Annual Report, the Permittees shall report how copper-containing discharges from pools, spas, and fountains are addressed through the permitting process.
- (3) The Permittees shall report annually permitting and enforcement activities.

**C.13.c. Industrial Sources**

**i. Task Description** – The Permittees shall ensure industrial facilities do not discharge elevated levels of copper to storm drains by ensuring, through industrial facility inspections, that proper BMPs are in place.

**ii. Implementation Level** –

- (1) As part of industrial site controls required by Provision C.4, the Permittees shall identify facilities likely to use copper or have sources of copper (e.g., plating facilities, metal finishers, auto dismantlers) and include them in their inspection program plans.
- (2) The Permittees shall educate industrial inspectors on industrial facilities likely to use copper or have sources of copper and proper BMPs for them.
- (3) As part of the industrial inspection, inspectors shall ensure that proper BMPs are in place at such facilities to minimize discharge of copper to storm drains, including consideration of roof runoff that might accumulate copper deposits from ventilation systems on-site.

**iii. Reporting**

The Permittees shall highlight copper reduction results in the industrial inspection component in the C.13 portion of each Annual Report.

## C.15. Exempted and Conditionally Exempted Discharges

The objective of this provision is to exempt unpolluted non-stormwater discharges from Discharge Prohibition A.1 and to conditionally exempt non-stormwater discharges that are potential sources of pollutants. In order for non-stormwater discharges to be conditionally exempted from Discharge Prohibition A.1, the Permittees must identify appropriate BMPs, monitor the non-stormwater discharges where necessary, and ensure implementation of effective control measures – as listed below – to eliminate adverse impacts to waters of the State consistent with the discharge prohibitions of the Order.

### C.15.a. Exempted Non-Stormwater Discharges (Exempted Discharges):

- i. **Discharge Type** – In carrying out Discharge Prohibition A.1, the following unpolluted discharges are exempted from prohibition of non-stormwater discharges:
  - (1) Flows from riparian habitats or wetlands;
  - (2) Diverted stream flows;
  - (3) Flows from natural springs;
  - (4) Rising ground waters;
  - (5) Uncontaminated and unpolluted groundwater infiltration;
  - (6) Single family homes' pumped groundwater, foundation drains, and water from crawl space pumps and footing drains; and
  - (7) NPDES permitted discharges (individual or general permits).
- ii. **Implementation Level** – The non-stormwater discharges listed in Provision C.15.a.i above are exempted unless they are identified by the Permittees or the Executive Officer as sources of pollutants to receiving waters. If any of the above categories of discharges, or sources of such discharges, are identified as sources of pollutants to receiving waters, such categories or sources shall be addressed as conditionally exempted discharges in accordance with Provision C.15.b below.

### C.15.b. Conditionally Exempted Non-Stormwater Discharges:

The following non-stormwater discharges are also exempt from Discharge Prohibition A.1 if they are either identified by the Permittees or the Executive Officer as not being sources of pollutants to receiving waters, or if appropriate control measures to eliminate adverse impacts of such sources are developed and implemented in accordance with the tasks and implementation levels of each category of Provision C.15.b.i-viii below.



- i. **Discharge Type** – Pumped Groundwater, Foundation Drains, and Water from Crawl Space Pumps and Footing Drains
- (1) **Pumped Groundwater from Non Drinking Water Aquifers** –  
Groundwater pumped from monitoring wells, used for groundwater basin management, which are owned and/or operated by the Permittees who pump groundwater as drinking water. These aquifers tend to be shallower, when compared to drinking water aquifers.
- (a) **Implementation Level** – Twice a year (once during the wet season and once during the dry season), representative samples shall be taken from each aquifer that potentially will discharge or has discharged into a storm drain. Samples collected and analyzed for compliance in accordance with self-monitoring requirements of other NPDES permits or sample data collected for drinking water regulatory compliance may be submitted to comply with this requirement as long as they meet the following criteria:
- (i) The water samples shall meet water quality standards consistent with the existing effluent limitations or pollutant triggers in the Water Board’s NPDES Groundwater General Permits, NPDES Nos. CAG912002, CAG912003, and CAG912004.
- (ii) The water samples shall be analyzed using approved USEPA Methods: (a) USEPA Method 8015 Modified for total petroleum hydrocarbons (b) USEPA Method 8260B and 8270C or equivalent for volatile and semi-volatile organic compounds; and (c) approved USEPA methods to meet the triggers for the metals listed in the general permits discussed in C.14.(b)i.(1)(a)(i) above.
- (iii) The water samples shall be analyzed for pH and turbidity.
- (iv) If a Permittee is unable to comply with the above criteria, the Permittee shall notify the Water Board upon becoming aware of the compliance issue.
- (b) **Required BMPs and Monitoring** – When uncontaminated (meeting the criteria in C.15.b.i.(1)(a)(i)) groundwater is discharged from these monitoring wells, the following shall be implemented:
- (i) Test the receiving water, upstream and downstream of the discharge point, to determine ambient turbidity and pH prior to discharging.
- (ii) Test water samples for turbidity and pH on the first two consecutive days of dewatering.
- (iii) Maintain proper control of the discharge at the discharge point to prevent erosion, scouring of banks, nuisance, contamination, and excess sedimentation in the receiving waters.
- (iv) Maintain proper control of the flowrate and total flow during discharge so that it will not have a negative impact on the receiving waters.

- (v) Appropriate BMPs shall be implemented to remove total suspended solids and silt to allowable discharge levels. Appropriate BMPs may include filtration, settling, coagulant application with no residual coagulant discharge, minor odor or color removal with activated carbon, small scale peroxide addition, or other minor treatment.
  - (vi) Turbidity of the discharged groundwater shall be maintained below 50 NTUs for discharges to dry creeks, 110 percent of the ambient stream turbidity for a flowing stream with turbidities greater than 50 NTU, or 5 NTU above ambient turbidity for flowing streams with turbidities less than or equal to 50 NTU.
  - (vii) The pH of the discharged groundwater shall be maintained within the range of 6.5 to 8.5 and shall not vary from normal ambient pH by more than 0.5 pH units.
  - (c) If the Permittee is unable to comply with the above criteria, discharge shall cease immediately and the Permittee shall employ treatment to meet the above criteria, use other means of disposal, or apply for coverage under one of the Water Board's NPDES General Groundwater Permits.
  - (d) **Reporting** – The Permittees shall maintain records of these discharges, BMPs implemented, and any monitoring data collected.
- (2) **Pumped<sup>1</sup> Groundwater, Foundation Drains, and Water from Crawl Space Pumps and Footing Drains**
- (a) Proposed new discharges of uncontaminated groundwater at flows of 10,000 gallons/day or more and all new discharges of potentially contaminated groundwater shall apply for coverage under one of the Water Board's Groundwater General Permits.
  - (b) Proposed new discharges of uncontaminated groundwater at flows of less than 10,000 gallons/day shall be encouraged to discharge to a landscaped area or bioretention unit that is large enough to accommodate the volume.
  - (c) Groundwater can only be considered for discharge once the following sampling is done to verify that the discharge is uncontaminated.
    - (i) The discharge shall meet water quality standards consistent with the existing effluent limitations or pollutant triggers in Water Board's NPDES Groundwater General Permits, NPDES Nos. CAG912002, CAG912003, and CAG912004.
    - (ii) The Permittees shall require that water samples from these discharge types be analyzed using the following approved USEPA Methods:

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<sup>1</sup> Pumped groundwater not exempted in C.15.a or conditionally exempted in C.15.b.i.(1).

- USEPA Method 8015 Modified for total petroleum hydrocarbons and (b) USEPA Method 8260B and 8270C or equivalent for volatile and semi-volatile organic compounds.
- The approved USEPA Methods for the metals listed below that meet the corresponding Reporting Limits:

<b>Metal</b>	<b>Reporting Limit</b>
Antimony	6 µg/l
Arsenic	10 µg/l
Beryllium	4 µg/l
Cadmium	1.1 µg/l
Chromium VI	11 µg/l
Copper <sup>2</sup>	5.9 µg/l
Copper <sup>3</sup>	3.4 µg/l
Copper <sup>4</sup>	4.7 µg/l
Lead	3.2 µg/l
Mercury	0.025 µg/l
Nickel	19 µg/l
Selenium	5 µg/l
Silver	2.2 µg/l
Thallium	1.7 µg/l
Zinc	86 µg/l
Cyanide	2.9 µg/l

- (d) **Monitoring and Required BMPs** – When the discharge has been verified as uncontaminated per sampling completed in C.15.b.i.(2)(c) above, the Permittees shall require the following:
- Test the receiving water, upstream and downstream of the discharge point, to determine ambient turbidity and pH prior to discharging.
  - Test water samples for turbidity and pH on the first two consecutive days of dewatering.
  - Maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.
  - Maintain proper control of the flowrate and total flow during discharge so that it will not have a negative impact on the receiving waters.
  - Appropriate BMPs to render pumped groundwater free of pollutants and therefore exempted from prohibition may include the following: filtration, settling, coagulant application with no residual coagulant discharge, minor odor or color removal with

<sup>2</sup> Applicable to Suisun Bay and San Pablo Bay segments of San Francisco Bay.

<sup>3</sup> Applicable to Central Bay and Lower Bay segments of San Francisco Bay.

<sup>4</sup> Applicable to South San Francisco Bay segments of San Francisco Bay.

activated carbon, small scale peroxide addition, or other minor treatment.

- (vi) Turbidity of discharged groundwater shall be maintained below 50 NTU for discharges to dry creeks, 110 percent of the ambient stream turbidity for a flowing stream with turbidities greater than 50 NTU, or 5 NTU above ambient turbidity for a flowing stream with turbidities less than or equal to 50 NTU.
- (vii) The pH of discharged water shall be maintained within the range of 6.5 to 8.5 and shall not vary from normal ambient pH by more than 0.5 pH units.
- (e) If a Permittee determines that a discharger or a project proponent is unable to comply with the above criteria, discharge shall cease immediately and the discharger shall employ treatment to meet the above criteria, use other means of disposal, or apply for coverage under one of the Water Board's NPDES General Groundwater Permits.
- (f) **Reporting** – The Permittees shall maintain records of these discharges, BMPs implemented, and any monitoring data collected.

**ii. Discharge Type – Air Conditioning Condensate**

**Required BMPs** – Condensate from air conditioning units shall be directed to landscaped areas or the ground. Discharge to a storm drain system may be allowed if discharge to landscaped areas or the ground is not feasible.

**iii. Discharge Type –Emergency Discharges of the Potable Water System**

- (1) **Emergency Discharges** – Emergency discharges are the result of firefighting, unauthorized hydrant openings, natural or man-made disasters (e.g., earthquakes, floods, wildfires, accidents, terrorist actions).

**Required BMPs**

- (a) The Permittees shall implement or require fire fighting personnel to implement BMPs for emergency discharges. However, the BMPs should not interfere with immediate emergency response operations or impact public health and safety. BMPs may include, but are not limited to, the plugging of the storm drain collection system for temporary storage, the proper disposal of water according to jurisdictional requirements, and the use of foam where there may be toxic substances on the property the fire is located.
- (b) During emergency situations, priority of efforts shall be directed toward life, property, and the environment (in descending order). The Permittees or fire fighting personnel shall control the pollution threat from their activities to the extent that time and resources allow.
- (c) **Reporting Requirements** – Reporting requirements will be determined by Water Board staff on a case-by-case basis, such as for fire incidents at chemical plants.

**iv. Discharge Type – Individual Residential Car Washing**

**Required BMPs**

- (1) The Permittees shall discourage through outreach efforts individual residential car washing within their jurisdictional areas that discharge directly into their MS4s.
- (2) The Permittees shall encourage individuals to direct car wash waters to landscaped areas, use as little detergent as necessary, wash cars at commercial car wash facilities, etc.

**v. Discharge Type – Swimming Pool, Hot Tub, Spa, and Fountain Water Discharges**

**(1) Required BMPs**

- (a) The Permittees shall prohibit discharge of water that contains chlorine residual, copper algaecide, filter backwash or other pollutants to storm drains or to waterbodies. Such polluted discharges from pools, hot tubs, spas, and fountains shall be directed to the sanitary sewer (with the local sanitary sewer agency's approval) or to landscaped areas that can accommodate the volume.
- (b) Discharges from swimming pools, hot tubs, spas and fountains shall be allowed into storm drain collection systems only if there are no other feasible disposal alternatives (e.g., disposal to sanitary sewer or landscaped areas) and if the discharge is properly dechlorinated to non-detectable levels of chlorine consistent with water quality standards.
- (c) The Permittees shall require that new or rebuilt swimming pools, hot tubs, spas and fountains within their jurisdictions have a connection<sup>5</sup> to the sanitary sewer to facilitate draining events. The Permittees shall coordinate with local sanitary sewer agencies to determine the standards and requirements necessary for the installation of a sanitary sewer discharge location to allow draining events for pools, hot tubs, spas, and fountains to occur with the proper permits from the local sanitary sewer agency.
- (d) The Permittees shall improve their public outreach and educational efforts and ensure implementation of the required BMPs and compliance in commercial, municipal, and residential facilities.
- (e) The Permittees shall implement the Illicit Discharge Enforcement Response Plan from C.5.b for polluted (contains chlorine, copper algaecide, filter backwash, or other pollutants) swimming pool, hot tub, spa, or fountain waters that get discharged into the storm drain.

- (2) **Reporting** – The Permittees shall keep records of the authorized major discharges of dechlorinated pool, hot tubs, spa and fountain water to the

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<sup>5</sup> This connection could be a drain in the pool to the sanitary sewer or a sanitary sewer clean out located close enough to the pool so that a hose can readily direct the pool discharge into the sanitary sewer clean out.

storm drain, including BMPs employed; such records shall be available for inspection by the Water Board.

**vi. Discharge Type – Irrigation Water, Landscape Irrigation, and Lawn or Garden Watering**

- (1) **Required BMPs** – The Permittees shall promote measures that minimize runoff and pollutant loading from excess irrigation via the following:
  - (a) Promoting and/or working with potable water purveyors to promote conservation programs that minimize discharges from lawn watering and landscape irrigation practices;
  - (b) Promoting outreach messages regarding the use of less toxic options for pest control and landscape management;
  - (c) Promoting and/or working with potable water purveyors to promote the use of drought tolerant, native vegetation to minimize landscape irrigation demands;
  - (d) Promoting and/or working with potable water purveyors to promote outreach messages that encourage appropriate applications of water needed for irrigation and other watering practices; and,
  - (e) Implementing the Illicit Discharge Enforcement Response Plan from C.5.b, as necessary, for ongoing, large-volume landscape irrigation runoff to their MS4s.
- (2) **Reporting** – The Permittees shall provide implementation summaries in their Annual Report.

**vii. Permit Authorization for Exempted Non-Stormwater Discharges**

- (1) Discharges of non-stormwater from sources owned or operated by the Permittees are authorized and permitted by this Permit, if they are in accordance with the conditions of this provision.
- (2) The Water Board may require dischargers of non-stormwater, other than the Permittees, to apply for and obtain coverage under an NPDES permit and to comply with the control measures pursuant to Provision C.15.b. Non-stormwater discharges that are in compliance with such control measures may be accepted by a Permittee and are not subject to Prohibition A.1.