C.3. New Development and Redevelopment

The goal of Provision C.3~~.~~ is for the Permittees to use their planning authoritiesy~~y~~ to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble 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~~ employing landscape-based treatment measures~~.

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~~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~~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 stenciling.

- Landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, ~~and~~ 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).

ii. Implementation Level – Most of the ~~The~~ elements of this task should already be fully implemented because they are required in the Permittees' existing stormwater permits.

Due Dates for Full Implementation – Immediate for C.3.a.i.(1)-(~~7~~5), May 1, 2010 for C.3.a.i.(6)-(7), and December ~~July~~ 1, 2010 for C.3.a.i.(8). For Vallejo Permittees: ~~July~~ December 1, 2010 for C.3.a.i.(1)-(8)

iii. Reporting – Provide a brief summary of the method(s) of implementation of Provisions C.3.a.i.(1)–(8) in the 2011 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 ~~Low Impact Development (~~LID~~)~~ source control, site design, and stormwater treatment onsite or at a joint stormwater treatment facility[1] ~~management techniques (per~~ in accordance with Provisions C.3.c ~~.) and design and install stormwater treatment systems that will reduce the discharge of pollutants in stormwater runoff from Regulated Projects to the maximum extent~~

[1] **Joint stormwater treatment facility** – Stormwater treatment facility built to treat the combined runoff from two or more Regulated Projects located adjacent to each other,

~~practicable. Permittees shall require Regulated Projects to install stormwater treatment systems (sized in accordance with~~ and ~~Provision~~ C.3.d,~~.) onsite or at a joint stormwater treatment facility,~~ unless the Provision C.3.e~~.~~ alternate compliance options are~~is~~ 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.

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 10,000 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~~, which~~ fall under the planning and building authority of a~~the~~ Permittee~~s~~:

(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) Uncovered parking lots that are stand-alone or part of any other development project. 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 ~~to this category~~ 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 **more than 50 percent** 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).

(e) For any private development project~~s~~ in the ~~this~~ categories~~y~~ specified in Provisions C.3.b.ii.(1)(i)-(iv) for which a planning application has been deemed complete by a Permittee on or before the Permit effective date, ~~that have received final, major, staff-level discretionary review and approval for adherence to applicable local, state, and federal codes and regulations, before July 1, 2011,~~ the lower 5000 square feet impervious surface threshold (for classification as a Regulated Project) shall not apply so long as the project applicant is diligently pursuing the project. Diligent pursuance may be demonstrated by the project applicant's submittal of supplemental information to the original application, plans, or other documents required for any necessary approvals of the project by the Permittee. If during the time period between the Permit effective date and the required implementation date of December 1, 2011, for the 5000 square feet threshold, the project applicant has not taken any action to obtain the necessary approvals from the Permittee, the project will then be subject to the lower 5000 square feet impervious surface threshold specified in Provision C.3.b.ii.(1).

(f) For any private development project in the categories specified in Provisions C.3.b.ii.(1)(i)-(iv) with an application deemed complete after the Permit effective date, the lower 5000 square feet impervious surface threshold (for classification as a Regulated Project) shall not apply if the project applicant has received final discretionary approval for the project before the required implementation date of December 1, 2011, for the 5000 square feet threshold. ~~Final, major, staff-level discretionary review and approvals are decisions by a public agency's or governmental body's staff that require the exercise of judgment or deliberation to approve or disapprove a particular development project, as distinguished from a determination that a development project has a complete application.~~

(g) For public projects for which funding has been committed and construction is scheduled to begin by December ~~July~~ 1, 2012, the lower 5000 square feet of impervious surface threshold (for classification as a Regulated Project) shall not apply.

Effective Date – Immediate, except ~~July~~ December 1, 2010, for Vallejo Permittees.

Beginning December ~~July~~ 1, 2011, all references to 10,000 square feet in Provision C.3.b.i.(1) change to 5,000 square feet.

(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 ~~which~~ fall under the planning and building authority of a~~the~~ Permittee~~s~~. Detached single-family home projects that are not part of a larger plan of development are specifically excluded.

Effective Date – Immediate, except December ~~July~~ 1, 2010, for Vallejo Permittees.

(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~~,~~ ~~which~~ fall under the planning and building authority of ~~the~~ a Permittee~~s~~.

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 **more than 50 percent** 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).

Effective Date – Immediate, except December ~~July~~ 1, 2010, for Vallejo Permittees.

(4) ~~New~~ **Road Projects**

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

(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. ~~or sidewalks;~~

(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 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 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 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 must 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.~~and~~

(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) ~~this category~~ are:

- Sidewalks built as part of ~~added to existing~~ new streets or roads and built to direct stormwater runoff to adjacent vegetated areas.
- Bicycle lanes that are 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.[2]
- Caltrans highway ~~road~~ projects and associated facilities.

(e) For any private road or trail project described by Provisions C.3.b.ii.(4)(b) or (c) for which a planning application has been deemed complete by a Permittee on or before the Permit effective date, the requirements of Provisions C.3.b.ii.(4)(b) or (c) to classify the project as a Regulated Project shall not apply so long as the project applicant is diligently pursuing the project. Diligent ~~pursuance may~~pursuance may be demonstrated by the project applicant's submittal of supplemental information to the original application, plans, or other documents required for any necessary approvals of the project by the Permittee. If during the time period between the Permit effective date and the required implementation date of December 1, 2011, for Provisions C.3.b.ii.(4)(b) and (c), the project applicant has not taken any action to obtain the necessary approvals from the Permittee, the project will then be classified as a Regulated Project under Provisions C.3.b.ii.(4)(b) or (c).

(f) For any private road or trail project with an application deemed complete after the Permit effective date, the requirements of Provisions C.3.b.i.(4)(b) or (c) to classify the project as a Regulated Project shall not apply if the project applicant has received final discretionary approval for the project before the required implementation date of December 1, 2011, for Provisions C.3.b.ii.(4)(b) and (c).

(g) For any public road or trail project for which funding has been committed and construction is scheduled to begin by December 1, 2012, the requirements of Provisions C.3.b.i.(4)(b) or (c) to classify the project as a Regulated Project shall not apply.

Effective Date – Immediate for C.3.b.ii.(4)(a) and (d)-(g), and December 1, 2011, for C.3.b.ii.(4)(b) and (c). For Vallejo Permittees: Immediate for C.3.b.ii.(4)(d)-(g), and December 1, 2011 for C.3.b.ii.(4)(a)-(c).
~~Immediate except July 1, 2010, for Vallejo Permittees.~~

iii. Green Street~~s~~ Pilot Projects

The Permittees shall cumulatively complete ten~~10~~ pilot green street~~s~~ projects that incorporate LID techniques for site design and treatment in accordance with Provision C.3.c~~.~~ and that provide stormwater treatment sized in accordance with Provision C.3.d. It is also desirable that they meet or exceed the Bay-Friendly Landscape Scorecard minimum requirements (see www.BayFriendly.org).

[2] **Permeable surfaces** include pervious concrete, porous asphalt, unit pavers, and granular materials.

(1) Parking lot projects that provide LID treatment in accordance with Provisions C.3.c~~.~~ and Provision C.3.d~~d~~. for stormwater runoff from the parking lot and street may be considered pilot green street projects.

(2) A Regulated Project (as defined in Provision C.3.b.ii~~.~~) may not be counted as one of the ten~~10~~ pilot green street projects.

(3) At least two pilot green street projects must be located in each of the following counties: Alameda, Contra Costa, San Mateo, and Santa Clara.

(4) The Permittees shall construct the ten~~10~~ pilot green street~~s~~ projects in such a manner that they, as a whole:

~~(1)~~(a) Are representative of the various types of streets: arterial, collector, and local; and

~~(2)~~(b) Contain the following key elements:

~~(a)~~(i) Stormwater storage for landscaping reuse or stormwater treatment and/or infiltration for groundwater replenishment through the use of natural feature systems;

~~(b)~~(ii) Creation of attractive streetscapes that enhance neighborhood livability by enhancing the pedestrian environment and introducing park-like elements into neighborhoods;

~~(c)~~(iii) Service as an urban greenway segment that connects neighborhoods, parks, recreation facilities, schools, mainstreets, and wildlife habitats;

~~(d)~~(iv) Parking management that includes maximum parking space requirements as opposed to minimum parking space requirements, parking requirement credits for subsidized transit or shuttle service, parking structures, shared parking, car sharing, or on-street diagonal parking;~~ and~~

~~(e)~~(v) Meets broader community goals by providing pedestrian and, where appropriate, bicycle access~~.~~; and

(vi) Located in a Priority Development Area as designated under the Association of Bay Area Government's and Metropolitan Transportation Commission's FOCUS[3] program.

(5) The Permittees shall conduct appropriate monitoring of these projects to document the water quality benefits achieved. Appropriate monitoring may include modeling using the design specifications and specific site conditions.

Due Date – All pilot green street~~s~~ projects shall be completed by December ~~July~~ 1, 2014~~3~~.

iv. Implementation Level – All elements of Provision C.3.b.i.-iii~~.~~ shall be fully implemented by the effective/due dates set forth in their respective sub-

[3] FOCUS is a regional incentive-based development and conservation strategy for the Bay Area.

provision~~this Permit~~, and a database or equivalent tabular format shall be developed and maintained that contains all the information listed under Reporting (Provision C.3.b.v.).

Due Dates for Full Implementation – See specific Effective Dates listed under Provisions C.3.b.ii~~.~~& iii. .The database or equivalent tabular format required by Provision C.3.b.iv~~.~~ shall be developed by December ~~July~~ 1, 2010. (For Vallejo Permittees: December ~~July~~ 1, 2011)

v. 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, multiunit 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 p~~P~~roject (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, ~~and/or~~ at a joint stormwater treatment facility, and/or at an offsite location~~; if alternate compliance refer to field (m)~~;

(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 ~~by Equivalent Offsite Treatment (see~~ Provision C.3.e.i.(1~~2)(a)~~), include information required in Provision C.3.b.v.(a) ~~– (i), (k), and~~ (l) for the offsite project; and

(ii) If alternative compliance will be provided by paying in-lieu fees in accordance with ~~be provided at a Regional Project (see~~ Provision C.3.e.i.(2~~)(b)~~), provide information required in

Provision C.3.b.v.(a)~~, (c) – (i), (k), and~~ (l) for the Regional Project. Additionally, provide a summary of the Regional Project's goals, duration, estimated completion date, total estimated cost of the Regional Project, and estimated monetary contribution ~~(see Equivalent Funds in Provision C.3.e.i.(2))~~ 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.~~; and~~

(2) **Pilot Green Streets Project Reporting - Provision C.3.b.iii.**

(a) On an annual basis, the Permittees shall report on the status of the pilot green street~~s~~ projects.

(b) For each completed project, the Permittees shall report the capital costs, operation and maintenance costs, ~~and~~ legal and procedural arrangements in place to address operation and maintenance and its associated costs, and the sustainable landscape measures incorporated in the project including, if relevant, the score from the Bay-Friendly Landscape Scorecard.

(c) The 2013 Annual Report shall contain a summary of all ~~completed~~ green street projects completed by January 1, 2013. The summary shall include for each completed project the following information:

(i) Location of project

(ii) Size of project, including total impervious surface treated

(iii) Map(s) of project showing areas where stormwater runoff will be treated by LID measures

(iv) Specific type(s) of LID treatment measures included

(v) Total and specific costs of project

(vi) Specific funding sources for project and breakdown of percentage paid by each funding source

(vii) Lessons learned, including recommendations to facilitate funding and building of future projects

(viii) Identification of responsible party and funding source for operation and maintenance.

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 ~~preserving undeveloped open space,~~ 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, ~~and~~ 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 ~~elements~~ 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;

~~(a)~~(ii) Conserve natural areas, ~~to the extent feasible,~~ including existing trees, other vegetation, and soils;

~~(b)~~(iii) Minimize impervious surfaces; ~~and~~

~~(c)~~(iv) Minimize disturbances to natural drainages; and

~~(d)~~(v) Minimize stormwater runoff by ~~I~~implementing one or more of the following site design measures:

- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff o~~i~~nto vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios o~~i~~nto vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots o~~i~~nto vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.[2~~3~~]
- Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.[2~~3~~]

(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.

(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) By May 1, 2011, the Permittees, collaboratively or individually, shall submit a report on the criteria and procedures the Permittees shall employ to determine when harvesting and re-use, infiltration, or evapotranspiration is feasible and infeasible at a Regulated Project site. This report shall, at a minimum, contain the information required in Provision C.3.c.iii.(1).

(v) By December 1, 2013, the Permittees, collaboratively or individually, shall submit a report on their experience with determining infeasibility of harvesting and re-use, infiltration, or evapotranspiration at Regulated Project sites. This report shall, at a minimum, contain the information required in Provision C.3.iii.(2).

(vi) Biotreatment 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. The planting and soil media for biotreatment systems shall be designed to sustain plan growth and maximize stormwater runoff retention and pollutant removal. By December 1, 2010, the Permittees, working collaboratively or individually, shall submit for Water Board approval, a proposed set of model biotreatment soil media specifications and soil infiltration testing methods to verify a long-term infiltration rate of 5 to 10 inches/hour. This submittal to the Water Board shall, at a minimum, contain the information required in Provision C.3.c.iii.(3). Once the Water Board approves ~~the~~ biotreatment soil media specifications and soil infiltration testing methods, the Permittees shall ensure that biotreatment systems installed to meet the requirements of Provision C.3.c~~.~~ and d~~.~~ comply with the Water Board--approved minimum specifications and soil infiltration testing methods.

(vii) Green roofs may be considered biotreatment systems that treat roof runoff only if they meet certain minimum specifications. By May 1, 2011, the Permittees shall submit for Water Board approval, proposed minimum specifications for green roofs. This submittal to the Water Board shall, at a minimum, contain the information required in Provision C.3.c.iii.(4). Once the Water Board approves ~~the~~ green roof minimum specifications, the Permittees shall ensure that green roofs installed to meet the requirements of Provision C.3.c~~.~~ and d~~.~~ comply with the Water Board--approved minimum specifications.

(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.

~~(e)After completion of the site design measures specified in Provision C.3.c.i.(2)(d), treat as much of the remaining stormwater runoff (this includes any runoff leaving the site design measures and runoff from any remaining impervious areas not addressed by site design measures) with systems that store for landscaping reuse and/or that infiltrate for purposes of augmenting groundwater supplies;~~

~~(f)Treat as much of the remaining runoff (after completion of Provisions C.3.c.i.(2)(d) and(e)) as practicable with natural feature systems (e.g.,~~

~~bioretention, vegetated swales, tree wells, planter boxes, and green roofs);~~

~~(g)Treat as much of the remaining runoff (after completion of Provisions C.3.c.i.(2)(d)-(f)) as practicable with conventional systems (e.g., extended detention basins);~~

~~(h)For the remaining runoff (after completion of Provisions C.3.c.i.(2)(d)-(g)), install vault-based treatment systems that are designed to reliably remove particle-bound and soluble pollutants;~~

~~(i)Properly design and construct vegetated areas to effectively receive and infiltrate or treat stormwater runoff from impervious areas, taking into consideration the vegetated/pervious areas' soil conditions, slope stability, and potential impacts on adjacent structures;~~

~~(3)Ensure that all stormwater treatment systems installed for Regulated Projects shall be constructed to meet the requirements of Provision C.3.d.~~

~~(4)Notify the Water Board Executive Officer prior to granting final discretionary approval to any Regulated Project that proposes to install vault-based treatment systems to provide primary treatment for 10-20% of the total Provision C.3.d specified runoff[4] from the site. These notifications shall include justification for the use off vault-based systems.~~

~~(5)Notify the Water Board Executive Officer prior to granting final discretionary approval to any Regulated Project that proposes to install vault-based treatment systems to provide primary treatment for more than 20% and up to 50% of the total Provision C.3.d specified runoff from the site. These notifications shall include justification for the use of vault-based systems and at a minimum, the justification shall include documentation of:~~

~~(a)Site constraints that prevent all Provision C.3.d. specified runoff from being treated with landscape-based treatment measures onsite; and~~

~~(b)The infeasibility of providing Equivalent Offsite Treatment[7] (as allowed under Provision C.3.e.) for the stormwater runoff proposed to be treated by the vault-based systems.~~

~~(6)Obtain approval from the Water Board Executive Officer prior to granting final discretionary approval to any Regulated Project that proposes to install vault-based treatment systems to provide primary treatment for more than 50% of the total Provision C.3.d. specified runoff[4] from the site. To obtain approval, the Permittee or Regulated Project shall submit documentation of:~~

~~(a)Site constraints that prevent all Provision C.3.d. specified runoff from being treated with landscape-based treatment measures onsite; and~~

~~(b)The infeasibility of providing Equivalent Offsite Treatment[7] (as allowed under Provision C.3.e.) for the stormwater runoff proposed to be treated by the vault-based systems.~~

[4] **Total Provision C.3.d. specified runoff** - the total amount of Provision C.3.d specified runoff from the Regulated Project if Provisions C.3.c.i.(2)(d)-(h) were not implemented.

ii. Implementation Level – All elements of the tasks described in Provision C.3.c.i~~.~~ shall be fully implemented.

Due Date for Full Implementation – December ~~July~~ 1, 2011~~0~~

(1) For any private development project for which a planning application has been deemed complete by a Permittee on or before the Permit effective date, Provision C.3.c.i~~.~~ shall not apply so long as the project applicant is diligently pursuing the project. Diligent pursuance may be demonstrated by the project applicant's submittal of supplemental information to the original application, plans, or other documents required for any necessary approvals of the project by the Permittee. If during the time period between the Permit effective date and the required implementation date of December 1, 2011, the project applicant has not taken any action to obtain the necessary approvals from the Permittee, the project will then be subject to the requirements of Provision C.3.c.i.

(2) For any private development project with an application deemed complete after the Permit effective date, the requirements of Provision C.3.c.i~~.~~ shall not apply if the project applicant has received final discretionary approval for the project before the required implementation date of December 1, 2011. ~~For development projects that have received final, major, staff-level discretionary review and approval[2] for adherence to applicable local, state, and federal codes and regulation before July 1, 2010, the requirements of Provision C.3.c.i. shall not apply. Final, major, staff-level discretionary review and approval are decisions by a public agency's or governmental body's staff that require the exercise of judgment or deliberation to approve or disapprove a particular development project, as distinguished from a determination that a development project has a complete application.~~

(3) For public projects for which funding has been committed and construction is scheduled to begin by December ~~July~~ 1, 201~~1~~2, the requirements of Provision C.3.c.i~~.~~ shall not apply.

iii. Reporting

(1) Feasibility/Infeasibility Criteria Report - By May 1, 2011, the Permittees, collaboratively or individually, shall submit a report to the Water Board containing the following information:

- Literature review and discussion of documented cases/sites, particularly in the Bay Area and California, where infiltration, harvesting and reuse, or evapotranspiration have been demonstrated to be feasible and/or infeasible.
- Discussion of proposed feasibility and infeasibility criteria and procedures the Permittees shall employ to make a determination of when biotreatment will be allowed at a Regulated Project site.

(2) Status Report on Application of Feasibility/Infeasibility Criteria – By December 1, 2013, the Permittees shall submit a report to the Water Board containing the following information:

- Discussion of the most common feasibility and infeasibility criteria employed since implementation of Provision C.3.c~~.~~ requirements, including site-specific examples;~~s.~~
- Discussion of barriers, including institutional and technical site specific constraints, to implementation of ~~infiltration,~~ harvesting and reuse, infiltration, or evapotranspiration, and proposed strategies for removing these identified barriers;~~.~~
- If applicable, discussion of proposed changes to feasibility and infeasibility criteria and rationale for the changes; and
- Guidance for the Permittees to make a consistent and appropriate determination of the feasibility of ~~infiltration,~~ harvesting and reuse, infiltration, or evapotranspiration for each Regulated Project.

(3) Model Biotreatment Soil Media Specifications - By December 1, 2010, the Permittees, collaboratively or individually, -shall submit a report to the Water Board containing the following information:

- Proposed soil media specifications for biotreatment systems;~~.~~
- Proposed soil testing methods to verify a long-term infiltration rate of 5-10 inches/hour;~~.~~
- Relevant literature and field data showing the feasibility of the minimum design specifications;~~.~~
- Relevant literature, field, and analytical data showing adequate pollutant removal and compliance with the Provision C.3.d~~.~~ hydraulic sizing criteria; and ~~.~~
- Guidance for the Permittees to apply the minimum specifications in a consistent and appropriate manner.

(4) Green Roof Minimum Specifications - By May 1, 2011, the Permittees, collaboratively or individually, -shall submit a report to the Water Board containing the following information:

- Proposed minimum design specifications for green roofs;~~.~~
- Relevant literature and field data showing the feasibility of the minimum design specifications;~~.~~
- Relevant literature, field, and analytical data showing adequate pollutant removal and compliance with the Provision C.3.d~~.~~ hydraulic sizing criteria~~.~~;
- Discussion of data and lessons learned from already installed green roofs;~~.~~
- Discussion of barriers, including institutional and technical site specific constraints, to installation of green roofs and proposed strategies for removing these identified barriers; and~~.~~
- Guidance for the Permittees to apply the minimum specifications in a consistent and appropriate manner.

(5) Report the method(s) of implementation of Provisions C.3.c.ii. above in the 20121 Annual Report. 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.

ii. Implementation Level – The Permittees shall immediately require the controls in this task.

Due Date for Full Implementation – Immediate, except July December 1, 2010, for Vallejo Permittees.

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

iv. 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~~s~~ C.3.c~~b~~.

i. The Permittees may allow a Regulated Project to provide alternative compliance with Provision C.3.c~~c.~~ 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[5] to treat the remaining portion of the Provision C.3.d~~.~~ runoff with LID treatment measures at a Regional Project.[6] The Regional Project must achieve a net environmental benefit.

(3) For the alternative compliance options described in Provision C.3.e.i.(~~2~~1) and (2) ~~(a) (b)~~ above, offsite projects must be constructed by the end of construction of the Regulated ~~Infill or Redevelopment~~ Project. If more time is needed to construct the offsite project, for each additional year, up to three years, after the construction of the Regulated ~~Infill or Redevelopment~~ Project, the offsite project must provide an additional 10% of the calculated equivalent quantity of both stormwater runoff and pollutant loading.~~Equivalent Offsite Treatment~~[7]. Regional Projects must be completed within three~~3~~ years after the end of construction of the Regulated ~~Infill or Redevelopment~~ Project. However, the timeline for completion of the Regional Project may be extended, up to five~~5~~ years after the completion of the Regulated ~~Infill or Redevelopment~~ Project,

[5] **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.

[6] **Regional Project –** A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does.

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 types of smart growth, high density, and 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 types of Special Projects.

(2) By December 1, 2010, the Permittees shall submit a proposal to the Water Board containing the following information:

- Identification of the types of projects proposed for consideration of LID treatment reduction credits and an estimate of the number and cumulative area of potential projects during the remaining term of this P~~p~~ermit for each type of project;~~.~~
- Identification of institutional barriers and/or technical site--specific constraints to providing 100% LID treatment onsite that justify the allowance for non-LID treatment measures onsite;~~.~~
- Specific criteria for each type of Special Project proposed, including size, location, minimum densities, minimum floor area ratios, or other appropriate limitations;~~.~~
- Identification of specific water quality and environmental benefits provided by these types of projects that justify the allowance for non-LID treatment measures onsite;~~.~~
- Proposed LID treatment reduction credit for each type of Special Project and justification for the proposed credits. The justification shall include identification and an estimate of the specific water quality benefit provided by each type of Special Project proposed for LID treatment reduction credit; and~~.~~
- Proposed total treatment reduction credit for Special Projects that may be characterized by more than one category and justification for the proposed total credit.

~~**i.Task Description** – Each Permittee may allow any Regulated Project that is either:~~

- ~~An infill site development project (hereinafter called a Regulated Infill Project) or~~
- ~~A redevelopment project (hereinafter called a Regulated Redevelopment Project),~~

~~to provide alternative compliance with Provisions C.3.b.and C.3.d., which require that Regulated Projects install hydraulically sized stormwater treatment system(s) onsite or at a joint stormwater treatment facility. An infill site is a site in an urbanized area where the immediately adjacent parcels are developed with~~

~~one or more qualified urban uses[7] or at least 75% of the perimeter of the site adjoins parcels that are developed with qualified urban uses and the remaining 25% of the site adjoins parcels that have previously been developed for qualified urban uses and no parcel within the site has been created within the past 10 years. The two different types of Regulated Infill or Redevelopment Projects and the corresponding alternative compliance methods available to them are described below (also see flowchart in Attachment A):~~

~~(1)Exemption from Installing Hydraulically Sized Stormwater Treatment Systems: The Regulated Infill or Redevelopment Projects that may provide alternative compliance with Provision C.3.d. by Maximizing Site Design Treatment Controls[8] to provide as much onsite stormwater treatment as possible are listed below:~~

~~(a)Projects that meet USEPA's Brownfield Sites definition found in Public Law 107-118 (H.R. 2869) – "Small Business Liability Relief and Brownfields Revitalization Act" signed into law January 11, 2002, and that receive subsidy or similar benefits under a program designed to redevelop such sites;~~

~~(b)Low-income housing as defined under Government Code section 65589.5(h)(3), but limited to the actual low-income portion or low-income impervious area percentage of the project;~~

~~(c)Senior citizen housing development, as defined under California Civil Code section 51.11(b)(4); or~~

~~(d)Transit-Oriented Development projects. A Transit-Oriented Development is any development project that will be located within ½ mile of a transit station and will meet one of the criteria listed below. A transit station is defined as a rail or light-rail station, ferry terminal, bus hub, or bus transfer station. A bus hub or bus transfer station is required to have an intersection of three or more bus routes that are in service 16 hours a day, with a minimum route frequency of 15 minutes during the peak hours of 7 am to 10 am (inclusive) and 3 pm to 7 pm (inclusive).~~

~~(i)A housing or mixed-use development project with a minimum density of 30 residential units per acre and that provides:~~

- ~~No more than one parking space per residential unit, and~~

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7 ~~**Qualified urban uses** – commercial, public institutional, transit or transportation passenger facility use, retail use, residential development with at least a density of 18 development units per acre, or any combination thereof~~.

8 ~~**Maximizing Site Design Treatment Controls** is defined as including a minimum of one of the following specific site design and/or treatment measures:~~

- ~~Direct roof runoff into cisterns or rain barrels for reuse.~~
- ~~Direct roof runoff to vegetated areas.~~
- ~~Direct runoff from sidewalks, walkways, and/or patios into vegetated areas.~~
- ~~Direct runoff from driveways and/or uncovered parking lots into vegetated areas.~~
- ~~Construct sidewalks, walkways, and/or patios with permeable surfaces.~~
- ~~Construct bicycle lanes, driveways, and/or uncovered parking lots with permeable surfaces.~~
- ~~Install landscaped-based stormwater treatment measures (non-hydraulically-sized) such as swales, tree wells or bioretention gardens.~~

- ~~Visitor parking that does not exceed 10% of the total number of residential parking spaces; or~~

~~(ii)A commercial development project with a minimum floor area ratio (FAR) of three and that provides:~~

- ~~For restaurants, no more than 3 parking spaces per 1000 square feet.~~
- ~~For offices, no more than 1.25 parking spaces per 1000 square feet.~~
- ~~For retail, no more than 2.0 parking spaces for 1000 square feet.~~

~~Sharing of parking between uses within these maximums is allowed. Carshare, bicycle, and blue zone parking spaces are not subject to these maximums.~~

~~(2)All other Regulated Infill or Redevelopment Projects may provide alternative compliance by satisfying one or more of the following requirements after minimizing the new and/or replaced impervious surface onsite:~~

~~(a)Installing, operating and maintaining Equivalent Offsite Treatment[9] at an offsite project in the same watershed;~~

~~(b)Contributing Equivalent Funds[10] to a Regional Project[11]~~

~~For the alternatives described in Provision C.3.e.i.(2)(a)-(b) above, offsite projects must be constructed by the end of construction of the Regulated Infill or Redevelopment Project. If more time is needed to construct the offsite project, for each additional year, up to three years, after the construction of the Regulated Infill or Redevelopment Project, the offsite project must provide an additional 10% of the calculated Equivalent Offsite Treatment[7]. Regional Projects must be completed within 3 years after the end of construction of the Regulated Infill or Redevelopment Project. However, the timeline for completion of the Regional Project may be extended, up to 5 years after the completion of the Regulated Infill or Redevelopment 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.~~

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[9] ~~**Equivalent Offsite Treatment** – Hydraulically-sized treatment (in accordance with Provision C.3.d.), using landscape-based treatment measures, and associated operation and maintenance of:~~

~~1.An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project;~~

~~2.An equivalent amount of pollutant loading as that created by the Regulated Project; or~~

~~3.1.An equivalent quantity of runoff from similar land uses as that created by the Regulated Project.~~

[10] ~~**Equivalent Funds** – Monetary amount necessary to provide both:~~

~~1.Hydraulically-sized treatment (in accordance with Provision C.3.d.) of:~~

a. ~~An equal area of new and/or replaced impervious surface of similar land uses as that created by the Regulated Project;~~

~~b.An equivalent amount of pollutant loading as that created by the Regulated Project; or~~

~~c.An equivalent quantity of runoff from similar land uses as that created by the Regulated Project; and,~~

2. ~~A proportional share of the operation and maintenance costs of the Regional Project.~~

[11] ~~**Regional Project** – A regional or municipal stormwater treatment facility that discharges into the same watershed that the Regulated Project does.~~

~~ii.~~**iii.** **Effective Date** – December ~~July~~ 1, 2011. ~~0 except July 1, 2011, for Vallejo Permittees~~.

~~iii.~~**iv.** **Implementation Level**

(1) For any private development project for which a planning application has been deemed complete by a Permittee on or before the Permit effective date, Provisions C.3.e.i.~~-~~-ii~~.~~ shall not apply so long as the project applicant is diligently pursuing the project. Diligent pursuance may be demonstrated by the project applicant's submittal of supplemental information to the original application, plans, or other documents required for any necessary approvals of the project by the Permittee. If during the time period between the Permit effective date and the required implementation date of December 1, 2011, the project applicant has not taken any action to obtain the necessary approvals from the Permittee, the project will then be subject to the requirements of Provision C.3.c.i.~~.~~-ii.

(2) For public projects for which funding has been committed and construction is scheduled to begin by December 1, 2012, the requirements of Provisions C.3.e.i-ii~~.~~ shall not apply.

~~(1)~~(3) Provisions C.3.e.i-ii~~.~~ supersede any ~~For Permittees with~~ Alternative Compliance Policies previously approved by the Executive Officer~~, these Programs/Policies shall be either rescinded or modified to be consistent with Provision C.3.e. of this Permit by July 1, 2010.~~

~~(2)For Permittees without Alternative Compliance Policies previously approved by the Executive Officer, Provision C.3.e is optional. However, any Alternative Compliance Policy implemented by the Permittees shall be consistent with Provision C.3.e.~~

~~(3)~~(4) For all offsite projects and Regional Projects installed in accordance with Provision C.3.e.i~~.~~ ~~(2)(a) and (b)~~, the Permittees shall meet the Operation & Maintenance (O&M) requirements of Provision C.3.h.

~~iv.~~**v.** **Reporting** –The ~~Any~~ Permittees ~~implementing Provision C.3.e.~~ shall submit the ordinance/legal authority and procedural changes made, if any, to implement Provision C.3.e~~.~~ with their 2012 ~~first~~ Annual Report ~~after implementation~~. Annual reporting thereafter 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 the 2012 Annual Report and all subsequent Annual Reports.

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 ~~3~~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[12] 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. Contra Costa Permittees, when using ~~the two~~ pre-sized and pre-designed Integrated Management Practices (IMPs) ~~, the "Flow Through Planter" and the "Swale"~~ per Attachment C of this Order, are not required to meet the low-flow criterion of 10% of the 2-year peak flow. These ~~two~~ IMPs are designed to control 20% of the 2-year peak ~~to the specified low~~ flow~~s~~. After the Contra Costa Permittees conduct the required monitoring specified in Attachment C, the design of these IMPs will be reviewed.

(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 (except for the Vallejo 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

iii. Types of HM Controls

[12] 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).

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

(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.[13]

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), biodetention 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~~.~~

[13] 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–F.

v. Vallejo Permittees shall complete the following tasks in lieu of complying with Provisions C.3.g.i.-iv.

(1) Develop a Hydrograph Modification Management Plan (HMP) for meeting the requirements of Provisions C.3.g.i.–iv. The Vallejo Permittees' HMP shall be subject to approval by the Water Board.

(2) Vallejo Permittees shall include the following in their HMP:

(a) A map of the City of Vallejo, delineating areas where the HM Standard applies. The HM Standard shall apply in all areas except where a project:

- discharges stormwater runoff into creeks or storm drains that are concrete-lined or significantly hardened (e.g., with rip-rap, sackrete) downstream to their outfall in San Francisco Bay;
- discharges to an underground storm drain discharging to the Bay; or
- is located in a highly developed watershed.[14]

However, plans to restore a creek reach may reintroduce the applicability of HM controls, and would need to be addressed in the HMP;

(b) A thorough technical description of the methods project proponents may use to meet the HM Standard. Vallejo Permittees shall use the same methodologies, or similar methodologies, to those already in use in the Bay Area to meet the HM Standard. Contra Costa sizing charts may be used on projects up to ten acres after any necessary modifications are made to the sizes to control runoff rates and durations from ten percent of the pre-project 2-year peak flow to the pre-project 10-year peak flow, and adjustments are made for local rainfall and soil types;

(c) A description of any land use planning measures the City of Vallejo will take (e.g., stream buffers and stream restoration activities, including restoration-in-advance of floodplains, revegetation, and use of less-impacting facilities at points of discharge) to allow expected changes in stream channel cross sections, stream vegetation, and discharge rates, velocities, and/or durations without adverse impacts on stream beneficial uses;

(d) A description of how the Vallejo Permittees will incorporate these requirements into their local approval processes, and a schedule for doing so; and

(e) Guidance for City of Vallejo project proponents explaining how to meet the HM Standard.

[14] Within the context of Provision C.3.g., "highly developed watersheds" refers to catchments or subcatchments that are 65% impervious or more.

(3) Vallejo Permittees shall complete the HMP according to the schedule below. All required documents shall be submitted acceptable to the Executive Officer, except the HMP, which shall be submitted to the Water Board for approval. Vallejo Permittees shall report on the status of HMP development and implementation in each Annual Report and shall also provide a summary of projects incorporating measures to address Provision C.3.g~~.~~ and the measures used.

- By April 1~~November 30~~, 201~~0~~1, submit a detailed workplan and schedule for completion of the information required in Provision C.3.g.vi.(2).
- By December ~~July~~ 1, 2011, submit the map required in Provision C.3.g.v.(2)(a).
- By April 1~~November 30~~, 201~~1~~2, submit a draft HMP.
- By December ~~July~~ 1, 2012, provide responses to Water Board comments on the draft HMP so that the final HMP is submitted for Water Board approval by July 1, 2013.
- Upon adoption by the Water Board, implement the HMP, which shall include the requirements of this measure. Before approval of the HMP by the Water Board, Vallejo Permittees shall encourage early implementation of measures likely to be included in the HMP.

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 ~~operation and maintenance~~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 ~~operation and maintenance~~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 ~~operation and maintenance~~ 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 written plan and implementation of the plan that describes ~~operation and maintenance~~ O&M (including inspection) of all Regional Projects[11] and regional HM controls that are Permittee-owned and/or operated.

(5) A database or equivalent tabular format of all Regulated Projects (public and private) that have installed onsite, joint, and/or offsite stormwater treatment systems. This database or equivalent tabular format shall include the following information for each Regulated Project:

(a) Name and address of the Regulated Project;

(b) Specific description of the location (or a map showing the location) of the installed stormwater treatment system(s) and HM control(s) (if any);

(c) Date(s) that the treatment system(s) and HM controls (if any) is/are installed;

(d) Description of the type and size of the treatment system(s) and HM control(s) (if any) installed;

(e) Responsible operator(s) of each treatment system and HM control (if any);

(f) Dates and findings of inspections (routine and follow-up) of the treatment system(s) and HM control(s) (if any) by the Permittee; and

(g) Any problems and corrective or enforcement actions taken.

(6) A prioritized plan for inspecting all installed stormwater treatment systems and HM controls. At a minimum, this prioritized plan must specify the following for each fiscal year:

(a) Inspection by the Permittee of all newly installed stormwater treatment systems and HM controls within 45 days 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 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 systems; and.

(d) Inspection by the Permittee of all installed stormwater treatment systems subject to Provision C.3., at least once every five5 years.

iii. Maintenance Approvals: The Permittees shall ensure that onsite, joint, and offsite stormwater treatment systems and HM controls installed by Regulated Projects are properly operated and maintained for the life of the projects. In cases where the responsible party for a stormwater treatment system or HM control has worked diligently and in good faith with the appropriate Ssstate and federal agencies to obtain approvals necessary to complete maintenance activities for the treatment system or HM control, 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 operation and maintenanceO&M requirements contained therein.

Due Date for Full Implementation: Immediate for Provisions C.3.h.i., C.3.h.ii.(1), and C.3.h.iii., -and December 1, 2010, for Provisions C.3.h.ii.(2)-(6).except For Vallejo Permittees: December July 1, 2010, for Provisions C.3.h.i.-iii., for Vallejo Permittees.

iv. Reporting: Beginning with the 2010 Annual Report

(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 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 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) 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 stormwater treatment measures and HM controls installed.

(3) Each Permittee shall report the following information in the A~~a~~nnual R~~r~~eport 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 ft^2 to < 10,000 ft^2 of impervious surface, and detached single-family home projects,[15] 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 o~~i~~nto vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios o~~i~~nto vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots o~~i~~nto vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.[2]
- Construct bike lanes, driveways, and/or uncovered parking lots with permeable surfaces.[2]

[15] **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.

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. **Implementation Level** – All elements of this task shall be fully implemented by December ~~July~~ 1, 2012.

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

iv. **Task Description** – The Permittees shall develop standard specifications for lot-scale site design and treatment measures (e.g., for roof runoff and paved areas) as a resource for single-family homes and small development projects.

v. **Implementation Level** – This task may be fulfilled by the Permittees cooperating on a countywide or regional basis.

Due Date for Full Implementation – December ~~July~~ 1, 2012.

vi. **Reporting** – A report containing the standard specifications for lot-scale treatment BMPs shall be submitted by December ~~July~~ 1, 2012.