



California Regional Water Quality Control Board

San Francisco Bay Region



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Governor

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Environmental
Protection

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Date: November 13, 2001
File No. 2182.05 (JBO)

Mr. Beau Goldie
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

**Subject: Transmittal of Order No. 01-119 for the Santa Clara Valley Urban Runoff
Pollution Prevention Program**

Dear Mr. Goldie:

Enclosed please find a copy of Order No. 01-119 which was adopted by the Board on October 17, 2001. The enclosed Order amends Order No. 01-024 for NPDES Permit No. CAS029718 for the Santa Clara Valley Urban Runoff Pollution Prevention Program, which was adopted by the Board on February 21, 2001.

Please note the various required submittals and due dates for reports and plans that are a part of the Order. We look forward to working with the Co-permittees in the development of these components of the NPDES Permit.

Please contact Jan O'Hara of my staff via email to jbo@rb2.swrcb.ca.gov or at (510) 622-5681 if you have any questions on this matter.

Sincerely,

original signed by

Loretta K. Barsamian
Executive Officer

Enclosure: Order No. 01-119
cc (with enclosure):

Adam Olivieri, EOA
Jill Bicknell, EOA *for distribution to Co-permittees*
Robert Falk, Morrison & Foerster
Mail List

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**ORDER NO. 01-119
NPDES PERMIT NO. CAS029718**

AMENDMENT REVISING PROVISION C.3. OF ORDER NO. 01-024 FOR:

SANTA CLARA VALLEY WATER DISTRICT, COUNTY OF SANTA CLARA, CITY OF CAMPBELL, CITY OF CUPERTINO, CITY OF LOS ALTOS, TOWN OF LOS ALTOS HILLS, TOWN OF LOS GATOS, CITY OF MILPITAS, CITY OF MONTE SERENO, CITY OF MOUNTAIN VIEW, CITY OF PALO ALTO, CITY OF SAN JOSE, CITY OF SANTA CLARA, CITY OF SARATOGA, AND CITY OF SUNNYVALE, which have joined together to form the SANTA CLARA VALLEY URBAN RUNOFF POLLUTION PREVENTION PROGRAM

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter referred to as the Regional Board, finds that:

Existing Permit and Revision of Provision C.3.

1. The Regional Board adopted Order No. 01-024 on February 21, 2001, reissuing waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES) permit for the Santa Clara Valley Urban Runoff Pollution Prevention Program (Program) for the discharge of stormwater to South San Francisco Bay and its tributaries. The Program's NPDES permit is jointly issued to the thirteen Cities of Santa Clara County named above, Santa Clara County and the Santa Clara Valley Water District, all of which are Co-permittees. These Co-permittees are referred to as the Dischargers.
2. As outlined in Finding 17 of Order No. 01-024, Provision C.3. of Order No. 01-024 is to be revised in response to the "Cities of Bellflower, et. al." decision by the State Water Resources Control Board (State Board Order No. 2000-11).
3. Order No. 01-024 recognizes the Santa Clara Valley Urban Runoff Management Plan (Management Plan) as the Dischargers' Comprehensive Control Program and requires implementation of the Management Plan, which describes a framework for management of stormwater discharges. The 1997 Management Plan describes the Program's goals and objectives and contains Performance Standards, which represent the baseline level of effort required of each of the Dischargers. The Management Plan contains Performance Standards for seven different stormwater management activities.

Nature of Discharges and Sources of Pollutants

4. **Urban Development Increases Pollutant Load, Volume, and Velocity of Runoff:** During urban development two important changes occur. First, where no urban development has previously occurred, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing a very effective natural

purification process. Because pavement and concrete can neither absorb water nor remove pollutants, the natural purification characteristics of the land are lost. Secondly, urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc., which can be washed into the municipal separate storm sewer system (MS4). As a result of these two changes, the runoff leaving a newly developed urban area may be significantly greater in volume, velocity and/or pollutant load than pre-development runoff from the same area.

5. Certain pollutants present in stormwater and/or urban runoff may be derived from extraneous sources that dischargers have limited or no direct jurisdiction over. Examples of such pollutants and their respective sources are: PAHs which are products of internal combustion engine operation and other sources; heavy metals, such as copper from brake pad wear and zinc from tire wear; dioxins as products of combustion; mercury resulting from atmospheric deposition; and natural-occurring minerals from local geology. All of these pollutants, and others, may be deposited on impervious surfaces and roof-tops as fine air-borne particles, thus yielding stormwater runoff pollution that is unrelated to the particular activity or use associated with a given new or redevelopment project. However, dischargers can implement treatment control measures, or require developers to implement treatment control measures, to reduce entry of these pollutants into stormwater and their discharge to receiving waters.
6. Pollutants present in stormwater can have damaging effects on both human health and aquatic ecosystems. In addition, the increased flows and volumes of stormwater discharged from new impervious surfaces resulting from new development and redevelopment can significantly impact beneficial uses of aquatic ecosystems due to physical modifications of watercourses, such as bank erosion and widening of channels.
7. **Water Quality Degradation Increases with Percent Imperviousness:** The increased volume and velocity of runoff from newly developed urban areas can greatly accelerate the erosion of downstream watercourses. A number of studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of beneficial uses of downstream watercourses. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. Typical medium-density single-family home projects developed in previously unurbanized locations, range between 25 to 60% impervious. Even at very low densities, such as 1-2 housing units per acre, some types of subdivisions built in previously unurbanized locations can result in more than a 10% increase in imperviousness.¹ Studies on the impacts of imperviousness on beneficial uses of waters include “Urbanization of aquatic systems: Degradation thresholds, stormwater detection, and the limits of mitigation,” Derek B. Booth and C. Rhett Jackson, *Journal of the American Water Resources Association* 33(5), Oct. 1997, pp. 1077-1089; “Urbanization and Stream Quality Impairment,” Richard D. Klein, *Water Resources Bulletin* 15(4), Aug. 1979, pp. 948-963; “Stream channel enlargement due to urbanization,” Thomas R. Hammer, *Water Resources Research* 8(6), Dec. 1972, pp. 1530- 1540; and, summaries of work on the impacts

¹A discussion of imperviousness based on type of development and time of construction is provided in Heaney, J.B., Pitt, R, and Field, R. **Innovative Urban Wet-Weather Flow Management Systems**, 1999. USEPA Doc. No. EPA/600/R-99/029 (Chapter 2).

of imperviousness, including “The Importance of Imperviousness,” in *Watershed Protection Techniques* 1(3), Fall 1994, pp. 100-111, and “Impervious surface coverage: The emergence of a key environmental indicator,” Chester L. Arnold et al., *Journal of the American Planning Association* 62(2), Spring 1996, pp. 243-259.

Implementation

8. This Order, revising Provision C.3., is intended to enhance the Dischargers’ existing Performance Standard for new development and significant redevelopment. This Order more clearly requires a level of implementation of best management practices (BMPs), including treatment measures in new development and significant redevelopment, that reflects the regulatory standard of maximum extent practicable (MEP). This is done through addition of requirements to more effectively incorporate source control measures, site design principles, and structural stormwater treatment controls in new development and redevelopment projects in order to reduce water quality impacts of stormwater runoff for the life of these projects. The consistent application of such measures is intended to greatly reduce the adverse impacts of new development and redevelopment on water quality and beneficial uses by reducing stormwater pollutant impacts, and impacts of increases in peak runoff rate.
9. Cost-effective opportunities to protect water quality in new and redevelopment may exist during the land use approval process. When a Discharger incorporates policies and principles designed to safeguard water resources into its General Plan and development project approval processes, it has taken a far-reaching step towards the preservation of local water resources for future generations.
10. The revised Provision C.3. is written with the assumption that Dischargers are responsible for considering potential stormwater impacts when making planning and land use decisions. The goal of these requirements is to address pollutant discharges and changes in runoff flows from significant new and redevelopment projects, through implementation of post-construction treatment measures, source control, and site design measures, to the maximum extent practicable. Neither Provision C.3. nor any of its requirements are intended to restrict or control local land use decision-making authority.
11. Opportunities for Dischargers to address stormwater pollution and hydrograph modification can be limited by their current local design standards and guidance. For example, such standards and guidance may reduce or prohibit opportunities to minimize impervious surfaces, minimize directly connected impervious area, provide for small-scale detention, and implement other management measures. Depending on the existing state of program development/implementation and site-specific conditions, revision of current standards and guidance may result in an increased ability for project designers to minimize project impacts. Revision of standards and guidance can allow implementation of site design measures in projects to meet or help meet the numeric sizing criteria in Provision C.3.d. and/or the hydrograph modification limitation in Provision C.3.f.
12. Provision C.3.f. requires Dischargers to prepare a Hydrograph Modification Management Plan (HMMP), for approval by the Regional Board, to manage impacts from changes to the volume and velocity of stormwater runoff from new development and significant

redevelopment projects, where these changes can cause excessive erosion damage to downstream watercourses. Transit village type developments within 1/4 mile of transit stations, and within the 80% developed urban core of cities, are unlikely to fall under the requirements of C.3.f. and the HMMP. This is due to the fact that significant change in impervious surface or significant change in stormwater runoff volume or timing is unlikely in this circumstance, because the development would be within a largely already paved catchment, and on a site that is largely already paved or otherwise impervious.

13. Certain BMPs implemented or required by Dischargers for urban runoff management may create a habitat for vectors (e.g., mosquitoes and rodents) if not properly designed or maintained. Close collaboration and cooperative effort between the Dischargers, local vector control agencies, the Regional Board staff, and the State Department of Health Services is necessary to identify appropriate vector control measures that minimize potential nuisances and public health impacts resulting from vector breeding, so that Dischargers and local vector control agencies can implement such control measures without undue adverse effects.

Public Process

14. The action to modify an NPDES Permit is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.
15. The Dischargers and interested agencies and persons have been notified of the Regional Board's intent to modify waste discharge requirements for the existing discharge and have been provided opportunities for public meetings and the opportunity to submit their written views and recommendations. The following is a brief summary of public meetings and comment periods on draft versions of this Order:
 - Oct. 13 - Nov. 13, 2000:** Formal public comment period on the Tentative Order for reissuance of the Program's entire NPDES permit. Comments were received from Co-permittees, environmental advocacy groups, and industry, and included comments on new development provision.
 - Nov. 7, 2000:** Regional Board staff held a stakeholder meeting during the formal public comment period to discuss permit issues. Significant unresolved comments remained on the new development provision.
 - Dec. 13, 2000:** Regional Board staff held a public stakeholder meeting on the new development provision.
 - Jan. 10, 2001:** Regional Board staff held a public stakeholder meeting on the new development provision.
 - Feb. 21, 2001:** The Program's NPDES permit is reissued, revision of Provision C.3. on new development is deferred to later date.
 - May 7, 2001:** Administrative draft of new development provision issued for discussion with stakeholders.
 - May 14, 2001:** Regional Board staff held a public stakeholder meeting on the new development provision.
 - May 18-June 18, 2001:** Formal public comment period for the May 18 Tentative Order containing the revised new development provision.
 - June 5, 2001:** Regional Board staff held a public stakeholder meeting on the new development provision.
 - August 6, 2001:** Regional Board staff held a public stakeholder meeting on the new development provision.
 - August 9 & 10, 2001:** Regional Board staff spoke at Bay Area Stormwater Management Agencies Association conferences, "Meeting New Requirements for Stormwater Controls in New and Redevelopment Projects" in Berkeley and Cupertino.

August 17 – Sept. 19, 2001: Formal public comment period for the August 17 Tentative Order containing the revised new development provision.

August 27, 2001: Executive Officer and Board staff met with officials from Milpitas, City of Santa Clara, San Jose, Sunnyvale, Palo Alto, and Santa Clara County to discuss provision revisions.

August 30, 2001: Board staff presented a Workshop in San Jose (courtesy of Altera Corporation) to (1) Bring newly involved stakeholders up to date on the proposed permit amendment, and (2) Get feedback on the specific requirements of revised Provision C.3., and possible provision language improvements.

Sept. 5, 2001: Board staff presented a Workshop in San Jose (courtesy of the SCVWD) to (1) Present and discuss example post-construction controls at development projects—how they work, how they are sized, and other technical details, and (2) Get feedback on the technical requirements of the revised permit Provision C.3., and possible provision language improvements.

Sept. 14, 2001: Executive Officer and Board staff met with officials from Milpitas, City of Santa Clara, San Jose, Sunnyvale, Palo Alto, Los Altos, Santa Clara County and the SCVWD to discuss provision revisions.

Sept. 20, 2001: Executive Officer gave a presentation on the new development provision to the Santa Clara Council of Cities.

Sept. 26, 2001: Executive Officer gave a presentation on the new development provision to the Silicon Valley Pollution Prevention Committee.

Sept. 28, 2001: Executive Officer met with officials from Milpitas, City of Santa Clara, San Jose, Sunnyvale, and the SCVWD to discuss provision revisions.

Oct. 1, 2001: Board staff met with members of the Western States Petroleum Association to discuss their concerns regarding regulation of retail gasoline outlets under Provision C.3.

16. The Regional Board has conducted public meetings to discuss the draft revised Provision C.3.as follows:

Nov. 18, 2000: Regional Board meeting - Informational Workshop on the Program's Permit Reissuance, focusing on the new development Provision C.3.

July 18, 2001: Regional Board meeting - Informational Workshop on the new development Provision C.3. proposed Tentative Order for permit amendment.

Sept. 19, 2001: Regional Board meeting – Informational Workshop on the types of stormwater treatment controls that are appropriate for new development and significant redevelopment under Provision C.3.

17. The Regional Board, through public testimony in public meetings and in written form, has received and considered all comments pertaining to the revision of Provision C.3.

IT IS HEREBY ORDERED that the Dischargers, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act as amended and regulations and guidelines adopted hereunder, shall comply with the following:

Provision C.3. New and Redevelopment Performance Standards of Order No. 01-024 is hereby revised to read as follows:

The Management Plan contains performance standards and supporting documents to address the post-construction and construction phase impacts of new and redevelopment projects on stormwater quality (Planning Procedures and Construction Inspection Performance Standards). The Dischargers shall continue to implement these

performance standards and continuously improve them to the maximum extent practicable in accordance with the following sections.

- a. Performance Standard Implementation:** The Dischargers shall continue to implement and continually improve, as necessary and appropriate, the following performance standards for planning procedures:
- i.** Each Discharger shall have adequate legal authority to implement new development control measures, including all requirements of this Provision C 3, as part of its development plan review and approval procedures, and other appropriate new development and redevelopment permitting procedures;
 - ii.** Each Discharger shall provide developers with information and guidance materials on site design guidelines, building permit requirements, and BMPs for stormwater pollution prevention early in the application process, as appropriate for the type of project;
 - iii.** Each Discharger shall require developers of projects that disturb a land area of five acres or more to demonstrate coverage under the State's General Permit for Storm Water Discharges Associated with Construction Activity;
 - iv.** Each Discharger shall require developers of projects with potential for significant erosion and planned construction activity during the wet season (as defined by local ordinance) to prepare and implement an effective erosion and/or sediment control plan or similar document prior to the start of the wet season;
 - v.** Each Discharger shall ensure that municipal capital improvement projects include stormwater quality control measures during and after construction, as appropriate for each project, and that contractors comply with stormwater quality control requirements during construction and maintenance activities; and,
 - vi.** Each Discharger shall provide training at least annually to its planning, building, and public works staffs on planning procedures, policies, design guidelines, and BMPs for stormwater pollution prevention.
- b. Development Project Approval Process:** Dischargers shall modify their project review processes as needed to incorporate the requirements of Provision C.3. Each Discharger shall include conditions of approval in permits for applicable projects, as defined in Provision C.3.c., to ensure that pollutant discharges are reduced by incorporation of treatment measures and other appropriate source control and site design measures, and increases in runoff flows are managed in accordance with C.3.f., to the maximum extent practicable. Such conditions shall, at a minimum, address the following goals:
- i.** Require project proponent to implement site design/landscape characteristics where feasible which maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious land coverage, so that post-development pollutant loads from a site have been reduced to the maximum extent practicable; and
 - ii.** For new and redevelopment projects that discharge directly to water bodies listed as impaired by a pollutant(s) pursuant to Clean Water Act Section 303(d), ensure that post-project runoff does not exceed pre-project levels for such pollutant(s), through

implementation of the control measures addressed in this provision, to the maximum extent practicable, in conformance with Provision C.1.

Modification of project review processes shall be completed by July 1, 2003, subject to a workplan, submitted by March 1, 2002, acceptable to the Executive Officer, identifying incremental progress already made and to be made toward this completion by July 1, 2003. If no acceptable workplan is received, modification of project review processes shall be completed by October 15, 2002.

- c. Applicable Projects – New and Redevelopment Project Categories:** New development and significant redevelopment projects that are subject to Provision C.3. are grouped into two categories based on project size. New and redevelopment projects that do not fall into Group 1 or Group 2 are not subject to the requirements of Provision C.3. Provision C.3. shall not apply to projects for which a privately-sponsored development application has been deemed complete by a Discharger or, with respect to public projects, for which funding has been committed, and for which construction is scheduled by October 15, 2003.
- i. Group 1 Projects:** Dischargers shall require Group 1 Projects to design and implement stormwater treatment BMPs to reduce stormwater pollution to the maximum extent practicable. Implementation of this requirement shall begin on July 15, 2003, subject to a workplan, submitted March 1, 2002, acceptable to the Executive Officer, identifying incremental progress already made and to be made toward implementation of C.3.c.i. by July 15, 2003. If no acceptable workplan is received, implementation of C.3.c.i. requirements shall begin on October 15, 2002. Group 1 Projects consist of all public and private projects in the following categories:
1. *Commercial, industrial, or residential developments that create one acre (43,560 square feet) or more of impervious surface, including roof area, streets and sidewalks.* This category includes any development of any type on public or private land, which falls under the planning and building authority of the Dischargers, where one acre or more of new impervious surface, collectively over the entire project site, will be created.
 2. *Streets, roads, highways, and freeways that are under the Dischargers' jurisdiction and that create one acre (43,560 square feet) or more of new impervious surface.* This category includes any newly constructed paved surface used for the transportation of automobiles, trucks, motorcycles, and other motorized vehicles.
 3. *Significant redevelopment projects.* This category is defined as a project on a previously developed site that results in addition or replacement which combined total 43,560 ft² or more of impervious surface on such an already developed site ("Significant Redevelopment"). Where a Significant Redevelopment project results in an increase of, or replacement of, more than fifty percent of the impervious surface of a previously existing development, and the existing development was not subject to stormwater treatment measures, the entire project must be included in the treatment measure design. Conversely, where a Significant Redevelopment project results in an increase of, or replacement of, less than fifty percent of the impervious surface of a previously existing development, and the existing development was not subject to stormwater treatment measures, only that affected portion must be included in treatment

design. Excluded from this category are interior remodels and routine maintenance or repair, including roof or exterior surface replacement and repaving.

- ii. **Group 2 Projects:** The Group 2 Project definition is in all ways the same as the Group 1 Project definition above, except that the size threshold of impervious area for new and Significant Redevelopment projects is reduced from one acre (43,560 ft²) to 5000 square feet. Dischargers shall require Group 2 Projects to design and implement stormwater treatment BMPs to reduce stormwater pollution to the maximum extent practicable. Implementation of this requirement shall begin on October 15, 2004, at which time the definition of Group 1 Project is changed to include all Group 2 Projects.
 - iii. **Alternative Project Proposal:** The Program may propose, for approval by the Regional Board, an alternative Group 2 Project definition. Any such proposal shall contain supporting information about the Dischargers' development patterns, and pollutant source information, that demonstrates that the proposed definition is comparable in effectiveness to the Group 2 Project definition (i.e., that a comparable development area and/or pollutant loading would be addressed under the proposed alternate definition). Proposals must be submitted by April 15, 2004, in order to be considered by the Regional Board before the Group 2 Project implementation date in C.3.c.ii.
- d. **Numeric Sizing Criteria For Pollutant Removal Treatment Systems:** All Dischargers shall require that treatment BMPs be constructed for applicable projects, as defined in C.3.c., that incorporate, at a minimum, the following hydraulic sizing design criteria to treat stormwater runoff. As appropriate for each criterion, the Dischargers shall use or appropriately analyze local rainfall data to be used for that criterion.
- i. **Volume Hydraulic Design Basis:** Treatment BMPs whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, shall be designed to treat stormwater runoff equal to:
 1. the maximized stormwater quality capture volume for the area, based on 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
 2. the volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Appendix D of the *California Stormwater Best Management Practices Handbook, (1993)*, using local rainfall data.
 - ii. **Flow Hydraulic Design Basis:** Treatment BMPs whose primary mode of action depends on flow capacity, such as swales, sand filters, or wetlands, shall be sized to treat:

1. 10% of the 50-year peak flow rate; or
2. 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
3. the flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

e. Operation and Maintenance of Treatment BMPs:

Each Discharger shall implement an operation and maintenance (O&M) verification program, which shall include the following:

- i. Compiling a list of properties (public and private) and responsible operators for all treatment BMPs. In addition, the Dischargers shall inspect a subset of prioritized treatment measures for appropriate operation and maintenance, on an annual basis, with appropriate follow-up and correction.
- ii. Verification at a minimum shall include: Where a private entity is responsible for O&M, the developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either
 1. A signed statement from the public entity assuming post-construction responsibility for treatment BMP maintenance and that the BMP meets all local agency design standards; or
 2. Written conditions in the sales or lease agreement, which require the recipient to assume responsibility for maintenance consistent with this provision; or
 3. Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the treatment BMPs; or
 4. Any other legally enforceable agreement or mechanism that assigns responsibility for the maintenance of post-construction treatment BMPs.
- iii. **O&M Reporting:** The Dischargers shall report on their Treatment BMPs Operation and Maintenance Verification program in each Annual Report. The Annual Report shall contain: a description of the organizational structure of the Discharger's O&M Verification program; an evaluation of the Discharger's O&M verification program's effectiveness; summary of any planned improvements in O&M Verification; and a list or summary of treatment BMPs that have been inspected that year with inspection results.

f. Limitation on Increase of Peak Stormwater Runoff Discharge Rates:

- i. The Dischargers shall manage increases in peak runoff flow and increased runoff volume, for all Group 1 Projects, where such increased flow and/or volume can cause increased erosion of creek beds and banks, silt pollutant generation, or other impacts to beneficial uses. Such management shall be through implementation of a Hydrograph Modification Management Plan (HMMP), developed by the Program and approved by the Regional Board within two years after adoption of this Order. The HMMP, once approved by the Regional Board, will be implemented so that post-project runoff shall not exceed estimated pre-project rates and/or durations, where the

- increased stormwater discharge rates and/or durations will result in increased potential for erosion or other adverse impacts to beneficial uses, attributable to changes in the amount and timing of runoff. The term duration in this section is defined as the period that flows are above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams.
- ii.** This requirement does not apply to new development and redevelopment projects where the project discharges stormwater runoff into creeks or storm drains where the potential for erosion, or other impacts to beneficial uses, is minimal. Such situations may include discharges into creeks that are concrete-lined or significantly hardened (e.g., with rip-rap, sackrete, etc.) downstream to their outfall in San Francisco Bay, underground storm drains discharging to the Bay, and construction of infill projects in highly developed watersheds, where the potential for single-project and/or cumulative impacts is minimal. Guidelines for identification of such situations shall be included as a part of the HMMP. However, plans to restore a creek reach may re-introduce the applicability of HMMP controls, and would need to be addressed in the HMMP.
 - iii.** The HMMP may identify conditions under which some increases in runoff may not have a potential for increased erosion or other impacts to beneficial uses. Reduced controls or no controls on peak stormwater runoff discharge rates and/or durations may be appropriate in those cases, subject to the conditions in the HMMP. In the absence of information demonstrating that changes in post-development runoff discharge rates and durations will not result in increased potential for erosion or other adverse impacts to beneficial uses, the HMMP requirements shall apply.
 - iv.** The HMMP proposal shall include:
 - 1.** A review of the pertinent literature;
 - 2.** A protocol to evaluate potential hydrograph change impacts to downstream watercourses from proposed projects;
 - 3.** An identification of the rainfall event below which these standards and management requirements apply, or range of rainfall events to which this limitation applies;
 - 4.** A description of how the Dischargers will incorporate these requirements into their local approval processes, or the equivalent; and
 - 5.** Guidance on management practices and measures to address identified impacts.
 - v.** The identified maximum rainfall event or rainfall event range may be different for specific watersheds, streams, or stream reaches. Individual Dischargers may utilize the protocol to determine a site- or area-specific rainfall event standard.
 - vi.** The HMMP's evaluation protocols, management measures, and other information may include the following:
 - 1.** Evaluation of the cumulative impacts of urbanization of a watershed on stormwater discharge and stream morphology in the watershed;
 - 2.** Evaluation of stream form and condition, including slope, discharge, vegetation, underlying geology, and other information, as appropriate;
 - 3.** Implementation of measures to minimize impervious surfaces and directly connected impervious area in new development and redevelopment projects;

4. Implementation of measures including stormwater detention, retention, and infiltration;
 5. Implementation of land use planning measures (e.g., stream buffers and stream restoration activities, including restoration-in-advance of floodplains, revegetation, use of less-impacting facilities at the point(s) of discharge, etc.) to allow expected changes in stream channel cross sections, stream vegetation, and discharge rates, velocities, and/or durations without adverse impacts to stream beneficial uses;
 6. A mechanism for pre- vs. post-project assessment to determine the effectiveness of the HMMP and to allow amendment of the HMMP, as appropriate; and,
 7. Other measures, as appropriate.
- vii. Equivalent limitation of peak flow impacts:** The Dischargers may develop an equivalent limitation protocol, as part of the HMMP, to address impacts from changes in the volumes, velocities, and/or durations of peak flows through measures other than control of those volumes and/or durations. The protocol may allow increases in peak flow and/or durations, subject to the implementation of specified BMPs and land planning practices that take into account expected stream change (e.g., increases in the cross-sectional area of stream channel) resulting from changes in discharge rates and/or durations, while maintaining or improving beneficial uses of waters.
- viii.** The Program shall complete the HMMP according to the schedule below. All required documents shall be submitted acceptable to the Executive Officer, except the HMMP, which shall be submitted for approval by the Regional Board. Development and implementation status shall be reported in the Dischargers' Annual Reports, which shall also provide a summary of projects incorporating measures to address this section and the measures used.
1. March 1, 2002: Submit a detailed workplan and schedule for completion of the literature review, development of a protocol to identify an appropriate limiting storm, development of guidance materials, and other required information;
 2. September 15, 2002: Submit literature review;
 3. March 1, 2003: Submit a draft HMMP, including the analysis that identifies the appropriate limiting storm and the identified limiting storm event(s) or event range(s);
 4. October 15, 2003: Submit the HMMP for Regional Board approval; and,
 5. Upon adoption by the Regional Board, implement the HMMP, which shall include the requirements of this measure. Prior to approval of the HMMP by the Regional Board, the early implementation of measures likely to be included in the HMMP shall be encouraged by the Dischargers
- g. Waiver Based on Impracticability and Compensatory Mitigation:**
- i. The Dischargers may establish a program under which a project proponent may request a waiver from the requirement to install treatment BMPs for a given project, upon an appropriate showing of impracticability, and with provision to treat an equivalent pollutant loading or quantity of stormwater runoff, or provide other equivalent water quality benefit.. The location of this equivalent stormwater treatment, or water quality benefit, would be where no other requirement for treatment

exists, within the same stormwater runoff drainage basin and treating runoff discharging to the same receiving water, where feasible. The Program and the Dischargers should specifically define the basis for impracticability or infeasibility, which may include situations where treatment is technically feasible, but excessively costly, as determined by set criteria.

- ii. **Regional Solutions:** The waiver program may allow a project to participate in a regional or watershed stormwater treatment facility, without a showing of impracticability on the individual project site, if the regional or watershed stormwater treatment facility discharges into the same receiving water, where feasible.
- iii. The Program is encouraged to propose a model waiver program on behalf of the Dischargers, for approval by the Regional Board, and for potential adoption and implementation by the Dischargers.
- iv. The waiver program proposal should state the criteria for granting waivers; criteria for determining impracticability or infeasibility; and criteria for use of regional or watershed stormwater treatment facilities. The proposal should also describe how the project sponsor will provide equivalent water quality benefits or credit to an alternative project or to a regional or watershed treatment facility and tracking mechanisms to support the reporting requirements set forth in Section C.3.g.v. below.
- v. **Reporting:** Each year, as part of its Annual Report, each Discharger shall provide a list of the waivers it granted. For each project granted a waiver, the following information shall be provided:
 - 1. Name and location of the project for which the waiver was granted;
 - 2. Project type (e.g., restaurant, residence, shopping center) and size;
 - 3. Percent impervious surface in final design;
 - 4. Reason for granting the waiver;
 - 5. Terms of the waiver; and,
 - 6. The stormwater treatment project receiving the benefit, and the date of completion of the project.
- vi. **Interim Waiver:** In the event that a waiver program has not been proposed by the Program, approved by the Regional Board, or implemented by a particular Discharger by the date of implementation of Group 1 Projects, an interim waiver may be granted by a Discharger. An interim waiver may be granted if the project proponent (1) demonstrates impracticability due to extreme limitations of space for treatment and lack of below grade surface treatment options, and (2) presents assurance of provision of equivalent stormwater pollutant and/or volume treatment at another location within the drainage basin, for which construction of stormwater treatment measures is not otherwise required, discharging into the same receiving water, where feasible. The Discharger will be responsible for assuring that equivalent treatment has occurred for any use of this interim waiver, within six months of project construction, and will report the basis of impracticability and the nature of equivalent treatment for each project in its Annual Report. Any equivalent treatment that does not include construction of

stormwater treatment BMPs must be approved by the Executive Officer. This interim waiver clause will be void when the waiver program described in C.3.g.i-iv. above is approved by the Regional Board.

h. Alternative Certification of Adherence to Design Criteria for Stormwater

Treatment Measures: In lieu of conducting detailed review to verify the adequacy of measures required pursuant to Provisions C.3.d. and C.3.f., a Discharger may elect to accept a signed certification from a Civil Engineer or a Licensed Architect or Landscape Architect registered in the State of California, or another Discharger that has overlapping jurisdictional project permitting authority, that the plan meets the criteria established herein. The Discharger should verify that each certifying person has been trained on BMP design for water quality not more than three years prior to the signature date, and that each certifying person understands the groundwater protection principles applicable to the project site (*see Provision C.3.i. Limitations on Use of Infiltration Treatment Measures*). Training conducted by an organization with stormwater treatment BMP design expertise (e.g., a university, American Society of Civil Engineers, American Society of Landscape Architects, American Public Works Association, or the California Water Environment Association) may be considered qualifying.

i. Limitations on Use of Infiltration Treatment Measures - Infiltration and

Groundwater Protection: In order to protect groundwater from pollutants that may be present in urban runoff, treatment BMPs that function primarily as infiltration devices (such as infiltration trenches and infiltration basins) must meet, at a minimum, the following conditions:

- i. Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration devices are to be used;
- ii. Use of infiltration devices shall not cause or contribute to degradation of groundwater water quality objectives;
- iii. Infiltration devices shall be adequately maintained to maximize pollutant removal capabilities;
- iv. The vertical distance from the base of any infiltration device to the seasonal high groundwater mark shall be at least 10 feet. Note that some locations within the Dischargers' jurisdiction are characterized by highly porous soils and/or a high groundwater table; in these areas BMP approvals should be subject to a higher level of analysis (e.g., considering the potential for pollutants such as on-site chemical use, the level of pretreatment to be achieved, and similar factors);
- v. Unless stormwater is first treated by a means other than infiltration, infiltration devices shall not be recommended for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Discharger;

vi. Infiltration devices shall be located a minimum of 100 feet horizontally from any water supply wells.

j. Site Design Measures Guidance and Standards Development:

i. The Dischargers shall review their local design standards and guidance for opportunities to make revisions that would result in reduced impacts to water quality and beneficial uses of waters. In this event, the Dischargers shall make any such revisions and implement the updated standards and guidance, as necessary.

Areas that may be appropriate to address include the following, which are offered as examples:

1. Minimize land disturbance;
 2. Minimize impervious surfaces (e.g., roadway width, driveway area, and parking lot area), especially directly connected impervious areas;
 3. Minimum-impact street design standards for new development and redevelopment, including typical specifications (e.g., neo-traditional street design standards and/or street standards recently revised in other cities, including Portland, Oregon, and Vancouver, British Columbia);
 4. Minimum-impact parking lot design standards, including parking space maximization within a given area, use of landscaping as a stormwater drainage feature, use of pervious pavements, and parking maxima;
 5. Clustering of structures and pavement;
 6. Typical specifications or “acceptable design” guidelines for lot-level design measures, including:
 - Disconnected roof downspouts to splash blocks or “bubble-ups;”
 - Alternate driveway standards (e.g., wheelways, unit pavers, or other pervious pavements); and,
 - Microdetention, including landscape detention and use of cisterns.
 7. Preservation of high-quality open space;
 8. Maintenance and/or restoration of riparian areas and wetlands as project amenities, including establishing vegetated buffer zones to reduce runoff into waterways, allow for stream channel change as a stream’s contributing watershed urbanizes, and otherwise mitigate the effects of urban runoff on waters and beneficial uses of waters; and,
 9. Incorporation of supplemental controls to minimize changes in the volume, flow rate, timing, and duration of runoff, for a given precipitation event or events. These changes include cumulative hydromodification caused by site development. Measures may include landscape-based measures or other features to reduce the velocity of, detain, and/or infiltrate stormwater runoff.
- ii. The standards and guidance review shall be completed according to the schedule below. A summary of review, revision, and implementation status shall be submitted for acceptance by the Executive Officer and reported in the Dischargers’ Annual Reports.

1. No later than March 1, 2002: The Dischargers shall submit a detailed workplan and schedule for completion of the review, revision, and implementation of revised standards and guidance;
 2. No later than September 15, 2003: The Dischargers shall submit a draft review and analysis of local standards and guidance, opportunities for revision, and proposed revised standards and guidance; and,
 3. No later than September 15, 2004: The Dischargers shall incorporate any revised standards and guidance into their local approval processes and shall be fully implementing the revised standards and guidance.
- k. Source Control Measures Guidance Development:** The Dischargers shall, as part of their continuous improvement process, submit enhanced New and Redevelopment Performance Standards which summarize source control requirements for new and redevelopment projects to limit pollutant generation, discharge, and runoff, to the maximum extent practicable.

Examples of source control measures may include the following, which are offered as examples:

- i. Indoor mat/equipment wash racks for restaurants, or covered outdoor wash racks plumbed to the sanitary sewer;
- ii. Covered trash and food compactor enclosures with a sanitary sewer connection for dumpster drips and designed such that run-on to trash enclosure areas is avoided;
- iii. Sanitary sewer drains for swimming pools;
- iv. Sanitary drained outdoor covered wash areas for vehicles, equipment, and accessories;
- v. Sanitary sewer drain connections to take fire sprinkler test water;
- vi. Storm drain system stenciling;
- vii. Landscaping that minimizes irrigation and runoff, promotes surface infiltration where appropriate, minimizes the use of pesticides and fertilizers, and where feasible removes pollutants from stormwater runoff; and,
- viii. Appropriate covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas.

A model enhanced Performance Standard and proposed workplans for its implementation shall be submitted by March 1, 2003. Implementation shall begin no later than July 1, 2003, and the status shall thereafter be reported in the Dischargers' Annual Reports, which shall also provide appropriate detail on projects reflecting the application of the enhanced performance standards consistent with Provision C.3.b. above.

- l. Update General Plans:** At the next scheduled update/revision of its General Plan occurring after October 15, 2004, each Discharger shall confirm that it has incorporated water quality and watershed protection principles and policies into its General Plan or equivalent plan, to the extent necessary, if any, to require implementation of the measures required by Provision C.3. for applicable development projects. These principles and policies shall be designed to protect natural water bodies, reduce impervious land

coverage, slow runoff, and where feasible, maximize opportunities for infiltration of rainwater into soil. Such water quality and watershed protection principles and policies may include the following, which are offered as examples:

- i. Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and where feasible maximize on-site infiltration of runoff;
- ii. Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close as possible to, the source (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into an MS4;
- iii. Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition of such areas;
- iv. Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges;
- v. Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows;
- vi. Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss; and,
- vii. Reduce pollutants associated with vehicles and increased traffic resulting from development.

If amendments of General Plans are determined to be legally necessary to allow for implementation of any aspect of Provision C 3., such amendments shall occur by the implementation date of the corresponding component of the Provision.

- m. **Water Quality Review Processes:** When Dischargers conduct environmental review of projects in their jurisdictions, the Dischargers shall evaluate water quality effects and identify appropriate mitigation measures. This requirement shall be implemented by March 1, 2003. Questions that evaluate increased pollutants and flows from the proposed project include the following, which are offered as examples:
 - i. Would the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).
 - ii. Would the proposed project result in significant alteration of receiving water quality during or following construction?
 - iii. Would the proposed project result in increased impervious surfaces and associated increased runoff?

- iv. Would the proposed project create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes?
 - v. Would the proposed project result in increased erosion in its watershed?
 - vi. Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list? If so, will it result in an increase in any pollutant for which the water body is already impaired?
 - vii. Would the proposed project have a potentially significant environmental impact on surface water quality, to marine, fresh, or wetland waters?
 - viii. Would the proposed project have a potentially significant adverse impact on ground water quality?
 - ix. Will the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?
 - x. Will the project impact aquatic, wetland, or riparian habitat?
- n. Reporting, including Pesticide Reduction Measures:** The Dischargers shall demonstrate compliance with the requirements of Provision C.3. by providing in their Annual Reports the information described in Table 1, beginning with the dates shown in Table 1 and continuing thereafter. In addition, the following information shall be collected for annual report submittal, beginning six months after adoption of this amendment, unless otherwise specified below.
- i. For all new development and significant redevelopment projects which meet the Group 1 or Group 2 definitions in C.3.c., collect and report the name or other identifier, type of project (using the categories in Provision C.3.c.), site acreage or square footage, and square footage of new impervious surface. For significant redevelopment projects, the square footage of land disturbance will be reported.
 - ii. For projects that must implement treatment measures, report which treatment BMPs were used and numeric-sizing criteria employed, the operation and maintenance responsibility mechanism including responsible party, site design measures used, and source control measures required. This reporting shall begin in the annual report following the implementation date specified in C.3.c.
 - iii. A summary of the types of pesticide reduction measures required for those new development and significant redevelopment projects to be addressed under Provision C.3.c., and the percentage of such new development and significant redevelopment projects for which pesticide reduction measures were required. These measures are required under Provision C.9.d.ii., and relate directly to Provision C.3. requirements.
- o. Implementation Schedule:** The Dischargers shall implement the requirements of Provisions C.3.b. through C.3.n. according to the schedule in Table 2.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 17, 2001.

original signed by

Loretta K. Barsamian
Executive Officer

ATTACHMENTS:

Table 1. Summary of Annual and One-Time Reporting Requirements

Table 2. Implementation Schedule

Table 1. Summary of Annual and One-Time Reporting Requirements

Provision	Information to Report	Date
C.3.b <i>Develop't Project Approval Process</i>	List of any modifications made to development project approval process	2002 & 2003 annual reports
	Optional: Submit workplan for completion of C.3.b. requirements by July 1, 2003	March 1, 2002
C.3.c.i <i>Group 1 Workplan</i>	Optional: Submit workplan identifying incremental progress toward implementation of C.3.c.i. requirements by July 15, 2003	March 1, 2002
C.3.c.iii <i>Project Categories</i>	Optional: Propose an alternative minimum project size	April 15, 2004, may submit any time
C.3.e <i>O & M</i>	Details of O&M verification program: organizational structure, evaluation, proposed improvements, list/# of inspections and follow-up	beginning with 2003 annual report
C.3.f <i>Peak Runoff Limitation</i>	Submit a detailed workplan and schedule	March 1, 2002
	Submit literature review	Sept. 15, 2002
	Submit draft Hydrograph Modification Management Plan (HMMP)	March 1, 2003
	Submit final HMMP	October 15, 2003
C.3.g <i>Waiver</i>	Name and location of project which was granted a waiver; Project type and size; Percent impervious surface; Reason for granting the waiver; Terms of the waiver; The stormwater treatment project or regional treatment receiving the benefit, and the date of completion of the treatment project.	In each annual report; Begin the year a waiver is granted
C.3.h <i>Alternate Certification</i>	List the projects certified by someone other than a Discharger employee.	In each annual report
C.3.j <i>Site Design Guidance</i>	Summarize the status of review, revision, and implementation of Site Design Measures Guidance and standards	In each annual report, as applicable
	Submit workplan and schedule for revision of guidance	March 1, 2002
	Submit draft proposal of revised standards and guidance	Sept. 15, 2003
	Summarize how any revisions to site design standards and/or guidance have been incorporated into local approval process	Sept. 15, 2004 Annual report
C.3.k <i>Source Control</i>	Submit draft conditions of approval document for source control measures	Sept. 15, 2002
	Summarize how any revisions to source control measures guidance document have been implemented	2003 annual report

Table 1. Summary of Annual Reporting and One-Time Requirements, continued

C.3.l <i>General Plan</i>	Summarize any revisions to General Plans that direct land-use decisions and require implementation of consistent water quality protection measures for development projects	Year revision is made, no later than July 1, 2005
C.3.m <i>Environ'l Review</i>	Summarize any revisions to Environmental Review Processes	2003 & 2004 annual reports
C.3.n <i>Reporting</i>	List new development and redevelopment projects by name, type of project (using the categories in Provision C.3.c.), site acreage or square footage, square footage of new impervious surface. Where applicable, report treatment BMPs and numeric sizing criteria used, O&M responsibility mechanism, site design measures used, and source control measures required	In each annual report following implementation
	Describe the pesticide reduction measures required for new development and redevelopment projects; give percentage of new development and redevelopment projects for which pesticide reduction measures were required	In each annual report

Table 2: Implementation Schedule

Provision	Action	Implementation Date
C.3.b	Modify development project approval process as needed	July 1, 2003*
C.3.c <i>Project Categories</i>	Require stormwater treatment BMPs at Group 1 Projects	July 15, 2003*
	Require stormwater treatment BMPs at Group 2 Projects in addition to Group 1 Projects	October 15, 2004
	Optional: Propose an alternative minimum project size	Feb. 15, 2004
C.3.e <i>O & M</i>	Implement an O&M verification program for Group 1 Projects with structural in-ground BMPs such as sand filters, filter inlets, detention/ retention basins	July 15, 2003
	Implement an O&M verification program for Group 1 Projects with landscape and all other BMPs, such as vegetated swales, dry or wet ponds	October 15, 2003
	Begin reporting on O&M verification program in Annual Report	September 15, 2003

* This implementation date is subject to submittal of an acceptable workplan by March 1, 2002. If no acceptable workplan is received, the implementation date shall be October 15, 2002.

Table 2: Implementation Schedule, continued

C.3.f	Submit a detailed workplan and schedule	March 1, 2002
<i>Peak</i>	Submit literature review	Sept. 15, 2002
<i>Runoff</i>	Submit draft HMMP	March 1, 2003
<i>Limitation</i>	Submit final HMMP for Regional Board approval Implement HMMP	October 15, 2003 Following Regional Board approval
C.3.g <i>Waiver</i>	Report on any waiver(s) granted by the Discharger in Annual Report, due September 15 of each year	Begin the year a waiver is granted
C.3.j <i>Site Design</i>	Submit workplan and schedule for completion of review, revision, and implementation of design standards and guidance	March 1, 2002
	Submit draft proposal of revised standards and guidance	September 15, 2003
	Incorporate revisions into local process and fully implement site design standards and guidance	September 15, 2004
C.3.k <i>Source</i>	Submit draft conditions of approval document for source control measures	September 15, 2002
<i>Control</i>	Implement source control measures guidance document	March 1, 2003
C.3.l <i>General Plans</i>	Revise General Plans as necessary to direct land-use decisions and require implementation of consistent water quality protection measures for all development projects	July 1, 2005 or at next scheduled revision, whichever is first
C.3.m	Revise Environmental Review Processes as needed to evaluate water quality impacts of stormwater runoff from new development and significant redevelopment	March 1, 2003
C.3.n <i>Reporting</i>	See Table 1	See Table 1