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New Development Subcommittee
Proposed Agenda
August 5, 2008, 1:30 to 3:30 pm
South San Francisco's Water Quality Control Plant – Administration Building
195 Belle Air Road – South San Francisco

I. **Introductions, Announcements, Minutes & Agree on Agenda,** Matt Fabry (chair), All (5 min.)
Objective: Meet attendees, review and approve previous meeting summary, make announcements, and agree on agenda.

II. **Presentation and Request for Feedback on the Draft Sustainable Green Streets and Parking Lot Design Guidebook,** Kevin Robert Perry, Nevue Ngan Associates; Robert Dusenbury, Sherwood Design Engineers; Matt; Everyone (60 min.)
Objective: Understand how to best comment and provide feedback on this draft guidebook and agree on a deadline for commenting.

III. **Update on July TAC Meeting and Any Other Issues that Are Not Covered Elsewhere on the Agenda,** Matt (5 min.)
Objective: Obtain information from the TAC meeting.

IV. **Municipal Regional Stormwater Permit,** Matt, Everyone (10 min.)
Objective: Receive update on status of the MRP as it affects new development.

V. **Update on Statewide Construction General Permit**, Fred Jarvis (5 min.)
Objective: Receive update on status of the Statewide Construction NPDES General Permit.

VI. **Recent Fines for Stormwater Violations During Construction**, Fred (5 min.)
Objective: Receive information on recent enforcement by the USEPA.

VII. **Hydromodification Management Checklists,** Fred, Everyone (10 min.)
Objective: Approve the revised HM Applicability Checklist and Flow Duration Control Submittal Review Checklist.

VIII. SMCWPPP Website Redesign Update, Christine Horrisberger (5 min.)
Objective: Receive update on the website redesign.

IX. BASMAA Update, Leslie Lambert, Matt Fabry, Everyone (5 min.)
Objective: Receive an update on the activities of the BASMAA New Development Committee, including the BMP automatic sizing tool.

X. Roundtable Discussion, All (5 min.)
Objective: Obtain information about how municipalities are proceeding with erosion controls and implementation of Provision C.3.

XI. Next Meeting, Matt, All (5 min.)
Schedule next meeting for October 7.

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New Development Subcommittee Report

Meeting Date: June 3, 2008

Subcommittee Action: The following was agreed to:

1. Approve the summary of the February Subcommittee meeting.

Requested Technical Advisory Committee Action or Feedback/Guidance (if any): None.

Other Information/Announcements:

1. **FY 08-09 Budget**: The TAC approved the budget at its May meeting. The budget is the same as for FY 07-08, including a $75,000 contingency for the permit renewal and potential litigation.
2. **Litigation**: The National Resources Defense Council and the Santa Monica Baykeeper have sued the City of Malibu and Los Angeles County for failure to report exceedance of the stormwater standards. They also allege that the State Water Resources Control Board failed to evaluate the Basin Plan requirements for certain factors, including reasonable achievements and economic considerations.
3. **Leave of Absence**: Laura Prickett will be away through December. Fred Jarvis will take over New Development Subcommittee support until Laura's return in January.
4. **Statewide Construction General Permit**. The draft, revised permit is available and features a number of new requirements, including but not limited to numeric action levels and effluent limits, a risk-based approach, site soil characteristic monitoring, receiving water monitoring, new certification and training requirements, new notification and reporting requirements, and minimum BMPs. Adoption is anticipated in October 2008 and the permit would go into effect 100 days after it is adopted.
5. **Soil Guidelines**. The final soil guidelines have been posted on SMCWPPP's website. The ACCWP is considering updating their soil specifications to include microbial inoculation.
6. **Subcommittee Activities for FY 2008-09**. Activities to occur in the next fiscal year include a new flyer on C.3 compliance for small projects and a green streets workshop. The subcommittee also discussed updating the guidebook of site design examples, performing a survey of municipalities on the implementation of stormwater new development and construction inspection requirements.
7. **Construction Site Compliance Workshops**. In an effort to reduce costs and increase cost-effectiveness, future SFEP workshops will likely be held less frequently, cost more, and will not include a field trip portion.
8. **Statewide Water Efficient Landscaping Model Ordinance**. The new model ordinance features detailed irrigation requirements for water conservation and encourages post-construction BMPs. Adoption of the ordinance is anticipated this summer. The ordinance will go into effect two years from the date of its adoption but municipalities are encouraged to adopt the ordinance when it is ready.
9. **Municipal Regional Permit Update**: BASMAA met recently with Water Board staff to discuss ways to increase flexibility in the draft MRP provisions for PIP and Construction while maintaining accountability. Small stakeholder meetings are planned in June, with larger workshops to be held in July. A revised draft permit is due in August, and hearings are preliminarily scheduled to occur in October.
10. **Sustainable Green Streets and Parking Lots Work Group Update**: Grants were awarded to the cities of Belmont, Brisbane, Burlingame, Daly City and San Bruno. The project consultant is on track with the Sustainable Green Streets and Parking Lots technical guidance. A draft is anticipated by the end of this month with final approval planned in July. An optional survey on each municipality's development review practices was distributed.
11. **BASMAA**. The web-based Sizing Tool is scheduled for completion this summer. The tool will

size vegetated swales, pervious paving, bioretention areas and infiltration trenches.

12. **SMCWPPP Website Redesign Update**: The new website is anticipated to launch in June. The website will feature a private, members-only portion with a message board.
13. **Copper Gutters**. The city of Menlo Park has decided to issue an advisory against the use of copper gutters and downspouts instead of forbidding their use.

Subcommittee Work That Affects Other Subcommittees: None.

Next Steps:

1. The Subcommittee agreed to email to Laura comments on the draft Hydromodification Management Checklists by Tuesday, June 17th.

Dates of Next Meetings: Next regular meeting on August 5.

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SAN MATEO COUNTYWIDE WATER POLLUTION PREVENTION PROGRAM

New Development Subcommittee FY 2007/08 Meeting Attendance

Representing	Name	Phone Number	Meetings Attended					
			Aug	Oct	Dec	Feb	Apr[1]	June
Atherton	Michael Wasmann	650/752-0518	✓					
Belmont	Gilbert Yau	650/595-7467	✓	✓	✓	✓		✓
Brisbane	Matt Fabry (Program Coordinator)	415/508-2134	✓	✓	✓	✓	✓	✓
Burlingame	Eva Justimbaste	650/342-3727	✓	✓	✓	✓	✓	✓
	Lisa Whitman	650/558-7257	✓		✓	✓		✓
Colma	Muneer Ahmed	650/757-8894		✓	✓	✓		
	Joshua Rawley						✓	
Daly City	Jeanne Naughton	650/991-8033	✓	✓		✓		✓
East Palo Alto	Brad Tarr	650/853-3100						
EOA	Laura Prickett	510/832-2852 x 123	✓		✓	✓	✓	✓
	Fred Jarvis	510/832-2852 x 111		✓			✓	
	Christina Hovland	510/832-2852 x 126						✓
Foster City	Norm Dorais	650/286-3279						✓
	Elena Lee (resigned)		✓					
Half Moon Bay	Michelle Tangunan	650/726-8253						
Hillsborough	Jen Chen	650/375-7488				✓		✓
	Catherine Chan	650/579-3353						✓
	Maggie Cmejla (resigned)		✓		✓			
Menlo Park	Jennifer Ng	650/330-6743		✓	✓	✓		✓
	Virginia Parks		✓					
Millbrae	Khee Lim							
	Florian Ebo	650/259-2446	✓	✓			✓	
Pacifica	Lizzie Claycomb	650/738-7361						✓
	Christina Horrisberger	650/738-7444	✓	✓	✓	✓		✓
Portola Valley	Leslie Lambert	650/851-1700 x12	✓		✓	✓		✓
Redwood City	Jon Lynch	650/780-7371	✓		✓	✓		
	Susan Wheeler	650/780-7245				✓		✓
San Bruno	Laura Russell	650/616-7038	✓		✓	✓		✓
San Carlos	Serena Ponzo	650/802-4267		✓	✓	✓		
San Mateo	Martin Quan	650/522-7330			✓	✓		
County of San Mateo	Camille Leung	650/353-1826		✓	✓			✓
	Joe Camicia	650/599-1537	✓			✓	✓	✓
	Melissa Ross	650/599-1559						
South S.F.	Cassie Prudhel	650/829-3840	✓	✓		✓		
	Craig Lustenberger							✓
	Daniel Fulford							✓
	Frank Mandola	650/829-3880			✓		✓	
Woodside	Eunejune Kim	650/851-6790		✓	✓	✓		

[1] The April meeting was a field trip to view stormwater treatment measures in San Francisco.

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Hydromodification Management (HM) Applicability Worksheet

(To be completed by municipal staff, for projects that 1) create and/or replace 43,560 sq. ft. or more of impervious surface, and 2) submit a permit application that is deemed complete on or after June 12, 2007. Definitions of terms in bold text are included in the glossary section of the HM Applicability Worksheet Guidance and Glossary.)

1. Date of Application:_____ Type of application: ❑ parcel/tentative/vesting/tract map ❑ site development review ❑ building permit

2. Project Location or Address:_____, CA

3. Project Name (if applicable): _____

4. Applicant's Name:_____
   ❑ Owner ❑ Contractor ❑ Engineer/Architect ❑ Builder/Developer

5. Applicant's Phone:_____ 7a. Fax:_____ 7b. Email:_____

6. Parcel/Tract No.: _____ 8a. Lot No.:_____ 8b. APN # _____

7. Total Lot (or Parcel/Tract) Area in Sq.Ft:_____

8. Total amount of Impervious Surface Created and/or Replaced (obtain from the completed Impervious Surface Form): _____ sq. ft. *If the amount is less than 1 acre (43,560 sq. ft.), HM requirements do not apply to the project. Skip to Question 15 and check 15a.*

HM Susceptibility

9. Is the project located in an area subject to the hydromodification management (HM) standard? (See HM Control Area map in the HM standard permit amendment, www.flowstobay.org (click on Additional Resources).

	Check one:
Yes. *Skip to Question 11.*	❑
No. *Attach map, indicating project location. Skip to Question 15 and check 15a.*	❑
Further analysis required. *Continue to Question 10.*	❑

10. If the following condition is met, the project is considered exempt from the HM standard.

	Check if condition is met:
An engineer or qualified environmental professional has determined that runoff from the project flows only through a hardened channel or enclosed pipe along its entire length before emptying into a waterway in the exempt area. *(Attach signed statement by qualified professional. Skip to Question 15 and check 15a.)*	❑

Exempt Project Categories

11. Do any of the following exempt categories (listed as 11a through 11e) apply?
    - 11a. Single family home that is not part of a larger plan of development.
    - 11b. Transit village type development within ½ mile of an intermodal station or transit station.
    - 11c. A project in a Redevelopment Project Area that redevelops an existing brownfield site.
    - 11d. For street, road, highway or freeway projects ONLY, which are under the jurisdiction of the agency issuing the building permit, sidewalks, bicycle lanes, trails, bridge accessories, guardrails, and landscape features associated with the roadway project are exempt.
    - 11e. The project, or portion thereof, creates housing affordable to persons of low or moderate income.

    Check the box that applies (more options on Page 2):

    ❑ One or more of 11a through 11d applies, OR 11e applies to entire project. *The project must incorporate site design measures that minimize and/or slow the rate of runoff to the maximum extent practicable. Flow duration controls are not required. Go to Question 15, and check 15b.*

Exempt Project Categories (continued from Page 1):

- ❑ 11e applies to a portion of the project. *Enter the square footage of the exempt portion of the project and continue to Question 12:* _____ *sq. ft. meet the exempt category definition.*
- ❑ None of the categories in 11a through 11e apply. *Continue to Question 13.*

12. After subtracting the portion of impervious surface that creates housing affordable to persons of low or moderate income from the total impervious surface created and/ or replaced by the project (see Question 8), does the non-exempt area of impervious surface amount to 43,560 sq. ft. or more?
    - ❑ Yes. *Continue to Question 13.*
    - ❑ No. *Project must comply with the HM site design requirement[2]. Flow duration controls are not required. Skip to Question 15, and check 15b.*

Projects that Replace Impervious Surface

13. Does the project replace existing impervious surface (such as a building, parking lot, roadway, etc.) and is the total impervious area NOT increased from the pre-project condition?
    - ❑ Yes. *Continue to Question 14.*
    - ❑ No. *The project must incorporate site design measures that minimize and/or slow the rate of stormwater runoff from site AND implement flow duration controls designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations per Provision C.3.f.vii of the San Mateo Countywide NPDES permit amendment, which can be downloaded from www.flowstobay.org (click on Additional Information and scroll to the Hydromodification Provisions of the Countywide Permit). Skip to Question 15, and check 15c.*
14. Check the box that describes the results of the comparison[1] of pre- and post-project conditions:
    - ❑ Project will increase the efficiency of drainage collection and conveyance. *The project must incorporate site design measures that minimize and/or slow the rate of stormwater runoff from site AND implement flow duration controls designed such that post-project stormwater discharge rates and durations match pre-project discharge rates and durations per Provision C.3.f.vii of the County-wide NPDES permit amendment (www.flowstobay.org, (click on Additional Information and scroll to Hydromodification Provisions of the Countywide Permit). Continue to Question 15, and check 15c.*
    - ❑ Project will NOT increase the efficiency of drainage collection and conveyance. *The project must incorporate site design measures that minimize and/or slow the rate of stormwater runoff from site to the maximum extent practicable. Flow duration controls are NOT required. Continue to Question 15, and check 15b.*
    - ❑ Insufficient information. *Implement both the site design and HM requirements listed beside the first box for Question 14, unless applicant provides sufficient information to check the second box.*

Summary of Requirements

15. Is the project… **Yes (check one):**
    - 15a. Exempt from HM site design[2] AND flow duration control requirements? ❑
    - 15b. Required to comply with HM site design requirements[2], but NOT flow duration controls? ❑
    - 15c. Required to comply with HM site design[2] AND flow duration control requirements? ❑

    (Note: Use Flow Duration Control (FDC) Review Worksheet to review FDC submittals.)

[1] The comparison shall include: 1) an assessment of site opportunities and constraints to reduce imperviousness and retain or detain site drainage; 2) a description of proposed design features and surface treatments used to minimize imperviousness; 3) an inventory and accounting of existing and proposed impervious areas; and 4) a qualitative comparison of pre-project to post-project efficiency of drainage collection and conveyance that demonstrates that site design measures that reduce/slow/detain runoff will be incorporated into the project to the maximum extent practicable.

[2] HM site design requirement: implement site design measures that maximize infiltration (where appropriate), provide retention/detention, slow runoff, and minimize imperviousness (also called hydrologic source controls) to maximum extent practicable.

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DRAFT Guidance and Glossary for the Hydromodification Management (HM) Applicability Worksheet

This document offers guidance for using SMCWPPP's Hydromodification Management (HM) Applicability Worksheet, along with a glossary of terms used in the worksheet. The Alameda Countywide Clean Water Program is gratefully acknowledged for developing a worksheet, guidance and glossary on which SMCWPPP's worksheet is based.

Purpose of the HM Applicability Worksheet

The HM Applicability Worksheet is a tool for municipal staff to use when determining whether new development and redevelopment projects need to comply with the HM standard, incorporated into the San Mateo countywide municipal stormwater NPDES permit by an amendment dated March 14, 2007. The HM standard permit amendment is available on SMCWPPP's website, www.flowstobay.org (click on Additional Resources, and scroll to San Mateo Countywide Municipal Stormwater Permit).

The HM Applicability Worksheet is intended to be used for projects that (1) create and/or replace 43,560 square feet (1 acre) or more of impervious, and (2) submit a permit application that is deemed complete on or after June 12, 2007. The HM Applicability Worksheet may also be used for either publicly-sponsored capital improvement projects. Each jurisdiction should identify a project milestone at which the plans for a public project will be "deemed complete" for the purpose of determining whether the project will be subject to the HM standard.

How to Use the Worksheet

The worksheet outlines a step-by-step, which is illustrated in the flow chart in Figure 1, process to determine the following:

- Whether the project creates and/or replaces 1 acre or more of impervious surface. (The HM standard does not apply to projects that create/replace less than 1 acre of imperviousness.)
- Whether the project is located in an area that is susceptible to hydromodification.
- If any exempt project categories allowed by the permit amendment apply to the project.
- For projects on previously developed sites, whether the project design allows for an exemption from flow duration control requirements.

Going through the full sequence of steps in the worksheet will help the municipal staff person determine which of three possible options apply to each project:

- The project is exempt from the HM requirement to incorporate site design measures that minimize and/or slow the rate of runoff AND exempt from flow duration control requirements.
- The project is required to implement site design measures that minimize and/or slow the rate of runoff, BUT is exempt from flow duration control requirements.
- The project is required to incorporate site design measures that minimize and/or slow the rate of runoff AND implement flow duration controls.

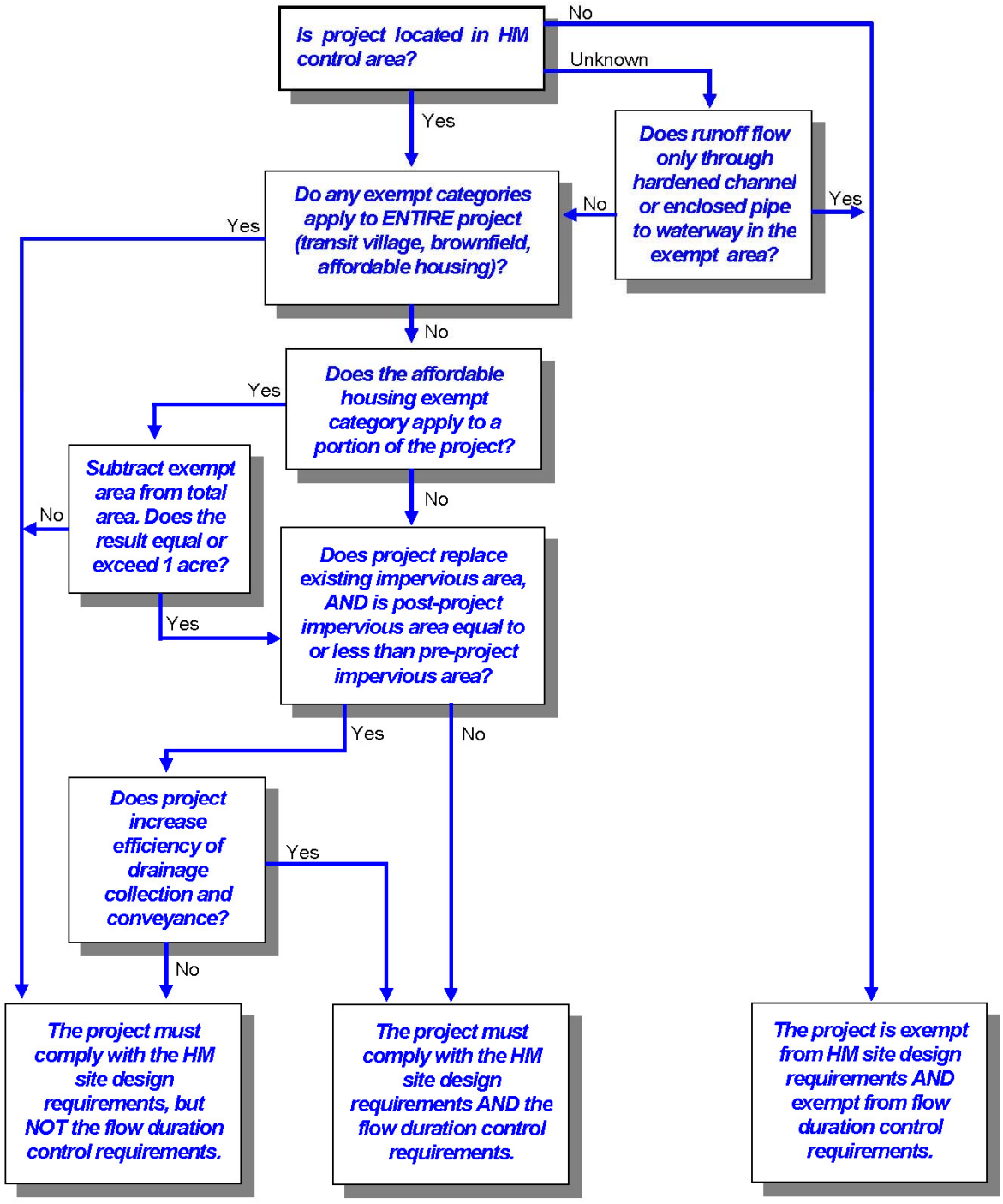

Figure 1: Steps for Determining if HM Requirements Apply to a Project

Agencies may customize the HM Applicability Worksheet to reflect local concerns. For example, some agencies may find it useful to include their agency's logo or other agency-specific information, or to identify the receiving water bodies for local projects. Modifications to the worksheet must not alter any language that is specific to requirements of the NPDES permit, as amended.

Projects on Previously-Developed Sites

The HM standard permit amendment allows redevelopment projects an exemption from HM requirements, if specific conditions are met, as described in Provision C.3.f.v.a of the amendment. One of these conditions is a "qualitative comparison of pre-project to post-project efficiency of drainage collection and conveyance that demonstrate that the project will incorporate hydrologic source controls to the maximum extent practicable." The permit amendment also adds to this provision the following footnote, "In addition to reviewing the site plan to determine that opportunities for incorporating hydrologic source control measures are maximized, an appropriate way to make this demonstration is by demonstrating that the time of concentration is not decreased." Water Board staff has advised that the requirement to not increase the efficiency of the drainage system should be met by implementing the following types of hydrologic source controls (also referred to as site design measures that minimize and/or slow the rate of runoff), which are listed in the permit:

1. Disconnect roof downspouts to splash blocks or "bubble ups" or landscaping (Provision C.3.j.6).
2. Use microdetention, including landscape detention, and use of cisterns (Provision C.3.j.6). Provide retention or detention and slow runoff (Provision C.3.f.iv).
3. Maximize infiltration where appropriate (Provisions C.3.f.iv and C.3.b).

How thoroughly each of these hydrologic source controls would have to be implemented to meet the maximum extent practicable requirement would depend on a number of site specific variables that would be impossible to generalize and quantify. Therefore, agency staff will need to make this determination on a case-by-case basis when reviewing redevelopment project plans.

It should be noted that Provision C.3.g.i of the Municipal Regional Permit Tentative Order (MRP), which was released for public comment on December 4, 2007, and amended on December 14, 2007, states that the HM standard does not apply to projects that do not increase impervious surface area over the pre-project condition. When the Regional Water Board adopts the MRP, likely in late 2008, the MRP will replace the San Mateo countywide municipal stormwater NPDES permit and supercede the HM standard permit amendment. If the adopted MRP retains this simplified provision regarding projects that are proposed on previously-developed sites, after it is adopted there will be no need to conduct the above-described analysis.

Affordable Housing, Brownfield and Transit Village Exemptions

The HM standard permit amendment allows exemptions from HM requirements for projects that are located on brownfield sites, provide housing affordable to conditions, and/or are considered transit village type developments. Definitions for these types of development are included in the glossary, below. Please note, however, that the MRP Tentative Order does not include these exemptions. Unless these exemptions are added to the final version of the MRP, they will no longer be available after the MRP is adopted.

Using the HM Control Areas Map

Wherever possible, the control area boundary follows major arterial roadways, such as El Camino Real and Alameda de Las Pulgas. However, there are a number of areas where that is not possible. In March 2007, SMCWPPP submitted to Water Board staff minor modifications to the HM Control Areas map, which will allow the Program to provide property-specific information, particularly in

areas where the control area boundary does not follow major arterials. When the current map was prepared, countywide digitized parcel data were not available, but SMCWPPP has since obtained these data. The modifications to the HM Control Areas map will be included in the MRP, for approval by the Water Board. Until improved maps are provided, the existing control area map may have limited value for determining the status of projects near the control area boundary. For these projects to be considered exempt, applicants may need to have an engineer or qualified environmental professional provide a signed statement that runoff from the project flows only through a hardened channel or enclosed pipe along its entire length before emptying into a waterway in the exempt area.

Glossary of Terms

The terms indicated with an asterisk (*) below are used in the HM standard permit amendment, but are not defined in the permit amendment. Agencies are encouraged to consult with their attorneys before applying any definition to these terms. The sources used for each definition are identified below. Some definitions were taken from the MRP Tentative Order. When the Regional Water Board adopts the MRP, the MRP will replace the San Mateo countywide municipal stormwater NPDES permit. After the MRP is adopted, municipal staff should refer to the adopted version for any revisions to these definitions.

Bay Area Hydrology Model (BAHM)* – A computer software application, available for downloading from www.bayareahydrologymodel.com, for analyzing the potential hydrograph modification effects of land development projects, and sizing specialized flow duration control facilities to mitigate the increased stormwater runoff from these projects and assist project applicants in meeting the requirements of the HM standard permit amendment.

Brownfield site* – USEPA's website defines brownfields as: "With certain legal exclusions and additions, the term `brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Please note that the MRP Tentative Order does not allow a Brownfield Site exemption from HM compliance. Until the MRP is adopted, municipalities may use the above definition. (Source: http://www.epa.gov/brownfields/glossary.htm)

Deemed Complete – Planning permit applications for private projects are "deemed complete" if they have been accepted by the municipal Planning Department and the applicant has not received a letter within 30 days stating that the application is incomplete. If the applicant has received a letter within 30 days stating that the application is incomplete, the application will be considered complete if the applicant submits the additional requested information to the satisfaction of the Planning Department. (Source: California Permit Streamlining Act). Each jurisdiction should identify a project milestone at which the plans for a public project will be "deemed complete" for the purpose of determining whether the plans for the public project were deemed complete before the HM standard went into effect.

Flow duration controls* – Specialized detention and discharge structures designed to reduce excess post-project flow duration for a designated range of flows based on continuous simulation models of runoff from both pre-project and post-project site conditions, comparing flow durations for the designated range of flows, in order to mitigate development-caused hydromodification. (Source: SMCWPPP, 2007, C.3 Stormwater Technical Guidance)

Housing affordable to persons of low or moderate income* - The May 1, 2007, Administrative Draft MRP refers to Government Code Section 65589.5(h)(3) or (4), or Government Code Section 65195(b), for a definition of low-income housing. Government Code Section 65589.5(h)(3) states: "'Housing for very low, low-, or moderate-income households' means that either (A) at least 20 percent of the total units shall be sold or rented to lower income households, as defined in Section 50079.5 of the Health and Safety Code, or (B) 100 percent of the units shall be sold or rented to moderate-income households as defined in Section 50093 of the Health and Safety Code, or middle-income households, as defined in Section 65008 of this code. Housing units targeted for lower income households shall be made available at a monthly housing cost that does not exceed 30 percent of 60 percent of area median income with adjustments for household size made in accordance with the adjustment factors on which the lower income eligibility limits are based. Housing units targeted for persons and families of moderate income shall be made available at a monthly housing cost that does not exceed 30 percent of 100 percent of area median income with adjustments for household size made in accordance with the adjustment factors on which the moderate income eligibility limits are based." Please note that the MRP Tentative Order does not allow an affordable housing exemption from HM compliance. Until the MRP is adopted, municipalities may use the above definition.

Hydrologic Source Controls – The HM Standard Permit Amendment uses the term hydrologic source controls to refer to site design techniques that minimize and/or slow the rate of stormwater runoff from the site. There is considerable overlap between site design measures that minimize and/or slow the rate of runoff and site design measures that reduce impacts to water quality and beneficial uses. Because municipal staff are familiar with the term "site design measures" and already require site design measures to reduce impacts to water quality/beneficial uses, the HM Applicability Worksheet does not use the term hydrologic source controls, and instead uses the term "site design measures," specifying that when site design measures are incorporated to meet the HM standard, they must serve to minimize and/or slow the rate of runoff. (Source: HM Standard Permit Amendment)

Hydromodification* - The modification of a stream's hydrograph, caused in general by increases in flows and durations that result when land is developed (e.g., made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding. (Source: MRP Tentative Order)

Hydromodification management control area - The areas of HM applicability in Alameda County as shown in the map included in the HM Standard Permit Amendment's Attachment A: Hydrograph Modification Management Standard – HM Control Areas. The map may be viewed at http://cleanwaterprogram.org/uploads/AttachmentA_Alameda_HM_controlareas.pdf. An interactive version of this map may be accessed at http://cleanwaterprogram.org/uploads/HMmap_index-agreemt.htm (Source: HM Standard Permit Amendment)

Impervious surface* - A surface covering or pavement of a developed parcel of land that prevents the land's natural ability to absorb and infiltrate rainfall/stormwater. Impervious surfaces include, but are not limited to, roof tops; walkways; patios; driveways; parking lots; storage areas; impervious concrete and asphalt; and any other continuous watertight pavement or covering. Landscaped soil and pervious pavement, including pavers with pervious openings and seams, underlain with pervious storage material, such as a gravel layer sufficient to hold at least the C.3.d

volume of rainfall runoff are not impervious surfaces. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for purposes of determining whether a project is a Regulated Project under Provisions C.3.b. and C.3.f. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for purposes of determining whether a project is a Regulated Projec under Provisions C.3.b and C.3.g. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling and meeting the Hydromodification Standard. (Source: MRP Tentative Order)

In-stream measures - 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 channel stability and prevent erosion by reducing the erosive forces imposed on the channel boundary. (Source: HM Standard Permit Amendment)

Redevelopment* - Land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a previously developed site. (Source: MRP Tentative Order)

Regional HM controls - Flow duration control structures that collect stormwater runoff discharge from multiple projects (each of which should 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. (Source: HM Standard Permit Amendment)

Site Design Measures* - Site planning techniques to conserve natural areas and/or limit the amount of impervious surface at new development and significant redevelopment projects. Site design measures may be employed for the purpose of reducing impacts to water quality and beneficial uses, or for the purpose of minimizing and/or slowing the rate of runoff offsite and thereby reducing potential for hydromodification of creek channels. Site design measures that minimize and/or slow the rate of runoff are also called hydrologic source controls. In practice, many site design measures accomplish both purposes described above. (Adapted from SMCWPPP, 2007, C.3 Stormwater Technical Guidance)

Transit village type development* - The countywide NPDES permit refers to "transit village type developments that are located ¼ to ½ mile from a transit station and/or intermodal facility" – with no further definition. Municipalities may consider using the following definition adapted from the Congress for the New Urbanism: "Developments located ¼ to ½ mile from a transit station and/or intermodal facility that create or contribute to an existing or planned compact, mixed-use, walkable community, centered around the transit station or intermodal facility that, by design, invite residents, workers, visitors, and shoppers to drive their cars less and ride mass transit more. Please note that the MRP Tentative Order does not allow an a transit village or transit-oriented development exemption from HM compliance. Until the MRP is adopted, municipalities may use the above definition. (Source: Congress for the New Urbanism. Transit Villages Website, About Transit Villages Page: http://www.transitvillages.org/pages/448644/index.htm)

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DRAFT Flow Duration Control Review Worksheet for HM Submittals

(To be completed by agency staff reviewing HM submittals for projects that include flow duration controls. Projects that must comply with the HM site design requirement[1], without flow duration controls, do NOT use this form. Terms in bold text are defined in the glossary section of the HM Applicability Worksheet Guidance and Glossary.)

1. Project Location or Address: _____, CA

2. Project Name (if applicable): _____

3. Design Engineer: _____ 3a. Phone No.: _____ 3a. Email: _____

4. Parcel/Tract No.: _____ 4a. Lot No.: _____ 4b. APN # _____

Required Project Information

5. Check the "Included" box if the submittal includes the following documents, or check "NA" if NOT applicable. All applicable documents must be included.	Included	NA
5a. Site plans with pre- and post-project impervious areas, surface flow directions of entire site, locations of flow duration controls and site design measures per HM site design requirement[2].	❑	
5b. Soils report or other site-specific document showing soil types at all parts of site.	❑	
5c. If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs.	❑	❑
5d. If project uses custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves), goodness of fit, and (allowable) low flow rate.	❑	❑
5e. If project uses the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance).	❑	❑
5f. If the project uses alternatives to the default BAHM approach or settings, a written description and rationale (see also Question 7 below).	❑	❑

Hydromodification Management (HM) Site Design Requirement[2]

6. Do plans include appropriate site design measures that minimize and/or slow rate of runoff from site?
   - ❑ Yes. *Continue to Question 7.*
   - ❑ No. Incorporate appropriate site design measures prior to approval, or explain why this is impracticable:

Bay Area Hydrology Model (BAHM)

7. Is the Bay Area Hydrology Model used to demonstrate compliance with the HM standard?
   - ❑ Yes. *Continue to Question 8.*
   - ❑ No. *Describe the method used to comply with the HM standard and attach an evaluation of the method and results, indicating whether the HM standard has been met. Skip to Question 29.*

   Alternative method(s): ❑ Modified design criteria in BAHM ❑ Alternate modeling software ❑ In-stream measures ❑ Full channel stability assessment ❑ Other: _____

8. Soil types used for BAHM are based on: ❑ Project geotechnical report by _____ ❑ NRCS soils map ❑ Other/unknown (describe):

Checklist for BAHM Project Review (All boxes must be checked Yes for approval.)

	Yes	No
9. Were required project files (WDM, WHM, WD2) received?	❑	❑
10. Was the BAHM report (DOC) file received?	❑	❑
11. Do the project files load to reviewer's computer properly?	❑	❑

[1] The HM site design requirement is to implement site design measures that maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious surfaces (also called hydrologic source controls). Each agency should have a procedure to confirm that appropriate site design measures are included in projects that do not require flow duration control.

Checklist for BAHM Project Review (All boxes must be checked Yes for approval.)	Yes	No
12. Does the project location in submittal match location on the BAHM screen?	❑	❑
13. Does the Pre-Project scenario run properly?	❑	❑
14. Does the Post-project Mitigated scenario run properly?	❑	❑
15. Compare BAHM Report screen with report file:		
15a. Project location descriptions match.	❑	❑
15b. Precipitation gages and precipitation factors match.	❑	❑
15c. Flow frequency results match.	❑	❑
15d. All flow duration values PASS. (Flow values are non-zero.)	❑	❑
15e. Any pervious area (PERLND) changes?	❑	❑
15f. Any impervious area (IMPLND) changes?	❑	❑
15g. Any scaling factor changes?	❑	❑
15h. Any duration criteria changes?	❑	❑
15i. Pond (or vault or tank) dimensions match.	❑	❑
15j. Pond Discharge Structure information matches.	❑	❑
16. Do the BAHM pond/vault/tank dimensions match drawings?	❑	❑
17. Compare Discharge Structure(s) in BAHM report to drawings:		
17a. Do configuration and dimensions match, including low-flow orifice?	❑	❑
17b. If low-flow orifice is enlarged on plans, is the difference mitigated via design features consistent with Appendix D of the User Manual?	❑	❑
18. Is the pond surface area included in the Post-project Mitigated basin?	❑	❑
19. Are the Precipitation Applied and Evaporation Applied options used appropriately for each type of element?	❑	❑
20. Infiltration: a. Is this turned ON for each infiltration pond or LID element?	❑	❑
b. Is selection of Infiltration Reduction Factors consistent with Appendix D?	❑	❑
21. Does total BAHM drainage area match drainage maps/drawings?	❑	❑
22. Does Post-project Mitigated drainage area(s) match Pre-project?	❑	❑
23. Is Pre-project vegetation correct? (e.g. lawns shown as Urban, not Grass)	❑	❑
24. Are Post-project Unmitigated land use areas correct?	❑	❑
25. Do low impact development (LID) options correspond to the site design measures to minimize/reduce runoff rate, or other stormwater management measures shown on plans?	❑	❑
26. Are the routing and connectivity of drainage areas and LID or stormwater management measures consistent with plans?	❑	❑
27. Does the pond usually drain in 5 days or less, according to the Drawdown Table?	❑	❑
28. If claiming treatment credit on a volume basis for the pond, are documentation or calculations provided and consistent with volumes shown in Drawdown Table?	❑	❑

HM Submittal Approval	Yes	No	N/A
29. Is documentation provided for any required review or approval by other agencies (e.g. Flood Control District, local groundwater managers)?	❑	❑	❑
30. Do other issues need correction before project is approved? Describe:_____	❑	❑	
31. Is the HM submittal APPROVED? NOTE: Operation & maintenance agreement required prior to occupancy.	❑	❑	

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Guidance and Glossary for the Flow Duration Control Review Worksheet for HM Submittals

This document offers guidance for using SMCWPPP's Flow Duration Control Review Worksheet for Hydromodification Management (HM) Submittals, along with a glossary of terms used in the worksheet. The Alameda Countywide Clean Water Program is gratefully acknowledged for developing a worksheet, guidance and glossary on which the SMCWPPP worksheet is based.

The worksheet is a tool for municipal staff to use when reviewing HM submittals for projects that require flow duration controls. The worksheet is intended to assist municipal staff in determining whether the HM submittal complies with the HM standard, which was incorporated into the San Mateo countywide municipal stormwater NPDES permit by an amendment dated March 14, 2007. The HM standard permit amendment is available on SMCWPPP's website, www.flowstobay.org (click on Additional Resources, and scroll to San Mateo Countywide Municipal Stormwater Permit).

When HM submittals are received, agency staff should review the project's completed HM Applicability Worksheet to check whether the project was required to comply the with HM site design requirement only, or if it was required to comply with both the HM site design and the flow duration control requirements. The Flow Duration Control Review Worksheet is only for projects that include flow duration controls. Municipalities should have a procedure to confirm that appropriate site design measures are included in projects that do not require flow duration controls.

The worksheet outlines a step-by-step process to determine the following:

- Whether the required documents are included in the HM submittal.
- Whether project plans demonstrate that the HM site design requirement is met.
- Whether the Bay Area Hydrology Model (BAHM) or some other technique is used to demonstrate that flow duration controls comply with the HM Standard.
- For projects using the BAHM, whether the BAHM software has been used properly to demonstration compliance with the HM Standard. This is determined using a Checklist for BAHM Project Review, for which all questions must be checked "Yes."

Going through the full sequence of steps in the worksheet will help municipal staff determine whether to approve the HM submittal, or if any issues need correction before approval is granted.

Glossary of Terms

The terms indicated with an asterisk (*) below are used in the HM standard permit amendment, but are not defined in the permit amendment. Municipalities are encouraged to consult with their attorneys before applying any definition to these terms. The sources used for each definition are identified below. Some definitions were taken from the Municipal Regional Permit (MRP) Tentative Order, released on December 4, 2007, and amended on December 14, 2007. When the Regional Water Board adopts the MRP, the MRP will replace the San Mateo countywide municipal stormwater NPDES permit. After the MRP is adopted, municipal staff should refer to the adopted version for any revisions to these definitions.

Bay Area Hydrology Model (BAHM)* – A computer software application, available for downloading from www.bayareahydrologymodel.com, for analyzing the potential hydrograph modification effects of land development projects, and sizing specialized flow duration control facilities to mitigate the increased stormwater runoff from these projects and assist project applicants in meeting the requirements of the HM standard permit amendment.

DOC file – An electronic report file produced by the Bay Area Hydrology Model (BAHM), which can be read by Microsoft Word or any text-editing program, and must be included in HM submittals that include flow duration controls and are designed using the BAHM.

Flow duration controls* – Specialized detention and discharge structures designed to reduce excess post-project flow duration for a designated range of flows based on continuous simulation models of runoff from both pre-project and post-project site conditions, comparing flow durations for the designated range of flows, in order to mitigate development-caused hydromodification. (Source: SMCWPPP, 2007, C.3 Stormwater Technical Guidance)

Hydrologic source controls – The HM Standard Permit Amendment uses the term hydrologic source controls to refer to site design techniques that minimize and/or slow the rate of stormwater runoff from the site. There is considerable overlap between site design measures that minimize and/or slow the rate of runoff and site design measures that reduce impacts to water quality and beneficial uses. Because municipal staff are familiar with the term "site design measures" and already require site design measures to reduce impacts to water quality/beneficial uses, the HM Applicability Worksheet does not use the term hydrologic source controls, and instead uses the term "site design measures," specifying that when site design measures are incorporated to meet the HM standard, they must serve to minimize and/or slow the rate of runoff. (Source: SFBRWQCB, March 14, 2007, HM Standard Permit Amendment)

Hydromodification* - The modification of a stream's hydrograph, caused in general by increases in flows and durations that result when land is developed (e.g., made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding. (Source: MRP Tentative Order)

Hydromodification Management (HM) Standard – Stormwater discharges from applicable new development and redevelopment projects shall not cause an increase in the erosion potential of the receiving stream over the pre-project (existing) condition. Increase 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 baks, silt pollutant generation, or other adverse impacts to beneficial uses due to increased erosive force. Such management shall be through implementation of the hydromodification requirements the HM Standard permit provision and its Attachment A. (Source: HM Standard Permit Amendment)

Impracticability Provision – Provision C.f.ix of the HM Standard permit provision, which identifies conditions under which a project may be allowed to meet the requirement for flow duration control by contributing financially to an alternative HM project. (Source: HM Standard Permit Amendment)

In-stream measures - 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 channel stability and prevent erosion by reducing the erosive forces imposed on the channel boundary. (Source: HM Standard Permit Amendment)

Site Design Measures* - Site planning techniques to conserve natural areas and/or limit the amount of impervious surface at new development and significant redevelopment projects. Site design measures may be employed for the purpose of reducing impacts to water quality and beneficial uses, or for the purpose of minimizing and/or slowing the rate of runoff offsite and thereby reducing potential for hydromodification of creek channels. Site design measures that minimize and/or slow the rate of runoff are also called hydrologic source controls. In practice, many site design measures accomplish both purposes described above. (Adapted from SMCWPPP, 2007, C.3 Stormwater Technical Guidance)

WD2, WDM and WHM Files – project files that are created by the Bay Area Hydrology Model (BAHM), which must be included in HM submittals that include flow duration controls and are designed using the BAHM.