

TECHNICAL MEMORANDUM

To: **Contra Costa Clean Water Program
C.3 Implementation Work Group**

From: Dan Cloak

Subject: Guidance on Flow Control for Development Projects
on Sites that are Already Partially Developed

Date: 10 March 2009

Introduction

This memorandum describes and illustrates a rationale for applying the NPDES permit flow-control standard in situations where the site to be developed is already partially impervious, and the total impervious area is to be increased compared to the current condition of the site.

In Regional Water Board Order R2-2006-0050, the flow-control standard is to:

“...ensure estimated post-project runoff peaks and durations do not exceed estimated pre-project peaks and durations if increased stormwater runoff peaks or durations could cause erosion or other significant effects on beneficial uses.”

Under Option 1 for compliance with the flow-control standard, an applicant:

“...may compare the project design to the pre-project condition and show the project will not increase impervious area and also will not facilitate the efficiency of drainage collection and conveyance.”

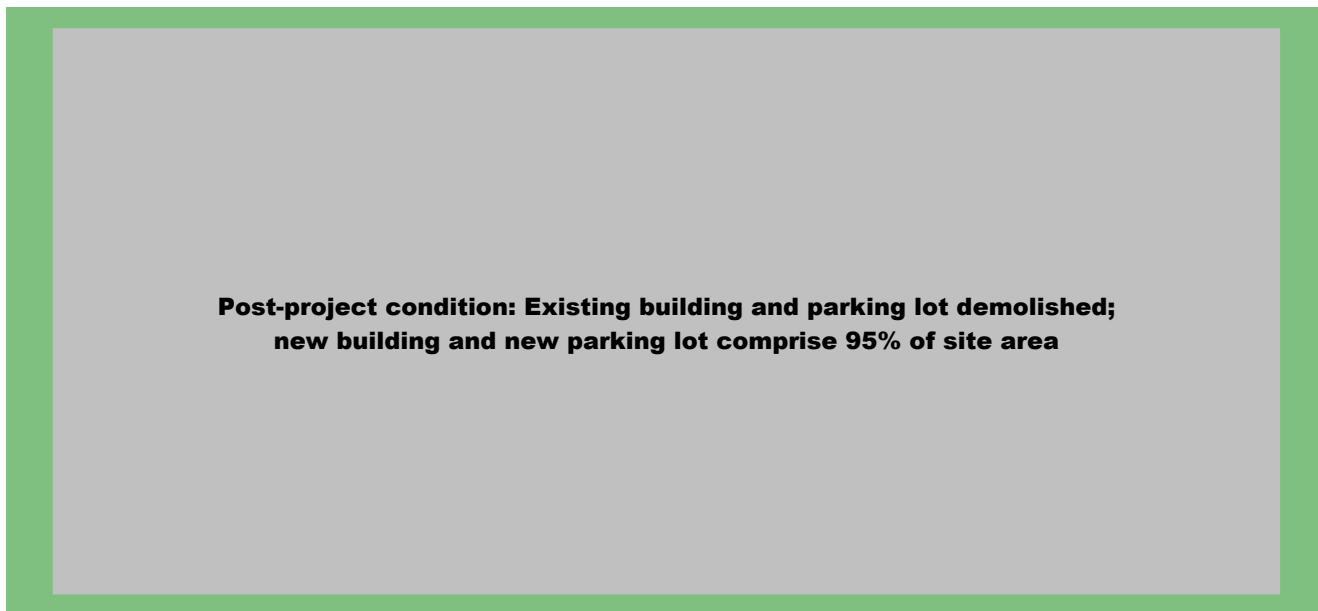
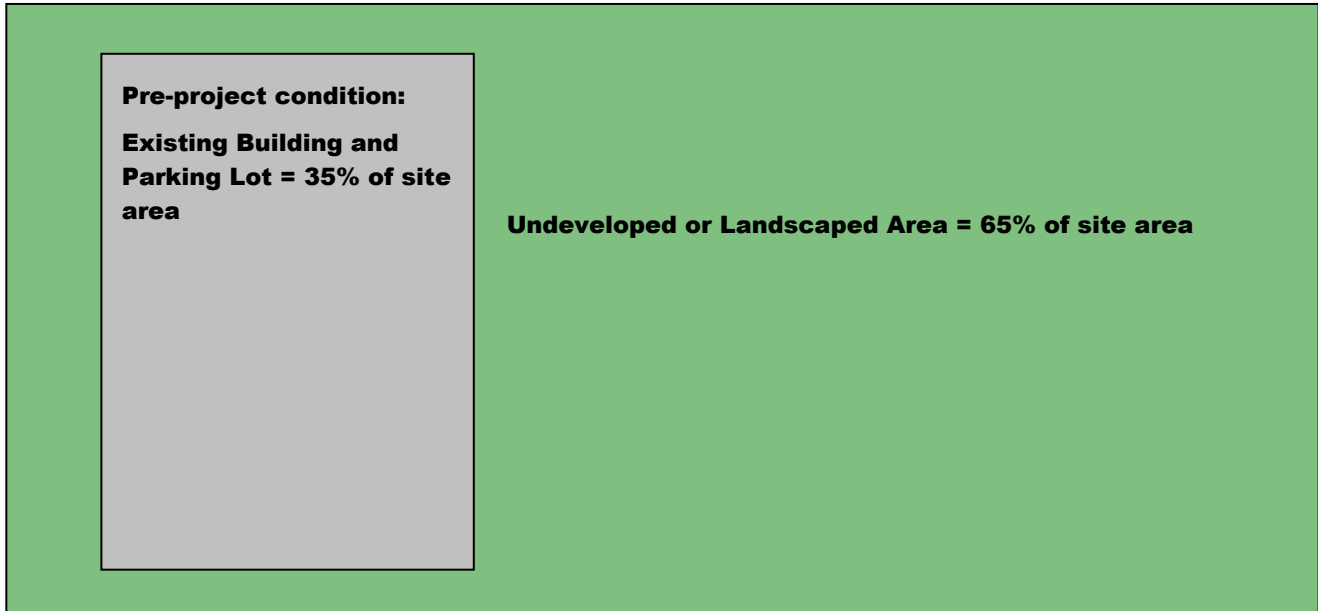
Under Option 2 for compliance with the flow-control standard, an applicant:

“...may select and size IMPs to manage hydrograph modification impacts, using the design procedure, criteria, and sizing factors specified in the Contra Costa Clean Water Program’s *Stormwater C.3 Guidebook*.”

For development projects on sites that are already partially developed, the following question may arise: May an applicant demonstrate compliance under Option 1 for the previously developed portions of the site, and demonstrate compliance under Option 2 (or perhaps Option 3, site-specific continuous simulation modeling) for the as-yet undeveloped portions of the same site?

Example

Consider a 10-acre site which is currently 35% impervious. The applicant proposes to demolish and replace the existing impervious portion of the site and also to build additional impervious area, bringing the total impervious area to 95% of the site area. Flow-control requirements apply to the entire site.



In this example, can the applicant be allowed to match the hydrology of the pre-project condition, including the previous site imperviousness?

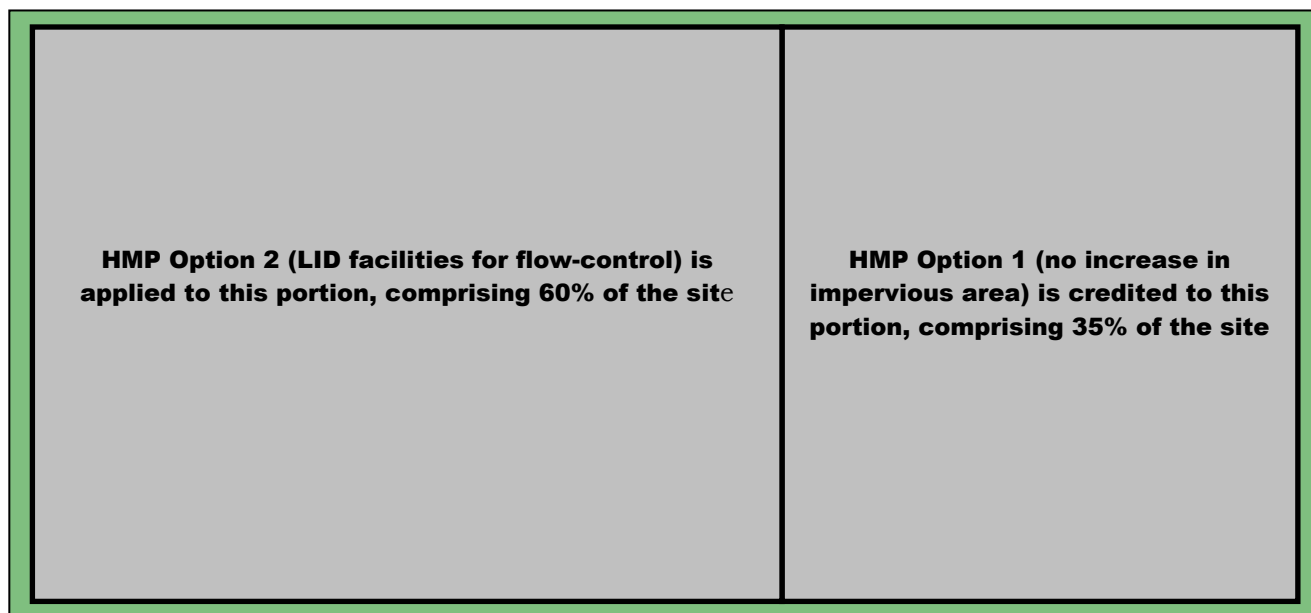
Rationale

The standard requires that estimated post-project runoff peaks and durations *from the site as a whole* do not exceed estimated pre-project peaks and durations.

Consider two cases:

Case 1: The previously existing imperviousness could be accounted for by considering the two portions of the site separately: One portion is to redevelop the existing impervious area, and the other portion is to develop portions of the remaining existing landscaped area. Option 1 for compliance with the flow control standard could apply to the first portion and Option 2 to the second portion.

Case 2: Equivalently, the two options could be assigned in the same proportions to different areas of the site, while having the same effect on overall site runoff:



In either case, the NPDES permit standard is met: For the site as a whole, runoff will not exceed pre-project peaks and durations.

If the applicant were to create a model and simulate and compare runoff from the site in its pre-project and post-project condition (Option 3 for compliance with the flow-control standard), the result would be the same.

Guidance

Where the pre-project condition of the site is partially impervious, Copermitees may consider the following alternatives, all of which comply with the flow-control standard in the NPDES permit:

1. Require LID facilities designed for treatment-and-flow-control for all impervious areas created or replaced. This is a conservative approach.
2. Allow an amount of impervious area not to exceed the previously existing impervious area to drain to LID facilities designed for treatment only, and require the remaining impervious area drain to LID facilities designed for treatment and flow control. This is also a conservative approach, as the treatment-only facilities also provide substantial flow-control.
3. In rare cases, as described in “Selection of Stormwater Treatment Facilities” on page 16 of the Fourth Edition of the *Stormwater C.3 Guidebook*, an applicant may propose to use higher-rate facilities such as “tree-box” biofilters or cartridge filters. In such a case, the applicant could allow a total amount of impervious area not to exceed the previously existing impervious area to drain to these higher-flow-rate treatment facilities and require the remaining impervious area drain to LID facilities designed for treatment and flow-control. The applicant would also need to demonstrate the portion of the drainage system tributary to higher-flow-rate treatment facilities does not “facilitate the efficiency of drainage collection and conveyance” when compared to the pre-project condition.