REQUIREMENTS FOR SMALL PROJECTS (2,500 TO 5,000 FT2)

4 Requirements for Small Projects (2,500 to 5,000 ft^2)

The following is a 3-step process required by the Town of Paradise for small projects as defined in Section 2.1.

4.1 SELECT SITE DESIGN MEASURES

The first step is for the project proponent to select and implement into the project's design one or more of the following **Site Design Measures**:

Stream Setbacks and Buffers – are vegetated areas (including trees, shrubs, riparian habitat, or herbaceous vegetation) that exist or are established to protect a stream system, lake, reservoir, or estuary. These areas provide a buffer between the development and the water body to filter out pollutants carried by storm water, provide stabilization of erodible banks and opportunities to infiltrate water prior to discharging, and help slow peak flows. The C*alifornia Storm Water Quality Association's (CASQA) Best Management Handbook (BMP) for New Development and Redevelopment* has a specification sheet (TC-31) for Vegetated Buffer Strips that contains useful information applicable to stream setbacks and buffers. It can be downloaded at:

www.casqa.org/sites/default/files/BMPHandbooks/tc-31_from_newdevelopmentredevelopment_handbook.pdf

Contra Costa County has a compiled a list of Northern California and other U.S. counties who have stream buffer requirements. This list can be accessed at the following website and utilized as guidance for sizing buffer widths:

www.acgov.org/pwa/documents/Contra%20Costa%20County%20HCP%20Table%206-4%20Setbacks.pdf

Soil Quality Improvement and Maintenance – is accomplished through the addition of soil amendments and the creation of a healthy microbial community. Soils with higher organic content are less likely to erode and also provide nutrients needed to maintain healthy plants. This, in turn, means that landscaping will require less fertilizers and pesticides. Soils with more organic content or covered with a compost layer will retain moister, requiring them to be irrigated less often. Engineered soils allow water to infiltrate and be stored below grade providing LID and hydromodification benefits. The United States Department of Agriculture's Natural Resources Conservation Service (NRCS) has a

REQUIREMENTS FOR SMALL PROJECTS (2,500 TO 5,000 FT2)

publication called the *Urban Soil Primer* which is an excellent resource in helping developers understand how healthy soils improve water quality. This resource can be downloaded at:

www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052835.pdf

Tree Planting and Preservation – includes the preservation of existing trees and the establishment of new ones. Both evergreens and deciduous trees can be utilized. Trees are beneficial to water quality in that they help stabilize erodible soil, dissipate energy of falling rain, and help slow peak flow rates.

Rooftop and Impervious Area Disconnection – is where roof drains and hardscapes do not discharge directly to a storm drain inlet but are directed to permeable areas or rain water collection and harvesting mechanisms. Water, in excess of the permeable area's infiltration capacity or the capacity of the collection / harvesting system, can be directed to a drainage system. CASQA has a BMP specification sheet (SD-11) that provides information about designing roof runoff controls. It can be downloaded at:

www.casqa.org/sites/default/files/BMPHandbooks/sd-11.pdf

Porous Pavement – is pavement that allows runoff to pass through it and infiltrate into the underlying soils. Porous pavement systems are typically designed with a subsurface drainage and storage system that consists of a bed of rock and piped collection system below the porous pavement. Where soils have high infiltration rates, water is allowed to dissipate directly into the soil. Where infiltration rates are less than desirable, a sub-grade gravity collection system conveys excess water to a storm water outfall or storm water sewer system. Porous pavement includes porous asphalt and concrete, porous pavers and bricks, cobbles, reinforced grass pavement, and gravel covered surfaces.

Green Roofs – is an engineered vegetative layer grown on a roof that allows a certain amount of runoff reduction by infiltration, storage, and

REQUIREMENTS FOR SMALL PROJECTS (2,500 TO 5,000 FT2)

evapo-transpiration. In 2010, the United States Environmental Protection Agency (USEPA) published a document titled: *Design Guidelines and Maintenance Manual for Green Roofs in the Semi-Arid and Arid West.* This guidance document can be downloaded at:

http://www2.epa.gov/sites/production/files/documents/GreenRoofsSemiAridAridWest.pdf

Vegetated Swales – are a vegetated, open-channel management practice designed specifically to treat and attenuate storm water runoff through infiltration, biotreatment, and evapo-transpiration. If they are designed with engineered soils, storage and greater infiltration can be achieved. CASQA has a BMP specification sheet (TC-30) that provides information about designing vegetated swales. It can be downloaded at:

www.casqa.org/sites/default/files/BMPHandbooks/TC-30.pdf

Rain Barrels and Cisterns – is a system that collects and stores storm water runoff from a roof or other impervious surfaces. Collected water is saved and reused for irrigation or other purposes. In 2008, the USEPA published a document titled: *Managing Wet Weather with Green Infrastructure Municipal Handbook: Rainwater Harvesting Policies*. This guidance document can be downloaded at:

http://water.epa.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_harvesting.pdf

The City of San Diego published a Rain Water Harvesting Guide, which can be downloaded at:

http://www.sandiego.gov/water/pdf/conservation/rainwaterguide.pdf

REQUIREMENTS FOR SMALL PROJECTS (2,500 TO 5,000 FT2)

4.2 QUANTIFY THE RUNOFF REDUCTION

The second step for small projects is for the project proponent to quantify the runoff reduction resulting from the implementation of the selected Site Design Measure(s). The Phase II MS4 Permit does not set any goals or minimum amounts of runoff reduction. Therefore, this step is only informational. To accomplish this quantification of runoff reduction, the project proponent is required to utilize the State Water Board's Post-Construction Calculator which is available on the Water Board's SMARTS website or can be accomplished through the State's Microsoft Excel™ version of the calculator. The Water Board has created an instructional video on how to populate and use the Post-Construction Calculator. Information about how to access the calculator is included in Appendix 5 of this document.

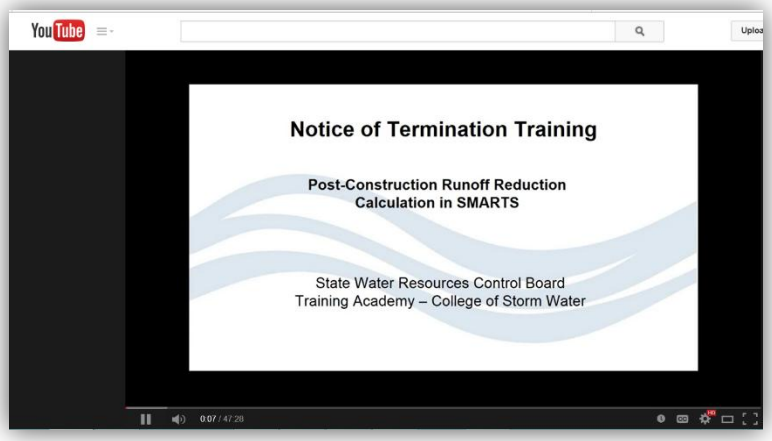
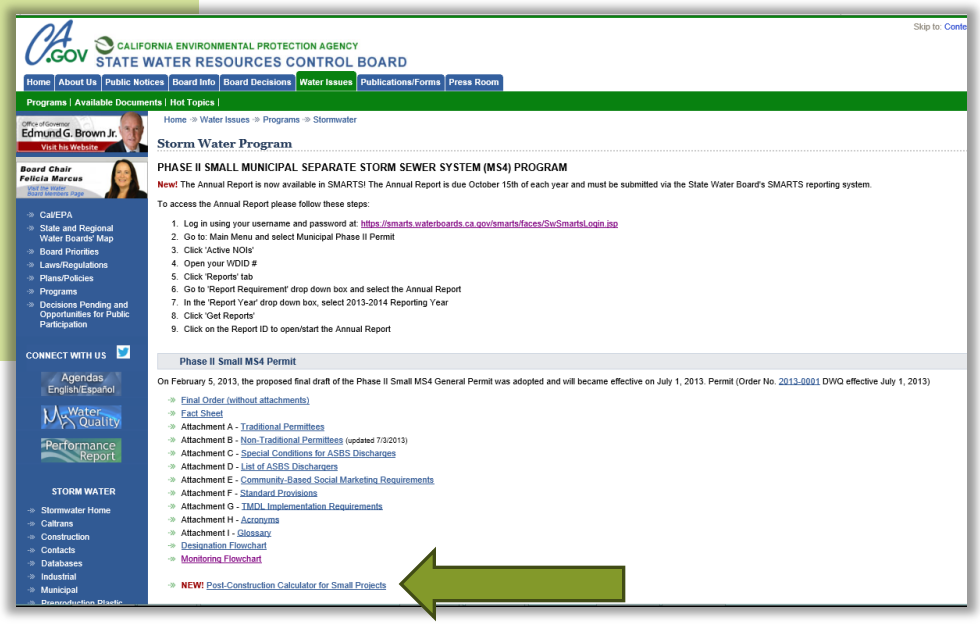


Figure 4 - The Water Board created this 47-minute video that describes how to use the Post-Construction Calculator on SMARTS. It will also help with the Excel version. Although the video was created for the Construction General Permit, it also applies to the Post-Construction Standards Plan. It can be accessed at:

https://www.youtube.com/watch?v=W3nj4pj8WHY&feature=youtu.be

Post-Construction Calculator for Small Projects

The Water Board has created a Microsoft Excel version of the calculator that can now be downloaded from the State Water Board's website at the following link: http://www.swrcb.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml



REQUIREMENTS FOR SMALL PROJECTS (2,500 TO 5,000 FT2)

4.3 PREPARE THE SUBMITTAL

The third and final step for the "small" project proponent is to compile the information required to be submitted to the plan checker. This includes the following items:

- A completed Post-Construction Worksheet (obtained from Appendix 8).
- Site plans showing the selected Site Design Measure(s) (identified in Section 4.1). The plans must be stamped by a California Civil Professional Engineer if any of the following Site Design Measures were selected: rooftop and impervious area disconnection, porous pavement, or rain cisterns. The plans must be stamped by a California Structural Professional Engineer if a green roof was selected or if there is a significant structural aspect to the rain cisterns and collection system. The plans must be stamped by a California Licensed Landscape Architect if any of the following Site Design Measures were selected: stream setbacks and buffers, soil quality improvement, or vegetated swales. The Site Design Measure(s) must be clearly called out on the submitted plans.
- A printout of the results page from the Water Board's SMARTS or Microsoft Excel™ Post-Construction Calculator.

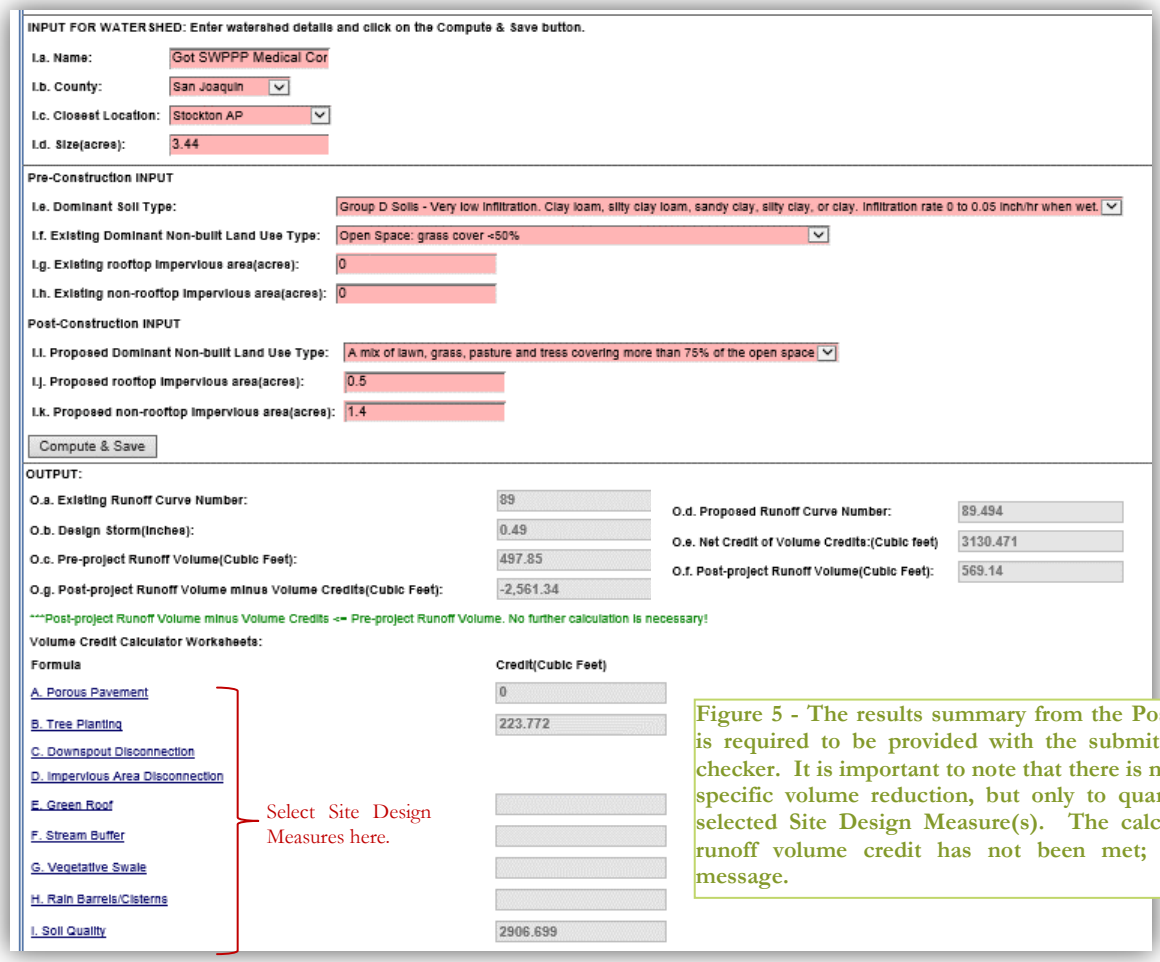


Figure 5 - The results summary from the Post-Construction Calculator is required to be provided with the submittal to the municipal plan checker. It is important to note that there is no requirement to meet any specific volume reduction, but only to quantify the reduction of the selected Site Design Measure(s). The calculator may state that the runoff volume credit has not been met; but, disregard any such message.