

APPENDIX A
City of Capitola
Stormwater Technical Guide for Tier 1 Projects
Tier 1 Stormwater Control Plan

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Developing a Tier 1 Stormwater Control Plan

Tier 1 projects are required to incorporate specific design measures to manage stormwater runoff from impervious surfaces (i.e. rooftops, pavement, etc.). It is relatively easy to achieve compliance with stormwater requirements for small Tier 1 land development projects; however, compliance for each project must be carefully documented. The applicant may use the simplified Tier 1 Stormwater Control Plan (Appendix A) to assure the appropriate information/documentation is provided to the City to obtain Project approval.

Staff will review your Tier 1 Stormwater Control Plan to confirm that the following design strategies have been incorporated into your project:

- Limit disturbance of creeks and natural drainage features
- Minimize compaction of highly permeable soils
- Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection
- Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state

You will need to show all runoff from impervious areas is dispersed to pervious areas.

Elements of the Tier 1 Stormwater Control Plan

There are three elements required in the Tier 1 Stormwater Control Plan, including:

- Completed project data form
- Site plan or sketch
- Completed checklist and information for the selected Runoff Reduction Measure(s).

City staff will use the Runoff Reduction Measure checklist(s) to evaluate the completeness of your Plan. The checklists are attached.

Runoff Reduction Measures

There are three types of runoff reduction measures available for consideration by the applicant. The three types are presented in order of preference and ease of long-term operation and maintenance:

- Measure 1: Disperse runoff from roofs or pavement to vegetated areas
- Measure 2: Permeable Pavement
- Measure 3: Cisterns or Rain Barrels

In the event that there are particular site constraints (limited footprint, rock features, steep grade, etc.) that limit your ability to incorporate the recommended runoff reduction measures described herein, with City approval, you may implement a properly designed LID treatment

facility to treat site runoff. Detailed information as well as requirements for LID treatment facility design can be found in the *Stormwater Technical Guide for Tier 2 and Tier 3 Projects*.

Step-by-Step Instructions

Provided are instructions for preparing a Tier 1 Stormwater Control Plan and completing the Project Data Form.

Step 1: Delineate existing and proposed impervious area(s).

On a site plan or sketch, show the existing and new/replaced impervious area(s)—for example, a roof, or portion of a roof, and/or a paved area. Figure 1 is an example sketch depicting an existing parking lot and lawn area (i.e. impervious and pervious areas, respectively), and new and replaced impervious areas.

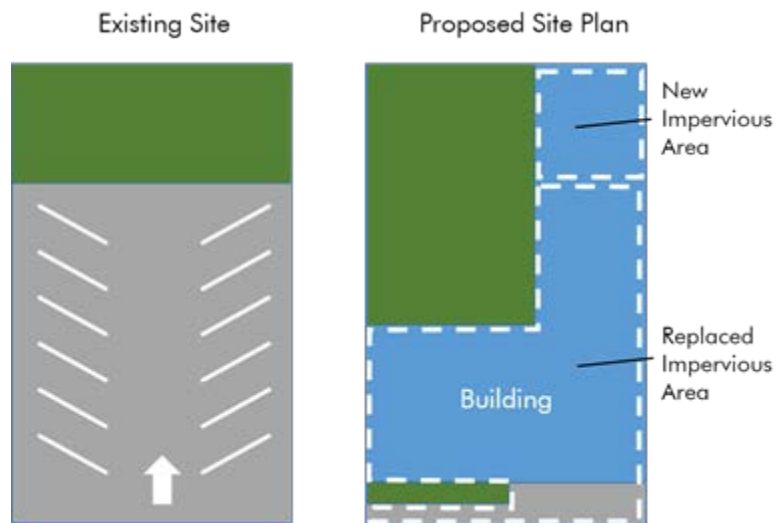


Figure 1: New/Replaced Impervious Area

Step 2: Select the Runoff Reduction Measure(s).

The impervious area(s) described in Step 1 will drain to the runoff reduction measure(s) you'll need to select for your site design. Typically the drainage delineations follow roof ridge lines or grade breaks.

Select from the three runoff reduction measures and show those facilities on the site plan. Figure 2 (following page) is an example site plan showing drainage delineations relative to runoff reduction measures, including square footages and layout on the site.

Step 3: Complete Runoff Reduction Measure Checklist.

Once you've identified which runoff control measure(s) will be incorporated into the site design, complete and include the appropriate checklist(s) in the Tier 1 Stormwater Control Plan.

Step 4: Complete the Project Data Form.

Fill out Steps 1 thru 3 in the attached Project Data Form.

Example Site Drainage Delineation Sketch

The example below illustrates the level of detail required to show the relationship between proposed impervious surfacing and select runoff control measures.

Not to Scale

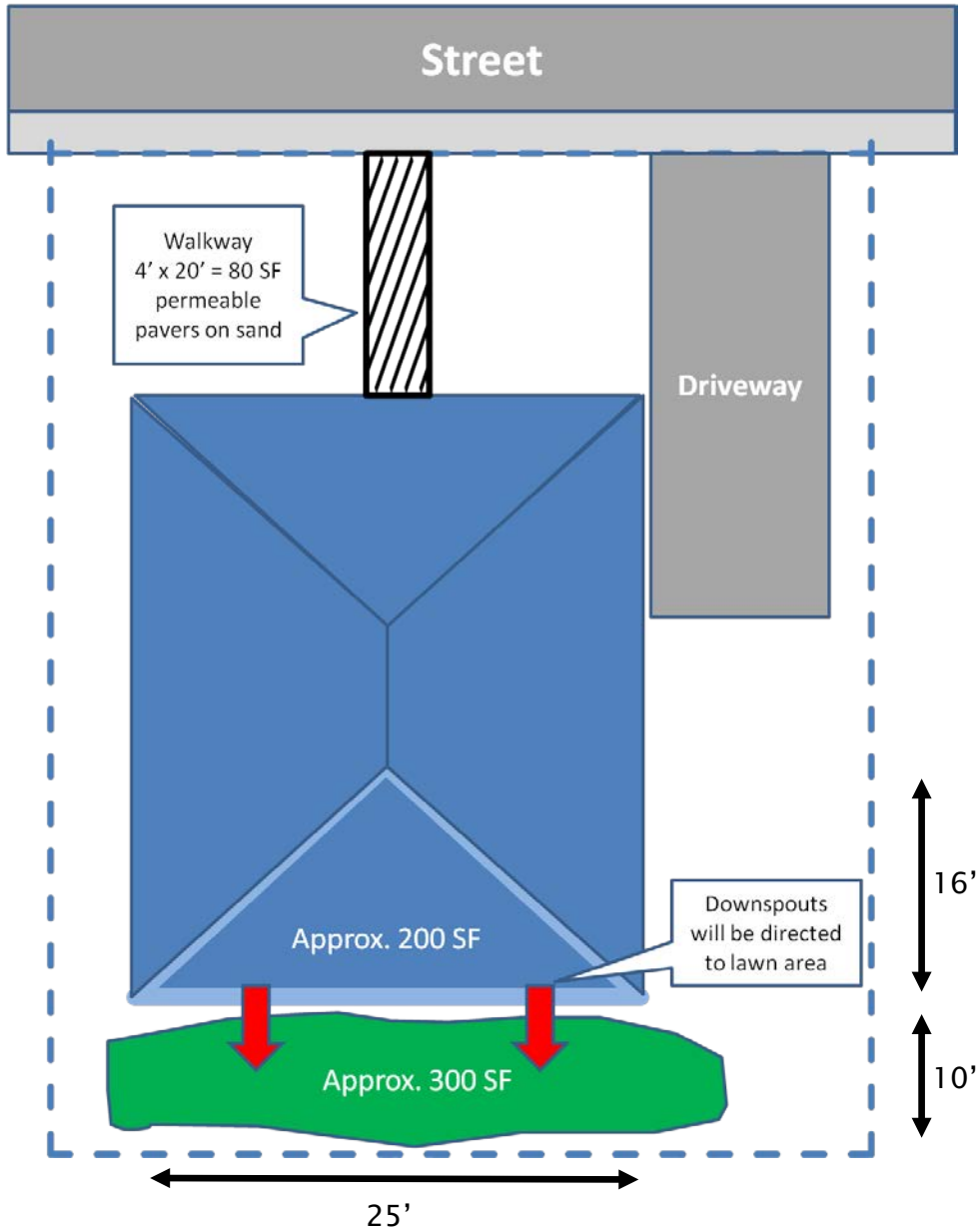


Figure 2: Drainage Delineation from New/Replaced Impervious Areas to Runoff Reduction Measures

****END OF TIER 1 INSTRUCTIONS****

Tier 1 Project Data Form (Instructions on Back)

Name of Owner or Developer	
Name of Primary Contact (if different)	
Primary Contact Information	Phone:
	Email:
Project Name/Number	
Application Submittal Date	
Project Location (Address/APN)	
Project Type and Description [Examples: "Single Family Residence," "Parking Lot Addition," "Retail and Parking," etc.]	
Total Project Site Area (sf)	
Total Pre-Project Impervious Area (sf)	
Total Post-Project Impervious Area (sf)	
Total New Impervious Area (sf)	
Total Replaced Impervious Area (sf)	
Runoff Reduction Measures Selected (Check one or more)	<input type="checkbox"/> Disperse runoff to vegetated area <input type="checkbox"/> Pervious pavement <input type="checkbox"/> Cisterns or Rain Barrels

Tier 1 Project Data Form Instructions:

- **Name of Owner or Developer and Contact Information.** Provide the name of the owner and the name of the primary contact (if different). Provide a phone number and email address for the primary contact.
- **Project Name/Number.**
- **Application Submittal Date.** To be verified by City staff.
- **Project Location.** APN and/or Street address, if available, or intersection
- **Project Type/Description.** Brief description of the project and parcel type (i.e. single-family residence, parking lot addition or expansion, retail and parking, etc).
- **Total Project Site Area.** Provide area in square feet or acres, as appropriate.
- **Total Pre-Project Impervious Area.** Provide the total impervious area (in square feet) for the existing conditions (i.e. rooftops, driveways, parking, patios, walkways, etc.)
- **Total Post-Project Impervious Area.** Provide the total proposed impervious area (in square feet) for the project site (i.e. rooftops, driveways, parking, patios, walkways, etc.).
- **Total New Impervious Area.** Sum of currently pervious areas (in square feet) that will be covered with new impervious surfaces.
- **Total Replaced Impervious Area.** Sum of currently impervious areas (in square feet) that will be covered with new impervious surfaces.
- **Selected Runoff Reduction Measure.** Indicate which of the four runoff reduction measures will be implemented.

Runoff Reduction Measure 1: Disperse runoff from roofs or pavement to vegetated areas Checklist

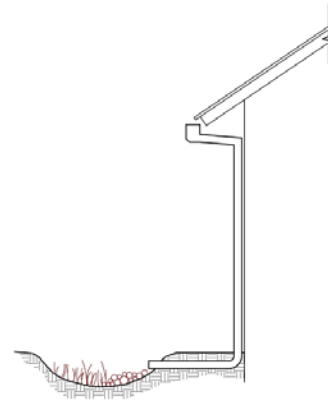
This is the simplest option. Downspouts can be directed to vegetated areas adjacent to buildings, or extended via pipes to reach vegetated areas further away. Paved areas can be designed with curb cuts, or without curbs, to direct flow into surrounding vegetation.

On the site plan, show:

- Each impervious area from which runoff will be directed, and its square footage.
- The vegetated areas that will receive runoff, and the approximate square footage of each.
- If necessary, explain in notes on the plan how runoff will be routed from impervious surfaces to vegetated areas.

Confirm the following standards are met:

- Tributary impervious square footage in no instance exceeds twice the square footage of the receiving pervious area (2:1 ratio of impervious area to pervious area). On your sketch, show rough dimensions that will confirm this criterion is met.
- Roof areas collect runoff and route it to the receiving pervious area via gutters and downspouts.
- Paved areas are sloped so drainage is routed to the receiving pervious area.
- Runoff is dispersed across the vegetated area (for example, with a splash block) to avoid erosion and promote infiltration.
- Vegetated area has amended soils, vegetation, and irrigation as required to maintain soil stability and permeability.
- Any area drains within the vegetated area have inlets at least 3 inches above surrounding grade (to prevent stormwater in vegetated areas from flowing directly into the drain inlet under normal operating conditions).



Example Roof Drainage to Vegetated Area

Connecting a roof leader to a vegetated area. The head from the eave height makes it possible to route roof drainage some distance away from the building.

Runoff Reduction Measure 2: Permeable Pavement Checklist

Permeable pavements may include pervious concrete, pervious asphalt, porous pavers, crushed aggregate, open pavers with grass or plantings (turf block), open pavers with gravel, or solid pavers with open (non-grouted) joints. This measure is specifically for bike lanes, driveways, uncovered parking lots, sidewalk, walkways, and patios.



Examples of Permeable Pavement
Interlocking/Porous pavers and turf block

Show on your site plan:

- Location, extent and types of pervious pavements.

Confirm the following standard specifications are met:

- No erodible areas drain on to permeable pavement.
- Subgrade compaction is minimal.
- Reservoir base course is of open-graded crushed stone. Base depth (3-inches or more) is adequate to retain rainfall and support design loads (more depth may be required).
- No subdrain is included or, if a subdrain is included, outlet elevation is a minimum of 3 inches above bottom of base course.
- Subgrade is level and slopes are not so steep that subgrade is prone to erosion.
- Rigid edge is provided to retain granular pavements and unit pavers.
- Solid unit pavers, if used, are set in sand or gravel with minimum 3/8-inch gaps between the pavers. Joints are filled with an open-graded aggregate free of fines.
- Permeable concrete or porous asphalt, if used, are installed by industry-certified professionals according to the vendor's recommendations.
- Selection and location of pavements incorporates Americans with Disabilities Act requirements (if applicable), site aesthetics, and uses.

Check with local Fire Department for applicability criteria using permeable pavement.

Runoff Reduction Measure 3: Cisterns or Rain Barrels Checklist

Use of cisterns or rain barrels to comply with this requirement is subject to City approval. Planning and Building Permits may be required for larger systems.

Show on your site plan:

- Impervious areas tributary to each cistern or rain barrel.
- Location of each cistern or rain barrel.

Confirm the following standard specifications are met:

- Rain barrels are sited at or above grade on a sound and level surface at or near gutter downspouts.
- Gutters tributary to rain barrels are screened with a leaf guard or maximum ½-inch to ¾-inch-minimum corrosion-resistant metallic hardware fabric.
- Water collected will be used for irrigation only.
- Openings are screened with a corrosion-resistant metallic fine mesh (1/16 inch or smaller) to prevent mosquito harborage.
- Lids are secured to prevent entry by children.
- Rain barrels and gutters are to be cleaned annually.