***Model Water Quality Policies and Standards for a Local Coastal Program***

*Water Quality Program, California Coastal Commission*

The Coastal Act requires the protection and enhancement of marine and coastal water resources, including water quality. Protection of coastal water resources requires not only minimizing pollutants in runoff, but also minimizing alterations in a site’s pre-development hydrologic balance, measured in terms of the runoff flow regime (i.e., runoff volume, flow rate, timing, and duration). In the coastal zone, certified Local Coastal Programs (LCPs) are a key mechanism for achieving a high standard for coastal water resource protection. LCPs should include policies, standards, and ordinances that establish coastal water resource protection strategies and priorities for development, both during construction and over the life of a project.

Below is a model set of water quality protection policies and standards appropriate for updating the water quality elements of an LCP’s Land Use Plan (LUP) and Implementation Plan (IP) to address development that requires a Coastal Development Permit and has the potential for adverse water quality or hydrologic impacts to coastal waters. These are not required policies and standards, but are examples for updating an LCP, and should be adapted to reflect the local government’s needs. Where there are other applicable standards in effect, such as requirements of the Regional Water Quality Control Boards, the standards that are most protective of coastal water resources should be applied.

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| ***Model Water Quality Policies for an LCP’s Land Use Plan*** | | |
| All applications for a Coastal Development Permit for development that has the potential for adverse water quality or hydrologic impacts to coastal waters should be required to comply with the following policies: | | |
| ***PRINCIPLES*** | | |
| **1** | **Protect and Restore Water Quality** | Protect and, where feasible, restore the quality of coastal waters to implement Coastal Act policies (in particular Sections 30230 and 30231). Coastal waters include the ocean, rivers, streams, wetlands, estuaries, lakes, and groundwater.  § 30230. Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.  § 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. |
| **2** | **Minimize Pollutants in Runoff from the Development** | Plan, site, and design development to minimize the transport of pollutants in runoff from the development into coastal waters. |
| **3** | **Minimize Changes in**  **the Site’s Runoff Flow Regime** | Plan, site, and design development to minimize post-development changes in the site’s runoff flow regime (i.e., volume, flow rate, timing, and duration), to preserve the pre-development hydrologic balance and prevent adverse changes in the hydrology of coastal waters (i.e., hydromodification). |
| ***POLICIES FOR REGULATING ALL DEVELOPMENT*** | | |
| **4** | **Address Runoff Management Early in Site Design Planning** | Address runoff management early in site design planning and alternatives analysis, integrating existing site characteristics that affect runoff (such as topography, drainage patterns, vegetation, soil conditions, natural hydrologic features, and infiltration conditions) in the design of strategies that minimize post-development changes in the runoff flow regime, control pollutant sources, and, where necessary, remove pollutants. |
| **5** | **Give Precedence to Low Impact Development Approach to Stormwater Management** | Give precedence to a Low Impact Development (LID) approach to stormwater management in all development. LID integrates preventive Site Design strategies with small-scale, distributed BMPs to replicate the site’s pre-development hydrologic balance through infiltration, evapotranspiration, harvesting, detention, or retention of stormwater close to the source. |
| **6** | **Protect and Restore  Hydrologic Features** | Plan, site, and design development to protect and, where feasible, restore hydrologic features such as stream corridors, drainage swales, topographical depressions, groundwater recharge areas, floodplains, and wetlands. |
| **7** | **Preserve or Enhance Vegetation** | Plan, site, and design development to preserve or enhance non-invasive vegetation to achieve water quality benefits such as transpiration, interception of rainfall, pollutant uptake, shading of waterways to maintain water temperature, and erosion control. |
| **8** | **Maintain or Enhance On-Site Infiltration** | Plan, site, and design development to maintain or enhance on-site infiltration of runoff, where appropriate and feasible, to reduce runoff and recharge groundwater. |
| **9** | **Minimize Impervious Surfaces** | Minimize the installation of impervious surfaces, especially directly-connected impervious areas, and, where feasible, increase the area of pervious surfaces in re-development, to reduce runoff. |
| **10** | **Use Pollutant Source Control BMPs in All Development** | Use pollutant Source Control Best Management Practices (BMPs), which can be structural features or operational actions, in all development to minimize the transport of pollutants in runoff from the development. |
| **11** | **Prevent Adverse Impacts to Environmentally Sensitive Habitat Areas from Runoff** | In areas adjacent to an Environmentally Sensitive Habitat Area (ESHA), plan, site, and design development to protect the ESHA from any significant disruption of habitat values resulting from the discharge of stormwater or dry weather runoff flows. |
| **12** | **Minimize Adverse Impacts from Stormwater Outfall Discharges** | Avoid construction of new stormwater outfalls and direct stormwater to existing facilities with appropriate treatment and filtration, where feasible. Where new outfalls cannot be avoided, plan, site, and design outfalls to minimize adverse impacts to coastal resources from outfall discharges, including consolidation of existing and new outfalls where appropriate. |
| **13** | **Manage BMPs for the Life of the Development** | Implement appropriate protocols to manage BMPs (including ongoing operation, maintenance, inspection, and training) in all development, to protect coastal water resources for the life of the development. |
| **14** | **Minimize Water Quality Impacts During Construction** | Minimize water quality impacts during construction by minimizing the project footprint, phasing grading activities, implementing soil stabilization and pollution prevention measures, and preventing unnecessary soil compaction. |
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| ***POLICIES FOR REGULATING DEVELOPMENTS OF WATER QUALITY CONCERN***  Certain categories of development have a greater potential for adverse impacts to water quality and hydrology due to the extent of impervious surface area, type of land use, and/or proximity to coastal waters. These categories of *Developments of Water Quality Concern* should be identified in the LCP. Additional BMPs may be required for a *Development of Water Quality Concern*, such as the use of LID BMPs to retain the design storm runoff on-site; Treatment Control BMPs to remove pollutants; and Runoff Control BMPs to minimize adverse changes in the runoff flow regime. The LCP should specify an appropriate design storm standard for sizing LID, Treatment Control, and Runoff Control BMPs; this model guidance uses the 85th percentile design storm, but the LCP may specify a larger design storm. The LCP should also specify the amount of added impervious surface area that will trigger the requirement for Runoff Control BMPs.  All applications for a Coastal Development permit for a *Development of Water Quality Concern* should be required to comply with the following additional policies: | | |
| **15** | **Conduct a Site Characterization and Document Expected BMP Effectiveness** | Conduct a polluted runoff and hydrologic site characterization by a qualified licensed professional, early in the development planning and design stage, and document the expected effectiveness of the proposed BMPs. |
| **16** | **Size LID, Runoff Control, and Treatment Control BMPs Using the 85th Percentile Design Storm Standard** | Size LID, Runoff Control, and Treatment Control BMPs to infiltrate, retain, or treat, at a minimum, the runoff produced by the 85th percentile 24-hour storm event for volume-based BMPs, or two times the 85th percentile 1-hour storm event for flow-based BMPs. |
| **17** | **Use LID to Retain Design Storm Runoff On-Site** | Use an LID approach that gives priority to preventive Site Design strategies to minimize post-development changes in the site’s stormwater flow regime, supplemented by structural BMPs to retain on-site (by means of infiltration, evapotranspiration, or harvesting for later use), at a minimum, the runoff produced by the 85th percentile 24-hour design storm, to the extent appropriate and feasible. |
| **18** | **Conduct Alternatives Analysis if Design Storm Runoff is Not Retained On-Site Using LID** | Conduct an alternatives analysis to demonstrate that there are no appropriate and feasible alternative project designs that would substantially improve runoff retention, if a proposed development will not retain on-site the runoff produced by the 85th percentile 24-hour design storm using an LID approach. |
| **19** | **Use Treatment Control BMPs if Necessary** | Use a Treatment Control BMP (or suite of BMPs) to remove pollutants of concern from any portion of the runoff produced by the 85th percentile 24-hour design storm that will not be retained on-site, or if additional pollutant removal is necessary to protect coastal waters. |
| **20** | **Use a Runoff Control BMP if Adding More Than 15,000 ft2 Net Impervious Surface Area** | If a proposed development will add a net total of more than 15,000 ft2 of impervious surface area, and any portion of the runoff produced by the 85th percentile 24-hour design storm will not be retained on-site, use a structural Runoff Control BMP to minimize adverse post-development changes in the runoff flow regime. |

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| 23 | iii. Tracking control BMPs. |
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| 38 | (1) Extension. |
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| 40 | h. Manage construction-phase BMPs (operation, maintenance, inspection, and training) |
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| 46 | d. Description of BMP management (operation, maintenance, inspection, and training). |

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| 48 | **1. Applicability of *Post-Development Runoff Plan*.** |
| 49 | **2. Submittal of *Post-Development Runoff Plan*.** |
| 50 | **3. Requirements of *Post-Development Runoff Plan*:** |
| 51 | a. Address runoff management early in site design.  -- Site Design strategies definition. |
| 52 | b. Give precedence to a Low Impact Development (LID) approach to stormwater management.  -- LID Site Design strategies & BMPs include: |
| 53 | (1) Protect and restore natural hydrologic features. Examples include: |
| 54 | i. Preserve natural drainage patterns, drainage swales, groundwater recharge areas, floodplains, and topographical depressions. |
| 55 | ii. Preserve natural stream corridors, rivers, & wetlands, and establish buffer areas. |
| 56 | (2) Preserve or enhance non-invasive vegetation. Examples include: |
| 57 | i. Minimize removal of natural non-invasive vegetation. |
| 58 | ii. Plant additional trees and non-invasive vegetation, preferentially native plants. |
| 59 | (3) Maintain or enhance on-site infiltration. Examples include: |
| 60 | i. Avoid building impervious surfaces on highly permeable areas. |
| 61 | ii. Minimize unnecessary soil compaction, and amend soil if needed. |
| 62 | iii. Install an infiltration BMP: bioretention system, vegetated swale, or rain garden. |
| 63 | (4) Minimize impervious surface area. Examples include: |
| 64 | i. Downsize impervious coverage by minimizing building and pavement footprint. |
| 65 | ii. Install a permeable pavement system. |
| 66 | (5) Disconnect impervious areas from the storm drain system. Examples include: |
| 67 | i. Direct roof-top runoff into permeable landscaped areas. |
| 68 | ii. Direct runoff from impervious pavement into distributed permeable areas. |
| 69 | iii. Design curbs and berms so that runoff can flow into permeable areas. |
| 70 | iv. Install an infiltration BMP to intercept runoff sheet flow from impervious areas. |
| 71 | v. Harvest roof-top runoff using a rain barrel or cistern, for later use in irrigation. |
| 72 | c. Use alternative BMPs where on-site infiltration is not appropriate. Examples of BMPs include: |
| 73 | (1) Install a vegetated “green roof” or flow-through planter box without ground infiltration. |
| 74 | (2) Direct runoff to an off-site regional infiltration facility. |
| 75 | (3) Install cistern to harvest roof-top runoff for use in plumbing that drains to sanitary sewer. |
| 76 | (4) If appropriate and feasible BMPs implemented, direct runoff to the storm drain system. |
| 77 | d. Use Source Control BMPs in all development.  -- Source Control BMPs definition. |
| 78 | e. Address runoff from impervious and semi-pervious surfaces. |
| 79 | f. Prevent adverse impacts to ESHA from runoff. |
| 80 | g. Minimize discharges of dry weather runoff to coastal waters. Examples include: |
| 81 | (1) Use efficient irrigation techniques that minimize off-site runoff. |
| 82 | (2) Design vehicle washing areas to convey wash water to infiltration, recycling, or sanitary sewer system. |
| 83 | h. Avoid adverse impacts of discharges from stormwater outfalls: |
| 84 | (1) Avoid construction of new stormwater outfalls. |
| 85 | (2) Minimize adverse impacts to coastal resources from stormwater outfalls: |
| 86 | i. Consolidate existing and new stormwater outfalls. |
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| 88 | iii. Minimize adverse impacts to coastal resources from outfall discharges. |
| 89 | i. Prevent erosion at stormwater outlets.  -- Protective measures prioritized in the following order: |
| 90 | (1) Use vegetative bioengineered measures. |
| 91 | (2) Use a hardened structure consisting of loose material. |
| 92 | (3) Use a fixed energy dissipation structure. |
| 93 | j. Manage BMPs for the life of the development. |
| 94 | k. Use an appropriate BMP guidance manual. |
| 95 | **4. Content of *Post-Development Runoff Plan*:** |
| 96 | a. PDRP site plan. |
| 97 | b. Identification of pollutants potentially generated. |
| 98 | c. Estimate of changes in impervious and semi-pervious surface areas. |
| 99 | d. Description of BMPs to be implemented to meet all PDRP requirements listed in D.3, above. |
| 100 | e. Description of LID approach to be implemented, or justification if not implemented. |
| 101 | f. BMP installation or implementation schedule. |
| 102 | g. Description of BMP management to be implemented. |
| 103 | **E**. ***Water Quality and Hydrology Plan*:** |
| 104 | **1. Applicability of *Water Quality and Hydrology Plan*.**  -- *Developments of Water Quality Concern* categories include: |
| 105 | a. Residential. |
| 106 | b. Hillside. |
| 107 | c. 75% or more of site will be impervious surface area. |
| 108 | d. Create and/ or replace 10,000 square feet or more impervious surface area. |
| 109 | e. Parking lot. |
| 110 | f. Vehicle service facility. |
| 111 | g. Street, road, or highway facility. |
| 112 | h. Restaurant. |
| 113 | i. Outdoor storage area. |
| 114 | j. Commercial or industrial development generating a high pollutant load. |
| 115 | k. Contaminated soil. |
| 116 | l. Near or discharges directly to coastal waters. |
| 117 | m. Other category, as determined by the City/County. |
| 118 | **2. Submittal of *Water Quality and Hydrology Plan*.** |
| 119 | **3. Requirements of *Water Quality and Hydrology Plan*:** |
| 120 | a. Prepare plan by qualified licensed professional. |
| 121 | b. Conduct a polluted runoff and hydrologic site characterization. |
| 122 | c. Address runoff from impervious and semi-pervious surfaces. |
| 123 | d. Size LID, Treatment Control, and Runoff Control BMPs using, at a minimum, the 85th percentile design storm standard. |
| 124 | e. Use LID to retain on-site, at a minimum, the design storm runoff volume. |
| 125 | f. Conduct an alternatives analysis if the design storm runoff will not be retained on-site using LID.  -- Demonstrate: |
| 126 | (1) There are no feasible alternative project designs, giving precedence to an LID approach. |
| 127 | (2) On-site runoff retention is maximized, giving precedence to an LID approach. |
| 128 | (3) The feasibility of off-site runoff retention is considered. |
| 129 | g. Use Treatment Control BMPs to remove pollutants if necessary.  -- Treatment Control BMPs definition.  -- Applicability and performance requirements for Treatment Control BMPs: |
| 130 | (1) Use Treatment Control BMPs if the design storm runoff will not be retained on-site. |
| 131 | (2) Use Treatment Control BMPs prior to infiltration where necessary and effective. |
| 132 | (3) Select Treatment Control BMPs effective for the pollutants of concern. |
| 133 | h. Use a Runoff Control BMP if development adds more than 15,000 ft2 net impervious surface area.  -- Runoff Control BMPs definition.  -- Applicability and performance requirements for Runoff Control BMPs: |
| 134 | (1) Runoff Controls using Flow Retention techniques. |
| 135 | (2) Runoff Controls using Peak Management techniques. |
| 136 | i. Use appropriate BMPs for high-pollutant land uses. |
| 137 | j. Design and manage parking lots to minimize polluted runoff: |
| 138 | (1) Parking lot landscaping. |
| 139 | (2) Parking lot vacuuming. |
| 140 | (3) Filter/media maintenance. |
| 141 | k. Manage BMPs for the life of the development. |
| 142 | **4. Content of *Water Quality and Hydrology Plan*:** |
| 143 | a. All information required for the *Post-Development Runoff Plan*. |
| 144 | b. Documentation of polluted runoff and hydrologic site characterization. |
| 145 | c. Description of BMPs to be implemented to meet all WQHP requirements listed in E.3, above. |
| 146 | d. Calculations for sizing BMPs using, at a minimum, the 85th percentile design storm standard. |
| 147 | e. Documentation that runoff from impervious and semi-pervious surfaces is addressed as required. |
| 148 | f. Description of LID approach used to retain on-site the design storm runoff volume. |
| 149 | g. Alternatives analysis documenting site-specific constraints to retaining design storm runoff on-site. |
| 150 | h. Description of BMP management (operation, maintenance, inspection, and training). |

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| ***Model Water Quality Standards for an LCP’s Implementation Plan*** | | |
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| ***ROW*** | ***MODEL WATER QUALITY STANDARDS*** | ***NOTES*** |
| **1** | **A. Overview of water quality protection plans.** Development that requires a Coastal Development Permit and has the potential for adverse water quality or hydrologic impacts to coastal waters shall in most cases require both a construction-phase plan and a post-development plan for water quality protection. The water quality protection plans are summarized as follows: |  |
| **2** | **1. Construction-Phase Plan.** |  |
| **3** | **a. *Construction Pollution Prevention Plan*.** A C*onstruction Pollution Prevention Plan* (CPPP; see section C, below) shall be required for development that requires a Coastal Development Permit and entails construction that has the potential for adverse water quality or hydrologic impacts to coastal waters. For the purposes of this chapter, construction includes clearing, grading, or other activities that involve ground disturbance; building, reconstructing, or demolishing a structure; and creation or replacement of impervious surfaces. The CPPP shall describe the temporary Best Management Practices (BMPs) the development will implement to minimize erosion and sedimentation during construction, and to minimize pollution of runoff by construction chemicals and materials. |  |
| **4** | **2. Post-Development Plans.** Development may require one of two post-development water quality protection plans: |  |
| **5** | **a. *Post-Development Runoff Plan*.** Development that requires a Coastal Development Permit and has the potential for adverse water quality or hydrologic impacts to coastal waters shall (1) require a *Post-Development Runoff Plan* (PDRP; see section D, below) if the development entails construction (as defined in A.1.a, above); or (2) require a preliminary PDRP if the development entails activities or changes in land use other than construction, including subdivision or re-division of land. The PDRP shall describe the runoff management Site Design strategies, pollutant Source Control BMPs, and other measures the development will implement to protect coastal waters after the development is completed. |  |
| **6** | **b. *Water Quality and Hydrology Plan*.** A *Water Quality and Hydrology Plan* (WQHP; see section E, below)shall be required for development that requires a Coastal Development Permit, has the potential for adverse water quality or hydrologic impacts to coastal waters, and is a *Development of Water Quality Concern* (see E.1, below). *Developments of Water Quality Concern* are specified categories of development that have a greater potential for adverse water quality and hydrologic impacts due to the development size, the type of land use, and/or proximity to coastal waters.  The WQHP shall be prepared by a qualified licensed professional, and shall include a polluted runoff and hydrologic site characterization, a design storm standard for sizing BMPs, use of a Low Impact Development (LID) approach to retain runoff on-site, and documentation of the expected effectiveness of proposed BMPs. Additional plan components that may be required include an alternatives analysis, and a description of the Treatment Control and/or Runoff Control BMPs the development will implement to minimize potential post-development water quality and hydrologic impacts. |  |
| **7** | **B. Information about existing project site conditions.** In additionto the required content for each water quality protection plan specified in sections C-E below, the following information about the existing project site conditions shall be submitted, if applicable to the project, to enable evaluation of the project’s potential water quality and hydrologic impacts: |  |
| **8** | **1. Location map.** A location map, drawn to scale, showing the location of the development, and the distance from the development to the nearest coastal waters and other natural hydrologic features. |  |
| **9** | **2. Description of existing project site conditions.** A site plan that illustrates and describes the following existing project site conditions: |  |
| **10** | **a.** **Topography and drainage.** General site topography and drainage, including natural hydrologic features that may provide stormwater infiltration, treatment, storage, or conveyance (such as groundwater recharge areas, stream corridors, floodplains, and wetlands), and any existing structural stormwater conveyances or BMPs. |  |
| **11** | **b.** **Nearby coastal waters and ESHA.** Location of coastal waters and Environmentally Sensitive Habitat Areas (ESHA) within 200 feet of the project site, indicating whether site runoff drains to these areas. |  |
| **12** | **c.** **Discharges to impaired waters or ASBS.** Whether runoff discharges to receiving waters listed for water quality impairment on the most recent Clean Water Act Section 303(d) list, or to an Area of Special Biological Significance (ASBS). |  |
| **13** | **d.** **Structures and pavement.** Existing structures, impervious surface areas, permeable pavements, utilities, and vegetated areas. An accompanying table shall quantify the extent of such areas. |  |
| **14** | **e.** **Potential contamination.** Any previous land use on the site with a potential for a historic source of contamination, and any known soil or water contamination. |  |
| **15** | **C. *Construction Pollution Prevention Plan*.** The *Construction Pollution Prevention Plan* (CPPP) shall describe the temporary BMPs the development will implement to minimize erosion and sedimentation during construction, and to minimize pollution of runoff by construction chemicals and materials. The level of detail provided to address the plan’s requirements shall be commensurate with the type and scale of the development, and the potential for adverse water quality and hydrologic impacts to coastal waters. |  |
| **16** | **1. Applicability of *Construction Pollution Prevention Plan*.** A CPPPshall be required for development that requires a Coastal Development Permit and entails construction that has the potential for adverse water quality or hydrologic impacts to coastal waters. For the purposes of this chapter, construction includes clearing, grading, or other activities that involve ground disturbance; building, reconstructing, or demolishing a structure; and creation or replacement of impervious surfaces.  To comply with the California State Water Resources Control Board (SWRCB) stormwater permit requirements, an applicant proposing certain size or types of development, including industrial facilities, may be required to develop and implement a *Stormwater Pollution Prevention Plan* (SWPPP) that addresses construction activities. Applicants submitting a SWPPP to meet SWRCB requirements shall also submit a CPPP to meet the City’s/County’s LCP requirements for review of a Coastal Development Permit application. Applicable information provided in the SWPPP may also be included as part of the CPPP. |  |
| **17** | **2. Submittal of *Construction Pollution Prevention Plan*.** An applicant shall submit a preliminary CPPP (based on site conditions and project features known at the time of application) with the Coastal Development Permit application, and shall submit a final CPPP for approval prior to construction. The information provided to address the plan’s requirements may be submitted as a stand-alone document, or incorporated into the permit application materials. Any changes to the final CPPP after issuance of the Coastal Development Permit shall be subject to additional authorization by the permit-issuing agency. |  |
| **18** | **3. Requirements of *Construction Pollution Prevention Plan*.** The CPPP shall demonstrate that the development complies with the following requirements: |  |
| **19** | **a. Minimize runoff and pollutant discharge.** During construction, development shall minimize site runoff and erosion through the use of temporary BMPs, and shall minimize the discharge of sediment and other potential pollutants resulting from construction activities (e.g., chemicals, vehicle fluids, petroleum products, cement, debris, and trash).  Development shall implement the following types of construction-phase BMPs, as applicable to the project: |  |
| **20** | **(1) BMPs to minimize soil erosion and sedimentation.** Erosion and sediment control BMPs, including: |  |
| **21** | i. Erosion control BMPs to prevent soil from being transported by water or wind (such as mulch, soil binders, blankets or mats, or temporary seeding). |  |
| **22** | ii.Sediment control BMPs to trap and remove eroded sediment (such as fiber rolls, silt fences, straw bales, and sediment basins). |  |
| **23** | iii. Tracking control BMPs to prevent tracking sediment by vehicles leaving the construction area (such as a stabilized construction entrance/exit, and street sweeping.) |  |
| **24** | **(2) BMPs to minimize discharge of other pollutants from construction activities.** BMPs to minimize the discharge of other pollutants resulting from construction activities (such as paints, solvents, vehicle fluids, asphalt and cement compounds, trash, and debris) into runoff or coastal waters, including: |  |
| **25** | i.BMPs to minimize polluted runoff from staging, storage, and disposal of construction chemicals and materials. |  |
| **26** | ii. Site management “good housekeeping” BMPs implemented during construction, such as maintaining an inventory of products and chemicals used on site, and having a written plan for the clean-up of spills and leaks. |  |
| **27** | **(3) BMPs to infiltrate or treat runoff.** BMPs that will be implemented during construction, where necessary, to infiltrate or treat runoff prior to conveyance of runoff off-site. |  |
| **28** | **b. Stabilize soil as soon as feasible.** Temporary soil stabilization BMPs (such as mulching, soil binders, erosion control blankets, or temporary seeding) shall be implemented on graded or disturbed areas as soon as feasible during construction, where there is a potential for soil erosion to lead to discharge of sediment off-site or to coastal waters. |  |
| **29** | **c. Minimize land disturbance and soil compaction.** Development shall minimize land disturbance during construction (e.g., clearing, grading, and cut-and-fill) and shall phase grading activities, to avoid increased erosion and sedimentation. Development shall minimize soil compaction due to construction activities, to retain the natural stormwater infiltration capacity of the soil. |  |
| **30** | **d. Minimize damage or removal of vegetation.** Development shall minimize the damage or removal of non-invasive vegetation (including trees, native vegetation, and root structures) during construction, to achieve water quality benefits such as transpiration, vegetative interception, pollutant uptake, shading of waterways, and erosion control. |  |
| **31** | **e. Avoid plastic netting in temporary erosion and sediment control products.** Development shall avoid the use of temporary erosion and sediment control products (such as fiber rolls, erosion control blankets, mulch control netting, and silt fences) that incorporate plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers), in order to minimize wildlife entanglement and plastic debris pollution. |  |
| **32** | **f. Use additional BMPs for construction near coastal waters.** Development shall implement additional BMPs for construction taking place over, in, or adjacent to coastal waters, if there is a potential for construction chemicals or materials to enter coastal waters. BMPs shall include, where applicable: |  |
| **33** | **(1)** **Tarps to capture debris and spills.** Use tarps or other devices to capture debris, dust, oil, grease, rust, dirt, fine particles, and spills to protect the quality of coastal waters. |  |
| **34** | **(2)** **BMPs for preservative-treated wood.** If preservative-treated wood is used, implement appropriate BMPs that meet standards for treatment, storage, and construction practices for preservative-treated wood; at a minimum, those standards identified by the American Wood Protection Association. |  |
| **35** | **(3)** **Non-petroleum hydraulic fluids.** Use non-petroleum hydraulic fluids in principal heavy equipment operated for one week or longer over or in coastal waters or intertidal areas, if leaks or spills of hydraulic fluid from this equipment cannot be contained and could potentially enter coastal waters or intertidal areas. |  |
| **36** | **(4)** **Designated fueling and maintenance area.** Conduct fueling and maintenance of construction equipment and vehicles off site if feasible. Any fueling and maintenance of mobile equipment conducted on site shall take place at a designated area located at least 50 feet from coastal waters, drainage courses, and storm drain inlets, if feasible (unless these inlets are blocked to protect against fuel spills). The fueling and maintenance area shall be designed to fully contain any spills of fuel, oil, or other contaminants. Equipment that cannot be feasibly relocated to a designated fueling and maintenance area (such as cranes) may be fueled and maintained in other areas of the site, provided that procedures are implemented to fully contain any potential spills. |  |
| **37** | **g. Avoid grading during the rainy season.** Development shall avoid grading during the rainy season (from *xxx date* to *xxx date*), unless one of the following is granted: |  |
| **38** | **(1)** **Extension.** If the City/County grants an extension for a specific length of time, based on an inspection of the site, and a determination that conditions at the project site are suitable for continued work with appropriate erosion and sedimentation control measures that will be maintained during the activity; or |  |
| **39** | **(2)** **Emergency.** If the City/County allows grading under emergency conditions, and BMPs to protect coastal resources are implemented where feasible. |  |
| **40** | **h. Manage construction-phase BMPs.** Appropriate protocols shall be implemented to manage construction-phase BMPs (including installation, ongoing operation, inspection, maintenance, and training), to protect coastal water quality. |  |
| **41** | **i. Use an appropriate BMP guidance manual.** The selection of BMPs for the Construction Pollution Prevention Plan shall be guided by the current edition of the California Stormwater Quality Association (CASQA) Construction BMP Handbook, or by the current edition of a BMP manual that has been designed to address local or regional runoff conditions and has been approved by the applicable Regional Water Quality Control Board. |  |
| **42** | **4. Content of *Construction Pollution Prevention Plan*.** To comply with the CPPP requirements listed in C.3, above, the CPPP shall include a construction site map and a narrative description addressing, at a minimum, the following required components, if they are applicable to the development: |  |
| **43** | **a. Construction site plan map.** A map delineating the construction site, construction phasing boundaries, and the location of all temporary construction-phase BMPs (such as silt fences, inlet protection, and sediment basins). |  |
| **44** | **b. Description of BMPs to be implemented to meet all CPPP requirements.** A description of theBMPs that will be implemented to meet all the CPPP requirements listed in section C.3, above, and how these BMPs will minimize stormwater pollution resulting from the development during construction. Include calculations that demonstrate proper sizing of the BMPs. |  |
| **45** | **c.** **Schedule of BMP installation and** **construction phasing.** A schedule for installation and removal of temporary erosion and sedimentation control BMPs, and identification of temporary BMPs that will be converted to permanent post-development BMPs. A construction phasing schedule, if applicable to the project, with a description and timeline of significant land disturbance activities. |  |
| **46** | **d. Description of BMP Management.** A description and schedule for the inspection, training, operation, and maintenance of construction-phase BMPs, including temporary erosion and sedimentation control BMPs, as needed to ensure that the Coastal Development Permit’s water quality requirements are met. |  |
| **47** | **D. *Post-Development Runoff Plan*.** The *Post-Development Runoff Plan* (PDRP) shall describe the runoff management Site Design strategies, pollutant Source Control BMPs, and other measures the development will implement to minimize stormwater pollution and changes in runoff flows from the site after development is completed, in order to protect and, where feasible, restore the quality of coastal waters. The level of detail provided to address the plan’s requirements shall be commensurate with the type and scale of the project, and the potential for adverse water quality or hydrologic impacts to coastal waters. |  |
| **48** | **1. Applicability of *Post-Development Runoff Plan*.** Development that requires a Coastal Development Permit and has the potential for adverse water quality or hydrologic impacts to coastal waters shall (1) require a PDRP if the development entails construction (as defined in A.1, above); or (2) require a preliminary PDRP if the development entails activities or changes in land use other than construction, including subdivision or re-division of land (e.g., allowing motorized vehicle use of a trail previously restricted to pedestrians). |  |
| **49** | **2. Submittal of *Post-Development Runoff Plan*.** An applicant shall submit a preliminary PDRP (based on site conditions and project features known at the time of application) with the Coastal Development Permit application, and if the development entails construction, shall also submit a final PDRP prior to issuance of the Coastal Development Permit. Any changes to the final PDRP after issuance of the Coastal Development Permit shall be subject to additional authorization by the permit-issuing agency. |  |
| **50** | **3. Requirements of *Post-Development Runoff Plan*.** The PDRP shall demonstrate that the development complies with the following requirements: |  |
| **51** | **a. Address runoff management early in site design planning.** All development shall address runoff management early in site design planning and alternatives analysis, and shall implement appropriate and feasible Site Design strategies.  **Site Design strategies** are project design and site layout techniques that integrate existing site characteristics that affect runoff (such as topography, drainage patterns, vegetation, soil conditions, natural hydrologic features, and infiltration conditions) in the design of strategies to minimize post-development changes in the runoff flow regime, control pollutant sources, and, where necessary, remove pollutants. |  |
| **52** | **b. Give precedence to a Low Impact Development approach to stormwater management.** All development shall give precedence to the use of a Low Impact Development (LID) approach to stormwater management to preserve the natural hydrologic functions of the site and to minimize post-development changes in the runoff flow regime resulting from the development.  **LID** integrates preventive Site Design strategies with small-scale, distributed BMPs that replicate the site's pre-development hydrologic balance through infiltration, evapotranspiration, harvesting, detention, or retention of stormwater close to the source. By reducing runoff, LID also reduces the transport of pollutants from the site.  **LID Site Design strategies** are project design and site layout techniques that preserve or enhance the natural hydrologic functions of the site. In implementing an LID approach, priority shall be given to the use of LID Site Design strategies to minimize changes in the site’s stormwater flow regime, supplemented by the use of structural LID BMPs if needed to mitigate any unavoidable changes in runoff flows. Use of LID Site Design strategies can reduce the volume of stormwater runoff generated, and thus reduce the need for and size of structural LID BMPs required.  LID Site Design strategies and BMPs include, but are not limited to, the following: |  |
| **53** | **(1)** **Protect and restore natural hydrologic features.** Plan, site, and design development to protect and, where feasible, restore natural hydrologic features that provide stormwater infiltration, treatment, storage, or conveyance.  Examples include: |  |
| **54** | i. Preserve natural drainage patterns, drainage swales, groundwater recharge areas, floodplains, and topographical depressions that can provide storage of small storm volumes. |  |
| **55** | ii. Preserve natural stream corridors, rivers, and wetlands, and establish appropriate buffer areas. |  |
| **56** | **(2)** **Preserve or enhance non-invasive vegetation.** Plan, site, and design development to preserve or enhance non-invasive vegetation, in order to achieve water quality benefits such as transpiration, interception of rainfall, pollutant uptake, shading of waterways to maintain water temperature, and erosion control. Examples include: |  |
| **57** | i. Minimize removal of natural non-invasive vegetation. |  |
| **58** | ii. Plant additional trees and other non-invasive vegetation, preferentially native plants. |  |
| **59** | **(3)** **Maintain or enhance on-site infiltration.** Plan, site, and design development to maintain or enhance on-site infiltration of runoff, where appropriate and feasible, in order to preserve natural hydrologic conditions, recharge groundwater, attenuate runoff, retain dry-weather runoff on-site, and minimize transport of pollutants. Examples include: |  |
| **60** | i. Avoid building impervious surfaces on highly permeable areas. Cluster buildings and other impervious areas onto the site’s least permeable soils. |  |
| **61** | ii. Minimize unnecessary soil compaction, which can greatly reduce the infiltrative capacity of soils. Amend soil if needed to enhance its infiltration and pollutant removal capacity. |  |
| **62** | iii. Install an infiltration/evapotranspiration BMP such as a bioretention system, vegetated swale, or rain garden. |  |
| **63** | **(4) Minimize impervious surface area.** Plan, site, and design development to minimize the installation of impervious surfaces (including pavement, sidewalks, driveways, patios, parking areas, streets, and roof-tops), in order to reduce runoff. Where feasible, increase the area of pervious surfaces in re-development. Examples include: |  |
| **64** | i. Downsize impervious coverage by minimizing the footprint of buildings and impervious pavement (such as a shorter driveway, narrower road, or smaller parking lot). |  |
| **65** | ii. Where pavement is required, install a permeable pavement system BMP (e.g., interlocking concrete pavers, porous asphalt, permeable concrete, or reinforced grass or gravel), where appropriate and feasible. Design permeable pavements so that runoff infiltrates into a subsurface recharge bed and the underlying soil, if feasible, to reduce runoff, enhance groundwater recharge, and filter out pollutants. |  |
| **66** | **(5) Disconnect impervious surface areas from the storm drain system.** Plan, site, and design development to minimize directly-connected impervious areas, which are areas covered by a building, impermeable pavement, or other impervious surfaces that drain directly into the storm drain system without first flowing across permeable areas (such as vegetative landscaping or permeable pavement). Convey runoff from impervious surfaces into permeable areas in a non-erosive manner. Examples include: |  |
| **67** | i. Direct roof-top runoff into permeable landscaped areas. |  |
| **68** | ii. Direct runoff from impervious pavement into distributed permeable areas such as turf, recreational areas, medians, parking islands, and planter boxes. |  |
| **69** | iii. Design curbs, berms, and similar structures to avoid isolation of vegetative landscaping and other permeable areas, and allow runoff to flow from impervious pavement to permeable areas for infiltration. |  |
| **70** | iv. Install an infiltration BMP such as a vegetated swale or filter strip to intercept runoff sheet flow from impervious surfaces. |  |
| **71** | v. Install a rainwater harvesting BMP, such as a rain barrel or cistern, to capture and store roof-top runoff for later use in on-site irrigation. |  |
| **72** | **c. Use alternative BMPs where on-site infiltration is not appropriate.** If on-site infiltration of runoff may potentially result in adverse impacts, including, but not limited to, geologic instability, flooding, or pollution of coastal waters, the development shall substitute alternative BMPs that do not involve on-site infiltration, to minimize changes in the runoff flow regime to the extent appropriate and feasible. Alternative BMPs shall also be used where infiltration BMPs are not adequate to treat a specific pollutant of concern attributed to the development, or where infiltration practices would conflict with regulations protecting groundwater. Examples of alternative BMPs include: |  |
| **73** | **(1) Install a green roof or flow-through planter.** Install a vegetated “green roof” or flow-through planter box that does not infiltrate into the ground, and uses evapotranspiration to reduce runoff. |  |
| **74** | **(2) Direct runoff to an off-site infiltration facility.** Direct runoff from the development to an off-site regional infiltration facility. |  |
| **75** | **(3) Install a rainwater capture system.** Install a rainwater capture system to harvest runoff for subsequent non-potable water use on-site, that drains to the sanitary sewer system or storm drain system. |  |
| **76** | **(4) Direct runoff to the storm drain system.** If appropriate and feasible BMPs have been implemented to reduce runoff volume, velocity, and flow rate, direct runoff to the storm drain system. |  |
| **77** | **d. Use Source Control BMPs in all development.** All development shall implement appropriate and feasible long-term, post-development pollutant Source Control BMPs to minimize the transport of pollutants in runoff from the development.  **Source Control BMPs** are structural features or operational practices that control pollutant sources and keep pollutants segregated from runoff. Examples include covering outdoor storage areas, using efficient irrigation, proper application and clean-up of potentially harmful chemicals and fertilizers, and proper disposal of waste. |  |
| **78** | **e. Address runoff from impervious and semi-pervious surfaces.** Runoff from all new and/or replaced impervious and semi-pervious surfaces shall be addressed in the plan. For sites where the area of new and/or replaced impervious and semi-pervious surfaces is greater than or equal to 50% of the pre-existing impervious and semi-pervious surfaces, runoff from the entire developed area, including the pre-existing surfaces, shall be addressed in the plan. |  |
| **79** | **f. Prevent adverse impacts to Environmentally Sensitive Habitat Areas from runoff.** In areas adjacent to an Environmentally Sensitive Habitat Areas (ESHA), development shall be planned, sited, and designed to protect the ESHA from any significant disruption of habitat values resulting from the discharge of stormwater or dry weather flows. |  |
| **80** | **g. Minimize discharges of dry weather runoff to coastal waters.** Development shall be planned, sited, and designedto minimize discharges of dry weather runoff to coastal waters, to the maximum extent feasible. Examples include: |  |
| **81** | **(1) Efficient irrigation.** Use efficient irrigation techniques that minimize off-site runoff. |  |
| **82** | **(2) Design of vehicle washing areas.** Design vehicle washing areas so that wash water is conveyed to an infiltration system, recycling system, or sanitary sewer system. |  |
| **83** | **h. Avoid adverse impacts of discharges from stormwater outfalls.** Development shall be planned,sited, and designed to avoid the adverse impacts of discharging concentrated flows of stormwater or dry weather runoff through stormwater outfalls to coastal waters, intertidal areas, beaches, bluffs, or stream banks.  Development shall comply with the following requirements: |  |
| **84** | **(1) Avoid construction of new stormwater outfalls.** Avoid construction of new stormwater outfalls, and direct stormwater to existing facilities with appropriate treatment and filtration, where feasible. |  |
| **85** | **(2) Minimize adverse impacts to coastal resources from stormwater outfalls.** Where new development orredevelopment of a stormwater outfall that discharges directly to coastal waters, intertidal areas, beaches, bluffs, or stream banks cannot be avoided, plan, site, design, and manage outfalls to minimize adverse impacts to coastal resources.  To minimize adverse impacts, development shall: |  |
| **86** | i. Consolidate existing and new stormwater outfalls, where appropriate. |  |
| **87** | ii. Implement design and management features to minimize discharges of dry weather runoff through stormwater outfalls. |  |
| **88** | iii. Implement design and management features to minimize adverse impacts to coastal resources resulting from discharges of stormwater or dry weather runoff through stormwater outfalls. |  |
| **89** | **i.** **Prevent erosion at stormwater outlets.** Protective measures shall be used to prevent erosion at stormwater outlets (including outlets of pipes, drains, culverts, ditches, swales, or channels), if the discharge velocity will be sufficient to potentially cause erosion from concentrated runoff flows.  The type of measures selected for outlet erosion prevention shall be prioritized in the following order, depending on the characteristics of the site and the discharge velocity: |  |
| **90** | 1. **Use vegetative bioengineered measures.** Vegetative bioengineered measures (such as plant wattles) for outlet protection shall be given preference, rather than hardened structures, where site conditions are favorable for these measures to be feasible and effective. Where plant wattles are not feasible, other bioengineered measures (such as rock and plant pole cuttings) shall be considered for outlet erosion prevention. |  |
| **91** | 1. **Use a hardened structure consisting of loose material.** Where a vegetative bioengineered measure is not feasible or effective, a hardened structure consisting of loose material (such as a rip-rap apron or rock slope protection) shall be considered for outlet erosion prevention. |  |
| **92** | 1. **Use a fixed energy dissipation structure.** Where none of the above measures would be feasible or effective, a fixed energy dissipation structure (such as a concrete apron, grouted rip-rap, or baffles) designed to handle the range of flows exiting the outlet shall be used for outlet erosion prevention. It is anticipated that larger outlets will require a fixed energy dissipation structure. |  |
| **93** | **j. Manage BMPs for the life of the development.** Appropriate protocols shall be implemented to manage BMPs (including ongoing operation, maintenance, inspection, and training) in all development, to protect coastal water quality for the life of the development. |  |
| **94** | **k. Use an appropriate BMP guidance manual.** The selection of BMPs for the Post-Development Runoff Plan shall be guided by the current edition of the California Stormwater Quality Association (CASQA) BMP Handbooks, or by the current edition of a BMP manual that has been designed to address local or regional runoff conditions and has been approved by the applicable Regional Water Quality Control Board. |  |
| **95** | **4. Content of *Post-Development Runoff Plan*.** To comply with the PDRP requirements listed in D.3, above, the PDRP shall include a site plan and a narrative description addressing, at a minimum, the following required components, if they are applicable to the development: |  |
| **96** | **a. PDRP site plan.** A site plan showing post-development structural BMPs, stormwater conveyances and discharges, structures, pavements, and utilities, with contour intervals appropriate to identify post-development topography, finished grades, and drainage patterns. |  |
| **97** | **b. Identification of pollutants potentially generated.** Identification of pollutants potentially generated by the proposed development that could be transported off the site by runoff. |  |
| **98** | **c. Estimate of changes in impervious and semi-pervious surface areas.** An estimate of the proposed changes in impervious surface areas on the site, including pre-project and post-project impervious coverage area and the percentage of the property covered by impervious surfaces. An estimate of proposed changes in the amount of directly-connected impervious areas, which drain directly into the storm drain system without first flowing across permeable areas. In addition, an estimate of changes in site coverage with permeable or semi-permeable pavements. |  |
| **99** | **d.** **Description of BMPs to be implemented to meet all PDRP requirements.** A description of the BMPs that will be implemented to meet all the PDRP requirements listed in D.3, above, and how these BMPs will minimize stormwater pollution and changes in runoff flows from the development. |  |
| **100** | **e. Description of the Low Impact Development approach to be implemented.** A description of the Low Impact Development (LID) approach to stormwater management (see D.3.b, above) that will be implemented, or a justification if an LID approach is not selected. |  |
| **101** | **f. BMP installation or implementation schedule.** A schedule for installation or implementation of all post-development BMPs. |  |
| **102** | **g. Description of BMP management.** A description of the ongoing management of post-development BMPs (including operation, maintenance, inspection, and training) that will be performed for the life of the development, if required for the BMPs to function properly. |  |
| **103** | **E. *Water Quality and Hydrology Plan*.** A *Water Quality and Hydrology Plan* (WQHP) shall be required for *Developments of Water Quality Concern* (see E.1, below), which are specified categories of development that have a greater potential for adverse water quality and hydrologic impacts due to the development size, type of land use, and/or proximity to coastal waters. The WQHP shall be prepared by a qualified licensed professional, and shall include a polluted runoff and hydrologic site characterization, a sizing standard for BMPs, use of an LID approach to retain runoff on-site, and documentation of the expected effectiveness of the proposed BMPs. Additional plan components that may be required include an alternatives analysis, and a description of the Treatment Control and/or Runoff Control BMPs the development will implement to minimize potential post-development water quality and hydrologic impacts. |  |
| **104** | **1. Applicability of *Water Quality and Hydrology Plan*.** A WQHP shall be required for a *Development of Water Quality Concern* that requires a Coastal Development Permit and has the potential for adverse water quality or hydrologic impacts to coastal waters, including development that (1) entails construction (as defined in A.1, above), or (2) entails activities or changes in land use other than construction.  *Developments of Water Quality Concern* shall include the following categories: |  |
| **105** | **a. Residential.** Residential development that creates and/or replaces five or more dwelling units. |  |
| **106** | **b. Hillside.** Hillside development on a slope greater than 15 percent, on a site with erodible soil. |  |
| **107** | **c. 75% or more of site will be impervious surface area.** Development where 75% or more of the site’s surface area will be impervious surfaces. |  |
| **108** | **d. Create and/or replace 10,000 square feet or more impervious surface area.** Development that creates and/or replaces a cumulative site total of 10,000 square feet or more of impervious surface area. |  |
| **109** | **e. Parking lot.** Development of a parking lot that creates and/or replaces a cumulative site total of 5,000 square feet or more of impervious surface area that may potentially contribute to stormwater runoff. |  |
| **110** | **f. Vehicle service facility.** Development of a vehicle service facility, including a retail gasoline outlet, commercial car wash, or vehicle repair facility. |  |
| **111** | **g. Street, road, or highway facility.** Development of a street, road, or highway facility that creates and/or replaces a cumulative site total of 5,000 square feet or more of impervious surface area. |  |
| **112** | **h. Restaurant.** Development of a restaurant that creates and/or replaces a cumulative site total of 5,000 square feet or more of impervious surface area. |  |
| **113** | **i. Outdoor storage area.** Development of a commercial or industrial outdoor storage area that creates and/or replaces a cumulative site total of 5,000 square feet or more of impervious surface area, or as determined by the City/County based on the use of the storage area, where used for storage of materials that may potentially contribute pollutants to coastal waters or the storm drain system. |  |
| **114** | **j. Commercial or industrial development generating high pollutant load.** Commercial or industrial development with a potential for generating a high pollutant load that may potentially enter coastal waters or the storm drain system. |  |
| **115** | **k. Contaminated soil.** Any project developed on land where the soil has been contaminated by a previous land use, and where the contaminated soil has the potential to be eroded or to release the contaminants into runoff. |  |
| **116** | **l.** **Near or discharges directly to** **coastal waters.** Developments that create and/or replace a cumulative site total of 2,500 square feet or more of impervious surface area, if the development is located within 100 feet of coastal waters (including the ocean, estuaries, wetlands, rivers, streams, and lakes) or discharges directly to coastal waters (i.e., does not discharge to a public storm drain system). |  |
| **117** | **m. Other.** Any other development determined by the City/County to be a *Development of Water Quality Concern*. |  |
| **118** | **2. Submittal of *Water Quality and Hydrology Plan*.** An applicant shall submit a preliminary WQHP (based on site conditions and project features known at the time of application) with the Coastal Development Permit application, and shall also submit a final WQHP prior to issuance of the Coastal Development Permit. Any changes to the final WQHP after issuance of the Coastal Development Permit shall be subject to additional authorization by the permit-issuing agency. |  |
| **119** | **3. Requirements of *Water Quality and Hydrology Plan*.** The WQHP shall demonstrate that a Development of Water Quality Concern complies with the following requirements: |  |
| **120** | **a. Prepare plan by a qualified licensed professional.** A California-licensed professional (e.g., Registered Professional Civil Engineer, Geotechnical Engineer, Geologist, Engineering Geologist, Hydrogeologist, or Landscape Architect) qualified to complete this work shall be in responsible charge of preparing the *Water Quality and Hydrology Plan* for a *Development of Water Quality Concern*. |  |
| **121** | **b. Conduct a polluted runoff and hydrologic site characterization.** A polluted runoff and hydrologic characterization of the existing site (e.g., potential pollutants in runoff, soil properties, infiltration rates, depth to groundwater, and the location and extent of hardpan and confining layers) shall be conducted, as necessary to design the proposed BMPs. |  |
| **122** | **c. Address runoff from impervious and semi-pervious surfaces.** Runoff from all new and/or replaced impervious and semi-pervious surfaces shall be addressed in the plan. For sites where the area of new and/or replaced impervious and semi-pervious surfaces is greater than or equal to 50% of the pre-existing impervious and semi-pervious surfaces, runoff from the entire developed area, including the pre-existing surfaces, shall be addressed in the plan. |  |
| **123** | **d. Size LID, Runoff Control, and Treatment Control BMPs using, at a minimum, the 85th percentile design storm standard.** Any LID, Runoff Control, and Treatment Control BMP (or suite of BMPs) implemented to comply with WQHP requirements shall be sized, designed, and managed to infiltrate, retain, or treat, at a minimum, the runoff produced by the 85th percentile 24-hour storm event for volume-based BMPs, or two times the 85th percentile 1-hour storm event for flow-based BMPs. |  |
| **124** | **e. Use an LID approach to retain design storm runoff on-site.** The development shall implement an LID approach to stormwater management that will retain on-site (by means of infiltration, evapotranspiration, or harvesting), at a minimum, the runoff produced by the 85th percentile 24-hour design storm (see E.3.d, above), to the extent appropriate and feasible. In implementing an LID approach, priority shall be given to the use of preventive LID Site Design strategies to minimize post-development changes in the site’s stormwater flow regime, supplemented by use of structural LID BMPs if needed to mitigate any unavoidable changes in stormwater flows (see D.3.b. for examples of LID Site Design strategies and BMPs). |  |
| **125** | **f. Conduct an alternatives analysis if the design storm runoff will not be retained on-site using LID.** If the proposed development will not retain on-site the runoff produced by the 85th percentile 24-hour design storm (see E.3.d, above) using an LID approach, an alternatives analysis shall be conducted. The alternatives analysis shall demonstrate that: |  |
| **126** | **(1) There are no feasible alternative project designs.** Demonstrate that there are no appropriate and feasible alternative project designs (such as a reduced project footprint) that would retain on-site the runoff produced by the 85th percentile 24-hour design storm, giving precedence to an LID approach. |  |
| **127** | **(2)** **On-site runoff retention is maximized.** Demonstrate that on-site runoff retention is maximized to the extent appropriate and feasible, giving precedence to an LID approach. |  |
| **128** | **(3) The feasibility of off-site runoff retention is considered.** If E.3.f.(1) and (2), above, are demonstrated, some or all of the runoff produced by the 85th percentile 24-hour design storm may be retained off-site, if it is demonstrated that off-site options will feasibly contribute to meeting the development’s runoff retention and treatment requirements. |  |
| **129** | **g. Use Treatment Control BMPs to remove pollutants if necessary.**  **Treatment Control BMPs** are structural systems designed to remove pollutants from runoff by processes such as gravity settling of particulate pollutants, filtration, biological uptake, media adsorption, or other physical, biological, or chemical process. Examples include vegetated swales, detention basins, and storm drain inlet filters.  The following applicability and performance standards shall be required for Treatment Control BMPs: |  |
| **130** | **(1) Use Treatment Control BMPs to remove pollutants from any design storm runoff not retained on-site.** The development shall implement a Treatment Control BMP (or suite of BMPs) to remove pollutants of concern from any portion of the runoff produced by the 85th percentile 24-hour design storm (see E.3.d, above) that will not be retained on-site. |  |
| **131** | **(2) Use Treatment Control BMPs prior to infiltration where necessary and effective.** Where infiltration BMPs are not adequate to remove a specific pollutant of concern attributed to the development, an effective Treatment Control BMP (or suite of BMPs) shall be required prior to infiltration of runoff, or else an alternative BMP that does not involve infiltration shall be substituted for the infiltration BMP. |  |
| **132** | **(3) Select Treatment Control BMPs effective for pollutants of concern.** Where a Treatment Control BMP is required, a BMP (or suite of BMPs) shall be selected that has been shown to be effective in reducing the pollutants of concern generated by the proposed land use. |  |
| **133** | **h. Use a Runoff Control BMP if development will add more than 15,000 square feet of impervious surface area.** When a development results in a large impervious surface area, implementing LID Site Design strategies and LID BMPs may potentially not be sufficient to minimize adverse post-development changes in runoff volume, flow rate, timing, and duration, which could adversely impact coastal waters, habitat, and property through hydromodification. A proposed development that will add a net total of more than 15,000 square feet of impervious surface area shall implement a Runoff Control BMP, sized for the appropriate design storm (as specified in E.3.i (1) and (2), below), to capture and retain a portion of the anticipated increase in runoff volume after a site is developed.  **Runoff Control BMPs** are structural systems designed to minimize post-development changes in runoff flow characteristics by processes such as infiltration, evapotranspiration, harvesting for later use, detention, or retention. Examples include retention structures such as basins, ponds, topographic depressions, and stormwater vaults.  The following applicability and performance standards for Runoff Control BMPs shall be required, as determined by the net increase in impervious surface area: |  |
| **134** | **(1) Runoff Control BMPs using Flow Retention techniques.** If a proposed development will add a net total of more than 15,000 square feet of impervious surface area, the development shall implement a Runoff Control BMP that uses Flow Retention techniques to capture and retain any portion of the runoff volume produced by the 85th percentile 24-hour design storm (see E.3.d, above) that will not be retained on-site using an LID approach. Flow Retention techniques shall optimize infiltration, and shall use stormwater storage, harvesting for later use, and/or evapotranspiration to address any of the required runoff flow retention volume that cannot be infiltrated. |  |
| **135** | **(2) Runoff Control BMPs using Peak Management techniques.** In addition to using Flow Retention techniques, a proposed development that will add a net total of more than 22,500 square feet of impervious surface area shall also implement a Runoff Control BMP that uses Peak Management techniques to prevent post-development runoff peak flows discharged from the site from exceeding pre-project peak flows for the 2-year through 10-year storm events. |  |
| **136** | **i. Use appropriate BMPs for high-pollutant land uses.** Commercial and industrial developments with a potential for a high concentration of pollutants (including, but not limited to, outdoor work and storage areas, restaurants, roads and highways, parking lots, and vehicle service facilities) shall implement appropriate Site Design and Source Control BMPs to keep pollutants out of stormwater, and shall either use Treatment Control BMPs to remove pollutants of concern before discharging runoff to coastal waters or the storm drain system, or shall connect the pollutant-generating area to the sanitary sewer. |  |
| **137** | **j. Design and manage parking lots to minimize polluted runoff.** A parking lot over 5,000 square feet in area shall be designed to minimize impervious surfaces, and to treat and/or infiltrate runoff before it reaches coastal waters or the storm drain system so that heavy metals, oil and grease, and polycyclic aromatic hydrocarbon pollutants on parking lot surfaces will not enter coastal waters. Parking lot design and management shall include: |  |
| **138** | **(1) Parking lot landscaping.** The design of landscaped areas for parking lots shall consider, and may, where appropriate, be required to include provisions for the on-site detention, retention, and/or infiltration of stormwater runoff, in order to reduce and slow runoff, and provide pollutant cleansing and groundwater recharge. Where landscaped areas are designed for detention, retention, and/or infiltration of stormwater runoff from the parking lot, recessed landscaped catchments (below the elevation of the pavement) shall be required. Curb cuts shall be placed in curbs bordering landscaped areas, or else curbs shall not be installed, in order to allow stormwater runoff to flow from the parking lot into landscaped areas. All surface parking areas shall be provided a permeable buffer between the parking area and adjoining streets and properties. |  |
| **139** | **(2) Parking lot vacuuming.** Accumulations of particulates that may potentially be contaminated by oil, grease, or other pollutants shall be removed from heavily used parking lots (e.g., fast food outlets, lots with 25 or more parking spaces, sports event parking lots, shopping malls, grocery stores, and discount warehouse stores) by dry vacuuming or equivalent techniques. |  |
| **140** | **(3) Filter maintenance.** Filter treatment systems, particularly for hydrocarbon removal BMPs, shall be adequately maintained. |  |
| **141** | **k. Manage BMPs for the life of the development.** Appropriate protocols shall be implemented to manage BMPs (including ongoing operation, maintenance, inspection, and training), to protect coastal water quality for the life of the development. |  |
| **142** | **4. Content of *Water Quality and Hydrology Plan*.** To comply with the WQHPrequirements listed in section E.3, above, the WQHP shall include, at a minimum, the following required components, if they are applicable to the development: |  |
| **143** | **a. *Post-Development Runoff Plan* information.** All of the information required for the *Post-Development Runoff Plan* (see section D, above), including Site Design strategies and pollutant Source Control BMPs. |  |
| **144** | **b. Documentation of polluted runoff and hydrologic site characterization.** Documentation of a polluted runoff and hydrologic characterization of the existing site (e.g., potential pollutants in runoff, soil properties, infiltration rates, depth to groundwater, and the location and extent of hardpan and confining layers) as necessary to design the proposed BMPs. |  |
| **145** | **c. Description of BMPs to be implemented to meet all WQHP requirements.** A description of theBMPs that will be implemented to meet all the WQHP requirements listed in section E.3, above, and how these BMPs will minimize stormwater pollution and changes in runoff flows from the development. Include documentation of the expected effectiveness of the proposed BMPs, including a characterization of post-development pollutant loads, and calculations, per applicable standards, of changes in the stormwater runoff flow regime (i.e., volume, flow rate, timing, and duration of flows) resulting from the proposed development when implementing the proposed BMPs. |  |
| **146** | **d. Calculations for sizing BMPs using 85th percentile design storm standard.** Calculations that demonstrate that the proposed BMP (or suite of BMPs) implemented to comply with WQHP requirements (see E.3, above) has been sized and designed to infiltrate, retain, or treat, at a minimum, the runoff produced by the 85th percentile 24-hour storm event for volume-based BMPs, or two times the 85th percentile 1-hour storm event for flow-based BMPs. |  |
| **147** | **e. Documentation that runoff from impervious and semi-pervious surfaces is addressed as required.** A table quantifying the site’s proposed new, replaced, and pre-existing impervious and semi-pervious surface areas. Documentation that runoff from all new and/or replaced impervious and semi-pervious surfaces is addressed. For sites where the area of added and/or replaced impervious and semi-pervious surfaces is greater than or equal to 50% of the pre-existing impervious and semi-pervious surfaces, documentation that runoff from the entire developed area, including pre-existing surfaces, is addressed (pursuant to E.3.c., above). |  |
| **148** | **f. Description of the LID approach used to retain the design storm runoff volume on-site.** A description of the LID approach to stormwater management to be implemented, documenting that LID Site Design strategies have been given priority, and a description of the LID BMPs that will be used to retain on-site (by means of infiltration, evapotranspiration, or harvesting) the runoff produced by the 85th percentile 24-hour design storm (see E.3.d, above), to the extent appropriate and feasible. |  |
| **149** | **g. Alternatives analysis documenting site-specific constraints.** Where an alternatives analysis is required (pursuant to E.3.f, above), document the site-specific engineering constraints and/or physical conditions to justify the determination that there are no appropriate and feasible alternative project designs that would retain on-site the runoff produced by the 85th percentile 24-hour design storm, giving precedence to an LID approach. Also demonstrate that on-site runoff retention is maximized to the extent appropriate and feasible, and that the feasibility of off-site runoff retention is considered. |  |
| **150** | **h. Description of BMP management.** A description of the ongoing management of post-development BMPs (including operation, maintenance, inspection, and training) that will be performed for the life of the development, if required for the BMPs to function properly. |  |