Section 3.7

Hydrology and Water Quality

Section 3.7
Hydrology and Water Quality

This section presents a discussion of existing hydrology and water quality conditions in the project area, potential hydrologic and water quality impacts, and proposed mitigation where applicable. It is based on a review of several technical investigations and environmental studies performed in and immediately adjacent to the project area (Balance Hydrologics 2001; EcoSynthesis 2000, 2003; Questa Engineering 2003; Wetlands Research Associates 2001), and on recent drainage reports prepared for the proposed project (WWD Corporation 2010, 2011). A summary of the impacts identified is in Table 3.7-1.

The study area for the hydrology and water quality analysis includes all potentially affected drainages and associated watersheds (within and adjacent to the project area), including Sawmill Gulch, Seal Rock Creek, Fan Shell Beach, and Carmel Bay ASBS watersheds.

1 **Table 3.7-1. Summary of Project Impacts on Hydrology and Water Quality**

Project Impact	Project Elements									Cumulative
	PBL	SBI	COL-EQC	Area M MH	Area M MR	RES SUB	RD	TRA	INF	
A. Alteration of Drainage Patterns										
HYD-A1. The proposed project would result in the alteration of surface drainage patterns, but would not alter the course of a stream or river in a manner that would result in substantial erosion or siltation on or off the site.	◉	◉	◉	◉	◉	◉	—	—	—	◉
Mitigation Measures:	HYD-A1. Ensure on-site detention of stormwater run-off at development sites and oil/grease separators at parking lots; prepare final drainage plan with flow calculations and construction detail, and implement approved drainage plan. HYD-A2. Maintain and monitor drainage and flood control facilities, and prepare annual reports that describe the condition, maintenance performed, and required improvements of drainage and flood control facilities.									
B. Stormwater Run-off and Drainage Infrastructure										
HYD-B1. The proposed project would result in increased stormwater run-off due to an increase in impervious surfaces and topographic alterations.	○	◉	◉	◉	◉	◉	○	—	—	◉
Mitigation Measures:	HYD-A1, HYD-A2. See above.									
C. Water Quality										
HYD-C1. The proposed project would degrade surface water quality due to an increase in sediment and pollutant loading in stormwater drainage during construction and from operation.	◉ (Applies to proposed project as a whole)									◉
Mitigation Measures:	HYD-A1, HYD-A2. See above. HYD-C1. Prepare and implement a stormwater pollution prevention plan to prevent and reduce sediments and contaminants in stormwater run-off during construction. HYD-C2. Provide regular inspection and maintenance of operational best management practices to ensure function and minimize the discharge of pollutants to surface water. GSS-C1. Prepare and implement an erosion and sediment control plan. GSS-D1. Dewater excavations and shore temporary cuts during construction of the underground facilities.									
HYD-C2. The proposed project could degrade water quality due to pesticide, herbicide, and fertilizer use from the Pebble Beach Driving Range Relocation from Area V to Collins Field.	—	—	◉	—	—	—	—	—	—	◉
Mitigation Measures:	HYD-C3. Prepare and implement an integrated pest management program for the relocated Pebble Beach Driving Range.									

Project Impact	Project Elements									Cumulative
				Area M						
	PBL	SBI	COL-EQC	MH	MR	RES SUB	RD	TRA	INF	

Notes:

● = Significant unavoidable impact.

◉ = Significant impact that can be reduced to less than significant.

○ = Less-than-significant impact.

— = No impact or not applicable to the development site.

PBL – The Lodge at Pebble Beach; **SBI** – The Inn at Spanish Bay; **COL-EQC** – Collins Field–Equestrian Center–Special Events Area; **MH** – Area M Spyglass Hill—New Resort Hotel (Option 1); **MR** – Area M Spyglass Hill—New Residential Lots (Option 2); **RES SUB** – Residential Lot Subdivisions; **RD** – Roadway Improvements; **TRA** – Trail Improvements; **INF** – Infrastructure Improvements; **Cumulative** – Proposed Project's Contribution to Cumulative Impacts

1

Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters, unless exempted, are unlawful unless specifically authorized by a permit. Permit review is the CWA's primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

All regulatory requirements are implemented by the State Water Resources Control Board, who has jurisdiction throughout California (refer to the Porter-Cologne Water Quality Control Act below), through nine regional water boards established throughout the state. The Central Coast Regional Water Quality Control Board is responsible for implementing these requirements for Monterey County.

Section 303—Impaired Water Bodies and Total Maximum Daily Loads

In accordance with Section 303(d) of the CWA, state governments must present EPA with a list of *impaired water bodies*, defined as those water bodies that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. NPDES permits (discussed below) for water discharges must take into account the pollutant for which a water body is listed as impaired.

No creeks or tributaries in the study area have been included in the State Water Resources Control Board's (SWRCB's) list of impaired water bodies (Central Coast Regional Water Quality Control Board 2007).

Section 402—NPDES Program

The 1972 amendments to the federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point sources (Section 402). The 1987 amendments to CWA created a new CWA section devoted to stormwater permitting (Section 402[p]). The EPA has granted the State of California primacy in administering and enforcing the provisions of CWA and the NPDES permit program within the state. The NPDES permit program is the primary federal program that regulates point source and nonpoint source discharges to waters of the United States. The NPDES program provides for both general permits (which cover a number of similar or related activities) and individual permits.

General Construction Permit

Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Permit for Construction Activities (Construction General Permit), which requires that the applicant file a public NOI to discharge stormwater and to prepare and implement a SWPPP. The SWPPP includes a site map, description of proposed construction activities, demonstration of compliance with relevant local ordinances and regulations, and overview of the BMPs that will be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Permittees are required to conduct annual monitoring

and reporting to ensure that BMPs are correctly implemented and are effective in controlling the discharge of stormwater-related pollutants.

National Toxics Rule (40 CFR Part 131.36)

The National Toxics Rule is EPA's rule promulgating the quantitative water quality criteria necessary to bring all states into CWA compliance. The National Toxics Rule applies to the 14 states and territories that were without EPA-approved criteria when the final rule was published (Alaska, Arkansas, California, Florida, Idaho, Kansas, Michigan, Nevada, New Jersey, Rhode Island, Vermont, Washington, District of Columbia, and Puerto Rico). For these states and territories, the criteria in the National Toxics Rule are the legally enforceable standards for all purposes and programs under the CWA.

Federal Antidegradation Policy

Federal water quality regulation contains an antidegradation policy and a requirement that states develop a similar policy (40 CFR Section 131.12). This regulation establishes a three-part test to determine whether increases in pollutant loading or adverse changes in the quality of federal surface water may be permitted. The state antidegradation policy described below complies with this requirement and incorporates the federal policy by reference.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) established the SWRCB and divided the state into nine regions, each overseen by a Regional Water Board. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies, although much of its daily implementation authority is delegated to the regional water boards, which are responsible for implementing CWA Sections 402 and 303(d). In general, the SWRCB manages both water rights and statewide regulation of water quality, while the regional water boards focus exclusively on water quality within their regions.

The regional water boards designate beneficial uses and establish water quality objectives within the Basin Plan under the Porter-Cologne Act, federal CWA, and general provisions of California Water Code Section 13000. Beneficial uses represent the services and qualities of a water body (i.e., the reasons the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses.

The CCRWQCB is responsible for implementing the Water Quality Control Plan for the Central Coast Region (Basin Plan), which includes Monterey County. The Basin Plan designates beneficial uses and water quality objectives for waters of the state, including surface waters and groundwaters. The Basin Plan includes both narrative and quantitative water quality objectives that can differ depending on the specific beneficial uses being protected. Narrative objectives are established for parameters such as color, suspended and settleable material, oil and grease, biostimulatory substances, and toxicity. Numeric objectives can include such parameters as dissolved oxygen, temperature, turbidity, pH, and specific chemical constituents such as trace metals and synthetic organic compounds.

The Central Coast RWQCB implements the Basin Plan through the issuance and enforcement of Waste Discharge Requirements (WDRs) and waivers of WDRs. WDRs may be issued to any entity that discharges waste that may affect the quality of any Central Coast surface water or groundwater. For discharges to waters protected under CWA, WDRs also could serve as a federally required NPDES permit (under CWA) to regulate waste discharges so that water quality objectives are met and to incorporate the requirements of other applicable regulations. Basin Plans are required to be reviewed every 3 years and provide the regulatory basis for determining WDRs and waivers of WDRs.

Antidegradation Policy

The Antidegradation Policy, formally known as the Statement of Policy with Respect to Maintaining High Quality Waters in California (SWRCB Resolution No. 68-16), restricts degradation of surface water and groundwater and is a key policy of California's water quality program. In particular, the policy protects water bodies where existing quality is higher than necessary for the protection of beneficial uses. Under the Antidegradation Policy, any action that can adversely affect water quality in surface water and groundwater must (1) be consistent with maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial use of the water; and (3) not result in water quality less than that prescribed in water quality plans and policies. The policy also requires that waste discharges to high-quality waters meet WDRs that result in best practicable treatment or control of the discharge and ensure that avoidance of pollution or nuisance and highest water quality consistent with maximum benefit to the people of the state be maintained (State Water Resources Control Board 1968).

California Toxics Rule

EPA's California Toxics Rule (40 CFR Part 131.38) promulgates numeric water quality criteria for more than 126 priority pollutants. The numeric criteria in the California Toxics Rule must be achieved in the surface waters of the state with relevant beneficial uses (e.g., municipal supply, aquatic life). If these objectives are not met within a water of the state with a designated beneficial use, the water body would be listed as impaired.

Ocean Plan—Carmel Bay Area of Special Biological Significance

The SWRCB adopted the Water Quality Control Plan for Ocean Waters of California, Resolution No. 90-27 (the Ocean Plan), which establishes beneficial uses and water quality objectives for waters of the Pacific Ocean adjacent to the California Coast. In accordance with the Ocean Plan, the SWRCB designated Carmel Bay one of 34 Areas of Special Biological Significance. The Ocean Plan requires wastes to be discharged a sufficient distance from the ASBS to assure maintenance of natural water quality conditions.

Local

Monterey County Water Resources Agency

The Monterey County Water Resources Agency (MCWRA) is the primary regulatory authority for review and approval of flood control and drainage measures. For flood design criteria, peak run-off rates must not exceed predevelopment flows under comparable storm events, and run-off must not

cause erosion. For drainage design criteria, stormwater detention facilities must be sized to limit the 100-year post-development runoff rate to the 10-year pre-development rate.

Monterey County Grading and Erosion Control Ordinance

The Grading and Erosion Control Ordinances (Chapter 16.08 through 16.12) were adopted to minimize erosion, protect fish and wildlife and to otherwise protect the natural environment. The Grading/Erosion Control section oversees the construction process to ensure that sedimentation in streams, creeks, waterways and Monterey Bay is properly controlled. Erosion control plans, stormwater plans, and watershed protection plans are three types of erosion-related plans required for specific projects in the County.

Monterey County Local Coastal Program

The existing and proposed Del Monte Forest LUP and CIP contain governing policies and regulations for stormwater management within the project area.

The Water and Marine Resources section of both the existing and proposed LUP requires implementation of appropriate management practices as necessary, including stream setbacks, stream flow maintenance, riparian vegetation protection, and careful grading to prevent erosion and sedimentation.

The existing and proposed CIP require stormwater be collected and conveyed in an approved drainage system that is designed by a registered civil engineer. The policy requires drainage systems be designed for the ultimate buildout condition and ensure that adjacent properties are protected from adverse effects of increased run-off.

As described in Chapter 2, Project Description, the proposed LUP and CIP would retain the intent of the existing LUP in regard to hydrology and water quality. The proposed changes to the LUP are mostly minor rewordings. There is a technical change to remove prohibition of large-scale winter grading from the LUP, but a requirement is maintained in the CIP (and there are similar requirements in the County's grading ordinance). Where the existing LUP described specific permit requirements (such as for wastewater discharges offshore) that are duplicative of those permit requirements, they are proposed for deletion from the LUP to make it more of a policy document. However, in the context of those other permit requirements, this would be no less protective than the current LUP of water quality or hydrologic conditions. The proposed LUP includes a new policy to limit Carmel Bay ASBS watershed development site impervious coverage to 9,000 square feet (at present, there is no fixed limit in the LUP but there is a 9,000-square-foot limit in the CIP) in order to help control runoff impacts on Carmel Bay.

Environmental Setting

Hydrology

Regional Conditions

The primary water features of the region include the Pacific Ocean and coastline of the Monterey Peninsula, small inland drainage basins of the peninsula (described below), the Carmel River, and

the Carmel Bay ASBS, which lies immediately south of the project area. The regional climate is dominated by the north Pacific high pressure system that produces northerly winds along the entire west coast of the United States during most of the year and dominates the climate of the Monterey Peninsula. Seasonal conditions are characterized by summers that are often cool and foggy in the morning and warm in the afternoon and by winters that are cool and wet. The average annual precipitation in the project area is about 19 inches. Most precipitation is associated with rainstorms that generally occur from October through April.

Site-Specific Conditions

Surface Hydrology

The project area includes coastal drainage watersheds that discharge into the ocean (Figure 3.7-1). The watersheds and the development sites that occur within the watersheds are presented in Table 3.7-2.

Table 3.7-2. Development Sites in Coastal Drainage Watersheds

Coastal Drainage Watershed	Description	Development Sites within Watershed
Seal Rock Creek	Contains Seal Rock Creek and drains a portion of Poppy Hills Golf Course, surrounding residential areas, Spyglass Hill Golf Course, and open space areas near 17-Mile Drive before entering the ocean.	Residential Lot Subdivisions (Areas F-2, J, K, L, and a portion of I-2) Area M Spyglass Hill (both Option 1, New Resort Hotel and Option 2, New Residential Lots)
Fan Shell Beach	Contains Fan Shell Creek, an ephemeral drainage located south of Portola and Sombria Lane. Lacks a well-defined channel until it reaches Cypress Point Club, which drains to the ocean at Fan Shell Beach. Drains the Equestrian Center, most of the existing Pebble Beach Driving Range, adjacent residential development, and much of Cypress Point Club.	Equestrian Center Reconstruction Special Events Staging Area Residential Lot Subdivisions (Areas U and V)
Sawmill Gulch	Contains Sawmill Gulch, which originates from three primary unnamed tributaries on Huckleberry Hill. Drains the area around the Inn at Spanish Bay, Huckleberry Hill Natural Habitat Area, the Monterey Peninsula Country Club Dunes Course, and adjacent residential areas.	New Guest Cottages at Spanish Bay New Employee Parking at Area B Residential Lot Subdivision (Corporation Yard)
Carmel Bay ASBS	Contains Pescadero Creek, which is fed by a number of tributaries in Area PQR, then flows down Pescadero Canyon to enter the ocean just west of the Carmel Gate. Also contains Stillwater Creek. Drains Pescadero Canyon, residential areas, a small portion of the existing Pebble Beach Driving Range, Collins Field, and Peter Hay Golf Course.	Relocated Pebble Beach Driving Range Residential Lot Subdivision (portion of Area I-2 and Collins) Proposed Improvements at the Pebble Beach Lodge

Coastal Drainage Watershed	Description	Development Sites within Watershed
Note: The development areas and location of the roadway improvements within the identified watersheds are shown in Figure 3.7-1.		

None of the proposed development parcels lie within designated 100-year floodplains for any drainage channels within these basins. Seal Rock Creek is the only drainage basin that has any designated floodplains. Soils are relatively shallow, consisting of sands or loams with high water infiltration rates. Consequently, erosion and sedimentation rates are considered low or moderate. All drainage channels are considered intermittent and do not contain flowing water for portions of the year, although pools within Seal Rock Creek, and several other drainages, retain water throughout the year.

Wetland resources of the Del Monte Forest area have been studied for the proposed project. A total of 9.59 acres of wetlands occur within the project area: 0.06 acres within development site boundaries that would be disturbed by the project and 9.53 acres within proposed preservation areas or areas that will not be disturbed by the project (see Table 3.3-3 in Section 3.3, Biological Resources). Some of the wetlands are natural and result from their topographic or soil characteristics coupled with the presence of adequate rainfall, infiltration, and/or shallow groundwater interaction. Others are artifacts of human intervention, either through diverted or blocked drainage such as roads and trails, or by interception of run-off from developed areas. Groundwater flow is estimated to be about 0.1 foot daily in Del Monte Forest soils. Consequently, the area of soil contributing shallow seepage to any wetland during the dry season is relatively small.

Groundwater Hydrology

The project area is not located within a groundwater basin. The area is underlain by massive bedrock and groundwater is not a significant component of streamflow in the project area. Groundwater is not used as a water source in the project area.

Water Quality

Regional Conditions

Surface water quality depends primarily on the mineral composition of the soils and associated parent materials within a watershed, hydrologic conditions, and sources and timing of contaminant transport within the watershed. Beginning in 1995, the applicant hired Kinnetic Laboratories, Inc. (KLI) and Environmental & Turf Services (ETS) to collect and analyze stormwater samples from its golf courses in Del Monte Forest and upstream areas. Samples were collected for seven consecutive storm seasons beginning with the 1995/1996 wet season (Kinnetic Laboratories, Inc. 2002).

The purpose of the monitoring is to characterize the quality of the run-off and to determine what, if any, impacts the golf courses might have on stormwater quality. The constituents sampled included pesticides and nutrients (ammonia as nitrogen, nitrate as nitrate, and phosphorus). The results of the monitoring indicated that phosphorous was the only constituent to be consistently detected above EPA water quality criteria (WQC) levels for streams discharging into lakes. However,

phosphate run-off into oceans is a lesser threat than run-off into lakes, which are much more susceptible to eutrophication.

However, since the above-referenced sampling occurred, the applicant has completed the implementation of a wastewater reclamation project in an effort to meet the irrigation needs of the golf courses and recreational areas including those found within the project area. The project included the rehabilitation of Forest Lake Reservoir in Del Monte Forest to allow for the storage of 110 million gallons of recycled water produced in the winter for use in the peak summer irrigation months. The proposed project also included the addition of a microfiltration/reverse osmosis (MF/RO) desalination system that converts wastewater into high-quality recycled water so that the golf courses in Del Monte Forest can use recycled water for all irrigation requirements. Before the addition of the MF/RO system, salt in the recycled water would accumulate in the grass and had to be periodically flushed away with potable water. Now, the MF/RO system removes the salt, so no potable water is needed.

Existing surface water quality conditions in Del Monte Forest are probably similar to other locations of the greater Monterey Peninsula. This conclusion is based on the existing predominant land uses within watersheds encompassing the project elements that include open space, urban residential and commercial development, and golf course areas.

During the summer low-flow conditions, natural water courses may consist entirely of incidental urban run-off from landscape irrigation and other residential uses. Contaminants of concern during the summer include fertilizer and pesticide use, detergents and other household chemical uses, oil and grease, and accidental or illicit chemical spills. Contaminants of concern during the dry summer season include biostimulatory nutrients (e.g., nitrogen and phosphorus), inorganic salts, turbidity, synthetic organic compounds, and trace metals.

During peak winter streamflow periods, water quality is largely a function of stormwater contaminant transport. Potential contaminants include those described above, and can also include run-off from roads and other impervious surfaces (e.g., parking lots, driveways, buildings), and other deposits that have accumulated on the ground surface (e.g., organic litter, trash, animal wastes). Winter stormwater is also responsible for a majority of soil erosion that occurs during the year, particularly from areas that have been previously disturbed by construction activities, agriculture, or natural geologic processes.

Winter stormwater run-off often is relatively clean, and low in dissolved solids due to the large proportion of rainwater. However, dissolved solids loading is likely higher in the wet season. Run-off from urban areas can contain elevated concentrations of heavy metals, oil, grease, antifreeze, and other synthetic organic compounds. Other contaminants of concern include turbidity, settleable and total suspended solids, biochemical oxygen demand, pesticides, and nutrients.

None of the surface waters within the project area have specified designated beneficial uses in the Central Coast RWQCB Basin Plan (discussed in Regulatory Setting), and none are listed as water quality impaired pursuant to CWA Section 303(d) listing requirements.

Site-Specific Conditions

Since 1994, golf courses, athletic fields, and other landscaped areas in the Pebble Beach area have been irrigated with tertiary treated reclaimed water produced at the CAWD treatment plant. Tertiary treated wastewater is oxidized, filtered, and disinfected to comply with state RWQCB and

Department of Health Services water quality treatment and disposal standards. However, the salt content of the reclaimed water (i.e., measured as total dissolved solids [TDS]) was higher than that of potable water supplies delivered in the community by the California-American Water Company (Cal-Am). The TDS in CAWD's reclaimed water ranged from 650 to 1,110 milligrams per liter (mg/L). For reference, the TDS in rainwater is typically 23 to 27 mg/L, Pebble Beach tap water is typically 335 mg/L, and in ocean water is 35,000 to 37,000 mg/L (Questa Engineering 2003). Because of the elevated salt levels in the reclaimed water used to irrigate the golf courses, the turf was periodically irrigated with potable water supplies to flush out salts that accumulated in the upper soil layers. This is no longer necessary. In 2010, PBC and CAWD completed the second phase of the Wastewater Reclamation Project, which added the MF/RO desalination system to CAWD's facilities, eliminating the need for flushing with potable water and eliminating the discharge of salt to nearby water courses.

Nitrogen content in the reclaimed water occurs primarily in the form of nitrate, which is more soluble and available as a plant nutrient than inorganic ammonia or organic nitrogenous compounds. Nitrogen content in the reclaimed water was analyzed as nitrate only—other forms of nitrogen such as ammonia were not assessed. Nitrate concentrations in the reclaimed water range from 0.1 to 41 mg/L nitrate as nitrogen (N) and average 16 mg/L N. Recommended guidelines indicate that concentrations of less than 5 mg/L N are "no problem" and that concentrations between 5 and 30 mg/L N indicate "increasing problems" for golf turf management (Questa 2003a).

Surface water at several locations near one of the wetland complexes and nearby shallow groundwater from two wells in Area MNOUV were monitored during 2001 to evaluate existing TDS and nitrogen conditions (Balance Hydrologics 2002, Questa 2003a). Collected data indicate that existing TDS concentrations of surface water in the sampled wetlands ranged from 1,000 to 7,000 mg/L; shallow groundwater values were within the same range.

Field measurements of specific conductance in wetlands adjacent and downslope of Spyglass Hill Golf Course in February and March 2001 indicated TDS levels ranging from 1,050 to 2,300 mg/L. Nitrate concentrations in the surface water samples from the proposed golf course were generally low (<1 mg/L N). However, inorganic nitrate and ammonia values have been detected in adjacent surface drainage samples up to about 12 mg/L. Higher nitrogen values may be associated with run-off from the existing Equestrian Center and associated riding trails that comes in contact with horse manure. Stormwater run-off sampling in Del Monte Forest was conducted from 1995 to 2002. The sampling stations are identified in Table 3.7-3, and the results are summarized in Tables 3.7-4 and 3.7-5.

Table 3.7-3. Stormwater Run-Off Sampling Stations

Station	Watershed	Upstream Uses	Downstream Uses
Area PQR	Pescadero Creek/Carmel Bay	Forest, Del Monte Forest residential, Carmel residential	Del Monte Forest residential
Carmel Way	Pescadero Creek/Carmel Bay	Del Monte Forest residential, Carmel residential	Del Monte Forest residential, Pebble Beach Golf Course
10th Hole Pebble Beach	Pescadero Creek/Carmel Bay	Pebble Beach Golf Course, Del Monte Forest residential, Carmel residential	Ocean
Palmero Way	Stillwater Creek/Carmel Bay	Del Monte Forest residential	Pebble Beach Golf Course
Stillwater Cove	Stillwater Creek/Carmel Bay	Pebble Beach Golf Course, Del Monte Forest residential	Ocean
Fan Shell Beach	Fan Shell Beach	Cypress Point Golf Course, Del Monte Forest residential	Ocean
Spyglass	Seal Rock Creek	Spyglass Hill Golf Course, Poppy Hills GC, Del Monte Forest residential	Ocean
8th Hole Spanish Bay	Sawmill Gulch	Spanish Bay Golf Course, Monterey Peninsula Country Club Dunes, Del Monte Forest residential	Ocean
14th Hole Spanish Bay	Moss Beach	City of Pacific Grove, 14th Hole of Spanish Bay Golf Course	Ocean

Source:
Stations from Kinnetic Laboratories, Inc. (2002); Upstream and downstream uses identified from topographic maps.

Table 3.7-4. Water Quality Parameter Results from Stormwater Monitoring Sampling in Del Monte Forest, 1995-2002

Parameter	Background (PQR[a])	Range of Mean Detections	Location of Highest Mean Detection	Ocean Plan[b]	Central Coast RWQCB Basin Plan[c]	EPA Recommended Water Quality Criteria	
						1999[d]	1986[e]
Oil and Grease (mg/l)	ND	ND	NA	75 (effluent limit)	visible, nuisance/ adverse affect beneficial use	No update[f]	visible; deleterious effect
TOC (mg/l)	23.2	21.3 to 42.8	Fan Shell Beach	None	None	None	None
TSS (mg/l)	448	66.2 to 768.0	Carmel Way	Degradation	Nuisance/ adverse affect beneficial use	No update[6]	reduction in light penetration by 10%
pH (mg/l)	7.2	7 to 7.5	Spyglass	Change of < 0.2 units from natural (effluent limit)	7 - 8.5	6.5 to 9 (fw) 6.5 to 8.5 (sw)	6.5 to 9 (fw) 6.5 to 8.5 (sw)
Nitrates as NO_3 (mg/l)	1.8	2.1 to 13.2	Stillwater Cove	Degradation	45 (drinking water)	None	None
Ammonia as Nitrogen (mg/l)	0.11	0.11 to 0.67	8th Hole Spanish Bay Golf Course	2.4 (daily maximum)	Nuisance/ adverse affect beneficial use	None	19.7 (fw, ph 7.0 temperature 15° C, 1-hr average)
MBAS (surfactants) (mg/l)	ND	0.005 to **0.49**	14th Hole Spanish Bay Golf Course	Degradation	0.2 (freshwater)	None	None
Total Phosphorus as PO_4 (mg/l)	1.33	**1.08 to 2.92**	Carmel Way	Degradation	Nuisance/ adverse affect beneficial use	No update[f]	0.1 (in streams) 0.05 (in streams flowing to lakes)

Source:
Analytical results from Kinnetic Laboratories, Inc. 2002.
Notes:
All sampling took place after two storm events each year during the wet season. Since a few changes after the first year, each stormwater monitoring has assessed standard measures of water quality (such as oil and grease, total suspended solids, etc.) and concentrations of pesticides and byproducts that are associated with golf course maintenance. **Bold** indicates an exceedance of a water quality objective.

fw = freshwater aquatic life

NA = not applicable

ND = non detect (no contaminant detected)

sw = saltwater aquatic life

[a] PQR was the name given to the sampling site on Pescadero Creek that was used as the baseline for water quality because it was upstream and unaffected by the golf courses discharges.

[b] California State Water Resources Control Board 2001. California Ocean Plan: Water Quality Control Plan—Ocean Waters of California (Ocean Plan).

[c] Central Coast Regional Water Quality Control Board Basin Plan.

[d] U.S. Environmental Protection Agency 1999. National Recommended Water Quality—Correction. Report. No. EPA 822-A-99-001. April.

[e] U.S. Environmental Protection Agency 1986. Quality Criteria for Water. Report No. EPA 440/5-86-001.

[f] No update of this parameter was provided in U.S. Environmental Protection Agency 1999. Refer to U.S. Environmental Protection Agency 1986.

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Table 3.7-5. Pesticides Detected in Stormwater Monitoring Conducted in Del Monte Forest, 1995-2002

Parameter	Range of Detections micrograms/ liter (µg/l)	Location of Highest Detection (# detections/ #sampling events)	Other Detections (# detections/#sampling events)	Ocean Plan[a] (µg/l)	Basin Plan[b]	CTR/EPA Rec. WQC (2001)[c] (µg/l)	Canadian EQG (2002)[d] (µg/l)
Daconil (chlorathinol)	0.08 to 0.24	14th Hole Spanish Bay (1/15)	10th Hole Pebble Beach (1/16), 8th Hole Spanish Bay (1/15)		Toxicity; antidegradation		0.18 (fw); 0.36 (sw)
4,4 – DDD	0.051	Carmel Way (1/16)	None		Toxicity; antidegradation	(for DDT) 1.1 (fw); 0.13 (sw)	
Aldrin	0.06	Stillwater Cove (1/16)	None		Toxicity; antidegradation	3.0 (fw); 1.3 (sw)	
beta- BHC	0.076 to 0.085	Spyglass (1/16)	8th Hole Spanish Bay (1/15)	0.012	Toxicity; antidegradation		
delta – BHC	**0.14 to 0.25**	8th Hole Spanish Bay (1/15)	Spyglass GC (1/16), Fan Shell Beach (2/12)	0.012	Toxicity; antidegradation		
gamma-BHC	0.096	10th Hole Pebble Beach (1/16)	None	0.012	Toxicity; antidegradation	0.95 (fw); 0.16 (sw)	
Endosulfan I	**0.055**	Fan Shell Beach (1/13)	None	0.027	Toxicity; antidegradation	0.22 (fw); 0.034 (sw)	
Heptachlor	0.07	10th Hole Pebble Beach (1/16)	None		Toxicity; antidegradation	0.52 (fw); 0.053 (sw)	
PCNB	0.13 to 1.6	Spyglass (1/14)	Fan Shell Beach (1/12), 8th Hole Spanish Bay (1/15)		Toxicity; antidegradation		
Glyphosate (Roundup)	**8.2 to 170**	Fan Shell Beach (1/12)	8th Hole Spanish Bay (1/15) Stillwater Cove (1/16)		Toxicity; antidegradation		65 (fw)
Triclopyr (Garlon, Turflon)	0.18 to 40	Stillwater Cove (9/16)	10th Hole Pebble Beach (2/15), 14th Hole Spanish Bay (1/2)		Toxicity; antidegradation		
Ethofumesate (Prograss)	0.65 to 5.35	10th Hole Pebble Beach (1/15)	Stillwater Cove (2/16)		Toxicity; antidegradation		
Dicamba	0.82 to 1.5	Fan Shell Beach (2/12)	None		Toxicity; antidegradation		10 (fw)

Sources:

Analytical results from Kinnetic Laboratories, Inc. 2002.

Notes:

[a] California State Water Resources Control Board 2001. California Ocean Plan: Water Quality Control Plan—Ocean Waters of California (all standards noted are instantaneous averages for marine aquatic life).

[b] Central Coast Regional Water Quality Control Board Basin Plan.

[c] U.S. Environmental Protection Agency 1999. National Recommended Water Quality—Correction. Rpt. No. EPA 822-A-99-001. April (fw = freshwater aquatic life; sw =

saltwater aquatic life).

[d] Environment Canada, Canadian Environmental Quality Guidelines, Summary Update Table 2002 as cited in prior 2005 DMF/PDP EIR (County of Monterey 2005) (fw = freshwater aquatic life; sw = saltwater aquatic life); cited where no EPA or California benchmark exists.

All sampling took place after two storm events each year during the wet season. Since a few changes after the first year, each stormwater monitoring has assessed standard measures of water quality (such as oil and grease, total suspended solids, etc.) and concentrations of pesticides and byproducts that are associated with golf course maintenance. **Bold** indicates an exceedance of a water quality objective.

No oil or grease was detected in any sampling events. Mean detections of pH and surfactants have been within the ranges of the Basin Plan and the Ocean Plan (California State Water Resources Control Board 2001).

Nutrient results for nitrates and phosphorus in some sampling events (such as 2001–2002 between Palmero Way and Stillwater Cove) seem to indicate that fertilizer application may be contributing to levels of nutrients in receiving water bodies. EPA has not recommended criteria for maximum total phosphorus levels. Phosphate levels at all stations exceeded the EPA criterion for streams (0.1 mg/l) by a factor of 10.

As shown in Table 3.7-4 and Table 3.7-5, pesticides were detected infrequently at sampling stations with the exception of trichlopyr at the Stillwater Cove station, which was detected in more than half of the sampling events. Trichlopyr has been infrequently detected at the stations at the 10th Hole at Pebble Beach Golf Course and the 14th Hole at Spanish Bay Golf Course. There is no water quality standard for trichlopyr in the Basin Plan or the Ocean Plan, and the EPA has not issued a water quality criteria for this compound. Trichlopyr is the active ingredient in Garlon and Turflon, which is commonly used on golf courses.

Overall, of the total of 67 pesticides sampled, 13 were detected (in a total of 36 individual detections). Several chlorinated pesticides such as heptachlor, (which has been banned since 1988) and endosulfan and delta-BHC (which are not used by local golf courses) were detected infrequently during the sampling period. These detections suggest that household and or other non-golf course pesticide applications may also contribute to pesticides in stormwater run-off (Kinnetic Laboratories, Inc. 2002).

The information in this section is based on studies conducted in 2001 to 2003 and is considered representative of current conditions because maintenance practices are generally the same as when the tests and studies were conducted (Balance Hydrologics 2002; Kinnetic Laboratories, Inc. 2002; Questa 2003; California State Water Resources Control Board 2001; Stilwell pers. comm.).

Site Drainage

This section describes site-specific drainage characteristics and the development sites for the different project elements. Information in this section was obtained from the Preliminary Drainage Report prepared for the proposed project (WWD Corporation 2010) and the Addenda to the Preliminary Drainage Report (WWD Corporation 2011).

The Lodge at Pebble Beach

The four development sites in this area include Meeting Facility Expansion, Fairway One Reconstruction, New Colton Building, and Parking and Circulation Reconstruction. All four sites are within a developed area and are currently paved and impervious.

The Inn at Spanish Bay

Conference Center Expansion

This development site is within a developed area and is currently paved and impervious.

New Guest Cottages

This development site is contained within the Sawmill Gulch watershed. Storm run-off currently flows off the Spanish Bay Golf Course across the project site and is collected by the storm drain system for The Inn at Spanish Bay. The storm drain system collects run-off from the existing development and is routed to an existing detention basin north of The Inn; existing detention basin capacity is equal to 144,000 cubic feet.

New Employee Parking

This 4.87-acre development site is currently undeveloped and a small portion is used for overflow parking (small dirt area accessed by a dirt fire road). The entire project area is contained within the Sawmill Gulch watershed. Surface run-off currently flows toward 17-Mile Drive where it is collected by a dirt drainage ditch that discharges into the storm drain system at the intersection of 17-Mile Drive and Congress Road. This system discharges into the storm drain system for the Spanish Bay Golf Course.

Collins Field–Equestrian Center–Special Events Area

Pebble Beach Driving Range Relocation from Area V to Collins Field

This 15.87-acre development site is currently a field used for local sports and recreation activities and parking during special events. The entire project area is contained within the Carmel Bay watershed. Surface drainage is uncontrolled sheet flow to the southeast where it is collected by a 12-inch corrugated metal pipe (CMP) culvert and piped under Ondulado Road. The culvert discharges into a natural drainage ravine flowing south which is collected up by a storm drain system that ends up discharging into the ocean.

Equestrian Center Reconstruction

The 11.82-acre development site is contained primarily within the Fan Shell Beach Watershed and a small portion within the Carmel Bay ASBS watershed. Surface drainage is currently uncontrolled sheet flow to the northwest that crosses the property line and contributes to a drainage course that runs through the proposed Area U residential subdivision. The drainage course crosses Drake Road and continues through the Cypress Point Golf Links Golf Course as described for Area U.

Area M Spyglass Hill

The proposed development site, under either Option 1 (New Resort Hotel) or Option 2 (New Residential Lots), is currently undeveloped; and surface drainage is collected by natural drainage ravines flowing to the north and northwest. The northern portion of the development site is contained within the Seal Rock Creek Watershed. Storm run-off flows north via natural drainage ravines onto the Spyglass Hill Golf Course where it is collected by a minor drainage course running through the golf course to a detention basin along Stevenson Drive. Detention basin overflow follows Stevenson Drive northwest to the ocean.

The southern portion of the development site is contained within the Fan Shell Beach watershed. Storm run-off flows northwest through the sand dune preservation area onto the Spyglass Hill Golf Course where it flows overland into natural drainage courses flowing northwest to the ocean.

Residential Lot Subdivisions

Area F-2

This 19.50-acre development site is bounded by Poppy Hills Golf Course on all sides. The area is currently undeveloped and surface drainage is uncontrolled sheet flow to the west. The entire project area is contained within the Seal Rock Creek Watershed. The northern portion lies east of Congress Avenue and storm run-off currently discharges to a 24-inch CMP culvert crossing Congress Avenue into a tributary of Seal Rock Creek that flows west to the ocean. The southern portion lies east of Lopez Road and currently discharges storm run-off to a 20/1 CMP culvert, and a 12-inch reinforced concrete pipe (RCP) culvert. Both culverts drain to tributaries of Seal Rock Creek, which flow west to the ocean.

Area I-2

This 18.74-acre development site area is currently undeveloped and surface drainage is uncontrolled sheet flow to the south and southwest. The western portion of the proposed project is contained within the Seal Rock Creek watershed. The area currently discharges storm run-off into a drainage swale running along Viscaino Road that eventually discharges into a tributary of Seal Rock Creek, which flows west to the ocean. The eastern portion of the proposed project is contained within the Carmel Bay ASBS watershed. The area currently discharges storm run-off into drainage swales running along Ronda Road and Viscaino Road that eventually discharge into a 30–inch CMP culvert, which discharges into the Pebble Beach Creek, which flows south to the ocean.

Area J

This 9.38-acre development site is divided into two project sites, one on the north side of Spyglass Woods Drive and one on the south side of Spyglass Woods Drive. Both areas are currently undeveloped and are contained within the Seal Rock Creek Watershed.

The 4.29-acre northern site (J-2) currently drains run-off to the west into a tributary of Seal Rock Creek which utilizes a 24-inch RCP culvert to cross Stevenson Drive. This culvert discharges into Seal Rock Creek, which flows west to the ocean. The 4.29-acre southern site (J-1) currently drains run-off to the northwest where it flows across Spyglass Woods Drive and is eventually picked up by a drainage swale along Stevenson Drive. The drainage swale is routed to the same 24-inch RCP culvert crossing Stevenson Drive and discharging into Seal Rock Creek.

Area K

This 10.62-acre development site is currently undeveloped and is contained within the Seal Rock Creek Watershed. Stevenson Drive currently collects storm run-off from the southern portion of the site and discharges into a drainage ravine that utilizes a 36-inch culvert to cross under Stevenson Drive. The culvert drains into a tributary of Seal Rock Creek that flows northwest to the ocean. The northern portion of the site drains into that same tributary of Seal Rock Creek.

Area L

This 20.85-acre development site is currently undeveloped and is within the Seal Rock Creek Watershed. This development site consists of 10 residential lots, a private 1,400-foot access road, and land set aside for preservation areas. Surface drainage is uncontrolled sheet flow to the

northwest that is eventually collected by a tributary of Seal Rock Creek. This tributary stream flows north from Spyglass Hill Golf Course through the west portion of the project site to Seal Rock Creek, which flows west to the ocean.

Area U

This 22.17-acre development site is currently undeveloped and is contained within the Fan Shell Beach Watershed. There are three drainage courses flowing northwest through the site. Each drainage course utilizes a 24-inch CMP culvert to cross under Drake Road. All three culverts discharge to drainage courses that drain onto the Cypress Point Golf Course. They are eventually collected by the main drainage course running through the golf course, which flows northwest to the ocean.

Area V

This 25.9-acre development site is currently developed with the Pebble Beach Driving Range and is primarily contained within the Fan Shell Beach Watershed, with a small portion draining to Carmel Bay ASBS. Surface drainage is uncontrolled sheet flow to the west and is collected by a wetland that parallels Stevenson Drive. A 12-inch culvert allows for the extension of the wetland across Stevenson Drive. Wetland overflow eventually flows through the Cypress Point Golf Course northwest to the ocean.

Collins Residence

This 3.85-acre development site is contained within the Carmel Bay ASBS watershed. The majority of the site drains to the northwest and stormwater is picked up by the drainage ditch along Portola Road. A 12-inch polyvinyl chloride (PVC) culvert takes the run-off across Portola Road and discharges it onto the Equestrian Center parcel. The flow continues overland until it crosses Drake Road at Area U and continues through the Cypress Point Golf Course, as described for Area U, to the Fan Shell Beach watershed.

Corporation Yard

This 22.46-acre development site is part of the PBC Corporation Yard and is currently used as a stockpiling area and at one time was a granite rock quarry site. The entire site is contained within the Sawmill Gulch watershed, and all drainage is currently detained by a detention basin located at the west end of the project site. Ten-year pre-development flow and overflow are released overland prior to entering a tributary of Sawmill Gulch which flows northwest to the ocean.

Roadway Improvements

Roadway improvements would occur at five intersection locations:

- SR 1/SR 68/17-Mile Drive.
- Congress Road/17-Mile Drive.
- Congress Road/Lopez Road.
- Sunridge Road/Lopez Road.
- Portola Road/Stevenson Drive.

All roadway improvements would occur within developed areas that are currently paved and impervious.

Impacts Analysis

Methodology

Approach

Construction and operation of the proposed project could affect the hydrology and water quality resources in the study area by increasing impervious surface and stormwater run-off, changing drainage patterns, exceeding the capacity of drainage infrastructure, degrading water quality from construction activities and increased pollutants in stormwater run-off, depleting or interfering with groundwater hydrology, or causing flooding or exposing people and structures to flood hazards. Regional and site-specific documents and maps were reviewed and field inspections were conducted to identify hydrology and water quality resources in the study area that, because of their proximity, could be directly or indirectly affected by construction, operation, or maintenance activities.

The proposed project was determined to have no impact for the following issues/questions; therefore, these are not addressed further in this section.

- Groundwater hydrology and quality. The proposed project would not substantially deplete groundwater supplies or substantially interfere with groundwater recharge, nor would it include any use of groundwater.
- Flood hazards. The proposed project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, nor place development within a flood hazard zone, as shown on panels 305, 306, and 308 of the Federal Emergency Management Agency Flood Insurance Rate Map for Monterey County dated April 2, 2009.

Impacts to wetlands, including potential impacts to wetland hydrology from changes in drainage patterns, are addressed in Section 3.3, Biological Resources.

Proposed Drainage Facilities

The evaluation of hydrology and water quality impacts is based on reviewing the application plan set and the preliminary drainage reports prepared for the proposed project. The preliminary drainage reports identify the amount of new impervious surface, proposed drainage design, and changes to drainage patterns (WWD Corporation 2010, 2011). Therefore, this information has been summarized below for each development site. Most sites require a closed underground detention system that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Therefore, the existing drainage system could accommodate the increased stormwater flow.

The Lodge at Pebble Beach

All four development sites in this area (Meeting Facility Expansion, Fairway One Reconstruction, New Colton Building, and Parking and Circulation Reconstruction) are within a developed area and are currently paved and impervious (Figures 2-3 to 2-7). Parking and Circulation Reconstruction would reconfigure the existing 113-space surface parking area, located north of the existing Meeting Facility, to include a new two-level 224-space parking facility and 23-space short-term surface lot (Figure 2-7). No additional impervious area is proposed for the sites; the sites would not be contributing any additional run-off to existing drainage facilities. All run-off from these development sites would be channeled via storm drain improvements to the existing storm drain system serving the site. There would be no substantial change to overall drainage in the area.

The Inn at Spanish Bay

Conference Center Expansion. No additional impervious area is proposed for the site (Figure 2-9); the site would not be contributing additional run-off to existing drainage facilities. All run-off from this development would be channeled via storm drain improvements to the existing storm drain system serving the site.

New Guest Cottages. Proposed development would remove the southernmost part of the existing parking lot (approximately 30 parking spaces), 1,450 linear feet of cart path/walkway, and approximately 3 acres of undeveloped land. It would be replaced with six new structures, 2,630 linear feet of cart path/walkway, and surface parking (Figure 2-10). The development would increase the impervious area on the site by 0.88 acre, which would result in a total site run-off detention of 2,792 cubic feet. Storm run-off from the proposed development would be collected and discharged into the existing storm drain system serving the site which has a capacity of 144,000 cubic feet (WWD Corporation 2010). This additional increase in site run-off detention equates to 2.0% of the existing detention basin's capacity. This is a less-than-significant addition to the existing detention basin volume, and there would be no substantial changes in drainage patterns at the site.

New Employee Parking. This development area consists of a parking lot with 285 stalls and land set aside for open space (Figure 2-11). The development would increase the impervious area on the site by 2.64 acres, which would result in total site run-off detention of 8,377 cubic feet. The proposed drainage system includes bio-retention planters and a closed underground detention system that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. An overflow will allow for the 10-year pre-development rate and excessive storm events to be released overland prior to entering the catch basin located at the corner of 17-Mile Drive and Congress Road.

Collins Field–Equestrian Center–Special Events Area

Pebble Beach Driving Range Relocation from Area V to Collins Field. The turf field at Collins Field would be replaced with a predominately turf driving range, and there would also be support structures and a 26-space surface parking lot (Figure 2-13). The development would increase the impervious area of the site by 0.92 acre, which would result in a total site run-off detention of 2,917 cubic feet. An overflow would allow for the 10-year pre-development rate and excessive storm events to be released to the existing culvert crossing Ondulado Road. The rest of the site would drain

to a bio-retention pond, which would filter run-off through a sand underlay prior to releasing it to the existing culvert crossing Ondulado Road.

Equestrian Center Reconstruction. The existing equestrian center would be demolished and a new equestrian center constructed in its place (Figure 2-14). The existing equestrian center currently has surface run-off onto Area U. When the equestrian center is reconstructed, the surface drainage would be replaced with a new storm drain system for the site. This system would discharge into a new 36-inch culvert that would also collect run-off discharging from Portola Road and the new Residential Lot Subdivision at Collins Residence. A utility corridor would allow for the underground culvert to pass through the proposed Residential Lot Subdivision at Area U and replace an existing 24-inch culvert crossing Drake Road to maintain the discharge on the north side of Drake Road. Run-off collected by the 36-inch culvert would continue through Cypress Point Golf Course by mutual agreement with PBC.

Redevelopment of the equestrian center would increase the impervious area on the site by an estimated 2.73 acres, would result in a total site run-off detention of 21,798 cubic feet. Surface run-off from the site would be collected and detained by detention facilities that would not infiltrate. This development would require a closed detention facility at the north end of the site. The closed detention facility would be required to have a metered release of the pre-construction 10-year design run-off rate and overflow. The metered release and overflow would discharge into the same new 36-inch culvert, discussed above. PBC would own and maintain this detention facility.

Special Events Area Grading and Expansion. The special events staging area is 14.2 acres of predominately open dirt pervious surface, and it would be graded and expanded northward (Figure 2-15). All existing structures and corrals on the site would be removed, slightly increasing the amount of pervious surface.

Area M Spyglass Hill

New Resort Hotel (Option 1). Proposed development includes a new hotel with 100 guest rooms, restaurant, lobby, meeting facility, spa facility, three-level parking facility for 301 vehicles at the main hotel, and 2-level parking facility for 41 vehicles at the spa (Figure 2-17). The development would increase the impervious area on the site by 7.30 acres, which would result in a total site run-off detention of 23,121 cubic feet. All site storm run-off would be collected by an underground storm drain system that would discharge into a basin located at the northwest end of the development site or a closed underground detention system. Either system would utilize a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. A standpipe would be designed to release the 10-year pre-construction flow rate; it would also be designed to accommodate overflow from severe storm events. This overflow would be released near Spyglass Hill Road and would follow the road's existing drainage course.

New Residential Lots (Option 2). Proposed development includes 10 residential lots, 1,905 linear feet of private access roadway, and land set aside for open space (Figure 2-18). The development would increase the impervious area on the site by 3.41 acres and would result in a total site run-off detention of 10,795 cubic feet.

Each individual lot would include a closed underground detention system that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility

would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Overflows would be situated on each lot so that flows would disperse overland prior to leaving the site. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

PBC would own, operate, and maintain two detention facilities sized to detain run-off from the new private roadway. An underground storm drain system would collect run-off from the road's gutter via catch basins and route it to the two facilities. Both facility overflows are directed toward a natural drainage ravine that flows onto the Spyglass Hill Golf Course.

Residential Lot Subdivisions

The proposed project includes 90 residential lot subdivisions in nine areas described below and shown in Figures 2-19 to 2-27. For purposes of analysis it was assumed that the total increase in impervious surface for the various development areas was distributed evenly among the lots within that area.

Area F-2. Residential development could increase the impervious area on the site by 4.29 acres,[1] which would result in a total site run-off detention of 13,588 cubic feet. Uphill lots 9–16 would each include a detention facility that would prevent infiltration. A drain pipe designed to release the pre-construction 10-year design run-off and overflow for the facility would be piped directly into the underground storm drain system within the private cul-de-sac loop access road. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

The underground storm drain system would also collect run-off from the access road's v-gutter via catch basins and from a concrete swale that runs along the uphill side of the project area, collecting run-off draining onto the site. The underground storm drain system would route storm run-off to a closed detention facility at the northeast corner of Lot 8 and a closed detention facility located at the southeast corner of Lot 2. The closed underground detention system would utilize a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Both detention facilities would discharge overflow run-off onto the Poppy Hills Golf Course; the overflow run-off would sheet-flow overland to the roadside ditches to a ravine crossing Lopez Road. Each discharge point would incorporate an energy dissipater and be located to best minimize erosion. PBC would own, operate, and maintain both detention facilities.

Downhill Lots 1–8 would include a closed detention facility in the development of each lot that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facilities would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Overflows would be released at the back of each individual lot, and those overflow releases would then sheet-flow overland onto the Poppy Hills Golf Course, where it would infiltrate and flow overland to the roadside ditches to a ravine crossing Lopez Road.

[1] This estimate assumes 9,000 square feet of impervious surface per lot plus associated roadway (WWD Corporation 2010, 2011).

Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

Area I-2. The development could increase the impervious area on the site by 3.50 acres,[2] which would result in a total site run-off detention of 11,092 cubic feet. Storm run-off from the access road would be routed via v-gutter to a closed detention facility located at the south west corner of Lot 12. An overflow would allow for discharge into the existing swale running along Viscaino Road. PBC would own, operate, and maintain this facility.

Each individual lot would include a closed detention facility. Overflows would be designed to release flows at the front of each individual lot, which would then be dispersed overland before discharging into the existing swales running along Viscaino Road and Ronda Road. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

Detention facilities would be designed and utilize metered release to accommodate the difference between the peak 100-year post-development design storm and the peak 10-year pre-development design storm. This design should allow for overflow rates from such facilities to be consistent with existing run-off rates, except for extreme storm events. Because these facilities would be preventing increases in run-off, existing swales with little maintenance would be adequate to maintain run-off flows from the project site.

Area J. The development could increase the impervious area on the site by 1.03 acres,[3] which would result in a total site run-off detention of 3,260 cubic feet. Each individual lot would include a closed detention facility that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. For the northern project site, facility overflows would be designed to release flows at the back of each individual lot toward the south. Overflow run-off would then be dispersed overland before entering an existing drainage ravine. For the southern project site, facility overflows would be designed to release flows at the front of each individual lot. Overflow run-off would then be dispersed overland before crossing Spyglass Woods Drive and following the existing drainage course. Each overflow would incorporate an energy dissipater and be located to best minimize erosion. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

Area K. The development could increase impervious area on the site by 1.91 acres [5], which would result in a total site run-off detention of 6,053 cubic feet. Each individual lot would include a closed detention facility that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. For lots south of Stevenson Drive, overflows would be released at the front of the lots and would disperse overland prior to entering the existing drainage system along Stevenson Drive. For lots north of Stevenson Drive, overflows would be released at the back of the lots and would disperse overland before discharging onto the Spyglass Hill Golf Course. Individual lot owners would

[2] This estimate assumes 9,000 square feet of impervious surface per lot plus associated roadway (WWD Corporation 2011).

[3] This estimate assumes 9,000 square feet of impervious surface per lot plus associated roadway (WWD Corporation 2011).

be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

Area L. Residential development could increase the impervious area on the site by 2.68 acres,[5] which would result in a total site run-off detention of 13,238 cubic feet. Surface run-off from the site would be collected and detained by detention facilities that would not infiltrate.

Each individual lot in this development would include a closed detention facility that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

A storm drainpipe with individual lot drainage stubs would be placed within the private cul-de-sac access road and would discharge into the stream flowing through the west end of the property. The metered release and overflow for the individual lot detention facilities would discharge into the storm drain stub provided. Individual lots would be required to include best management practices (e.g., vegetated drainage swales, dispersion trenches) in their developmental designs to help eliminate contaminants from entering the drainage system.

This development would also require a closed detention facility for the private access road. The closed detention facility would be required to have a metered release of the pre-construction 10-year design run-off rate and an overflow. The metered release and overflow would discharge into the stream that flows through the west end of the property. PBC would own and maintain this detention facility.

Area U. This proposed development consists of 7 residential lots along Drake Road and land set aside for preservation areas. One of the drainage courses discussed above runs directly through the proposed lots. This drainage course is a result of storm run-off from the existing equestrian center to the south. The proposed project includes reconstruction of the equestrian center. As part of the reconstruction, a new 36-inch culvert would collect surface run-off from the equestrian center, so surface run-off into Area U would be eliminated. Instead, a utility corridor would allow for the underground culvert to pass through the proposed subdivision and replace an existing 24-inch culvert crossing Drake Road to maintain the discharge on the other side of Drake Road. Run-off collected by the 36-inch culvert would continue through Cypress Point Golf Course by mutual agreement with PBC.

Residential development could increase the impervious area on the site by 1.47 acres,[4] which would result in a total site run-off detention of 9,240 cubic feet. Surface run-off from the site would be collected and detained by closed detention facilities that would not infiltrate. This development would require that each individual lot include a closed detention facility that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

[4] This estimate assumes 9,000 square feet of impervious surface per lot plus associated roadway (WWD Corporation 2011).

A storm drain pipe with individual lot drainage stubs would be placed along the frontage of the proposed 7 lots and would discharge into the proposed 36-inch culvert that would run through the site. The metered release and overflow for the individual lot detention facilities would discharge into the storm drain stub provided. Individual lots would be required to include best management practices in their developmental designs to help eliminate contaminants from entering the drainage system.

Area V. The residential development could increase the impervious area on the site by 3.37 acres[6], which would result in a total site run-off detention of 10,670 cubic feet. Site run-off detention is proposed as follows. Each individual lot would be required to include a closed detention facility that utilizes a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. Overflows would be designed to release flows at the front or back of each individual lot, which would then be dispersed overland before entering the proposed road's drainage system or entering the wetland. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County. Best management practices (e.g., vegetated drainage swales, dispersion trenches) would be used at both road drainage outlets to help control sediment and contaminants from entering wetland.

Collins Residence. The development could increase the impervious area by 1.03 acres,[7] which would result in a total site run-off detention of 6,765 cubic feet. The site would be graded so that the entire site drains towards the Fan Shell Beach watershed. Surface run-off from the site would be collected and detained by detention facilities that would not infiltrate.

This development would include a closed detention facility at each individual lot. Closed detention facilities would utilize a metered release of the pre-construction 10-year design run-off rate and an overflow. The detention facility would accommodate the difference between the 100-year post-development design storm and the 10-year pre-development design storm, as required by the MCWRA. A storm drain system with individual lot drainage stubs would be implemented to direct run-off to a new 15-inch culvert that would cross Portola Road and discharge into the proposed storm drain system for the Equestrian Center parcel. The metered release and overflow for the individual lot detention facilities would discharge into the storm drain stub provided. Individual lots would include best management practices in their developmental designs to help eliminate contaminants from entering the drainage system. Individual lot owners would be responsible for installing the lot detention facilities, and PBC would be responsible for maintaining and reporting to the County.

This development would also include a closed detention facility for the access road. The closed detention facility would be required to have a metered release of the pre-construction 10-year design run-off rate and overflow. The metered release and overflow would discharge into the same storm drain system for the site as discussed above. PBC would own and maintain this detention facility.

Corporation Yard. The development could increase the impervious area of the site by 3.02 acres;[5] this increase would result in a total site run-off detention of 9,578 cubic feet. All drainage from road

[5] This estimate assumes 9,000 square feet of impervious surface per lot, plus the roadway (WWD Corporation 2010, 2011).

and lot development would be hard-piped to the existing detention basin located at the west end of the development site. The existing detention basin would be increased to accommodate the additional 9,578 cubic feet of storm run-off created by this development. A new overflow for the detention basin would be designed to allow for the appropriate 10-year pre-development and excessive storm event releases. Existing overflow is released overland prior to entering a tributary of Sawmill Gulch.

Criteria for Determining Significance

In accordance with CEQA, State CEQA Guidelines, Monterey County plans and policies, and agency and professional standards, a project impact would be considered significant under the following conditions:

A. Alteration of Drainage Patterns

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off the site.

B. Stormwater Run-Off and Drainage Infrastructure

- Substantially increase the rate or amount of surface run-off, which would exceed capacity of existing or planned storm drain facilities, cause downstream or offsite drainage problems, or increase the risk or severity of flooding in downstream areas.

C. Water Quality

- Violate any water quality standards or otherwise substantially degrade surface water quality or contribute substantial non-point sources of pollution to the Carmel Bay ASBS.

Project Impacts and Mitigation Measures

A. Alteration of Drainage Patterns

Impact HYD-A1. The proposed project would result in the alteration of surface drainage patterns, but would not alter the course of a stream or river in a manner that would result in substantial erosion or siltation on or off the site. (Less than significant with mitigation)

The proposed project would result in ground disturbance, grading, and construction of new impervious surface at some of the development sites, which would alter surface drainage patterns. The alteration would not be to a degree such that it would alter the course of a stream or river in a manner that would result in substantial erosion or siltation on or off the site.

The preliminary drainage reports prepared for the proposed project (WWD Corporation 2010, 2011) include general drainage control design for all development sites such that the difference between the peak 100-year post-development design and the peak 10-year pre-development designs is accommodated, MCWRA. Detention and retention structures have been included in project designs which can slow the flow of stormwater run-off, reducing the risk of erosion and gullying in the downstream drainages. These controls would help reduce the likelihood of significant alteration of surface drainage patterns. The site-specific geotechnical/geologic reports identify soils

and subsurface constraints in several areas (Areas M, F-2, I-2, J, K, L, U and V) and thus recommends closed detention facilities (Haro, Kasunich and Associates 2010a-2010m). The final drainage plans need to be approved by the County Water Resources Agency. This impact is considered significant, but it would be reduced to a less-than-significant level with implementation of Mitigation Measure HYD-A1, which ensures that the final drainage plans are prepared per the requirements of and approved by the MCWRA, and Mitigation Measure HYD-A2, which ensures that the drainage facilities will be maintained and monitored.

Mitigation Measure HYD-A1. Ensure on-site detention of stormwater run-off at development sites and the presence oil/grease separators at parking lots; prepare final drainage plan with flow calculations and construction detail, and implement approved drainage plan.

Prior to filing the final map, the applicant will provide a drainage plan prepared by a registered civil engineer addressing on-site and off-site impacts (flow) with supporting calculations and construction detail. The drainage plan will include on-site stormwater detention facilities designed to limit the 100-year post-development run-off rate to the 10-year pre-development rate (including supporting flow calculations), and it will include oil/grease separators for all parking areas with 20 or more parking spaces as required by Monterey County Water Resources Agency (MCWRA). The drainage plan will incorporate the recommendations from the Geotechnical/Geologic Feasibility Update Letters (Haro, Kasunich and Associates 2010a-2010m) and include closed detention facilities to address soils and subsurface constraints. The final drainage plan will be submitted to MCWRA for review and approval.

Once approved by MCWRA, the applicant will implement the final Drainage Plan by including it in the final design, mapping, and construction specifications. Regarding future residential construction contracted by private property owners, the applicant will inform the new property owners of the on-site detention requirements at the time lots are purchased, and the County will include the requirements in the conditions of approval applied to residential development.

Mitigation Measure HYD-A2. Maintain and monitor drainage and flood control facilities, and prepare annual reports that describe the condition, maintenance performed, and required improvements of drainage and flood control facilities.

The applicant will be responsible for maintenance and reporting responsibilities for all drainage and flood control facilities associated with the proposed project, including the individual stormwater detention systems proposed for future development in the residential lot subdivision areas.

Prior to filing the final map, the applicant will provide a signed and notarized Drainage and Flood Control Systems Agreement to the MCWRA for review and approval. The agreement will include a summary of required annual maintenance activities and provisions for the preparation of an annual drainage and flood control report.

For future residential construction contracted by private property owners, the applicant will inform the new property owners of the inspection, maintenance and reporting responsibilities at the time lots are purchased. Once sites have been developed, the applicant will provide an annual report that addresses each development site. The annual report will be prepared by a registered civil engineer and will document the effectiveness of the drainage facilities, the maintenance performed, and any required improvements or additional maintenance required to

ensure proper function. The report will be submitted to the MCWRA by August 15 for review and approval.

The MCWRA will notify the applicant if any action is required. If, after notice and hearing, the applicant fails to properly maintain, repair, or operate the drainage and flood control facilities, the MCWRA will be granted the right by the property owners to enter any and all portions of the property to perform repairs, maintenance, or improvements necessary to properly operate the drainage and flood control facilities in the proposed project. The MCWRA will have the right to collect the cost for said repairs, maintenance, or improvements from the applicant. The appropriateness of the cost will be considered in a hearing by the Board of Supervisors. The signed Drainage and Flood Control Systems Agreement will be recorded concurrently with the final map.

For future residential construction contracted by private property owners, the applicant will inform the new property owners of the requirements at the time lots are purchased, a modified Drainage and Flood Control Systems Agreement will be signed by applicant and property owner, and the County will include the requirements in the conditions of approval applied to residential development.

B. Stormwater Run-off and Drainage Infrastructure

Impact HYD-B1. The proposed project would result in increased stormwater run-off due to an increase in impervious surfaces and topographic alterations. (Less than significant with mitigation)

Construction of the proposed project would create more impervious areas than currently exist at development sites and within the project area. The introduction of new impervious surfaces would reduce the ground surface available for infiltration of rainfall and run-off, and subsequently would generate additional run-off during storm events. Increased run-off can contribute to flood potential of natural stream channels, accelerate processes of soil erosion and stream channel scour, and increase the transport of pollutants to waterways. Increased run-off can also overwhelm downstream stormwater infrastructure resulting in localized flooding.

The preliminary drainage reports for the proposed project (WWD Corporation 2010, 2011) indicate that impervious surface would increase by 32.85 acres (0.63% of the total area of Pebble Beach). Net increases in impervious surfaces are identified at all project locations, except portions of The Lodge at Pebble Beach (Parking and Circulation Reconstruction, Fairway One Reconstruction, and New Colton Building) and The Inn at Spanish Bay (Conference Center Expansion). The peak rate of stormwater run-off for a 1-in-100-year storm would increase in most of the development sites, and estimated changes in stormwater flows between pre-project 10-year run-off and post-project 100-year run-off would range from 1.79 cubic feet per second (cfs) to 14.82 cfs (WWD Corporation 2010).

The preliminary drainage reports identify that each development site would support its own retention or detention storage requirements and that the design criteria would accommodate the difference between the peak 100-year post-development volume and the peak 10-year pre-development volume, as required by MCWRA.

The preliminary drainage reports and site plans describe the proposed new drainage facilities and improvements, including a variety of new controlled discharge outfalls; connections with existing

stormwater drainage features; and localized, and less formal, discharge structures that flow to open space areas and existing swales. The development plans also depict a number of areas where detention basins would be created to reduce peak drainage flow rates during storm events and identifies the required detention storage and required design volumes on a site-by-site basis.

Because the preliminary drainage plans for the proposed project include on-site detention facilities and features to control stormwater flow (limiting the 100-year post-development run-off rate to the 10-year pre-development rate), the proposed project would not substantially increase the rate or amount of surface run-off to the point that it would exceed capacity of existing or planned storm drain facilities (which is primarily roadside drainage ditches), cause downstream or off-site drainage problems, or increase the risk or severity of flooding in downstream areas. However, the drainage plans need to be finalized and approved by the MCWRA. This impact is considered significant, but it would be reduced to a less-than-significant level with implementation of Mitigation Measure HYD-A1, which ensures the final drainage plans are prepared per the requirements of and approved by the MCWRA, and Mitigation Measure HYD-A2, which ensures the drainage facilities will be maintained and monitored.

C. Water Quality

Impact HYD-C1. The proposed project would degrade surface water quality due to an increase in sediment and pollutant loading in stormwater drainage during construction and from operation. (Less than significant with mitigation)

Construction

Construction activities would involve initial clearing of vegetation and grading, construction of building foundations and structures, grading and paving of roadway/parking lot surfaces, and installation of landscape features. Construction activities could impair water quality temporarily because disturbed and eroded soil, petroleum products, and miscellaneous waste may be discharged into receiving waters. Soil and associated contaminants entering stream channels can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. If they are released into the environment, construction materials such as soil, concrete, fuel, oil, and paint are potentially harmful to fish and other aquatic life.

The extent of potential environmental effects depends on the erodibility of soil types encountered, the type of construction practices employed, the extent of disturbed area, the duration of construction activities, the timing of precipitation, the proximity to receiving water bodies, and the sensitivity of those water bodies to contaminants of concern. Section 3.6, Geology, Seismicity, and Soils, describes potential impacts associated with construction-related discharges of soil due to erosion and slope stability hazards.

All proposed project features would involve construction activities and the associated potential for water quality impacts. The receiving waters include the drainage area to the Carmel Bay, Seal Rock watershed, Sawmill Gulch watershed, Fan Shell Beach watershed, and smaller unnamed drainage basins immediately adjacent to the coastline.

The proposed project would involve construction activities occurring over several years. The majority of site development for some facilities could be constructed relatively quickly within single-summer dry seasons. However, other components such as the larger commercial

development components could occur during at least one winter rainfall season. Potential for inadvertent offsite run-off or for mobilization of construction-related materials or waste products by stormwater is greatest when construction activities are carried out in winter.

The potential for accidental spills of fuel and other toxic materials could exist during any construction period. The water quality effects of spills could be short- or long-term, depending on the type of material, size of the spill, and seasonal timing. The need for construction-site dewatering has not been identified. However, it is reasonable to assume that dewatering might be needed during the construction of deep excavations such as those necessary for underground parking facilities. This could result in the compromise of water quality and therefore is considered a significant impact.

Operation

As described for Impacts HYD-A1 and HYD-B1, the proposed development could increase rates and quantities of stormwater drainage. Increases in the total run-off volume could accelerate soil erosion and stream channel scour, and could increase the transport of contaminants to waterways, including the Carmel Bay ASBS. Approximately half of the 16 Lots in Area I-2 and the Pebble Beach Driving Range would drain into storm drain systems that enter Carmel Bay ASBS.

The proposed project would also involve the construction of roads, parking lots, infrastructure, and maintenance areas associated with the proposed facilities. Run-off from these areas could be expected to contain non-point pollution sources comparable to those from urban areas. The type of pollutants contained in street/parking lot run-off include oil, grease, heavy metals, and other petroleum derivatives from engines and from wearing of auto parts and roadway surfaces. The applicant has conducted stormwater run-off sampling in Del Monte Forest since 1995 (refer to Water Quality/Site-Specific Conditions under Environmental Setting), and no oil and grease has been detected in any sampling events. New parking areas are proposed at most development sites. Those with 20 or more parking spaces include: Fairway One Reconstruction, New Colton Building, and Parking and Circulation Reconstruction at The Lodge at Pebble Beach; New Guest Cottages and New Employee Parking at The Inn at Spanish Bay; New Resort Hotel (Option 1) at Area M Spyglass Hill; Driving Range Relocation from Area V to Collins Field and Equestrian Center Reconstruction. The application plan set includes sediment traps, vegetated filtering strips and swales, and detention-retention systems to control these pollutant sources (Pebble Beach Company 2011). The County also requires oil and grease separators at all parking lots with 20 or more parking spaces and annual inspection of the separators.

The proposed increase in the number of permanent residential units could also incrementally increase the potential for common household materials such as pesticides, fertilizers, automotive fluids (e.g., fuel, oil, grease, antifreeze, brake pad dust), cleaning agents, and pet wastes to enter storm run-off.

In summary, construction and operation of the proposed project could create sediments and contaminants in stormwater run-off that violate water quality standards or otherwise substantially degrade surface water quality or contribute substantial non-point sources of pollution to the Carmel Bay ASBS. The proposed project would include drainage improvements that have been identified in the preliminary drainage reports (WWD Corporation 2010, 2011), including detention basins to reduce the size of peak drainage flow rates during storm events. These basins would also provide water quality benefits by allowing settling of sediment particles and reducing their transport. The drainage plans have not yet been finalized.

This impact is considered significant. Implementation of Mitigation Measures HYD-A1, HYD-A-2, (described above); HYD-C1 and HYD-C2 (described below); and GSS-C1, and GSS-D1 (described in Section 3.6 Geology, Seismicity, and Soils) would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-C1. Prepare and implement a stormwater pollution prevention plan to prevent and reduce sediments and contaminants in stormwater run-off during construction.

Prior to project construction, the applicant will ensure the general contractor(s) prepare a SWPPP to prevent sedimentation or other contamination of stormwater run-off, in compliance with NPDES general construction permit requirements. The SWPPP will include standard and site-specific measures to address soil stabilization, wind and water erosion, stormwater run-off, sediment, and other construction-related pollutants. Typical BMPs considered for inclusion in the SWPPP include:

- Temporary sediment control: silt fence, sandbag, straw bale, and fiber roll barrier; desilting basin.
- Temporary soil stabilization: hydraulic or straw mulch; seeding; soil binders; and erosion control mats or blankets.
- Preservation of existing vegetation.
- Scheduling to avoid rainfall season.
- Stockpile management: size restriction, run-off control, and covers.
- Sediment tracking control: street sweeping, covered hauling trailers.
- Waste management: spill prevention, concrete waste management, material delivery and storage, vehicle fueling and cleaning.
- Dewatering: clear water diversion, desilting basins, filter discharges, discharge to grass fields, monitor discharges and restrict if necessary.

The SWPPP will include emergency spill control and response measures to reduce the potential for impacts through prevention and rapid cleanup should a spill occur.

All elements of the SWPPP will be reviewed by Monterey County staff to ensure that measures are included to conform to the erosion control ordinance and provisions of the CIP. Under the direction of Monterey County staff, the general contractor(s) and all subcontractor(s) conducting the work will be responsible for constructing or implementing, regularly inspecting, and maintaining the BMPs in good working order.

The applicant will require the general contractor(s) to file an NOI to discharge stormwater and an application for the NPDES stormwater permit for general construction activity with the RWQCB before starting construction. All construction activities will be subject to this requirement. However, the number of NOIs and SWPPPs prepared will depend on the phasing of each project element and the general contractor(s) involved. Applications for the various project elements can be separate or combined, as deemed necessary by the applicant and their representatives.

Mitigation Measure HYD-C2. Provide regular inspection and maintenance of operational best management practices to ensure function and minimize the discharge of pollutants to surface water.

The applicant will provide inspection and maintenance as needed, but no less than annually, of all operational best management practices such as sediment traps, vegetated filtering strips, and swales to ensure effectiveness and proper function. Where deficiencies are identified, the applicant will take corrective action to restore the structure to a proper working condition. This mitigation measure could be combined with Mitigation Measure HYD-A2, described above.

Impact HYD-C2. The proposed project could degrade water quality due to pesticide, herbicide, and fertilizer use from the Pebble Beach Driving Range Relocation from Area V to Collins Field. (Less that significant with mitigation)

The Pebble Beach Driving Range would be relocated from Area V to Collins Field. The current driving range in Area V is within the Fanshell Beach Watershed, and the relocated driving range would be within the Carmel Bay ASBS watershed.

Turf management activities would include the use of pesticides, herbicides, and fertilizers that could be transported off-site through surface drainage and shallow groundwater seepage. Contaminants of concern from turf management activities could be carried into local drainages by irrigation water in summer, or stormwater run-off in winter. Contaminants of concern include synthetic organic compounds in pesticides and herbicides. Nitrogen is the primary fertilizing agent.

Several key components would be implemented to control quantity and quality of drainage and run-off to local drainages. As described above, run-off would be controlled through the use of the stormwater drainage collection system to limit adverse changes in hydrologic conditions at the wetlands. Run-off would be conveyed to the detention basin to intercept and otherwise reduce off-site transport of contaminants.

This impact is considered significant but would be reduced to a less-than-significant level with implementation of Mitigation Measure HYD-C3.

Mitigation Measure HYD-C3. Prepare and implement an integrated pest management program for the relocated Pebble Beach Driving Range.

Prior to operation, the applicant will prepare and implement an integrated pest management (IPM) program that describes irrigation and pesticide application management procedures for the Pebble Beach Driving Range. The IPM program will use the best available monitoring technology to manage course operations and use the smallest amount of pesticides possible. The applicant will identify a selected list of potential pesticides, herbicides, and fungicides and the typical application areas where they would be used.

As part of the IPM program and before the relocated driving range begins operating at the new location the applicant will develop a risk management plan (pursuant to California Department of Food and Agricultural regulations) to manage the risk of pesticides, herbicides and fungicides contaminating surface waters. The plan will describe responsibilities of the Pebble Beach Driving Range management for planning, implementing, and supervising all grounds maintenance activities. Staff organizational structure, professional qualifications, and associated licensing requirements of principal course employees will be identified, including those requiring a Qualified Applicator Certificate (QAC) as certified by the California Department of

Food and Agriculture, and Pest Control Operator (PCO) licensing. Water quality monitoring and reporting procedures will be addressed for implementation during the winter rainfall season to verify that discharges to Carmel Bay do not contain contaminants at levels harmful to aquatic life. The plan will also include an equipment washdown and recycling system that will be used to clean mowers and other equipment that could be contaminated with driving range chemicals, oils, and grease. The IPM program will use the best available monitoring technology to manage course operations and utilize slow-release fertilizers to limit run-off of nutrients.

Cumulative Impacts and Mitigation Measures

The impact zone for hydrology is Del Monte Forest because this is the only area in which the project could contribute to flooding and run-off impacts. The impact zone for water quality is the Monterey Peninsula and beyond because the project could contribute to marine water quality impacts in Carmel Bay and Monterey Bay. The methodology for determining cumulative impacts is described under Analysis of Cumulative Impacts at the beginning of Chapter 3.

A. Alteration of Drainage Patterns

Impact HYD-A1(C). Cumulative development in Del Monte Forest would alter surface drainage patterns, but the project's contribution would be reduced to a less-than-significant level with mitigation.

Cumulative development in Del Monte Forest would be limited to single-family residences. These individual homes would be required to comply with site-specific hydrology/water quality recommendations/measures as required by the Monterey County Water Resources Agency. The proposed project would include ground disturbance, grading, and construction of new impervious surfaces that would alter surface drainage patterns. Implementation of Mitigation Measures HYD-A1 and HYD-A2 would ensure that stormwater run-off is addressed by on-site detention, and that a final drainage report is prepared, including evaluation of adequacy of all on-site and off-site drainage improvements. Therefore, although cumulative development impacts related to drainage patterns are considered to be potentially significant, the project's contribution would not be considerable.

B. Stormwater Run-Off and Drainage Infrastructure

Impact HYD-B1(C). Cumulative development in Del Monte Forest would result in increased stormwater run-off, but the proposed project's contribution would be reduced to a less-than-significant level with mitigation.

Cumulative development in Del Monte Forest, other than the project, would be limited to residential construction and roadways that would contribute to the overall amount of impervious surfaces within Del Monte Forest. The proposed project would result in an addition of 32.85 acres (0.63% of the total area of Pebble Beach) of impervious surfaces. An increase in impervious surfaces would occur at all project locations, except portions of The Lodge at Pebble Beach and The Inn at Spanish Bay. New drainage facilities and detention basins would also be included in the project. Implementation of Mitigation Measures HYD-A1 and HYD-A2 would include an assessment of downstream stormwater infrastructure and drainage improvements necessary to handle increased stormwater flows, and would require preparation of a drainage detention facilities annual report. Therefore, although cumulative development impacts related to stormwater run-off and drainage

infrastructure are considered to be potentially significant, the project's contribution would not be considerable.

C. Water Quality

Impact HYD-C1(C). Cumulative development on the Monterey Peninsula and beyond could degrade onshore and offshore water quality, but the proposed project's contribution would be reduced to a less-than-significant level with mitigation.

Cumulative development in the Monterey Peninsula and beyond, including the proposed project, could result in increases to pollutant loads due to drainages within Del Monte Forest and in marine waters offshore due to new paved surfaces and related urban run-off, vehicle fluid spills and run-off, and increased pesticide, herbicide, and fertilizer use. Within Del Monte Forest, development of up to 105 new dwelling units[6] would contribute to impacts on water quality in local drainages and wetlands. On the Monterey Peninsula and beyond, new development would contribute to impacts on water quality in Carmel Bay and Monterey Bay and marine waters outside the two bays. New construction would be required to comply with site-specific hydrology/water quality recommendations/measures as required by the County Water Resources Agency (in County areas) or local jurisdictions (in incorporated cities), as well as state water quality requirements.

The proposed project could have both construction impacts (related to clearing of vegetation and grading, construction, paving, and landscaping) as well as operational impacts (increases in run-off, residential/commercial use) on water quality. Implementation of Mitigation Measures HYD-A1, HYD-A2, HYD-C1, HYD-C2, HYD-C3, GSS-C1, and GSS-D1 would reduce potential water quality impacts to a less-than-significant level. These measures include, but are not limited to, preparation of a SWPPP, installation of oil/grease separators, and regular inspections/implementation of operational BMPs. Therefore, although cumulative development impacts related to water quality are considered to be potentially significant, the project's contribution would not be considerable.

[6] As described in Table 3-2 in the introduction to Chapter 3, there are 96 undeveloped (vacant) existing residential lots, 8 new lots allowed in Area X based on County-issued certificates of compliance, and 1 new lot allowed in Area Y based on the presumption that the presence of ESHA may prevent further subdivision—thus the potential for up to 105 new dwelling units.

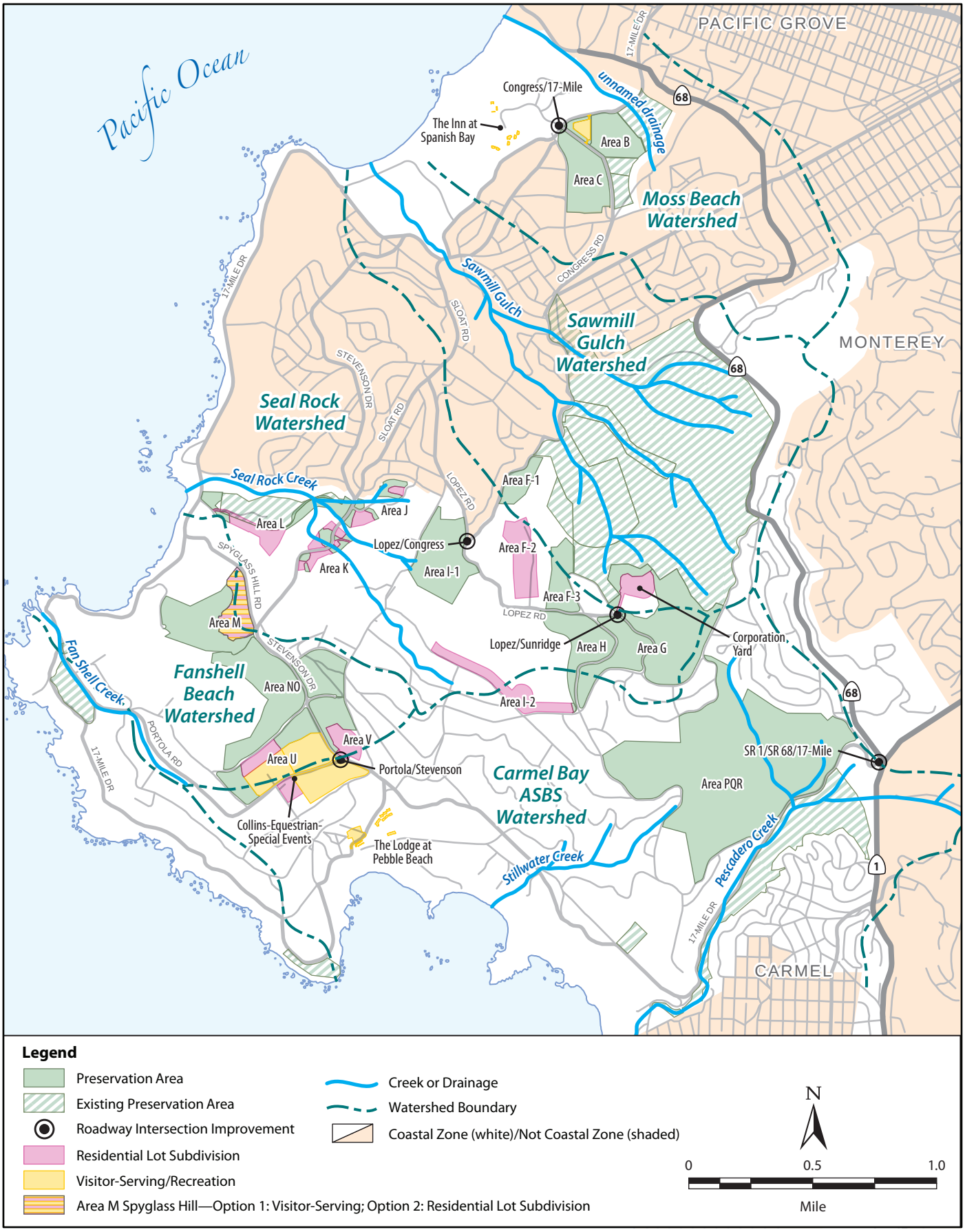

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Figure 3.7-1
Creeks and Drainages in the Del Monte Forest