This section of the Draft EIR evaluates individual resource and cumulative impacts to surface water hydrology and water quality resulting from the proposed project. The analysis of surface water hydrology and water quality presented in this section is based on the *Preliminary Geologic, Geotechnical, Hydrogeologic, Erosion, Drainage and Environmental Phase I Assessment* prepared by Kleinfelder in July 2008, the *Preliminary Drainage Report for Ferrini Ranch Subdivision* prepared by Whitson Engineering in February 2010 and updated in August 2011, and review of other available literature and maps. The Kleinfelder report discusses surface water quality, surface erosion and drainage, and flooding potential. The report by Whitson Engineering provides calculations for estimated stormwater runoff and proposed detention areas. Both of these reports are included as **Appendix E** of the Draft EIR. Groundwater quality and recharge are addressed in **Section 3.6, Groundwater Resources and Hydrogeology,** of this Draft EIR.

3.7.1 ENVIRONMENTAL SETTING

CLIMATE

The climate on the Monterey Peninsula is considered to be Mediterranean, with mild summers and cool winters, and is heavily influenced by the Pacific Ocean. The climate in the project area is semiarid, with average annual precipitation ranging from 14 inches near the Salinas Valley to approximately 20 inches along the ridges skirting the southern boundary of the Salinas Basin. Precipitation is almost entirely rain, which falls mostly in late autumn, winter, and early spring. As much as 87 percent of the total yearly rainfall occurs between November and April. The average annual rainfall ranges from about 12 to 40 inches within the Salinas Valley basin, depending on the altitude. The project site lies 2.5 miles west of the City of Salinas, which has an average rainfall of approximately 15 inches per year (WRCC 2010). This seasonal rainfall pattern, combined with the presence of sandy soils throughout most of the watershed area, results in natural vegetation that is typically xerophytic and drought-tolerant.

WATERSHED

The project site is located in the El Toro Creek-Salinas River subarea of the Salinas watershed, as shown in **Figure 3.7-1**. The Salinas Valley drains an area of approximately 3,950 square miles to the Salinas River. The watershed basin consists of deep alluvial deposits that are several hundreds of feet thick. The groundwater basin in this area is recharged primarily through percolation from the Salinas River during the rainy season. Average annual flows to the ocean from the Salinas River are approximately 282,000 acre-feet per year (AFY) during the spring and summer months. The two reservoirs on the Nacimiento and San Antonio Rivers regulate flow to minimize outflow to the ocean and to maximize groundwater recharge through the Salinas River bed.

The El Toro Creek-Salinas River subarea flows to the Monterey Bay via the Salinas River and Toro Creek. This watershed is partially located within the Geosyntec Study Area, a topography-based boundary created by Geosyntec Consultants to evaluate groundwater

resource capacity as discussed in **Section 3.6, Groundwater Resources and Hydrogeology**. As with the groundwater basin, the Geosyntec Study Area is not consistent with the El Toro Creek-Salinas River subarea or Salinas River watershed boundaries, but contains a portion of the watershed.

SURFACE DRAINAGE

The elevation of the project site varies approximately 475 feet, ranging from approximately 65 feet above sea level along State Route 68 to approximately 550 feet above sea level in the southeastern portion.

The confluence of Corral de Tierra Creek, San Benancio Creek, and El Toro Creek is located at the northwestern corner of the project site. San Benancio Creek enters the project site through a concrete box culvert located beneath San Benancio Road. On the eastern side of the culvert it becomes El Toro Creek, which drains an area of approximately 30 square miles. According to Kleinfelder, the peak flow of El Toro Creek is 851 cubic feet per second (cfs) for a 10-year storm event and 2,980 cfs for a 100-year storm event.

In addition to these three creeks, the project site is drained by eight unnamed intermittent drainages. Three are located in the eastern parcel and five are located in the western parcel. Only one of these unnamed drainages has enough seasonal surface flow to occasionally reach El Toro Creek. This unnamed drainage collects runoff from an area of approximately 323 acres and is channeled through a reinforced concrete box culvert beneath State Route 68 where it joins El Toro Creek.

SURFACE WATER QUALITY

Surface water quality is an issue for the entire Salinas River watershed. During the dry months of summer and fall, the flow of the Salinas River is minimal. With a reduced flow, pollutants remain concentrated and water quality deteriorates. Pollutants from agricultural lands and from sewage treatment facilities have severely degraded the Salinas River, particularly in the segment from State Route 68 northward. This portion of the Salinas River has been listed by the state as one of the five dirtiest in California. By comparison, the El Toro watershed is less affected by intensive agriculture and wastewater disposal; however, water quality is still influenced by urban runoff from residences and floodways.

Urban Runoff

Impervious surfaces in urban areas result in urban runoff, which may contain pollutants such as sediment, oil and grease, nutrients, pesticides, and pathogens. Water flowing though the storm drain system is untreated and therefore carries contaminants to local waterways. Within the project site, contaminants are carried to Monterey Bay via the Salinas River and Toro Creek.

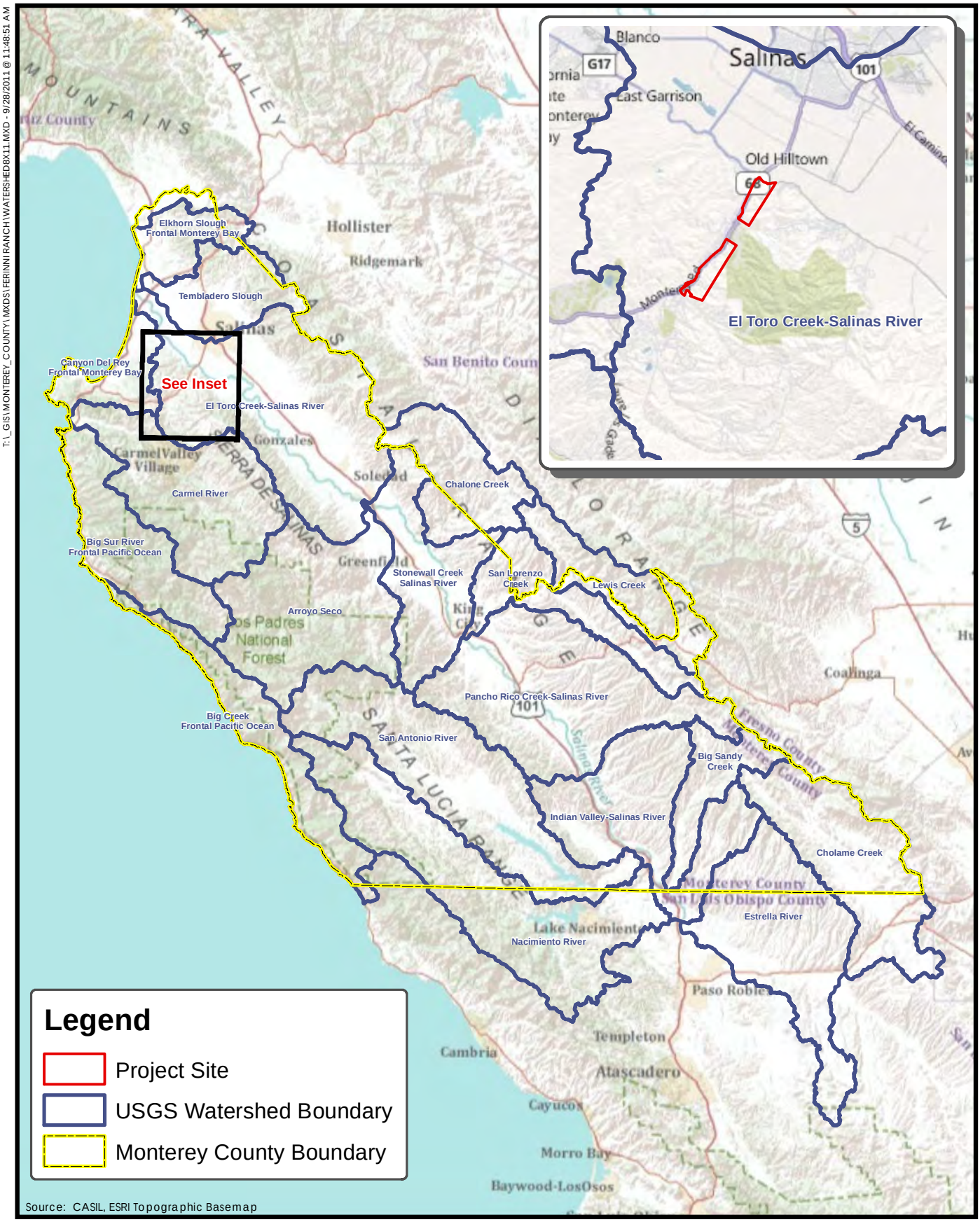

FIGURE 3.7-1

U.S. GEOLOGICAL SURVEY WATERSHEDS WITHIN MONTEREY COUNTY

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Erosion and Sedimentation

Erosion problems are widespread in Monterey County. Four common causes of erosion and sedimentation are farming on steep slopes and/or erosive soils; dirt roads lacking proper design or runoff facilities; alteration of streams and/or rivers; and removal of vegetation by fire, overgrazing, and/or clearing of land.

Within the Salinas River watershed, erosion and sedimentation are often related to farming activities. Many streams that drained the eastern valley have been realigned to allow cultivation of fields. These ditches convey water at a faster rate, resulting in unnaturally high rates of erosion upstream and higher rates of sedimentation downstream, thus requiring annual maintenance. Outreach and advisory programs to assist growers in controlling erosion, applying fertilizers and crop nutrients according to crop demand, and irrigating more efficiently and cost-effectively have succeed in greatly improved practices in many areas. Within the project site, erosion is primarily a function of erosive soils on steep slopes.

FLOODING POTENTIAL

Flood hazards from long-cycle storms can occur at most locations; however, they are most common within areas designated as a 100-year flood zone by the Federal Emergency Management Agency (FEMA). The northwestern corner of the project site is located in a 100-year flood zone as shown in **Figure 3.7-2a** and **Figure 3.7-2b**.

Since the project site is located approximately 16 miles inland from the coast at an elevation of approximately 65 feet or more above sea level, potential flooding due to seismically induced waves (tsunami or seiche) is slim to none. Small stock reservoirs in the vicinity of the project site have the potential to cause some uncontrolled runoff; however, the potential for inundation from a reservoir failure is considered very low.

3.7.2 REGULATORY SETTING

STATE AND FEDERAL AGENCIES AND REGULATIONS

Department of Water Resources

The California Department of Water Resources (DWR) is the state agency responsible for managing California's water resources other than water quality, including conducting technical studies of surface water and groundwater in cooperation with local agencies, overseeing certain flood prevention and floodplain management programs, and developing and implementing water conservation and efficient water use strategies and programs in cooperation with local agencies.

State Water Resource Control Board/Central Coast Regional Water Quality Control Board

California's Porter-Cologne Water Quality Control Act (1969) established the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (Regional Boards), which became the principal state agencies with responsibility for coordinating and controlling water quality. The SWRCB was created by merging the State Water Quality Control Board and the State Water Rights Board. The SWRCB is generally responsible for setting statewide water quality policy and is solely responsible for the allocation or determination of surface water rights.

The Regional Boards are responsible for water quality planning and regulatory decisions for their respective regions. The Central Coast Regional Water Quality Control Board (Region 3) (CCRWQCB) has the authority to implement water quality protection standards in Monterey County through the issuance of permits for discharges to waters. Their jurisdiction also extends to discharge of wastes and wastewater to land, and to land disturbance, if the activities could affect the beneficial uses of surface water or groundwater. The CCRWQCB has a Water Quality Control Plan (Central Coast Basin Plan) that identifies beneficial uses of surface waters, establishes numeric and narrative objectives for protection of beneficial uses, and sets forth policies to guide the implementation of programs to attain certain objectives within the basin (RWQCB 1994).

Water pollution, including control of waste discharges to lands that might impact surface water and groundwater, as well as direct point source and diffuse or non-point source discharges, are primarily administered by the CCRWQCB. The primary CCRWQCB programs include the National Pollutant Discharge Elimination System program, the Total Maximum Daily Load program, the Conditional Waiver Program for Agriculture, and the Watershed Management Initiative. In addition, the Regional Board often investigates and oversees the cleanup of contaminated surface water and groundwater bodies, is involved in the review and issuance of water quality certifications for Section 404 wetlands fill permit requests, and works with the County on a variety of wastewater treatment, pollution control, development, and mineral resource extraction projects.

Dickey Water Pollution Act

The Dickey Act acknowledged that California's water pollution problems are primarily regional and depend on precipitation, topography, and population, as well as recreational, agricultural, and industrial development, all of which vary greatly from region to region, thus creating a need for a State Water Pollution Control Board.

The Dickey Act established nine Regional Water Quality Control Boards located in each of the major California watersheds. Their primary responsibility is overseeing and enforcing the state's pollution abatement program. Gubernatorial appointees, representing water supply, irrigated agriculture, industry, and municipal and county government in that region, serve on each Regional Board.

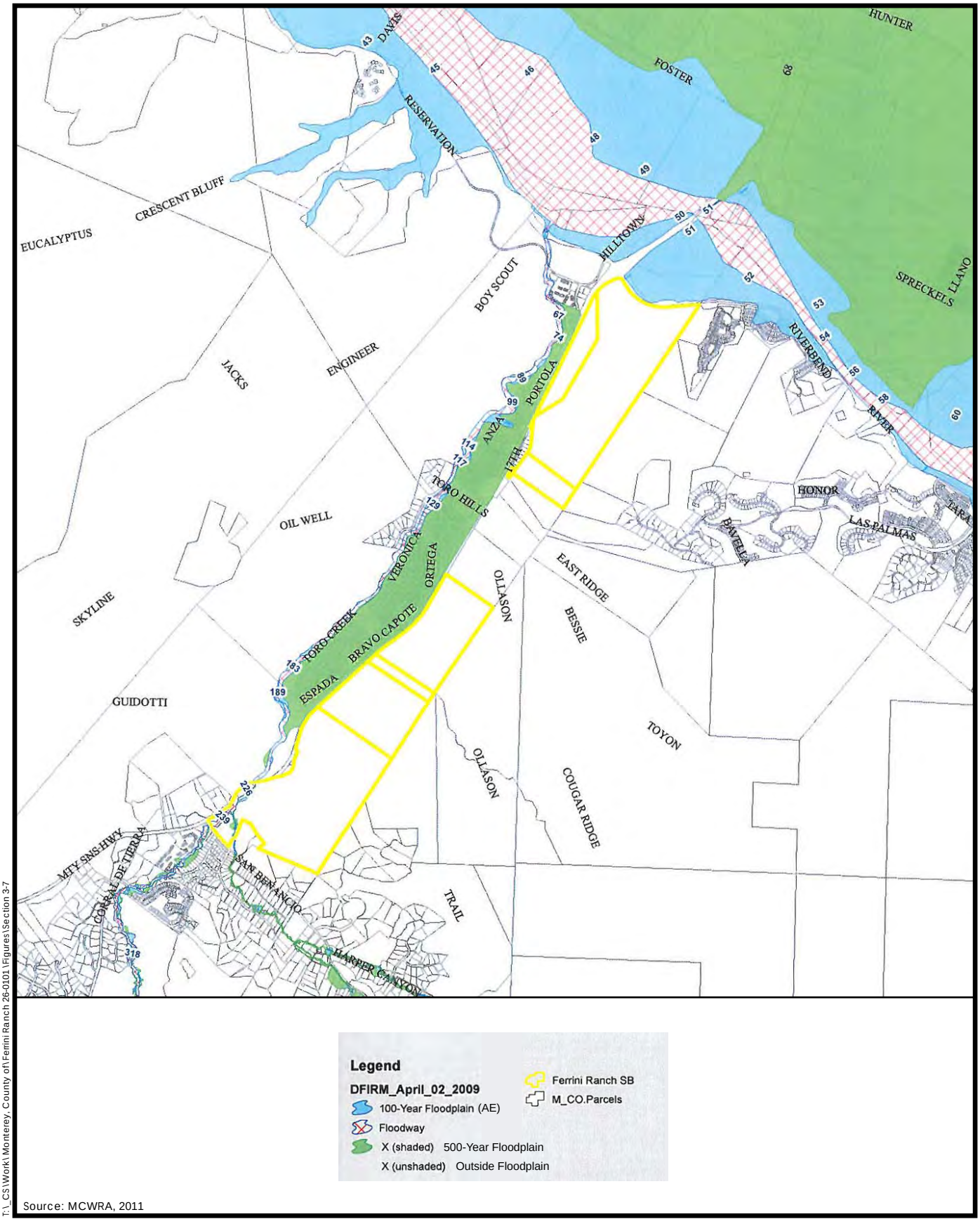

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FIGURE 3.7-2A
FLOOD BOUNDARY MAP ZONE

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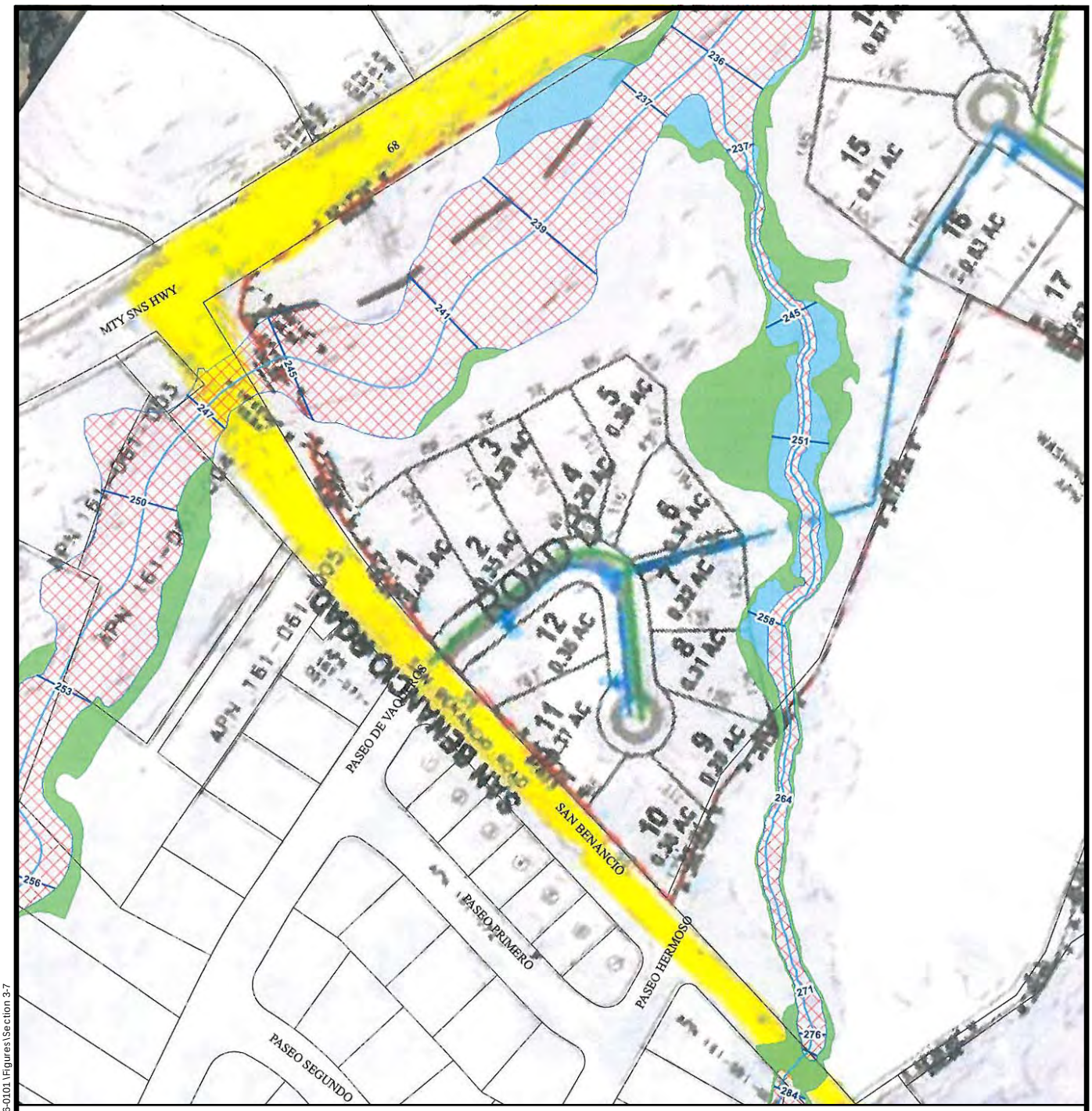

Source: MCWRA, 2011

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FIGURE 3.7-2B
DETAILED FLOOD BOUNDARY MAP ZONE

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The nine Regional Water Quality Control Boards represent the major watersheds of the state. These Regional Boards serve as the frontline for state and federal water pollution control efforts. The Central Coast Region (Region 3) spans from Santa Clara County south to northern Ventura County. Region 3 has 378 miles of coastline, including Santa Cruz and the Monterey Peninsula, the agricultural Salinas and Santa Maria Valleys, and the Santa Barbara coastal plain.

National Pollutant Discharge Elimination System Program

The National Pollutant Discharge Elimination System (NPDES) program regulates point source discharges directly to surface waters. As of 2006, the NPDES stormwater program regulates stormwater discharges from industrial facilities and municipal storm sewer systems (MS4s) serving at least 50,000 persons or other areas with a population density of at least 1,000 per square mile. The NPDES construction stormwater program applies to construction sites that disturb at least 1 acre of land unless exempt. The project applicant is required to submit a Notice of Intent (NOI) with the SWRCB's Division of Water Quality that includes general information on the types of construction activities that will occur on the site. The project applicant is also required to submit a site-specific plan called the stormwater pollution prevention plan (SWPPP) for construction activities. The SWPPP includes a description of best management practices (BMPs) to minimize the discharge of pollutants from the site during construction. Typical post-construction management practices include street sweeping and cleaning of stormwater drain inlet structures.

Since 2001, the Monterey Regional Stormwater Permit Participants Group, comprising the cities of Monterey, Carmel-by-the-Sea, Del Rey Oaks, Sand City, Seaside, Marina, and Pacific Grove, the County of Monterey, and the Pebble Beach Company, have been developing a regional stormwater program for the Monterey Peninsula and surrounding areas to prepare an NPDES Phase II permit application. The Monterey Regional Water Pollution Control Agency acts as the group's administrative agent.

Total Maximum Daily Load Program

In addition to the NPDES program, the Regional Boards also implement the federally mandated Total Maximum Daily Load (TMDL) program for watersheds. The term TMDL is used by the Regional Boards and the U.S. Environmental Protection Agency (EPA) to identify, on a stream-specific basis, pollutant standards. TMDL serves to identify impaired water bodies, determine the sources for the impairment, and implement mitigation measures to reduce the sources and remove impairments. The goal of a TMDL is to attain water quality standards. Section 303(d) of the Clean Water Act (CWA) requires states to identify waters not attaining applicable water quality standards. Such water bodies, identified by the State as "impaired," are placed on the 303(d) List of Impaired Waters. The CWA also mandates that states rank each water body by factors such as severity, potential restoration of beneficial uses, and availability of data, and that TMDLs are developed for

the pollutants of concern. Portions of the Salinas River have been placed on the 303(d) List of Impaired Waters.

Porter-Cologne Water Quality Control Act

In 1969, the State Legislature enacted the Porter-Cologne Water Quality Control Act, one of the nation's strongest pieces of anti-pollution legislation. This state law was so influential that portions were used as the basis of the Federal Water Pollution Control Act Amendments of 1972 (commonly known as the Clean Water Act).

The Clean Water Act requires the states or the EPA to set standards for surface water quality, mandate sewage treatment, and regulate wastewater discharges into the nation's surface waters. In California, the State assumes responsibility for implementing the Clean Water Act. This involves combining state and federal guidelines to develop water quality standards, issue discharge permits, and operate the grants program.

COUNTY OF MONTEREY

Monterey County Water Resources Agency

The Monterey County Water Resources Agency (MCWRA) was formerly called the Monterey County Flood Control and Water Conservation District. This agency oversees the development and implementation of water quality, water supply, and flood control projects in Monterey County. Although responsibilities for stormwater management in the unincorporated county are dispersed across several different jurisdictional entities, flood control in specific benefit assessment zones falls under the responsibility of the MCWRA. The MCWRA performs three services related to flood control. Flows in the Salinas River, along its entire length through the county, are regulated by operation of the Nacimiento and San Antonio Dams. These operations are engineered to maintain adequate storage space to simultaneously store winter water for summer release for groundwater recharge and provide some flood control. Nevertheless, some storm events that reach the 100-year level will cause flooding in the Salinas Basin.

Monterey County Code

Except for water quality issues, most of the regulations affecting water resources (both surface water and groundwater) are contained in the *Monterey County Code* and related ordinances, with code enforcement primarily by the MCWRA and Monterey County Health Department, Environmental Health Bureau. In many cases, however, development and implementation of a local program or ordinance has been mandated by the State of California or the federal government.

Drainage

Chapter 19.10.050 of the *Monterey County Code* requires that stormwater runoff from subdivisions be collected and conveyed by an approved storm drainage system. Detention ponds, drainage swales, and/or check dams may be required to reduce off-site peak storm flow generated by projects during a 100-year storm event. The maintenance of the on-site drainage facilities, including detention ponds, is the responsibility of a property owners association or other similar entity, where applicable, and provisions for annual inspection and maintenance must be included in the conditions, covenants, and restrictions (CC&Rs). Improvements are required to be designed to meet Monterey County Water Resources Agency Design Criteria, and improvement plans must be submitted to the MCWRA for review and approval. Drainage improvements for runoff from impervious surfaces are required to be engineered to minimize erosion through the use of rocked culvert inlets and outfalls, energy reducers, and location of culverts. Design features include reseeding exposed slopes as well as minimizing the use of artificial slopes. Improvements are to be constructed in accordance with the approved plans.

Erosion Control

Chapter 16.12.070 of the *Monterey County Code* requires that development activities control runoff to prevent erosion during a 10-year storm. All runoff must be detained or dispersed so that the runoff rate does not exceed the pre-development level. Any concentrated runoff which cannot be effectively detained or dispersed without causing erosion is to be carried in non-erodible channels or conduits to the nearest drainage course designated for such purpose or to on-site percolation devices with appropriate energy dissipaters to prevent erosion at the point of discharge. Runoff from disturbed areas must be detained or filtered by berms, vegetated filter strips, catch basins, or other means as necessary to prevent the escape of sediment from the disturbed area. In addition, Chapter 16.12.090 of the *Monterey County Code* prohibits grading activities of more than 1 acre per year per site between October 15 and April 15, in water supply watersheds and high erosion hazard areas, unless authorized by the Director of Building Inspection.

Hydrology and Hydrogeology

Chapters 19.03, 19.05, and 19.07 of the *Monterey County Code* regulate subdivisions, land divisions, and other development. The code requires submission of verification of legal rights to water supply, evaluation of site hydrology, hydrogeology, surface and groundwater resources, water balance, and long-term safe yield of the aquifer if development occurs, and analysis of potential changes in water usage due to subdivision development. Verification of water resources is subject to review by the Director of Environmental Health.

Surface Water Resources (Stormwater)

Surface water is regulated under *Monterey County Code* Title 19, the Subdivision Ordinance. Regulations include provision of a map showing all watershed and drainage features, wetlands, and discussion of impacts of the proposed project. Any stream flow must be quantified along with a discussion of the water quality. A discussion of the stormwater drainage caused by the proposed project's impervious surfaces and how it will be controlled is required to be included. The Director of the Resources Management Agency has regulatory authority, with MCWRA enforcing.

Flood Control and Floodplain Management

Monterey County is a participant in the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA). The NFIP was established through the National Flood Insurance Act of 1968 and is a voluntary program to reduce future flood damage by adopting and enforcing floodplain management programs. Two subsequent laws, the Flood Disaster Protection Act of 1973 and the National Flood Insurance Reform Act of 1994, have made the purchase of flood insurance mandatory for federal or federally related financial assistance for acquisition or construction of buildings in Special Flood Hazard Areas (SFHA). The FEMA FIRMs identify floodplain hazard areas prone to flooding during major storm events.

Chapter 16.16 of the *Monterey County Code* contains regulations for floodplains in Monterey County. This chapter discusses general and specific standards to prevent flood damage and applies to all development in Special Flood Hazard Areas identified on FEMA FIRMs. Monterey County has adopted regulatory standards that exceed the minimum federal requirements. These regulations limit the placement of fill, buildings, and other obstructions in regulatory floodways and require that buildings located in SFHAs be elevated a minimum of 1 foot above the 100-year flooding elevation. The General Manager of the MCWRA has regulatory authority.

Monterey County General Plan

Policies

5.1.1 Vegetation and soil shall be managed to protect critical watershed areas.

5.2.2 The County shall establish special procedures for land use, building locations, grading operations, and vegetation removal adjacent to all waterways and significant water features.

21.2.1 The County shall require all new and existing development to meet federal, state, and County water quality regulations.

3.7.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The following thresholds for measuring a project's environmental impacts are based on CEQA Guidelines and standards used by the County of Monterey. For the purposes of this Draft EIR, impacts are considered significant if the following could result from implementation of the proposed project:

1) Violate any water quality standards or waste discharge requirements.

2) 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-site; or increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

3) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage system or provide substantial additional sources of polluted runoff.

4) Otherwise substantially degrade water quality.

5) Place housing within a federally identified and mapped 100-year flood hazard area.

6) Place structures within a 100-year flood hazard area which would impede or redirect flood flow.

7) Expose people or structures to a significant risk of loss, injury, or death involving flooding.

8) Inundation by seiche, tsunami, or mudflow.

METHODOLOGY

Available information pertaining to surface water hydrology and water quality within and in the vicinity of the project site was reviewed during this analysis, including, but not limited to, the *Monterey County General Plan* (Monterey County 1982) and the *Toro Area Plan* (Monterey County 1983). A hydrogeologic, erosion, and drainage assessment was prepared by Kleinfelder in July 2008. The report discusses surface water quality, surface erosion and drainage, and the potential for flooding from tsunami, seiche, and 100-year storm events. A preliminary drainage report was prepared by Whitson Engineers in February 2010 and updated in August 2011. This report estimates runoff rates and volumes associated with development of the proposed project and provides locations for detention. Both reports are included as **Appendix E**.

PROJECT IMPACTS AND MITIGATION MEASURES

Violate Water Quality Standards or Waste Discharge Requirements

Wastewater services for the proposed project would be provided by the wastewater treatment plant (WWTP) located at 16625 Reservation Road in Salinas, which is operated and managed by California Utility Service. California Utility Service currently has a valid permit issued by the Central Coast Regional Water Quality Control Board to operate this WWTP. The plant is operating within the restrictions of their permit.

Water services for the proposed project would be provided by California Water Service Company. The California Waterworks Standards require water utilities to meet daily demand through source and storage capacity in accordance with all state and federal mandated standards of water quality. Therefore, there would be **no impact** associated with violation of water quality standards or waste discharge requirements. See also **Section 3.10, Public Services and Utilities,** for more information.

Short-Term Erosion and Water Quality

Impact 3.7-1 During grading and construction activities, erosion of exposed soils may occur and pollutants generated by site development activities may result in water quality impacts if not mitigated. However, implementation of mitigation measure **MM 3.5-5a** would require that the project applicant prepare a stormwater pollution prevention plan (SWPPP) in accordance with the NPDES Construction Activities general permit, which would include an erosion control plan in accordance with Chapter 16.12 of the *Monterey County Code* and construction-phase housekeeping measures for control of contaminants. Therefore, this would be considered a **less than significant impact.**

Development of the proposed project would involve grading approximately 92 acres of earth area (240,390 cubic yards of cut and 225,310 cubic yards of fill) for development of roads, utilities, and building pads over a period of several years. Once vegetation is removed at the project site, the exposed and disturbed soil would be susceptible to high rates of erosion from wind and rain if grading were to occur between October 15 and April 15, resulting in sediment transport from the project site and potentially deep scarring of the landscape.

Delivery, handling, and storage of construction materials and wastes, as well as use of construction equipment on-site during the construction phase of the project, will introduce a risk for stormwater contamination, which could impact water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination of stormwater. Some hydrocarbon compound pollution associated with oil and grease can be toxic to aquatic organisms at low concentrations. Staging areas or building sites can be the source of pollution due to paints, solvents, cleaning agents, and metals contained in the surface of equipment and materials. The impacts associated with metal pollution of stormwater

include toxicity to aquatic organisms, bioaccumulation of metals in aquatic animals, and potential contamination of drinking supplies. Pesticide use (including herbicides, fungicides, and rodenticides) associated with site preparation work is another potential source of stormwater contamination. Pesticide impact to water quality includes toxicity to aquatic species and bioaccumulation in larger species through the food chain. Gross pollutants such as trash, debris, and organic matter are additional potential pollutants associated with the construction phase of the project. Potential impacts include health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors, which can be harbored by pollutants.

Implementation of mitigation measure **MM 3.5-5a** would require that the project applicant prepare a stormwater pollution prevention plan (SWPPP) in accordance with the NPDES Construction Activities general permit, which would include an erosion control plan in accordance with Chapter 16.12 of the *Monterey County Code* and construction-phase housekeeping measures for control of contaminants. The erosion control plan is required to be prepared by a registered civil engineer, professional forester, landscape architect, registered geologist, certified engineering geologist, or approved erosion control specialist and submitted for approval prior to permit issuance for building, grading, or land clearing. The erosion control plan must demonstrate how the proposed project would effectively minimize soil erosion and sedimentation from the project site and must also provide for the control of runoff from the site. The SWPPP will also set forth the best management practices, monitoring and maintenance schedule, and responsible entities during the construction and post-construction phases. Implementation of mitigation measure **MM 3.5-5a** would reduce short-term erosion and impacts to surface water quality to a **less than significant** level.

Long-Term Surface Water Runoff

Impact 3.7-2 Implementation of the proposed project would convert undeveloped land area to residential and winery land uses that would generate increased quantities of localized stormwater runoff. This would be considered a **less than significant impact.**

Implementation of the proposed project would convert areas of currently undeveloped land to new urban uses (residences, roadways, driveways, and foundations), which would alter the existing drainage pattern and increase the amount of impervious surfaces on the project site by approximately 58 acres. New impervious surfaces would reduce localized infiltration area and capability, as well as increase the volume and rate of stormwater runoff.

Whitson Engineering has identified seven drainage watersheds within the project site, which are referenced as A through G and are shown in **Figure 3.7-3**. These watersheds define drainage areas that extend beyond the project site. A majority of the stormwater runoff generated by the proposed project would be collected on-site via a stormwater

drainage system installed within the right-of-way of proposed roadways, which will convey stormwater to detention basins located throughout the property (Whitson 2011).

According to the preliminary drainage report (Whitson 2011), approximately 2.6 acre-feet (112,140 cubic feet) of stormwater will need to be detained on-site as a result of the 58 acres of increased impervious surface area as shown in **Table 3.7-1**. Where practical, stormwater runoff generated on-site from the impervious areas in a drainage watershed will be conveyed directly to detention basins(s) located in the respective watershed as shown on **Figure 3.7-3**.

TABLE 3.7-1
SUMMARY OF DRAINAGE WATERSHEDS AND DETENTION REQUIREMENTS

DRAINAGE WATERSHEDS	NUMBER OF LOTS/UNITS	IMPERVIOUS SURFACE AREA[1]				TOTAL REQUIRED DETENTION VOLUME[2]	
		PER LOT (SF)	ROADWAY (SF)	TOTAL (SF)	(ACRES)	(ACRE-FEET)	(CUBIC FEET)
A	37.5	375,000	180,600	555,600	12.8	0.57	24,748
B	28.5	285,000	107,100	392,100	9.0	0.40	17,401
C	17.5	175,000	76,650	251,650	5.8	0.26	11,214
D	25.5	255,000	131,250	386,250	8.9	0.40	17,208
E	43	430,000	109,200	539,200	12.4	0.55	23,975
F	66	88,000	53,865	141,865	3.3	0.15	6,380
G	20	200,000	51,450	251,450	5.8	0.26	11,214
TOTALS	238	1,808,000	710,115	2,518,115	58.0	2.59	112,140

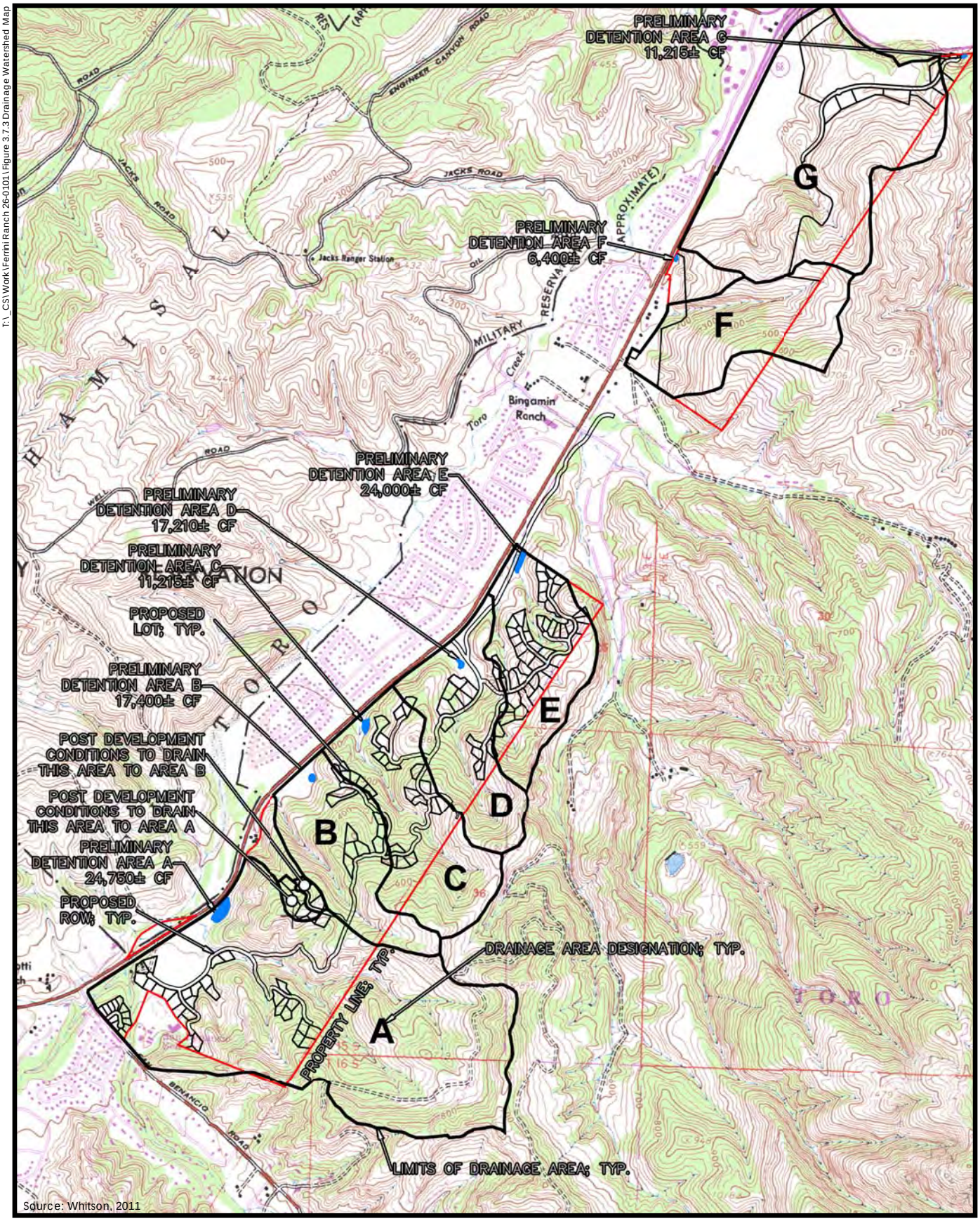
Notes:

1. *Includes 21-foot-wide roadways and is based on 10,000 SF per lot for all watersheds except watershed F. Watershed F is based on the following impervious surface areas: medium-income unit = 800 SF; affordable housing unit = 650 SF; and market-rate unit = 2,500 SF.*
2. *Based on the following parameters: Runoff coefficients of 0.25 for pervious area and 0.95 for impervious areas. Rainfall intensity of 0.4 inches for 2-year; 0.59 inches for 10-year storm event; and 0.89 inches for 100-year storm event; and square footages noted in note #1.*

Source: Whitson 2011

By MCWRA standards, the project is required to detain increases in surface runoff and design for the difference between a 10-year pre-development storm event and a 100-year post-development storm event. According to Whitson Engineers, the size and location of the basins, as shown in **Figure 3.7-3**, is schematic, with the final design of these facilities subject to review and approval by the MCWRA once final improvement plans are prepared. However, the schematic design provides adequate detention capacity within the local watershed. All proposed detention basins on final maps would be field measured to verify compliance with required detention volumes (Whitson 2011). In addition, according to the preliminary drainage report, the final location of the detention basins will be sited to minimize loss of trees, erosion, biological impacts, and grading activities. Mitigation measures provided throughout this document that reduce impacts to these resources would also be applicable to final drainage improvements.

T:_CS\Work\Fermi Ranch 26-0101\Figure 3.7.3 Drainage Watershed Map



Source: Whitson, 2011

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FIGURE 3.7-3
DRAINAGE WATERSHED MAP

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Because the project has designed a drainage and detention system to control increases in runoff volume according to existing County standards, the impact is considered **less than significant**. All final designs and improvement plans will require verification and review by the MCWRA prior to construction to ensure that design is consistent with local engineering standards, capacity calculations, and safety.

Long-Term Surface Water Quality

Impact 3.7-3 Implementation of the proposed project would result in an increase in long-term surface runoff that may contain urban contaminants that would have an adverse impact on surface water quality. This is considered a **potentially significant impact.**

Implementation of the proposed project would increase the amount of impervious surface. Surface runoff from impervious surfaces may contain urban contaminants. Typical residential runoff contaminants would include petroleum products and sediments from vehicles on the project site; hazardous materials (e.g., motor oil) dumped in the stormwater drainage system; and pesticides and fertilizers used on landscaping. During storm events, these pollutants would be flushed by stormwater runoff into the stormwater drainage system and ultimately to El Toro Creek and the Salinas River and eventually to Monterey Bay where they would contribute to cumulative non-point contaminant loads and result in incremental deterioration of water quality. Excess nutrients from fertilizers can affect water quality by promoting excessive and/or rapid growth of aquatic vegetation, reducing water clarity and causing oxygen depletion. Pesticides also may enter into stormwater after application on landscaping areas of the project. Pesticides affect water quality because they are toxic to aquatic organisms and can bioaccumulate in larger species such as birds and fish. This is considered a potentially significant impact to long-term surface water quality.

Implementation of mitigation measure **MM 3.5-5a** requires that the project applicant contract with a registered engineer to prepare a stormwater pollution prevention plan (SWPPP). The SWPPP shall document best management practices (filters, traps, bio-filtration swales, etc.) to ensure that urban runoff contaminants and sediment are minimized during site preparation, construction, and post-construction periods. The following mitigation measures would incorporate additional best management practices into the SWPPP that would reduce non-point source pollutant loads and reduce this impact to a **less than significant** level.

Mitigation Measures

MM 3.7-3a In order to reduce nonpoint source pollutant loads, the proposed project shall implement the post-construction Best Stormwater Management Practices that are in effect at the time that the project application is deemed complete and received for construction. Specifically, the post-construction standards presented in the following programs shall be followed:

1. Post-Construction Requirements for New and Redevelopment for the Central Coast Region that was developed under the so-called Joint Effort program by the Central Coast Regional Water Quality Control Board;
2. National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s), the Phase II Municipal General Permit. These requirements are currently presented in the most recent version of the Monterey Regional Storm Water Management Program (MRSWMP) document;
3. National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, the Construction General Permit; and
4. The Monterey County Urban Stormwater Quality Management and Discharge Control Ordinance (Stormwater Ordinance), Chapter 16.14 of the Monterey County Code.

Proof of ongoing maintenance and language regarding responsibility for long-term maintenance is required to be included in the project's conditions, covenants and restrictions (CC&Rs) in accordance with the Phase II Municipal Permit (Section B.2.h of Attachment 4, WQO 2003-0005DWQ) or the current permit in effect at the time the construction application is deemed complete.

The following project-specific standards are also included:

- In order to reduce pollutant concentrations in stormwater discharges from the project site into the County's MS4s and watercourses, paved roads located within the project area shall be swept a minimum of two times per year, both before and after the rainy season, regardless of traffic volume.
- Implement Best Management Practices as required by the Monterey Regional Storm Water Management Program, or subsequent program in effect at the time of application, to reduce pollutant loads in stormwater runoff before the stormwater runoff is discharged from the site or enters a municipal storm drainage system (MS4);
- Storm drain inlets shall be labeled with the phrase "No dumping," or a similar phrase, to discourage illegal discharges of pollutants to the storm drainage system;
- Preservation of existing vegetation and re-vegetation of disturbed areas with native species to allow for bio-filtration, decrease the velocity of runoff, and decrease erosion potential;

- Use of flared end sections, rock rip rap pads, or other velocity dissipating devices at the outlets of pipes, drains, culverts, and other channelizing devices to reduce velocity and prevent scour;
- Use of check dams, planting, lining, surface roughening, or other acceptable methods to reduce the flow velocity in un-lined swales and prevent erosion;
- Common landscaped areas shall be subject to a program of efficient irrigation and proper maintenance including minimizing use of fertilizer, herbicides, and pesticides.
- The project applicant shall identify the locations of BMPs proposed throughout the common areas of the subdivision and within the inclusionary lots on final maps and improvement plans.

MM 3.7-3b Prior to filing of the final map, the project applicant shall enter into a Drainage and Flood Control Systems Agreement. The agreement shall contain provisions for an annual drainage report to be prepared by a registered civil engineer. The report shall be submitted to the Monterey County Water Resources Agency for review and approval no later than August 15 of each year. Certifications shall be provided that all recommended improvements have been completed by October 15 of the same year. If the responsible party identified in the agreement, after notice and hearing, fails to properly maintain, repair, or operate the drainage and flood control facilities in the project, the Water Resources Agency shall be granted the right by the property owners to enter any and all portions of the project site to perform repairs, maintenance, or improvements. The Water Resources Agency shall have the right to collect the cost of said repairs, maintenance, or improvements from the property owners on their property tax bills.

The portion of the project SWPPP that addresses post-construction practices is required to itemize these and any additional pollution control measures required for the proposed project, and the CC&Rs must ensure regular maintenance of these control measures. Implementation of the above mitigation measure will reduce the impact to a **less than significant** level by requiring the project to incorporate BMPs in order to reduce non-point source pollutant loads.

100-Year Flood Hazards

Impact 3.7-4 The proposed project would introduce residential development in an area that may expose people or structures to flood hazards associated with a 100-year storm event. This is considered a **potentially significant impact.**

The northwestern corner of the project site includes portions of the floodway and 100-year floodplain of El Toro Creek and the San Benancio Gulch, as shown in **Figure 3.7-2b**.

According to the FEMA Flood Insurance Rate Map (FIRM), effective date April 2009 06053C-0352G, -0354G, and -0360G, most of the proposed development is located outside the 100-year floodplain; however, according to the FEMA FIRM 06053C-0354G, a small portion of proposed Lots #7 and #8 is located in the San Benancio Gulch 100-year floodplain, which would be considered a **potentially significant impact**. The following mitigation has been provided to ensure that exposure to flood hazards is reduced to a **less than significant** level.

Mitigation Measure

MM 3.7-4 Prior to approval of the final map, the project applicant shall modify the site plan to revise the boundaries of proposed Lots #7 and #8. Residential lots shall be located at least 50 feet from the "top of bank" of the San Benancio Gulch, as defined in Chapter 16.16 of the *Monterey County Code*.

Implementation of the above mitigation measure would ensure that no structures or residents are exposed to flood hazards associated with a 100-year floodplain, which would reduce this impact to a **less than significant impact**.

Dam Failure

Development of the proposed project will not place housing or structures within or beneath a dam failure inundation area or behind a levee. However, dam failure at the San Antonio or Nacimiento Reservoirs would increase the water flow in the Salinas River.

Inundation from Tsunami, Seiche, or Mudflow

The project site is located approximately 65 to 550 feet above sea level and approximately 16 miles east of the coastline. The project is not located downslope from any lakes, water storage facilities, or creeks. The risk of inundation due to seiche, tsunami, or mudflow is considered very low. Therefore, the proposed project would have **no impact** in regard to inundation due to tsunami, seiche, or mudflow.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Long-Term Surface Water Runoff and Water Quality

Impact 3.7-5 Implementation of the proposed project, when combined with reasonably foreseeable and similar development, would result in a cumulative increase in impervious surface that may have an adverse impact on surface water runoff and water quality. However, new development will be required to limit peak storm runoff to pre-project or pre-soil disturbance levels through construction of detention ponds or other approved measures. Therefore, this would be considered a **less than significant cumulative impact.**

Although the buildout of the proposed project will result in an increase in impervious surfaces, all project impacts will be addressed on-site and will not combine with other development projects to create a significant cumulative effect. New development will be required to limit peak storm runoff to pre-project or pre-soil disturbance levels through construction of detention ponds or other approved measures. Therefore, each project would detain surface water runoff, and this impact would be considered **less than significant**.

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