

3.9 HYDROLOGY AND WATER QUALITY

3.9 HYDROLOGY AND WATER QUALITY

This section of the Draft EIR (DEIR) addresses the potential environmental impacts of the proposed project related to hydrology and water quality. The existing surface water and groundwater hydrologic conditions on the project site and in the surrounding area are characterized, and a summary of relevant law and regulations as they apply to the proposed project is provided. The impact analysis focuses on potential degradation of water quality, alteration of existing drainage patterns, and flooding hazards. Information used in the preparation of this section was obtained primarily from the Nevada County General Plan and Zoning Regulations, Federal Emergency Management Agency (FEMA) flood data, and the proposed grading and drainage plans for the project site.

3.9.1 SETTING

CLIMATE AND PRECIPITATION

The climate of the project area is characterized by summers that are generally dry with mild to hot temperatures and winters that are relatively wet. Winter snow levels are usually around 3,500 feet and occasionally as low as 1,000 feet. Based on the historical data obtained from the California Irrigation Management Information System and the Western Regional Climate Center, the average minimum and maximum monthly temperatures of the project area range from 28 to 87 degrees Fahrenheit (NID 2010, p. 2-1).

SURFACE WATER RESOURCES

Portions of three major watersheds lay within Nevada County: the Truckee River Basin, the Yuba River Basin, and the Bear River Basin. The project site is located in the Upper Bear River watershed within the Bear River Basin. The Bear River forms just below Spaulding Reservoir and flows in a southwesterly direction, draining approximately 277 square miles of Nevada County. Wolf Creek drains into the Bear River northwest of the project site. Wolf Creek drains approximately 76 square miles from its headwaters at Banner Mountain to its confluence with the Bear River. Wolf Creek passes through the City of Grass Valley, where the creek receives stormwater runoff and wastewater treatment plant discharges. A number of mines also drain into Wolf Creek (Nevada County 1995, Section 4.3).

Within the project site is an unnamed tributary that flows south into an approximately 3.25-acre pond located near the site's center that is retained by an approximately 30-foot-tall earthen dam. In addition, two sections of Nevada Irrigation District (NID) irrigation canals traverse the site; the Weeks Canal crosses the northwestern portion of the site and the Magnolia Ditch crosses the eastern portion of the site flowing from south to north (SCO 2010, p. 5; Lumos 2007, pp. 1 & 2).

GROUNDWATER RESOURCES

Groundwater resources in western Nevada County are characterized as poorly defined and variable (Nevada County 1996, p. 11-2). According to NID (2010, p. 4-4), there is limited groundwater availability in the project area. Per California Department of Water Resources (DWR) Bulletin 118, the county has no defined groundwater aquifer.

WATER QUALITY

The California Clean Water Act Section 303(d) list identifies water bodies with impaired water quality. According to this list, the Bear River (including both the lower and upper reaches) is designated as impaired. The causes of impairment are mercury from historical mining operations in the area and Diazinon (a pesticide) associated with agriculture. Also according to this list, Wolf Creek is an impaired water body due to pathogens (fecal coliform) from agriculture, urban

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runoff, and recreational and tourism activities in the area. Total maximum daily loads (TMDL) have not yet been prepared for either water body (USEPA 2004). The expected completion dates for the Bear River and Wolf Creek TMDLs are 2015 and 2019, respectively (SWRCB 2010).

DRAINAGE AND FLOODING

Soils

The Natural Resources Conservation Service (NRCS) has defined the following four Soil Group designations:

- Group A:* Low runoff potential soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well-drained sands or gravels. These soils have a high rate of water transmission.
- Group B:* Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well-drained sandy-loam with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.
- Group C:* Soils having a low infiltration rate when thoroughly wetted and consisting chiefly of silt-loam soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.
- Group D:* High runoff potential soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have slow rate of water transmission.

According to the Natural Resource Conservation Service Web Soil Survey, the project site is underlain by Boomer, Sobrante, and Chaix series soils, including Boomer Loam, Boomer-Rock Outcrop, Sobrante Loam, and Chaix Rock Outcrop. These soils are well drained and classified as hydrologic groups B and C (USDA-NRCS 2011).

Topography and Existing Drainage Patterns

The project site features varied topography, including rolling hills and somewhat flatter terrain near the center of the property. Elevations within the site range from approximately 1,300 feet above mean sea level (msl) near the Bear River to approximately 1,700 feet above msl on the eastern side of the site. Stormwater runoff on the site flows overland either to the unnamed tributary and retention pond at the center of the site or southward into the Bear River.

Flooding Hazards

The FEMA Flood Insurance Rate Map for the project area (Community-Panel No. 060210 0750 C) shows that the majority of the project site is in Flood Zone C, indicating that the area has minimal flood hazard but may experience ponding and local drainage problems that do not warrant a detailed study or designation as a floodplain (see **Figure 3.9-1**). The remainder of the site, located along its southern boundary and the Bear River, is in Flood Zone A, indicating that it has a 1 percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage (FEMA 1987, 2011). Flood Zone A is considered a Special Flood Hazard Area (SFHA), meaning land area covered by the floodwaters of the base flood.

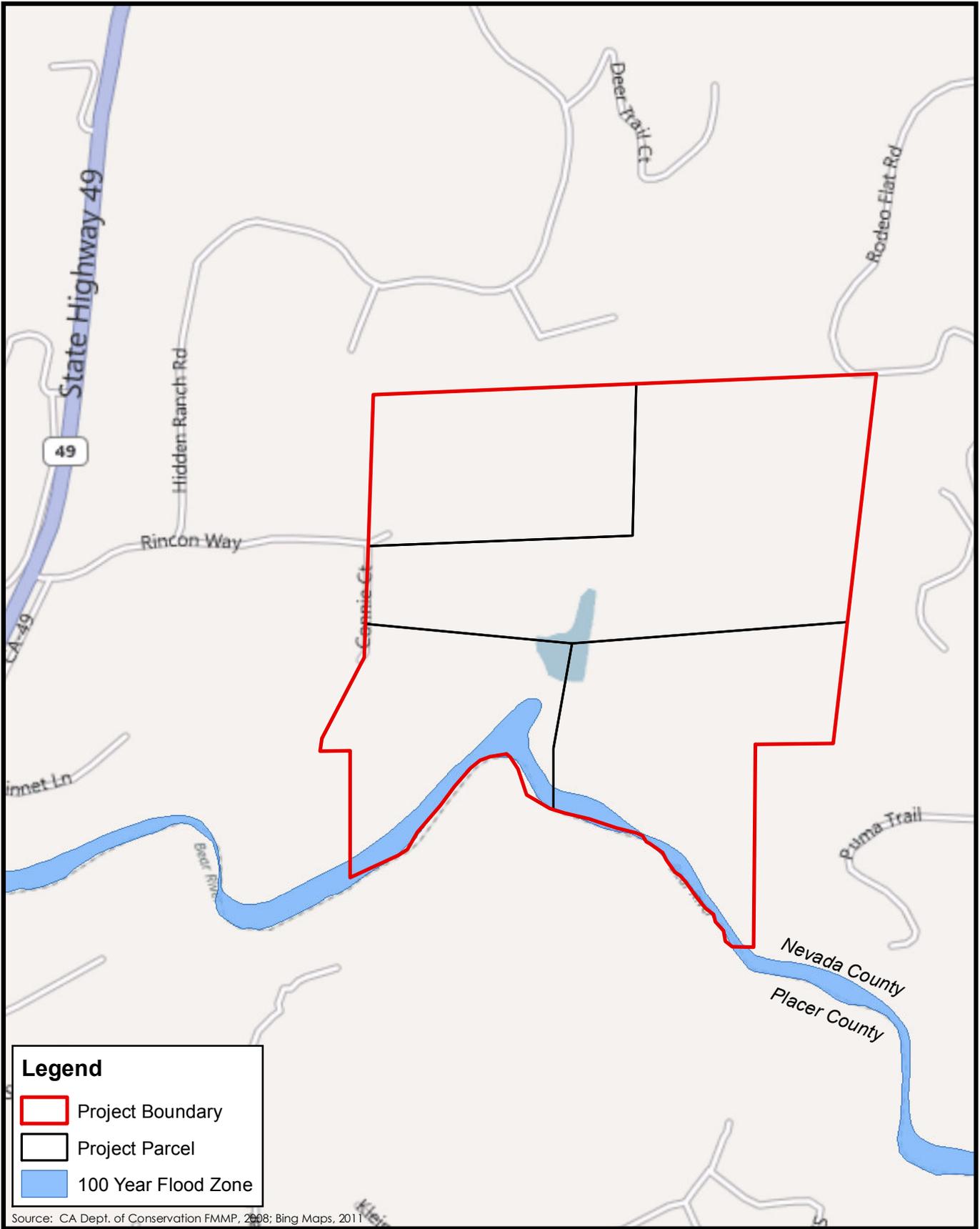


Figure 3.9-1
FEMA Flood Zone

Flooding of lands adjacent to streams and rivers is caused by flows that exceed the capacity of the normal watercourse. This type of flooding involves the spillover of above-normal stream flows onto lands immediately adjacent to the normal watercourse. Those areas subject to overflow are referred to as the stream's or river's floodplain (Nevada County 1995, Section 4.3).

Dam Failure Inundation

Dam failure flooding can occur as the result of partial or complete collapse of an impoundment. Dam failures often result from prolonged rainfall and flooding but can also result from improper siting, structural design flaws, erosion of the face of foundation, earthquakes, and massive landslides. The primary danger associated with any potential dam failure is the high velocity flooding of those properties downstream of such a dam. The Nevada County General Plan (1996) identifies 16 dams located in the county (listed below), owned and/or operated by various agencies and organizations.

- Scott's Flat Dam (NID)
- Lower Scott's Flat Dam (NID)
- Rollins Dam (NID)
- Combie Dam (NID)
- Magnolia Dam (Lake of the Pines Homeowners Association - LPHOA)
- Bowman Dam (NID)
- Jackson Meadows Dam (NID)
- Martis Creek Dam (U.S. Army Corps of Engineers - USACE)
- Prosser Creek Reservoir Dam (USACE)
- Boca Reservoir Dam (Bureau of Reclamation - BOR)
- Spaulding Reservoir (Pacific Gas and Electric - PG&E)
- Englebright Reservoir (USACE)
- Lake Wildwood (Lake Wildwood Homeowners Association - LWHOA)
- Donner Lake (Sierra Pacific Power)
- Independence Lake (Sierra Pacific Power)
- French Lake (NID)

As shown in **Figure 3.9-2**, portions of the project site, including portions of the site proposed for development, are within the dam failure inundation areas for both Rollins Dam and Combie Dam (California OES 2007). Both dams are owned and operated by NID and are regulated by the California Division of Safety of Dams (DSD). Rollins Dam (DWR Dam No. 61-021) is located on the Bear River and was constructed in 1965. It is an earth and rock dam with a capacity of 66,000 acre-feet and a crest height of 242 feet. Combie Dam (DWR Dam No. 61-009) is also located on the Bear River and was constructed in 1928. It is a variable radius arch dam with a capacity of 5,555 acre-feet and a crest height of 85 feet (DSD 2011).

The earthen dam on the project site is not currently regulated by the DSD. In the event of a failure of the on-site dam, it is assumed, given the topography of the site, that the water would flow southward into the Bear River.

Tsunami and Seiche Inundation

A tsunami is a wave caused by an underwater earthquake, landslide, or volcanic eruption. A seiche is a rhythmic motion of water in a partially or completely landlocked water body caused by landslides, earthquake-induced ground accelerations, or ground offset. There are no water bodies in the vicinity of the project site of sufficient size to pose a risk to the project site of inundation by tsunami or seiche waves.

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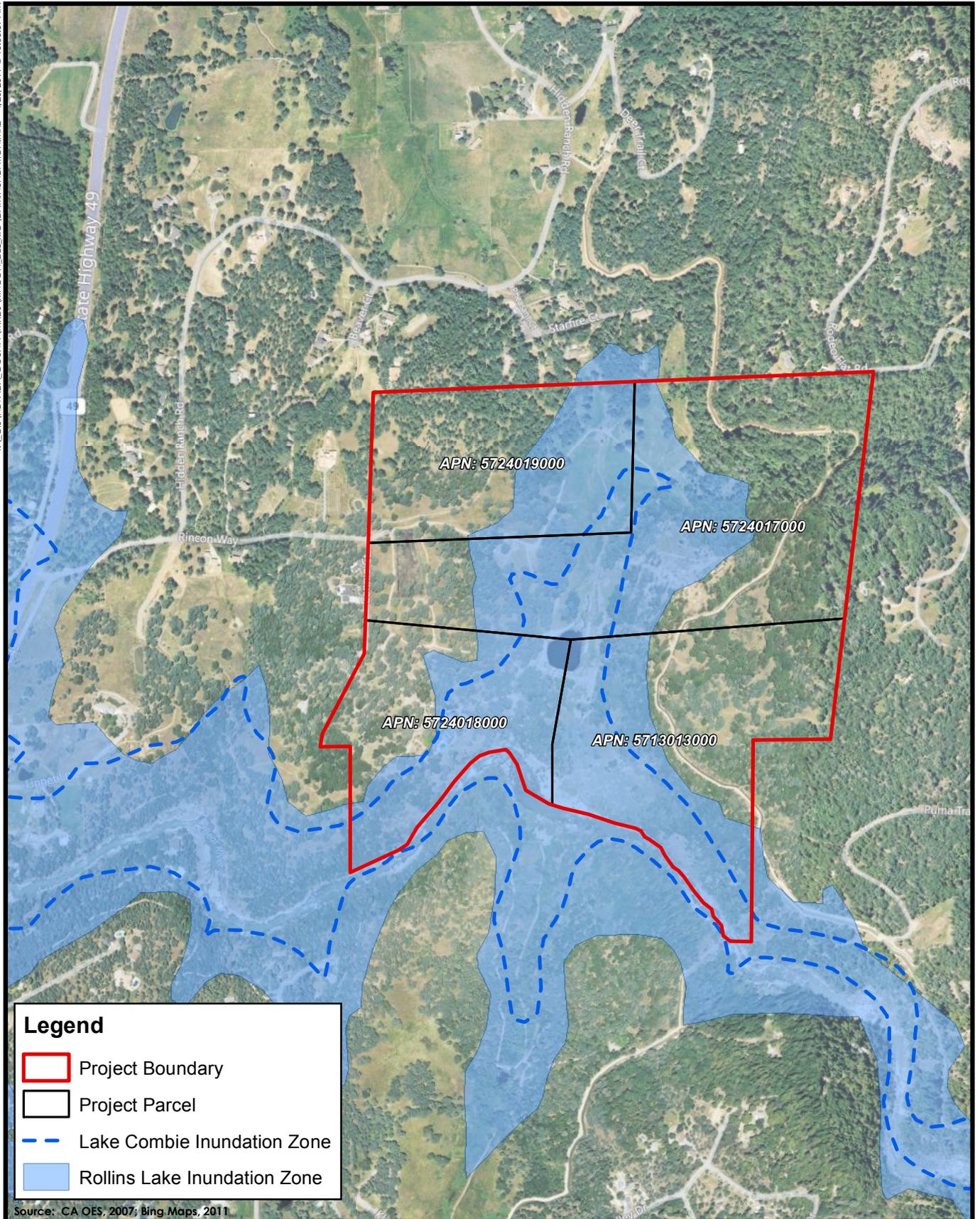


Figure 3.9-2
Dam Failure Inundation Zones

3.9.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

The Clean Water Act (CWA), initially passed in 1972, regulates the discharge of pollutants into watersheds throughout the nation. Section 402(p) of the act establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. The State Water Resources Control Board (SWRCB) is responsible for implementing the Clean Water Act and issues NPDES permits to cities and counties through Regional Water Quality Control Boards (RWQCBs). The project site is located in a portion of the state that is regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB).

The SWRCB has issued a Statewide General Permit (Water Quality Order No. 99-08-DWQ) for construction activities within the state. The Construction General Permit (CGP) is implemented and enforced by the RWQCBs. The CGP applies to construction activity that disturbs 1 acre or more and requires the preparation and implementation of a stormwater pollution prevention plan (SWPPP) that identifies best management practices (BMPs) to minimize pollutants from discharging from the construction site to the maximum extent practicable.

On September 2, 2009, the SWRCB adopted a new CGP (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ) that superseded the existing Construction General Permit on July 1, 2010. A summary of the differences between the prior and the current CGP follows (SWRCB 2009).

Rainfall Erosivity Waiver: This General Permit includes the option allowing a small construction site (>1 and <5 acres) to self-certify if the rainfall erosivity value (R value) for their site's given location and time frame compute to be less than or equal to 5.

Technology-Based Numeric Action Levels: This General Permit includes NALs [numeric action levels] for pH and turbidity.

Technology-Based Numeric Effluent Limitations: This General Permit contains daily average NELs [numeric effluent limitations] for pH during any construction phase where there is a high risk of pH discharge and daily average NELs turbidity for all discharges in Risk Level 3. The daily average NEL for turbidity is set at 500 NTU [turbidity] to represent the minimum technology that sites need to employ (to meet the traditional Best Available Technology Economically Achievable (BAT)/Best Conventional Pollutant Control Technology (BCT) standard) and the traditional, numeric receiving water limitations for turbidity.

Risk-Based Permitting Approach: This General Permit establishes three levels of risk possible for a construction site. Risk is calculated in two parts: (1) Project Sediment Risk and (2) Receiving Water Risk.

Minimum Requirements Specified: This General Permit imposes more minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.

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Project Site Soil Characteristics Monitoring and Reporting: This General Permit provides the option for dischargers to monitor and report the soil characteristics at their project location. The primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.

Effluent Monitoring and Reporting: This General Permit requires effluent monitoring and reporting for pH and turbidity in storm water discharges. The purpose of this monitoring is to determine compliance with the NELs and evaluate whether NALs included in this General Permit are exceeded.

Receiving Water Monitoring and Reporting: This General Permit requires some Risk Level 3 dischargers to monitor receiving waters and conduct bioassessments.

Post-Construction Storm Water Performance Standards: This General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit, to avoid, minimize, and/or mitigate post-construction storm water runoff impacts.

Rain Event Action Plan: This General Permit requires certain sites to develop and implement a Rain Event Action Plan (REAP) that must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event.

Annual Reporting: This General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and public information.

Certification/Training Requirements for Key Project Personnel: This General Permit requires that key personnel (e.g., SWPPP preparers, inspectors) have specific training or certifications to ensure their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with General Permit requirements.

Linear Underground/Overhead Projects: This General Permit includes requirements for all Linear Underground/Overhead Projects (LUPs).

Certain actions during construction may also need to conform to the Waste Discharge Requirements included in the General Order for Dewatering and Other Low Threat Discharges to Surface Waters (Water Quality Order No. 5-00-175). The Dewatering General Order requires that a permit be acquired for dewatering and other low threat discharges to surface waters, provided that they do not contain significant quantities of pollutants and either (1) are four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day (mgd). Examples of activities that may require the acquisition of such a permit include well development, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, water supply system discharges, and other miscellaneous dewatering/low threat discharges. However, the actions applicable to site development may already be covered under the CGP, and therefore a separate permit under the Dewater General Order may not be required.

On December 8, 1999, the United States Environmental Protection Agency (USEPA) circulated regulations requiring permits for stormwater discharges from Small Municipal Separate Storm

Sewer System operators. Permits for small municipal storm sewer systems (MS4s) generally fall under the "Phase II" permits program, which regulates non-point source pollutants. In California, the NPDES Program is administered by the SWRCB. Federal regulations allow two permitting options for stormwater discharges (individual permits and general permits). The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0005-DWQ) for small MS4s covered under the Clean Water Act to efficiently regulate numerous stormwater discharges under a single permit. Permittees must meet the requirements in Provision D of the General Permit that require the development and implementation of a stormwater management plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable.

Sections 401 and 404 of the CWA are administered through the Regulatory Program of the USACE and regulate the water quality of all discharges of fill or dredged material into waters of the United States including wetlands and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water-quality certification requirements for any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters.

Section 404, Title 33, Section 1344 of the CWA in part authorizes the USACE to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites:" subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area would have an unacceptable, adverse effect on municipal water supplies and fishery areas:" subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual state or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such state or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain federal or state projects from regulation under this section: subparagraph (r); and
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

National Pollutant Discharge Elimination System

As authorized by the CWA, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. It is the responsibility of the local water boards, which are discussed

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in more detail below, to preserve and enhance the quality of the state's waters through the development of water quality control plans and the issuance of waste discharge requirements. Waste discharge requirements for discharges to surface waters also serve as NPDES permits (SWRCB 2011a). The NPDES program is discussed in more detail below.

Total Maximum Daily Loads

Under CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act of 1969 (discussed below), the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards, requiring the states to identify waters whose water quality is "impaired" (affected by the presence of pollutants or contaminants) and to establish a TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects on the beneficial use identified. The establishment of TMDLs is generally a stakeholder-driven process that involves investigation of sources and their loading (pollution input), estimation of load allocations, and identification of an implementation plan and schedule. Where stakeholder processes are not effective, total maximum daily loads can be established by the RWQCBs or the USEPA.

STATE

Porter-Cologne Water Quality Act

In 1969, the California Legislature enacted the Porter-Cologne Water Quality Control Act to preserve, enhance, and restore the quality of the state's water resources. The act established the State Water Resources Control Board and nine Regional Water Quality Control Boards as the principal state agencies with the responsibility for controlling water quality in California. Under the act, water quality policy is established, water quality standards are enforced for both surface water and groundwater, and the discharges of pollutants from point and nonpoint sources are regulated. The act authorizes the State Water Resources Control Board to establish water quality principles and guidelines for long-range resource planning including groundwater and surface water management programs and control and use of recycled water (USDOE 2011).

State Water Resources Control Board

The five-member State Water Resources Control Board allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine regional water quality control boards located in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters (SWRCB 2011a). The SWRCB is responsible for implementing the Clean Water Act and issues NPDES permits to cities and counties through Regional Water Quality Control Boards.

California Division of Safety of Dams

Any new or existing dam over 6 feet, or reservoir with a capacity of more than 15 acre-feet, is subject to the review and approval of the California Division of Safety of Dams. The division requires that dam designs be earthquake and seiche resistant, and that any construction or alteration undergo a full seismic and geologic investigation. Water may be impounded in

volumes above 15 acre-feet only upon the issuance of a Certificate of Approval from the division (Nevada County 1995, Section 4.3).

REGIONAL

Regional Water Quality Control Board, Central Valley Region

The Central Valley RWQCB provides planning, monitoring, and enforcement techniques for surface and groundwater quality in the Central Valley region, including the project site. A basin plan provides more specific information for specific waterways in the region, in terms of establishing monitoring techniques to control pollutant levels in the waterways. The RWQCB also monitors stormwater quality from construction activities through a NPDES permitting process. The RWQCB is responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. In the county, the RWQCB is responsible for protecting surface water and groundwater from both point and nonpoint sources of pollution.

Central Valley Regional Water Quality Control Plan

The Central Valley Regional Water Quality Control Plan, also known as the Basin Plan, covers all the drainage basin areas for the Sacramento and San Joaquin rivers, extending approximately 400 miles from the California-Oregon border to the headwaters of the San Joaquin River. This plan describes the beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved.

National Pollutant Discharge Elimination System (NPDES)

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the Clean Water Act (CWA) to regulate municipal and industrial discharge to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Permits require the municipal authority to evaluate the quality of its storm water discharge and receiving waters, identify areas of pollutant loading, and implement a program of best management practices (BMPs) to control pollutant discharges to the maximum extent practicable. It is within the existing authority of the CVRWQCB to issue a NPDES permit for any stormwater outfall that discharges to the waters in the region.

Municipal Storm Water Permitting Program

Discharges from municipal separate storm sewer systems (MS4s) are regulated because of concern over the high concentration of pollutants found in those discharges. MS4 permits were issued by the various RWQCBs in two phases.

Under Phase I, which started in 1990, the RWQCBs have adopted NPDES General Permit stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. These permits are reissued as the permits expire.

As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

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The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

General Construction Activity Storm Water Permits and Stormwater Pollution Prevention Plans

In accordance with NPDES regulations, the State requires that any construction activity affecting 1 acre or more obtain a General Construction Activity Storm Water Permit (General Permit) to minimize the potential effects of construction runoff on receiving water quality. Performance standards for obtaining and complying with the General Permit are described in NPDES General Permit No. CAS000002, Waste Discharge Requirements, Order No. 2009-0009-DWQ adopted September 2, 2009, and effective as of July 1, 2010.

General Permit applicants are required to submit to the appropriate regional board Permit Registration Documents (PRDs) for the project, which include a Notice of Intent (NOI), a risk assessment, a site map, a signed certification statement, an annual fee, and a stormwater pollution prevention plan (SWPPP). The permit program is risk based wherein a project's risk is based on the project's potential to cause sedimentation and the risk of such sedimentation on the receiving waters. A project's risk determines its water quality control requirements ranging from Risk Level 1, which consists of only narrative effluent standards, implementation of best management practices (BMPs), and visual monitoring, to Risk Level 3, which consists of numeric effluent limitations, additional sediment control measures, and receiving water monitoring. Additional requirements include compliance with post construction standards focusing on low impact development (LID), preparation of rain event action plans, increased reporting requirements, and specific certification requirements for certain project personnel.

The SWPPP must include implementing BMPs to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges. Examples of typical construction best management practices included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the County's drainage system or receiving waters.

LOCAL

Nevada County General Plan

The Nevada County General Plan serves as the overall guiding policy document for the unincorporated areas of Nevada County. **Appendix 3.0-A** summarizes the proposed project's consistency with the applicable General Plan hydrology and water quality policies. While this Draft EIR analyzes the project's consistency with the General Plan pursuant to California Environmental Quality Act (CEQA) Section 15125(d), the Nevada County Board of Supervisors makes the ultimate determination of consistency with the General Plan.

Nevada County Land Use and Development Code

Chapter II, Article 4, Section 3.10 – Floodplains

The Nevada County Land Use and Development Code, Section L-II 4.3.10, includes regulations to mitigate the impact of development on floodplains and to protect development and downstream users from the potential for hazards associated with flooding. This section requires all development within 100 feet of the 100-year floodplain to submit a Management Plan, prepared by a registered professional engineer and consistent with FEMA standards, that minimizes impacts to the floodplain. All development within the 100-year floodplain is required to obtain a use permit and comply with the standards of the Land Use and Development Code Chapter XII, Floodplain Management Regulations. Development within the 100-year floodplain also requires confirmation that applicable California Department Fish and Game stream alteration regulations have been satisfied.

Chapter V, Article 19 – Grading

This section of the code outlines the requirements for obtaining a grading permit, including specific requirements for grading plans, soils engineering reports, engineering geology reports, and geotechnical investigations as well as restrictions on grading performed in the winter. This section also contains standards for cuts and fills, drainage, and terracing. In addition, this section contains standards for erosion and sediment control, including the preparation of erosion and sediment control plans and related inspection requirements.

3.9.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance:

- 1) Violate any water quality standards or waste discharge requirements.
- 2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- 3) 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.
- 4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
- 5) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- 6) Otherwise substantially degrade water quality.

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- 7) 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.
- 8) Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- 9) Expose people or structures to a significant loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- 10) Inundation by seiche, tsunami, or mudflow.

Water supply impacts are addressed in Section 3.13, Public Services and Utilities. As described above, the project site is not located in the vicinity of any water bodies of sufficient size to pose a risk of seiche or tsunami. The 3.25-acre pond on the project site is not large enough and is located too far from proposed project development to result in impacts associated with seiches. Therefore, these issues (part of Standard of Significance 10) will not be addressed further in this Draft EIR.

METHODOLOGY

The hydrology and water quality analysis presented below is based on a review of published information, reports, and plans regarding regional and local hydrology, climate, topography, and geology obtained from private and governmental agencies as well as from Internet websites. Primary sources include the Nevada County General Plan (1996), CVRWQCB's Basin Plan, California Stormwater Quality Association Best Management Practices Handbooks, and FEMA Flood Insurance Rate Maps.

Water Quality

The proposed development plans for the project and general water quality information sources were reviewed to determine potential sources and types of pollutants that could be generated by project construction and/or operation. The SWRCB statewide permit requirements and proposed drainage plan were reviewed to determine if water quality would be sufficiently protected or if further mitigation would be required.

Drainage

The proposed site plans and drainage plan were reviewed to determine anticipated changes to the existing drainage patterns on the site as well as the adequacy of the proposed drainage system in terms of capacity and water quality treatment.

Flooding

The FEMA FIRM covering the site was reviewed to determine if any portion of the project site is designated as a flood hazard zone and the proposed site plans were reviewed to determine if any development is proposed in such areas. County regulations were reviewed to identify any applicable flood-related ordinances or policies. Finally, the Nevada County General Plan was reviewed to determine if the project site is within the dam failure inundation areas for any area dams.

PROJECT IMPACTS AND MITIGATION MEASURES

Degrade Water Quality – Construction (Standards of Significance 1, 3, 5, and 6)

Impact 3.9.1 Construction activities associated with the proposed project could result in erosion and water quality degradation of downstream surface water and groundwater resources. Compliance with the requirements of the SWRCB's Construction General Permit would minimize the potential for such degradation. This impact would be **less than significant**.

Construction of the proposed project would introduce sediments and other contaminants typically associated with construction into stormwater runoff, potentially resulting in the degradation of downstream surface water and groundwater quality. Stormwater flowing over the project site during construction could carry various pollutants downstream such as sediment, nutrients, bacteria and viruses, oil and grease, heavy metals, organics, pesticides, gross pollutants, and miscellaneous waste. These pollutants could originate from soil disturbances, construction equipment, building materials, and workers. The proposed project has the potential to result in the generation of new dry weather runoff containing these pollutants and also has the potential to increase the concentration and/or total load of the pollutants in wet weather stormwater runoff. Erosion potential and the possibility of water quality impacts are always present during construction and occur when protective vegetative cover is removed and soils are disturbed. In the case of the proposed project, it is primarily the grading and cut/fill associated with the site improvements, utilities, roadways, and building pads that could contribute to erosion and water quality degradation, including improvements to Rincon Way and water service mainline and sewer force main along Rodeo Flat Road.

The SWRCB is responsible for implementing the Clean Water Act and has issued a Statewide General Permit (Water Quality Order 2009-0009-DWQ) for construction activities within the state (see the Regulatory Framework subsection above). In the project area, the Construction General Permit (CGP) is implemented and enforced by the CVRWQCB. In accordance with the requirements of the CGP, prior to construction of the proposed project, a risk assessment must be prepared and submitted to the CVRWQCB to determine the project's risk level and associated water quality control requirements. These requirements will, at a minimum, include the preparation and implementation of a SWPPP identifying specific BMPs to be implemented and maintained on the site in order to comply with the applicable narrative effluent standards.

The best management practices that must be implemented as part of a SWPPP can be grouped into two major categories: (1) erosion and sediment control BMPs and (2) non-stormwater management and materials management BMPs. Erosion and sediment control BMPs fall into four main subcategories:

- Erosion controls
- Sediment controls
- Wind erosion controls
- Tracking controls

Erosion controls include practices to stabilize soil, to protect the soil in its existing location, and to prevent soil particles from migrating. Examples of erosion control BMPs are preserving existing vegetation, mulching, and hydroseeding. Sediment controls are practices to collect soil particles

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after they have migrated, but before the sediment leaves the site. Examples of sediment control BMPs are street sweeping, fiber rolls, silt fencing, gravel bags, sand bags, storm drain inlet protection, sediment traps, and detention basins. Wind erosion controls prevent soil particles from leaving the site in the air. Examples of wind erosion control BMPs include applying water or other dust suppressants to exposed soils on the site. Tracking controls prevent sediment from being tracked off-site via vehicles leaving the site to the extent practicable. A stabilized construction entrance not only limits the access points to the construction site, but also functions to partially remove sediment from vehicles prior to leaving the site.

Non-stormwater management and material management controls reduce non-sediment-related pollutants from potentially leaving the construction site to the extent practicable. The Construction General Permit prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges (such as irrigation and pipe flushing and testing). Non-stormwater BMPs tend to be management practices with the purpose of preventing stormwater from coming into contact with potential pollutants. Examples of non-stormwater BMPs include preventing illicit discharges and implementing good practices for vehicle and equipment maintenance, cleaning, and fueling operations, such as using drip pans under vehicles. Waste and materials management BMPs include implementing practices and procedures to prevent pollution from materials used on construction sites. Examples of materials management BMPs include:

- Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
- Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
- Providing a central location for concrete washout and performing routine maintenance.
- Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
- Covering and/or containing stockpiled materials and overall good housekeeping on the site.

The CGP also requires that construction sites be inspected before and after storm events and every 24 hours during extended storm events. The purpose of the inspections is to identify maintenance requirements for the BMPs and to determine the effectiveness of the BMPs that are being implemented. The SWPPP is a “living document” and as such can be modified as construction activities progress. Additional requirements include compliance with post construction standards focusing on low impact development (LID) and preparation of rain event action plans.

The SWRCB has also issued a Statewide General Permit (Water Quality Order R5-2008-0081, NPDES No. CAG995001) for dewatering and other low-threat discharges to surface waters within the state. Should construction of the proposed project require dewatering, the project applicant would be required to submit a Notice of Intent, as well as a Best Management Practices Plan, to comply with the general permit. The BMP Plan would include disposal practices to ensure compliance with the general permit such as the use of sediment basins or traps, dewatering tanks, or gravity or pressurized bag filters. Monitoring and reporting would also be performed to ensure compliance with the permit.

In addition to the statewide regulations described above, the proposed project will be subject to the requirements of Chapter V, Article 19 of the Nevada County Land Use and Development Code related to grading. In accordance with these requirements, the project applicant must prepare an erosion and sediment control plan in order to obtain a grading permit from the County. The Rincon del Rio Habitat Management Plan also includes water quality protection measures (pages 7 and 8 of the Habitat Management Plan) that would further protect water quality.

Compliance with the various requirements of the SWRCB statewide general permits for construction and dewatering as well as the County's grading permit requirements would ensure that water quality degradation during the construction phase of the proposed project would be minimized. Therefore, this impact is **less than significant**.

Mitigation Measures

None required.

Degrade Water Quality – Operational (Standards of Significance 1, 3, 5, and 6)

Impact 3.9.2 Operation of the proposed project would introduce sediments and other contaminants typically associated with urban development into stormwater runoff, potentially resulting in the degradation of downstream surface water and groundwater quality. Implementation of proposed water quality treatment facilities and compliance with the post-construction standards of the SWRCB's General Construction Permit would minimize the potential for such degradation. This impact would be **less than significant**.

The proposed project would convert approximately 48 of the site's 215 acres from naturally vegetated open space to urban uses. This conversion will substantially increase the impervious surface area of the site through the introduction of new and improved roads and driveways, parking areas, rooftops, and other surfaces. An increase in impervious surface area would substantially increase runoff potentially containing oil and grease, heavy metals, chemicals, and other urban pollutants. Runoff from the proposed landscape areas could also contribute pollutants from fertilizers and pesticides.

The project proposes a drainage collection system consisting of both roadside ditches and underground drainage pipes. Runoff would be directed to water quality treatment facilities such as infiltration trenches and/or retention ponds prior to returning to sheet flow to connect to natural swales located on the site. Furthermore, consistent with the post-construction requirements of the SWRCB General Construction Permit, best management practices will be implemented and low impact development (LID) techniques will be utilized to minimize off-site drainage and water quality degradation. Potential BMPs to be implemented on the project site are described in detail in Impact 3.9.1 above. Incorporation of LID techniques into the proposed development and implementation of appropriate BMPs post-construction would remove sediment and pollutants from site runoff and minimize impacts to downstream surface water and groundwater resources. This impact would be **less than significant**.

Mitigation Measures

None required.

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Interference with Groundwater Recharge Impacts (Standard of Significance 2)

Impact 3.9.3 The proposed project would introduce impervious surfaces in the form of structures and parking lots to a previously undeveloped piece of land. This would result in an incremental reduction in recharge of the local groundwater aquifer. This impact is considered **less than significant**.

With development of the project, some of the pervious soils on the site will be replaced with impervious surfaces such as paving and buildings. Proposed development associated with the project would be limited to 48 acres total, with all development except the proposed emergency access road, trails, barbeque areas, water tank, and sewer lift station to be clustered within the northwest portion of the site. Approximately 4 acres of the site would be used for agricultural uses (gardens), with the remaining 163 acres remaining as undeveloped open space. The addition of impervious surfaces would decrease the area available for water penetration, thereby reducing local groundwater recharge potential. However, all runoff from impervious surfaces would be directed to water quality treatment facilities such as infiltration trenches and/or retention ponds prior to returning to sheet flow to connect to natural swales located on the site. Therefore, because runoff would eventually be directed to areas with pervious surfaces such as natural swales, and because the area designated as open space would continue to provide for groundwater recharge, the potential reduction in groundwater recharge associated with the project is small.

Furthermore, the project's domestic water demands will be met by surface water supplies provided by the Nevada Irrigation District (NID) rather than utilizing groundwater resources. Irrigation water demands have not been indicated as being supplied by groundwater. This impact is considered **less than significant**.

Mitigation Measures

None required.

Increase Stormwater Runoff/Alter Drainage Patterns (Standards of Significance 3, 4, and 5)

Impact 3.9.4 The proposed project would increase stormwater runoff and alter drainage patterns on the project site. However, the project proposes a drainage system to effectively manage drainage on the site to prevent erosion/sedimentation and localized flooding. This impact would be **less than significant**.

As described above, the proposed project would convert approximately 48 of the site's 215 acres from naturally vegetated open space to urban uses. This conversion would substantially increase the impervious surface area of the site through the introduction of roads and driveways, parking areas, rooftops, and other surfaces. An increase in impervious surface area would substantially increase runoff.

The proposed drainage system for the project (shown on **Figure 2.0-13**) will consist primarily of open roadside ditches as well as underground drainage pipelines where greater capacity is required. These drainage facilities will direct runoff to water quality treatment facilities such as infiltration trenches and/or retention ponds prior to returning to sheet flow to connect to natural swales located on the project site. The proposed project includes 11 stormwater retention ponds as shown in **Figure 2.0-13**. The proposed drainage plan and associated drainage study will be reviewed by County staff to ensure that it has adequate capacity to manage anticipated stormwater drainage on the site and to prevent any on- or off-site flooding. Furthermore, the

proposed water quality treatment facilities and other erosion control measures to be implemented during and post-construction pursuant to the State's NPDES requirements (see Impacts 3.9.1 and 3.9.2) would minimize soil erosion and sedimentation. This impact would be **less than significant**.

Mitigation Measures

None required.

Flooding Hazards (Standards of Significance 7 and 8)

Impact 3.9.5 No development is proposed within the portion of the site designated by FEMA as a special flood hazard area. This impact would be **less than significant**.

As described in the Setting subsection above, a portion of the project site along its southern boundary and adjacent to the Bear River is designated by FEMA as Zone A, indicating that this area is within a SFHA and has a 1 percent annual chance of flooding. However, as shown on **Figure 2.0-5**, a 100-foot setback is proposed along the site's southern boundary and no development would occur in this area. The remainder of the site is designated by FEMA as Zone C, indicating that this area is of minimal flood hazard but may experience ponding and local drainage problems. As described under Impact 3.9.4 above, the project includes the construction of a drainage system to manage drainage on the site and prevents any such ponding or drainage problems. Therefore, no people or structures would be exposed to risk of flooding and this impact would be **less than significant**. It should also be noted that the project would not place development within, or within 100 feet of, the 100-year floodplain. Therefore, the project is not required to prepare a Management Plan pursuant to the Nevada County Land Use and Development Code, Section L-II 4.3.10.

Mitigation Measures

None required.

Dam or Levee Failure Inundation (Standard of Significance 9)

Impact 3.9.6 The project site is located within the dam failure inundation areas for both the Rollins and Combie dams. In addition, the existing pond located on the project site is retained by an earthen dam, and two canals retained by levees traverse the site. Failure of any of these dams or levees could result in inundation of portions of the project site. This impact is **less than significant**.

As described previously in this section, the project site is located within the inundation areas of both the Rollins and Combie dams. These dams are owned and maintained by NID and are of sufficient height and capacity to be regulated by the California Division of Safety of Dams (DSD). The DSD performs annual maintenance inspections of these and other dams under state jurisdiction, including monitoring for compliance with seismic stability standards. Regular inspection by the DSD and maintenance by the Nevada Irrigation District ensure that the dams are kept in safe operating condition. As such, failure of these dams is considered to have an extremely low probability of occurring and is not considered to be a reasonably foreseeable event.

Weeks Canal crosses the northwestern portion of the site and the Magnolia Ditch crosses the eastern portion of the site flowing from south to north. These canals are used by NID for irrigation

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purposes. All canals under NID jurisdiction are continually patrolled and maintained to control water loss (NID 2010, p. 6-15). Maintenance of the canals ensures that the condition of the levee system will be in good order. Additionally, as part of the project, Weeks Canal will be encased within the street system as it enters the project site, further diminishing the possibility of levee failure.

The existing pond located near the center of the project site is retained by an approximately 30-foot-tall earthen dam that is not currently regulated by the DSD. As such, the dam's structural integrity and general condition is not currently known and its inundation area has not been mapped. However, in the event of a failure of the dam, it is anticipated, given the topography of the site, that the water would flow southward into the Bear River. The project does not propose to locate any structures between the on-site pond and the Bear River; only recreational components such as the barbecue area, volleyball area, horseshoe pits, and river overlook would be located in this area. Therefore, the project would not expose people or structures to a significant loss, injury, or death involving flooding as a result of the failure of the on-site dam.

Impacts would be considered to be **less than significant**.

Mitigation Measures

None required.

Mudflow Inundation (Standard of Significance 10)

Impact 3.9.7 The project site is located in an area with varied topography, including rolling hills. With an elevation gain of approximately 500 feet within the project site, the potential for mudflow does exist. However, this potential is considered low. This impact would be **less than significant**.

Mudslides, also known as debris flows or mudflows, are a common type of fast-moving landslide that tends to flow in channels. Landslides occur when masses of rock, earth, or debris move down a slope. Mudslides develop when water rapidly collects in the ground and results in a surge of water-soaked rock, earth, and debris. Mudslides usually begin on steep slopes and can be triggered by natural disasters. Landslides are caused by disturbances in the natural stability of a slope. They can happen after heavy rains, droughts, earthquakes, or volcanic eruptions. Landslide activity is a function of slope, soil type and depth, soil moisture, bedrock, and seismic activities.

The geologic substructure of Nevada County can be divided into three broad groups; Zone I is located in the western foothills and generally comprises metavolcanic (Mesozoic Jura-Trias Metavolcanic) and granitic (Mesozoic Granitic) formations; Zone II is located in the central portion of the county and generally comprises sedimentary and metasedimentary (Paleozoic Marine Metasedimentary) and volcanic (Cenozoic Volcanic) formations; and Zone III is located in the eastern portion of the county and generally comprises volcanic (Cenozoic Volcanic) and granitic (Mesozoic Granitic) formations (Nevada County 1995, Section 4.2). The majority of Nevada County, including the project site, falls within Zone 2, which is defined as an area of low landslide activity (Nevada County 1995, Figure 4.2-3).

In addition, as discussed under Impact 3.9.1 above, erosion and sediment control BMPs that must be implemented as part of the project's SWPPP would include practices to stabilize soil, to protect the soil in its existing location, and to prevent soil particles from migrating. These BMPs, which could include preserving existing vegetation, mulching, and hydroseeding, would also assist in preventing landslides resulting from construction and operation of the project.

Therefore, no people or structures would be exposed to risk of mudflow inundation and this impact would be **less than significant**.

Mitigation Measures

None required.

3.9.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for hydrology and water quality is the western half of the Bear River watershed. The watershed begins at over 5,000 feet elevation and ends at the point where the Bear River joins the Feather River (<100 feet elevation). The watershed is 296,452 acres, or 463 square miles (Shilling and Girvetz 2003, p. 14).

While most of the Bear River watershed is in Nevada County, it crosses the borders of Placer, Sutter, and Yuba counties and is therefore affected by the land use practices in each of these counties. There are also various cities, water districts, sanitation districts, school districts, public lands, and private lands devoted to various resource extraction and other uses within the watershed. Water volumes (flow) in the Bear River drainage are largely controlled by the Nevada Irrigation District, Pacific Gas and Electric (PG&E), and the South Sutter Irrigation District.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Quality, Runoff, and Flooding Impacts

Impact 3.9.8 The proposed project, in combination with existing, approved, proposed, and reasonably foreseeable development in the Bear River watershed, would alter drainage conditions, rates, volumes, and water quality, which could result in potential flooding and stormwater quality impacts within the overall watershed. This is considered a **less than cumulatively considerable** impact.

Proposed CCRC Development

All existing, approved, proposed, and reasonably foreseeable development in the Bear River watershed would alter drainage conditions, rates, volumes, and water quality, which could result in potential flooding and stormwater quality impacts within the overall watershed. However, as discussed in Impacts 3.9.1 through 3.9.5 above, proposed project site design, including the proposed drainage system, water quality treatment facilities such as infiltration trenches and retention ponds, and a 100-foot setback along the site's southern boundary would reduce the project's contributions to cumulative runoff, water quality, and flooding impacts. Furthermore, implementation of county and state regulations as identified above would effectively provide mitigation against project impacts. Proposed site design and existing regulations would render the project non-contributory to cumulative hydrology and water quality impacts. As such, the proposed project's contribution to cumulative water quality, runoff, and flooding impacts is considered to be **less than cumulatively considerable**.

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General Plan and Zoning Ordinance Text Amendments

As discussed in further detail in Section 4.0, Cumulative Impacts Summary, the proposed General Plan and Zoning Ordinance text amendments are policy actions that would not directly result in flooding and stormwater quality impacts within the overall watershed. Although CCRCs would be permitted in either a PD (Planned Development) or SDA (Special Development Area) land use designation with approval of a zone change after implementation of the proposed project, such rezoning applications would be subject to further CEQA analysis of project-specific impacts (proposed Zoning Ordinance amendment Section L.II 2.7.11(C)(4)), including flooding and stormwater quality impacts. At a programmatic level, the environmental impacts associated with development of all PD and SDA designated areas in the county were analyzed in the Nevada County General Plan Environmental Impact Report, Volume I, SCH #1995102136 (1995). It is reasonable to assume that future site-specific CEQA analysis would result in project-specific mitigation to address impacts. Therefore, cumulative flooding and stormwater quality impacts associated with the proposed General Plan and Zoning Ordinance text amendments are considered **less than cumulatively considerable**.

Mitigation Measures

None required.

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