4.11 HYDROLOGY AND WATER QUALITY

This section evaluates impacts of The Village at Loomis (proposed project) in relation to drainage and water quality. The existing hydrology, water quality, and drainage of the project site are described, and associated regulatory requirements are identified and potential impacts evaluated. Mitigation measures related to implementation of the proposed project are included, if necessary. The potential for both localized and regional flooding to occur and emergency evaluation in the event of a regional flood event are also evaluated.

The analysis in this section is based on the following documents:

- General Plan Update Draft Environmental Impact Report (Town of Loomis 2000)
- Loomis Town Center Master Plan Environmental Impact Report (Town of Loomis 1992)
- Loomis Town Center Specific Plan Preliminary Drainage Report (TLA 2006)
- The Village at Loomis Preliminary Drainage Report (TLA 2014, Appendix H)
- Dry Creek Watershed Coordinated Resource Management Plan (Placer and Sacramento Counties 2003)
- California's Groundwater Bulletin 118, Chapter 7 (DWR 2003)

In response to the Notice of Preparation, comments were received from the Central Valley Regional Water Quality Control Board (RWQCB) with general information on required permits. The City of Rocklin also requested that impacts associated with downstream flooding and storm drainage water quality associated with the project be evaluated in the environmental impact report (EIR).

The Notice of Preparation and comment letters received in response to the Notice of Preparation are included in Appendix A. The Village at Loomis Preliminary Drainage Report is provided in Appendix H to this EIR.

4.11.1 Environmental Setting

The project site is located north of Interstate 80 (I-80) and Horseshoe Bar Road and south of King Road. Adjacent uses include residential development north and east of the site and the Raley's supermarket and commercial land uses west and south of the site. The site is within the Dry Creek watershed, and is bisected by an unnamed perennial drainage that flows from north to south through the center of the project site to join Secret Ravine Creek. The approximately 66-acre project site generally slopes downhill from north to south, with elevations ranging from approximately 410 feet at the northern boundary to approximately 390 feet at the southern boundary.

The site lies within the Secret Ravine drainage basin. Drainage within the project site flows from an existing culvert pipe under Sun Knoll Drive to the unnamed perennial drainage in the central portion of the site, flows to the south, enters a steel culvert that passes under I-80, and joins Secret Ravine. Secret Ravine flows toward the southwest and is part of the Dry Creek watershed.

Groundwater

Regional Groundwater

The Dry Creek watershed lies above the Sacramento Valley Groundwater Basin North American subbasin. This watershed encompasses approximately 101 square miles from the lower western Sierra Nevada foothills, near the Town of Newcastle, to the Natomas East Main Drainage Canal in Sacramento County. Depth to groundwater in the upper watershed is approximately 161 feet below ground surface, while depth to groundwater in the lower watershed is approximately 13 feet. The thickness of the aquifer area that is saturated with fresh water is approximately 500 to 1,500 feet (Placer and Sacramento Counties 2003). Depths of domestic wells in this region generally range between 50 and 1,750 feet, and municipal/irrigation well depths generally range between 77 and 1,025 feet. Within the Town of Loomis (Town), domestic well depths typically range from 50 to 150 feet below the surface (Town of Loomis 2000). Wells within alluvial deposits tend to have unreliable yields and lower quality water, while deeper wells drawing from granitic rock sources exhibit more consistent yields and are higher in quality. Average production for individual domestic wells drawing from fractured granitic material is 4 to 9 gallons per minute (Town of Loomis 2000).

Groundwater Quality

Most of the Sacramento Valley Groundwater Basin has good water quality; however, localized portions may have marginal water quality due to natural variability in the aquifer and/or potential contamination from spills (DWR 2003). There are three major groundwater types within this region: magnesium calcium bicarbonate or calcium magnesium bicarbonate, magnesium sodium bicarbonate or sodium magnesium bicarbonate, and sodium calcium bicarbonate or calcium sodium bicarbonate. These groundwater types may have elevated levels of total dissolved solids, chloride, sodium, bicarbonate, boron, fluoride, nitrate, iron, manganese, and arsenic in some locations. In the Dry Creek watershed, the groundwater is likely to be free from these elevated constituent levels, and saline contamination from irrigation water is not a problem as it is elsewhere in the groundwater basin (Placer and Sacramento Counties 2003). The nearest area of known groundwater contamination in the Dry Creek watershed is a plume associated with the United Pacific Roseville Rail Yard in Roseville, which does not affect the project site.

Project Site Groundwater

Groundwater elevations and gradients vary considerably in the project vicinity, due to the highly fractured nature of the underlying rock. Groundwater elevations in the vicinity range from 10 feet to greater than 100 feet below the ground surface (WKA 2006). Groundwater elevations fluctuate rapidly within alluvial deposits along creek beds, sometimes reaching the surface during storm events (Placer County 1994). Although no hydrogeologic studies have been conducted on the project site, high groundwater would be anticipated to occur along the drainage way on site.

Surface Water

Regional Surface Hydrology

As stated previously, the project site is in the Dry Creek watershed, which is part of the Sacramento Hydrologic Basin Planning Area. The Dry Creek watershed extends generally from the lower Sierra Nevada foothills to northern Sacramento County. Elevations range from approximately 1,200 feet to approximately 30 feet (Placer and Sacramento Counties 2003). The upper reaches of the watershed above Roseville are relatively steep in comparison to the lower reaches below Roseville. Soils within portions of this watershed are formed on top of granitic bedrock and volcanic rock, resulting in high runoff potential due to their shallow and impermeable nature.

As shown in Figure 4.11-1, Regional Hydrology, major streams within the Dry Creek watershed include Dry Creek, Cirby Creek, Linda Creek, Strap Ravine, Miners Ravine, Secret Ravine, Antelope Creek, and Clover Valley Creek. The main stem of the Dry Creek watershed begins at the confluence of Secret Ravine and Miners Ravine, and flows southwest toward the Natomas East Main Drainage Canal in Sacramento County. Numerous canals, aqueducts, siphons, reservoirs, ponds, dams, pipelines, and other natural and non-natural water features within this watershed also influence local hydrology.

According to the Dry Creek Watershed Coordinated Resource Management Plan, alluvial deposits throughout the Dry Creek watershed were excavated and sluiced for gold in the 1840s and 1850s. These operations released large volumes of nutrient-poor sand, which was deposited on productive native alluvial soils. Currently, many of the primary stream channels within the Dry Creek watershed, including Secret Ravine and Miners Ravine, have incised through these deposits, leaving a deeper channel. Dense new stands of riparian vegetation have colonized areas along streams where the old alluvial soils have been exposed after the placer deposits were stripped away by recent floods. The Xerorthents soil type found associated with the drainage on the project site is the result of such placer mining activities.

Ongoing development and use of land near surface water bodies has led to additional alterations in the natural hydrology. In many areas, channels have been deepened, straightened, and/or relocated to accommodate roads, to create agricultural land, to create sewage treatment ponds, to convey flows, and for other developments. This channelization and reconfiguration has resulted in reduced area for overbank flow and reduced channel meandering, which has lowered the shallow groundwater table, particularly in the upper tributary reaches. Additionally, stream form diversity has been reduced, having been replaced by more uniform stream corridors (Placer and Sacramento Counties 2003). Regional development has resulted in increased impervious area and loss of both native riparian habitat and overall riparian vegetation. This leads to increased runoff into surface waters in the region. The Dry Creek Watershed Flood Control Plan was prepared as a joint effort by Placer County (County) and Sacramento County in 1992 to address flooding issues, primarily along the main stem of Dry Creek. The purpose of the plan is to provide Placer and Sacramento Counties with the information and policies necessary to manage flood waters within the Dry Creek watershed. The plan evaluates existing flooding problems and identifies flood management options, and evaluates a funding mechanism to achieve plan recommendations. An update to the plan is currently being prepared by Placer County and Civil Engineering Solutions. The Dry Creek Watershed Coordinated Resource Management Plan for Placer and Sacramento Counties (Placer and Sacramento Counties 2003) also addresses water quality, riparian habitat, and fisheries management.

Project Site Surface Hydrology

The project site is currently undeveloped. The site was historically used for agricultural activities—an orchard was planted on the eastern portion of the site (removed in the early 1950s), while the western portion was use for cattle grazing. An unnamed perennial drainage to Secret Ravine bisects the project site, referenced as the upper fork of Secret Ravine (Appendix H). The drainage flows out of a pipe from a subdivision northwest of the property and flows north to south across the central portion of the project site. Once off site, the stream flows into a steel culvert and runs for approximately 225 feet under I-80 to a confluence with Secret Ravine approximately one-third of a mile south of the project site. Secret Ravine drains into Miners Ravine, which connects with Dry Creek in Sacramento County. Dry Creek drains into Steelhead Creek (formerly known as the Natomas East Main Drain), which ultimately drains into the Sacramento River.

A 100-year floodplain surrounds the on-site drainage, extending from the north edge of the parcel to the south edge and terminating in the steel culvert under I-80 to the south. Other hydrologic features on the project site include two wetland swales and a drainage ditch on the eastern portion of the site, three riparian wetlands (part of the perennial stream complex), two seasonal wetlands, and one seep in the western portion of the site, as shown on Figure 4.3-2, Wetland Delineation Map, in Section 4.3, Biological Resources.

The 2014 preliminary drainage report prepared for the proposed project (Appendix H) indicates that the approximately 66-acre project site accepts runoff from a total area of approximately 679 acres, including adjacent residential and commercial uses and undeveloped areas (TLA 2006). Using HEC-HMS1 modeling, this report calculated the peak flows expected from the project site for the 2-, 10-, and 100-year storm events using inputs for soil types, saturation characteristics, storm event intensity, and existing developed conditions for on-site and off-site areas contributing runoff. Peak flow rates modeled for the project site in the existing condition for the 2-, 10-, and 100-year storm events are provided in Table 4.11-1 in cubic feet per second for each point of discharge (POD) location. POD represents distinct locations where drainage leaves the project site to off-site areas. POD A corresponds to the existing 66-inch culvert at I-80 where on-site drainage discharges from the property and receives the greatest volume of stormwater runoff, as shown in Table 4.11-1. The peak flow rates for each POD are shown in Figure 4.11-2, Stormwater Runoff Summary.

Table 4.11-1
Existing Stormwater Runoff Peak Flow Rates

Point of Discharge	2-Year Event (cfs)	10-Year Event (cfs)	100-Year Event (cfs)
A	128.1	290.5	549.1
B	32.5	80	162.7
C	10.2	22.6	44.3
D	0.7	2.8	7
E	1.5	3.5	7
F	1.2	3.2	6.8
Total	**174.2**	**402.6**	**776.9**

Source: Appendix H.
cfs = cubic feet per second

Local Flooding

Based on review of flood elevations and published Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps showing the base elevation of the 100-year floodplain, the existing 66-inch culvert downstream of the project site that flows under I-80 is undersized to carry the modeled 100-year stormwater flows under existing conditions (POD A). Runoff exceeding storm drain capacity becomes surface flow and appears to migrate downgradient into the adjacent property, covering a relatively large area creating surface ponding/storage (Appendix H). The 100-year floodplain for the site and its surroundings, as mapped by FEMA, is shown on Figure 4.11-3, Pre-Project 100-Year Floodplain. The FEMA floodplain delineates the boundaries of areas that would be inundated with floodwaters in the event of a 100-year storm event (a storm modeled to have a 1% chance of occurring in any given year). FEMA most recently reviewed and updated the floodplain boundaries for the Loomis area in 1998 (Town of Loomis 2000).

Regional Surface Water Quality

The Central Valley RWQCB establishes water quality objectives to protect the recognized beneficial uses of this watershed. The beneficial uses of Dry Creek include municipal and domestic water supply; agricultural and industrial water supply; recreation; groundwater recharge; aesthetic enjoyment; fresh water replenishment; and preservation and enhancement of fish, wildlife, and other aquatic resources. Stormwater runoff from rural and urban areas may contain excessive levels of pollutants (e.g., pesticides, herbicides, hydrocarbons), adversely affecting fish populations and other aquatic life in streams and possibly negatively affecting municipal, domestic, agricultural, recreational, and other beneficial uses of the water.

Water quality degradation from non-point source pollutants is primarily the result of stormwater runoff carrying pollutants from the land surface to the receiving waters. The types of pollutants that may be transported to the receiving waters depend on the land uses and associated activities. Within the Town, urban/commercial uses may contribute to non-point source pollution as a result of stormwater runoff containing hydrocarbons and other pollutants resulting from automotive use (brake lining dust, tire particles, coolant), sediment from erosion of exposed soils, chemicals (pesticides, fertilizers, herbicides, paints, paint thinners, solvents), heavy metals, and coliform bacteria and nitrates (pet waste, septic contamination) (Town of Loomis 2000).

Stormwater runoff from the project site drains to Secret Ravine and Miners Ravine before being delivered to Dry Creek. Dry Creek is tributary to the Sacramento River, a primary source of water for the City of Sacramento, and for the Sacramento–San Joaquin Delta. Key beneficial uses of the receiving waters are designated as municipal, domestic, agricultural supply, recreation, and freshwater habitat. Limited data on streamflow and water quality is available for the on-site drainage and streams within the Dry Creek watershed.

According to the Dry Creek Watershed Coordinated Resource Management Plan, the Central Valley RWQCB conducted 15 monthly sampling events at 8 locations in the Dry Creek watershed between autumn 2000 and winter 2002 to monitor selected water quality characteristics. Three of the study sites were on Dry Creek, one was on Miners Ravine, and one was on Secret Ravine; the rest were on other tributaries to Dry Creek. The test site on Secret Ravine was approximately 1 mile northeast of the project site at Loomis Park. The test site on Miners Ravine was approximately 5 miles south of the project site. The Dry Creek Watershed Coordinated Resource Management Plan also reported results of water quality testing conducted in 2000 and 2001 by the Dry Creek Conservancy Monitoring Group, a citizen group trained to collect water quality data in the Dry Creek watershed. Testing sites monitored by the Dry Creek Conservancy Monitoring Group included several in the upper Dry Creek watershed that would be expected to reflect water quality conditions in the vicinity of the project site and indicate water quality concerns for the upper watershed.

Although the Dry Creek Watershed Coordinated Resource Management Plan identified the need for longer-term sampling of the watershed, results of sampling conducted by the Central Valley RWQCB and the Dry Creek Conservancy Monitoring Group indicate the following water quality impairment issues:

- **Temperature:** Some reaches of the watershed exceeded temperature limits for support of cold-water fish populations during the summer months. High in-stream temperatures typically result from loss of riparian vegetation that shades waterways from direct sunlight.
- **Toxicity:** Although additional studies are necessary to determine the extent and level of impairment, pesticide and heavy metals toxicity has been observed in samples from Dry Creek and Secret Ravine. Pesticides and heavy metals toxicity can result from runoff from agricultural operations and roadways, among other sources.
- **Turbidity:** Sampling found that turbidity in the watershed is generally above the U.S. Environmental Protection Agency-recommended criteria. Turbidity is a measure of the cloudiness or haziness of water caused by particles suspended in the water, and typically results from suspended sediment resulting from soil erosion. Turbidity is typically higher during precipitation events when runoff carries sediment to streams.
- **Fecal coliforms:** During the dry season, fecal coliform levels exceeded water quality criteria in portions of the watershed. Fecal coliform bacteria can be a result of failing septic systems and animal waste (pet, livestock, or wildlife).

Water quality sampling efforts found that dissolved oxygen, dissolved solids, pH, ammonia, most metals, and most pesticides were within the applicable standards (Placer and Sacramento Counties 2003).

4.11.2 Regulatory Setting

Federal and State Regulations

Clean Water Act

The Clean Water Act is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which establishes the basic structure for regulating discharges of pollutants to waters of the United States. Section 303 of the Clean Water Act requires states to adopt water quality standards discussed in the following text as part of the National Pollutant Discharge Elimination System (NPDES).

The U.S. Army Corps of Engineers regulates the placement of fill or dredged materials that affect waters of the United States, which include stream courses and jurisdictional wetlands. The U.S. Army Corps of Engineers regulates these activities under the authority of Section 404 of the

Clean Water Act. The U.S. Army Corps of Engineers would regulate any development within the project site that affects jurisdictional wetlands.

In the State of California, the State Water Resources Control Board (SWRCB) and RWQCBs also regulate activities in waters of the United States through Section 401 of the Clean Water Act. A 401 certification is necessary to obtain a 404 permit for construction of wetlands/habitat where waters of the United States are impacted.

NPDES Stormwater Discharge Permits

Surface water quality is regulated by NPDES, which was developed by the U.S. Environmental Protection Agency in accordance with Section 303 of the Clean Water Act. In the State of California, the SWRCB administers the NPDES program, with implementation and enforcement by each RWQCB. The NPDES program, designed to protect surface water quality, is applicable to all discharges to waters of the United States, including stormwater discharges associated with municipal drainage systems, construction activities, industrial operations, and "point sources" (such as wastewater treatment plant discharges and other direct discharges to water bodies). In April 2003, the SWRCB adopted an NPDES Phase II General Permit for the Discharge of Storm Water from small municipal separate storm sewer systems (MS4s) to provide NPDES permit coverage to municipalities that were not covered under the NPDES Phase I Rule for municipalities serving more than 100,000 people. The Town is a regulated Small MS4 under the State's NPDES permit, and is subject to the provisions of the NPDES Phase II General Permit. Under this permit, stormwater discharges shall not cause or contribute to an exceedance of water quality standards contained in a Statewide Water Quality Control Plan, the California Toxics Rule, or the applicable RWQCB basin plan. For the Town, the applicable basin plan is the Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins (Central Valley RWQCB 1998). The basin plan establishes water quality objectives and implementation programs to meet stated objectives and to protect the beneficial uses of water in the basin, in compliance with the federal Clean Water Act and the state Porter-Cologne Water Quality Control Act (discussed further in the following text).

The Central Valley RWQCB issues NPDES permits for construction activities involving disturbance of 1 acre or more. The conditions of the state's General Permit for stormwater discharges associated with construction activities, Order Number 99-28-DWQ, require development and implementation of a stormwater pollution prevention plan (SWPPP) that must address the following:

- Plans for implementation of structural and operational best management practices (BMPs) to prevent and control impacts to surface water during construction
- Inspection and maintenance of BMPs throughout all phases of construction

- Monitoring of runoff quality during all phases of construction
- A plan for preventing and controlling post-construction impacts to runoff quality

The Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act (Porter-Cologne) is the principal law governing water quality regulation in California. This statute established the SWRCB and the nine RWQCBs, which are charged with implementing its provisions. Porter-Cologne establishes a comprehensive program for the protection of water quality and the beneficial uses of water. It applies to surface waters, wetlands, and groundwater and to both point and non-point sources. Porter-Cologne is found in California Water Code, Section 13000. In addition, California Code of Regulations, Title 23, contains administrative and regulatory elements of water quality and quantity management in California.

The SWRCB allocates rights to the use of surface water and, with the nine RWQCBs, protects water quality in all waters of the state. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. The RWQCBs are responsible for individual permitting, inspection, and enforcement actions within the nine hydrologic regions. The project site is located within Region 5, the Central Valley River Basin RWQCB.

Porter-Cologne also incorporates many provisions of the federal Clean Water Act, such as delegation to the SWRCB and RWQCBs of the NPDES permitting program.

Flood Protection

FEMA is responsible for determining flood elevations based on available studies pursuant to the National Flood Insurance Program Final Rule (44 CFR 59, 61). FEMA is also responsible for developing the Flood Insurance Rate Maps, which are used in the National Flood Insurance Program. Participation in the National Flood Insurance Program provides an opportunity for property owners in the community to purchase flood insurance, provided that the community complies with FEMA requirements for maintaining flood protection and managing development in the floodplain.

Groundwater

The SWRCB regulates activities that could result in adverse impacts to groundwater quality. Policies and regulations promulgated by the SWRCB (either under its Clean Water Act authority or state-derived authority) are implemented and enforced in the project area by the Central Valley RWQCB. In general, SWRCB policy prohibits degradation of groundwater quality, and in cases where impacts occur, the Central Valley RWQCB typically requires restoration of impacted aquifers such that residual concentrations do not exceed the U.S. Environmental

Protection Agency's Maximum Concentration Limits for drinking water. In cases where the aquifer is hydraulically connected to a surface water body, fresh water aquatic habitat water quality criteria may be imposed as cleanup levels.

Streambed Alteration Program

The California Department of Fish and Wildlife's (CDFW) Lake and Streambed Alteration Program (California Fish and Game Code, Section 1600 et seq.) requires any person who proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or who will use materials from a streambed to apply for and obtain a Streambed Alteration Agreement from CDFW before beginning the project. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or its tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel, with banks that support fish or other aquatic life, and watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

Local Regulations

Town of Loomis General Plan

The Town of Loomis General Plan (2001) contains goals and policies governing development within the Town. The goals and policies listed in the following text summarize the priorities of the General Plan related to hydrology and water quality. Appendix B of this EIR provides an evaluation of the project's consistency with applicable General Plan policies.

<u>Land Use Goals</u>

1. To protect groundwater and surface water quality.

<u>Natural Resources and Open Space Goals</u>

2. To help protect groundwater and air quality within the Sacramento region.

<u>Natural Resources and Open Space Policies</u>

3. **Grading.** The Town shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian areas.

a. Prior to approval of discretionary development permits involving parcels near significant ecological resource areas, project applicants shall demonstrate that upland grading activities will not contribute to the direct cumulative degradation of stream quality.

b. The Town will limit development on slopes with a gradient in excess of 30 percent or in areas of sensitive or highly utilized habitat, through appropriate zoning standards and individual development project review.

6. **Stream corridor protection.** The streams of Loomis are among the most significant and valuable of the Town's natural resources. Development adjacent to streams shall be designed, constructed, and maintained to avoid adverse impacts on riparian vegetation, stream bank stability, and stream water quality to the maximum extent feasible. These policies shall apply to all watercourses shown as blue lines on the most recent United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps applicable to the Town. See also the policies for wetland protection below.

   a. Proposed structures and grading shall be set back the greater of: 100 feet from the outermost extent of riparian vegetation as defined in the Zoning Ordinance, or outside of the 100-year flood plain. Lesser setbacks may be approved where site-specific studies of biology and hydrology, prepared by qualified professionals approved by the Town, demonstrate that a lesser setback will provide equal protection for stream resources. Development shall be set back from ephemeral or intermittent streams a minimum of 50 feet, to the extent of riparian vegetation, or to the 100-year floodplain, whichever is greatest.

   b. Land uses and development within the setback areas required by this policy shall be limited to: the grazing of livestock at half or less of the animal densities allowed by the Zoning Ordinance; open wire fencing to confine livestock; bridges; public utilities and infrastructure; and other uses allowed by the applicable zoning district as permitted or conditional uses, with conditional use permit approval.

   c. The following activities are prohibited within stream corridor setbacks: filling or dumping; the disposal of agricultural wastes; channelization or dams; the use of pesticides that may be carried into stream waters; grading, or the removal of natural vegetation within the required setback area, except with grading permit approval. This is not intended to prevent the reasonable maintenance of natural vegetation to improve plant health and habitat value.

d. The Town shall require that development projects proposing to encroach into a creek corridor or creek/wetland setback to do one or more of the following, in descending order of desirability:

   - Avoid the disturbance of riparian vegetation;

- Replace riparian vegetation (on-site, in-kind);
- Restore another section of creek (in-kind); and/or
- Pay a mitigation fee for restoration elsewhere (e.g., wetland mitigation banking program).

e. The Town shall require that newly-created parcels include adequate space outside of wetland and riparian setback areas to ensure that property owners will not place improvements within areas that require protection.

f. Proposed development shall include surface water drainage facilities that are designed, constructed, and maintained to ensure that the increased runoff caused by development does not contribute to the erosion of stream banks, or introduce pollutants into watercourses.

g. The Town shall encourage the use of natural stormwater drainage systems to preserve and enhance existing natural features. The Town shall promote flood control efforts that maintain natural conditions within riparian areas.

h. Where creek or wetland protection is required or proposed, the Town shall require public and private development to:

- Preserve creek corridors and setbacks through easements or dedications. Parcel lines or easements shall be located to optimize resource protection;
- Designate easement or dedication areas as open space;
- Protect creek corridors and their habitat value by: (1) providing adequate setbacks; (2) maintaining creek corridors in their natural state; (3) employing restoration techniques, where necessary and appropriate; (4) using riparian vegetation within creek corridors; (5) prohibit the planting of invasive, non-native plants within creek setbacks; and (6) avoiding tree removal within creek corridors.
- Use techniques that ensure development will not cause or worsen natural hazards near creeks, and will include erosion and sediment control practices such as: (1) turbidity screens (to minimize erosion and siltation); and (2) temporary vegetation sufficient to stabilize disturbed areas.

7. **Water quality.** The Town will contribute toward the maintenance of high quality in the local surface and groundwater resources through the following, and other feasible measures.

a. Proposed development shall incorporate measures to minimize soil erosion, and stream and drainage way sedimentation during construction, and over the life of each project.

b. The Town will periodically review its ordinances requiring erosion and sediment control, and will update them when necessary to ensure their continuing effectiveness.

c. Proposed development shall be designed, constructed, and maintained to prevent the discharge of untreated effluent into local streams to the maximum extent feasible, including the introduction of contaminants such as pesticides, fertilizers, and petroleum products and other contaminants carried by urban runoff.

Public Health and Safety Goals

1. To reduce risks associated with natural and man-made hazards through compliance with State and Federal safety programs.

3. To reduce the potential for and damage resulting from storm flooding hazards within the community.

Public Health and Safety Policies

4. No new structures or additions to existing structures shall be permitted in areas identified by the federal Flood Insurance Rate Maps (FIRMs) or the Town Engineer as being subject to inundation in a 100-year or more frequent flood event. Exceptions may be granted for public facilities and utilities. New development shall also be prohibited in the future 100-year flood zone, based on buildout conditions as determined by FEMA and FIRM maps. Development will be required to adhere to Placer County Flood Control District policies and the Dry Creek Watershed Control Plan.

5. New development near stream channels shall be designed so that reduced stream capacity, stream bank erosion, or adverse impacts on habitat values are avoided.

6. Further channelization and/or banking of creeks or streams within the planning area shall be discouraged, unless no other alternative is available to minimize flood risk. Setbacks from flood sources shall be the preferred method of avoiding impacts.

7. Site-specific recommendations of the Town's Drainage Master Plan, upon completion, shall be applied to individual development projects as appropriate.

General Plan Natural Resources and Open Space Policy 6(a) requires a setback from waterways defined by the greater of 100 feet from the outermost extent of riparian vegetation or outside the 100-year floodplain. This policy states that a smaller setback may be approved if site-specific studies indicated the lesser setback would provide equal protection of the waterway. The policy further states that setbacks from ephemeral or intermittent streams shall be a minimum of 50 feet or outside the limit of the 100-year floodplain.

Town of Loomis Grading Ordinance

The Town's grading ordinance, codified in Chapter 12.04 of the Town of Loomis Municipal Code, establishes requirements for grading, erosion, and sediment control and stormwater management (Town of Loomis 2015). Development projects must comply with these requirements during grading and construction. The primary goals of the ordinance include protecting against unwarranted or unsafe drainage work, avoiding pollution of watercourses, and maintaining proper functioning of drainage infrastructure. Except in the case of certain exemptions specified in Section 12.04.050 of the Municipal Code, a grading permit issued by the director of public works is required for all grading activities within the Town.

Grading permit requirements and design standards are detailed in Chapter 12.04, Articles VI and VII, of the Municipal Code (Town of Loomis 2015). These conditions include requirements for control of dust, erosion, and sedimentation. When issuing a grading permit, the Town may impose any condition necessary to protect waterways. The grading ordinance also specifies that grading projects cannot be allowed to violate the NPDES or to interfere with the flow of stormwater. Each future development project within the project site would be required to comply with the conditions and standards of the grading permit issued for the project.

4.11.3 Impacts

Methods of Analysis

A preliminary drainage study was prepared for the project site by TLA in 2014 (see Appendix H) to estimate existing runoff and proposed project runoff, and to identify drainage facilities that would be needed to meet the current Town standards. This impact analysis incorporates the results of that study to identify potential proposed project impacts associated with drainage and post-construction water quality.

The geographic context for the analysis of cumulative hydrology and water quality impacts is made up of the Dry Creek watershed. For analysis of flooding impacts, the geographic context for localized flooding impacts is the local drainage shed, and for regional flooding impacts, it is the entire Dry Creek watershed. The Dry Creek watershed extends from Newcastle in the east to the Natomas East Main Drainage Canal in Sacramento County in the west. This cumulative impact analyses relies on the summary of projections methodology under Section 15130(b)(1)(B) of the CEQA Guidelines, reflecting buildout of the portions of the Placer County General Plan that govern land within the Dry Creek watershed, buildout of the Town of Loomis General Plan and those of the cities of Rocklin and Roseville, and buildout of the portions of the Sacramento County General Plan that govern land within the Dry Creek watershed. This section identifies and discusses the environmental impacts resulting from the proposed project.

Significance Criteria

Based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), potentially significant impacts associated with hydrology and water quality from implementation of the proposed project, including construction and operation phases, have been evaluated with respect to the following significance criteria. Would the project:

- Substantially degrade surface or groundwater quality (i.e., during construction or operation)?
- Cause a substantial increase in rate or volume of runoff leaving the site that would exceed the capacity of existing or planned stormwater drainage systems and result in flooding?
- Expose people or structures, on- or off-site, to a significant hazard of flooding as a result of placing development 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?
- Substantially decrease groundwater recharge, resulting in depressed groundwater levels in the local and/or regional area?

Impact Discussion

IMPACT 4.11-1:	Project construction or operation could contribute to a substantial degradation of surface or groundwater quality.
SIGNIFICANCE:	Less Than Significant
MITIGATION:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

Project Construction Effects on Surface Water Quality

Without implementation of appropriate control measures, grading involved in preparing the project site for construction would decrease vegetative cover and potentially increase the rate and quantity of stormwater runoff. This would result in accelerated soil erosion and sediment delivery to the on-site waterway and off-site areas. This could increase the amount of suspended solids in local waterways and contribute to elevated turbidity in portions of the Dry Creek watershed downstream of the project site. Additionally, leaks or upset of fuel or hydraulic fluid used in construction equipment and outdoor storage of construction materials or spills of paints, solvents, or other potentially hazardous materials commonly used in construction could degrade stormwater runoff quality during construction. Small leaks from construction equipment and building materials would not be expected to result in contamination of groundwater, as they

would be likely to break down or dilute in the shallow soil layer and be conveyed to surface water runoff. Large quantities of hazardous materials would be required to be stored in compliance with applicable regulations to prevent or contain any spills. Section 4.13, Hazards and Hazardous Materials, provides further discussion regarding hazardous materials use and storage and the potential for accidental release of hazardous materials.

Pursuant to the requirements of the Town's Grading Ordinance (Municipal Code, Chapter 12.04), prior to obtaining grading permits, the applicant would be required to prepare an erosion and sediment control plan that complies with the Town's stormwater management plan and the California Stormwater Quality Association Stormwater Best Management Practice Handbook. The Town's Grading Ordinance specifies that the erosion and sediment control plan shall prevent discharge through all stages of project development and shall include measures to ensure permanent site stabilization. The Grading Ordinance also requires that all construction equipment and maintenance and construction materials storage areas would be located within designated areas protected with a berm to contain any loose materials, and all disturbed areas would be protected through revegetation or a protective cover (Town of Loomis 2015).

Additionally, prior to issuance of a grading permit, the applicant would be required to demonstrate coverage for project activities under the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction Activities. To obtain coverage under the permit, the project applicant would submit a Notice of Intent with the required permit fee and prepare a SWPPP for review by the Central Valley RWQCB. The SWPPP would include the following four major elements:

1. Identify pollutant sources, including sources of sediment, which may affect the quality of stormwater discharges from the construction site.
2. Identify non-stormwater discharges.
3. Identify, construct, implement in accordance with a time schedule, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction.
4. Identify, construct, implement in accordance with a time schedule, and assign maintenance responsibilities for post-construction BMPs to be installed during construction that are intended to reduce or eliminate pollutants after construction is completed.

In addition, dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary

Typical BMPs that would be appropriate to implement at the project site may include scheduling or limiting activities to certain times of year, implementing dust control procedures throughout the project area, stabilizing cut and fill slopes as soon as possible, controlling erosion through a variety of means such as mulch and compost blankets, riprap, and installation of sediment retention structures (such as a sediment retention basin), sediment control with the use of measures such as storm drain inlet protection, vegetated buffers, fiber rolls and berms, sediment fencing, and straw or hay bales.

Other temporary BMPs would ensure "good housekeeping" at the project site during construction. These would include cleaning construction equipment and preventing the leakage of fluids, storing materials away from surface water, protecting sensitive areas with sediment barriers or other containment methods, controlling laying of concrete and washing of related equipment, and collecting debris and gravel associated with paving operations. Adequate temporary storm drainage controls would be provided, including on-site drainage containment, the placement of silt fences around construction areas, and constructing temporary sediment basins (as necessary).

Compliance with the Town's Grading Ordinance and implementation of the provisions contained in the SWPPP approved by the RWQCB would reduce potential impacts to water quality due to construction activities to **less than significant** by ensuring that all appropriate and necessary BMPs are implemented to avoid or minimize the discharge of pollutants and sediment to surface water.

Project Operation Effects on Surface Water Quality

The proposed project would construct approximately 426 residential units and approximately 80,000 square feet of office and commercial space. According to the preliminary drainage report prepared by TLA (2014), the overall amount of impervious land cover would increase up to approximately 50%. This increase in the overall area of impervious surface on the site would increase both the volume and rate of runoff from the site, as less water would infiltrate the soil. Human activities on site would also generate typical urban pollutants (automobile pollutants, chemicals from landscape and structural maintenance, soil erosion, and solid waste). These pollutants accumulate on impervious surfaces during dry weather and are then transported by surface flows into drainageways during storm events. Stormwater runoff from streets and driveways would be expected to contain oils, grease, sediment, and other urban debris and to have potential to result in degradation of surface water quality in area drainage ways.

The project includes a combination of Low-Impact Development (LID) and BMPs to minimize pollutants entering the drainage system and being discharged from the site. This would be accomplished through a combination of "good housekeeping" practices and mechanical and biological treatment facilities. The project would preserve approximately 10 acres in its natural

state to aid in controlling stormwater pollution. The project also incorporates grassy swales, detention basins, detached downspouts, and landscape strips all to promote infiltration of stormwater and to reduce the volume of runoff reaching the drainage system. Proper signage and inlet makings would also be incorporated to inform residents and visitors that all drains flow to the creeks and dumping, or disposal of waste in the drains is not allowed. In addition, treatment BMPs would be installed to ensure that all new impervious area would have some form of water quality treatment prior to discharge. These include bioretention basins, vegetative swales, flow-through planters, and hydrodynamic separators. The BMPs would be sized in accordance with the current local and state guidelines, including the California Stormwater Quality Association manual. Specifically, BMPs must be sized to ensure that post-development stormwater runoff is reduced to 90% of the pre-development runoff volume, consistent with the Placer County Stormwater Management Manual.

The BMP plan would be consistent with the NPDES requirements as discussed in Section 4.11.2, Regulatory Setting. To comply with the NPDES requirements, the project must implement a BMP plan that ensures the project would not cause or contribute to an exceedance of water quality standards contained in any Statewide Water Quality Control Plan, the California Toxics Rule, or the Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins.

Examples of BMPs that would be evaluated during design are provided in the California Stormwater Quality Association's Best Management Practices Handbook for New Development and Redevelopment, and include LID technologies, such as vegetative swales, disconnected roof drains, and interceptor trees. Other measures that may be used include stormwater filtration systems. With compliance with the NPDES requirements, the project's impacts related to degradation of surface water quality would be **less than significant.**

Project Effects on Groundwater Quality

Construction for the proposed project would proceed according to the Construction SWPPP required under the statewide construction general permit. The SWPPP would require construction to adhere to BMPs as listed previously that would minimize potential impacts to groundwater quality from construction. The greatest potential for impacts to groundwater quality to occur during project operation would be due to specific land uses that may store or transport hazardous materials. Project operation is not anticipated to result in the use or transport of substantial quantities of hazardous materials with the potential to result in groundwater contamination. Further discussion of potential impacts associated with use or transport of hazardous materials is provided in Section 4.13, Hazards and Hazardous Materials, of this EIR. The proposed project would tie into the sewer system, and would therefore result in no impacts to groundwater as a result of septic tank failure or high groundwater septic system interaction. The project's LID techniques and BMPs would ensure that surface water quality is maintained,

and would reduce the potential for impacts to groundwater to occur as a result of pollutants delivered in stormwater runoff. Some groundwater recharge may occur when stormwater runoff is captured in the proposed detention basins. With pre-treatment of runoff prior to entering the detention basis, such as by being routed through a vegetated swale or a sand-oil separator, and the natural filtration of water that occurs as it percolates through the soil, the water within the detention basin that may reach the groundwater basin would not impair the groundwater quality. Thus, impacts to surface and groundwater quality would be **less than significant**.

IMPACT 4.11-2:	Project implementation could result in flooding as a result of increased stormwater runoff volumes or rates that would exceed the capacity of existing or planned stormwater infrastructure.
SIGNIFICANCE:	Potentially Significant
MITIGATION:	Mitigation Measure 4.11a
RESIDUAL SIGNIFICANCE	Less Than Significant

Development of roads, buildings, and other paved and impermeable surfaces would reduce the amount of stormwater that currently infiltrates into the ground and could increase the volume and rate of runoff leaving the project site, as discussed under Impact 4.11-1, if appropriate measures are not implemented to control peak flows. A significant impact would occur if post-development stormwater runoff rates are not reduced to levels below the pre-development runoff rates.

The 2014 preliminary drainage report prepared by TLA provides a detailed overview of changes in drainage conditions that would result from implementation of the proposed project. The purpose of the study was to determine the post-project peak flows to determine if the proposed project could comply with provisions of the Placer County Stormwater Management Manual, which require that stormwater runoff in the post-project condition be reduced to between 90% and 100% of the pre-project condition for the 2-, 10-, and 100-year design storm events.

The 2014 preliminary drainage report finds that in the post-development condition, the project:

- Would not adversely change off-site floodplain limits or water surface elevations for 2-, 10-, and 100-year storm events;
- Would decrease downstream water surface elevations approximately 0.2 feet for 100-year storm events;

- Would slightly increase the water surface elevation on the upstream side of the proposed Doc Barnes Drive at the major drainage area (due to the construction of the new road), but that increase in elevation is dissipated within 800 feet upstream of Doc Barnes Drive;
- Would not increase the water surface elevations in the Sun Knoll subdivision; and
- Would decrease stormwater flow to I-80 (the California Department of Transportation (Caltrans) culvert, POD A) by between 10% and 35%.

As discussed in Section 4.11.1, Environmental Setting, the preliminary drainage report (TLA 2014) modeled peak flows for stormwater runoff at six POD locations (as shown in Figure 4.11-2) where runoff from the project site would occur. Modeled peak flow rates for the post-project condition are provided in the following text. The proposed project would construct stormwater detention basins to store and meter discharge of stormwater runoff from the site and thereby reduce peak flow rates, as shown in Figure 4.11-4. These detention facilities would be equipped with oil/sediment separators to maintain discharge water quality.

Post-project values represent peak flow rates when the flow rate attenuation facilities recommended in the preliminary drainage report are used, as shown in Table 4.11-2. The net reduction in flows is also indicated. As shown in the table, post-development PODs D and E would be redirected into the Doc Barnes Drive storm drain system part of POD A. Table 4.11-2 identifies the post-development stormwater runoff rates and the percent that runoff is reduced compared to the pre-project rates.

Table 4.11-2
Stormwater Runoff Peak Flow Rates Post-Project Conditions

Point of Discharge	Stormwater Runoff by Storm Interval (cfs)		
	2-Year Event	*10-Year Event*	*100-Year Event*
A	83.6 35% reduction	240.5 17% reduction	492.7 10% reduction
B	32.5 0% reduction	79.8 .002% reduction	162.3 .003% reduction
C	7 31% reduction	19.4 14% reduction	39.9 10 % reduction
D	0 100% reduction	0 100% reduction	0 100% reduction
E	0 100% reduction	0 100% reduction	0 100% reduction
F	1.0 17% reduction	2.8 13% reduction	6.1 10% reduction

Source: Appendix H.

The preliminary drainage report indicates that, with implementation of measures to control peak flows, post-project peak flow rates would be less than or the same as existing conditions for all events. The drainage analysis demonstrates that PODs B, C, and F would have substantial increases in site runoff and require stormwater detention to reduce the post-development peak flow below predevelopment levels to meet the requirements of the Placer County Stormwater Management Manual. Detention is proposed to be provided in the form of open detention basins, as shown in the grading plans in Figures 4.10-3, 4.10-4, and 4.10-5 in Section 4.10, Geology, Soils, Seismicity, and Paleontology.

The preliminary drainage report demonstrates that the proposed project would be consistent with the Placer County Stormwater Management Manual requirements to reduce peak flow rates from the undeveloped condition for the 2-year, 10-year, and 100-year storm events.

A supplemental final design drainage report would be required by the Town prior to issuance of a grading permit. The final design drainage report must incorporate measures to attenuate peak flows, consistent with the recommendations contained in the preliminary drainage report and the Placer County Stormwater Management Manual. Specifically, the project design must ensure that post-development stormwater runoff is reduced to 90% of the pre-development runoff rate for the 100-year storm. To ensure that the final drainage report provides sufficient stormwater management to achieve this reduction, **Mitigation Measure 4.11a** requires preparation of the final drainage report and that the final drainage report demonstrate that stormwater runoff for the 2-year, 10-year, and 100-year storms is reduced to 90% of the pre-development runoff rates. Compliance with **Mitigation Measure 4.11a**, consistent with the recommendations of the preliminary drainage report, would ensure that the project would not increase the rate of stormwater runoff and increases in stormwater runoff volume would not result in on-site or downstream flooding as a result of the project. With implementation of **Mitigation Measure 4.11a**, the impact would be reduced to **less than significant.**

IMPACT 4.11-3:	Placement of fill or structures in the 100-year floodplain could result in on- or off-site flooding hazards.
SIGNIFICANCE:	Potentially Significant
MITIGATION:	Mitigation Measure 4.11b
RESIDUAL SIGNIFICANCE:	Less Than Significant

Natural Resources and Open Space Policy 6(a) of the Town of Loomis General Plan state that all proposed structures and grading should be placed outside the 100-year floodplain or 100 feet from the outermost extent of riparian vegetation. However, this policy also provides for

exceptions to this requirement provided that adverse effects to creeks and property are avoided or compensation for such effects is provided. Additionally, Public Health and Safety Policy 4 provides that new development is prohibited in the future 100-year flood zone, based on buildout conditions as determined by FEMA and FIRM maps.

The FEMA-designated 100-year floodplain occurs through the central portion of the project site, surrounding the unnamed drainage in this area. The FEMA-designated floodplains were mapped based on regional topography and drainage data and do not reflect site-specific conditions. The project engineers have completed a detailed floodplain analysis for the project site to map the site-specific 100-year pre-development floodplain for the site. The FEMA-designated floodplain and the mapped floodplain are shown on the grading plans provided in Figures 4.10-2 through 4.10-4 in Section 4.10. In general, the mapped 100-year pre-development floodplain is wider than the FEMA-designated floodplain on the western side of the unnamed drainage and narrower than the FEMA-designated floodplain on the eastern side.

The proposed development would encroach on both the FEMA-designated floodplain and the mapped floodplain in several locations:

- In the northern portion of the site west of the drainage channel, proposed lot 40 would abut the mapped 100-year floodplain and grading for this lot would occur within the floodplain.
- In the central portion of the site west of the drainage channel, proposed lot 70 would abut the mapped 100-year floodplain and grading for this lot would occur within the floodplain.
- In the central portion of the site west of the drainage channel, the northeast and southeast corners of the proposed park site (Parcel F) would encroach within the mapped 100-year floodplain. No grading is indicated for the park site on the grading plans. While some grading would be expected within this parcel, the park would be designed to avoid grading within the floodplain.
- In the southern portion of the site west of the drainage channel, the eastern edge of the proposed multi-family site (Parcel C) is located within the mapped 100-year floodplain. The portion of the floodplain within this parcel ranges from approximately 25 to 150 feet wide.
- In the northern portion of the site east of the drainage channel, the majority of proposed lot 203 would be located within the FEMA-designated 100-year floodplain and a smaller portion of the lot would be located within the mapped 100-year floodplain. A portion of proposed lot 202 would also be located within the FEMA-designated 100-year floodplain but outside of the mapped 100-year floodplain. The project would construct a retaining wall that would range from 9 to 14 feet tall around the west and south ends of lot 203 and the south end of lot 202. The post-development floodplain would be located approximately 15 feet south of the retaining wall.

- In the southern portion of the site east of the drainage channel, a small portion of proposed Blue Anchor Drive and Red Ravine Drive, portions of proposed lots 184, 183, 208, 209, 212, 214, and 215, and all (or nearly all) of proposed lots 185, 204, 205, 206, 207, and 213 would be within the FEMA-designated 100-year floodplain. In addition, most of lot 207, portions of lots 185, 208, and 209, and a portion of Red Ravine Drive are located within the mapped 100-year floodplain. A retaining wall would be constructed along the western boundary of the westernmost lots in this area, which would result in the post-development floodplain being located a minimum of 5 feet from the retaining wall.
- In the southern portion of the site, Doc Barnes Drive would be constructed through the FEMA-designated and the mapped 100-year floodplain. The roadway would be constructed above the base flood elevation. Box culverts are proposed for Doc Barnes Drive to permit stormwater flows to pass with minimal water surface impacts (Appendix H).

Recognizing that the FEMA-designated floodplain may not be accurate, FEMA provides property owners with a process to have the FEMA floodplain maps revised based on site-specific data. In this process, prior to finalizing the project improvement plans, the project applicant would support the Town in preparing and submitting an application for a Conditional Letter of Map Revision (CLOMR). The application would include improvement plans, a topographic map and a hydrology and hydraulic study depicting the pre-project and post-project 100-year floodplain on site. The study would also document conditions of the project site and upstream and downstream properties to demonstrate whether the project would have any effect on those areas. FEMA would review the information and if it is found to be acceptable, FEMA may issue a CLOMR to the Town stating that if the project is constructed as shown on the improvement plans, a revision to the FIRM would be warranted. Following construction, the project engineer would provide as-built plans for the Town to submit to FEMA. If the work is not in compliance with the CLOMR application, a revised hydrology and hydraulic study would be prepared. If the work is in compliance with the CLOMR application, FEMA would conditionally approve the LOMR and notify the Town to publish a notice in a local newspaper advising that the Town intends to revise the floodplain map. If no requests for data or objections based on scientific or technical data are received, FEMA would issue a LOMR, which would revise the floodplain mapping. **Mitigation Measure 4.11b** requires the project applicant to obtain a CLOMR prior to improvement plan approval to ensure that modification to the floodplain designation would not result in adverse effects related to flooding on site or off site.

While the proposed project would place grading and structures within the mapped 100-year pre-development floodplain, the site would be engineered, through grading and construction of retaining walls, to ensure that no development would be located within the post-development floodplain. This would ensure that the project is consistent with General Plan requirements to preclude development within the post-development floodplain.

However, the project would result in direct impacts to riparian vegetation and would disturb land within 100 feet of riparian vegetation. General Plan Natural Resource and Open Space Policy 6 establishes protection for streams and creeks by requiring that "development adjacent to streams shall be designed, constructed, and maintained to avoid adverse impacts on riparian vegetation, stream bank stability, and stream water quality to the maximum extent feasible." This policy initially requires that development be located outside of the 100-year floodplain or 100 feet from the edge of riparian vegetation, whichever is greater, but provides for exceptions to this requirement, allowing that:

- Lesser setbacks may be approved where site-specific studies of biology and hydrology, prepared by qualified professionals approved by the Town, demonstrate that a lesser setback will provide equal protection for stream resources;
- Uses allowed by the applicable zoning district as permitted or conditional uses may be permitted within the floodplain or within 100 feet of riparian vegetation subject to issuance of a conditional use permit;
- Development projects proposing to encroach into a creek corridor or creek/wetland setback that cannot avoid disturbance of riparian vegetation may replace riparian vegetation (on site or off site) or pay a mitigation fee for restoration elsewhere (e.g., wetland mitigation banking program);
- Newly-created parcels may include wetland and riparian setback areas as long as sufficient room is provided outside these setback areas to ensure that property owners will not place improvements within areas that require protection.

As discussed in Impact 4.11-2, the proposed project would reduce peak flows during the 100-year event, and would therefore not contribute additional volume of stormwater runoff that could result in flooding on site or off site. The proposed placement of limited fill and roadway structures within the pre-development 100-year floodplain would not result in any on-site or off-site flooding hazards because no development would be located within the post-development floodplain and because the proposed stormwater BMPs and detention basins would ensure that the post-development stormwater runoff rates and volumes would be reduced to 90% of the pre-development levels.

This conclusion applies to all POD from the project site, including POD A, where drainage flows to the existing 66-inch culvert running under I-80, which is undersized to carry modeled 100-year storm flows. As shown in Table 4.11-2, the upstream 100-year storm flow reaching the I-80 culvert would be reduced by approximately 56 cubic feet per second, with the construction of Doc Barnes Drive and on-site detention (Appendix H). With implementation of **Mitigation Measure 4.11b** to ensure that the FEMA-designated floodplain is revised consistent with the proposed development, there would be no structures placed within the post-development 100-year floodplain and the

project would not contribute to on-site and/or off-site flooding. After implementation of **Mitigation Measure 4.11b**, this impact would be reduced to **less than significant**.

IMPACT 4.11-4:	Project implementation could deplete groundwater supply.
SIGNIFICANCE:	No Impact
MITIGATION:	None
RESIDUAL SIGNIFICANCE:	No Impact

Domestic water service to the project site and surrounding residential development is provided by the Placer County Water Agency from existing contracts. The proposed project includes no on-site groundwater extraction to supply water demands of the project. Provision of water supplies is evaluated in further detail in Section 4.12, Public Services and Utilities.

The proposed project would increase the amount of impervious surfaces by developing roads, driveways, buildings, and hardscape landscaping. This increase in the overall area of impervious surface on the site would reduce the amount of infiltration of surface water to the near surface soils. According to the California Department of Water Resources, the project site is east of the North American subbasin of the Sacramento Valley Groundwater Basin, which covers 351,000 acres (548 square miles between the Bear River in the north, the Feather River in the west, and the Sacramento River in the south). The eastern boundary is a north/south line extending from the Bear River south to Folsom Lake, which passes approximately 2 miles east of the town of Lincoln from Sacramento to the northern boundary of California. In the project vicinity, the groundwater basin extends approximately 1 mile east of the I-80/State Route 65 interchange and extends northerly toward the Clover Valley area in the City of Rocklin (PCWA 2007). The project site is approximately 2 miles east of the groundwater basin. Thus, no recharge of the groundwater basin occurs directly from the project site. However, drainage that leaves the project site and enters Secret Ravine contributes to groundwater recharge once it travels into the groundwater basin area.

The proposed project would have no effect on infiltration patterns within the groundwater basin. As discussed in Impact 4.11-2, the proposed project would implement BMPs and stormwater detention to ensure that post-development stormwater flows are reduced to 90% or less of pre-development flow rates; however, the total volume of stormwater discharge from the site would not be reduced. Therefore, the project would have **no impact** to groundwater supply or recharge.

IMPACT 4.11-5:	Project construction and operation could contribute to cumulative violations of water quality standards and/or waste discharge requirements.
SIGNIFICANCE:	Less Than Significant
MITIGATION:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

The geographic area for consideration of cumulative water quality impacts is the Town of Loomis, and the cumulative development scenario includes buildout of the Town of Loomis General Plan and the list of approved and proposed projects within the Town, as summarized in Section 4.1, Land Use. Future development within the Town could result in development of undeveloped land that could lead to potential increases in polluted runoff to local surface waters. However, future development, similar to the proposed project, would be subject to the NPDES MS4 permit and would be required to comply with BMPs in the Placer County Stormwater Management Manual; LID measures to reduce pollutants; the Town's Grading Ordinance; General Plan policies related to hydrology and water quality; and the General Construction NPDES permit. New development and redevelopment projects would require implementation of plans that identify and implement a variety of BMPs to reduce the potential for erosion or sedimentation. Compliance with these regulations would ensure that each development in the cumulative scenario would not cause an increase in stormwater runoff rates or volumes and would not introduce new sources of surface water and groundwater pollution. Therefore, the cumulative impacts to water quality would be **less than significant**, and there would be no significant cumulative impact to which the project could contribute.

IMPACT 4.11-6:	Project construction and operation could result in increased numbers of residents and structures exposed to a regional 100-year flood event in the cumulative scenario.
SIGNIFICANCE:	Less Than Significant
MITIGATION:	None
RESIDUAL SIGNIFICANCE:	Less Than Significant

The geographic area for consideration of cumulative flooding hazards is the Town of Loomis, and the cumulative development scenario includes buildout of the Town of Loomis General Plan,

and the list of approved and proposed projects within the Town, as summarized in Section 4.1, Land Use. Future development would result in an increase in impervious areas, which could potentially result in increases in stormwater runoff and the exposure of residents and structures to a 100-year flood event. However, Natural Resources and Open Space Policy 6(a) of the Town of Loomis General Plan requires that all proposed structures and grading be constructed outside the post-development 100-year floodplain and the Placer County Stormwater Management Manual requires that development projects implement stormwater management sufficient to ensure that post-development stormwater discharge rates are reduced to 90% of the pre-project condition.

As discussed under Impact 4.11-3, the proposed project would reduce peak flows during the 2-year, 10-year, and 100-year storm events and would have a less-than-significant impact on flooding. Similar to the proposed project, other projects that would increase impervious area and the potential for runoff would be required to construct detention basins and/or implement BMPs on site in accordance with the reductions in peak flows off site required by the Placer County Stormwater Management Manual. Other projects in the region would implement similar BMPs and LIDs as the proposed project and would not cause an increase in flood elevations or the extent of the 100-year floodplain. Therefore, under the cumulative scenario, there would not be an increase in 100-year flood events or flood elevations and the cumulative impact would be **less than significant.** There would be no significant cumulative impact to which the project could contribute.

4.11.4 Mitigation Measures

4.11a Prior to issuance of a grading permit, the project applicant shall submit a final drainage report that includes the necessary design parameters for each proposed detention basin to ensure that the post-development stormwater runoff rate at each point of discharge from the project site is reduced to 90% or less of the pre-development runoff rate.

4.11b Prior to issuance of a grading permit, the project applicant shall submit to the Town of Loomis a completed application to the Federal Emergency Management Agency (FEMA) requesting a Conditional Letter of Map Revision. At completion of construction of the components of the project within the existing FEMA-designated 100-year floodplain, the project applicant shall submit to the Town of Loomis as-built engineering plans for the project site. The Letter of Map Revision shall be issued by FEMA prior to issuance of a certificate of occupancy for any lot within the FEMA-designated 100-year floodplain.

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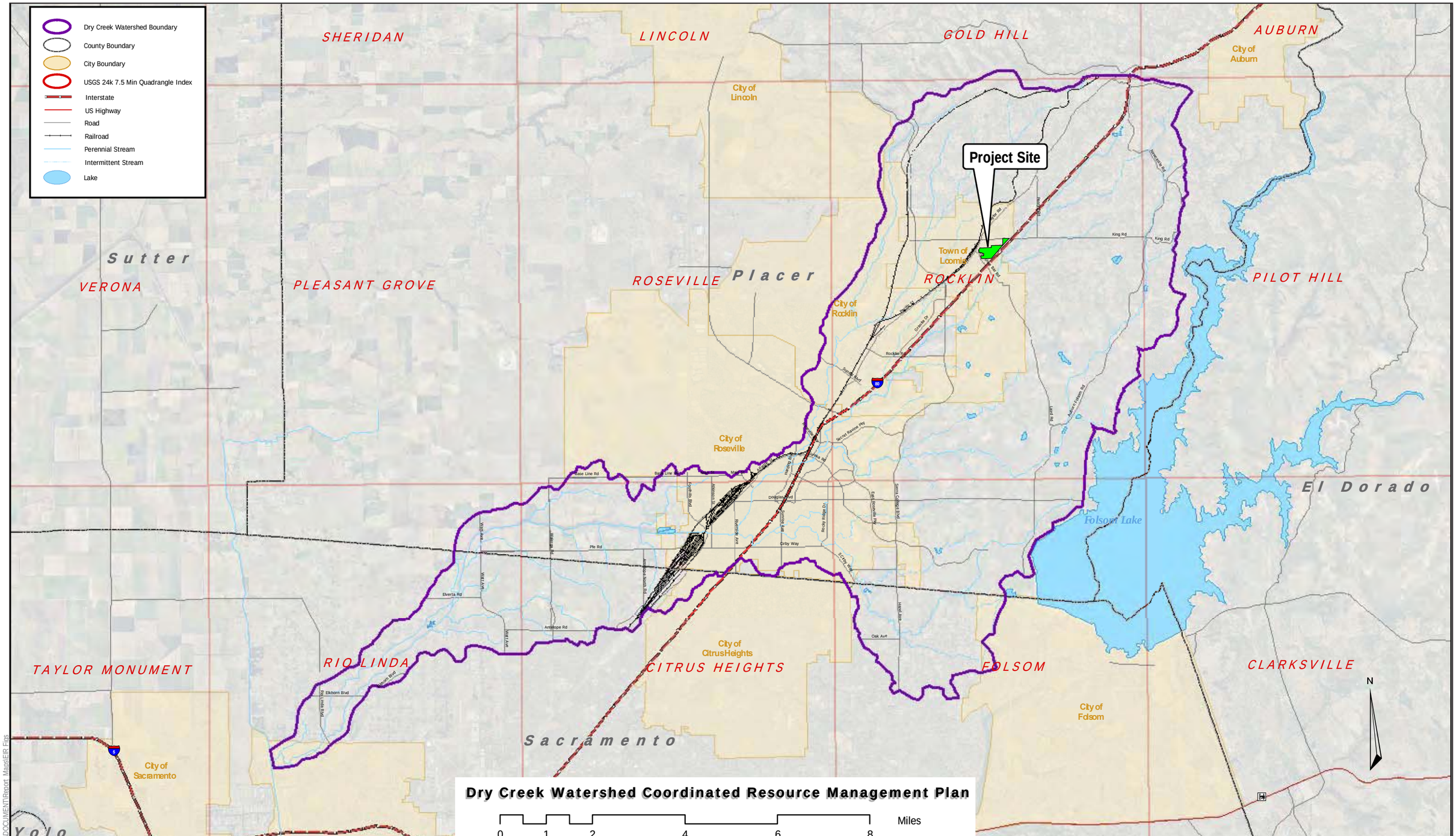

SOURCE: PLACER COUNTY COMMUNITY DEVELOPMENT DEPT. WEBSITE

DUDEK

FIGURE 4.11-1

Regional Hydrology

The Village at Loomis Draft EIR

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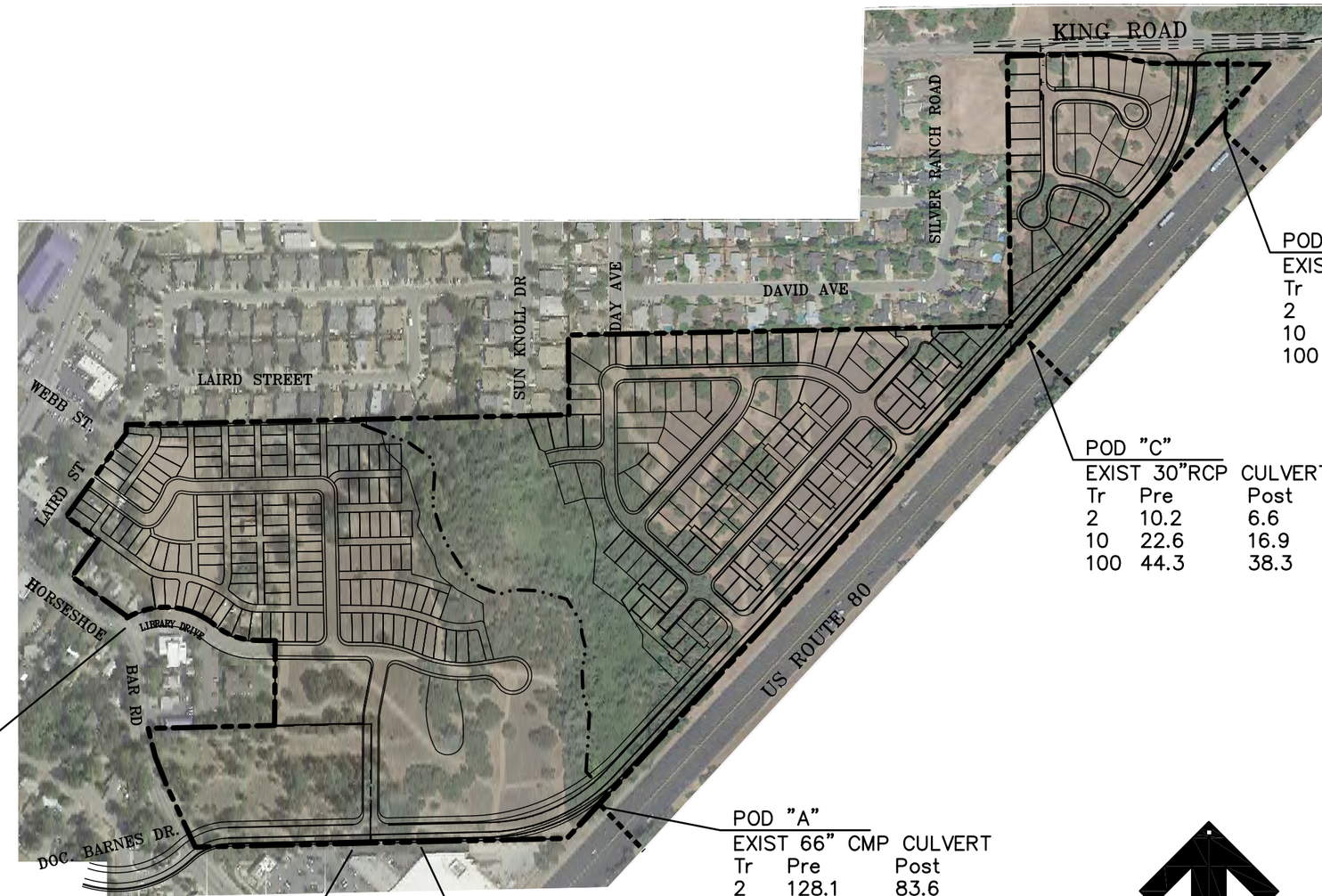
NOTES:
1. ALL FLOWS IN CUBIC FEET PER SECOND.
2. POD = POINT OF DISCHARGE
3. Tr = STORM RECURRENCE INTERVAL (YEARS)



POD "B"
EXIST 48"RCP CULVERT

Tr	Pre	Post
2	32.5	32.5
10	80	79.8
100	162.7	162.3

POD "C"
EXIST 30"RCP CULVERT

Tr	Pre	Post
2	10.2	6.6
10	22.6	16.9
100	44.3	38.3

POD "F"
EXIST DRAINAGE INLET

Tr	Pre	Post
2	1.2	1.0
10	3.2	2.8
100	6.8	6.1

POD "A"
EXIST 66" CMP CULVERT

Tr	Pre	Post
2	128.1	83.6
10	290.5	240.5
100	549.1	492.7

POD "E"
EXIST DRAINAGE INLET

Tr	Pre	Post
2	1.5	0
10	3.5	0
100	7.0	0

POD "D"
EXIST DRAINAGE INLET

Tr	Pre	Post
2	0.7	0
10	2.8	0
100	7.0	0

NOTE: POD D & E ARE REDIRECTED INTO POD A SUB BASIN DRAINAGE SYSTEM

N

400 0 200 400 800

SCALE: 1" = 400

SOURCE: TLA ENGINEERING AND PLANNING 2014

DUDEK

FIGURE 4.11-2

Stormwater Runoff Summary

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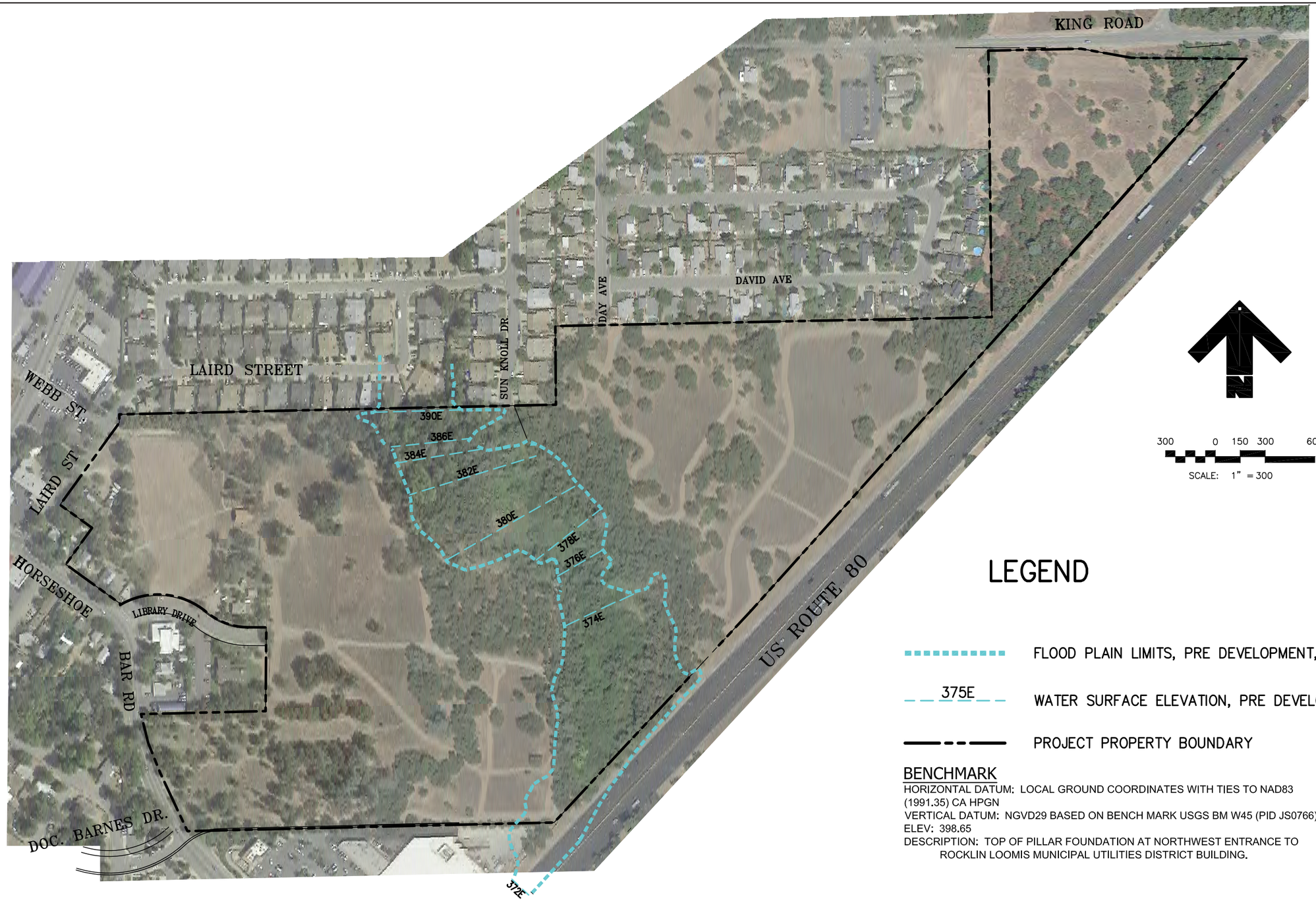

LEGEND

FLOOD PLAIN LIMITS, PRE DEVELOPMENT, 100–YEAR

375E WATER SURFACE ELEVATION, PRE DEVELOPMENT 100–YEAR

PROJECT PROPERTY BOUNDARY

BENCHMARK

HORIZONTAL DATUM: LOCAL GROUND COORDINATES WITH TIES TO NAD83 (1991.35) CA HPGN
VERTICAL DATUM: NGVD29 BASED ON BENCH MARK USGS BM W45 (PID JS0766)
ELEV: 398.65
DESCRIPTION: TOP OF PILLAR FOUNDATION AT NORTHWEST ENTRANCE TO ROCKLIN LOOMIS MUNICIPAL UTILITIES DISTRICT BUILDING.

DUDEK

SOURCE: TLA ENGINEERING AND PLANNING 2014

FIGURE 4.11-3
Pre-Project 100-Year Floodplain

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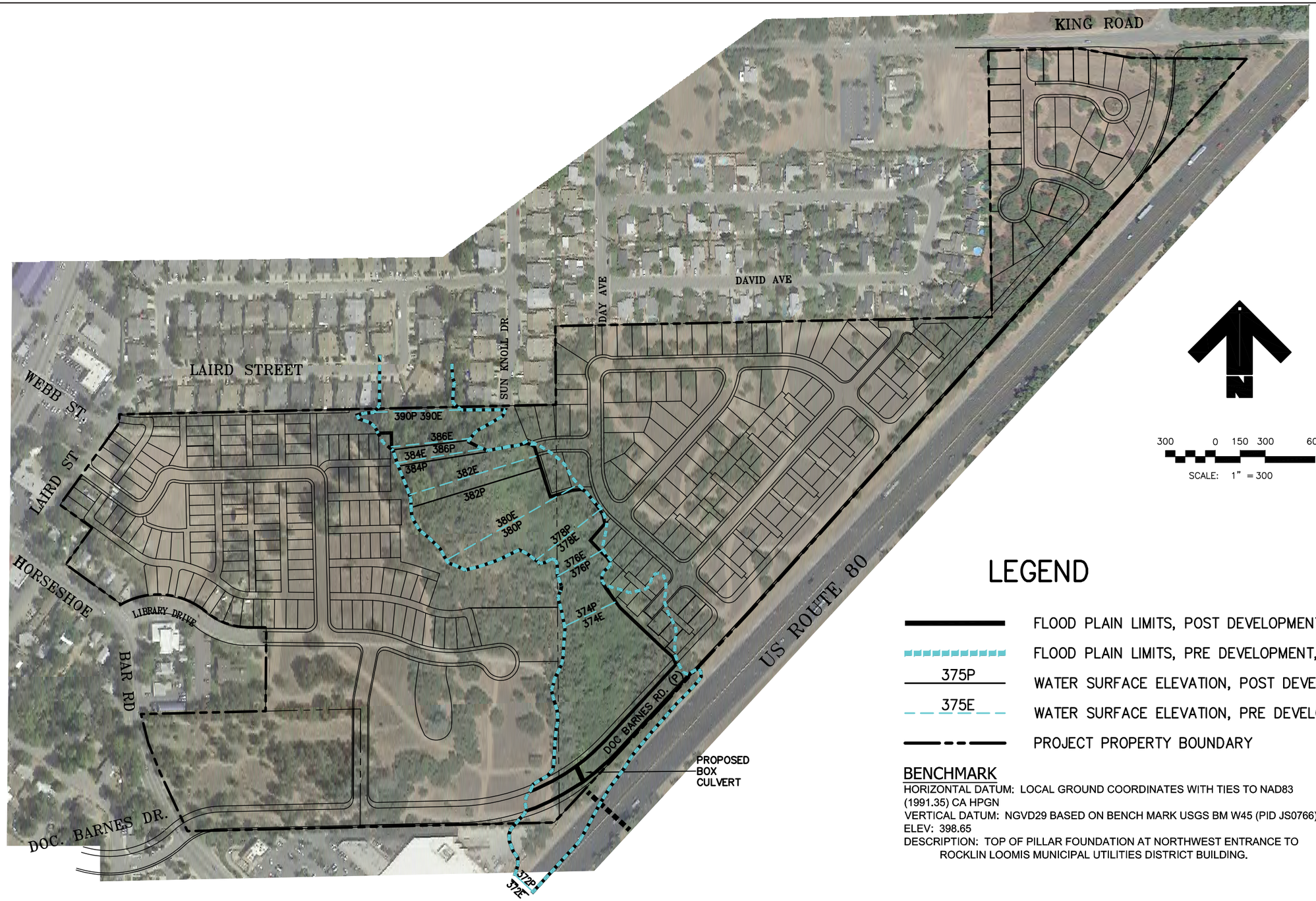

LEGEND

- FLOOD PLAIN LIMITS, POST DEVELOPMENT, 100–YEAR
- FLOOD PLAIN LIMITS, PRE DEVELOPMENT, 100–YEAR
- 375P — WATER SURFACE ELEVATION, POST DEVELOPMENT 100–YEAR
- 375E — WATER SURFACE ELEVATION, PRE DEVELOPMENT 100–YEAR
- PROJECT PROPERTY BOUNDARY

BENCHMARK

HORIZONTAL DATUM: LOCAL GROUND COORDINATES WITH TIES TO NAD83 (1991.35) CA HPGN
VERTICAL DATUM: NGVD29 BASED ON BENCH MARK USGS BM W45 (PID JS0766)
ELEV: 398.65
DESCRIPTION: TOP OF PILLAR FOUNDATION AT NORTHWEST ENTRANCE TO ROCKLIN LOOMIS MUNICIPAL UTILITIES DISTRICT BUILDING.

DUDEK

SOURCE: TLA ENGINEERING AND PLANNING 2014

FIGURE 4.11-4

Pre- and Post-Project 100-Year Floodplain

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