

3.10 HYDROLOGY AND WATER QUALITY

Comments received on the Notice of Preparation (NOP) were reviewed during preparation of this SEIR. A comment letter was submitted by the Sacramento County Mosquito & Vector Control District requesting that the off-site drainage improvements be designed so as not to induce an increase in mosquito breeding. A comment letter submitted by the Sacramento County Farm Bureau also requested that the SEIR evaluate how the conversion of agricultural land to urban development would affect groundwater supply for continuing off-site agricultural uses in the Project vicinity. In addition, a comment letter was submitted by the Sacramento Local Agency Formation Commission (LAFCo), stating that LAFCo “maintains an interest” in the Project’s impacts on water availability and stormwater management and flooding. A comment was also received by an individual expressing concern related to groundwater supply and the required Groundwater Sustainability Plan. The City reviewed and considered this information during preparation of this section.

Comments were also received by an individual requesting that the SEIR evaluate the effects of climate change on water availability. The California courts have stated that the required focus of an EIR is on the physical impacts of a project on the environment, not the impacts of the environment on a project. Therefore, the potential effects of climate change on water availability are not evaluated in this document. However, water supply planning efforts that are undertaken by a variety of agencies such as the City of Elk Grove, Sacramento County Water Agency, and the groundwater sustainability agencies that are currently jointly preparing the Groundwater Sustainability Plan for the South American Subbasin (see the subsection below entitled “Groundwater”), may consider climate change. The same individual also requested that the SEIR evaluate the financial cost to the community of improving water infrastructure and providing water to the proposed development. However, pursuant to the CEQA Guidelines Section 15131, “economic or social effects of a project shall not be treated as significant effects on the environment”, and therefore such impacts are not evaluated in this SEIR. Please see also Section 3.15, “Utilities and Service Systems,” for additional detailed information related to water supply planning and infrastructure.

3.10.1 ENVIRONMENTAL SETTING

The Project site and off-site improvement areas are located in the Sacramento River hydrologic basin, in the Lower Deer Creek Watershed. The watershed generally slopes from northeast to southwest with an average slope of about 0.10 percent. Rainfall in the vicinity of the Project site occurs primarily in the winter and early spring.

SURFACE WATER HYDROLOGY

The Project site does not contain any undisturbed natural stream corridors. The surface water resources nearest to the Project site are Deer Creek and the Cosumnes River, which are approximately 0.25 mile and 0.5 mile to the east, respectively.

For modeling purposes, three subwatersheds were designated at the Project site: Mosher, Mahon, and Grant Line. The Grant Line subwatershed extends off site to the north, across Grant Line Road and includes the area between the UPRR and Mosher Road, north to Kent Street. The Grant Line subwatershed also includes the Waterman 75 project, on the north side of Grant Line Road. All three subwatersheds discharge to Deer Creek at different locations, through a series of ditches and by overland runoff. Three unnamed ponds located off the Project site to the east and south (approximately 0.75 acres, 15 acres, and 8 acres, respectively) collect much of this runoff

before discharging to Deer Creek. Runoff from Grant Line Road is conveyed in a piped storm drain system to a ditch on the south side of the road, where flows are conveyed to the west, parallel to Grant Line Road. This roadside ditch conveys runoff to another ditch that runs south, parallel to the UPRR, along the southwestern border of the Project site. This ditch adjacent to the UPRR ultimately drains to an approximately 8-acre pond off the Project site to the south. A short reach of open channel conveys runoff from the 8-acre pond to Deer Creek (West Yost Associates 2020).

Within the Project site, past agricultural practices have modified the natural stormwater runoff patterns such that an unusually small amount of peak runoff is ultimately discharged to Deer Creek to the south. These practices included field leveling and the reuse of captured stormwater within a system of ditches, culverts, and irrigation-type sump ponds (including the three off-site ponds listed above). Pumps within the sump ponds are used for irrigating fields through general field flooding practices, resulting in increased infiltration within the fields and reduced runoff (West Yost Associates 2020).

The Waterman 75 Project is a 95-acre mixed use development project proposed for the area north of the Waterman Road/Grant Line Road intersection. As noted by West Yost (2020), a previous drainage study for the Waterman 75 Project established the size and alignment of a future pipeline that will convey stormwater runoff from Waterman 75 to Deer Creek. The pipeline was planned for a 48-inch diameter along the future extension of Waterman Road southeast along the border of the City-owned parcel within the Project site, and an easement for this drainage pipeline was obtained along this path through the Project site to the existing off-site 15-acre pond.

SURFACE WATER QUALITY

Section 303(d) of the federal Clean Water Act requires each state to periodically prepare a list of all surface waters in the state for which beneficial uses of the water (e.g., drinking, recreation, aquatic habitat, and agricultural use) are impaired by pollutants. Beneficial uses for waters in the project region are contained in the *Water Quality Control Plan for the Sacramento-San Joaquin River Basins* (Basin Plan), adopted by the Central Valley Regional Water Quality Control Board (RWQCB) in 2018, which also provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River basins, including the Delta.

Section 303(d) of the CWA also requires states to identify waters where the permit standards, any other enforceable limits, or adopted water quality standards are still unattained. The law requires states to develop Total Maximum Daily Loads (TMDLs) to improve the water quality of impaired water bodies. TMDLs are the quantities of pollutants that can be safely assimilated by a water body without violating water quality standards. TMDLs are developed for impaired water bodies to maintain beneficial uses, achieve water quality objectives, and reduce the potential for future water quality degradation. National Pollutant Discharge Elimination System (NPDES) permits for water discharges (for both construction and operation) must take into account the pollutants for which a water body is listed as impaired.

Deer Creek discharges to the Cosumnes River. The Cosumnes River is listed as an impaired water body on the California Clean Water Act Section 303(d) list (State Water Resources Control Board 2017). The Cosumnes River is listed for toxicity, and TMDL criteria are still being developed. Because a portion of the City-owned parcel was historically used as an orchard, residual pesticides and herbicides could be present in the soil, and therefore could also be present in the runoff conveyed by the agricultural drainage ditches.

FLOODING

According to the current Federal Emergency Management Agency (FEMA 2012) Flood Insurance Rate Maps (FIRMs), those portions of the Project site that would pre-zoned and annexed as part of the proposed Project are not located in a 100-year flood hazard zone (see Exhibit 3.10-1). A small area of the Project site, designated for future parks and open space uses, is located in a 100-year flood hazard zone (Zone AE). The off-site drainage channel improvements, the off-site 60-inch underground drainage pipeline, and the off-site 15-acre and 8-acre ponds are also within the mapped 100-year flood hazard zone (Zone AE) (see Exhibit 3.10-1).

Additional small areas of land in the southern portion of the Project site are within the 200-year flood zone designated as part of the Central Valley Flood Protection Plan (CVFPP) and updated by subsequent floodplain studies commissioned by the City of Elk Grove for local creek systems that have a watershed area of at least 10 square miles (City of Elk Grove 2019a). The 200-year flood zone includes a portion of the area proposed for heavy industrial land uses. In addition, the extreme southeastern edge of the area where future mixed-use development could occur is also within the City-mapped 200-year flood zone (see Exhibit 3.10-1).

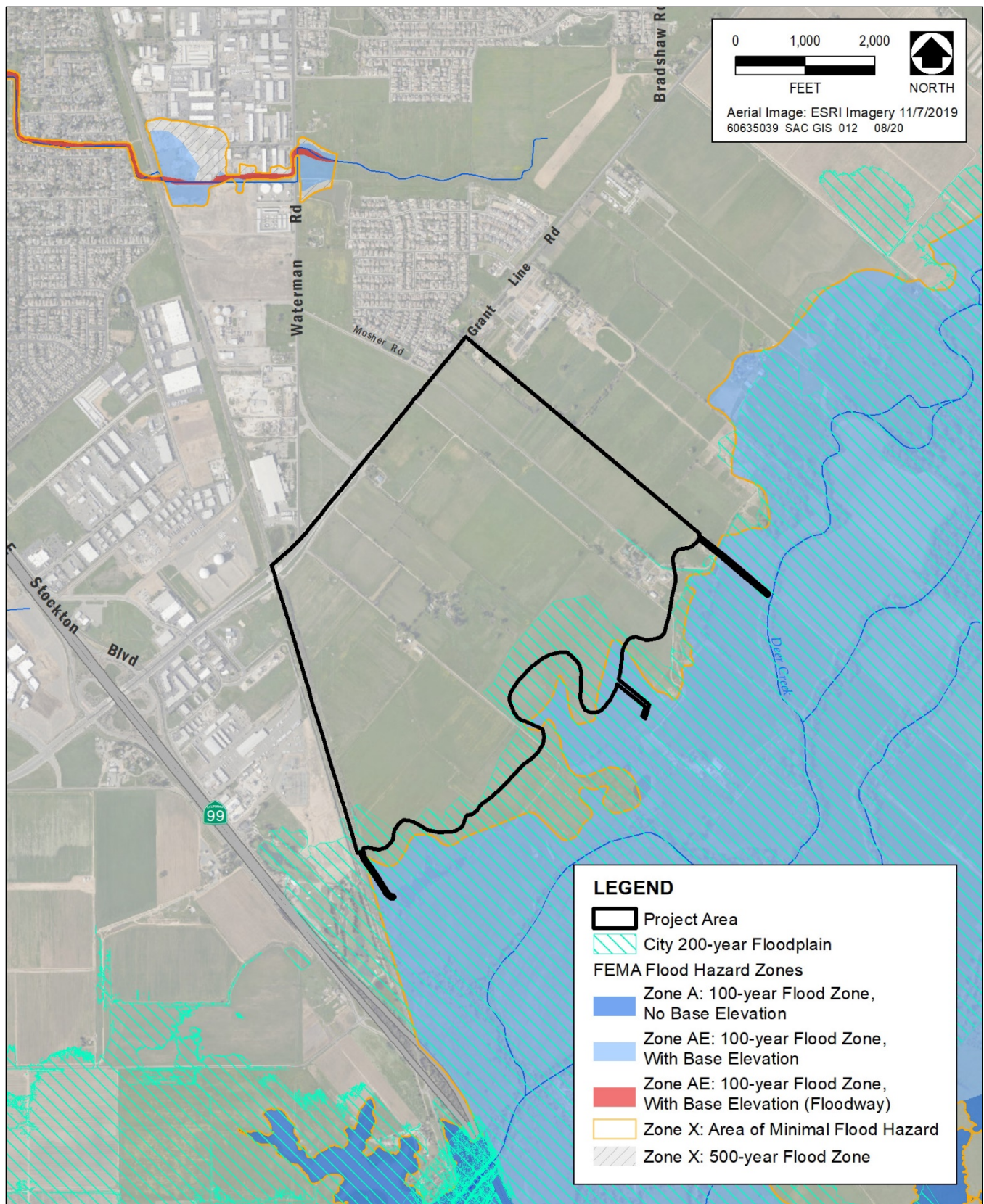
The off-site ponds that would receive Project site drainage range from approximately 0.5 acres to 15 acres in size. Given the long distance of the Project site to active seismic sources (see Section 3.7, “Geology, Soils, Minerals, and Paleontological Resources”), a seismic seiche at any of these ponds is unlikely. Since the Project site is approximately 150 miles from the Pacific Ocean, tsunamis would not represent a hazard at the Project site.

GROUNDWATER

The Project site is located within the Sacramento Valley Groundwater Basin, South American Subbasin (Basin ID 5-21.65) (identified locally in some water supply documents as the Central Basin, which has similar boundaries). The active river and stream channels where extensive sand and gravel deposits exist, particularly along the American, Cosumnes, and Sacramento River channels, are the primary source of recharge for the aquifer system (Sacramento Central Groundwater Authority 2012).

The California Department of Water Resources (DWR) has determined that the South American Subbasin is a high priority basin; however, is not in a condition of critical overdraft (DWR 2019). The Sacramento Central Groundwater Authority submitted an Alternative Groundwater Sustainability Plan (Alternative GSP) in 2016 (Sacramento Central Groundwater Authority 2016), which consisted of Sacramento Central Groundwater Authority’s Central Sacramento County Groundwater Management Plan that was originally prepared in 2006. However, DWR has since required that a standard GSP be prepared. There are six Groundwater Sustainability Agencies (GSAs) within the South American Subbasin: Sacramento County, Northern Delta, Omochumne-Hartnell Water District, Reclamation District 551, Sacramento Central Groundwater Authority, and the Sloughouse Resource Conservation District. Under a collective Memorandum of Understanding entered into in 2020, the GSAs will be preparing a GSP by January 31, 2022 (as required by DWR under the Sustainable Groundwater Management Act) (South American Groundwater Subbasin 2020).

As described in the 2019 SOIA EIR, the Sacramento Central Groundwater Authority’s Alternative GSP analyzed the change in groundwater storage in the Central Basin from 2005 to 2015. The difference in total annual average change in storage over the 2005 to 2015 timeframe was calculated to be approximately 4,000 acre-feet per year (afy). This equates to four to five large municipal wells in the subbasin and is representative of a basin in



Sources: City of Elk Grove 2019a, FEMA 2012

Exhibit 3.10-1. Flood Zones

equilibrium where natural recharge from deep percolation, hydraulically connected rivers, and boundary subsurface inflows are keeping up with active pumping and changes in hydrology. Over the 10-year period, the basin continued to recover at its deepest points and the Sacramento Central Groundwater Authority is now focused on working with outside agencies to keep water from leaving the basin, and improving basin conditions where and when possible (Sacramento Central Groundwater Authority 2016). Groundwater storage in the recharge area underlying Elk Grove and surrounding areas is continuing to increase as a result of recharge from the construction of large conjunctive use and surface water infrastructure facilities, increased use of recycled water, and water conservation. The increase in storage in this portion of the subbasin has filled the long-term cone of depression and has eroded the ridge of higher groundwater separating it from the Cosumnes Subbasin (Sacramento Central Groundwater Authority 2016).

GROUNDWATER EXTRACTION AND SUSTAINABLE YIELD

The Water Forum Agreement set the long-term average annual extraction of groundwater (i.e., sustainable yield) from the Central Basin at 273,000 afy. As shown in Table 3.10-1, groundwater extraction has been within the Water Forum Agreement's sustainable yield from 2005 to 2015. The least amount of groundwater extraction over this period occurred in 2011 (202,379 afy) and the most occurred in 2008 (256,954 afy). The average groundwater extraction during the drought years (2011–2015) was approximately 219,000 afy (Sacramento Central Groundwater Authority 2016) (Table 3.10-1). Irrigation and domestic water demand at the Project site is currently met with private on-site wells.

3.10.2 REGULATORY FRAMEWORK

CITY OF ELK GROVE GENERAL PLAN

The City's General Plan (City of Elk Grove 2019b), contains the following policies related to hydrology and water quality that are applicable to the proposed Project.

Natural Resources

- ▶ **Policy NR 3-1:** Ensure that the quality of water resources (e.g., groundwater, surface water) is protected to the extent possible.
- ▶ **Policy NR 3-12:** Advocate for native and/or drought-tolerant landscaping in public and private projects.
- ▶ **Policy NR-3-12a:** Require the planting of native and/or drought-tolerant landscaping in landscaped medians and parkway strips to reduce water use and maintenance costs.
- ▶ **Policy NR 3-2:** Integrate sustainable stormwater management techniques in site design to reduce stormwater runoff and control erosion during and after construction. Where feasible, require on-site natural systems such as vegetated bioswales, green roofs, and rain gardens in the treatment of stormwater to encourage infiltration, detention, retention, groundwater recharge, and/or water reuse on-site. Roads and structures shall be designed, built and landscaped so as to minimize erosion during and after construction. Post-development peak storm water run-off discharge rates and velocities shall be designed to prevent or reduce downstream erosion, and to protect stream habitat.

Table 3.10-1 Central Basin Groundwater Extraction, 2005-2015											
	Water User					Groundwater Extraction (afy)					
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 ²
Urban	78,070	80,277	79,780	84,498	81,287	73,680	68,679	66,478	64,547	54,610	54,111
Agriculture ¹	167,062	166,148	165,234	164,320	163,406	162,494	116,500	134,600	152,400	133,900	140,000
Rural	7,852	7,946	8,041	8,136	8,231	8,326	17,200	23,400	22,900	23,100	23,000
Total	252,984	254,321	253,055	256,954	252,924	244,498	202,379	224,478	239,847	211,610	217,111

Notes: afy = acre-feet per year.

¹ Improved agricultural water supply requirement estimates using State DWR's Integrated Water Flow Model (IWFM) Demand Calculator occurred in 2011.

² Agriculture and Rural extractions for calendar year 2015 were not available and is based on the nominal average of previous 3 years.

Source: Sacramento Central Groundwater Authority 2016

- ▶ **Policy NR 3-3:** Implement the City’s National Pollutant Discharge Elimination System permit through the review and approval of development projects and other activities regulated by the permit.
- ▶ **Policy NR 3-7:** Continue to eliminate water use inefficiencies and maintain ongoing communication with water suppliers to ensure sustainable supply.
- ▶ **Policy NR 3-8:** Reduce the amount of water used by residential and nonresidential uses by requiring compliance with adopted water conservation measures.
- ▶ **Policy NR 3-9:** Promote the use of greywater systems and recycled water for irrigation purposes.

Services, Health, and Safety

- ▶ **Policy ER-2-1:** Oppose the construction of flood management facilities that would alter or reduce flows in the Cosumnes River and support retention of the Cosumnes River floodplain in non-urban uses consistent with location in an area subject to flooding
- ▶ **Policy ER 2-2:** Require that all new projects not result in new or increased flooding impacts on adjoining parcels or on upstream and downstream areas.
- ▶ **Policy ER 2-5:** Give priority to the designation of appropriate land uses in areas subject to flooding to reduce risks to life and property. Construction of new flood management projects shall have a lower priority, unless land use controls (such as limiting new development in flood-prone areas) are not sufficient to reduce hazards to life and property to acceptable levels.
- ▶ **Policy ER 2-6:** Development shall not be permitted on land subject to flooding during a 100-year event, based on the most recent floodplain mapping prepared by FEMA or updated mapping acceptable to the City of Elk Grove. Potential development in areas subject to flooding may be clustered onto portions of a site which are not subject to flooding, consistent with other policies of this General Plan.
- ▶ **Policy ER 2-7:** A buildable area outside the 100-year floodplain must be present on every residential lot sufficient to accommodate a residence and associated structures. Fill may be placed to create a buildable area only if approved by the City and in accordance with all other applicable policies and regulations. The use of fill in the 100-year floodplain to create buildable area is strongly discouraged and shall be subject to review to determine potential impacts on wildlife, habitat, and flooding on other parcels.
- ▶ **Policy ER-2-11:** Vehicular access to the buildable area of all parcels must be at or above the 10-year flood elevation.
- ▶ **Policy ER-2-12:** Creation of lots whose access will be inundated by flows resulting from a 10-year or greater storm shall not be allowed. Bridges or similar structures may be used to provide access over creeks or inundated areas, subject to applicable local, State, and federal regulations.
- ▶ **Policy ER-2-17:** Require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans.

- ▶ **Policy ER-2-18:** Drainage facilities should be properly maintained to ensure their proper operation during storms.
- ▶ **Policy ER 6-6:** Work with the Sacramento County Water Agency, Elk Grove Water Agency, and other water utilities to support programs and conservation activities intended to help water customers voluntarily conserve approximately 10 percent over time.
- ▶ **Policy ER 6-7:** Enforce the City’s water-efficient landscape ordinance that is as strict as or stricter than the State Water Resources Control Board regulations affecting local water agencies, and ensure future state updates are incorporated in some form to the City’s ordinance. Provide opportunity for and encourage public reporting of violations.
- ▶ **Policy ER 6-8:** Continue to participate in the Sacramento Stormwater Quality Partnership to educate and inform the public about urban runoff pollution, work with industries and businesses to encourage pollution prevention, require construction activities to reduce erosion and pollution, and require developing projects to include pollution controls that will continue to operate after construction is complete.

Land Use

- ▶ **Policy LU-3-26:** Require annexation proposals to demonstrate compliance with all of the following criteria:
 - Criteria 1. The annexation proposal is consistent with the applicable Land Use Program and Study Area organizing principles.
 - Criteria 2. The annexation proposal is consistent with the City’s multimodal transportation goals, including integration of alternative transportation facilities as applicable.
 - Criteria 3. The annexation proposal provides for the planned, orderly, efficient development of the City within near-term time frames, recognizing opportunities or limitations to achieving substantially the same project within the existing City consistent with the General Plan. Options to achieve this criteria include, but are not limited to, a market demand/feasibility analysis.
 - Criteria 4. The annexation proposal is consistent with and furthers the Community Vision, as shown by demonstrating one or more of the following:
 - How the proposal furthers regional goals as expressed through the Sacramento Region Blueprint and the MTP/SCS.
 - How the proposal facilitates development of a regional attractor (e.g., Major Employment Center) or use that implements one or more of the General Plan Supporting Principles.
 - How the proposal furthers General Plan goals or objectives.
 - How the proposal provides key infrastructure or facilities needed to maintain or improve community service levels.

- Criteria 5. The annexation proposal does not reduce safety, utility, and infrastructure service levels within the City limits to less than the acceptable service standards or work level standards adopted by the City or the applicable service agency.
- Criteria 6. The annexation proposal identifies the source of future water supply for areas proposed for new development, in compliance with the Sustainable Groundwater Management Act.

3.10.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to hydrology and water quality if it would:

- ▶ violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- ▶ substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - i) result in substantial erosion or siltation on- or off-site;
 - ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
 - iii) 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; or
 - iv) impede or redirect flood flows;
- ▶ in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- ▶ conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

ISSUES NOT DISCUSSED FURTHER

The following issues were dismissed from further detailed analysis in the 2019 SOIA EIR because it was determined that no impact would occur; for the reasons explained below, these issues would also result in no impact for the proposed Project as evaluated in this SEIR.

Release of Pollutants from Seiche or Tsunami Hazards—The off-site ponds that would receive Project site drainage are approximately 0.5 acre, 8 acres, and 15 acres in size, respectively. Given the long distance of the Project site to active seismic sources (see Section 3.7, “Geology, Soils, Minerals, and Paleontological Resources”), a seismic seiche at any of these ponds is unlikely. Since the Project site is approximately 150 miles

from the Pacific Ocean, tsunamis would not represent a hazard at the Project site. Thus, there would be no impact and these issues are not discussed further in this SEIR.

IMPACT ANALYSIS

Impact 3.10-1: Violate Water Quality Standards or Waste Discharge Requirements.

Although the Project site and the off-site improvement areas are generally level, the potential exists for erosion to occur during construction activities, particularly during the rainy season. Construction activities such as vegetation removal, grading, staging, trenching, and excavation for foundations and utilities, would expose soils to erosive forces and could transport sediment into local drainages, thereby increasing turbidity, degrading water quality, and resulting in siltation to local waterways. Intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation of downstream surface waterbodies. The construction process may also result in accidental release of other pollutants to surface waters. Groundwater quality can be affected either by direct contact during construction-related earthmoving activities, or by indirect contact as a result of percolation of stormwater. Future development within the Project site would also result in changes to land use, natural vegetation, and an increase in impervious surface, and would introduce new sources of water pollutants, thereby producing “urban runoff.” Pollutants contained within urban runoff may include but are not limited to sediment, oxygen-demanding substances (e.g., organic matter), nutrients (primarily nitrogen and phosphorus), heavy metals, bacteria, oil and grease, and toxic chemicals, all of which can degrade receiving water quality. Earthmoving activities that could encounter groundwater are issued Waste Discharge Requirements (WDRs) by the Central Valley RWQCB through the project-specific permitting process; the WDRs contain provisions that are specifically intended to protect groundwater quality. Protection of surface water and groundwater quality from stormwater runoff and percolation is accomplished through implementation of a SWPPP with associated BMPs, and the City’s Municipal Separate Storm Sewer System (MS4) permit (discussed below).

Proposed projects that disturb more than 1 acre are required by law to comply with the provisions of the SWRCB’s NPDES General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Order 2009-009-DWQ as amended by Order 2012-0006-DWQ) (Construction General Permit). The Construction General Permit requires preparation of a SWPPP and implementation of associated BMPs that are specifically designed to reduce construction-related erosion. The Construction General Plan also requires preparation of a spill prevention plan. Construction techniques that could be implemented to reduce the potential for stormwater runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. BMPs that could be implemented to reduce erosion may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers, and re-seeding and mulching to revegetate disturbed areas.

The City encourages developers and engineers to use the water quality treatment principles in the *California Stormwater Quality Association (CASQA) Construction Best Management Practice Handbook* (CASQA 2019), which provides guidelines for planning, implementing, and maintaining effective, site-specific control measures to improve water quality and reduce adverse hydrologic effects, including hydromodification, from stormwater and non-stormwater discharges.

Site-specific development within the Project site would be required to adhere to City of Elk Grove NPDES permit requirements and City of Elk Grove Municipal Code requirements related to Stormwater Management and

Discharge Control (Chapter 15.12, “Stormwater Management and Discharge Control”). In addition, future development applications would be required to comply with Chapter 16.44, “Land Grading and Erosion Control,” of the Elk Grove Municipal Code. Chapter 16.44 requires submittal of grading plans that include elevations, location, extent and slope of all proposed grading; the location of any disposal areas, fills or other special features to be included in the work; the quantity of material to be excavated, the quantity of material to be filled, whether such excavation or fill is permanent or temporary, and the amount of such material to be imported to or exported from the site; a delineation of the area to be cleared and grubbed; a statement of the estimated starting date, grading completion date, and when site improvements will be completed; the location, implementation schedule, and maintenance schedule of all erosion control measures and sediment control measures to be implemented or constructed prior to, during or after the proposed activity; a description of measures designed to control dust and stabilize the construction site road and entrance; and a description of the location and methods of storage and disposal of construction materials. The plans must be consistent with the Citywide drainage strategy and would be reviewed by the Public Works Department before design review.

The City is part of the Sacramento Stormwater Quality Partnership, which manages stormwater pollutants through its NPDES/WDR permit to discharge stormwater from municipal separate storm sewer systems (MS4 Permit) issued by the Central Valley RWQCB in 2008. The MS4 permit requires the City to address post-construction stormwater runoff from new development and redevelopment projects by requiring both source and treatment control BMPs. The MS4 permit is implemented through Elk Grove Municipal Code Chapter 15.12, “Stormwater Management and Discharge Control,” which requires submittal of drainage plans that identify existing flows, measures to reduce potential hydrologic impacts, proposed drainage facilities, and plans to accommodate increased flows and connections to the City’s existing drainage facilities. Commercial facilities require appropriate NPDES permits/WDRs, and implementation of BMPs consistent with the CASQA *Industrial/Commercial BMP Handbook* (2014) or its equivalent, including annual reporting of any structural control measures and treatment systems. These measures to protect water quality are intended to support the City’s compliance with the *Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins* (Central Valley RWQCB 2018).

The City of Elk Grove’s Storm Drainage Master Plan (City of Elk Grove 2011) requires that low impact development (LID) must be incorporated into future development projects in the City, based on the requirements of the City’s NPDES stormwater permit. LID emphasizes the use of on-site natural features integrated with engineered hydrologic controls distributed throughout a watershed that promote infiltration, filtration, storage, and evaporation of runoff close to the source in order to manage stormwater (City of Elk Grove 2011). The Storm Drainage Master Plan recommends that all runoff from developed areas should be directed into detention basins: “The detention basins, in conjunction with LID, will provide all the necessary stormwater quality treatment and flood flow mitigation for the developing areas within the watershed” (City of Elk Grove 2011:15-11).

Finally, as noted in Section 3.9, “Hazards, Hazardous Materials, and Wildfire,” a portion of the City-owned parcel formerly contained an orchard. Certain organochlorine pesticides, which have been associated with orchards prior to 1972, can remain persistent in soils and there is the potential for these chemicals to be transported during construction to drainage ways in stormwater runoff resulting in impacts to water quality. However, as discussed in detail in Impact 3.9-2, if evidence of soil or groundwater contamination exceeding ambient or background concentrations is discovered during Project -related construction, work would cease, a qualified hazardous materials specialist would be notified for an evaluation, and the appropriate regulatory agency would be contacted. If deemed necessary by the appropriate agency, remediation would be undertaken in accordance with

existing federal, State, and local regulations/requirements and guideline established for the treatment of hazardous substances. In addition, compliance with the City's requirements related to water quality and wastewater discharge would ensure that stormwater would be captured and treated as necessary according to the Sacramento Stormwater Quality Partnership's MS4 permit, City's Storm Drainage Master Plan (City of Elk Grove 2011), and City Municipal Code requirements.

For all of the reasons stated above, as with the 2019 SOIA EIR (Impact 3.10-2), this impact is considered **less than significant**. In addition, the mitigation measure below will be imposed to further reduce the potential for an impact.

Mitigation Measures

Mitigation Measure 3.10-1: Implement Mitigation Measure 3.9-2 (2019 SOIA EIR Mitigation Measure 3.9-2)

Impact 3.10-2: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge.

The development of urban uses at the Project site would change the demands for water supply, which would be provided by the Sacramento County Water Agency's (SCWA) Zone 40. An amendment to the Zone 40 Water Supply Master Plan (Brown and Caldwell 2020) has been prepared, which considers the provision of water service to the proposed urban development at the Project site. In general, municipal water supply demands are less than agricultural water supply demands; therefore, water demands for development at the Project site (i.e., 1,383 acre-feet per year) is less than the current estimated water demand required for agricultural irrigation (1,982 acre-feet per year). The use of the existing on-site groundwater wells for agricultural irrigation and rural residential use would be discontinued when the project site is developed.

As shown in Table 3.15-2 in Section 3.15, "Utilities and Service Systems," SCWA would have surface water and groundwater supplies that exceed demands within Zone 40 from 2020 to 2040 in all water years. The majority of SCWA's water supply comes from groundwater wells (75 percent), with remaining supply met by surface water supplies from the American and Sacramento Rivers. SCWA pumps groundwater from the South American Subbasin of the Sacramento Valley Groundwater Basin. SCWA anticipates that, at buildout of its service area, and assuming that appropriative water and Central Valley Project (CVP) contract water continue to be available, surface water will account for approximately 70 percent of water supplies during average and wet years and account for approximately 30 percent of water supplies in the driest years, thereby resulting in a long-term average of approximately 60 percent of water demands being met by surface water supplies (Brown and Caldwell 2020). Therefore, water supply would be available to meet the water supply demands of future development within the Project site.

Although an Alternative GSP was submitted to DWR in 2016 under the Sustainable Groundwater Management Act, DWR has since required that a standard GSP be prepared for the South American Subbasin. The GSP is in process under a Memorandum of Understanding entered into by the six GSAs within the South American Subbasin and is planned for completion in January of 2022. The South American Subbasin is not in a condition of critical overdraft. The Sacramento Central Groundwater Authority determined that, from 2005 to 2015, groundwater levels in the South American Subbasin continued to recover at the subbasin's deepest points and management is now focused on working with outside agencies to keep water from leaving the basin, and improving basin conditions where and when possible (Sacramento Central Groundwater Authority 2016). Further, groundwater storage in the recharge area underlying Elk Grove and surrounding areas is continuing to increase as

a result of increased use of surface water in the South American Subbasin, the fallowing of previously irrigated agricultural lands transitioning into new urban development, recharge from the construction of large conjunctive use and surface water infrastructure facilities, increased use of recycled water, and water conservation. The increase in storage in this portion of the subbasin has filled the previous long-term cone of depression and has eroded the ridge of higher groundwater separating it from the Cosumnes Subbasin (Sacramento Central Groundwater Authority 2016).

As a signatory to the Water Forum Agreement, SCWA is committed to adhering to the long-term average sustainable yield of the Central Basin (273,000 acre-feet) (Brown and Caldwell 2011). As shown in Table 3.10-1, groundwater extraction was within the Water Forum Agreement’s sustainable yield from 2005 to 2015. Since (1) an amendment to the Zone 40 Water Supply Master Plan has been prepared, determining that it can supply water for the proposed project (as required by 2019 SOIA EIR Mitigation Measure 3.15-1); (2) the Sacramento Central Groundwater Authority’s Alternative GSP found that the basin could be sustainably managed to include existing and proposed supply; and (3) water supply for the proposed Project is included as part of the City’s 2019 General Plan for future projects and therefore would be included as part of the GSP that is in process for the South American Subbasin, as with the 2019 SOIA EIR, this impact is considered **less than significant**.

The *Water Master Plan* fulfills the requirements identified in Mitigation Measure 3.15-1 of the 2019 SOIA EIR that requires the City of Elk Grove to prepare a Plan for Services that depicts the locations and appropriate sizes of all on-site water system facilities to accommodate the amount of development identified for the annexation territory. The amended WSMP fulfills the requirements identified in Mitigation Measure 3.15-1 of the 2019 SOIA EIR that requires evaluation of SCWA’s off-site water supply infrastructure to serve the Project site. Furthermore, compliance with City General Plan policies and standards identified above would also ensure implementation of Mitigation Measure 3.15-1 of the 2019 SOIA EIR.

Impact 3.10-3: Alteration of Drainage Patterns Resulting in Substantially Increased Erosion, Siltation, Downstream Flooding, or Increased Stormwater Runoff Volumes.

The Elk Grove Municipal Code Chapter 15.12, “Stormwater Management and Discharge Control,” requires submittal of drainage plans that identify existing flows, potential hydrologic impacts, proposed drainage facilities, and plans to accommodate increased flows and connections to the City’s existing drainage facilities. West Yost Associates (West Yost 2020) has prepared a site-specific Drainage Master Plan for the Project site that includes the land uses analyzed in this SEIR. The Drainage Master Plan was developed with consideration of stormwater management systems designed to take maximum advantage of the natural hydrological processes of the existing landscape, including the following goals:

- ▶ Stormwater management systems should be designed so that potential impacts to the flow, volume, and quality of downstream discharges to Deer Creek will be minimized.
- ▶ The drainage plan must conform to applicable local, State, and federal laws and regulations, including the Sacramento Region Stormwater Quality Design Manual (Sacramento Stormwater Quality Partnership 2018), as well as the Sacramento City/County Drainage Manual Volume 2, Hydrology (Sacramento County and City of Sacramento 1996).
- ▶ The drainage system should avoid the use of hydraulic pumping systems and extensive mass grading efforts.

Due to a lack of soils with high infiltration capacity in the area, detention basins were chosen to provide flood control, water quality treatment, and reduce hydromodification effects. The detention basins were sized in conformance with City standards. Additionally, West Yost modeled and sized major storm drain system trunk lines, identified suitable outfall locations to Deer Creek, and evaluated and recommended (as necessary), adjustments to the configuration and capacity of existing drainage ditches and culverts. Only the major trunk line piping systems were sized for buildout conditions since future detailed storm drain system designs will accompany submittals for each planned phase of development once detailed site layouts are available.

A hydraulic analysis of the major existing conveyance facilities within the Project area, including ditches, culverts, and agricultural-related storage ponds, was performed using the XPSWMM model. Project-related hydrologic modeling complied with the requirements in the Sacramento City/County Drainage Manual, Volume 2, Hydrology.

The three larger subwatersheds in the Project area (Grant Line, Mahon, and Mosher) were further divided into 24 subsheds for purposes of the stormwater drainage modeling and design. All subsheds would drain directly into one of seven on-site detention basins that are proposed at key locations within the Project site (see Exhibit 2-6, “On-Site Drainage Facilities”) to provide runoff storage volume that would reduce the potential for increases in peak flood flows and to provide flow duration control to reduce hydromodification effects and water quality concerns. Underground drainage pipelines within the Project site would convey post- Project runoff from small to moderate storms to the detention basins. During large rainfall events, excess flow would be conveyed overland through streets and open space. However, all overland flow at the Project site would be directed into the on-site detention basins. In accordance with the Sacramento Region Stormwater Quality Design Manual, the proposed detention basins have been configured with 4:1 side slopes, a basin length that is three times the width, and a depth between 4 and 8 feet where possible. The basins have been designed to provide 1 foot of freeboard during the 100-year, 24-hour storm event. All detention basins were sized to incorporate hydromodification requirements as required by the Sacramento City/County Drainage Manual.

Stormwater quality treatment would be provided in detention basins using the dry extended detention approach with a 48-hour drawdown. The specific requirements for the water quality treatment facilities were determined from the Sacramento Region Stormwater Quality Design Manual. The Sacramento Area Hydrology Model (SAHM) was used to determine the requirements for hydromodification mitigation. The major drainage facilities both on and off the Project site were sized as required for the 2-, 10-, and 100-year storm events. The water quality storage volumes in the detention basins would be released over 48 hours in compliance with the requirements of the Sacramento Region Stormwater Quality Design Manual. The water quality flows would be released through an orifice constructed in a riser at the detention basin outlet. Because the stored water would be released over a 48-hour period, the detention basins would not create areas of new mosquito breeding habitat.

Stormwater flows from the Project site would be discharged to Deer Creek at three different locations, as shown on Exhibit 2-7, “Off-Site Drainage Facilities” (in Chapter 2, “Project Description”).

As noted previously, a 48-inch underground drainage pipeline is planned to traverse the Project site in a northwest-southeast direction along the boundary of the City-owned parcel, and discharge to an existing approximately 15-acre off-site pond, in order to convey stormwater drainage from the Waterman 75 project north of Grant Line Road. Runoff from the City-owned parcel currently drains to the south. Due to requirements for the grade of the Waterman 75 pipeline and the elevation of the City-owned parcel, it is not possible for stormwater

runoff from the City-owned parcel to be conveyed across the path of the future Waterman 75 pipeline. Therefore, stormwater runoff from the City parcel would also drain to the Waterman 75 pipeline. To accommodate this, the drainage pipeline would need to be increased from its originally planned size of 48 inches to 60 inches. In addition, the planned improvements to the outfall at the off-site pond would require an elevation change in order to allow for gravity flow. The following modifications at the 15-acre off-site pond would be required:

- ▶ **Modify the pond inlet.** Modify the pond's inlet to accommodate additional flows, as necessary.
- ▶ **Reconfigure the pond outlet.** The outfall from the pond should be configured to be at or below the elevation of the 60-inch outfall pipe, which is currently estimated to be about an elevation of 40.4 feet above mean sea level.
- ▶ **Lower the pond elevation.** The pond stores water for use by the property owner so if the change to the outfall results in a lower outlet, the rest of the pond will need to be lowered to maintain a large enough pool for the current agricultural operations in addition to stormwater drainage from the Project site and the Waterman 75 project.
- ▶ **Modify the conveyance channel.** Widen the existing conveyance channel from the pond outlet to the existing Deer Creek outfall.

Because the pond is used by the landowner for agricultural water storage, detailed survey data would be needed during the design phase to determine exactly how the existing 15-acre pond would need to be reconfigured. It should be noted the lowering the bottom elevation of the pond to allow an increased volume of water storage would not increase the amount of existing mosquito breeding habitat, because the surface acreage of the pond would not change.

An existing drainage channel that runs along the northeastern Project site boundary would be deepened by approximately 1.5 feet both on and off the Project site to the southeast, in order to convey some of the Project site stormwater flows. This channel discharges into an existing 0.5-acre pond. From the pond, flows drain back into an existing channel to Deer Creek.

Finally, an existing drainage ditch that runs along the southwestern Project site boundary adjacent to the UPRR would be widened to a 3-foot trapezoidal channel, with 3:1 side slopes and a 14-foot bottom width. The improved drainage channel would convey a portion of the Project site's stormwater runoff to an existing off-site approximately 8-acre pond. A short reach of open channel conveys runoff from the 8-acre pond to Deer Creek, and this channel would not need to be modified.

The volume of Project -related flood flows that would be discharged to Deer Creek at each of the above three outfalls (see Exhibit 2-7, "Off-Site Drainage Facilities") was established based on typical peak flow rates determined using the Sacramento Method. Because the selected allowable discharge rates would be higher than the existing peak flows discharged to Deer Creek, an analysis was performed to ensure that no significant negative impacts would occur in Deer Creek. The resulting maximum increase in water surface rise in Deer Creek was calculated to be 0.02 feet, which is insignificant based on Sacramento County's floodplain ordinance (which considers a significant increase to be greater than 0.10 feet). The analysis also found that tailwater water surface elevations at the proposed Deer Creek outfalls would not be affected. West Yost has confirmed in written correspondence from the Sacramento County local floodplain administrator that the proposed increases to peak

flows from the Project site are acceptable. Therefore, the proposed detention basins provide adequate flood control performance.

Based on the results of site-specific drainage modeling and design (West Yost 2020), in compliance with the Elk Grove Municipal Code Chapter 15.12, the proposed Project would not result in substantially increased erosion, siltation, downstream flooding, and the proposed drainage facilities have been appropriately sized to detain stormwater runoff volumes such that increased flooding would not occur and provide for water quality treatment and reduce hydromodification. The site-specific drainage modeling and design when implemented complies with the 2019 SOIA EIR Mitigation Measure 3.10-4. Therefore, as with the 2019 SOIA EIR, this impact is considered **less than significant**.

Impact 3.10-4: Impede Flood Flows or Risk Release of Pollutants from Inundation in a Flood Hazard Zone.

As shown in Exhibit 3.10-1, although those portions of the Project site that are currently proposed for rezoning and annexation are located outside of the FEMA 100-year floodplain, a small area along the southeast boundary of the Project site in the area designed for parks/open space uses is located within the 100-year floodplain (within a later annexation phase). In addition, portions of the heavy industrial area, and the eastern boundary of the future mixed-use area, are within a mapped 200-year floodplain. Chapter 23.42.040 of the City's Municipal Code, "Flood Combining District," indicates that development in a 200-year floodplain is not allowed unless certain findings are made. However, development in areas with flood depths less than 3 feet is exempt from the finding requirement, as allowed under Senate Bill 5. West Yost performed an analysis of the 200-year floodplain in the Project area and determined that no portions of the Project site that are within the mapped 200-year floodplain limits would experience depths of flooding greater than 1 foot. Therefore, Urban Level of Flood Protection requirements are not applicable to the Project site (West Yost 2020).

Elk Grove Municipal Code 16.50 (Flood Damage Prevention) addresses requirements for construction within floodplains. Specifically, this chapter requires the issuance of a Floodplain Development Permit for any development within a special flood hazard area and requires specific construction methods be followed. Generally, habitable structures, such as homes and offices, are prohibited in special flood hazard areas. Non-habitable accessory structures, including but not limited to garages, small accessory structures, and utilities, may be constructed subject to the design requirements listed in Municipal Code Section 16.50.060.

None of the areas proposed for Light Industrial (LI), Heavy Industrial (HI), or Regional Commercial (RC) are within the 100-Year Floodplain. For the area proposed for Parks and Open Space (P/OS), if there are any structures proposed, structures within the 100-year floodplains could impede or redirect flood flows. Therefore, this impact is considered **potentially significant**.

Mitigation Measure 3.10-4a: Ensure Structures are Outside of the 100-Year Floodplain (2019 SOIA EIR Mitigation Measure 3.10-5)

The City of Elk Grove shall verify that no habitable structures or structures that negatively obstruct the flow of water are proposed within the 100-year floodplain. Further, all development shall comply with applicable provisions of Elk Grove Municipal Code Section 16.50 (Flood Damage Prevention).

Mitigation Measure 3.10-4b: Prevent Storage of Construction Materials and Equipment in a Flood Zone During the Rainy Season.

The City shall note on the construction plans and require as a condition of grading permits that construction materials and equipment shall not be stored in a 100- or 200-year floodplain between October 1 and April 31 of any year during construction.

Significance after Mitigation

As with the 2019 SOIA EIR, implementation of Mitigation Measures 3.10-4a and 3.10-4b would reduce impacts associated with structures that impede or redirect flood flows and reduce the risk of release of pollutants from flood inundation to a **less-than-significant** level because the City of Elk Grove would ensure that habitable structures or structures that negatively obstruct the flow of water would be located outside of the 100-year floodplain, and that construction equipment and materials would not be stored in floodplains during the rainy season. This is consistent with the 2019 SOIA EIR, Impact 3.10-5.

Impact 3.10-5: Conflict with a Water Quality Control Plan or Sustainable Groundwater Management Plan.

For the reasons described in Impacts 3.10-1 and 3.10-2, above, the proposed Project would not conflict with or obstruct implementation of the *Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins* (Central Valley RWQCB 2018) or the *South American Subbasin Alternative Groundwater Sustainability Plan* (Sacramento Central Groundwater Authority 2016). Therefore, this impact would be **less than significant**.

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