6 Alternatives

This chapter describes alternatives to the proposed Laguna Creek Diversion Retrofit Project (Proposed Project), consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15126.6. This chapter presents the objectives of the project, a summary of its significant environmental impacts, and a description of the alternatives that were considered but rejected from further consideration, followed by an analysis of the three alternatives evaluated, including the No Project Alternative. A comparison of the three alternatives to the Proposed Project is provided and the environmentally superior alternative is identified.

According to CEQA Guidelines Section 15126.6, an environmental impact report (EIR) shall describe a range of reasonable alternatives to the project or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The guidelines further require that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project or reducing them to a level of insignificance even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly. The alternatives analysis also should identify any significant effects that may result from a given alternative.

The lead agency is responsible for selecting a reasonable range of potentially feasible project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives is governed by a "rule of reason" that requires the EIR to set forth only those potentially feasible alternatives necessary to permit a reasoned choice. The alternatives shall be limited to those that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only those that the lead agency determines could feasibly attain most of the basic objectives of the project. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

An EIR is not required to consider alternatives which are infeasible. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (CEQA Guidelines Section 15364). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or already owns the alternative site). None of these factors establishes a fixed limit on the scope of reasonable alternatives.

6.1 Project Objectives

As described above, alternatives considered in the EIR should be feasible, and should attain most of the basic project objectives. The project objectives, identified in Chapter 3, Project Description, of this EIR are as follows:

- Protect a critical water supply for the City by addressing constraints at the Facility to maintain full system functionality and minimize service interruptions.
- Improve environmental conditions at both the intake with upgraded screen technology for fish protection and in downstream reaches by facilitating sediment movement to support aquatic species habitat.

- Improve overall operational efficiency by incorporating technology that allows for fine-tuned control of diversion rates to enhance the SCWD's ability to meet instream flow requirements and regulation of water levels downstream of the Facility.
- Improve safety and access at the Facility to facilitate the City's ability to maintain the Facility and conduct operational activities.
- Implement a project that is relatively cost-effective in terms of both capital and operation/maintenance costs.

6.2 Overview of Significant Project Impacts

Alternatives should focus on reducing or avoiding significant environmental impacts associated with the project as proposed. As described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, the Proposed Project would result in the following significant or potentially significant environmental impacts that could result during construction. All of these impacts would be reduced to a less-than-significant level through incorporation of mitigation measures. The Proposed Project would not result in significant impacts during operations.

- **Impact BIO-1: Special-Status Species.** The Proposed Project could have a substantial adverse effect on special-status species during construction.
- **Impact BIO-2: Sensitive Vegetation Communities.** The Proposed Project could have a substantial adverse effect on the redwood forest alliance vegetation community during construction that would result in both temporary and permanent impacts.
- **Impact BIO-3: Jurisdictional Wetlands and Waters.** The Proposed Project would not have a substantial adverse effect on jurisdictional wetlands, but could have a substantial adverse effect on jurisdictional non-wetland waters during construction that would result in both temporary and permanent impacts.
- **Impact CUL-1: Historical Resources.** The Proposed Project could cause a substantial adverse change in the significance of the Laguna Creek Dam, which is a historical resource, due to modifications of the Facility that would occur during construction.
- **Impact CUL-2: Archaeological Resources.** The Proposed Project could cause a substantial adverse change in the significance of an archaeological resource during construction.
- **Impact CUL-3: Human Remains.** The Proposed Project could inadvertently disturb human remains during construction.
- **Impact CUL-4: Tribal Cultural Resources.** The Proposed Project could cause a substantial adverse change in the significance of a tribal cultural resource during construction.
- **Impact GEO-4: Paleontological Resources.** The Proposed Project could potentially directly or indirectly destroy a unique paleontological resource or site during construction. However, the Proposed Project would not directly or indirectly destroy a unique geological feature.
- **Impact NOI-1: Substantial Increase in Ambient Noise Levels.** The Proposed Project would result in generation of a substantial temporary increase in ambient noise levels during construction in the vicinity of the project in excess of applicable standards. However, the Proposed Project would not result in generation of a substantial permanent increase in ambient noise levels during operation.
- **Impact NOI-2: Groundborne Vibration.** The Proposed Project would result in the potential generation of excessive groundborne vibration or groundborne noise levels during construction.

6.3 Alternatives Considered but Eliminated

This section discusses alternatives that were considered but were eliminated from detailed consideration because they did not meet most of the basic project objectives; were found to be infeasible for technical, environmental, or social reasons; or they did not avoid significant environmental impacts.

The City considered the following alternatives, which were eliminated from further consideration as explained below:

- Abandon Dam and Secure Alternate Water Source
- Relocate Dam
- Infiltration Gallery/Filter Bed
- Reed Bed Filter/French Drain
- Outlet Valve Improvements

6.3.1 Abandon Dam and Secure Alternate Water Source

The Water Supply Augmentation Strategy for the City does not consider abandonment of any of its surface water sources, including the Laguna Creek Dam and diversion. Rather, to fill the agreed-upon worst-year gap of 1.2 billion gallons per year during modeled worst-year conditions, the Water Supply Advisory Committee (WSAC) Final Report on Agreements and Recommendations (October 2015), which was incorporated by reference into the 2015 Urban Water Management Plan (SCWD 2016) includes the following Water Supply Augmentation Strategy portfolio elements (WSAC 2015):

- **Element 0:** Additional water conservation with a goal of achieving an additional 200 to 250 million gallons per year of demand reduction by 2035 by expanding water conservation programs.
- **Element 1:** Passive recharge of regional aquifers by working to develop agreements for delivering surface water to the Soquel Creek Water District and/or the Scotts Valley Water District[1] so they can rest their groundwater wells, help the aquifers recover, and potentially store water for use by SCWD in drought years.
- **Element 2:** Active recharge of regional aquifers by using existing infrastructure and potential new infrastructure in the Purisima aquifer in the Soquel-Aptos Basin,[2] in the Santa Margarita/Lompico/Butano aquifers[3] in the Scotts Valley area, or in both to store water that can be available for use by the City in drought years.
- **Element 3:** A potable water supply using advanced-treated recycled water as its source as a supplemental or replacement supply in the event the groundwater storage strategies described above prove insufficient to meet the goals of cost-effectiveness, timeliness, or yield. In the event advanced-treated recycled water does not meet the City's needs, desalination would become Element 3.

An alternative that abandons the Laguna Creek Dam was eliminated from detailed consideration, as abandoning the dam would not meet the primary project objective to protect the Laguna Creek diversion as an important water supply for the City. Such an alternative was also eliminated as it would require the City to reconsider its Water Supply Augmentation Strategy to replace the water diverted from Laguna Creek with some other source of supply.

1 While WSAC recommendations considered only delivering surface water to Soquel Creek Water District and the Scotts Valley Water District, current planning considers delivering surface water to San Lorenzo Valley Water District and Central Water District as well.

2 The Soquel-Aptos Basin is now referred to as the Mid-County Groundwater Basin.

3 The Santa Margarita/Lompico/Butano aquifers are now referred to as the Santa Margarita Groundwater Basin.

6.3.2 Relocate Dam

The 2005 Program EIR for the North Coast System Repair and Replacement Project (SCWD 2005) considered but dismissed an alternative, called Laguna Alternative 5, which would have relocated the Laguna Creek Dam downstream from its current location to a location in the anadromous reach of the creek near the mouth of Laguna Creek. The alternative also included a new pump station and distribution piping. This alternative was dismissed from detailed evaluation in the 2005 EIR as: (1) it would require the City to acquire property and access to a new dam site; (2) it would permanently consume steelhead and coho salmon spawning and rearing habitat; (3) it would be required to provide upstream and downstream passage for steelhead and coho salmon, in an area where passage is currently unimpeded; (4) it would need to be constructed in a reach that is heavily used by California red-legged frog; (5) the location in the anadromous reach could reduce the quality of water obtained by the City and could reduce water availability during the dry season, as the diversion would be downstream of several small diversions that the City has no control over; and (6) it would likely be visible from State Route 1, which is a designated scenic highway, and other coastal vantage points. This alternative was also considered but eliminated from detailed consideration in this EIR as it would not meet the basic objectives of the Proposed Project and would not reduce the significant and potentially significant impacts of the Proposed Project. Specifically, this alternative would cause greater or additional impacts than the Proposed Project, related to steelhead and coho salmon, California red-legged frog, and coastal views.

6.3.3 Infiltration Gallery/Filter Bed

This alternative would use an infiltration gallery to divert water at the same location that water is currently diverted at the Facility. In order to construct the system, this alternative would entail the removal of sediment from behind the dam and replacement of that material with a permeable filter bed and subsurface collector pipe system. The system would be comprised of a multi-stage filter bed arrangement located within the Laguna Creek reservoir (upstream of the dam) using a patented sludge dewatering bed technology that was developed to separate water from solids in the water/wastewater industries. The technology enhances drainage by preventing compaction of the filter media, by uniformly distributing solids across the surface of the filter, and by natural development of vacuum-assisted gravity drainage upon release of impounded saturation water. This alternative would not affect the dam itself.

As described above, the infiltration gallery and filter bed would be installed upstream of the dam. The sediment upstream of the dam would be excavated to several feet below the surface of the creek bed for the full width of the creek and a concrete perimeter wall would be constructed. Within the perimeter wall, the filter bed, consisting of filter sand, pea gravel, and drain rock, would be installed. Beneath the filter bed, a perforated infiltration pipe would collect water and divert it to the existing flume. Sediment would need to be periodically mechanically removed from the filter bed to maintain the drainage capacity of the filter. This alternative would have a relatively large area of permanent impact within the creek bed.

This alternative was considered but eliminated from detailed consideration due to uncertainty about its long-term performance and maintenance requirements. The reliability of this alternative is uncertain as storm events could wash out the materials within the filter bed, introducing these materials into downstream reaches of Laguna Creek. In addition, sediment deposited from storm events in the filter bed would reduce its performance, both in terms of water quality and flow. Annual maintenance would be necessary to maintain the filter bed, requiring dewatering of the reservoir, removal of accumulated sediments, and/or replacement of washed out filter bed material.

6.3.4 Reed Bed Filter/French Drain

This alternative is similar to the Infiltration Gallery/Filter Bed alternative described above, but it would use native materials for the filter bed. Excavation upstream of the dam would be required to install a perforated pipe and install native filter bed materials. Water would be pumped to the City's system through the perforated pipe, similar to the Infiltration Gallery /Filter Bed alternative. This alternative was ultimately eliminated from detailed consideration because it would require power in order to operate the system, as well as concerns over clogging and potential failure.

6.3.5 Sediment Bypass Valve Improvements

This alternative would entail improvements to the sediment bypass valves in the dam, including enlarging the existing valves or adding additional valves in the dam. In addition, the fish screen would be upgraded. This alternative was considered but eliminated from detailed consideration because the existing sediment bypass valves in the dam are not reliable and the construction of enlarged or additional valves would be likely to result in similar clogging issues and continue to require periodic excavation of sediment from upstream of the dam.

6.4 Alternatives Selected for Further Analysis

This section describes the alternatives to the Proposed Project that were selected and analyzed according to CEQA Guidelines Section 51526.6(a). These alternatives, including the No Project Alternative, represent a reasonable range of alternatives to the Proposed Project that would feasibly attain most of the project's basic objectives, and would avoid or substantially lessen significant adverse environmental effects of the Proposed Project.

The selected alternatives were based on engineering options previously considered by the SCWD, as well as an assessment of ways to reduce significant impacts of the Proposed Project. The following three alternatives, which are summarized in Table 6-1, were selected for comparative analysis in this EIR:

- **No Project Alternative.** This alternative would entail no action at the project site.
- **Alternative 1 (Spillway Gate and Fish Screen).** This alternative would entail installing a new cylindrical fish screen at the existing intake that would be compliant with fish protection regulations; cutting a notch in the dam and installing a spillway gate on a new support structure and having a spillway chute at the face of the dam to achieve sediment transport; and installing riprap protection along the base of the spillway and along the bank.
- **Alternative 2 (Plate Screen with Brush).** This alternative would entail replacing the existing intake screen with a new vertical plate screen that would be compliant with fish protection regulations and would have an automated mechanical traveling brush system to keep the screen clear of excess sediment.

The analysis below presents the alternatives to the Proposed Project that were considered. Each alternative is examined for its ability to reduce environmental impacts relative to the Proposed Project, feasibility of implementation, and ability to meet project objectives. Table 6-2 shows each alternative's ability to meet the project objectives, relative to the Proposed Project's ability to fully achieve the objectives.

Table 6-1. Summary of Alternatives

Characteristic	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Description	Continue to operate under existing conditions through expiration of the Section 1602 Lake or Streambed Alteration Agreement permit at which time maintenance would not be possible (no work within channel)	Notch dam and install support structure and spillway chute on face of dam Pneumatically operated crest gate in notch Riprap apron on bank and possibly in streambed below chute Rotating cylindrical fish screen with static brushes to be installed at face of existing intake	Same as existing, but with replacement of existing intake screen with new compliant screen
Temporary Footprint	None	Larger than Proposed Project	Less than Proposed Project
Permanent Footprint	None	Larger than Proposed Project with protruding spillway chute from face of dam	Minimal increase relative to existing conditions; less than Proposed Project
Modifications to Laguna Creek Dam	None	Greater than to Proposed Project	None

Table 6-2. Ability of Alternatives to Meet Project Objectives

Objective	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Objective #1: Protect a critical water supply for the City by addressing constraints at the Facility to maintain full system functionality and minimize service interruptions.	Poor	Good	Poor
Objective #2: Improve environmental conditions at both the intake with upgraded screen technology for fish protection and in downstream reaches by facilitating sediment movement to support aquatic species habitat.	Poor	Good	Moderate
Objective #3: Improve overall operational efficiency by incorporating technology that allows for fine-tuned control of diversion rates to enhance the SCWD's ability to meet instream flow requirements and regulation of water levels downstream of the Facility.	Moderate	Excellent	Poor
Objective #4: Improve safety and access at the Facility to facilitate the City's ability to maintain the Facility and conduct operational activities.	Poor	Poor	Moderate
Objective #5: Implement a project that is relatively cost-effective in terms of both capital and operation/ maintenance costs.	Poor	Poor	Moderate

Note: The Proposed Project would fully achieve (i.e., have excellent achievement) of each of the project objectives listed above.

6.4.1 No Project Alternative

The No Project Alternative is described below, followed by a discussion of its impacts relative to the Proposed Project and its ability to meet the project objectives.

6.4.1.1 Description

CEQA Guidelines Section 15126.6(e)(3)(B) describes the "No Project" Alternative as the circumstance under which the project does not proceed. The purpose of describing and analyzing a No Project Alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (CEQA Guidelines Section 15126.6[e][1]). The No Project Alternative includes those activities that would reasonably be expected to occur in the foreseeable future if the Proposed Project were not approved.

The Facility would continue to operate under existing conditions through expiration of the existing Section 1602 Lake or Streambed Alteration Agreement (SAA) permit issued for the Facility at which time maintenance work within the creek channel would not be possible.[4] As the existing intake screen is not compliant with fish protection requirements, modifications to the intake are expected to be a condition of the California Department of Fish and Wildlife's (CDFW's) re-issuance of the Section 1602 SAA permit. Therefore, the No Project Alternative assumes that CDFW would not re-issue the permit for creek channel maintenance.

Therefore, after expiration of the permit, excavation at the intake screen or behind the dam to maintain the operations of the intake would not be possible. In the absence of the City's sediment management, the intake screen would eventually become blocked by sediment or the creek channel would migrate away from the intake. In the event that the creek channel migrates away from the left/east bank where the intake is located, the intake would no longer be able to divert water to the City's water supply.

In the absence of a storm event that transports sediment to block the intake or causes the creek to migrate away from the intake, the No Project Alternative would continue to operate the same as under existing conditions. Other existing maintenance activities would continue, except for creek sediment management. However, as a result of sediment movement during a storm event or the gradual buildup of sediment over time, the intake would ultimately become inoperable and prevent the use of the Facility as a source of water supply to the City.

The No Project Alternative would not require construction and would have similar operations and maintenance activities to existing conditions, except that sediment management would differ as described above. In addition, once the intake is no longer operable, operations activities would cease.

6.4.1.2 Impact Analysis

Under the No Project Alternative, the Proposed Project would not be constructed. Therefore, the construction-related impacts to biological resources, cultural resources, paleontological resources, and noise and vibration identified in this EIR and listed above in Section 6.2, Overview of Significant Project Impacts, would not occur. In addition, the other impacts related to construction activities for the Proposed Project (identified as less than significant) would not occur, including to air quality, greenhouse gas emissions, transportation, energy, land use and planning, or hazards and hazardous materials. However, the No Project Alternative would also not realize the benefits of the

[4] Current permit (#1600-2013-0291-R3) expires on December 31, 2021.

Proposed Project to biological resources and hydrology and water quality due to the lack of improved sediment transport and compliant fish screen.

As described above, at some point in time after the existing Section 1602 Lake or Streambed Alteration Permit expires at the end of 2021, the Facility would ultimately become inoperable as the intake would eventually become blocked with sediment or the creek channel would migrate away from the intake. Therefore, the Facility would ultimately no longer function as a water management structure under the No Project Alternative. As discussed in Section 4.5, Cultural Resources and Tribal Cultural Resources, the Laguna Creek Dam is a historical resource, and the dam's continued function as a water management structure is one of the resource's essential character-defining features that enables it to convey its significance. Therefore, the loss of the Facility's function could cause a substantial adverse change in the significance of the Laguna Creek Dam. This impact to the historical resource would be significant and unavoidable as no mitigation measures are available to reduce this to a less-than-significant impact.

Overall, the No Project Alternative would avoid the significant construction-related impacts of the Proposed Project but would result in a significant unavoidable impact to cultural resources. Other project or cumulative impacts of the Proposed Project would also not occur under this alternative. Furthermore, it would not achieve benefits of the Proposed Project to biological resources and hydrology and water quality.

6.4.1.3 Ability to Meet Project Objectives

The No Project Alternative would moderately achieve one of the five project objectives and would have poor achievement of four objectives, as described below. Overall, the No Project Alternative would not achieve the project objectives.

The No Project Alternative would have **poor** achievement of the objective to protect the City's Laguna Creek water supply (**objective #1**) as it would jeopardize the reliability and long-term use of the Laguna source and prevent the City's continued ability to use the Facility for delivery of high-quality water to the City's water treatment plant, due to the anticipated failure of the Facility. The No Project Alternative would have **poor** achievement of the objective to improve environmental conditions (**objective #2**), as the screen would continue to not meet criteria for fish protection and the dam would not support natural sediment transport. The No Project Alternative would have **moderate** achievement of the objective to improve operational efficiency (**objective #3**) until the system fails and water intake is reduced/eliminated. This alternative would have **poor** achievement of the objective to improve safety and access (**objective #4**) as no improvements would be made at the Facility. The No Project Alternative would have **poor** achievement of the cost-effective objective (**objective #5**). While the cost of the No Project Alternative would be relatively minimal with limited operations and maintenance costs, it would not be cost-effective for the City to lose this source of water supply and it would not achieve any of the benefits that would occur under the Proposed Project.

6.4.2 Alternative 1: Spillway Gate and Fish Screen

Alternative 1 (Spillway Gate and Fish Screen) is described below, followed by a discussion of its impacts relative to the Proposed Project and its ability to meet the project objectives.

6.4.2.1 Description

Alternative 1 would manage sediment by installing a spillway gate along a portion of the crest of the dam and improve fish protection by installing a new intake screen technology. Alternative 1 would entail a spillway gate installed along a notch in the left/east abutment (from the vantage point of looking downstream) of the dam. Additionally, it would include a new cylindrical fish screen installed at the existing intake structure to protect fish from entrainment and impingement in the intake.

Alternative 1 would generally have similar type of features resulting in permanent and temporary footprints at the site of the Proposed Project, but both temporary and permanent footprints would be larger than those under the Proposed Project. The existing intake would continue to be used but water would be collected through a new cylindrical screen, which would extend into the creek and convey water into the existing intake structure. A larger notch than required for the Proposed Project would be removed from the dam for the installation of the spillway gate and its support structure. Riprap bank stabilization would be required along the left/east streambank. Key elements of this alternative are listed below in Table 6-3.

Table 6-3. Comparison of Design Features for Alternative 1 to the Proposed Project

Alternative 1 Component	Alternative Comparison to Proposed Project
Notch existing dam (5 feet deep × 10 feet wide)	Alternative would have deeper notch and slightly less wide, with overall greater material to be removed from dam (Proposed Project notch would be 16 inches deep × 12 feet wide)
Support structure and spillway chute near left/east abutment on downstream face of dam	Alternative would have larger footprint for support structure, with spillway chute substantially protruding from face of dam compared to Proposed Project
Pneumatically operated crest gate (5 feet high × 7.5 feet deep × 10 feet wide) installed in notch	No similar features proposed under Proposed Project
Riprap apron on bank and possibly in streambed below chute	Alternative anticipated to require a larger footprint than the riprap bank stabilization required for the Proposed Project
New rotating cylindrical fish screen (2.5 feet diameter × 7 feet long) having with static brushes to be installed at face of existing intake, and minor modifications at intake	No similar features proposed under Proposed Project

Source: B&V 2019.

Spillway Gate

Alternative 1 would use an operable spillway gate to maintain sediment transport through the dam during periods of high turbidity and sediment load and prevent sedimentation build-up upstream of the dam and maintain the channel adjacent to the intake. The spillway gate would be automated to recline as a function of creek turbidity, concentrating flows through the notch in the dam to produce higher transport velocities and keeping entrained sediments mobilized. As a result, the channel would be deepened and self-sustaining, avoiding the need for dredging the reservoir and supporting the functionality of the self-cleaning fish screen so that it does not become buried by sediment.

The key element of this alternative is a pneumatically controlled spillway gate, which would be approximately 5 feet high by 10 feet wide, as shown in Figure 6-1 and Figure 6-2. The bottom-hinged spillway gate would use an air bladder behind the gate leaf to operate the gate panel. The bladder inflates to raise the gate leaf and deflates to lower it flush with its support foundation. The complete gate system would consist of a reinforced concrete structure, hinge plate and embeds, ribbed gate leaf, air bladder, instrument and supply/discharge piping, compressed air system, and controls.

Cylindrical Fish Screen

Alternative 1 would include installation of a self-cleaning removable cylindrical fish screen, as shown in Figure 6-1 and Figure 6-2. This screen technology consists of a cylindrical wedge-wire element with an internal ported baffle pipe that evenly distributes flow into the screen over its entire surface area. The screen element is affixed to the baffle pipe at the distant end via a hydraulic or submersible electrical drive motor. The motor rotates the screen element as prompted by the control panel against a pair of fixed internal and external brushes.

Construction

Construction of Alternative 1 would require a longer construction duration than the Proposed Project, by approximately 1 month, due to the larger area of excavation and greater number of components to be installed. Overall, construction would be anticipated to occur over 4 months during the low-flow period (June to October).

Construction activities would be generally similar to those required for the Proposed Project and would include: (1) improvement of access roads, site preparation, and mobilization; (2) installation of a cofferdam and temporary creek bypass system; (3) construction of the gate support structure and spillway chute, including dam preparation, foundation work, dam notching, and concrete formwork; (4) installation of the pneumatically operated crest gate in the dam notch; (5) installation of the riprap apron along the bank and possibly in the streambed below the spillway chute; (6) installation of the rotating cylindrical fish screen at the face of the existing intake and minor modifications to the intake; (7) installation of electrical; and (8) startup and testing, site restoration, and construction closeout.

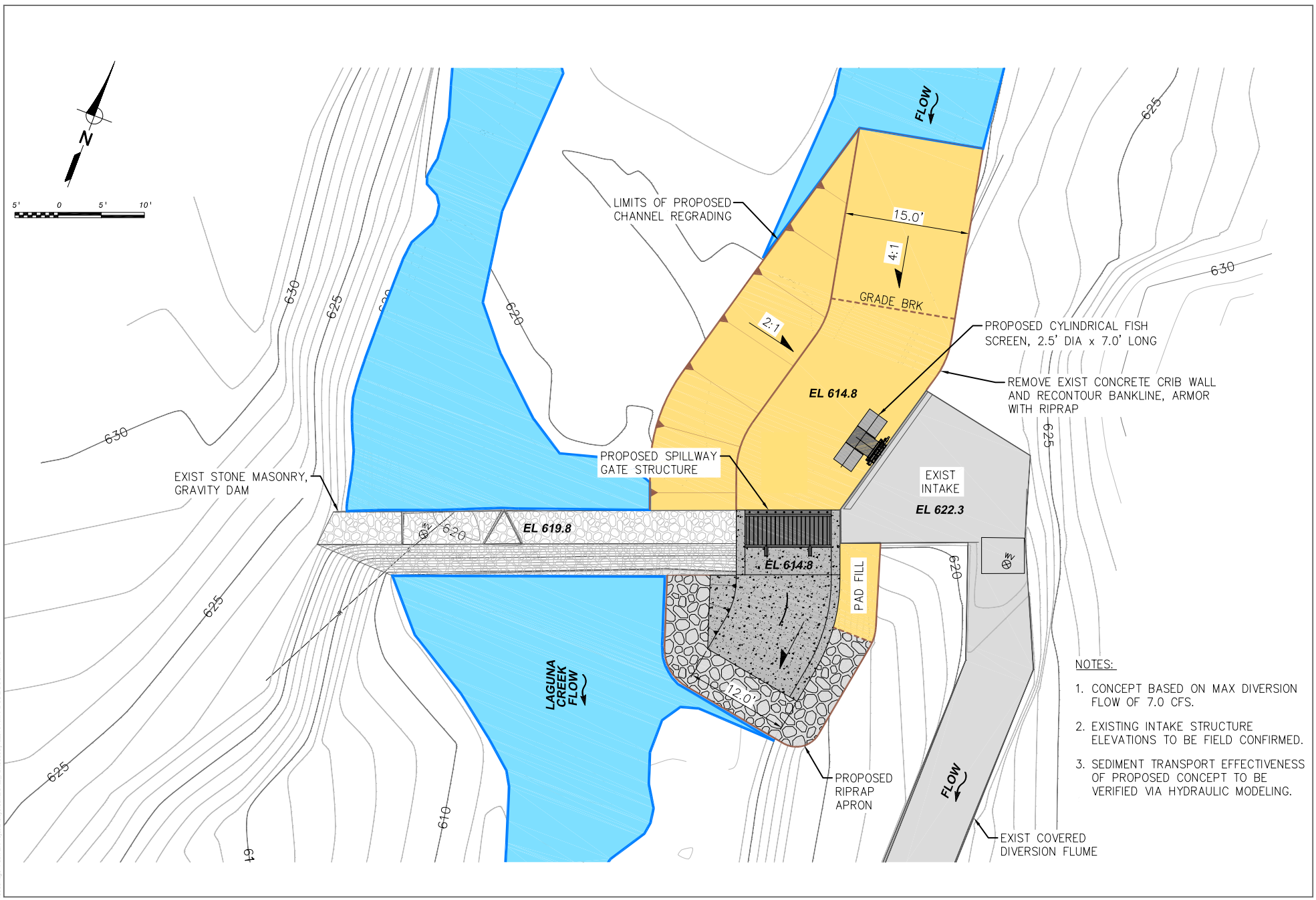
Similar to the Proposed Project, Alternative 1 would require use of heavy equipment such as excavators, drill rigs, forklifts, graders, tractors, loaders, backhoes, dumpers, and generators. Alternative 1 would have an incrementally greater number of construction worker vehicle trips due to the longer construction duration and increased amount of materials required.

Operation

Alternative 1 would have a maximum diversion capability of approximately 7 cubic feet per second, similar to the existing conditions, as well as the Proposed Project.

Operations would remain generally similar to existing operations similar to the Proposed Project with weekly checks, monthly cleaning and inspections, annual inspections of equipment and service of the generator, and road maintenance every 5 years. Similar to the Proposed Project, Alternative 1 would not require periodic sediment removal from behind the dam.

However, Alternative 1 is anticipated to require increased ongoing maintenance compared to the Proposed Project due to the design, which would be subject to potential power interruptions, have moving parts that could require repair, and lack system redundancy as it would not include an emergency water supply bypass system. This increased maintenance would likely require a limited number of increased trips to the site during the life of the alternative. In addition, the design would require a minor increase in energy use for operation of the gate compared to the Proposed Project.



SOURCE: Black & Veatch 2019

FIGURE 6-1

Alternative 1 - Spillway Gate and Fish Screen (Plan View)

Laguna Creek Diversion Retrofit Project - EIR

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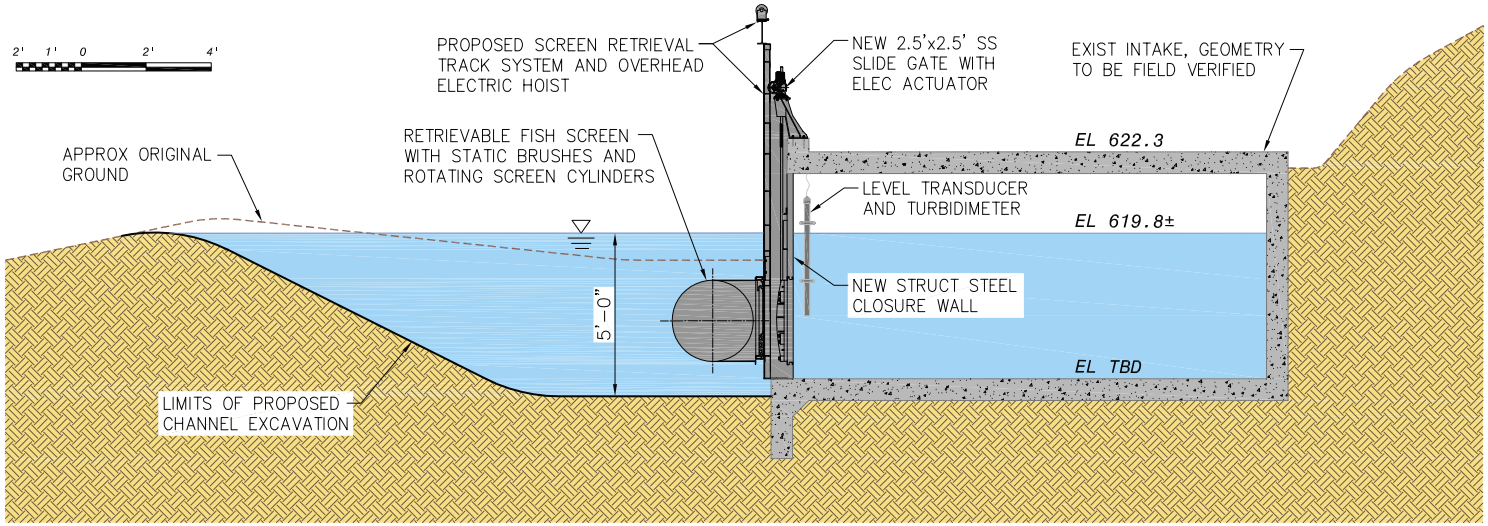
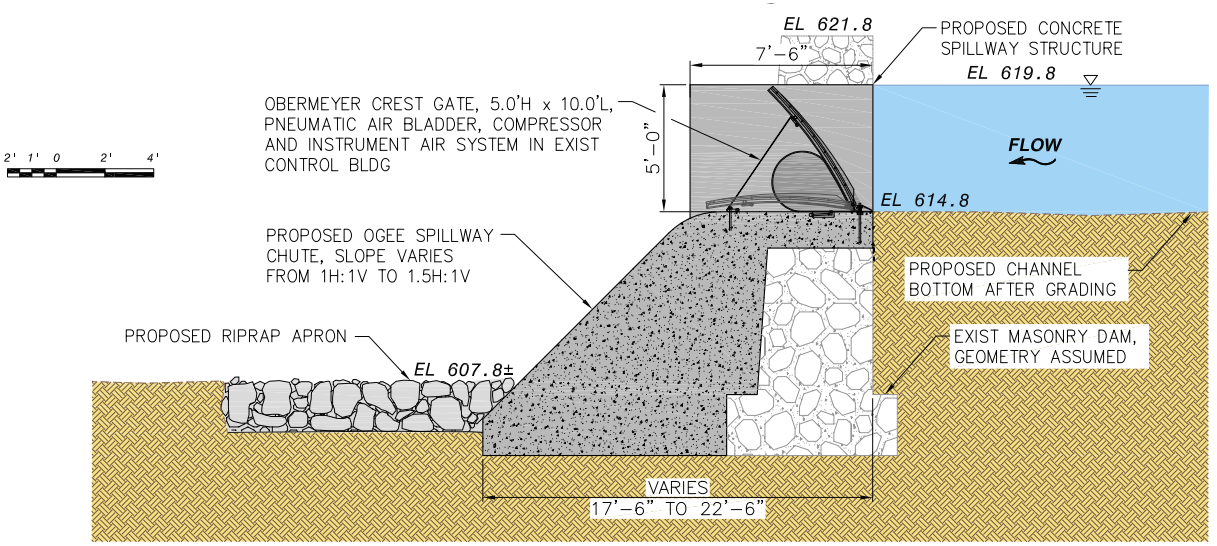
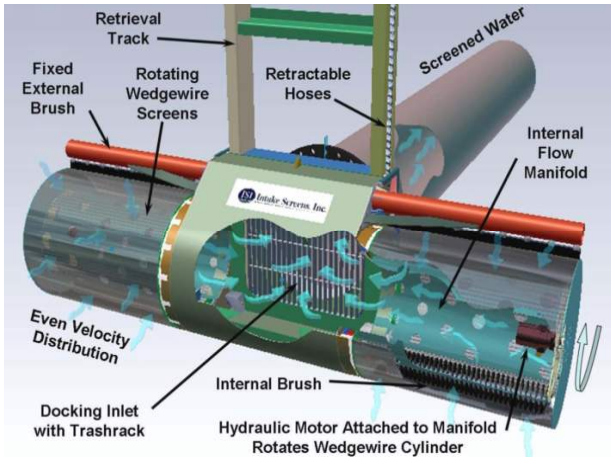


Proposed Cylindrical Fish Screen at Existing Intake (Cross -section)



Proposed Spillway Gate Structure (Cross-section)



Screen Schematic

SOURCE: Black & Veatch 2019

FIGURE 6-2

Alternative 1 - Spillway Gate and Fish Screen (Section Views)

Laguna Creek Diversion Retrofit Project - EIR

DUDEK

6.4.2.2 Impact Analysis

The potential project impacts of Alternative 1 are described below, and Table 6-4 on page 6-21 shows a comparison of the Proposed Project's impacts to those of the alternatives. Cumulative impacts under this alternative would generally be similar to those of the Proposed Project as shown in Table 6-4.

Biological Resources

Alternative 1 would not eliminate or reduce the significant construction-related impacts on biological resources that were identified for the Proposed Project, as this alternative would entail similar types of construction activities that would produce similar impacts. However, compared to the Proposed Project, Alternative 1 would require larger areas of temporary disturbance and would have a larger permanent footprint.

A greater amount of excavation and construction work would be required within Laguna Creek and along the left/east abutment. The area within the creek upstream of the dam would be graded to facilitate flow past the new cylindrical fish screen. In addition, greater excavation behind the dam would be required to create the 5-foot deep notch in the dam. Areas downstream of the dam would also require greater disturbance within the creek to excavate to bedrock for the installation of the support structure, spillway chute, and riprap apron. Furthermore, the project components of this alternative – the support structure, gates, spillway chute, riprap apron, and cylindrical fish screen – would result in a larger permanent footprint within the non-wetland waters of the United States/state under the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and CDFW. Therefore, under Alternative 1, impacts to special-status species, sensitive vegetation communities, and jurisdictional wetlands would be greater than under the Proposed Project. Similar to the Proposed Project, these potential impacts would be reduced to less-than-significant levels with implementation of mitigation measures. Other impacts related to wildlife corridors and local policies would remain less than significant.

During operations, as Alternative 1 would improve sediment management and provide fish protection consistent with current regulations, it would have beneficial impacts on biological resources, similar to the Proposed Project. In addition, operations and maintenance would generally be similar to existing conditions (also similar to the Proposed Project), although this alternative would be subject to potential failures and have a need for additional repair due to its design that includes multiple moving parts.

Overall, as the temporary and permanent footprints of Alternative 1 would be larger than the Proposed Project, this alternative would have a greater potential to impact special-status species, the sensitive redwood forest alliance vegetation community, and jurisdictional wetlands, although these impacts would be anticipated to remain less than significant with the identified mitigation measures incorporated. Other biological resource impacts would remain similar to the Proposed Project (less than significant).

Cultural Resources and Tribal Cultural Resources

Because Alternative 1 would entail similar construction activities as the Proposed Project, potential impacts pertaining to inadvertent discovery of buried cultural resources including archeological, human remains, or tribal resources, would also occur under Alternative 1. However, because of the larger temporary and permanent impact footprint for Alternative 1, the area subject to potential ground disturbance would be larger. Similar to the Proposed Project, these potential impacts would be reduced to less-than-significant levels with implementation of mitigation measures.

Like the Proposed Project, Alternative 1 would require cutting a notch into the Laguna Creek Dam, which is a historical resource, and constructing a support structure on the downstream face of dam. However, under this alternative, a deeper notch would be cut into the dam (5 feet instead of 16 inches for the Proposed Project) and a larger portion of the masonry dam structure would be removed. In addition, the larger support structure with a spillway chute as well as gates would be installed and protrude from the existing face of the dam. Construction methods for cutting the notch into the dam and constructing the support structure would be similar to those that would be used for the Proposed Project and would have a greater potential to result in construction-related vibration impacts to the dam due to the increased notching and construction required. However, mitigation identified for the Proposed Project pertaining to vibration monitoring would also apply to this alternative and would reduce the potentially significant vibration impact to the historical resource to a less-than-significant level.

The new intake structure and spillway chute that would protrude from the face of dam would be more prominent and visible than the Coanda screen and the intake support structure that would be constructed under the Proposed Project. Although the cylindrical fish screen would be submerged and would not be visible the support structure, gate, and spillway chute would only be somewhat obscured at times by flowing water. As a result, the structures that would be constructed under Alterative 1 would introduce a visual obstruction on the face of the dam.

Although the dam would continue to retain the majority of its character defining features – specifically its location, setting, native stone or limestone masonry construction materials, the Risdon Iron Works plaque on the face of the Laguna Creek Dam, and its continued use as a water management structure – the dam structure's alignment/plan would be altered by the protruding spillway chute, which would obscure the face of the dam and its original alignment, such that it would no longer be able to convey its significance. Therefore, unlike the Proposed Project, Alternative 1 would result in a substantial adverse change in the significance of the Laguna Creek Dam and impacts to historical resources would be considered significant. No mitigation measures are available that would reduce this impact to a less-than-significant level.

Overall, impacts pertaining to the inadvertent discovery of buried cultural resources during construction activities would be reduce to less than significant levels, similar to the Proposed Project. However, impacts to the historic Laguna Creek Dam would be significant and unavoidable.

Geology and Soils

Impacts related to geology and soils would be similar to those for the Proposed Project given the largely site-specific nature of these impacts. Because Alternative 1 would have a larger temporary and permanent footprint, the potential for inadvertent discovery of a paleontological resource during construction could be greater than for the Proposed Project. However, the mitigation measure identified for the Proposed Project to protect paleontological resources would also be required for Alternative 1 and the impact would remain less than significant with mitigation incorporated. Other geology and soils impacts would remain similar to the Proposed Project (less than significant).

Hydrology and Water Quality

Alternative 1 would result in potential construction-related impacts on water quality similar to the Proposed Project, as construction would also require temporary dewatering and bypass of the creek. Dewatering best management practices (BMPs) identified in the City's Standard Construction Practices (see Section 3.6.3, Standard Construction Practices) would similarly apply to this alternative.

Similar to the Proposed Project, the water quality effects of operation and maintenance of this alternative would not differ substantially from existing conditions. This alternative would also improve the City's ability to fine-tune diversions and manage sediment, would be anticipated to result in flow conditions similar to existing conditions downstream of the structure, and would not increase erosion or scour resulting from peak flow velocities at the site.

Overall, the hydrology and water quality impacts of Alternative 1 would remain similar to the Proposed Project (less than significant).

Noise

Alternative 1 would result in noise and vibration impacts similar to the Proposed Project, as there would not be a substantial difference in construction equipment used. However, construction-related noise impacts would extend for approximately 1 month longer than the Proposed Project due to the longer construction schedule for Alternative 1. In addition, potential vibration impacts could occur to the historic Laguna Creek Dam during the notching of the dam, which would require removal of a larger area of the dam than for the Proposed Project, and excavation and construction adjacent to the dam for installation of the support structure, spillway chute, and removal of sediment at the intake. While the potential for these impacts would be greater under this alternative, the mitigation measures identified for the Proposed Project related to construction-period noise (to limit noise to the degree feasible) and vibration (to minimize impacts to the dam during construction) would remain applicable to Alternative 1 and would reduce impacts to less-than-significant levels. Other noise impacts would remain similar to the Proposed Project (less than significant).

Other Topics

Installation of the spillway gate and cylindrical fish screen under Alternative 1 would not result in substantially different impacts related to other resource topics than the Proposed Project. As described above, the construction methods would remain similar to the Proposed Project although the construction schedule would be approximately 1 month longer for Alternative 1. Operations and maintenance activities would generally be similar to the Proposed Project but may be required to occur more frequently. Therefore, associated construction impacts related to air quality, greenhouse gas emissions, and transportation, while not substantially different from those described for the Proposed Project, would be incrementally greater. Similarly, energy consumption during construction would be greater. In addition, operational energy use would also be incrementally greater under Alternative 1 due to the mechanical components of the project design which would require additional power to operate. As Alternative 1 would be located on the same project site and would entail similar development activities as the Proposed Project, impacts related to land use and planning and hazards and hazardous materials would be similar to the Proposed Project. Other environmental resource topics addressed in Section 4.2, Impacts Not Found to be Significant, would also not be significant, similar to the Proposed Project.

6.4.2.3 Ability to Meet Project Objectives

Alternative 1 would have good-to-excellent achievement of four of the five project objectives and would have poor achievement of one objective as described below. Overall, Alternative 1 would achieve some, but not all, of the project objectives.

Alternative 1 would have **good** achievement of the objective to protect the City's Laguna Creek water supply (**objective #1**); however, the alternative would not be as reliable as the Proposed Project in protecting water supply because the spillway gate would have a greater potential for interruption, operations and maintenance outages, or

functional failure. Alternative 1 would have **good** achievement of the objective to improve environmental conditions and provide fish protection consistent with current regulations (**objective #2**), as the cylindrical fish screen is a well-established technology that meets agency criteria for fish screening, instream flow releases, ramping rates, and natural sediment transport. However, it would not achieve this objective to the same degree as the Proposed Project. Alternative 1 would have **excellent** achievement of operational efficiency (**objective #3**) as it would allow the City to maximize its surface water diversions by use of technology that allows for fine-tuned control of diversion rates to enhance the SCWD's ability to meet instream flow requirements and regulation of water levels downstream of the Facility. This alternative would have **excellent** achievement of the objective to improve safety and access (**objective #4**) at the Facility as it would include similar safety and access improvements as the Proposed Project.

However, Alternative 1 would have **poor** achievement of the cost-effective objective (**objective #5**). Both capital costs and operations and maintenance costs would be higher under Alternative 1 than the Proposed Project, and the alternative would not provide any clear benefits over the Proposed Project; therefore, Alternative 1 would not meet the objective regarding cost-effectiveness.

6.4.3 Alternative 2: Plate Screen with Brush

Alternative 2 (Plate Screen with Brush) is described below, followed by a discussion of its impacts relative to the Proposed Project and its ability to meet the project objectives.

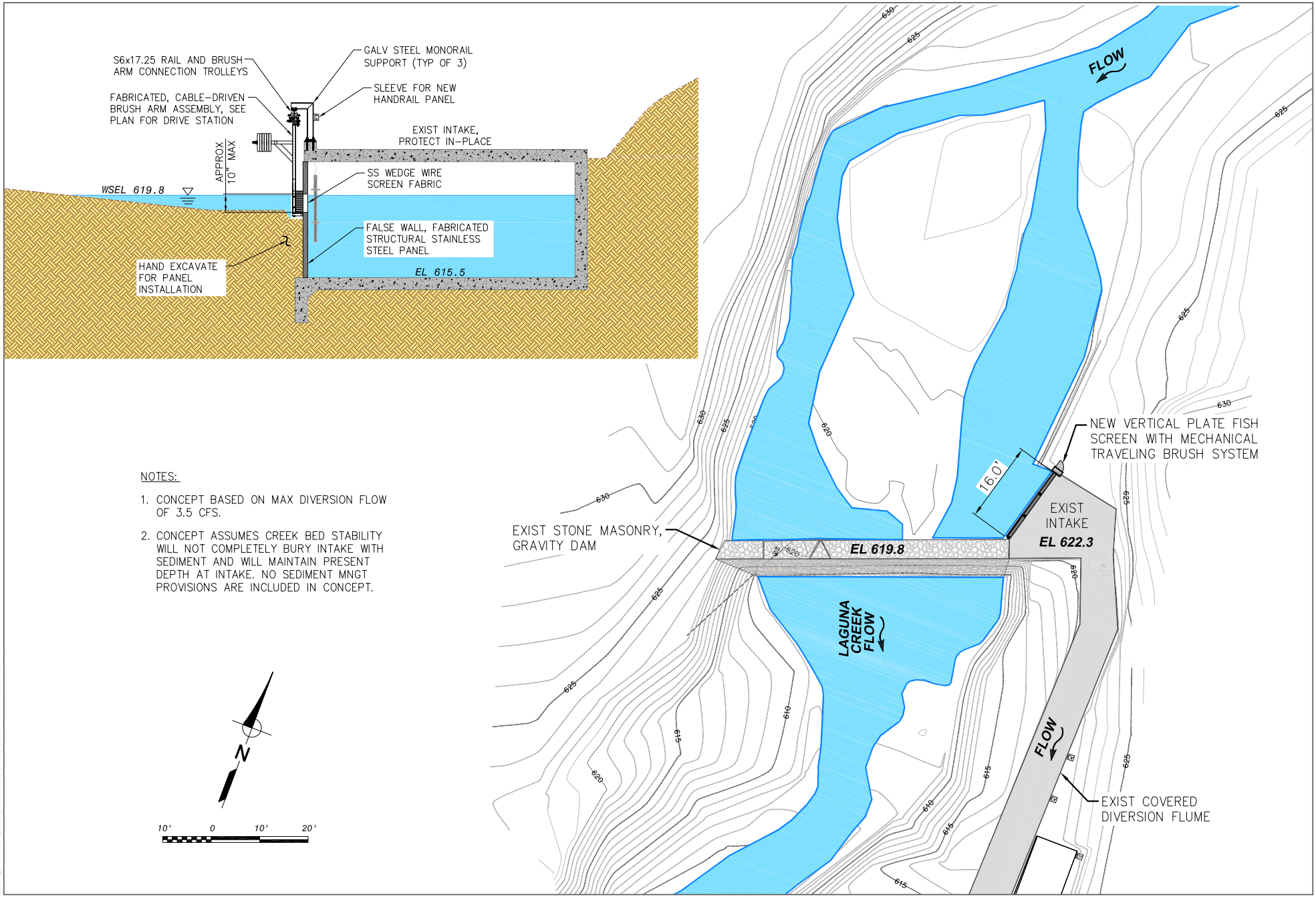
6.4.3.1 Description

Alternative 2 would be similar to existing conditions, but would entail the replacement of the existing intake screen with a new screen that would be compliant with fish protection regulations, as shown on Figure 6-3. The new vertical plate fish screen would consist of stainless steel, wedge-wire panels conforming to resource agency criteria for fish protection. Due to coarse sediments in the creek, the intake would continue to divert water even if the screen is buried by sediment. However, an automated mechanical traveling brush system would be used to maximize screen capacity by keeping the screen clear of excess sediment. Alternative 2 would have a minimal temporary construction footprint, as it would be limited to replacement of the intake screen, and the permanent footprint would be similar to existing conditions.

Construction

Construction of Alternative 2, limited to installation of a new plate screen on the existing intake, would occur over approximately 2 weeks during the low-flow period (June to October). This alternative would have a reduced construction duration by approximately 2.5 months compared to the Proposed Project. Construction activities would include temporary installation of cofferdams and dewatering of the creek, but the temporary work area would be smaller than required for the Proposed Project.

Alternative 2 would require limited hand excavation of material upstream of the dam. Alternative 2 would have a reduced number of construction worker vehicle trips due to the shorter construction duration and limited materials required.



SOURCE: Black & Veatch 2019

FIGURE 6-3

Alternative 2 - Plate Screen with Brush (Plan and Section View)

Laguna Creek Diversion Retrofit Project - EIR

DUDEK

Operation

Due to the limited depth available at the existing intake for the new screen, this alternative would have a reduced diversion capacity compared to existing conditions and Alternative 1; the maximum diversion capability would be approximately 3.5 cubic feet per second, whereas the City is capable of diverting up to approximately 7 cubic feet per second under existing conditions.

Operations would remain generally similar to existing operations with weekly checks, monthly cleaning and inspections, annual inspections of equipment and service of the generator, and road maintenance every 5 years. Unlike the Proposed Project but similar to existing conditions, Alternative 2 would require periodic sediment removal from behind the dam.

6.4.3.2 Impact Analysis

The potential project impacts of Alternative 2 are described below, and Table 6-4 on page 6-21 shows a comparison of the Proposed Project's impacts to those of the alternatives. Cumulative impacts under this alternative would generally be similar to those of the Proposed Project as shown in Table 6-4.

Biological Resources

Due to the much smaller temporary construction footprint required for the installation of the plate screen at the existing intake, Alternative 2 would have substantially reduce construction-related impacts on biological resources compared to the Proposed Project. While a cofferdam and temporary creek bypass would be required for construction, excavation of sediment in the creek would not be required for this alternative. Nevertheless, while impacts to special-status species, sensitive vegetation communities, and jurisdictional wetlands would be reduced compared to the Proposed Project, they would be significant. Similar to the Proposed Project, these potential impacts would be reduced to less-than-significant levels with implementation of mitigation measures. Other impacts related to wildlife corridors and local policies would remain less than significant.

Although operations and maintenance activities would be similar to existing conditions and Alterative 2 would also provide fish protection consistent with current regulations similar to the Proposed Project, it would have less benefits to biological resources as it would not improve sediment management.

Overall, as the temporary and permanent footprints of Alternative 2 would be substantially reduced compared to the Proposed Project, this alternative would have a reduced potential to impact special-status species, the sensitive redwood forest alliance vegetation community, and jurisdictional wetlands, although potentially significant impacts would still be anticipated to occur. These impacts would be reduced to less than significant with the identified mitigation measures incorporated. Other biological resource impacts would remain similar or less than the Proposed Project (less than significant) although some of the beneficial impacts of the Proposed Project would not occur under this alternative.

Cultural Resources and Tribal Cultural Resources

Alternative 2 would not have the potential to impact the historic Laguna Creek Dam because it would not require cutting a notch into the dam or otherwise modifying the historic resource; therefore, this alternative would have no impact to the resource.

Because Alternative 2 would have a much smaller construction footprint than the Proposed Project and would not require as much ground disturbance, potential impacts regarding inadvertent discovery of buried cultural resources would be reduced under Alternative 2. However, with ground disturbance there would be the potential for such impacts to occur, and therefore, similar to the Proposed Project, these potential impacts would be reduced to less-than-significant levels with implementation of mitigation measures.

Geology and Soils

Impacts related to geology and soils would be similar to those for the Proposed Project given their largely site-specific nature. Because Alternative 2 would have a much smaller temporary and permanent footprint, the potential for inadvertent discovery of a paleontological resource during construction would be reduced compared to the Proposed Project. However, with ground disturbance, potentially significant impacts could occur, and the mitigation measure identified for the Proposed Project to protect paleontological resources would also be required for Alternative 2. The impact would be less than significant with mitigation incorporated. Other geology and soils impacts would remain similar to the Proposed Project (less than significant).

Hydrology and Water Quality

Alternative 2 would result in potential construction-related impacts on water quality similar to the Proposed Project, as construction would also require temporary dewatering and bypass of the creek. Dewatering BMPs identified in the City's Standard Construction Practices (see Section 3.6.3, Standard Construction Practices) would apply to this alternative. Similar to the Proposed Project, the water quality effects of operation and maintenance of this alternative would not differ substantially from existing conditions. Overall, the hydrology and water quality impacts of Alternative 2 would remain similar to the Proposed Project (less than significant).

Noise

Alternative 2 would result in reduced noise and vibration impacts due to the shorter construction period and the reduced construction activities. However, the noise impacts during construction are conservatively assumed to be significant and the mitigation measures identified for the Proposed Project related to construction-period noise would remain applicable. Furthermore, as this alternative would require very limited excavation with hand-held equipment and notching of the dam would not be required, vibration impacts to the historic dam structure would be less than significant and mitigation would not be required. Other noise impacts would remain similar to the Proposed Project (less than significant).

Other Topics

The magnitude and duration of construction activities would be substantially reduced under Alternative 2. Therefore, associated construction impacts related to air quality, greenhouse gas emissions, and transportation, would be reduced compared to the Proposed Project. Similarly, energy consumption during construction would be lower. As Alternative 2 would be located on the same project site and would entail similar development activities as the Proposed Project, impacts related to land use and planning and hazards and hazardous materials would be similar to the Proposed Project. Other environmental resource topics addressed in Section 4.2, Impacts Not Found to be Significant, would also not be significant, similar to the Proposed Project.

6.4.3.3 Ability to Meet Project Objectives

Alternative 2 would have moderate achievement of three of the five project objectives and would have poor achievement of two objectives, as described below. Overall, the Alternative 2 would moderately meet many of the project objectives.

Alternative 2 would have **poor** achievement of the objective to protect the City's Laguna Creek water supply (**objective #1**) as it would reduce the City's maximum capability to intake water by about half (from 7 cubic feet per second to 3.5 cubic feet per second). Alternative 2 would have **moderate** achievement of the objective to improve environmental conditions (**objective #2**), as the new plate screen would provide fish protection consistent with current regulations. However, it would not achieve this objective to the same degree as the Proposed Project because it would not support natural sediment transport. Alternative 2 would have **poor** achievement of operational efficiency (**objective #3**) due to the reduction in diversion capabilities described above. This alternative would have **moderate** achievement of the objective to improve safety and access (**objective #4**) as some improvements would be made at the Facility. Alternative 2 would have **moderate** achievement of the cost-effective objective (**objective #5**) as it would provide for the Facility to operate under a limited capacity with limited capital and operational costs.

6.5 Environmentally Superior Alternative

The CEQA Guidelines (Section 15126.6[a]) requires that an EIR's analysis of alternatives identify the "environmentally superior alternative" among all of those considered. In addition, Section 15126.6 [e][2] states that if the environmentally superior alternative is the No Project Alternative, the EIR must also identify an environmentally superior alternative among the other alternatives. Furthermore, Sections 21002 and 21081 of CEQA require lead agencies to adopt feasible mitigation measures or feasible alternatives in order to substantially lessen or avoid otherwise significant adverse environmental effects, unless specific social or other conditions make such mitigation measures or alternatives infeasible.

Table 6-4 presents a comparison of project impacts between the Proposed Project and the alternatives. As described above, none of the alternatives to the Proposed Project, including the No Project Alternative, would eliminate potentially significant impacts, although Alternative 2 would generally reduce the magnitude of significant impacts.

While the No Project Alternative would reduce impacts to the majority of environmental resource topics, it would result in a new significant and unavoidable impact to historical resources as the dam would no longer function as a water management structure under the No Project Alternative, which is one of the resource's essential character-defining features that enables it to convey its significance. Alternative 1 (Spillway Gate and Fish Screen) would also result a new significant and unavoidable impact to historical resources. Although the dam would continue to function, the larger structures on the face of the dam (compared to the Proposed Project) would introduce a visual obstruction and obscure the face of the dam, such that it would no longer be able to convey its significance. For other resource topics, Alternative 1 would result in generally similar types of impacts as the Proposed Project, however, it would have a greater severity of construction-related impacts due to greater temporary and permanent disturbance footprints and a longer construction period. ~~All of t~~These significant impacts would be reduced to less-than-significant levels with implementation of mitigation measures identified for the Proposed Project. Alternative 2 (Plate Screen with Brush) is the environmentally superior alternative under CEQA, as it would reduce the magnitude of most project impacts. However, although Alternative 2 would moderately meet many of the project objectives, it would not meet the project objectives at the same level as the Proposed Project.

Table 6-4. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Air Quality				
Impact AIR-1: Conflict with an Applicable Air Quality Plan. The Proposed Project would not conflict with or obstruct the Monterey Bay Air Resources District's Air Quality Management Plan.	LS	NI	LS ↑	LS ↓
Impact AIR-2: Criteria Pollutant Emissions. The Proposed Project would result in emissions of criteria pollutants, but would not exceed adopted thresholds of significance, violate any air quality standards, or contribute substantially to an existing or projected air quality violation. Therefore, the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	LS	NI	LS ↑	LS ↓
Impact AIR-3: Exposure of Sensitive Receptors. The Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.	LS	NI	LS ↑	LS ↓
Impact AIR-4: Result in Other Emissions Adversely Affecting a Substantial Number of People. The Proposed Project would not result in other emissions, such as those leading to odors, that would adversely affect a substantial number of people.	LS	NI	LS ≈	LS ≈
Impact AIR-5: Cumulative Air Quality Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to air quality.	LS	NI	LS ≈	LS ≈
Biological Resources				
Impact BIO-1: Special-Status Species. The Proposed Project could have a substantial adverse effect on special-status species during construction.	LSM	NI	LSM ↑	LSM ↓
Impact BIO-2: Sensitive Vegetation Communities. The Proposed Project could have a substantial adverse effect on the redwood forest alliance vegetation community during construction that would result in both temporary and permanent impacts.	LSM	NI	LSM ↑	LSM ↓
Impact BIO-3: Jurisdictional Wetlands and Waters. The Proposed Project would not have a substantial adverse effect on jurisdictional wetlands, but could have a substantial adverse effect on jurisdictional non-wetland waters during construction that would result in both temporary and permanent impacts.	LSM	NI	LSM ↑	LSM ↓

Table 6-4. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Impact BIO-4: Wildlife Corridors. The Proposed Project would not substantially degrade the quality or interfere with the use of a wildlife corridor or migratory route, or otherwise impede wildlife movement or use of native wildlife nursery sites.	LS	NI	LS ≈	LS ≈
Impact BIO-5: Conflicts with Local Policies or Ordinances. The Proposed Project would not conflict with local policies or ordinances protecting biological resources.	LS	NI	LS ≈	LS ≈
Impact BIO-6: Cumulative Biological Resources Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to biological resources.	LS	NI	LS ≈	LS ≈
Cultural Resources and Tribal Cultural Resources				
Impact CUL-1: Historical Resources. The Proposed Project could cause a substantial adverse change in the significance of the Laguna Creek Dam, which is a historical resource, due to modifications of the Facility that would occur during construction.	LSM	SU	SU	NI
Impact CUL-2: Archaeological Resources. The Proposed Project could cause a substantial adverse change in the significance of an archaeological resource during construction.	LSM	NI	LSM ↑	LSM ↓
Impact CUL-3: Human Remains. The Proposed Project could inadvertently disturb human remains during construction.	LSM	NI	LSM ↑	LSM ↓
Impact CUL-4: Tribal Cultural Resources. The Proposed Project could cause a substantial adverse change in the significance of a tribal cultural resource during construction.	LSM	NI	LSM ↑	LSM ↓
Impact CUL-5: Cumulative Cultural Resources and Tribal Cultural Resources Impacts. The Proposed Project, in combination with other reasonably foreseeable future development, would not result in a significant cumulative impact related to cultural resources and tribal cultural resources.	LS	NI	LS ≈	LS ≈
Energy				
Impact ENE-1: Result in Wasteful, Inefficient or Unnecessary Consumption of Energy Resources. The Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources.	LS	NI	LS ↑	LS ↓
Impact ENE-2: Conflict with an Applicable Plan. The Proposed Project would not result in conflicts with or otherwise obstruct a state or local plan for renewable energy or energy efficiency.	LS	NI	LS ≈	LS ≈

Table 6-4. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Impact ENE-3: Cumulative Energy Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to energy.	LS	NI	LS ≈	LS ≈
Geology and Soils				
Impact GEO-1: Seismic Hazards. The Proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death resulting from seismic ground shaking or seismic-related ground failure, including liquefaction.	LS	NI	LS ≈	LS ≈
Impact GEO-2: Unstable Geologic Unit or Soils. The Proposed Project would not cause adverse effects involving landslides or be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Proposed Project, and potentially result in on- or off-site landslide, slope failure/instability, subsidence, or collapse.	LS	NI	LS ≈	LS ≈
Impact GEO-3: Expansive Soils. The Proposed Project would not be located on expansive soil, as defined in the 2019 California Building Code.	LS	NI	LS ≈	LS ≈
Impact GEO-4: Paleontological Resources. The Proposed Project could potentially directly or indirectly destroy a unique paleontological resource or site during construction. However, the Proposed Project would not directly or indirectly destroy a unique geological feature.	LSM	NI	LSM ↑	LSM ↓
Impact GEO-5: Cumulative Geologic Hazards. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to geology and soils.	LS	NI	LS ≈	LS ≈
Impact GEO-6: Cumulative Paleontological Resources Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to paleontological resources.	LS	NI	LS ≈	LS ≈
Greenhouse Gas Emissions				
Impact GHG-1: GHG Emissions. The Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LS	NI	LS ↑	LS ↓
Impact GHG-2: Conflict with an Applicable GHG Reduction Plan. The Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	LS	NI	LS ≈	LS ≈

Table 6-4. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Impact GHG-3: Cumulative GHG Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would result in a significant cumulative impact related to GHG emissions. However, the Proposed Project's contribution would not be cumulatively considerable.	LS	NI	LS ≈	LS ≈
Hazards and Hazardous Materials				
Impact HAZ-1: Routine Transport, Use, or Disposal of Hazardous Materials. The Proposed Project would require use and transportation of petroleum products and small quantities of hazardous materials, but would not result in a significant hazard to the public or environment.	LS	NI	LS ≈	LS ≈
Impact HAZ-2: Reasonably Foreseeable Upset or Accident Conditions. The Proposed Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LS	NI	LS ≈	LS ≈
Impact HAZ-3: Wildfire Hazards. The Proposed Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	LS	NI	LS ≈	LS ≈
Impact HAZ-4: Cumulative Hazard Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to routine transport, use, disposal, or accidental release of hazardous materials, or related to significant risk of loss, injury, or death involving wildland fires.	LS	NI	LS ≈	LS ≈
Hydrology and Water Quality				
Impact HYD-1: Water Quality. The Proposed Project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	LS	NI	LS ≈	LS ≈
Impact HYD-2: Alteration of Drainage Patterns. The Proposed Project would not 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 off site; 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.	LS	NI	LS ≈	LS ≈

Table 6-4. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Impact HYD-3: Cumulative Water Quality Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to water quality or alteration of drainage patterns.	LS	NI	LS ≈	LS ≈
Land Use and Planning				
Impact LU-1: Conflicts with Land Use Plans, Policies, or Regulations. The Proposed Project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LS	NI	LS ≈	LS ≈
Impact LU-2: Cumulative Land Use Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LS	NI	LS ≈	LS ≈
Noise				
Impact NOI-1: Substantial Increase in Ambient Noise Levels. The Proposed Project would result in generation of a substantial temporary increase in ambient noise levels during construction in the vicinity of the project in excess of applicable standards. However, the Proposed Project would not result in generation of a substantial permanent increase in ambient noise levels during operation.	LSM	NI	LSM ↑	LSM ↓
Impact NOI-2: Groundborne Vibration. The Proposed Project would result in the potential generation of excessive groundborne vibration or groundborne noise levels during construction.	LSM	NI	LSM ↑	LS ↓
Impact NOI-3: Cumulative Noise Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to noise and vibration.	LS	NI	LS ≈	LS ≈
Transportation				
Impact TRA-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System. The Proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	LS	NI	LS ≈	LS ≈

Table 6-4. Comparison of Impacts from the Alternatives

Environmental Issue	Proposed Project	No Project Alternative	Alternative 1 (Spillway Gate and Fish Screen)	Alternative 2 (Plate Screen with Brush)
Impact TRA-2: Vehicle Miles Traveled. The Proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b).	LS	NI	LS ↑	LS ↓
Impact TRA-3: Geometric Design Hazards. The Proposed Project would not substantially increase hazards due to a geometric design feature or incompatible use.	LS	NI	LS ≈	LS ≈
Impact TRA-4: Emergency Access. The Proposed Project would not result in inadequate emergency access.	LS	NI	LS ≈	LS ≈
Impact TRA-5: Cumulative Transportation Impacts. The Proposed Project, in combination with past, present, and reasonably foreseeable future development, would not result in a significant cumulative impact related to transportation.	LS	NI	LS ≈	LS ≈

Notes: NI = no impact; LS = less than significant; LSM = less than significant with mitigation; SU = significant and unavoidable; ↑ = greater; ↓ = lesser; ≈ = similar

6.6 References

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